



SALES BOOK

Process instruments, Accessories and Reagents

January 2013

SALES BOOK

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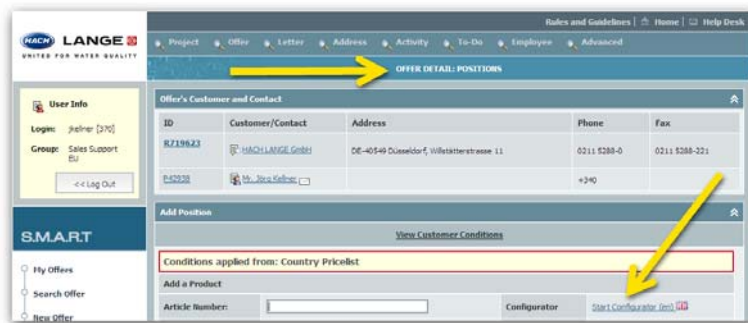
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Using HACH LANGE Sales Quotation and Support Guide to find the right instrument to quote

1. Start Guide coming from SMART (a) or www.Hach-Lange.net Website (b)

(a)



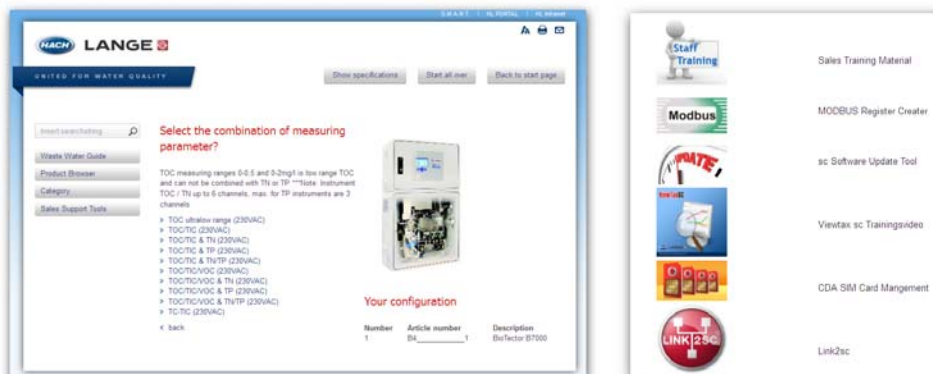
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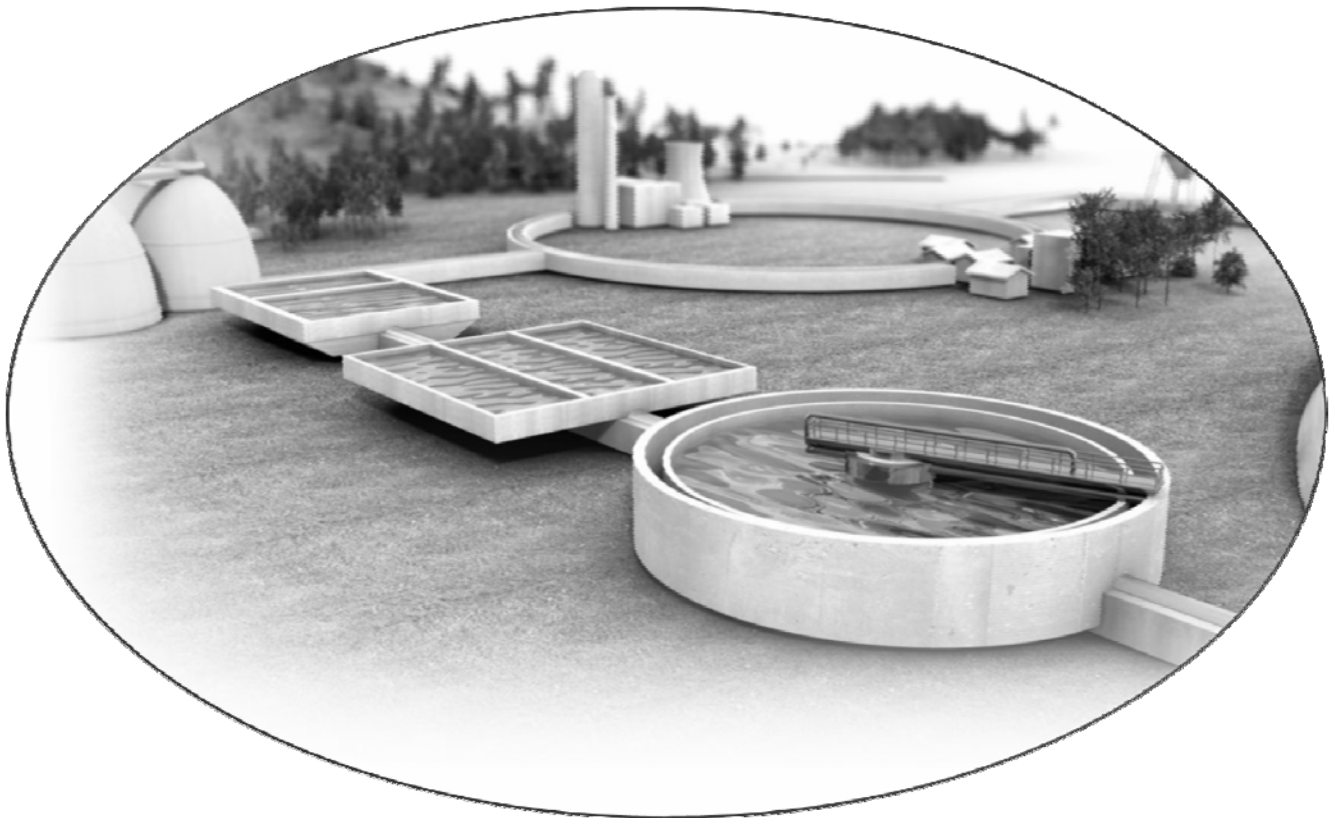


2. Enter Guide



3. Configure products based on Sales questions / explore Sales Tools





Ammonium

AMTAX sc (DataSheet DOC033.52.00430)



High-precision Process-Photometer for the continuous determination of Ammonium in water, waste water or directly from activated sludge basin.

The **Gas Sensitive Electrode (GSE)** measuring principle ensures very fast response time at low interference levels while providing a wide measuring range in parallel .

Optional sampling and sample preparation using self-cleaning high speed "Filtration probe" or flexible "Filtrax" system respectively any feeding Ultra-Filtration systems.

Direct On-Site installation due to isolated construction in weather resistant enclosure, or inhouse installation.

Highest flexibility and extendability due to sc1000 controller´s freely selectable multi-probe/analyzer operation feasibility.

Technical Data	
Subject to change without notice	
AMTAX sc	
Measuring method	GSE (Gas Sensitive Electrode)
Measuring range	0.02 ... 5mg/l NH4-N 0.05 ... 20 mg/l NH4-N 1.0 - 100 mg/l NH4-N 10...1,000 mg/l NH4-N
Detection limit	0.02 mg/l NH4-N 0.05 mg/l NH4-N 1.0 mg/l NH4-N 10 mg/l NH4-N
Accuracy	≤ 1mg/l: 3% + 0,02mg/l 3 % + 0.05 mg/l 3% + 1,0 mg/l 4,5 % + 10 mg/l
	>1mg/l: 5% + 0,02mg/l
Reproduceability	2% + 0.02 mg/l 2 % + 0.05 mg/l 2 % + 1.0 mg/l 2 % + 10 mg/l
Response time T ₉₀	< 5 Minutes (including sampling)
Measuring Interval	5 ... 120 minutes (user selectable)
Permissible pH range	pH 5 – 9
Specific features	Automatic cleaning, automatic calibration, comprehensive self-diagnosis, optional: 2-channel version for continuous sample feed
Process connection	
Installation (Analyser)	Bypass; particle and oil free water sample - wall, stand or rail mounting
Sample Inlet	3.2 mm OD
Drain (outlet)	6 mm
Sample flow	at least 200 ml/h fed by HACH LANGE Filtration probe, Filtrax or general Ultrafiltration system
Pressure range	non-pressurized; atmospheric
Temperature	
Sample:	+4°C ... +40°C
Ambient:	
Indoor model	+5°C ... 40°C; 95 % relative humidity, non-condensing
Outdoor model	-20°C ... 45°C; 95 % relative humidity, non-condensing
Storage:	
Analyzer:	
Indoor model	+4°C ... 55°C; 95 % relative humidity, non-condensing
Outdoor model	-20°C ... 60°C; 95 % relative humidity, non-condensing
Electrode:	-10°C ... 50°C; 95 % relative humidity, non-condensing
Outputs	several (Relay, I/O outputs, bus interface); please refer to sc controller specifications
Power supply & consumption:	Power supply with power cable on the sc1000 controller 200 VA (mean), max. 1000 VA (with 10 m heated filter probe hose)
Dimensions	540 x 720 x 370 mm (W×H×D) Indoor model 540 x 720 x 390 mm (W×H×D) Outdoor model
Cable length	2 m fixed cable, extendable by using Power Extension cable for sc1000, 5 m (only once)
Weight	Approx. 31 kg (Onsite model); 29 kg (Indoor model), w/o filter probe and w/o chemicals
Material	ABS Plastic, UV resistant
Enclosure rating	Onsite (IP55) or Indoor (IP54)
Reagent capacity	3 Month minimum (depending on measuring interval)
Inspection interval	2x / Year
Maintenance requirements	1 h/month typical (Process dependant)
Controller compatibility	sc1000 (recommended) or sc200 by means of external sc Analyzer power supply box
Warranty:	24 month, fulfilling required inspection intervals, extendable to 60 month

Ammonium

AMTAX sc (DataSheet DOC033.52.00430)

Part No. **Designation**

LXV421.99.XXX01 **AMTAX sc**, with 2 m connection cable, w/o controller

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Measuring range option	
0.05 - 20 mg/l NH4-N	1
1.0 - 100 mg/l NH4-N	2
10 - 1,000 mg/l NH4-N	3
0.02 - 5.0 mg/l NH4-N	4
Sampling Option	
With filtration probe (5m heated hose)	1
With filtration probe (10m heated hose)	2
1 channel continuous sample from filtration unit, e.g. FILTRAX	3
2 channel continuous sample from filtration unit, e.g. FILTRAX	4
Power Supply Option for sampling probe:	
230 VAC/50Hz sampling probe	0
115 VAC/60Hz sampling probe	1
Housing option	
Outdoor	0
Indoor	1

Standard accessories (supplied with the instrument)

- 1 set of reagents
- 1 set of wearing parts for one year operation (10 min interval)
- 1 set of operating instructions
- 1 maintenance calendar
- 1 Factory Test Certificate

For further information about the Filtration probe & Filtrax, please refer to the Chapter Sampling systems.



Note:

sc Digital Controller must be ordered separately.
 For technical data, interfaces and additional costs, refer to the chapter "Controllers, Display Units"
 For Mounting assemblies please refer to the chapter Mounting assembly
 For Service contract with Warranty extensions, commissioning and trainings please refer to Appendix D.
 Please refer to Appendix E for more details about manuals and user interfaces in different available languages

Reagents and consumables

Annual requirements for AMTAX sc	Measuring interval	
	5 min	10 min
Reagent sets depending on Measuring range		
0.02 - 5 mg/l NH4-N	4 x BCF1009, 6 x BCF1148, 4 x LCW890, 6 x BCF1149, 12 x LCW867, 4 x LCW891	2xBCF1009, 6xBCF1148, 4xLCW890, 6xBCF1149, 12xLCW867, 4xLCW891
0.05 - 20 mg/l NH4-N	4 x LCW865, 12 x LCW867, 2 x LCW868	2xLCW865, 2xBCF1010, 2xBCF1011, 12xLCW867, 2xLCW868
1.0 - 100 mg/l NH4-N	4 x LCW871, 2 x BCF1009, 12 x LCW867, 2 x LCW868	2xLCW871, BCF1009, 2xBCF1020, 2xBCF1021, 12xLCW867, 2xLCW868
10 - 1000 mg/l NH4-N	4 x LCW866, 2 x BCF1009, 12 x LCW867, 2 x LCW868	2xLCW866, BCF1009, 2xBCF1012, 2xBCF1013, 12xLCW867, 2xLCW868

Ammonium

AMTAX sc (DataSheet DOC033.52.00430)

Part No.	Designation
<u>Mounting Hardware</u>	
LZX414.00.50000	Rim mounting for filtration probe
LZX414.00.60000	Rail mounting for filtration probe
LZY413	Extension pipe, 1.0 m, made of SS
LZY414	Extension pipe, 1.8 m, made of SS
LZY285	Rail mounting for Amtax sc/Phosphax sc analyzer
LZY286	Stand mounting kit, suitable for 1 Amtax sc/Phosphax sc-analyzer + 1 sc 1000 controller
LZY287	Stand mounting kit, suitable for 1 Amtax sc/Phosphax sc-analyzer
LZY316	Rail mounting for analyzer without controller
LZX958	sc1000 weather guard for Outdoor Installation (also suitable for 2 x sc100 controllers)
<u>Accessories</u>	
LZY440	Keys for sc-analyzer enclosure, (1 pair) <i>Replacement</i>
LZY302	Heated drain/connecting hose, 2m, 230V
LZY044	Mounting kit for sc-analyzer incl. fastening and angle bracket, screws
LZY189	Accessories for AMTAXsc/PHOSPHAXsc, for continuous sample (1-/2-channel)
LZY431	Power Extension cable for sc1000, 5 m, 115-230 VAC limited to 1 extension cable only
LZY682	Door for sc-Analyser indoor housing A/Psc incl. 4 sticker
LZY143	Door for SC-analyzer enclosure incl. 4 instrument labels
LQV155.99.00011	Power supply for AMTAX/PHOSPHAX sc, with EU plug used to connect a sc Analyzer to a sc100 controller or 2 additional sc Analyzers to a sc1000
LQV155.99.00001	Power connection box for sc analyzers H/L
<u>Reagent Sets</u>	
LCW889	Set of reagents Amtax sc w. Std. Meas. Range 1: 0,02-5 mg/L NH4-N contains:
LCW865	Set of reagents AMTAX sc (0,05-20 mg/l NH4-N)
LCW871	Set of reagents AMTAX sc (MR2: 1-100 mg/l NH4-N)
LCW866	Set of reagents AMTAX sc (10-1000 m (MR3: 10-1000 mg/l NH4-N)
LCW885	AMTAX sc - 1 Year Reagent Set, 1st year operation (10min int) MB1: 0.05 ... 20 mg/l NH4-N
LCW886	AMTAX sc - 1 Year Reagent Set, 2nd year operation (10min int) MB1: 0.05 ... 20 mg/l NH4-N
BCF1009	Reagent AMTAX sc (2,5L) for all measuring ranges
BCF1010	CAL1: Standard 1mg/l NH4-N (2L) (MR1: 0,05-20 mg/l NH4-N)
BCF1011	CAL2: Standard 10mg/l NH4-N (2L) (MR1: 0,05-20 mg/l NH4-N)
BCF1012	CAL1: Standard 50mg/l NH4-N (2L) (MR3: 10-1.000 mg/l NH4-N)
BCF1013	CAL2: Standard 500mg/l NH4-N (2L) (MR3: 10-1.000 mg/l NH4-N)
BCF1020	CAL1: Standard 10mg/l NH4-N (2L) (MR2: 1-100 mg/l NH4-N)
BCF1021	CAL2: Standard 50mg/l NH4-N (2L) (MR2: 1-100 mg/l NH4-N)
BCF1148	CAL1: Standard 0,5 mg/L NH4-N Ammonium Online Analyser
BCF1149	CAL2: Standard 2,5 mg/L NH4-N Ammonium Online Analyser

 **Note:** Please refer to the Chapter "Reagents & Consumables" for further details

<u>Wearing Part informations</u>	
LZY465	AMTAX sc - wearing part set, (2nd year in operation), 10 min Measuring Interval
LZY469	Filter probe sc - wearing parts, (2nd year in operation), 10 min Measuring Interval including 2 Filter module for filtration probe sc
LZY140	Filter module for filtration probe sc, pk/1 (replacement; 2 modules are required)
<u>Wearing parts continued</u>	
The following parts must be changed at regular intervals by authorised service personnel!	
LZY176	Reagent pump sc analyser (pump valve) Warranty/Replacement after: 2 years operation
LZY181	Pump head for air piston pump, 10 ml Warranty/Replacement after: 1 year Cylinder + piston (pre-greased)
LZY154	Set of filter pads, pk/2, Replacement as required Filter element, fan enclosure
LZY149	Compressor switchable (115VAC/230VAC) Warranty/Replacement after: 2 years
LZY138	Exhaust (2pcs) for air cleaning of incl. sealing and screws 2 years operation
LZY139	Exhaust (copper) 2 years operation
LZY130	Set of wear parts for sample pump, incl. Membrane, valve, screws 3rd year, typically

Ammonium

AMTAX Inter 2 (DataSheet DOC053.52.03086)



High-precision process photometer based on the DIN 38406 E05 Indophenol blue method for the continuous measurement of the ammonium concentration in wastewater samples, in order to optimise nitrification process, outlet monitoring, or drinking water, surface water and process water.

The principle of intermittent operation guarantees rapid measured values and economical consumption.

Technical Data Subject to change without notice.	
	AMTAX Inter 2
Measuring principle	Photometric, Indophenol blue method, according DIN 38406 E5
Measuring range	0.02 ... 2.00 mg/l NH ₄ -N (AMTAX Inter 2-2)
	0.10 ... 20.0 mg/l NH ₄ -N (AMTAX Inter 2-20)
	1.00 ... 80.0 mg/l NH ₄ -N (AMTAX Inter 2-80)
Measuring uncertainty	
model Inter 2-2	± 4 % of the measured value ± 0.02 mg/l NH ₄ -N with standard
model Inter 2-20	± 2 % of the measured value ± 0.02 mg/l NH ₄ -N with standard
model Inter 2-80	± 2 % of the measured value ± 0.02 mg/l NH ₄ -N with standard
Process variation coeff.	2%
Response time T ₉₀	5 min
Measuring interval	5 min or 10 min, selectable
Display	Graphics monitor with datalogger and curves display
Special features	automatic calibration at selectable intervals and auto-cleaning single channel or two-channel operation option Integrated refridgerator for reagent storage
Reagent capacity	approx. 4 ... 8 weeks (depending on measuring interval)
Process connection	
Installation (Analyser)	Bypass; particle free water sample - wall mounting dry installation, protected against direct sun light
Inlet	3.2 mm OD
Drain	Atmospheric, 4/6 mm connection for waste, 8/11 mm for overflow tray (ID/OD)
Sample flow	at least 100 ml/h solid free sample
Temperature	
Sample	+5°C ... +40°C
Ambient	+5°C ... +40°C
Outputs	
Current	1 x 0/4 - 20 mA, max. 500Ohm, (optional: 2x)
Limit value contacts	2 contacts, floating 24 V, 1 A (optional)
Interface	ModBus or ProfiBus DP (optional)
Enclosure rating	IP54
Power supply	230 VAC ± 10% / 50-60 Hz, 200 VA
Dimensions	550 x 1,190 x 390 mm (W x H x D)
Maintenance requirements	1 h / month, typical
Inspection interval	6 months
Weight	approx. 43 kg (without reagents)
Controller compatibility	Stand alone instrument
Warranty	24 month, fulfilling required inspection intervals, extendable to 60 month

Ammonium

AMTAX Inter 2 (DataSheet DOC053.52.03086)

Part No. **Designation**

LPV397.52.01000 **AMTAX Inter 2**, Process-Ammonium Analyzer

Language / Country Code Selection GB language / EU power cord 5 2									
Measuring range 0.1 - 20 mg/l NH4-N 0 1.0 - 80 mg/l NH4-N 1 0.02 - 2.0 mg/l NH4-N 2									
Sampling Option 1 channel continuous (Replacement for use with Seditax Sampling system) 0 1 channel continuous (Standard configuration) 1 2 channel continuous LZX289 2									
Interface Option No Bus connection (Standard configuration) 0 ModBus YAA857 1 ProfiBus DP LZX148 2									

Standard accessories (supplied with the instrument)

- 1 set of wearing parts for one year operation
- 1 set of reagents (suitable for 2 month operation in 10 min cycle time)
- 1 set of cleaning solution
- 1 canister of zero solution
- 1 canister of standard solution
- 1 set of operating instructions
- 1 maintenance calendar
- 1 factory test certificate

For low maintenance sampling from the aeration tank or final clarification, we recommend our FILTRAX sampling device. Please refer to the chapter "Sample Preparation".



Note:

For further spare parts and consumables please refer to the chapter Appendix A
 Please refer to Appendix E for more details about manuals and user interfaces in different available languages
 For Service contract with Warranty extensions, commissioning and trainings please refer to Appendix D.

Reagents and consumables

Annual requirements for AMTAX Inter 2	Measuring interval	
	5 min	10 min
Reagents	13 x LCW802	6 x LCW802
Zero Solution	1 x LCW804	1 x LCW804
Standards depending on Measuring range		
0.02 ... 2.0 mg/l NH4-N	4 x LCW862	4 x LCW862
0.10 ... 20 mg/l NH4-N	1 x LCW803	1 x LCW803
1.00 ... 80 mg/l NH4-N	1 x LCW808	1 x LCW808
Cleaning Solution	1 x LCW819	1 x LCW819
Wearing parts		
1 channel analyzer	1 x LZV281	1 x LZV281
2 Channel analyzer	1 x LZV281	1 x LZV281
	1 x LZV278	1 x LZV278
Total Annual operation costs		
(Reagents & Wearing parts for 1-Channel analyzer)	Measuring interval	
	5 min	10 min
0.02 ... 2.0 mg/l NH4-N		
0.10 ... 20 mg/l NH4-N		
1.00 ... 80 mg/l NH4-N		

LZX281
 (LZX278)
 LCW802
 BCZ802
 LCW803
 LCW804
 LCW808

Set of wearing part / AMTAXinter 2
 Set of tubes for one year(required for 2 channel operation)
 Set of reagents for AMTAX,, AMTAX inter/2
 Aditives for LCW802, for AMTAX/AMTAX inter/2
 Calibrating solution 5mg/l NH4-N, for AMTAX/AMTAX inter/2 (5,2 L)
 Zero-solution for AMTAX,, AMTAX inter/2 (5,2 L)
 Calibrating solution 35mg/l NH4-N, for AMTAX/AMTAX inter/2 (5,2 L)

Ammonium

AMTAX Inter 2 accessories

Part No.	Designation
LCW862	Amtax inter 2 - Standard solution, 0.5 mg/l NH ₄ -N
LCW819	Cleaning solution for, AMTAX/AMTAX inter/2 (250 mL)

Further optional accessories

LPV361	MODBUS node, bus node for connection to MODBUS
LZP361	Overflow vessel AM/PH/FE
LZP303	Quick-release lock set
HDF170	AMTAX User Guide
DOC023.52.03107	AMTAX inter2 Instrument Manual; GB
LZX408	VIEWTAX - program for data analysis

Ammonium / Nitrate

AN-ISE sc / AISE sc / NISE sc



Ammonium and Nitrate are key parameters in sewage treatment plants. The ability to record and manage these parameters reliably plays a major role in efficient plant management.

The new AN-ISE sc sensor from HACH LANGE means only one measurement needs to be taken. Ammonium and nitrate concentrations can be accurately recorded with real-time automatic compensation for potassium and chloride interferences by the ISE probe. With no sample preparation required beforehand, the parameters can be measured during the actual process, ensuring less interruption, reduced costs, time and maintenance thanks to the AN-ISE sc sensor.

Controller compatibility



sc200



sc1000

Technical Data			
Subject to change without notice			
AN-ISE sc / AISE sc / NISE sc			
Designation	Continuous trending of ammonia and nitrate levels to control intermittent denitrification process (e.g. SBR) and outlet monitoring of Nitrification processes in municipal wastewater treatment plants with less than 30% industrial waste water		
Measuring principle	Potentiometric measurement using ion-selective electrodes (ISE) for ammonium, potassium, nitrate and chloride, with pHd reference system, temperature compensated		
Field of application	control of intermittent denitrification process (e.g. SBR) and outlet monitoring of Nitrification processes in Municipal waste water treatment		
	AN ISE sc	AISE sc	NISE sc
Measuring range	0.1 to 1000 mg/L NH4-N	0.1 to 1000 mg/L NH4-N	0.1 to 1000 mg/L NO3-N
	0.1 to 1000 mg/L NO3-N		
	0.1 to 1000 mg/L K+	0.1 to 1000 mg/L K+	0.1 to 1000 mg/L Cl-
	0.1 to 1000 mg/L Cl-		
Lower detection limit	0.5 mg/L NO3-N/NH4-N (with standard solutions for ISE electrodes in lab conditions)		
Precision	5% of the measured value + 0.2 mg/L (ammonium and nitrate)		
Reproducibility	5% of the measured value + 0.2 mg/L (ammonium and nitrate)		
Response time T90	< 2 minutes (5 to 50 mg/L NO3-N/NH4-N)		
Measuring interval	continuous		
pH range	pH 5 ... 9		
Calibration	Sensor code for sensor cartridge (manually or automatic; model dependent) optionally 1 or 2-point process calibration for matrix correction (process dependant)		
Process connection			
Installation (sensor)	Submersed directly into the media; 1" NPT thread connection to be installed at an angle of 45° ± 15° vertical in flow direction		
Depth	0.3 ... 3 m depth (1 ... 10 ft.)		
Sample flow	< 4 m/s		
Temperature			
Sample	+2 to 40 °C (35 to 104 °F)		
Ambient	Air: -20 to 45°C (-4 to 113°F)		
Outputs			
	depending on used controller (please refer to chapter sc controllers)		
Enclosure rating	IP68; submersible up to 3 m depth max.		
Wetted materials	Probe: stainless steel (1.4571), ASA + PC, silicon, PVC and PU		
	Sensor cartridge: PVC, POM, ABS, stainless steel (1.4571), NBR		
	Optional cleaning unit: TPE, PUR, stainless steel (1.4571)		
Power supply	via sc controller		
Power consumption	1 W		
Dimensions (L x Ø)	320 mm x 84.6 mm (12.6" x 3.3")		
Cable length	10 m fixed cable, extendable to 100 m using digital extension cables		
Weight	~ 2.4 kg (without cleaning device)		
Controller compatibility	sc200 and sc1000; sc1000 is recommended		
Warranty	24 month for the sensor, extendable to 60 month		
	Sensor cartridges are wearing parts that are not covered by the instrument warranty		

Ammonium / Nitrate

AN-ISE sc / AISE sc / NISE sc

Part No.

Designation

LXV4XX.99.000X1

AN-ISE sc Ammonium and Nitrate combination sensor

L X V 4 4 0 . 9 9 . x 0 0 x 1

model option

AN-ISE sc	0
AISE sc for NH4 measurement	1
NISE sc for NO3 measurement	2

RFID detector option

with RFID	0
without RFID	1

Standard accessories (supplied with the instrument)

- 1 factory calibrated CARTRICAL sensor cartridge
- 1 Cleaning brush
- 1 set of operating instructions
- 1 Factory Test Certificate



Note:

sc Digital Controller must be ordered separately.

For Service contract with Warranty extensions, commissioning and trainings please refer to Appendix D.

For Mounting assembly please refer to the chapter Mounting assembly

Please refer to Appendix E for more details about manuals and user interfaces in different available languages

Note 1: Sensor with RFID detector is not approved in Macedonia, Serbia, Russia, Ukraine, Africa, Middle East, Asia and America. In these countries / regions sensor model LXV440.99.00011 can be used. Approval for Croatia, Turkey, Cyprus, Australia, New Zealand and North-America is expected in 10.2010

Consumables

LZY694

Replacement cartridge for all 2 Sensors (AN-ISE sc, AISE sc and NISE SC), calibrated typically 12 month operation in typical application (*municipal waste water treatment; process dependant*)



Recommended accessories

LZY720

Test cartridge (for " AN-ISE sc sensor function test")

LZY671

Polishing paper for the ISE Chloride electrode

Mounting accessories

LZX414.00.80000

Rim mounting kit, for ISE sc sensors, made of Stainless Steel, pk/1

Pic 1

6184900.99.0000

Rail Mounting Kit for ISE sc sensors, made of PVC

Pic 2

LZX914.99.12400

Chain Mounting for ISE sc sensors, made of PVC

Pic 3

LZY510

ISE sensor adapter for rail mounting unit LZX414.00.80000

LZY514

Additional weight for Cleaning unit

for use with Cleaning Unit and Chain mounting kit LZX914.99.12400

LZY545

Adapter 1 1/2" NPT - 1"NPT

LZY546

Fitting, 45° angle, 2 x 1 1/2" NPT connectors, made of PVC (replacement)



Pic 1



Pic 2



Pic 3

Ammonium / Nitrate

AN-ISE sc / AISE sc / NISE sc

Part No. Designation

Optional accessories

LZY706	Cleaning Unit for AN-ISE sc sensor, w/o compressor
LZX651	Solenoid valve with pressure gauge, model MVR-1 <i>used for relais-controlled air pressure cleaning (customer supplied)</i>
6860X03.99.0001	HOAB - High Output Airblast Cleaning system

6 8 6 0 x 0 3 . 9 9 . 0 0 0 1

Power supply option

230 VAc	.....	1
115 VAc	.....	0

Language / Country Code Selection

Standard accessories (supplied with the instrument)

The following items are included as standard components of the self-cleaning kit:
• Tubing, 7.6 m (25 ft), • Tie wraps, • HOAB compressor with mounting hardware • Relay Barrier

Note: For further informations please refer to the chapter Sample preparation -> HOAB

LZY499	High Output Airblast EU cable kit - including Power- and Relay cable (not supplied with HOAB)
--------	---

HOAB Wearing Parts

LZX030	Air filter for inlet air tube for dusty environment
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Digital extension cable (between sc controller and probe)

LZX848	Digital Extension Cable, 5 m
LZX849	Digital Extension Cable, 10 m
LZX850	Digital Extension Cable, 15 m
LZX851	Digital Extension Cable, 20 m
LZX852	Digital Extension Cable, 30 m
LZX853	Digital Extension Cable, 50 m

Note: The maximum cable length between the sensor and controller is limited to 100m.
Using different cables instead of the above mentioned, will void the warranty.

Documentation (supplied with instruments, respectively on order with extra charge)

DOC023.52.90137	HACH LANGE Manual AN-ISE sc, GB
DOC273.99.90203	HACH LANGE instruction sheet for the AN-ISE Cleaning unit
DOC273.99.90201	HACH LANGE instruction sheet for the rail mounting hardware
DOC273.99.90322	HACH LANGE instruction sheet for the chain mounting hardware
DOC027.53.00746	High Output Airblast cleaning system Operating Manual, GB

Recommended Reference Laboratory system for Process Calibration/Verification purpose

LCK339	Nitrate cuvette test (Measuring range: 0.23–13.5 mg/l NO ₃ -N / 1–60 mg/l NO ₃)	pK/25
LCK340	Nitrate cuvette test (Measuring range: 5–35 mg/l NO ₃ -N / 22–155 mg/l NO ₃)	pK/25
LCK311	Chloride cuvette test (Measuring range: 1–1000 mg/l Cl)	pK/24
LCK303	Ammonium cuvette test (Measuring range: 2–47 mg/l NH ₄ -N/2.5–60.0 mg/l NH ₄)	pK/25
LCK305	Ammonium cuvette test (Measuring range: 1–12 mg/L NH ₄ -N/1.3–15.0 mg/L NH ₄)	pK/25
LCK228	Potassium cuvette test (measuring range: 5–50 mg/L K)	pK/25

Note: Further equipment might be required, if not available.
Please contact HACH LANGE or ist representative for further informations.



Nitrate

NITRATE sc variants - Product Selector



Nitratax plus sc
Process sensor for continuous measurement in drinking water, waste water, or activated sludge. Turbidity compensation using reference measurement.

Nitratax eco sc
Low cost sensor for measurement, especially for sewage treatment plants with intermittent aeration technology. Turbidity compensation using reference measurement.

Nitratax clear sc
Process sensor for continuous measurement in clean water sample streams, e.g. drinking water or WWTP effluent (in conjunction with Filtrax).

	NITRATAX sc plus	NITRATAX sc eco
Applications		
Control of intermittent aerated basin	✓	✓
Monitoring of aeration basin	✓	✓
Control of the recirculation of a pre-denitrification (concentration below 1 mg/l NO ₃ -N)	✓	Not recommended
Applications with high suspended solids concentrations	✓	Not recommended
low Nitrate concentrations	✓	Not recommended
fast response time needed	✓	Not recommended
Outlet measuring wwtp	✓	Not recommended
Drinking & Surface Water	✓	Not recommended
Technical data		
Measuring gap:	1 mm, 2 mm, 5 mm	1mm
Lower detection limit	0.1 mg/l	1 mg/l
Upper detection limit as NO _x -N	100, 50, 20 mg/l	20 mg/l
Measuring uncertainty	± 3 % from MV ± 0,5 mg/l	± 5% from MV ± 1,0 mg/l
Resolution	0,1 mg/l	0,5 mg/l
Sludge compensation	✓	✓
Minimum measuring interval	1 min	5 min
Response time (t100)	1 min	15 min
Material + Components		
Robust steel enclosure with double sealing	✓	-
Steel enclosure with single sealing	-	✓
Precision-Optic with elaborate adjustment	✓	-
Maintenance		
Maintenance time	1 h / month	2 h / month
Verification of sludge compensation	Once per month	Once per week
Inspection interval	6 month	6 month
Warranty light source	5 years	1 year
Warranty	24 month fulfilling the required service intervals	
Extended warranty with service contract	5 years	2 years

Nitrate

NITRATAX sc variants (DataSheet DOC053.52.03222)



Nitrate and Nitrite ions in water absorb UV light at wavelengths below 250 nm. This inherent absorption allows to determine the nitrate and nitrite concentration without reagents. As the measuring principle is based solely on the evaluation of UV light, the colour of the medium has no effect.

The probe has been designed with a two-beam absorption photometer with turbidity compensation and integrated cleaning system using proven wiper technology to measure even in media with SS contents, e.g. aeration basin.

The measured value is displayed as NO_x-Nitrogen in mg/l NO_x-N and provided on current outputs. Various operating modes for the relay outputs permit local regulation without further process data processing.

The probe design allows installation directly in the media (insitu) or in bypass.

Controller compatibility



sc200



sc1000

Technical Data			
Subject to change without notice.			
	Nitratax plus sc	Nitratax eco sc	Nitratax clear sc
Measuring principle	photometric, UV absorption measurement, reagent-free		
Measuring method	Patented 2-beam method		
Measuring gap	1, 2 or 5 mm	1 mm	5 mm
Measuring range			
1 mm	0.1 - 100 mg/l NO ₂ +3-N	1.0 - 20 mg/l NO ₂ +3-N	-
2 mm	0.1 - 50 mg/l NO ₂ +3-N	-	-
5 mm	0.1 - 25 mg/l NO ₂ +3-N	-	0.5 - 20 mg/l NO ₂ +3-N
Sludge compensation	Yes	Yes	No
Lower detection limit	0.1 mg/l as N	1 mg/l as N	0.5 mg/l as N
Upper detection limit	100 mg/l as N	20 mg/l as N	20 mg/l as N
Measuring uncertainty	± 3% of reading ± 0.5 mg/l	± 5% of reading ± 0.5 mg/l	± 5% of reading ± 0.5 mg/l
Resolution	0.1 mg/l	0.5 mg/l	0.1 mg/l
Response time T ₁₀₀	1 min	15 min	1 min
Measuring interval	1 min	5 min	5 min
Integration (average)	> 1 min, adjustable	15 - 30 min, adjustable	> 5 min, adjustable
Process connection	Immersion style (directly in the media) or bypass installation with atmospheric outlet		
Immersion	Yes	Yes	Yes
Bypass	Yes	not applicable	Yes
Sample inlet	4/6 mm (ID/OD)	-	4/6 mm (ID/OD)
Drain (outlet)	4/6 mm (ID/OD)	-	4/6 mm (ID/OD)
Required flow	0.5...10 l/h	-	0.5...10 l/h
Pressure p max	0.5 bar	0.5 bar	0.5 bar
Temperature			
Sample	+2°C ... +40°C	+2°C ... +40°C	+2°C ... +40°C
Cable length	10 m fixed cable, made of PUR, extendable to 100 m using digital extension cables		
Dimensions (L x Ø)	333 mm x 70 mm	327 mm x 75 mm	323 mm x 75 mm
Wetted Material			
Sensor housing	SS 316, 1.4571 double sealed body	SS 316, 1.4571 single sealed body	SS 316, 1.4581 single sealed body
Wiper axis/arm	SS, 1.4104 / SS, 1.4581	SS, 1.4571 / SS, 1.4581	SS, 1.4571 / SS, 1.4581
Cable gland	Stainless steel, 1.4305	Stainless steel, 1.4305	Stainless steel, 1.4305
Cable gland seal	PVDF	PVDF	PVDF
Profile carrier	SS, 1.4310	SS, 1.4310	SS, 1.4310
Measuring window	Quart glass, SUPRASIL		
Weight (approximately)	3.6 kg	3.3 kg	3.3 kg
Maintenance required	1 h/month typical	1 h/month typical	1 h/month typical
Inspection interval	2 x / Year		
Controller compatibility	sc200 and sc1000		
Warranty on light source	5 years	1 year	1 year
Warranty	24 month, fulfilling required inspection intervals, extendable to 60 month		

Nitrate

NITRATAX sc variants (DataSheet DOC053.52.03222)

Part No.

Designation

LXV417.99.X0001

Nitratax plus sc, with 10m cable, without sc controller



L X V 4 1 7 . 9 9 . x 0 0 0 1

Language / Country Code Selection

Measuring range

0.1 - 100.0 mg/l NO ₂ +3-N	(1mm gap)	.....	1
0.1 - 50.0 mg/l NO ₂ +3-N	(2mm gap)	.....	2
0.1 - 25.0 mg/l NO ₂ +3-N	(5mm gap)	.....	5

LXV415.99.10001

Nitratax eco sc, with 10m cable, without sc controller



L X V 4 1 5 . 9 9 . x 0 0 0 1

Language / Country Code Selection

Measuring range

1.0 - 20.0 mg/l NO ₂ +3-N	(1mm gap)		1
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LXV420.99.50001

Nitratax clear sc, with 10m cable, without sc controller



L X V 4 2 0 . 9 9 . x 0 0 0 1

Language / Country Code Selection

Measuring range

0.5 - 20.0 mg/l NO ₂ +3-N	(5mm gap)		5
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Standard accessories (supplied with the instrument)

- 1 set of wiper blades (5 pieces)
- 1 set of wearing parts
- 1 NO₃ Standard solution
- 1 Instrument manual
- 1 Factory Test Certificate

Immersion Mounting assembly LZ414.00.10000
or suitable Bypass installation assembly is essential for
installation and must be ordered separately.



Note:

sc Digital Controller must be ordered separately.
For technical data, interfaces and additional costs, refer to the chapter "Controllers, Display Units"
For Service contract with Warranty extensions, commissioning and trainings please refer to Appendix D.
For Mounting assembly please refer to the chapter Mounting assembly
Please refer to Appendix E for more details about manuals and user interfaces in different available languages

Documentation (supplied with instruments, respectively on order with extra charge)

DOC023.52.03211

Instrument manual NITRATAX plus sc / NITRATAX clear sc/Nitratax eco sc, GB

Nitrate

NITRATAX sc accessories

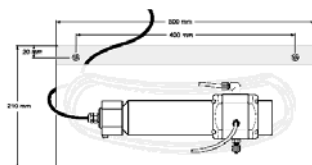
Part No. Designation

Mounting assembly for Immersion application

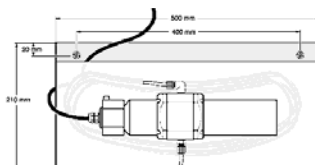
LZX414.00.10000 Mounting Assembly Kit "Rim Mounting", Stainless Steel, with 90° adapter for fixing a NITRATAX, UVAS or SOLITAX to a tank or channel

Mounting assembly for Bypass application

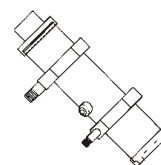
LZX869 Mounting Assembly Kit "Flow-Through", for NITRATAX plus / UVAS plus sc (2 and 1 mm version)
 LZX867 Mounting Assembly Kit "Flow-Through", for NITRATAX plus / UVAS plus sc (5 mm version)
 LZX866 Mounting Assembly Kit "Flow-Through", for NITRATAX clear sc



Nitratax plus sc version
 Technical Data see Manual



Nitratax clear sc version
 Technical Data see Manual



Sedimeter
 (DataSheet DOC043.52.04060)

LZX450 Sedimeter, Flow-through Mounting Assembly unit for extremely turbid water including Mounting hardware; for use with NITRATAX plus / UVAS plus variants only!

LZX412 Mounting flange for Sedimeter LZX450

Digital extension cable (between sc controller and probe)

LZX848 Digital Extension Cable, with molded plug and coupling, 5 m
 LZX849 Digital Extension Cable, with molded plug and coupling, 10 m
 LZX850 Digital Extension Cable, with molded plug and coupling, 15 m
 LZX851 Digital Extension Cable, with molded plug and coupling, 20 m
 LZX852 Digital Extension Cable, with molded plug and coupling, 30 m
 LZX853 Digital Extension Cable, with molded plug and coupling, 50 m

 **Note:** The maximum cable length between the sensor and controller is limited to 100m. Using different cables instead of the above mentioned, will void the warranty.

Spare parts

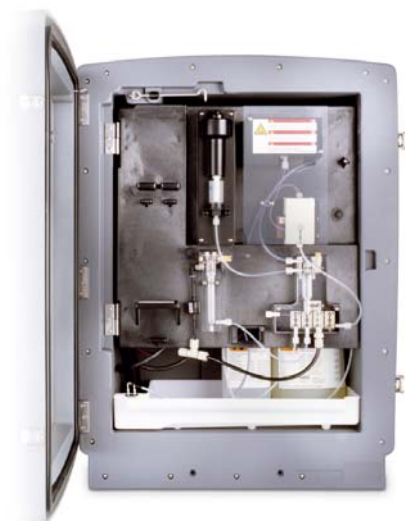
LZX148 Set of wiper blades for NITRATAX/UVAS, 1 mm, pk/5
 LZX012 Set of wiper blades for NITRATAX/UVAS, 2 mm, pk/5
 LZX117 Set of wiper blades for NITRATAX/UVAS, 5 mm, pk/5
 LZX315 Holder set f. 2-channel pump

Standard solutions for instrument calibration/verification

LCW825 Reference standard 50 mg/l NO₃ (11.3 mg/l NO₃-N)
 LCW826 Reference standard 100 mg/l NO₃ (22.6 mg/l NO₃-N)
 LCW827 Reference standard 200 mg/l NO₃ (45.2 mg/l NO₃-N)

ortho-Phosphate

Phosphax sc (DataSheet DOC033.52.00430)



High-precision Process-Photometer for the continuous determination of ortho-Phosphate in water, waste water or directly in activated sludge basin.

The measuring principle is based on the well proofed Vanadat-Molybdat method allowing a wide measuring range in parallel.

Optional sampling and sample preparation using self-cleaning high speed "Filtration probe" or flexible "Filtrax" system respectively any feeding Ultra-Filtration systems.

Direct On-Site installation due to isolated construction in weather resistant enclosure, or inhouse installation.

Highest flexibility and extendability due to sc1000 controller's freely selectable multi-probe/analyzer operation feasibility.

Technical Data	
Subject to change without notice	
	PHOSPHAX sc
Measuring method	Photometric, Vanadat Molybdat Method (Yellow)
Measuring range	0.05 ... 15 mg/l PO ₄ -P 1.0 ... 50.0 mg/l PO ₄ -P
Detection limit	0.05 mg/l PO ₄ -P 1.0 mg/l PO ₄ -P
Accuracy	2 % + 0.05 mg/l 2% + 1.0 mg/l
Reproduceability	2 % + 0.05 mg/l 2 % + 1.0 mg/l
Reagent consumption	500 ml/ month 1000 ml/month
Response time T ₉₀	< 5 Minutes (including sampling)
Measuring Interval	5 – 120 minutes (user selectable)
Specific features	Automatic cleaning, automatic calibration, comprehensive self-diagnosis, optional: 2-channel version for continuous sample feed
Process connection	
Installation (Analyser)	Bypass; particle and oil free water sample - wall, stand or rail mounting
Sample Inlet	3.2 mm OD
Drain (outlet)	6 mm
Sample flow	at least 300 ml/h fed by HACH LANGE Filtration probe, Filtrax or general Ultrafiltration system
Pressure range	non-pressurized; atmospheric
Temperature	
Sample:	+4°C ... +40°C
Ambient:	
Indoor model	+5°C ... 40°C; 95 % relative humidity, non-condensing
Outdoor model	-20°C ... 45°C; 95 % relative humidity, non-condensing
Storage:	
Analyzer:	
Indoor model	+4°C ... 55°C; 95 % relative humidity, non-condensing
Outdoor model	-20°C ... 60°C; 95 % relative humidity, non-condensing
Outputs	several (Relay, I/O outputs, bus interface); please refer to sc controller specifications
Power supply & consumption:	Power supply with power cable on the sc1000 controller 200 VA (mean), max. 1000 VA (with 10 m heated filter probe hose)
Dimensions	540 x 720 x 370 mm (W×H×D) Indoor model 540 x 720 x 390 mm (W×H×D) Outdoor model
Cable length	2 m fixed cable, extendable by using Power Extension cable for sc1000, 5 m (only once)
Weight	Approx. 31 kg (Onsite model); 29 kg (Indoor model), w/o filter probe and w/o chemicals
Material	ABS Plastic, UV resistant
Enclosure rating	Onsite (IP55) or Indoor
Reagent capacity	4 Month minimum (depending on measuring interval)
Inspection interval	2x / Year
Maintenance requirements	1 h/month typical (Process dependant)
Controller compatibility	sc1000
Warranty:	24 month, fulfilling required inspection intervals, extendable to 60 month

ortho-Phosphate

Phosphax sc (DataSheet DOC033.52.00430)

Part No.

Designation

LXV422.99.XXX01

PHOSPHAX sc, Outdoor version with 2 m connection cable, w/o controller

LXV422.99.XXX11

PHOSPHAX sc, Indoor version with 2 m connection cable, w/o controller

L X V 4 2 2 . 9 9 . x x x x 1

Measuring range option			
0.05 - 15 mg/l PO4-P			1
1.00 - 50 mg/l PO4-P			2
Sampling Option			
without probe (Prepared for operation with sampling probe)			0
With filtration probe (5m heated hose)			1
With filtration probe (10m heated hose)			2
1 channel continuous sample from filtration unit, e.g. FILTRAX			3
2 channel continuous sample from filtration unit, e.g. FILTRAX			4
Power Supply Option for sampling probe:			
230 VAC/50Hz sampling probe			0
115 VAC/60Hz sampling probe			1
Housing option			
Outdoor			0
Indoor			1

Standard accessories (supplied with the instrument)

- 1 set of reagents
- 1 set of wearing parts for one year operation
- 1 set of operating instructions
- 1 maintenance calendar
- 1 Factory Test Certificate

For further information about the Filtration probe & Filtrax, please refer to the Chapter Sampling systems.



Note:

sc Digital Controller must be ordered separately.
 For technical data, interfaces and additional costs, refer to the chapter "Controllers, Display Units"
 For Service contract with Warranty extensions, commissioning and trainings please refer to Appendix D.
 For Mounting assembly please refer to the chapter Mounting assembly
 Please refer to Appendix E for more details about manuals and user interfaces in different available languages

Reagents and consumables

Annual requirements for PHOSPHAX sc	Measuring interval		
	5 min	10 min	20 min
Reagents			
Reagents LCW869 (2 l)	3 x LCW869	1.5 x LCW869	0.75 x LCW869
Cleaning Solution LCW870 (1 l)	1 x LCW870	1 x LCW870	1 x LCW870
Wearing parts			
Pump head for air pump (LZY181)	1 x	1 x	1 x

ortho-Phosphate

Phosphax sc (DataSheet DOC033.52.00430)

Part No. Designation

Mounting Hardware

LZX414.00.50000	Rim mounting for filtration probe
LZX414.00.60000	Rail mounting for filtration probe
LZY413	Extension pipe, 1.0 m, made of SS
LZY414	Extension pipe, 1.8 m, made of SS
LZY316	Rail mounting for analyzer without controller
LZY285	Rail mounting for Amtax sc/Phosphax sc analyzer
LZY286	Stand mounting kit, suitable for 1 Amtax sc/Phosphax sc-analyzer + 1 sc 1000 controller
LZY287	Stand mounting kit, suitable for 1 Amtax sc/Phosphax sc-analyzer
LZX958	sc1000 weather guard for Outdoor Installation (also suitable for 2 x sc100 controllers)

Accessories

LZY440	Keys for sc-analyzer enclosure, (1 pair)	<i>Replacement</i>
LZY302	Heated drain/connecting hose, 2m, 230V	
LZY189	Accessories for AMTAXsc/PHOSPHAXsc, for continuous sample (1-/2-channel)	
LZY431	Power Extension cable for sc1000, 5 m, 115-230 VAC	
LZY682	Door for sc-Analyser indoor housing A/Psc incl. 4 sticker	
LZY143	Door for SC-analyzer enclosure incl. 4 instrument labels	
LQV155.99.00011	Power supply for AMTAX/PHOSPHAX sc, with EU plug	
	used to connect a sc Analyzer to a sc100 controller or 2 additional sc Analyzers to a sc1000	

Reagent Sets

LCW887	PHOSPHAX sc - 1 Year Reagent Set, 1st year operation (10min int)
LCW888	PHOSPHAX sc - 1 Year Reagent Set, 2nd year operation (10min int)
LCW869	Reagenz PHOSPHAT Phosphat Online Analyser
LCW870	Cleaning solution PHOSPHAX sc (1L) Phosphat Online Analyser

 **Note:** Please refer to the Chapter "Reagents & Consumables" for further details

Wearing Part informations

LZY467	PHOSPHAX sc - wearing part set, (2nd year in operation), 10 min Measuring Interval
LZY468	Filter probe sc - wearing parts, (1st year in operation), 10 min Measuring Interval
LZY469	Filter probe sc - wearing parts, (2nd year in operation), 10 min Measuring Interval including 2 Filter module for filtration probe sc
LZY140	Filter module for filtration probe sc. pk/1 (replacement: 2 modules are required)

Wearing parts continued

The following parts must be changed at regular intervals by authorised service personnel!

LZY176	Reagent pump sc analyser (pump valve)	Warranty/Replacement after:	2 years operation
LZY181	Pump head for air piston pump, 10 ml Cylinder + piston (pre-greased)	Warranty/Replacement after:	1 year
LZY154	Set of filter pads, pk/2, Filter element, fan enclosure	Replacement	as required
LZY149	Compressor switchable (115VAC/230VAC)	Warranty/Replacement after:	2 years
LZY138	Exhaust (2pcs) for air cleaning of incl. sealing and screws		2 years operation
LZY139	Exhaust (copper)		2 years operation
LZY130	Set of wear parts for sample pump, incl. Membrane, valve, screws		3rd year, typically

Total-Phosphorous & Ortho-Phosphate

PHOSPHAX Σ sigma (DataSheet DOC053.52.03087)



Process analyzer for continuous measurement of total phosphorus and orthophosphate, respectively total phosphorus concentration in wastewater (WWTP outlet) and cooling water, including solids of particle size up to 0.5 mm.

Analysis is based on the DIN-equivalent molybdenum blue method. The chemo-thermic reaction principle ensures complete breakdown within a few minutes.

Technical Data

Subject to change without notice.

Subject to change without notice		
	PHOSPHAX Σ sigma Total phosphorous & ortho-phosphate	PHOSPHAX Σ sigma Total phosphorous
Measuring principle	Photometric, Ascorbic acid reduction method, according DIN 38405 D11	
Measuring range	0.01 ... 5.0 mg/l total – P 0.01 ... 5.0 mg/l o-PO4-P	0.01 ... 5.0 mg/l total – P
Measuring interval T ₁₀₀	approx. 10 min, o-PO4 and Total PO4-P alternately adjustable	approx. 10 min
Calibration	automatic, intervals user selectable	
Reagent capacity	3 months for Reagents; 6...12 months for Standard solution	
Display	Graphics monitor with datalogger and curves display	
Process connection		
Installation (Analyser)	Bypass; homogenised water sample - wall mounting dry installtion, protected against direct sun light	
Sample Inlet	3.2 mm OD	
Drain (outlet)	Atmospheric, 4/6 mm connection for waste, 8/11 mm for overflow tray	
Sample flow	approx. 100 ml/h	
Temperature		
Sample	+5°C ... +40°C	
Ambient	+5°C ... +40°C	
Outputs		
	2x analog: 0/4–20 mA, max. 500Ohm 2 floating limit value contacts 24V, 1A ProfiBus or ModBus (optional) Service interface RS 232	
Enclosure	IP54	
Power supply	230VAC, 50 Hz / 310 VA including refrigerating unit	
Dimensions	550 x 1190 x 390 mm (W x H x D), including refrigerating unit	
Weight	approx. 43 kg (without reagents)	
Inspection interval	3 months	
Maintenance	1 h / month typical	
Special Notes:	Integrated reffridgerator for reagent storage	
Controller compatibility	Stand alone instrument	
Warranty	24 month, fulfilling the requested inspection intervals	

Total-Phosphorous & Ortho-Phosphate

PHOSPHAX Σ sigma (DataSheet DOC053.52.03087)

Part No. **Designation**

LPV341.XX.X00X0 **Phosphax Σ sigma**, Process Analyzer

L P V 3 4 1 . x x . x 0 0 x 0											
Language / Country Code Selection GB language / EU power cord 5 2											
Measuring range Total Phosphorus + ortho Phosphate 1 Total Phosphorus 2 Total Phosphorus + ortho Phosphate for Cooling Water Applications 3											
Interface Option No Bus connection (Standard configuration) 0 ModBus YAA857 1 ProfiBus DP LZV148 2											

Standard accessories (supplied with the instrument)

- 1 set of wearing parts for one year operation
 - 1 set of reagents (suitable for 3 month operation)
 - 1 Standard solution
 - 1 set of operating instructions
 - 1 maintenance calendar
 - 1 Factory Test Certificate
- The SIGMATAX³ is essential for sampling and homogenisation when measuring total-Phosphate and must be ordered separately.

Note: For further spare parts and consumables please refer to the chapter Appendix A
³ Please refer to Chapter "Sample Preparation"
 For Service contract with Warranty extensions, commissioning and trainings please refer to Appendix D.
 Please refer to Appendix E for more details about manuals and user interfaces in different available languages

Reagents and consumables

Annual requirements for PHOSPHAX Σ	Total Phosphorus	Total Phosphorus & ortho-Phosphate
Reagents	4 x LCW823	4 x LCW823
Standard Solution	2 x LCW824	2 x LCW824
Wearing parts		
1 channel analyzer	1 x LZP959	1 x LZP959

Additional consumables

LZP856 Cuvette (replacement interval 18 months)
 LZP864 Piston motor (replacement interval 18 months)
 LZP845 Lower cuvette support (replacement interval 24 months)

Further accessories

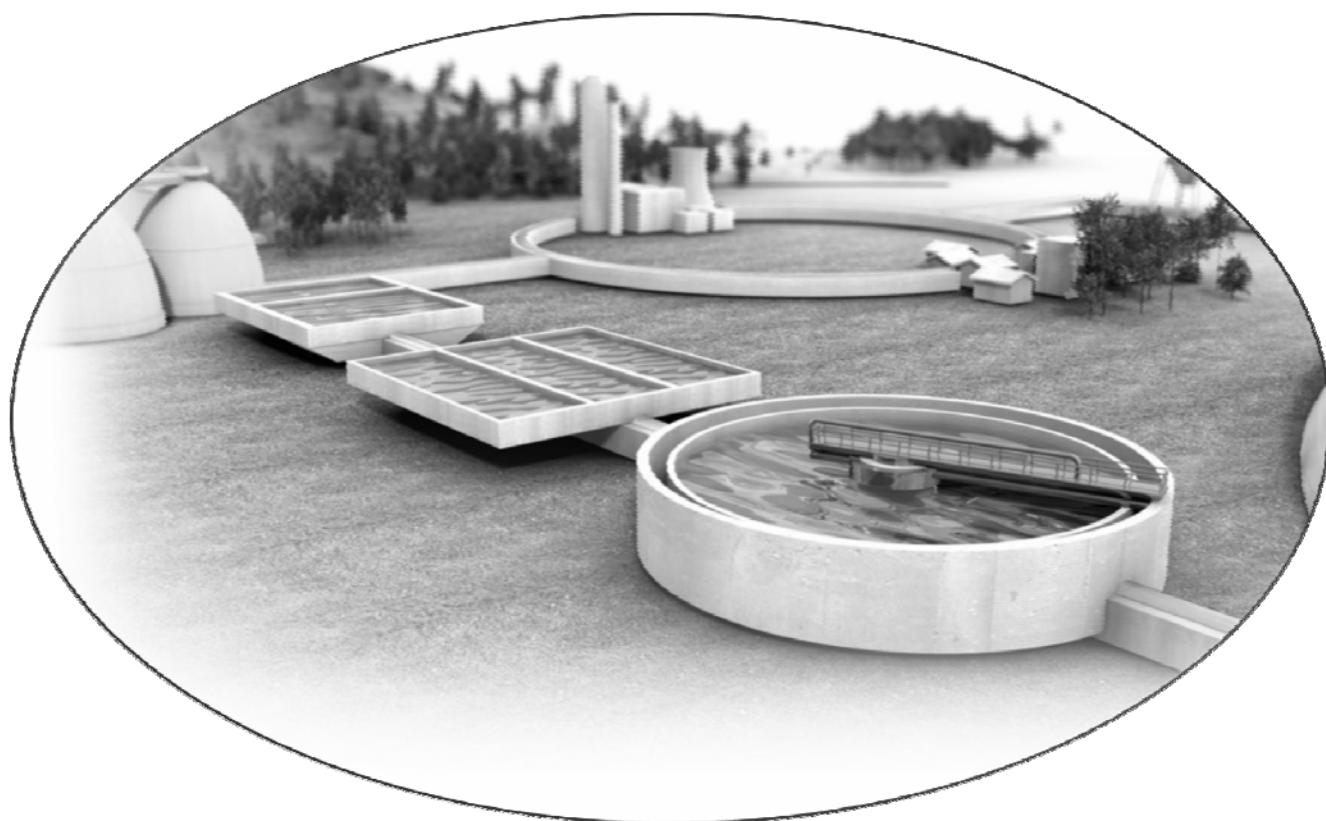
LPV361 MODBUS node, bus node for connection to MODBUS
 HDF172 User Guide PHOSPHAX Σ sigma (GB)
 LZX408 VIEWTAX - program for data analysis

Documentation (supplied with instruments, respectively on order with extra charge)

DOC023.52.03113 Instrument Manual, PHOSPHAX Σ sigma (GB)

Totalising Parameters

Product overview



Organic Matter, dissolved (SAC254)

UVAS plus sc (DataSheet DOC053.52.03256)



Precise self-cleaning process probe for continuous measurement of dissolved organic substances (SAC = Spectral Absorption Coefficient) in water, wastewater, surface water, process water and solids-free landfill leachate.

Reagent- and sampling-free process for measuring directly in the media.

In water analysis, the purely physical method of UV absorbance measurement is the fastest, most economical and ecologically sum parameter of evaluating the content of dissolved organic substances. Operation and analysis of probe signals in conjunction with the sc Digital Controllers.

Controller compatibility



sc200



sc1000

Technical Data Subject to change without notice.	
	UVAS sc
Measuring technique	reagent-free UV absorption measurement (254/550 nm) according DIN 38404 C3
Measuring method	Patented 2-beam method
Measuring gap	1, 2, 5 and 50 mm
Measuring range	
50 mm gap	0.01 ... 60 m-1
5 mm gap	0.1 ... 600 m-1
2 mm gap	0 ... 1500 m-1
1 mm gap	2 ... 3000 m-1
	can be calibrated to COD, BOD, DOC depending on the application
Accuracy	±1 % of measuring range end value within a measuring range from 50 to 100% (when reference is switched to off)
Sludge compensation	Yes
Response time T ₁₀₀	1 min
Measuring interval	≥ 1 min
Process connection	
Installation	Immersed directly into the media or Bypass
p _{max} for probe	0.5 bar
Sample Inlet	4/6 mm (ID/OD) (for bypass installation)
Drain (outlet)	atmospheric (for bypass installation)
Sample flow	0.5 - 10 l/h (for bypass installation)
Temperature	
Sample	+2°C ... +40°C
Ambient	+2°C ... +40°C
Sensor Body Material	SS 316 (double sealed body)
Cable length	10 m fixed cable, made of PUR, extendable to 100 m using digital extension cables
Dimensions (L x Ø)	333 mm x 70 mm
Weight (approximately)	3.6 kg
Maintenance requirement	1 h/month typical
Servicing interval	6 month
Controller compatibility	sc200 and sc1000
Warranty	2 years, fulfilling required maintenance intervals, extendable to 60 month

Organic Matter, dissolved (SAC254)

UVAS plus sc

Part No.	Designation
LXV418.99.X0001	UVAS plus sc, with 10m cable, w/o sc controller

L X V 4 1 8 . 9 9 . x 0 0 0 1

Language / Country Code Selection	
Measuring range	
2 ... 3000 m ⁻¹ (1 mm gap)	1
0 ... 1500 m ⁻¹ (2 mm gap)	2
0.1 ... 600 m ⁻¹ (5 mm gap)	5
0.01 ... 60 m ⁻¹ (50 mm gap)	9

Standard accessories (supplied with the instrument)

- 1 set of wiper blades (5 pieces)
- 1 set of wearing parts
- 1 Test beaker
- 1 Instrument manual
- 1 Factory Test Certificate
- 1 Verification test filter (LZX396)

Essential for rim mounting installation are LZY767 (for sc200) or LZX957 (for sc1000) and LZY714.99.53520 assembly and must be ordered separately.



Note:

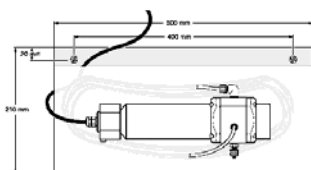
sc Digital Controller must be ordered separately.
For technical data, interfaces and additional costs, refer to the chapter "Controllers, Display Units"
For further extension cables, please consult the chapter sc controller/display units accessories
For Service contract with Warranty extensions, commissioning and trainings please refer to Appendix D.
For Mounting assembly please refer to the chapter Mounting assembly
Please refer to Appendix E for more details about manuals and user interfaces in different available languages

Mounting assembly for Immersion application

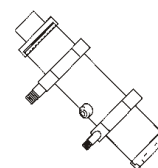
LZX714.99.53520	Mounting Assembly Kit "Rim Mounting", Stainless Steel, with 90° adapter
LZY767	Mounting Hardware sc200 Pole with weather/UV shield
LZX957	Floor Mounting Hardware SC1000 complete with UV/weather shield and 2 metre holder

Mounting assembly for Bypass application

LZX869	Mounting Assembly Kit "Flow-Through", for NITRATAX plus / UVAS plus sc (2 mm version)
LZX867	Mounting Assembly Kit "Flow-Through", for NITRATAX plus / UVAS plus sc (5 mm version)
LZX868	Mounting Assembly Kit "Flow-Through", for UVAS plus sc (50 mm version)



Nitratax plus / UVAS plus sc version
Technical Data see Manual



Sedimeter
(DataSheet DOC043.52.04060)

LZX450	Sedimeter, Flow-through Mounting Assembly unit for extremely turbid water including. Mounting hardware; for use with NITRATAX plus / UVAS plus variants only!
LZX412	Mounting flange for Sedimeter LZX450

Spare parts

LZX148	Set of wiper blades for NITRATAX/UVAS, 1 mm, pk/5
LZX012	Set of wiper blades for NITRATAX/UVAS, 2 mm, pk/5
LZX117	Set of wiper blades for NITRATAX/UVAS, 5 mm, pk/5
LZX119	Set of wiper blades for NITRATAX/UVAS, 50 mm, pk/10
LZX396	Verification Test Filter, for UVAS sc probes

Organic Matter, dissolved (SAC254)

UVAS plus sc

Digital extension cable

LZX848	Digital Extension Cable, 5 m
LZX849	Digital Extension Cable, 10 m
LZX850	Digital Extension Cable, 15 m
LZX851	Digital Extension Cable, 20 m
LZX852	Digital Extension Cable, 30 m
LZX853	Digital Extension Cable, 40 m
LZX412	Sample container mounting flange

Documentation (supplied with instruments, respectively on order with extra charge)

DOC023.52.03066	Instrument manual, UVAS plus sc, GB
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TOC, COD, BOD, TC, TIC, VOC

Biotector B7000



Process analyzer for the continuous determination of the Total Organic Carbon (TOC) or Total Carbon (TC) in accordance with DIN 38409 for drinking water, waste water and industrial water. Options for determination of Total Nitrogen (TN) and Total Phosphorous (TP).

The Two-Stage Advanced Oxidation (TSAO) technology and oversized tubing drastically reduce signal drift and need for filtration. B7000's oxidation method achieves total and complete oxidation of the sample, including organic carbon to CO₂, nitrogen compounds to nitrate and phosphorous compounds to phosphate.

Due to the oxidising agent, unfiltered samples containing soft particles up to 2 mm diameter can be analysed. The CO₂ is sparged and measured by the non-dispersive infrared (NDIR) CO₂ analyser.



Note:

Please note that the B7000 configuration depends on the application. In this regard, you have to contact our Sales support, to fill up an application form.

Technical Data	
Subject to change without notice	
Parameter	Total Organic Carbon (TOC) (with non-purgeable carbon and purgeable carbon)
Oxidation method	Two-Stage Advanced Oxidation Process (TSAO) using hydroxyl radicals
Measurement method	Infrared measurement of CO ₂ after oxidation
Range selection	Automatic or manual
Automatic range selection	Up to 3 ranges configurable within each range band detailed below:
Ultra low range system	0 to 500 µgC/l up to 0 to 10000 µgC/l
Standard range system	0 to 10 mgC/l up to 0 to 20000 mgC/l
Ultra high range system	0 to 10 mgC/l up to 0 to 100000 mgC/l
Range combination	Wide TOC, TN and TP range combinations are available
Digital output	2 potential free contacts, programmable
Analog output	4 up to 20 mA
Serial input interface	As individual signal up to max. 6 or as multiplex signal up to max. 35
Repeatability	RS232 output for printer or data logger
Display	Ultra Low Range System: ± 3 % of reading or 0.5 g/l whichever is greater
Cycle time (typical)	Standard Range and Ultra High Range System: ± 3 % of reading or 0.3 mg/l whichever is greater
Chloride tolerance	6.5 min
Filtration requirements	Up to 30%
Particle size	Not required
Sample inlet temperature	Ultra Low Range System: up to 10 microns soft particulates
Sample inlet pressure	Standard Range and Ultra High Range System: up to 2 mm soft particulates
Sample volume	2 to 60°C
Sample flow rate	Typically ambient (For applications with high sample pressure, sampling systems are available)
Ambient temperature	Up to 14 ml
Operation	Minimum 100 ml per sample
Exceedance tracking	5 to 40°C
Humidity	Microcontroller with membrane keyboard
Signal drift	Full exceedance tracking to maximum range
SD flash card	5 to 85 % non-condensing
Languages	<5% per year
Data storage	Allows easy data transfer and configuration updates
Enclosure	german, english, french, danish, swedish, italian
Weight	Previous 9999 reaction data and previous 99 fault events
Dimensions	Fibre glass reinforced polyester
Power consumption	90 - 120 kg
Power requirements	1250 x 750 x 320 mm
Service interval	300 W
	230V / 50 Hz or 115V / 60 Hz
	6 month intervals

TOC, COD, BOD, TC, TIC, VOC

Biotector B7000

Optional parameters

Technical Data	
Subject to change without notice	
Parameter	Total Nitrogen measuring the sum of:
	Bound (organic and inorganic) Nitrogen
	Ammonium-Nitrogen (NH ₄ -N)
	Nitrate-Nitrogen (NO ₃ -N)
	Nitrite-Nitrogen (NO ₂ -N)
Measurement method	Direct photometric measurement of nitrate after oxidation
Measurement range	0 to 10 mgN/l up to 0 to 20000 mgN/l (standard)
	0 to 10 mgN/l up to 0 to 100000 mgN/l (ultra high)
Cycle time (typical)	TOC,TN: 7 min
Parameter	Total Phosphorous measuring the sum of:
	Orthophosphate (PO ₄ -P)
	Bound (organic and inorganic) phosphorous compounds
	Polyphosphates
	Other reactive phosphate (PO ₂ -P, PO ₃ -P etc.)
	Other phosphorus compounds, e.g. Phosphonates, Phosphinates etc.
Measurement method	Photometric, Vanadomolybdophosphoric acid method (yellow method)
Measurement range	0 to 10 mgP/l up to 0 to 20000 mgP/l (standard)
	0 to 10 mgP/l up to 0 to 100000 mgP/l (ultra high)
Cycle time (typical)	TOC,TP: 10 min
Optional features	
Multi-Stream	Up to 6 streams for TOC
	Up to 6 streams for TN
	Up to 6 streams for TP
EExp/Hazardous location	TÜV-Certificate: ATEX Ex II 3G Ex pz T4
	ETL-Certificate: Z-Purge, Class1, Division 2, Groups A,B,C,D,T3,T4,T6
Remote control	Input for remote start / standby
	Input for remote stream and range selection
	Input for remote manual sample analysis
Valves	Automatic calibration and manual sample
Digital Communication	Modbus, Profibus, Ethernet / Modbus is a registered trademark of Gould Inc.

TOC, COD, BOD, TC, TIC, VOC
B7000 accessoires

Part No.	Designation
	Oxygen concentrators
	Produces highly concentrated oxygen on demand. Connects to an instrument air supply and uses Pressure Swing Adsorption (PSA) to separate oxygen from its air supply and release nitrogen through a waste gas silencer. Oxygen concentrator requires an instrument air supply which is water (<-20°C dewpoint), oil and dust free.
19-OGS-102	PSA oxygen concentrator, 230 VAC 50/60 Hz Power consumption:55 W Air use:90l/min at 2.1 bar (max. allowed 2.3 bar) Dimensions (H x W x D): 600mm x 400mm x 200mm
19-OGS-101	PSA oxygen concentrator, 115 VAC 60Hz
19-FIL-001	PSA oxygen concentrator filter pack for systems using instrument ; For systems using instrument air Consists of a 5-micron pre filter, a 0.01-micron oil filter and an oil



Alternatively

	Oxygen concentrator with self contained compressor
	A self-contained system designed to produce highly concentrated oxygen. Capable of delivering enough oxygen flow to drive twoBioTector TOC analyzers. All with integrated compressor. Oxygen concentrator requires an instrument air supply which is water (<-20°C dewpoint), oil and dust free.
19-OXY-002	PSA oxygen compressor with integrated compressor, 230VAC 50Hz



Vacuum Sampler
to transport samples up to 40 meters horizontal, 6 meters vertical

1	9	-	P	C	S	-	x	x	x
Sample stream option									
Single stream							0		
2 - streams							2		
3 - streams							3		
Hot wash option									
No hot wash option ... Standard							0	9	
With hot wash option							1	0	



VVS -Venturi Vacuum Sampler, with air and water washback.
24V DC electrical power supplied by the B7000

1	9	-	B	A	S	-	0	0	x
Sample stream option									
1 - channel							1		
2 - channel							2		
3 - channel							3		
4 - channel							4		
5 - channel							5		
6 - channel							6		

10-ADT-004	For additional lengths of 3/8" sample tube please ord 10-ADT-004 per metre
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TOC, COD, BOD, TC, TIC, VOC

Biotector B7000 reagents & consumables

Part No.	Designation	
2993001	Reagent canister with lid; replacement; pk/1	20 L
2993000	B7000 Acid/Base Reagent set	20 L
27256	Deionized Water, TOC, N, P free* for rinsing purpose	4 L
LCX059	HCL Acid Reagent, Hydrochloric Acid, 3N	20 L
LCX060	HCL Water Solution, Hydrochloric Acid, 0.04N	20 L
LCX061	TN Cleaning Solution, 0.5N HCL and 0.04M Sodium Oxalate	20 L
LCX062	TP Reagent, Vanadate Molybdate Reagent	20 L

Optional alternatives to prepare reagents on site
for TN cleaning solution

for Acid Reagent Solution (requires 1.8N H2SO4 in addition)

Please note: Only the above described articles are available at HL stock

Reagent Consumption in days (approximation)

	Container (L)	Consumption in days	Sets required per year	
Low Range, typically (5 - 350 mgC/L) (15 pulses) o				
2993000	Acid & Base Reagent set	20	28	13,0
LCX061	TN Cleaning Solution, 0.5N HCL and	20	120	3,0
LCX062	Total Phosphorus Reagent	20	84	4,3
	Deionized Water	4	7	
LCX060	HCL Water, 0.04N	20	76	
Medium Range, typically (500 - 2.000 mgC/L) (23 pulses) o				
2993000	Acid & Base Reagent set	20	18	20,3
LCX061	TN Cleaning Solution, 0.5N HCL and	20	120	3,0
LCX062	Total Phosphorus Reagent	20	84	4,3
	Deionized Water	4	7	
LCX060	HCL Water, 0.04N	20	76	
High Range, typically (5.000 - 20.000 mgC/L) (31 pulses) o				
2993000	Acid & Base Reagent set	20	14	26,1
LCX061	TN Cleaning Solution, 0.5N HCL and	20	120	3,0
LCX062	Total Phosphorus Reagent	20	84	4,3
	Deionized Water	4	7	
LCX060	HCL Water, 0.04N	20	76	

-  **Note:**
- o The number of pulses acid and base reagents is injected every reaction.
 - x HCL water: 0.04N Hydrochloric Acid solution (for FMI Heavy Duty Circulation Pump system only)
- Above table is derived from several on-line operation parameters, such as 100% on line time.
Note that TP Reagent, TN Cleaning Solution, Deionized Water and HCL Water are suitable for all B7000 analysers

* Requirements for Deionized Water; please refer to B7000 instrument manual
Conductivity < 0.5 µS/cm
TOC, Phosphorus, NOx < 100 µg/l (ppb)

TOC/DOC (Total/Dissolved Organic Carbon)

ASTRO TOC UV & UV Turbo



Process analyzer for the continuous determination of the total organic carbon (TOC) or total carbon (TC) in accordance with DIN 38409 for drinking water, waste water and industrial water, with automatic cleaning and calibration.

The UV Turbo model has been specifically designed for monitoring chemical/ petrochemical and power generation condensate water, semiconductor recycle/reclaim water and pharmaceutical USP/EP water for injection and purified water. The UV model can be used for industrial wastewater application and drinking water applications.

The Grab sample menu allows the operator to analyze a specific sample other than the online stream. During Grab sample analysis the analyzer will automatically go offline, analyze the sample connected to the calibration port, then purge with stream sample, and go back online.

Technical Data	
Subject to change without notice.	
	ASTRO TOC UV & ASTRO TOC UV turbo
Measuring principal	Expulsion method; Digestion method: UV-Persulfate-Oxidisation; Analysis of CO ₂ using NDIR detector, equivalent to DIN 38409
Measuring range	0.05 ... 2 ... 20,000 mg/l TOC (depending on model)
Response time T ₉₀	≥ 5 min, depending on measuring range
Accuracy	± 2 % of full range, non diluted @ 25°C ± 4 % of full range, for Analyzers with Dilution unit @ 25°C
Repeatability	± 2 % of reading, non diluted @ 25°C ± 4 % of reading, diluted ranges (Analyzers with Dilution unit) @ 25°C
Method detection limit	≤ 0.015 mg/l @ 0 ... 5 mg/l range
Signal drift (60 days)	≤ 2% full scale with auto clean and auto calibration
Calibration	multi-point calibration (up to 10 calibration points)
Carrier gas requirements	Clean CO ₂ -free air or Nitrogen @ 2.8 - 6.2 bar (40 - 90 psig)
Special Notes:	The chloride concentration (Cl ⁻) in the sample must not exceed 2000 mg/l!
	If so, please select a model with Dilution Unit.
	The Suspended solids concentration is limited to 200 mg/l max.
Process connection	
Installation (Analyser)	Bypass; - wall mounting dry installation, protected against direct sun light
Sample Inlet	¼" OD tube, compression fitting Single stream fast loop optional: dual stream pressure: 0.15 ... 6 bar (2 - 87 psig)
Flow rate	25 ... 200 ml/min
Suspended solids	≤ 2000 mg/l, ≤ 500 µm (100µm recommended)
Drain (outlet)	1½" OD Standard Drain pipe □ pressure: Ambient
Carrier gas	⅜" OD tube connection
Temperature	
Sample	+2°C ... +70°C (36 ... 158°F) or up to 100°C using passive Cooler
Ambient	+5°C ... +40°C @ 50% relative humidity; 31°C @ 80% relative humidity
Outputs	2 x 0/4 ...20 mA 5 SPDT relays 3A @ 250 VAC / 0.5A @ 30VDC 1 x RS232C serial port (optional)
Material & Enclosure rating	
CRS	Cold rolled steel (epoxy powder coated), IP65 (NEMA4)
SS	Stainless steel IP65 (NEMA4X)
Power supply	115 VAC / 230 VAC ± 10%, 50/60Hz, 300 VA (Switch selectable)
Dimensions (W x H x D)	610 mm x 981 mm x 220 mm (26.6" x 38.6" x 8.7")
Weight (approximately)	54 kg (without reagents)
Controller compatibility	Stand alone instrument
Warranty	2 years (fullfilling required maintenance intervals)

TOC/DOC (Total/Dissolved Organic Carbon)

ASTRO TOC UV Turbo

Part No. **Designation**

Z4195-X0XX **ASTRO UV-Turbo** Process TOC Analyzer

Z 4 1 9 5 - x 0 x x											
UV lamps & Cabinet material											
2 x UV lamp, housing made of CRS (IP65, NEMA4)										1	
2 x UV lamp, housing made of SS (IP65, NEMA4X)										3	
Measuring range											
0 ... 2000 µg/l										0	2
0 ... 5000 µg/l										0	5
0 ... 10 mg/l										0	6
0 ... 25 mg/l										0	7
0 ... 50 mg/l										0	8

Note: To order a complete system, please select the analyzer and an appropriate preference package.
Both items must be selected in your order, e.g. Z4195-1005 + Z4P95-2000-00.
Additionally the PS200 and AAS300 and Reagents must be considered.
The Astro UV Turbo TOC Analyser comes with manual, factory test certificate and start-up kit.
For Service contract with Warranty extensions, commissioning and trainings please refer to Appendix D.

Z4P95-XXXX-00 **ASTRO TOC Preference Package** (Factory installed options)

Z 4 P 9 5 - x x x x - 0 0											
Power supply											
115 VAC version										1	
230 VAC version										2	
Housing (Material & Options)											
Housing made of CRS										0	
Housing made of CRS with view window										1	
Housing made of SS with view window										3	
Options											
no additional options										0	0
Level Detection Kit										0	1
Additional UV Lamp										1	0
Level Detection Kit & Additional UV Lamp										1	1

Reagents for Astro TOC-UV

BCF889	Sodium persulfate, p.A., 1 kg
BCF890	Phosphoric Acid (85%), p.A., 1 L
BCF891	Potassium-Hydrogenphthalat, p.A., 50 gr.
LCW844	Standard solution 10 mg/l C, for TOCTAX (1 L)
5847700	ZERO SOL, <0.05 mg/l TOC, 4 L
FG5019201	Calibration Standards Kit for TOC600 - 125 ml bottles

Reagent consumption for ASTRO TOC UV Turbo

Astro UV-turbo model	Consumption for 4-5 weeks operation		
	BCF889	BCF890	BCF891
Z4195-X002	2	3	1
Z4195-X005	2	3	1

Accessories/Spare parts/consumables

Z200122	ASTRO TOC UV, START-UP Kit
Z200123	ASTRO TOC UV, 1 year spare parts kit
Z200124	ASTRO TOC UV, 2 year spare parts kit
Z200132	ASTRO TOC UV, FITTINGS and O-ring kit
Z200136	ASTRO TOC UV, 2 channel kit
Z200146	Conversion kit, TOC to TC

TOC/DOC (Total/Dissolved Organic Carbon)

ASTRO TOC UV

Part No.

Designation

Z4195-X0XX

ASTRO TOC UV Analyzer, 1 UV lamp

Z 4 1 9 5 - x 0 x x											
UV lamp & Cabinet material option											
1 x UV lamp, housing made of CRS (IP65, NEMA4)										1	
1 x UV lamp, housing made of SS (IP65, NEMA4X)										3	
Measuring range											
										Dilutor	
0 ... 5 mg/l										-	1 0
0 ... 10 mg/l										-	2 0
0 ... 25 mg/l										-	3 0
0 ... 50 mg/l										-	4 0
0 ... 100 mg/l										+	5 0
0 ... 200 mg/l										+	6 0
0 ... 500 mg/l										+	7 0

Z4195-X0XX

ASTRO TOC UV Analyzer, 2 UV lamp

Z 4 1 9 5 - x 0 x x											
UV lamps & Cabinet material											
2 x UV lamp, housing made of CRS1 (IP65, NEMA4)										2	
2 x UV lamp, housing made of SS1 (IP65, NEMA4X)										4	
Measuring range											
										Dilutor	
0 ... 100 mg/l										-	0 0
0 ... 200 mg/l										-	1 0
0 ... 500 mg/l										-	2 0
0 ... 1,000 mg/l										-	3 0
0 ... 1,000 mg/l										+	4 0
0 ... 2,000 mg/l										+	5 0
0 ... 5,000 mg/l										+	6 0
0 ... 10,000 mg/l										+	7 0
0 ... 20,000 mg/l										+	8 0



Note:

To order a complete system, please select the analyzer and an appropriate preference package.

Both items must be selected in your order, e.g. Z4195-1005 + Z4P95-2000-00.

Additionally the PS200 and AAS300 must be considered.

The Astro UV Turbo TOC Analyser comes with manual, factory test certificate and start-up kit.

For Service contract with Warranty extensions, commissioning and trainings please refer to Appendix D.

Z4P95-2000-00

ASTRO TOC Preference Package

(Factory installed options)

Z 4 P 9 5 - x x x x - 0 0											
Power supply											
115 VAC version										1	
230 VAC version										2	
Housing (Material & Options)											
Housing made of CRS										0	
Housing made of CRS with view window										1	
Housing made of SS with view window										3	
Options											
no additional options										0	0
Level Detection Kit										0	1
Additional UV Lamp										1	0
Level Detection Kit & Additional UV Lamp										1	1

TOC/DOC (Total/Dissolved Organic Carbon)

ASTRO TOC UV accessories

Part No. Designation

Reagents for Astro TOC-UV

BCF889	Sodium persulfate, p.A., 1 kg
BCF890	Phosphoric Acid (85%), p.A., 1 l
BCF891	Potassium-Hydrogenphthalat, p.A., 50 gr.

Reagent consumption for ASTRO TOC UV Turbo

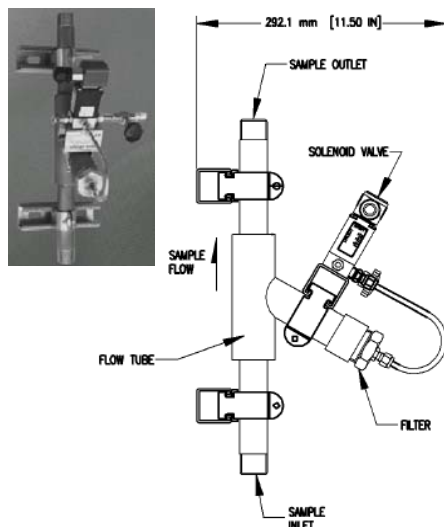
	Consumption for 4-5 weeks operation		
ASTRO 1 UV model	BCF889	BCF890	BCF891
Z4195-X010	1	2	1
Z4195-X020	2	2	1
Z4195-X030	3	2	1
Z4195-X040	3	1	1
Z4195-X050	2	1	1
Z4195-X060	3	1	1
Z4195-X070	3	1	1
ASTRO 2 UV model	BCF889	BCF890	BCF891
Z4195-X000	4	2	1
Z4195-X010	7	2	1
Z4195-X020	8	1	1
Z4195-X030	5	1	1
Z4195-X040	5	1	1
Z4195-X050	8	1	1
Z4195-X060	6	1	1
Z4195-X070	5	1	1
Z4195-X080	6	1	1

Accessories/Spare parts/consumables

Z200122	ASTRO TOC UV, START-UP Kit
Z200123	ASTRO TOC UV, 1 year spare parts kit
Z200124	ASTRO TOC UV, 2 year spare parts kit
Z200132	ASTRO TOC UV, FITTINGS and O-ring kit
Z200136	ASTRO TOC UV, 2 channel kit
Z200146	Conversion kit, TOC to TC

TOC/DOC (Total/Dissolved Organic Carbon)

ASTRO TOC Sampling system PS200 (DataSheet DOC053.52.03110)



The PS 200 Blow Back Filter is a self-cleaning sampling unit which protects on-line analyzers by filtering floating particles from the sample solution.

The blow back sequence can be operated manually or is controlled by the analyzers. The programmable control periodically shuts off the sample flow to the analyzer and applies compressed air in the opposite direction (blow back) to flush debris from the filter.

The PS200 is not suitable for water samples containing long fibres!

Furthermore the Filtrax might be considered as an alternative, but requires the acceptance of DOC measurement and prior approval by HACH LANGE!

Technical Data	
Subject to change without notice	
	PS200 Blow-back filter
Designation	self-cleaning sampling system for Astro TOC Analyzers
Filter mesh	100 µm Standard or 25, 50 and 300 µm optional
Process connection	inline or bypass
Inlet/Outlet (sample)	Inlet: 1" MNPT pipe (Standard), Outlet: 1" union fitting NPT or 1" flange (optional)
Inlet (instrument air)	¼" O.D.
Outlet (sample to analyzer)	⅛" O.D.
Inline installations	
pressure	0.7 ... 6.0 bar (10 ... 87 psig)
flow rate	8 ... 113 l/min (2 ... 30 gpm)
Bypass installation	
pressure	0.2 bar
flow rate	50 ... 300 ml/min (0.02 ... 0.08 gpm)
Ambient temperature	+5°C ... 50°C (41 ... 122°F), no direct sunlight
Required services	
Air pressure	up to 6.9 bar (100 psig), 15% above sample pressure dry instrument air preferred
Material	Filter body & elements, valves and connections: SS316 Mounts and clamps: Plated Carbon Steel
Enclosure rating	IP65, NEMA 4
Power requirements	24 VDC, 8W supplied by Astro TOC analyzer or external timer/power supply device
Dimensions	221 x 433 x 292 mm (W x H x D)
Weight (approximately)	5.3 kg (11.6 lbs)

Part No.	Designation
Z4200-100X	PS200 Blowback filter

Z 4 2 0 0 - 1 0 0 x

Filter mesh size option	
25 µm	4
50 µm	2
100 µm	Standard 1
300 µm	3
500 µm	5

TOC/DOC (Total/Dissolved Organic Carbon)

ASTRO TOC accessories - Purge gas purifier



Technical Data	
Subject to change without notice	
Purge gas purifier for TOC Analyzers	
Designation	Purge gas purifier for TOC Analyzers using air supplied by compressor Produces ultra-dry, CO ₂ -free air to less than 1 ppm CO ₂ purity Eliminates the trouble, safety risk and ongoing cost of gas cylinders
Purification performance	
Capacity	8 m ³ /h relative to 1 bar abs. and 20°C at 7 bar operating pressure and feed temperature of 35°C
CO ₂	< 1 ppm CO ₂
Non-methan HC's	< 0.003 ppm
Drying agent capacity	0.9 kg per vessel
Process requirements	requires compressor; not supplied with the instrument
pressure min.	5 bar
pressure max.	16 bar
Environmental	
Temperature operation	1°C ≥ T operation ≤ 50°C
humidity	100% r.h.
Protection class	IP54
Dimensions	210 x 390 x 312 mm (W x H x D)
Weight (approximately)	9 kg

Part No. Designation

LZY584	Air purifier / CO ₂ -Adsorber, 115 VAC AAS300
LZY585	Air purifier / CO ₂ -Adsorber, 230 VAC AAS300

Installation Kit for Air Purifier / CO₂ Absorber

LZY552	AAS300 connection kit	
	consisting of	
LZY503	Fitting and hose, 5 m	Accessory CO ₂ -Adsorber
LZY504	Pressure Control Valve 0.5-12bar	Accessory CO ₂ -Adsorber

Spare Parts / Replacements

LZY593	Servicekit 18 months	for CO ₂ -Adsorber Astro TOC
LZY594	Servicekit 36 months	for CO ₂ -Adsorber Astro TOC
LZY595	Drying agent 36 months	for CO ₂ -Adsorber Astro TOC
LZY587	Sealing CO ₂ -Adsorber for AAS300	

Oil in Water

FP360 sc (DataSheet DOC063.52.00488)



UV fluorescence analysis is a sensitive method to determine polycyclic aromatic hydrocarbons (PAHs) in water showing a strong correlation to the content of oil in water.

Measured is the intensity of radiation from a sample which absorbs light at a shorter wavelength and emits light at a longer wavelength (fluorescence).

PAHs are the integral parts of most mineral oil products and thus a very specific indicator of oil contamination in water bodies and process water.

Different kind of oils show different radiation characteristics.

For quantitative analysis a correlation has to be determined.

Controller compatibility



sc200



sc1000

Technical Data	
Subject to change without notice.	
FP360 sc	
Designation	UV fluorimeter used to continuously measure PAH (polycyclic aromatic hydrocarbons) concentration in water. The measurement values can be converted to reflect the total oil content for mineral oils.
Measuring method	UV fluorescent measurement process for polycyclic aromatic hydrocarbons (PAH) Excitation wavelength: 254 nm - Measurement wavelength: 360 nm
Measuring range	model depending
low measuring range	0 to 50 ppb and 0 to 500 ppb in relation to PAH calibration standard, corresponding to 0 to 1.5 ppm and 0 to 15 ppm oil calibration standard
high measuring range	0 to 500 ppb and 0 to 5000 ppb in relation to PAH calibration standard, corresponding to 0 to 15 ppm and 0 to 150 ppm oil calibration standard
Reproducibility	2.5 % of measurement value
Accuracy	5 % of measurement value ± 1 % from measurement range limit
Response time T_{90}	10 sec
Detection limit in pure water	1.2 $\mu\text{g/l}$ PAH
Calibration	Pre-calibrated with Phenanthrene, customer-specific calibration possible
Displayed values	ppb, ppm, $\mu\text{g/L}$, mg/L
Process connection	
Installation	Immersed directly into the media, inline or Bypass
p_{max}	
for probe	30 bar max
flow cell	1 bar max
Safety installation fitting	5 bar max
Sample Inlet	6/8 mm (ID/OD) (for bypass installation)
Drain (outlet)	Atmospheric (for bypass installation)
Temperature	
Sample	0 to 40 °C (32 to 104 °F)
Ambient	-5 to +45 °C (23 to 113 °F) -25 to +55 °C (-13 to 131 °F) [Sensor wetted by at least half from the measuring medium.]
Sensor Body Material	SS Mat 1.4571 or titanium
Cable length	1.5 or 10 m, extension cable up to maximum 50 m (Probe to controller)
Dimensions (L x Ø)	68 mm x 285 mm (2.68" x 11.22") (without plugs and suspension pin) 68 mm x 397 mm (2.68" x 15.63") (with additional cleaning option)
Weight (approximately)	approximately 1.8 kg
Maintenance requirement	Clean the measurement window if necessary, intervals dependent on measuring medium
Servicing interval	Every 2 years; 1/year service agreement on request, with warranty extension up to 5 year
Controller compatibility	sc100 and sc1000
Warranty	2 years, fulfilling required maintenance intervals, extendable to 60 month

For further technical data, please refer to Technical DataSheet or Instrument Manual

Oil in Water

FP360 sc (DataSheet DOC063.52.00488)

Part No. Designation

LXV441.99.XXX01 **FP360 sc**, Fluorescence Probe for PAH in water

L X V 4 4 1 . 9 9 . x x x 0 1											
Language / Country Code Selection											
Measuring range option											
0 ... 50 / 500 ppb								PAH equivalents		1	
0 ... 500 / 5000 ppb								PAH equivalents		2	
Probe material option											
Stainless Steel (Mat. 1.4571)										1	
Titanium										2	
Cable length/ Cleaning unit											
10m cable, w/o cleaning unit										1	
10m cable, w/ cleaning unit and fittings								for immersion applications only		2	
1.5m cable, w/o cleaning unit										3	

Mounting Hardware

LZX914.99.11110 Chain Mounting Assembly Kit for FP360 sc, made of SS316, Mat 1.4571, 5 m chain length

LZY669 Mounting Assembly Kit "Flow-Through", for FP360 sc
for clear water applications (drinking water, condensate, feed water...)
with 4 hose connectors and 2 hoses (6 and 8mm, 5m each), with 600*300mm mounting panel

LXY630.00.30000 Safety Installation Armature, Probe Adapter to fit-in and -out
probe in case of fully filled pipe, stainless steel flange incl.

LZY630.00.31000 Safety Installation Amrmature with stainless steel probe adapter plus carbon steel flange set
to fit-in and -out probe in case of fully filled pipe

LZY630.00.32000 Safety Installation Armature with stainless steel probe adapter w/o flange set
to fit-in and -out probe in case of fully filled pipe

LZY616 Flange-Set , stainless steel 1.4571 for Safety Armature

LZY617 Flange-Set , carbon steel for Safety Armature

DN65 Flange plus extention piece to weld to pipe

Specs Safety Armature LZY630.00.3x000

Pipe Connection: DN65; PN16

Pressure Range: <6 * 10⁵ Pa (6 bar)

Weight: 18 kg (w/o probe)

max. Length (driven out probe): ca. 550mm

Parts in contact with media - ball valve: stainless steel 1.4401, PTFE

Parts in contact with media - Armature: stainless steel 1.4571, NBR70

Oil in Water

FP360 sc (DataSheet DOC063.52.00488)

Optional Accessories

6860X03.99.0001 **HOAB** - High Output Airblast Cleaning System

6	8	6	0	X	0	3	.	9	9	.	0	0	0	1
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Power supply option

230 VAc	1
115 VAc	0

Language / Country Code Selection

Standard accessories (supplied with the instrument)

The following items are included as standard components of the self-cleaning kit:

- Tubing, 7.6 m (25 ft)
- Tie wraps
- HOAB compressor with mounting hardware
- Relay Barrier

LZY619 Air tube, connecting cleaning head with HOAB, 4/6 mm ID/OD, 5 m length
 LZY620 Air tube, connecting cleaning head with HOAB, 4/6 mm ID/OD, 10 m length
 LZY621 Air tube, connecting cleaning head with HOAB, 4/6 mm ID/OD, 25 m length

LZY672 Tube for flow cell sample inlet, 6/8 mm ID/OD, 5 m length
 LZY673 Tube for flow cell sample inlet, 6/8 mm ID/OD, 10 m length
 Cleaning Kit

Spare parts

LZY623 Connection cable 1,5 m, safety bushing incl.
 LZY624 Connection cable 10 m, safety bushing incl.
 LZY668 Schäkel 5mm, Edelstahl 1.4301
 LZY625 O-Ring and Srewset flow cell
 LZY626 Fitting set flow cell
 LZY674 Pressure ring and angled retainer for flow cell
 LZY745 Sicherungshülse mit Sicherungsring, für Anschlusskabel 1,5 und 10m
 LZY785 Probe adapter (only in combination with Safety Installation armature)

sc Extention cable

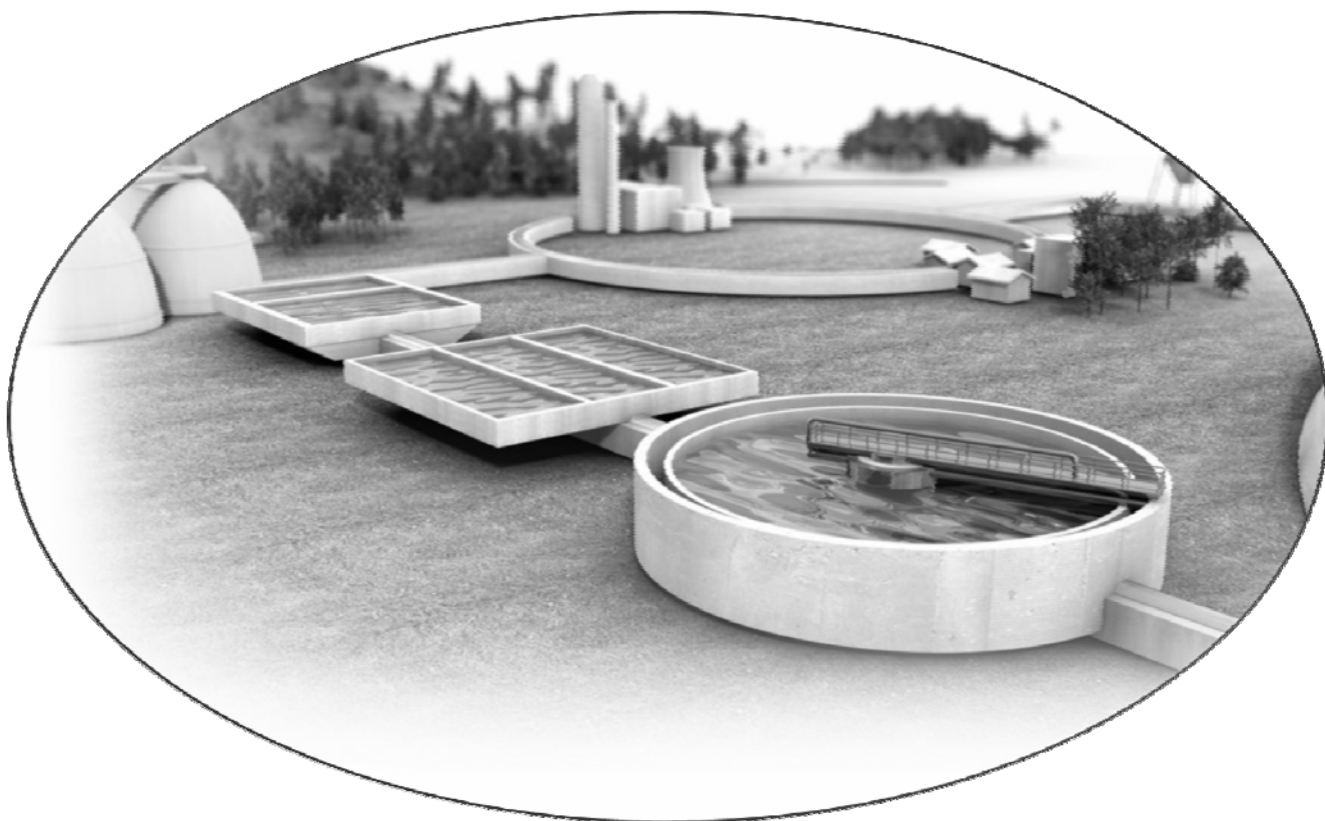
LZX848 Length 5 m
 LZX849 Length 10 m
 LZX850 Length 15 m
 LZX851 Length 20 m
 LZX852 Length 30 m

Documentation

DOC023.52.90161 User Manual, FP 360 sc, PAH/Oil-in-water probe, GB
 DOC273.99.90165 Mounting Instruction, FP360 sc, Bypass
 DOC273.99.90164 Mounting Instruction, FP360 sc, Rod Mounting

Turbidity, Suspended Solids & Particle Counter

Product overview



TURBIDITY & SUSPENDED SOLIDS

TSS portable (DataSheet DOC063.52.30017)



The TSS Portable uses a unique multi-beam alternating light method with infrared diode system allowing for a broad measuring range for both suspended solids and turbidity. The turbidity is measured using a two channel 90° scattered light measurement in accordance with ISO 7027. The suspended solids measurement uses two emitters and four receivers at an angle of 90° for turbidity and 120° for suspended solids.

Technical Data	
Subject to change without notice	
	TSS portable
Designation	Portable Turbidity, Suspended Solid and Sludge level Measuring system
Measuring technique	Infrared scattered light photometer, combined multiple beam alternating light method system and beam focusing; wavelength 860 nm
Measuring method	
Turbidity	90° scattered light (dual channel) in accordance with DIN ISO EN 27027
Suspended Solids	TSS measurement equivalent to DIN 38414 Modified absorbance measurement: Six-channel multiple angle measurement
Measuring range	
Turbidity	0.001 ... 4000 FNU
Suspended Solids	0.001 ... 400 g/l depending on media
Resolution	
Turbidity	0.001 at 0–0.999 FNU; 0.01 at 1–9.99 FNU; 0.1 at 10–99.9 FNU; 1 at >100 FNU
Suspended Solids	0.001 at 0–0.999 g/l; 0.01 at 1–9.99 g/l; 0.1 at 10–99.9 g/l; 1 at >100 g/l
Measurement accuracy	
Turbidity	typical <3 % of measured value at 1–1,000 FNU
Suspended Solids	typical <4 % of measured value at 0.5–20 g/l
Reproducibility	
Turbidity	typical <4 % of measured value
Suspended Solids	typical <5 % of measured value
Calibration	
Turbidity	factory calibrated with Formazine; ready to use
Suspended Solids	up to 4 calibration curves for different media / SS characteristics; 2-point user calibration
Process limitations	handheld instrument; not designated for permanent installations
Operation	Single, interval and continuous measurement (selectable)
p max for probe	10 bar max.
Temperature	
Sample	0–60 °C, up to 80 °C for short periods
Controller/Display Unit	Liquid Crystal Display, alphanumeric, 4 lines with 16 characters each 6 touch-sensitive keys, menu with fast access to key functions Datalogger for up to 290 measuring values Air bubble compensation via internal software Selectable Units: FNU, NTU, EBC, ppm, mg/L, g/L, %
Physical and Environmental	
Power requirements	7.2 VDC, supplied by 6 batteries or rechargeable NiMH-batteries 1.2VDC type AA, 1800 mAh
Power consumption	Approx. 60 mA
Sensor Material	Stainless steel, sensor window: sapphire
Enclosure rating	IP65
Cable length	10 m (32.8 ft) fixed cable, made of PUR, Ø 8.3 mm (0.33 in.); S-2000 connector, 6-pin marked at every single meter for Sludge Level measurement
Dimensions	Probe: Ø 40 mm (1.57 in.), length = 29 cm (11.42 in.) Display Unit: Meter: 110 x 230 x 40 mm (4.33x9.06x1.57 in.)
Weight (approximately)	
Probe	1600 g (56.44 oz, 3.53 lbs)
Display Unit	560 g (19.75 oz, 1.23 lbs)
Declaration of conformity	CE, TÜV GS
Controller compatibility	TSS portable Controller
Warranty	24 month, fulfilling the requested servicing intervals, extendable to 5 years

TURBIDITY & SUSPENDED SOLIDS

TSS portable according DIN EN ISO 7027 (DataSheet DOC063.52.30017)

Part No.	Designation
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LXV322.99.00001	TSS Portable Turbidity and Suspended Solids Measuring system Instrument comes with: TSS probe with 10 m cable, marked at every meter, display unit 1 set of rechargeable NiMH batteries, type AA, 1800 mAh, pk/6, with Charger with EU/US/UK/Australia/China adapter plug, instructions, in sturdy carrying case
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Spare parts

LZY604	Rechargeable Batteries, type AA, 1.2 VDC, 1800 mAh, pk/6
LZY606	Battery holder, for TSS portable Display units (replacement)
LZY607	Power supply with adapter plugs for EU/US/UK/Australia & China
LZY605	Hard-sided instrument case with handle, empty, for TSS portable, pk/1
LXV320.99.00001	TSS portable Display Unit, replacement, pk/1
LXV321.99.00001	TSS probe, with 10 m cable and plug, pk/1

Documentation (supplied with instruments, respectively on order with extra charge)

DOC023.52.90050	User Manual TSS PORTABLE, 2nd Ed, GB
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TURBIDITY & SUSPENDED SOLIDS

TSS sc series for Industrial Inline Application (DataSheet DOC063.52.00353)



Immersion sensor



TriClamp installation sensor



VARI installation sensor



XL installation sensor

TSS sc probes are the solution for almost all applications that require turbidity and suspended solids to be measured in fluids in the industrial sector. They deliver precise results in spring water as well as in thick sludge and emulsions.

Probes are available in different material (Stainless steel or Titanium) and different process connection designs (Clamp, Varivent) providing adaptation and suitability for nearly every demand of inline application.

Model option	Mounting	Application
TSS sc	Immersion sensor, TriClamp or Inline	Extremely accurate turbidity to highly conc. sludges
TSS W sc (mit Wischer)	Immersion sensor, TriClamp or Inline	Extremely accurate turbidity to highly conc. sludges
TSS HT sc	Immersion sensor, TriClamp	High temperature media
TSS VARI sc	Measuring tube VARI	Food and pharma industry
TSS XL sc	Measuring tube XL	Beverage industry
TSS Titan 2 sc	Immersion probe or TriClamp	Aggressive media
TSS Titan 7 sc	Immersion probe or TriClamp	Highly salt concentrated media
TSS Ex 1 sc	Immersion probe or TriClamp	Used for Ex Zone

Technical Data	
Subject to change without notice	
	TSS sc inline models
Measuring technique	Combined multiple beam alternating light method with IR diode system and beam focussing
Measuring method	
Turbidity	2-channel 90° scattered light measurement in accordance with DIN/EN 27027/ISO 7027, wavelength = 860 nm
Suspended Solids	120° scattered light measurement, wavelength = 860 nm
Measuring range	
Turbidity	0.001 ... 9,999 FNU
Suspended Solids	0.001 to 500 g/L as SiO2
Measurement accuracy	Up to 1,000 FNU/NTU: <5% of measured value ±0.01 FNU/NTU
Reproducibility	Turbidity: < 3%
	Suspended Solids: < 4%
Calibration	
Turbidity	factory pre-calibrated
Suspended Solids	onsite; typically 1-point calibration (up to 3 calibration point for highly fluctuating media)
Zero point	permanently pre-calibrated
Response time T90	1 s < T90 < 5 min (adjustable)
Process connection	
Installation	inline (Varivent, 2" Tri-Clamp or XL design)
p max for probe	TSS W sc TSS sc TSS HT sc TSS Ti sc TSS Ex1 sc TSS Vari sc TSS XL sc < 6 bar < 10 bar < 10 bar < 10 bar < 10 bar < 16 bar < 16 bar
Sample flow	max. 3 m/s
Distance to wall/floor:	Solid matter (TS) > 10 cm, turbidity (TRB) > 50 cm
Temperature	
Ambient	TSS W sc TSS sc TSS HT sc TSS Ti sc TSS Ex1 sc TSS Vari sc TSS XL sc 0 ... 50°C 0 ... 60°C 0 ... 90°C 0 ... 60°C -10 ... 50°C 0 ... 80°C 0 ... 80°C
(short term)	70°C 80°C 95°C 80°C 50°C 95°C 95°C
Sensor Material	Head: SS Mat 1.4460 respectively Titanium 2 or 7 Sleeve, shaft, shank: SS Mat 1.4571
(for details pls. Refer to manuals)	Sapphire glass Gaskets : FKM, optional FFKM Wipers (optional): PA (GF), TPV
	cable made of Semoflex (PUR) (for TSS sc, W sc, VARI sc, XL sc)
	cable made of Teflon (PTFE) (for TSS HT sc, Titanium sc)
Cable length	10 m fixed cable, made of respective material, extendable to 100 m using digital extension cables
Dimensions	TriClamp models: 332 x 40 mm (L x Ø) TSS VARI sc, TSS XL sc: 232 x 40 mm (L x Ø)
Weight (approximately)	TriClamp models: approximately 1.6 kg TSS VARI sc, TSS XL sc: approx. 1.5 kg
Maintenance requirement	1.0 h/month, typical
Servicing interval	upon request; 12 months
Declaration of conformity	CE, GS, UL/CSA
ATEX classification	Equipment group II, category 2, only for use up to ATEX zones 1 and 2 (model dependant)
Ignition protection type	EX II 2G Ex d IIC T6 Ta = -10 to 50 °C
Controller compatibility	sc200 and sc1000
Warranty	24 month, extendable to 5 years fulfilling the requested servicing intervals

TURBIDITY & SUSPENDED SOLIDS

TSS sc series for Industrial Inline Application (DataSheet DOC063.52.00353)

Part No. **Designation**

LXV3XX.99.X.0001 TSS sc Inline probe series

L	X	V	3	x	x	.	9	9	.	x	0	0	0	1
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Model option

TSS sc	2	3
TSS W sc	2	4
TSS HT sc	2	5
TSS VARI sc	2	6
TSS XL sc	2	7
TSS X1 sc	2	8
TSS Titanium2 sc	2	9
TSS Titanium7 sc	3	0

Process connection

Type: submersion probe / XL VARIVENT	1
Type: TriClamp	2
Type: Inline (for mounting with safety inline fitting)	3

 **Note:** All inline probes come with Silicon gasket and a 2" clamp (LZY656).
 sc Digital Controller must be ordered separately.
 For technical data, interfaces and additional costs, refer to the chapter "Controllers, Display Units"
 The maximum cable length between the sensor and controller is limited to 100m.
 Using different cables instead of the above mentioned will void the warranty.
 For Service contract with Warranty extensions, commissioning and trainings please refer to Appendix D.
 For Mounting assembly please refer to the chapter Mounting assembly
 Please refer to Appendix E for more details about manuals and user interfaces in different available languages

 **Note:** The TSS Ex1 sc model is suitable for EX II 2G Ex d IIC T6 Ta (-10 ... 50°C) areas
 The sc digital controllers can be used in non-Ex areas only.
 According ATEX requirements, the seller/reseller must provide a manual in local language.
 Therefore the instrument may have limitations to sales. Please contact HACH LANGE.

Documentation (supplied with instruments, respectively on order with extra charge)

DOC023.52.90154 User manual, TSS sc, GB
 DOC023.52.90171 User manual, TSS Ex1 sc, GB

Replacements / SpareParts

LZY635 Maintenance set "TSS sc with wiper"
 consisting of wiper, wiper axis and gaskets
 LZY634 WiperSet "TSS sc", pk/5
 including 5 spare wipers, screw driver and screws

Accessories for EEx-applications

LZY586 8118/122-099 terminal box EEx e
 Terminal box for connection of cable end with coax- and multi-cable for hazardous areas of zones 1, 2, 21 and 22.
 LZI-12020 Grounding clip for TSS / TSS sc Ex-probes

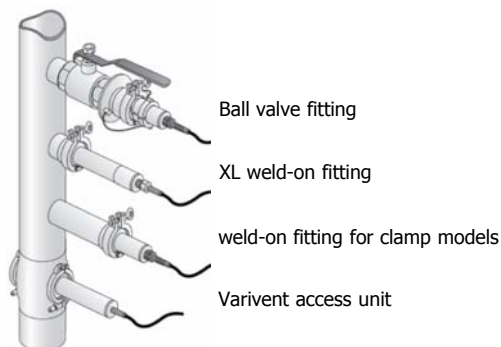
TURBIDITY & SUSPENDED SOLIDS

TSS sc Inline Mounting accessories (DataSheet DOC063.52.00353)

Part No. **Designation**

Mounting Hardware compatibility chart

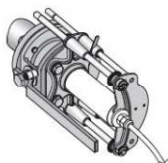
TSS Probe model	Weld-on fitting	Ball valve fitting	Ball valve fitting for Ex1 probe	XL access unit	Varivent access unit DN65 - DN125
TSS sc	x	x			
TSS W sc	x	x			
TSS HT sc	x	x			
TSS VARI sc					x
TSS XL sc				x	
TSS Titanium-2 sc	x	x			
TSS Titanium-7 sc	x	x			
TSS Ex1 sc			x		



Safety armature with ball valve fitting

LZY630.00.XX000

Safety armature made of stainless steel, for sensor connection, by filled up pipeline. Pipe connection DN65; PN16; DIN2633. Pressure range: ≤ 6 bar



L Z Y 6 3 0 . 0 0 . x x 0 0 0

Model option

TSS Inline sc	1
TSS EX1 Inline sc	2

Process connection

Safety armature TSS sc w/ stainless steel flange	2
Safety armature incl. welding neck flange, stainless steel, LZX660 ...	0
Safety armature incl. welding neck flange (c-steel) LZX661	1



Note:

Intact seals are a mandatory for safe and accurate measurement.
To ensure highest operational reliability of the sensor according to Hygienic Standards, the seal should be replaced at regular intervals.
Mounting assemblies for Tank rim fixing LZX767(for sc200) or LZX 957 (for sc1000) a and LZY714.99.53120 are essential for installation and must be ordered separately.

LZY714.99.53120
LZY767
LZX957

Mounting Assembly Kit "Rim Mounting", Stainless Steel, with 90° adapter
Mounting Hardware sc200 Pole with weather and UV shield
Floor Mounting Hardware SC1000 complete with sun/weather shield and 2 metre holder

Clamps and Gaskets for Tri-clamp mounting

LZY656	2" Clamp, 2 segment type with thumb screw, for tri-clamp mounting used with gaskets made of Silicon or FPM
LZY653	Gasket, made of Silicon, pK/1 Replacement, used for clamp mounting
LZY655	Gasket, made of FPM (VITON®), pK/1 Replacement, used for clamp mounting
LZY657	2" Clamp, 3 segment type with thumb screw, for tri-clamp mounting used with gaskets made of PTFE
LZY654	Gasket, made of PTFE (Teflon®), pK/1 Replacement, used for clamp mounting
LZI-11333	Blind flange 2" Tri-Clamp® stainless steel 1.4435

TURBIDITY & SUSPENDED SOLIDS

TSS Vari sc accessories for Hygienic Inline applications (DataSheet DOC063.52.00353)

Part No. Designation

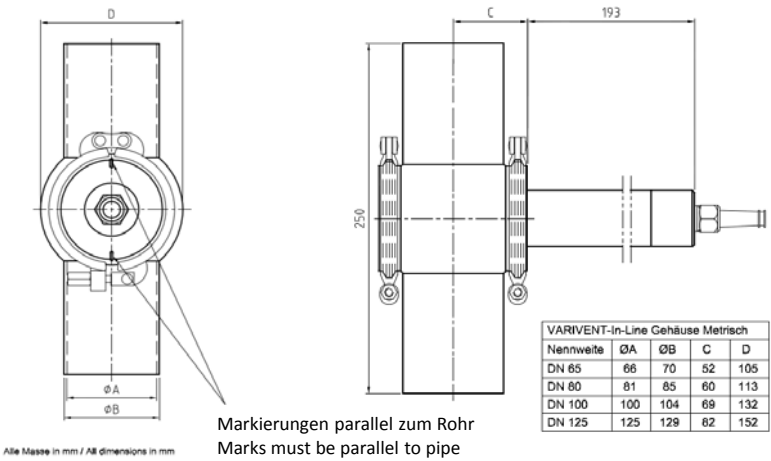
Inline - Varivent® access units

LZU304.99.000X0 Varinline Flow-thru fitting
for connection to pipes, made of SS 316L Mat. 1.4404
suitable for TSS VARI sc

L	Z	U	3	0	4	.	9	9	.	0	0	0	x	0
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Model option Form N (Ø 68 mm) (size metric)

DN65		1
DN80		2
DN100		3
DN125		4



TURBIDITY & SUSPENDED SOLIDS

TSS XL sc accessories for Hygienic Inline applications (DataSheet DOC063.52.00353)

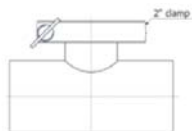
Part No.

Designation

"Sanitary style" inline access units

Flow-Thru tee with 2" tri-clamp connection
for connection to pipes, made of SS 316L Mat. 1.4404
suitable for TSS XL sc models

L Z U 3 0 4 . 9 9 . 1 0 0 x 0



Model option (size metric)

DN65	1
DN80	2
DN100	3
DN125	4
DN150	5
DN200	6
DN250	7

"Sanitary style" - Weld-on fitting

Weld-on fitting with 2" tri-clamp connection
with shaped end to fit to appropriate pipe, made of SS 316L Mat. 1.4404
suitable for TSS XL sc models

L Z U 3 0 2 . 9 9 . 1 0 0 x 0



Model option (size metric)

DN65	1
DN80	2
DN100	3
DN125	4
DN150	5
DN200	6
DN250	7

LZU302.99.10000

Weld-on fitting with 2" tri-clamp connection, for TSS XL sc
Unprocessed pipe end



Insertion Retractable In-Line Fittings

LZU300.99.00000

Retractable ball valve fitting for all TSS sc TriClamp sensors (except EX1, TITANIUM, VARI & XL)

LZU301.99.00000

Retractable ball valve fitting for TSS EX1 sc TriClamp sensor



Note:

Maximum Operating pressure = 6 bar

Maximum residual pressure at probe retraction = 1.5 bar

including branch piece and dismounting assistance / security wires

TURBIDITY & SUSPENDED SOLIDS

TSS sc accessories for Inline Application continued (DataSheet DOC063.52.00353)

Part No.

Designation



Weld-on fitting with Tri-clamp connector

Weld-on fitting with 2" tri-clamp connection

L	Z	U	3	0	2	.	9	9	.	0	0	0	x	0
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with shaped end to fit to appropriate pipe, made of SS 316L Mat. 1.4404
suitable for all TSS sc Trip-clamp models (except EX1, VARI and XL models)

Model option (size metric)

DN65	1
DN80	2
DN100	3
DN125	4
DN150	5
DN200	6
DN250	7

Further access units with Tri-clamp connector

LZU302.99.00000

Weld-on fitting with 2" tri-clamp connection, for TSS sc models

(except EX1, VARI, XL models)

Unprocessed pipe end



LZU303.99.00000

Branch piece, inner thread, for TSS sc Trip-clamp models

(except EX1, VARI, XL models)

Inner thread (G1½")

Digital extension cable (between sc controller and probe)

LZX848

Digital Extension Cable, 5 m

LZX849

Digital Extension Cable, 10 m

LZX850

Digital Extension Cable, 15 m

LZX851

Digital Extension Cable, 20 m

LZX852

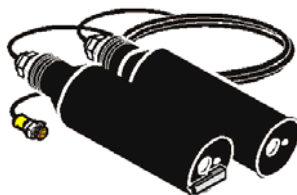
Digital Extension Cable, 30 m

LZX853

Digital Extension Cable, 50 m

TURBIDITY & SUSPENDED SOLIDS

SOLITAX sc series for Immersion Application (DataSheet DOC063.52.00353)



Solitax t-line

Process probe for continuous monitoring and control of turbidity in water (e.g. in the sewage plant outfall, surface water or drinking water).

Probes comes in a rugged plastic body and are available without or optional automatic self-cleaning Wiper system.

The measurement data is displayed and processed with the help of sc controllers.



Solitax ts-line & hs-line

Process probes with a combined absorption/scattered light process for measuring lowest turbidity levels in accordance with DIN ISO EN 27027 as precisely, reliably and, of course, independently of coloration as high sludge levels.

Probe Housing available in SS316 (V4A) or Plastic material for various application - available without or optional automatic self-cleaning Wiper system. Analysis by means of the sc Digital Controller Platform.

Controller compatibility



sc200



sc1000

Technical Data Subject to change without notice		
	SOLITAX sc t-line	SOLITAX sc ts-line & hs-line
Measuring technique	Infrared scattered light photometer	Infrared duo scattered light photometer for measurement independent of colour
Measuring method	turbidity measurement in accordance with DIN ISO EN 27027	turbidity measurement in accordance with DIN EN 27027; TSS measurement equivalent to DIN 38414
Measuring range		
Turbidity	0.001 ... 4000 FNU	0.001 ... 4000 FNU
Suspended Solids	-	ts-line: 0.001 ... 50.0 g/l TSS hs-line: 0.001 ... 500.0 g/l TSS
Measurement accuracy	Turbidity: < 1.0 % with calibration, < 5.0 % without calibration	
Calibration	Turbidity: factory pre-calibrated (individual calibration up to 5 calibration points) TSS: gradient once for Dry matter	
Process variation coeff.	1 % according DIN 38402	
Response time T ₉₀	0.5 s < T ₉₀ < 5 min (adjustable)	
Measurement interval	0.3 sec	
Process connection		
Installation	Immersed directly into the media	
p max for probe	≤ 6 bar (or ≤ 60m)	
Sample flow	max. 3 m/s (the presence of air bubbles affects the measurement)	
Temperature		
Sample	+2 °C to +40 °C	
Ambient	+2 °C to +40 °C	
Sensor Material	Plastic (PVC)	SS, Mat. 1.4571 (V4A) or Plastic (PVC)
Cable length	10 m fixed cable, made of PUR, extendable to 100 m using digital extension cables	
Dimensions	200 x 60 mm (L x Ø)	
Weight (approximately)	2 kg	2.6 kg
Maintenance requirement	0.5 h/month, typical	
Servicing interval	12 months	
Declaration of conformity	CE, TÜV GS, UL/CSA	
Controller compatibility	sc200 and sc1000	
Warranty	24 month, fulfilling the requested servicing intervals, extendable to 5 years	

TURBIDITY & SUSPENDED SOLIDS

SOLITAX sc series for Immersion Application (DataSheet DOC063.52.00353)

Part No. **Designation**

LXV423.99.12000 **Solitax sc**, with 10m cable, without sc controller

LXV423.99.xxx00 Language / Country Code Selection											
Housing material option											
Stainless steel (SS316) not available for t-line										0	
PVC housing										1	
Cleaning option											
with automatic wiper cleaning (wiper made of Silicon)										0	
without cleaning option										2	
Model option											
t-line Turbidity (0.001 ... 4000 FNU) in PVC available only										0	
ts-line Turbidity & SS (0.001 ... 4000 FNU; 0.001 ... 50 g/l SS)										1	
hs-line Turbidity & SS (0.001 ... 4000 FNU; 0.001 ... 500 g/l SS)										2	

Standard accessories (supplied with the instrument)

- | | |
|--|--|
| 1 Instrument manual | Mounting assemblies for Tank rim fixing LZX767(for sc200) or LZX 957 (for |
| 1 Factory Test Certificate | sc1000) and LZY714.99.53120 are essential for installation and must be |
| 1 set of wiper blades, pk/5 | ordered separately. |
| depending on availability of the cleaning system | |

Note: sc Digital Controller must be ordered separately.
 For technical data, interfaces and additional costs, refer to the chapter "Controllers, Display Units"
 The maximum cable length between the sensor and controller is limited to 100m.
 Using different cables instead of the above mentioned will void the warranty.
 For Service contract with Warranty extensions, commissioning and trainings please refer to Appendix D.
 For Mounting assembly please refer to the chapter Mounting assembly
 Please refer to Appendix E for more details about manuals and user interfaces in different available languages

Mounting assembly for Immersion application

LZY714.99.53120	Mounting Assembly Kit "Rim Mounting", Stainless Steel, with 90° adapter
LZY767	Mounting Hardware sc200 Pole with weather and UV shield
LZX957	Floor Mounting Hardware SC1000 complete with sun/weather shield and 2 metre holder

Digital extension cable (between sc controller and probe)

LZX848	Digital Extension Cable, 5 m
LZX849	Digital Extension Cable, 10 m
LZX850	Digital Extension Cable, 15 m
LZX851	Digital Extension Cable, 20 m
LZX852	Digital Extension Cable, 30 m
LZX853	Digital Extension Cable, 50 m

Spare parts

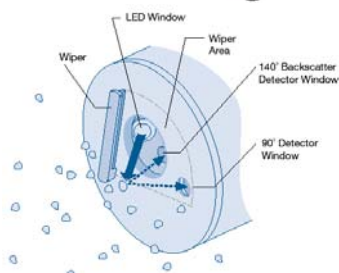
LZX050	Set of wiper blades for Solitax probes, made of silicone for standard applications, pk/5
LZX578	Set of wiper blades for Solitax probes, made of Viton for e.g. media containing oil, pk/5
LZX421	Set of seals only for Solitax probes with wiper

Documentation (supplied with instruments, respectively on order with extra charge)

DOC023.52.03232	Instrument manual, SOLITAX sc, GB
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TURBIDITY & SUSPENDED SOLIDS

SOLITAX sc - for measurement in pipes (DataSheet DOC063.52.00353)



Process probes designed with a dual infrared absorption/scattered light technique for measuring lowest turbidity levels in accordance with DIN ISO EN 27027 just as precisely, reliably and continuously as high sludge content.

The patented optical system allows to measure independently of coloration.

Probe Housing made of SS316 (V4A) - available with optional automatic self-cleaning Wiper system or without.

The measurement data is displayed and processed with the help of sc controllers.

Controller compatibility



sc200



sc1000

Technical Data		
Subject to change without notice		
	SOLITAX sc inline	SOLITAX sc high-line
Designation		
Measuring technique	Infrared dual scattered light photometer for measurement independent of colour	
Measuring method	Turbidity measurement in accordance with DIN EN 27027; TSS measurement equivalent to DIN 38414	
Measuring range		
Turbidity	0.001 ... 4000 FNU	0.001 ... 4000 FNU
Suspended Solids	0.001 - 50.0 g/l TSS	0.001 - 500.0 g/l TSS
Measurement accuracy	Turbidity: 1.0 % with calibration, 5.0 % without calibration	
Calibration	Turbidity: factory pre-calibrated (individual calibration up to 5 calibration points) TSS: gradient once for TS content	
Process variation coeff.	1 % according DIN 38402	
Response time T ₉₀	0.5 s < T ₉₀ < 5 min (adjustable)	
Measurement interval	0.3 sec	
Process connection		
Installation style	insertion installation, retractable by using suitable mounting assembly	
Sample flow	max. 3 m/s (the presence of air bubbles affects the measurement)	
Pipe diameter	≥ DN80 for SS, ≥ DN100 for drinking water and clean water applications	
Pressure p max	≤ 6 bar (or ≤ 60m)	
Temperature		
Sample	+2 °C to +40 °C	
Ambient	+2 °C to +40 °C	
Sensor Material	Stainless Steel, Mat. 1.4571 (V4A)	
Cable length	10 m fixed cable, made of PUR, extendable to 100 m using digital extension cables	
Dimensions	315 x 60 mm (L x Ø)	
Weight (approximately)	2.4 kg	
Maintenance requirement	0.5 h/month, typical	
Servicing interval	12 months	
Declaration of conformity	CE, TÜV GS, UL/CSA	
Controller compatibility	sc200 and sc1000	
Warranty	24 month, fulfilling the requested servicing intervals, extendable to 5 years	

TURBIDITY & SUSPENDED SOLIDS

SOLITAX sc - for measurement in pipes (DataSheet DOC063.52.00353)

Part No.	Designation
LXV424.99.02100	Solitax sc , Insertion probe, with 10m cable, without sc controller

LXV424.99.02100 Language / Country Code Selection Cleaning option with automatic wiper cleaning (wiper made of Silicon) 0 without cleaning option 2 Model in-line Turbidity & SS (0.001 ... 4000 FNU; 0.001 ... 50 g/l TSS) 1 high-line Turbidity & SS (0.001 ... 4000 FNU; 0.001 ... 500 g/l TSS) 2											
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Standard accessories (supplied with the instrument)

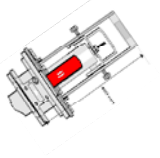
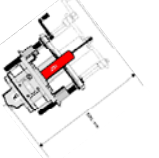
1 Instrument manual	For pipeline mounting assembly, the inline fitting LZX337, LZX461 or LZX936 is essential for installation and must be ordered separately.
1 Factory Test Certificate	
1 set of wiper blades, pk/5	
depending on availability of the cleaning system	

Note: sc Digital Controller must be ordered separately.
 For technical data, interfaces and additional costs, refer to the chapter "Controllers, Display Units"
 The maximum cable length between the sensor and controller is limited to 100m.
 Using different cables instead of the above mentioned will void the warranty.
 For Service contract with Warranty extensions, commissioning and trainings please refer to Appendix D.
 For Mounting assembly please refer to the chapter Mounting assembly
 Please refer to Appendix E for more details about manuals and user interfaces in different available languages

For further extension cables, please consult the chapter sc controller/display units accessories

Mounting assembly for Insertion application

LZX660	Welding Neck flange made of stainless steel; essential for connection of the inline fitting
LZX661	Welding Neck flange made of C steel; essential for connection of the inline fitting

Technical data:	DataSheet: DOC053.98.03414		
Mounting assembly, insertion retractable			
Part number	LZX461	LZX936	LZX337
Designation	for pipes drained and pressureless	for filled pipes but pressureless	for filled & pressurized pipes
Pressure (absolute)	≤ 1 bar	≤ 1 bar	≤ 5 bar
Pipe connection	flange DN 65; PN 16; DIN 2633	flange DN 65; PN 16; DIN 2633	flange DN 65; PN 16; DIN 2633
Length when installed	210 mm	310 mm	310 mm
Length when removed	360 mm	550 mm	550 mm
Weight (without probe)	approx. 2.7 kg	approx. 16 kg	approx. 18 kg

Spare parts

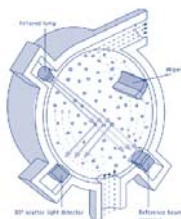
LZX050	Set of wiper blades for Solitax probes, made of silicone for standard applications, pk/5
LZX578	Set of wiper blades for Solitax probes, made of Viton for e.g. media containing oil, pk/5
LZX421	Set of seals only for Solitax probes with wiper, pk/2
LZY441	Crank-handle
LZX350	O-Ring for inline fitting LZX337 (2 pcs.)

Documentation (supplied with instruments, respectively on order with extra charge)

DOC023.52.03232	Instrument manual, SOLITAX sc, GB
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TURBIDITY in Bypass (Ultra-Low to Mid range)

ULTRATURB sc models according DIN EN ISO 7027 (DataSheet DOC053.52.03217)



Precision turbidity sensor for the measurement of the turbidity in ultraclear to medium turbidity media in bypass. Ideal for safeguarding the quality of drinking water and for filtration management in water conditioning plants and wells.

Extremely low background noise with permanent calibration, with microprocessor-controlled self-diagnostics and optional self-cleaning measuring feature.

Physical and mathematical elimination of air bubbles.

Instruments using sc digital controller for one, two or more turbidity sensors or in combination with any other digital probe/sensor or analyser.

Controller compatibility



sc200



sc1000

Technical Data		
Subject to change without notice		
	Ultraturb plus sc	Ultraturb sc
Designation	Process Bypass Turbidimeter for low range to mid range applications	
Instrument design	Dual-beam Process Nephelometer with automatic wiper cleaning system (time controlled or manually)	Dual-beam Process Nephelometer
Measuring principle	90° infrared pulsed, scattered light measuring technique	
Measuring method	according DIN EN ISO 7027	
Measuring range	0.0001 - 1000 FNU (Dimension TE/F, FTU, NTU selectable) 0.0001 to 250 EBC 0.0001 to 2500 ppm SiO2	
Measuring resolution	0.0001 to 0.9999 1.00 to 9.99 10.0 to 99.9 100 to 1000	
Measuring uncertainty	±0.008 or 1% of actual value in the range 0-10 FNU	
Measuring reproducibility	±0.003 or 0.5% of actual value in the range 0-2 FNU	
Response time T ₉₀	1 ... 60 sec (user selectable)	
Air bubble compensation	physical - mathematical	
Calibration	Permanently precalibrated by the manufacturer Calibration/Verification using Formazine, StablCal or CVM dry standards	
Outputs	I/O, MODBUS, ProfiBUS DP, LONBUS, Relais via sc Controller series	
Cable length	up to 100 m using digital connection cables	
Process connection		
Installation style	Bypass installation	
Pressure	6 bar max @ 20°C	
Sample inlet	13 mm ID hose or fixed connection using G+F system parts	
Drain (outlet)	13 mm ID hose or fixed connection using G+F system parts	
Sample flow	200 - 1000 ml/min	
Temperature		
Sample	+2°C to 40°C	
Ambient	+2°C to 40°C	
Enclosure rating	IP65	
Material	Housing: ASA Measuring chamber: NORYL GFN2 Wiper axe: SS1.4571 Measuring window: Quartz glass Wiper profile: Silicon	
Dimensions	250 x 240 x 210 mm (H x W x D)	
Weight (approximately)	approx. 1.9 kg	
Maintenance requirement	0.5h/month (model with wiper) 2h/month (model without wiper), typical	
Controller compatibility	sc200 and sc1000	
Warranty	24 month; extendable to 60 month	

TURBIDITY in Bypass (Ultra-Low to Mid range)

ULTRATURB sc models according DIN EN ISO 7027 (DataSheet DOC053.52.03217)

Part No.	Designation
LPV415.99.01001	ULTRATURB sc , without sc controller and without connection cable

L	P	V	4	1	5	.	9	9	.	x	x	0	0	1
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Language / Country Code Selection	
Cable length option	
without connection cable	0
with 0.35 m connection cable	1
with 1 m connection cable	8
with 5 m connection cable	2
with 10 m connection cable	3
with 15 m connection cable	4
with 20 m connection cable	5
with 30 m connection cable	6
with 50 m connection cable	7
model option	
Ultraturb plus (with automatic wiper cleaning)	0
Ultraturb basic (without automatic cleaning)	1
Ultraturb plus seawater (with automatic wiper cleaning)	2

Standard accessories (supplied with the instrument)

- 1 set of wiper blades (for 4 changes) only for models with cleaning option
 - 1 accessory set (LZP816)
 - 1 set of operating instructions
 - 1 Factory Test Certificate
- Connection cable is essential for operation and must be ordered with the instrument, resp. individually.

Note: sc Digital Controller must be ordered separately.
 For technical data, interfaces and additional costs, refer to the chapter sc controller/display units
 The maximum cable length between the sensor and controller is limited to 100m.
 Using different cables instead of the above mentioned will void the warranty.
 For further extension cables, please consult the chapter sc controller/display units accessories
 Please refer to Appendix E for more details about manuals and user interfaces in different available languages
 For Service contract with Warranty extensions, commissioning and trainings please refer to Appendix D.

Calibration Tools

LZV451	Turbidity- Syringe- Calibration- Set for "Wet Calibration" using Formazine Standard
LCW813	Formazin Primary Standard, Stock Solution, 4000 NTU, 100 ml
LZV325	Set of filters for zero calibration (0.2 µm diaphragm filter incl. connecting material)

CVM calibration module, Dry standard, for instrument verification

LZV414.00.00000	0.6 NTU
LZV414.00.10000	1.5 NTU
LZV414.00.20000	6 NTU
LZV414.00.30000	15 NTU
LZV414.00.40000	25 NTU
LZV488	Mounting bracket
4668000	Bubble trap / head regulator

Spare parts

LZV275	Set of wiper blades for 4 changes
LZX303	Desiccant bag 0.5 U
LZX304	Desiccant bag 4 U
LZP816	Accessory set (connection)

Documentation (supplied with instruments, respectively on order with extra charge)

DOC023.52.03231	Instrument manual, ULTRATURB plus sc, GB
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TURBIDITY in Bypass (low range & ultra low range)

1720 E sc & FilterTrak 660 sc (DataSheet DOC053.52.03715 & DOC063.52.00433)



The 1720 E sc measures turbidity by directing an incandescent light from the sensor head assembly down into the sample in the turbidimeter body. Light scattered at 90° by suspended particles in the sample is detected by the sensor's submerged photocell. The amount of light scattered is proportional to the amount of turbidity in the sample. The instrument meets and exceeds USEPA Method 180.1 (using Tungsten lamp) for drinking water compliance.



The FilterTrak 660 sc Laser Nephelometer is designed specifically to detect changes in turbidity as low as 0.0005 NTU. Using advanced laser optics and signal processing, the instrument detects increased concentrations of submicron-sized particles that are a precursor to larger particles. This allows for early filter deterioration detection that meets or exceeds that of particle counters-all with the day-to-day convenience, simplicity, and reliability of a Hach turbidimeter. Operators can detect impending filter breakthrough, delineate filter ripening, and maximize effective filter run time.

Controller compatibility



sc200



sc1000

Technical Data		
Subject to change without notice		
	1720 E sc	FilterTrak 660sc
Designation	Process Bypass Turbidimeter for (ultra-) low range to mid range applications	
Measuring principle	Nephelometric acc. USEPA 180.1	Nephelometric acc. USEPA 10133
Light source	Tungsten lamp	Class 1 Laser 10 mW, 660 nm
Measuring range	0.0001 ... 100 NTU, freely programmable	0.001 ... 5000 mNTU (milli NTU)
Measuring resolution	0.0001 from 0 to 9.9999 NTU	0.001 mNTU in lowest range; 0.1 mNTU in highest range
Measuring uncertainty	±2% or ± 0.015 NTU from 0 - 10 NTU; whichever is greater ±5 % of reading from 10 - 40 NTU; ±10% of reading from 40 - 100 NTU	± 3% of reading or ± 5 mNTU whichever is greater (based on StablCal® Stabilized Formazin Standards)
Response time T ₉₀	6, 30, 60, 90 sec (programmable) 75 sec for a full scale step change	0 - 90 s (user selectable) 75 s for a full scale step change
Air bubble compensation	physical; built-in bubble removal system	User selectable: On (default) or Off
Calibration	precalibrated by the manufacturer (Calibration/Verification with Formazine, StablCal, or ICE PIC solid standard)	precalibrated by the manufacturer Single point @ 800 mNTU ± 50 mNTU
Outputs	I/O, MODBUS, ProfiBUS DP, LONBUS, Relais via sc controller series	
Cable length	2 m (6.6 ft) (10 m / 32.8 ft. max.)	2 m (6.6 ft) (100 m / 328 ft. max.)
Process connection		
Installation style	Bypass installation with ambient pressure outlet (wall and floor mounting)	
Sample inlet	¼" NPT female thread, ¼" pipe compressing fitting (supplied)	
Drain (outlet)	½" NPT female, ½" hose barb (supplied)	
Sample flow	250 ... 750 ml/min	100 ... 750 ml/min
Temperature		
Sample	0 - 50°C (32 - 121°F)	
Ambient	+2°C ... 50°C for single sensor system +2°C ... 40°C for double sensor system	0°C ... 40°C (32 – 100°F)
Humidity (operation)	5 to 95 % non condensing	
Enclosure rating	IP66 (NEMA4X)	
Material	Polystyrene (corosion resitant)	
Dimensions	40.6 x 30.5 x 25.4 cm (H x W x D)	
Weight (approximately)	4.6 kg	7.7 kg
Maintenance requirement	2 h / month (typical)	
Controller compatibility	sc200 or sc1000	
Warranty	24 month; extendable to 60 month	

TURBIDITY in Bypass (low range & ultra low range)

1720 E sc & FilterTrak 660 sc (DataSheet DOC053.52.03715 & DOC063.52.00433)

Part No. Designation

LPV417.99.00002 **1720E sc**, Turbidity sensor, without sc controller, with 2m connection cable

L P V 4 1 7 . 9 9 . 0 0 0 0 2

Language / Country Code Selection *please refer to Appendix E for further info*

LPV421.99.00002 **FilterTrak 660 sc**, without sc controller, with 2 m connection cable

L P V 4 2 1 . 9 9 . 0 0 0 0 2

Language / Country Code Selection *please refer to Appendix E for further info*



Note:

sc Digital Controller must be ordered separately.

For technical data, interfaces and additional costs, refer to the chapter sc controller/display units

Due to power requirements for Tungsten lamp:

the maximum of 1720E sc sensors which can be connected to sc 200 controller is limited to 2 devices!

the maximum of 1720E sc sensors which can be connected to sc 1000 controller is limited to 3 devices!

The maximum cable length between the 1720 E sc sensor and the sc controllers is limited to 10 m in total.

If multiple 1720 E sc sensors are connected to a sc controller, the max. ambient operating temperature will be limited to 40°C.

All restrictions mentioned before do not apply to FilterTrak sc probes, exceptional the cable length of max. 100 m.

Please refer to Appendix E for more details about manuals and user interfaces in different available languages

For Service contract with Warranty extensions, commissioning and trainings please refer to Appendix D.

Calibration tool 5236400 is essential for operation/calibration; 1720 calibration cylinders are not suitable!!!

Extension cables

LZX848	Digital Extension Cable, 5 m
5796000	Digital Extension Cable, 7.7 m (for 1720 E sc and SS7sc models only!)
LZX849	Digital Extension Cable, 10 m
LZX850	Digital Extension Cable, 15 m
LZX851	Digital Extension Cable, 20 m
LZX852	Digital Extension Cable, 30 m
LZX853	Digital Extension Cable, 50 m

Accessories

2788453	StabCal calibration Standard 800 mNTU (1L)
2723353	StabCal Standard 100 mNTU (1L)
2697953	StabCal Standard 300 mNTU (1L)
2698053	StabCal Standard 500 mNTU (1L)
5236400	Calibration kit, incl. 800 mNTU Standard

TURBIDITY in Bypass (low range & ultra low range)

1720 E sc & FilterTrak 660 sc (DataSheet DOC053.52.03715 & DOC063.52.00433)

Part No.	Designation
<u>Calibration Tools for 1720 Turbidimeter series</u>	
4415600	1720 calibration kit, complete, pk/1 (including a 1 L calibration cylinder, TenSette pipette and 500 ml bottle 4000 FNU Formazine primary standard solution)
246149	Formazine Primary standard, 4000 FNU/NTU, 500ml bottle
EXF014	Filter membrane 0,2 µm for zero point control (without hose)
2659753	StablCal solution <0,1 NTU, 1 L bottle
2659600	StablCal calibration kit, < 0.1 and 20 FNU/NTU, 4 L each
2723353	StablCal standard, 0.1 FNU/NTU, 1L
2659853	StablCal standard, 1.0 FNU/NTU, 1L
2660153	StablCal standard, 20 FNU/NTU, 1L
2746353	StablCal standard, 40 FNU/NTU, 1L
5222500	ICE-PIC 0.5 NTU, 1 pc., Solid Standard for Instrument Calibration/Verification
5221500	ICE-PIC 1 NTU, 1 pc., Solid Standard for Instrument Calibration/Verification
5225000	ICE-PIC 20 NTU, 1 pc., Solid Standard for Instrument Calibration/Verification

Spare Parts for 1720 E sc

1895000	Lamp assembly for 1720 D/E series, pk/1 (Tungsten lamp), (Replacement)
4411600	Drain plug for 1720 series and FilterTrak, pk/1

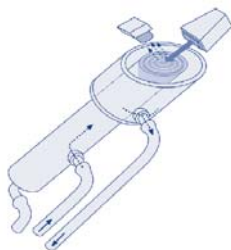
Calibration Tools for FilterTrak 660 sc

5236400	FilterTrak Calibration kit, complete, pk/1 including 500 ml 800 mNTU StablCal Standard, calibration cylinder and funnel
2723353	StablCal® Verification Standard, certified, 100 mNTU, 1 L
2697953	StablCal® Verification Standard, certified, 300 mNTU, 1 L
2877553	StablCal® Verification Standard, certified, 5000 mNTU, 1 L

 **Note:** For further calibration/verification tools, please refer to the Appendix A "Reagents & consumables"
Calibration tool 5236400 is essential for operation/calibration; 1720 calibration cylinders are not suitable!!!!

TURBIDITY in Bypass (High range & harsh conditions)

SS7sc and SS7sc/HST (DataSheet DOC063.52.00486)



Ideally suited for industrial applications, e.g.

- Pulp & Paper (e.g. white & black liquor)
- Petrochemical
- Food (e.g. samples containing starch, fat or oil)
- Boiler & Cooling

The Surface Scatter 7 sc High Range Turbidimeter (SS7) is uniquely designed so that the light source and the photocell never come in contact with the sample. In fluids with high loads of suspended solids this makes sample cell cleaning and replacement unnecessary.

All wetted parts are made with corrosion-resistant materials for extended life. The photo detector and light source assemblies are protected from the effects of corrosive vapors and heated samples.

The SS7 sc HST, is intended for high-temperature samples (up to 70 °C).

The nephelometer comes with a calibration cylinder, 4000 NTU Formazin, installation accessories, and instruction manual. Analysis by means of the sc Digital Controller Platform.

Controller compatibility



sc200



sc1000

Technical Data		
Subject to change without notice		
	SS7 sc	SS7 sc HST
Designation	Process Bypass Turbidimeter for high range and/or harsh environmental applications	
Measuring principle	90° scattered light (Nephelometric)	
Light source	Tungsten lamp acc. USEPA180.1, ASTM D 6698; Standard Methods 2130B	
Measuring range	0 - 9999.9 turbidity units NTU, with automatic decimal point adjustment	
Measuring resolution	0.01 NTU < 100 NTU 0.1 NTU < 100...9999.9 NTU	
Accuracy	± 5% of reading or ± 0.1 NTU (whichever is greater) from 0.01 to 2000 NTU; ± 10% of reading from 2000 to 9999 NTU	
Repeatability	1.0% or ± 0.04 NTU, whichever is greater	
Response time T ₉₀	Initial response in 45 seconds	
Signal averaging	No averaging, 6, 30, 60 and 90 seconds, user selectable. Default is 30 seconds.	
Calibration	precalibrated by the manufacturer (Calibration with Formazine and StablCal)	
Outputs	several analogue or digital (please refer to the respective sc controller specs)	
Process connection		
Installation style	Bypass installation with ambient pressure outlet (wall or bench stand mounting)	
Sample inlet	¾" NPT female	
Drain (outlet)	¾" NPT female	
Overflow drain	1" NPT female	
Sample flow	1 ... 2 l/min (15 to 30 gal/hr)	
Air purge fitting	not available	¾" compression fitting; 0-1.4 m³/h air flow of clean instrument air ¹
Temperature		
Sample	0 ... 50°C	0 ... 70°C intermittent 70 ... 80°C (158 ... 176°F)
Storage	-20 ... 80 °C (-4 ... 140 °F); 95% relative humidity, non-condensing	
Ambient	0 to 50°C	
Humidity	5 ... 95% humidity, non-condensing	
Enclosure rating	IP52 (NEMA 12) sample unit and IP65 (NEMA4X) for control unit	
Material	corrosion-proof plastic (instrument enclosure)	
Dimensions	64.2 x 67.5 x 19.0 cm (25.3 x 26.6 x 7.5 in.)	
Weight (approximately)	15.8 kg	18 kg
Power requirements	12 VDC ± 5%, 20 watts maximum (provided by sc100/sc1000)	
Cable length	2 m; extendable to 10 m max.	
Impemented Languages	English (default), German, French, Spanish, Italian, Swedish, Polish, Korean, Chinese, Japanese	
Maintenance requirement	1.5 h / month (typical)	
Controller compatibility	sc200 or sc1000	
Warranty	24 month; extendable to 60 month	

¹ instrument air must be customer provided

TURBIDITY in Bypass (High range & harsh conditions)

SS7sc and SS7sc/HST (DataSheet DOC063.52.00486)

Part No. **Designation**

LPV43X.99.00002 **Surface Scatter SS7 sc, HR Bypass Turbidimeter, 2 m sc connection cable**

L P V 4 3 x . 9 9 . 0 0 0 0 2

Instrument Variants	
SS7 sc	1
SS7 sc HST	2
for hot and/or corrosive samples	

Language / Country Code Selection

Note: All SS7 sc models comes with a calibration cup, 4000 NTU Formazine Calibration standard (500ml), installation accessories and instruction manual.
 sc200 or sc1000 Digital Controller must be ordered separately.
 For technical data, interfaces and additional costs, refer to the chapter sc controller/display units
 The maximum cable length between the SS7 sc sensor and the sc controllers is limited to 10 m in total.
 Due to varying power requirements of the instruments, it is important to obtain manufacturers specifications:
 1 SS7 sc sensor could be connected to sc 200 controller (ambient temperature up to 50°C)
 2 SS7 sc sensor could be connected to sc 1000 controller (ambient temperature up to 50°C), respectively
 1 SS7 sc sensor could be connected to sc 1000 controller (ambient temperature > 50°C and <55°C)
 Please refer to the SS7sc instrument manual for details
 Please refer to Appendix E for more details about manuals and user interfaces in different available languages
 For Service contract with Warranty extensions, commissioning and trainings please refer to Appendix D.

Accessories

5796000 Digital Extension Cable, 7.7 m (for 1720 E sc and SS7sc models only!)

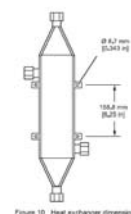
2351300 Standardization Plate Kit, uncalibrated (1 x ~ 100 NTU and 1 x ~ 1000NTU)

4028400 Flow Meter (100...1600 ml/min)

4500043 Upgrade Kit, Converting Standard SS7 sc to a SS7 sc-HST (High Sample Temperature)

Optional Sample Conditioning Accessories (for HST-models)

4855100 **Heat Exchanger Unit (Sample cooler)**
 The heat exchanger is intended for use with the SS7 sc-HST
 if the sample temperatures exceed the temperature requirements of the instrument.
 It can reduce sample temperatures of up to 100°C but is not suitable for
 steam or super-heated water.
 A source of cooling water is required.
 The heat exchanger is made of 316 SS and has 3/4" MNPT pipe connection
 The large plumbing connections help eliminate clogging.
 Pressure rating is 150 psi (10.5 bar).



4669212 Auto Flush Kit, 120VAC
 4669222 Auto Flush Kit, 230VAC

The optional Auto Flush Kit includes two electrically activated 3-way PVC ball valves (Stainless Steel construction also available), two needle valves for flow control, reducing bushing, and instruction sheet. All other tee fittings, adaptors, piping, and electrical wiring are to be provided by the customer.

4668000 **Bubble Trap/Head Regulator**
 A Bubble Trap/Head Regulator is recommended if the sample cannot be delivered bubble-free to the analyzer. The device may also be used as to dampen fluctuations in flow due to pulses from a pump and/or sample pressure.

TURBIDITY in Bypass (High range & harsh conditions)

SS7sc and SS7sc/HST (DataSheet DOC063.52.00486)

Part No.	Designation	
246149	Formazin Primary Standard, Stock Solution, 4000 NTU, 500 ml	
4503400	Lamp Assembly, Surface Scatter 7 sc	
4669100	Tubing Replacement Kit	
DOC026.52.00769	Manual, SS7 sc, English	charged when ordered separately

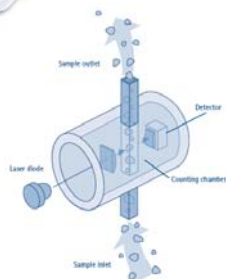
Surface Scatter®7 sc Installation Kit (supplied with the instrument):

The following items are provided with the SS7sc for installation.
All items are available separately as replacement.

4043900	Adapter, barb fitting, ¾" NPT to ¾" ID hose barb (2x)
4037200	Adapter, barb fitting, 1" NPT to 1" ID hose
68700	Brush, cylinder, size 2
4502100	Calibration cup, SS7 sc
4507300	Drain Valve
246149	Formazin Stock Solution, 4000 NTU, 500 mL
4507600	Light Source Alignment plate
3155100	Nipple, ¾" NPT
4417300	Washer, ¼ ID x 1.00 OD (4x)
4424700	Wall Mounting kit
4529900	Light Source Shield Assemblies (2x)
7122100	Detector Assembly
4499300	Latch, replacement, SS6

Particle Counter

WPC21 & WPC22 2-Channel Particle Counter (DataSheet DOC063.52.00464)



The WPC-21 and -22 were designed to provide a useful and cost effective means of evaluating water quality. The units mount directly to the wall, where they can continually monitor water-borne particulate, either as an individual unit or as units networked together through AQUARIUS software.

In typical situations, the WPC-22 provides 2 channel tracking (selectable from 8 sizes), in cumulative mode, for particles as small as 2 µm.

When sensitivity is critical, the WPC-21 provides 2 channel tracking (selectable from 8 sizes), for particles as small as 1 µm.

Applications

- continuous particle monitoring in water filtration
- Drinking water
- Water in food/beverage industry
- Filtration of beverages
- Washing machines for clean room textiles
- Cleaning baths for optical and machine parts
- Pre-stage of DI-water production
- Water for immersion painting

Technical Data		
Subject to change without notice		
	WPC-21 WPC-22	
Designation		
Measurement principle	Light blocking	
Light source	Laser diode 780 nm (average life of laser appr. 30,000 hours)	
Detector	Photodiode	
Instrument Design	2 channel instrument 1.3 / 2µm + one user-configurable on the second channel,selectable out of 7 sizes	
Particle sizes	1.3 µm on first channel fixed 2; 3; 5; 7; 10; 15; 25 µm on 2nd channel	2 µm on first channel fixed 5; 7; 10; 15; 25; 50; 100 µm on 2nd channel
Units	Number of particles/ml	
Coincidence fields	10 % loss at 25,000 particles/ml	10% loss at 15,000 particles/ml
Counting efficiency	20 to 80% @ 1 µm; 70 to 130% with 2 µm particles @ 1 µm	30 to 70 % @ 2 µm; 80 to 120% with 5 µm particles @ 2 µm
Resolution	≤ 10 % of 10 µm per ASTM-F658-87	
Flow cell dimensions	600 x 600 µm	800 x 800 µm
Zero count deviation	≤ 1 particle per minute	
Calibration	Calibrated with Polystyrene latex spheres in water at a sample flow of 50 ml/min.	Calibrated with Polystyrene latex spheres in water at a sample flow of 100 ml/min
Display	4 lines x 16 characters LCD, LEDs for instrument function, power supply, alarm status	
Interfaces, outputs	2 x analog inputs/ outputs (4-20 mA, 0-10 V) RS232 RS485 MODBUS	
Data storage	Internal memory for 100 measured sample values	
Process connection		
Installation style	Bypass installation with ambient pressure outlet (wall mounting)	
Inlet	¼" pipe compressing fitting (supplied)	
Outlet	¼" pipe compressing fitting (supplied)	
Sample flow	45 to 55 ml/min	90 to 110 ml/min
Pressure pmax	8.3 bar	
Temperature		
Ambient	0 to 40 °C	0 to 45 °C
Sample	0 to 50 °C	0 to 50 °C
Humidity (operation)	5 to 90 % relative humidity, non-condensing	
Enclosure rating	IP 66 (Modified NEMA 4X)	
Wetted materials	Fused silica, Viton (fluorocarbon), & Kynar (PVDF)	
Power requirements	90-264 VAC, 47-63 Hz	
Dimensions	114 x 248 x 302 mm (4.50 × 9.75 × 11.88 in) W x H x D	
Weight	2.25 kg	
Standards	CE	
Controller compatibility	Stand alone instrument	
Warranty	24 month; extendable to 60 month	

Particle Counter

WPC21 & WPC22 2-Channel Particle Counter (DataSheet DOC063.52.00464)

Part No. **Designation**

LXV435.52.20701 **WPC21**, Particle Counter

L X V 4 3 5 . 5 2 . x 0 7 x 1														
Language / Country Code Selection														
Power plug adapter option														
with EU power cord														2
with UK power cord														3
with Swiss power cord														4
Outputs														
with RS485 (MODBus) and 4-20mA outputs														0
Particel Size / Channel size														
1,3 µm on first channel (fixed)														7
2; 3; 5; 7; 10; 15; 25 µm on 2nd channel (selectable)														
Weir Flow Controller for flow adjustment														
without weir flow controller														0
with weir flow controller (Part No. 2081335-1)														1

LXV436.99.20701 **WPC22**, Particle Counter

L X V 4 3 6 . 5 2 . x 0 7 x 1														
Language / Country Code Selection														
Power plug adapter														
with EU power cord														2
with UK power cord														3
with Swiss power cord														4
Outputs														
with RS485 (MODBus) and 4-20mA outputs														0
Particel Size / Channel size														
2 µm on first channel (fixed)														7
5, 7, 10, 15, 25, 50, 100 µm on second channel (selectable)														
Weir Flow Controller for flow adjustment														
without weir flow controller														0
with weir flow controller (Part No. 2081335-1)														1

Optional accessories

CS200011 AQUARIUS software

2081335-1 Water Weir Flow Controller (as individual item)

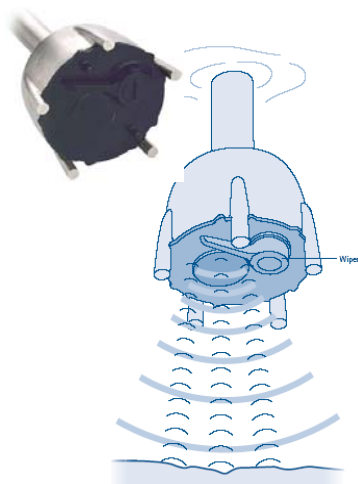
Factory recalibration

Sensor replacement including recalibration

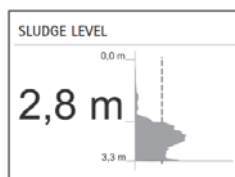
 **Note:** Please refer to Appendix E for more details about manuals and user interfaces in different available languages
For Service contract with Warranty extensions, commissioning and trainings please refer to Appendix D.

SLUDGE LEVEL & SLUDGE HEIGHT

SONATAX sc (DataSheet DOC063.52.03140 & DOC053.52.00155)



Self-cleaning ultrasonic sensor with adjustable sensitivity for the continuous determination of the sludge level or the sludge height in settling tanks, vessels and reactors, expressed as depth from the surface or height from the tank floor. The sludge level is calculated without contact between the probe and the sludge, on the basis of the propagation time of the ultrasonic echo. User-friendly menu guidance by membrane keypad and illuminated large graphics display with curve generation by using the sc1000 controller.



Controller compatibility



sc200



sc1000

Technical Data	
Subject to change without notice.	
	Sonatax sc
Designation	Ultrasonic sensor for measurement of sludge level and sludge height in sedimentation basins
Measuring technique	Ultrasonic measurement, temperature compensated
Measuring range	0.2 ... 12.0 m sludge level or sludge height
Measuring resolution	0.03 m sludge level
Measuring precision	≤ 0.1 m
Calibration	Factory pre-calibrated automatic (once during installation)
Response time T ₉₀	10 ... 600 sec (adjustable)
Special notes	Automatic, magnetic coupled wiper cleaning, temperature compensation
Process connection	
Installation	Immersed directly into the media
Pressure p _{max}	≤ 0.3 bar respectively ≤ 3 m
Temperature	
Sample	+2 °C to +40 °C (probe)
Ambient	-10°C to +40°C (controller)
Dimensions Probe	130 x 185 mm (L x Ø)
Sensor Material	SS1.4581
Base plate and wiper	POM
Wiper magnet casting compound	Epoxy resin
Wiper rubber	Silicone rubber
Weight (approximately)	3.5 kg
able length	10 m integrated cable; extendable up to 50 m by sc cables
Power Supply	supplied by sc controller series
Power Consumption	12 V, 2.4 W (200 mA)
Enclosure rating	IP68 (≤ 1 bar)
Maintenance requirement	1 h / month, typical
Servicing interval	12 months
Declaration of conformity	CE, TÜV GS, UL/CSA
Controller compatibility	sc200 and sc1000
Warranty	24 month, fulfilling the requested servicing intervals, extendable to 5 years

SLUDGE LEVEL & SLUDGE HEIGHT

SONATAX sc (DataSheet DOC063.52.03140 & DOC053.52.00155)

Part No.	Designation
LXV431.99.00001	Sonatax sc , with 10 m cable, without sc controller

L	X	V	4	3	1	.	9	9	.	0	0	0	0	1
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Language / Country Code Selection

Standard accessories (supplied with the instrument)

1 set of wiper blades (for 5 changes)	Mounting assemblies for tank rim fixing (LZX767 for sc200) or
1 set of operating instructions	LZX 957 (for sc1000) and LZX414.00.7000 are essential for
1 factory test certificate	installation and must be ordered separately.

Note: sc Digital Controller must be ordered separately.
 For technical data, interfaces and additional costs, refer to the chapter sc controller/display units
 The maximum cable length between the sensor and controller is limited to 50m in total.
 Using different cables instead of the above mentioned will void the warranty.
 For further extension cables, please consult the chapter sc controller/display units accessories
 Please refer to Appendix E for more details about manuals and user interfaces in different available languages
 For Service contract with Warranty extensions, commissioning and trainings please refer to Appendix D.

Mounting assembly for Immersion application

Complete Mounting Kit, made of Stainless steel, consisting of:
 Probe pipe stand, Mounting pipe (2m), Controller Pipe bracket, Mounting brackets (2x),
 Small Accessories Installation Kit for probes

LZX414.00.70000	SONATAX sc - Tank rim fixing, made of SS	
LZX414.00.71000	SONATAX sc - Pivot Mounting, 1m pipe	
LZX414.00.72000	SONATAX sc - Pivot Mounting, 0.35m pipe	
LZX414.00.73000	SONATAX sc - Rail mounting assembly, made of SS	see note 2
LZX414.00.74000	SONATAX sc - Scraper bridge mounting assembly	see note 2

Note: ² Requires LZX414.00.70000, LZX414.00.71000 or LZX414.00.72000 in addition
 Please refer to the chapter "Mounting assemblies" for further details or availability of extension pipes.

Spare parts

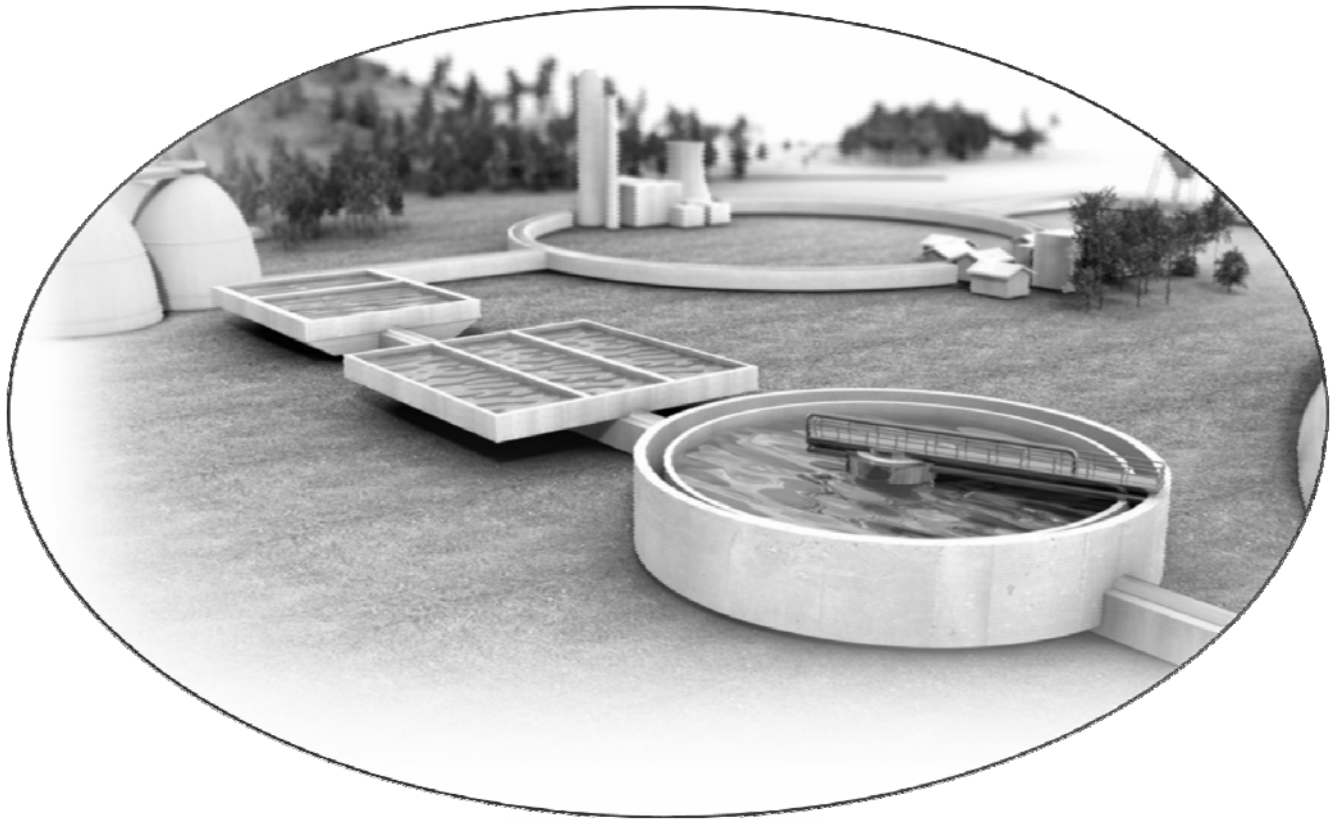
LZX328	Set of wiper blades, for Sonatax series, pk/5
LZY344	wiper arm, magnetic driven
LZY345	Adjusting screw for wiper arm
LZX515	Deflector
LZY413	Extension pipe 1,0 m with new flange incl. screw set LZY362
LZY414	Extension pipe 1,8 m with new flange incl. screw set LZY362
LZX914.99.11300	SONATAX sc chain stay
LZY801.99.00000	SLUDGE DOCTOR, diagnostic software without interface cable
LZY801.99.00010	SLUDGE DOCTOR, diagnostic software with sc200 interface cable
LZY801.99.00020	SLUDGE DOCTOR, diagnostic software with sc1000 interface cable

Documentation (supplied with instruments, respectively on order with extra charge)

DOC023.52.00117	Instrument Manual SONATAX sc, GB
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Process Analyzers for Disinfection control & monitoring

Product overview



CHLORINE, free or total

CL17 Photometric Process Analyzer using DPD method (DataSheet LIT4369)



The Chlorine analyser CL17 is a cost effective, low maintenance, microprocessor-controlled process analyzer with no moving parts.

The instrument is intended for the continuous monitoring of free and total chlorine in water with a measuring range from 0.035 ... 5 mg/L. The device provides a continuous output signal that is proportional to the chlorine concentration in the sample.

The instrument performs a complete analysis every 2.5 minutes. The instrument design allows a 30 days operation without maintenance before it is necessary to add reagents.

The specific design based on the reference method using DPD, in combination with its short cycle and response time make this analyzer so reliable and unique, providing the user always full safety and confidence of reliable and accurate results for final treated water before distribution to the network system.

Technical Data	
Subject to change without notice.	
	CL17
Designation	Photometric Analyzer for free or total residual Chlorine determination
Measuring principle	photometric, DPD (N,N-Diethyl-p-phenylenediamine) method according DIN 38408
Light source	LED 520nm (life time approximately 50,000 h)
Measuring range	0,035... 5 mg/l free residual or total residual Chlorine
Measuring resolution	0.01 mg/l
Measuring uncertainty	± 5% or 0,035 mg/l Cl ₂ , whichever is greater
Response time T ₉₀	2.5 min
Cycle time	2.5 min (fixed)
Calibration	factory calibrated (user calibration possible)
Outputs	1 x 0/4-20 mA, programmable span over any portion in the 0 – 5 mg/l range AquaTrend® Network interface (optional)
Alarms	2 alarm contacts, programmable, equipped with SPDT relays with contacts rated for 5A resistive load @ 230VAC
Process connection	
Installation style	Bypass installation (wall mounting)
Sample inlet	¼" OD, quick connect fitting, 0.07 – 5.2 bar
Overflow drain	½" ID barbed hose fitting
Drain (outlet)	½" ID flexible tubing
Sample flow	200 ... 500 ml/min
Air purge fitting	¼" OD tube (oil-free instrument air; optional)
Temperature	
Sample	+5 ... +40°C
Ambient	+5 ... +40°C
Storage	-40 ... +60°C
Humidity	90% non condensing @ 40°C
Material	ABS plastic with 2 clear polycarbonate windows
Enclosure rating	IP62
Dimensions	32 x 42 x 18 cm (W x H x D)
Weight, Shipping	appr. 11.3 kg
Power requirements	100-115/220 VAC, 50/60 Hz can be switched; 90 VA, 2.5 A fuse
Reagent consumption	1 reagent set Cl _{free} or Cl _{total} per month
Maintenance requirement	1 h/month, typical
Controller compatibility	Stand alone instrument
Warranty	24 month; extendable to 60 month

CHLORINE, free or total

CL17 Photometric Process Analyzer using DPD method (DataSheet LIT4369)

Part No.	Designation
544000X	CL17 Free Residual Chlorine Analyzer

5	4	4	0	0	0	x
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AQUATREND Network Option

CL17, Free Chlorine Analyzer w/o AquaTrend	1
CL17, Free Chlorine Analyzer with AquaTrend Network	3

544000X	CL17 Total Residual Chlorine Analyzer
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5	4	4	0	0	0	x
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AQUATREND Network Option

CL17, Total Chlorine Analyzer w/o AquaTrend	2
CL17, Total Chlorine Analyzer with AquaTrend Network	4

Note: Each analyser is supplied with 1 month reagent set, spare pump tubing, wall mounting kit and instruction manual; without power cord
For further spare parts please refer to the chapter Appendix A
For Service contract with Warranty extensions, commissioning and trainings please refer to Appendix D.
For Lab-Instruments for calibration/verification purposes, please refer to the HACH LANGE Lab Pricelist.

Accessories

5516400	Installation Kit, for CL17/SP510
5444300	Maintenance kit (for 1 year) Contains reagent tubing, reagents caps and fittings to be replaced annually. Pump module tubing to be replaced at three to six month intervals.
5444301	Maintenance kit (for 1 year), same as 5444300 but with pre-assembled tubing
5448900	Power cord, 240 VAC, with European plug, 1.83 m
5448800	Power cord, 120 VAC, with European plug, 1.83 m
5449000	CL17 Calibration/Verification kit
4643600	Flow meter with 1/4" OD tubing

Reagents (for 1 month operation)

2297255	DPD Compound, FREE & TOTAL CL, 24 g
2263411	Indicator solution, total Chlorine, 473 ml
2263511	Buffer solution, total Chlorine, 473 ml
2314111	Buffer solution, free Chlorine, 473 ml
2314011	Indicator solution, free Chlorine, 473 ml
2556900	CL17 Reagent Set, Chlorine free, consisting of 2297255, 2314011, 2314111 (1 each)
2557000	CL17 Reagent Set, Chlorine total, consisting of 2297255, 2263411, 2263511 (1 each)

Note: Individual Reagents are available separately; please refer to chapter Appendix A "Reagents & Consumables"

Cables

5215810	4 wire cable, communication and power	30 m
	Cables are also available on request in lengths of 75m, 150m and 300m.	

CHLORINE

CL10 sc Free & Total - Amperometric Analyzer (DataSheet DOC053.52.35006)



The reagentless Chlorine Analyzer is designed to monitor the concentration of free or total residual chlorine in drinking water systems.

The combination of a sc model controller with a 3-electrode chlorine sensor, optional pH sensor and a flow sensor give the best monitoring function. Both sensors read sample temperature.

A pressure regulator kit and an acidification and cleaning kit are available as accessories.

Diagnostic features include the CAL WATCH algorithm for warning of pH and chlorine calibration deviation and a non-contacting sample flow sensor for notification of insufficient sample flow. All warnings are easy to configure. CAL WATCH is unique in the market.

EPA compliant according to Method 334.0

Controller compatibility



sc200



sc1000

Technical Data	
Subject to change without notice	
CL10 Free / CL10 Total Chlorine sc	
Designation	Amperometric reagentless chlorine analyzer, assembled on monitoring analyzer panel, with chlorine, flow, pH sensor (optional), flow cells, and digital gateway
Application	Continuous disinfectant control and monitoring in clean water applications
Measuring principle	Reagentless, electrochemical, 3-electrode amperometric system, temp. compensated
Measuring range	0 – 10 ppm (mg/L) Chlorine free or total (model depending)
Detection limit	30 ppb (0.03 mg/L)
Accuracy	Chlorine free $\pm 3\%$ of the reference test1 (DPD) at constant pH < 7.2 ± 0.2 $\pm 10\%$ of the reference test1 (DPD) at stable pH < 8.5 ± 0.5
	Chlorine total $\pm 10\%$ of the reference test1 (DPD) at stable pH < 8.5 ± 0.5 $\pm 20\%$ of the reference test1 (DPD) at stable pH > 8.5
Repeatability	30 ppb or 3%, whichever is greater
Response time T90	Chlorine free 140 seconds at stable temperature and pH conditions
	Chlorine total 100 seconds at stable temperature and pH conditions
Interferences	Chlorine free Monochloramine, chlorine dioxide, ozone and chalk deposits
	Chlorine total Chlorine dioxide, ozone and chalk deposits
Calibration	1-point or 2-point (zero and slope) calibration against Reference method, e.g. DPD method
Process requirements	
Installation	Bypass with atmospheric outlet; Mounting to flat vertical wall, panel, etc.
Sample inlet	metric: 6 mm O.D. inch: 1/4" O.D.
Drain (outlet)	metric: 10 mm O.D. inch: 3/8" O.D.
Sample flow	30-50 l/hour; 40 l/hour (optimum)
Pressure range	0.5 bar at inlet, no pressure impulses and/or vibrations
pH requirements	4 to 9 pH units without external buffering (acidification unit available for > 9 pH)
Conductivity	10 ... 2,500 $\mu\text{S/cm}$
Temperature	Sample: 0 to 45°C (0 to 113 °F); no suspended solids Storage: -20 to 60 °C (-4 to 149 °F)
Outputs	several; please refer to sc controller
Cable length	1.0 m; extendable to 100 m max. using sc extension cables
Enclosure rating	IP65 (NEMA 4X)
Material	Electrode: gold cathode/silver anode, counter electrode: Stainless Steel Probe body: Polycarbonate; Other: PVC, silicon rubber Chlorine flow cell: Acrylic pH flow cell: PVC panel: SS316
Dimensions	496 x 483 mm x 151 mm (19" x 19.5" x 5.95") (L x W x D)
Weight (approximately)	~ 5.5kg (12 lbs.) (panel and empty panel-mounted components only)
Maintenance requirements	Chlorine sensor membrane and electrolyte change, 6-12 months for pH < 8, respectively 3-6 month at pH > 8 typical applications pH Cell: 1 to 1.5 years, typical
Remarks:	Diagnostic features include the CAL WATCH algorithm
Controller compatibility	sc200 and sc1000
Power requirements	12 VDC $\pm 10\%$, 100 mA maximum (supplied by sc controller)
Certification	CE / ETL, EMC
Compliance:	EPA compliant, according EPA334.0
Warranty	24 month; extendable to 60 month

CHLORINE

CL10 sc Free & Total - Amperometric Analyzer (DataSheet DOC053.52.35006)

Part No. **Designation**

LXV45X.98.XXXX2	CL10 sc Amperometric Chlorine sensor	L	X	V	4	5	x	.	9	8	.	x	x	0	2	2
CL10 sc sensor model option																
CL10F sc	Free Chlorine sensor															A
CL10T sc	Total Chlorine sensor															B
Language / Country Code Selection		please refer to Appendix E for further info														
Panel Bundle with connection options																
panel equipped with flow sensor, sc gateway and Cl & pH flow cell with appropriate threaded fitting																
speed fit fitting, metric thread sized		6 mm Inlet / 10 mm Outlet (O.D.)														2
pH probe option																
no pH sensor																1
pH combination sensor, model ¾" RC sensor with integral Pt1000, made of Ryton																2
pHD pH Differential sensor with integral Pt1000, made of Ryton																3
Panel option																
made of Stainless Steel, pre-assembled																2
Brand option																
HACH																2

Note: The analyzer comes in panelized format and include a SS316 mounting panel, 2 flow cells (one for chlorine/flow, and one for pH serving as a grab sample port), digital gateway, sc connection cable (1m), flow sensor, appropriate Chlorine sensor depending on selected model, fittings and valves.
pH sensors are available optionally.
sc Digital Controller sc100 or sc1000 must be ordered separately.
For technical data, interfaces and additional costs, refer to the chapter sc controller/display units
The maximum cable length between the sensor and controller is limited to 100 m.
For Service contract with Warranty extensions, commissioning and trainings please refer to Appendix D.

Optional accessories

LZY051	Acidification / Cleaning unit for Amperometric sc sensors <i>recommended for use with CL10 F&T sc for applications with pH values > 9</i>
9159900	Pressure Regulator Sample Conditioning Kit <i>used for clean water applications with inlet pressure between 20 and 120 psig (1.4 to 8.3 bar) for further information please refer to DOC273.53.80093</i>

Optional pH extension and accessories

9181505	pHD pH Differential Sensor, RYTON, pH-WIDE RANGE, 6 ft cable w/ adapter, comes with Hach Lange Manual
25M1A1025-115	Standard Cell Solution for pHD sensors, 500 ml alternatively
9181605	pH Combination Sensor, comes with Hach Lange Manual
2283549	Buffer Solution, pH 7.00, 500 ml (color coded yellow) (NIST)
2283449	Buffer Solution, pH 4.01, 500 ml (color coded red) (NIST)
2283649	Buffer Solution, pH 10.01, 500 ml (color coded blue) (NIST)

CHLORINE

CL10 sc Free & Total - Amperometric Analyzer (DataSheet DOC053.52.35006)

Part No.	Designation
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Consumables/Replacements for Chlorine sensors

9160200	Membrane Replacement Kit, CLF10sc, pK/1
9160600	Electrolyte Gel for CLF10 sc sensor, 100 ml
9180900	Membrane Replacement Kit, CLT10sc, pK/1
9181400	Electrolyte Gel for CLT10 sc sensor, 100 ml

Consumables/Replacements for pH sensors

SB-R1SV	Salt bridge, including VitonO-ring, pK/1 <i>for pH/ORP Differential sensors with Ryton body material</i>
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Documentation

DOC023.98.80087	User manual, CL10 F&T sc Chlorine Analyser, HACH LANGE, multi-lingual D-GB-F
DOC023.98.80088	User manual, Chlorine sensor (Free & total models), HACH LANGE, multi-lingual D-GB-F
DOC023.98.80089	User manual, pH/ORP sensor, HACH LANGE, multi-lingual D-GB-F
DOC023.98.80090	User manual, pH combination sensor, HACH LANGE, multi-lingual D-GB-F
DOC273.99.80091	User manual, Chlorine flow cell, multi-lingual D-GB-F
DOC273.99.80092	User manual, pH flow cell, multi-lingual D-GB-F
DOC273.53.80093	User manual, Pressure regulator sample conditioning kit assembly, GB

Digital extension cable (between sc controller and probe)

LZX848	Digital Extension Cable, 5 m
LZX849	Digital Extension Cable, 10 m
LZX850	Digital Extension Cable, 15 m
LZX851	Digital Extension Cable, 20 m
LZX852	Digital Extension Cable, 30 m
LZX853	Digital Extension Cable, 50 m

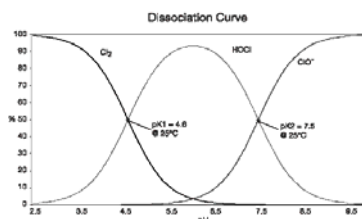
 **Note:** The maximum cable length between the sensor and controller is limited to 100m. Using different cables instead of the above mentioned, will void the warranty.

CHLORINE

9184 sc - Amperometric Chlorine Analyzer (DataSheet DOC063.52.00441)



The 9184 sc Amperometric Chlorine sensor is available to measure Free Chlorine (HOCl) only, or as a Total Free Chlorine (HOCl + OCl⁻) version which is combined with a pH electrode for accurate compensation of pH fluctuations. The system comes pre-assembled on a panel for easy installation.



Available options include:

Acidification Unit - Used when sample pH is greater than 7.5. Forces sample pH to between 5.5 and 6.5. It can be used intermittently or continuously for cleaning and is fully programmable.

Intermittent Flow Unit - This fully programmable unit comes equipped with relays to allow variable measurement while minimizing the wasted sample stream.

Controller compatibility



sc200



sc1000

Technical Data	
Subject to change without notice	
	9184sc, 9184sc TFC, 9184sc Acidification
Application	Disinfectant control and monitoring in clean water applications
Measuring principle	Amperometric / Membrane covered Clark Cell
Measuring range	0 – 20 ppm (mg/L) HOCl
Detection limit	5 ppb (0.005 mg/L) HOCl
Measuring uncertainty	2 % or ±10 ppb HOCl whichever is greater
Repeatability	±10 ppb (0.01 mg/L) or ±5 %, whichever is greater @ pH < 7.5
Response time T ₉₀	< 90 seconds
Interferences	no interferences from Chloramines Chlorine Dioxide and Ozone will be determined in addition
Calibration	Electrical zero or chemical zero with dechlorinated water; calibration of the slope by comparison with a laboratory instrument using DPD; pH calibration: Single or Two Point calibration or lab method
Calibration interval	2 months (typical)
Process connection	
Installation	Bypass with atmospheric outlet; Mounting to flat vertical wall, panel, etc.
Sample inlet	¼" OD, quick connect fitting
Drain (outlet)	½" ID, quick connect fitting
Sample flow	200 ... 250 ml/min (minimum); auto-regulated by flow thru cell
Pressure range	0.1–2 bar (1.4–28 psi) inlet; flow cell pressure will be the atmospheric pressure
pH requirements	4 to 8 (acidification unit available for > 8 pH)
Temperature	
Sample	+2°C ... +45°C (35.6–113 °F); no suspended solids
Ambient	0°C to 45°C (32 to 113 °F), 0 to 90% r.H. non-condensing
Outputs	several; please refer to sc controller
Cable length	0.4 m; extendable to 100 m max. using sc extension cables
Enclosure rating	IP66 (NEMA 4X)
Material	Electrode: gold cathode/silver anode Measuring cell: Acrylic Probe body: PVC
Dimensions	299 mm x 250 mm x 155 mm (11.77" x 9.84" x 6.10") (W x H x D)
Weight (approximately)	6.5 kg (14.3 lb)
Maintenance requirements	Measurement Cell: 6 months for membrane and electrolyte, typical pH Cell: 1 to 1.5 years, typical
Remarks:	Electrodes are supplied with consumables for 2 years operation (typical use & application)
Controller compatibility	sc200 and sc1000
Warranty	24 month; extendable to 60 month

CHLORINE

9184 sc - Amperometric Chlorine Analyzer (DataSheet DOC063.52.00441)

Part No. Designation

LXV43X.99.00001	918X sc Amperometric Disinfectant Analyzer	L X V 4 3 x . 9 9 . 0 0 0 0 1
918Xsc Amperometric Analyzer model option		
9184 sc Free Chlorine (HOCl) Analyzer		0
9184 sc Total Free Chlorine Analyzer (HOCl+OCl).....		2
Language / Country Code Selection		

918Xsc Amperometric Disinfectant Analyzer series comes panel mounted, including amperometric sensor, flow regulator, 0.4 m connection cable; without sc controller

Note: sc Digital Controller must be ordered separately.
For technical data, interfaces and additional costs, refer to the chapter sc controller/display units
The maximum cable length between the sensor and controller is limited to 100m.
For Service contract with Warranty extensions, commissioning and trainings please refer to Appendix D.
Please refer to Appendix E to get more information about manuals and user interface in different languages

Consumables/Replacements (for 2 years operation, typical)

Z09184=A=3500	Membranes for 9184 sensors, pre-mounted, set of 4
Z09184=A=3600	Electrolyte filling solution for 9184/9184sc, 100 ml

Optional Accessories

Acidification Accessories (for 9184sc TFC sensor)

LZY051	9180 sc Acidification Unit, to adjust pH sample in the range 5.5 ... 6.5 Can be even used for continous or intermittent cleaning of the flow cell
LZY052	9180 sc Intermittent Flow Unit Used to eliminate constant measurement while minimizing the waste sample stream

Further Accessories

LZY060	sc 100 Mounting panel
5743200	Floor mounting assembly, free-standing, made of Stainless Steel
DOC023.52.00051	Instrument Manual "9184sc Chlorine, 9185sc Ozone and 9187sc Chlorine Dioxide Analyzer", GB



Digital extension cable (between sc controller and probe)

LZX848	Digital Extension Cable, with molded plug and coupling, 5 m
LZX849	Digital Extension Cable, with molded plug and coupling, 10 m
LZX850	Digital Extension Cable, with molded plug and coupling, 15 m
LZX851	Digital Extension Cable, with molded plug and coupling, 20 m
LZX852	Digital Extension Cable, with molded plug and coupling, 30 m
LZX853	Digital Extension Cable, with molded plug and coupling, 50 m

Reference Laboratory system for calibration/verification purpose

5870000	Pocket Colorimeter II - Chlorine Free & Total, with DPD Reagent Set, 50 tests each
5870023	Pocket Colorimeter II - Chlorine Free, with SwifTest Dispenser + 250 tests Chlorine free DPD Reagent

CHLORINEDIOXIDE & OZONE

9185 sc & 9187 sc - Amperometric Analyzer (DataSheet DOC063.52.00441)



The 9187sc/9185sc Amperometric sensors comes pre-assembled on a panel and are desined to measure Chlorinedioxide or Ozone accurately up to ppb levels of the respective disinfectant which is used.

The 1987sc Chlorinedioxide Analyzer uses an amperometric method which determines the chlorine dioxide molecules after diffusion through a membrane. It is interference-free to Chlorine.

The 9185sc Ozone model uses the same technology but it is selective to Ozone. The analyzer design allows to determine Ozone interference-free from Chlorine, Chloramines, Chlorine Dioxide, Hydrogen Peroxide and pH.

Available options include:

Acidification Unit - Used when sample pH is greater than 7.5. Forces sample pH to between 5.5 and 6.5. It can be used intermittently or continuously for cleaning and is fully programmable.

Intermittent Flow Unit - This fully programmable unit saves resources while complying with ground water regulations.

Controller compatibility



sc200



sc1000

Technical Data	
Subject to change without notice	
	9187 sc Chlorinedioxide Analyzer9185 sc Ozone Analyzer
Application	Disinfectant control and monitoring in clean water applications
Measuring principle	Amperometric/Membrane (Clark Cell)
Measuring range	0–2 ppm (mg/L) ClO20–2 ppm (mg/L) O3
Detection limit	10 ppb (0.005 mg/L) ClO25 ppb (0.005 mg/L) O3
Measuring uncertainty	5 % or ±10 ppb ClO2 whichever is greater2 % or ±10 ppb O3 whichever is greater
Repeatability	±10 ppb (0.01 mg/L) or ±5 %, whichever is greater @ pH < 7.5
Response time T90	< 90 seconds
Interferences	Ozone no interferences by Chlorine, BromineNo interferences from Chlorine, Chlorine dioxide, Bromine or Hydrogen peroxide
Calibration	Electrical zero or chemical zero with de-chlorinated water; calibration of the slope by comparison with a laboratory instrument using DPD; pH calibration: 1 or 2 Point calibration or lab method
Calibration interval	2 months (typical)
Process connection	
Installation style	Bypass with atmospheric outlet; Mounting to flat vertical wall, panel, etc.
Sample inlet	¼" OD, quick connect fitting
Drain (outlet)	½" ID, quick connect fitting
Sample flow	200 ... 250 ml/min (minimum); auto-regulated by flow thru cell
Pressure range	0.1–2 bar (1.4–28 psi) inlet; flow cell pressure will be the atmospheric pressure
pH requirements	4 to 8 (acidification unit available for >8 pH)
Temperature	
Sample	+2°C ... +45°C (35.6–113°F); no suspended solids
Ambient	0°C to 45 °C (32 to 113°F), 0 to 90% r.H. non-condensing (please refer to sc controller)
Outputs	
Cable length	0.4 m; extendable to 100 m max. using sc extension cables
Enclosure rating	IP66 (NEMA 4X)
Material	Electrode: gold cathode/silver anode Measuring cell: Acrylic Probe body: PVC
Dimensions	299 mm x 250 mm x 155 mm (11.77" x 9.84" x 6.10") (W x H x D)
Weight (approximately)	6.5 kg (14.3 lb)
Maintenance requirements	Measurement Cell: 6 months for membrane and electrolyte, typical pH Cell: 1 to 1.5 years, typical
Remarks:	Electrodes are supplied with consumables for 2 years operation (typical use)
Controller compatibility	sc200 or sc1000
Warranty	24 month; extendable to 60 month

CHLORINEDIOXIDE & OZONE

9185 sc & 9187 sc - Amperometric Analyzer (DataSheet DOC063.52.00441)

Part No. Designation

LXV43X.99.00001	918X sc Amperometric Disinfectant Analyzer	L X V 4 3 x . 9 9 . 0 0 0 0 1
918Xsc Amperometric Analyzer model option		
9187 sc Chlorinedioxide Analyzer system		4
9185 sc Ozone analyzer system		3
Language / Country Code Selection		

918Xsc Amperometric Disinfectant Analyzer series comes panel mounted, including amperometric sensor, flow regulator, 0.4 m connection cable; without sc controller

Note: sc Digital Controller must be ordered separately.
For technical data, interfaces and additional costs, refer to the chapter sc controller/display units
The maximum cable length between the sensor and controller is limited to 100m.
For Service contract with Warranty extensions, commissioning and trainings please refer to Appendix D.
Please refer to Appendix E to get more information about manuals and user interface in different languages

Consumables/Replacements (for 2 years operation, typical)

Z09185=A=3500	Membranes for 9185 sensors, pre-mounted, set of 4
Z09185=A=3600	Electrolyte filling solution, 100 ml
Z09187=A=3500	Membranes for 9187 sensors, pre-mounted, set of 4
Z09187=A=3600	Electrolyte filling solution, 100 ml

Optional Accessories

Acidification Accessories (for 9184sc TFC sensor)

LZY051	9180 sc Acidification Unit, to adjust pH sample in the range 5.5 ... 6.5 Can be even used for continuous or intermittent cleaning of the flow cell
LZY052	9180 sc Intermittent Flow Unit Used to eliminate constant measurement while minimizing the waste sample stream



Further Accessories

LZY060	sc 100 Mounting panel
5743200	Floor mounting assembly, free-standing, made of Stainless Steel
DOC023.52.00051	Instrument Manual "9184sc Chlorine, 9185sc Ozone and 9187sc Chlorine Dioxide Analyzer", GB

Digital extension cable (between sc controller and probe)

LZX848	Digital Extension Cable, with molded plug and coupling, 5 m
LZX849	Digital Extension Cable, with molded plug and coupling, 10 m
LZX850	Digital Extension Cable, with molded plug and coupling, 15 m
LZX851	Digital Extension Cable, with molded plug and coupling, 20 m
LZX852	Digital Extension Cable, with molded plug and coupling, 30 m
LZX853	Digital Extension Cable, with molded plug and coupling, 50 m

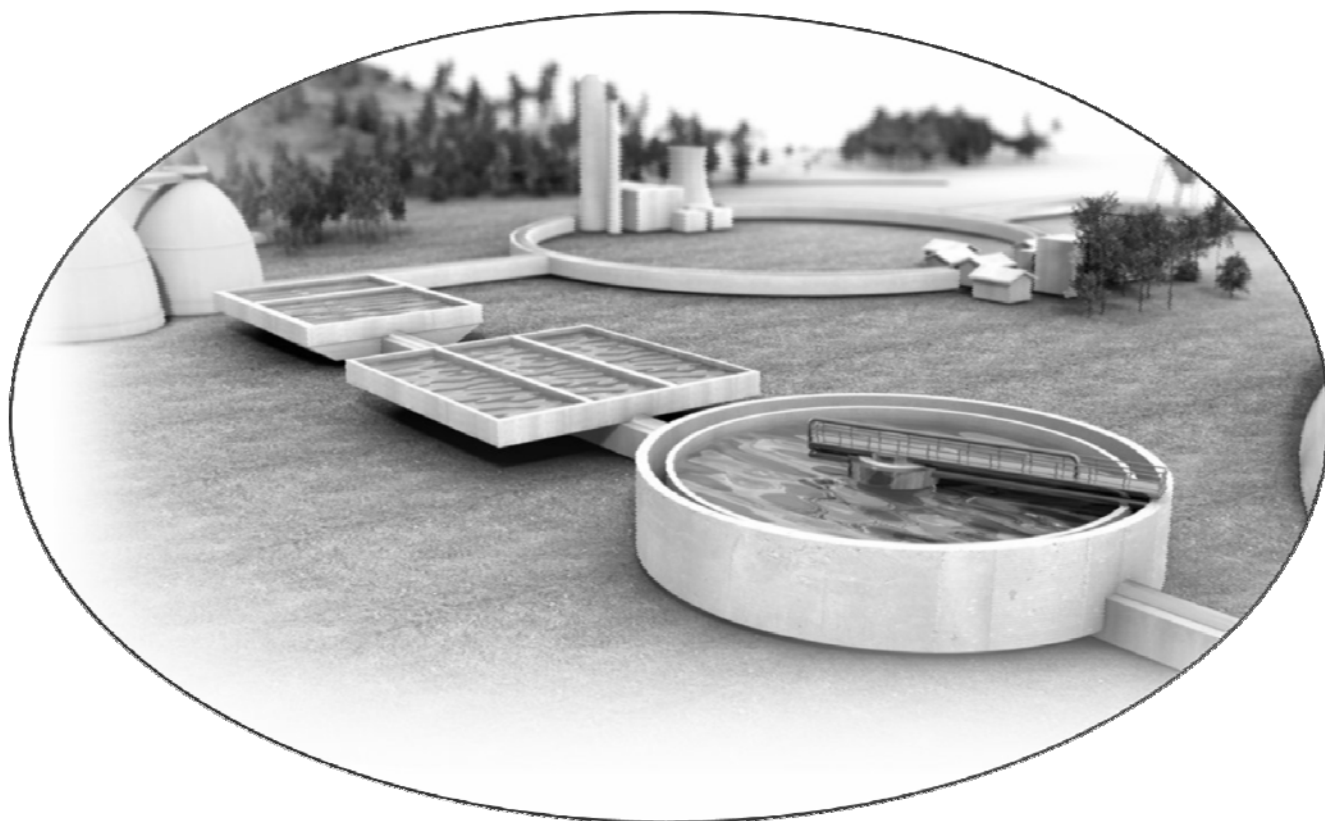
Reference Laboratory system for calibration/verification purpose

5870051	Pocket Colorimeter II - Chlorinedioxide, with Reagent Set DPD Chlorine/Glycine 100 tests For more sensitive ClO ₂ method, please contact HACH LANGE and ask for Amaranth method.
5870004	Pocket Colorimeter II - Ozone, with reagent set, 0.01...0.25 and 0.01...0.75 mg/l (25 tests each)

Note: Further single and multi-parameter instruments on request; please contact HACH LANGE
For spare parts please refer to the chapter Appendix A

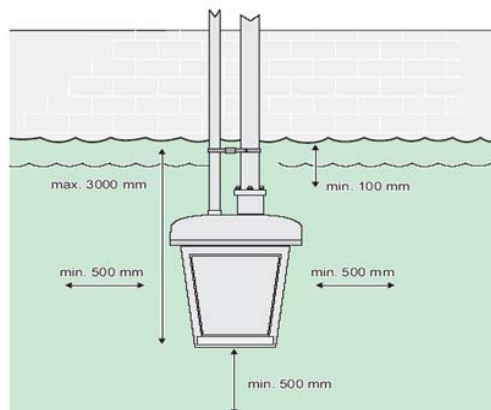
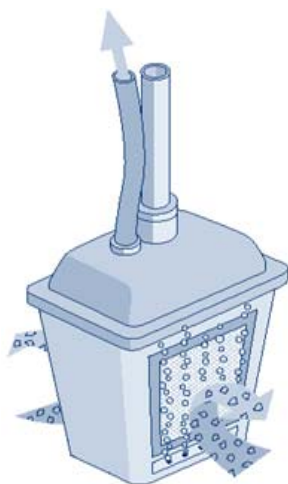
Sample Preparation

Accessories for Sampling, Homogenisation, Filtration and Dilution



ACCESSORIES - sampling and sample preparation

Filtration probe for AMTAX sc & PHOSPHAX sc (DataSheet DOC033.52.00430)



Technical Data Subject to change without notice	
	sc Filtration probe
Designation	Submersible Filtration probe for use with AMTAX sc or PHOSPHAX sc Process Analyzers
Application	Sample preparation for activated sludge, clarified water and surface water
Operation principle	In-situ membrane filtration system, equipped with 2 filter modules (exchangeable)
Particle retention	$\geq 0.15 \mu\text{m}$
Process connection	
Installation style	immersed directly in the media
Sample flow	max. 3 m/s, from 1 m/s: install only with protection against flow (accessory)
Pressure range	max 3 m immersion depth
Filtrate flow	$\geq 5 \text{ ml/minute}$
pH requirements	pH 5 ... 9
Temperature	
Sample	+4°C ... + 40 °C
Ambient	+4°C ... + 40 °C
Outputs	Via analysis instrument
Hose length	5 m or 10 m heated sample line
Enclosure rating	IP68
Material	Plastic enclosure, PPE, flammability class in accordance with UL 94
Dimensions	315 x 250 x 120 mm (W x H x D)
Weight (approximately)	8 kg (without mounting assembly)
Remarks	Continuous self-cleaning with air bubbles
Maintenance requirement	0.5h/month, typically
Instrument compatibility	Amtax / Phosphax sc
Warranty	24 Month; extendable to 60 months

ACCESSORIES - sampling and sample preparation

Filtration probe for AMTAX sc & PHOSPHAX sc (DataSheet DOC033.52.00430)

Part No. **Designation**

LXV429.99.0XX00 **Filtration probe sc**

LXV429.99.0XX00														
Language / Country Code Selection														
Hose length option														
5m heated hose													1	
10m heated hose													2	
Power Supply option for sampling probe														
230 VAC/50Hz													0	
115 VAC/60Hz													1	

Standard accessories (supplied with the instrument)

2 filter modules	Mounting assembly for the filtration probe
1 package of small parts	LZX414.00.50000 or LZX414.00.60000 are essential
1 cleaning sponge	for installation and must be ordered separately.
Manual	

 **Note:** For Service contract with Warranty extensions, commissioning and trainings please refer to Appendix D.
Please refer to Appendix E for more details about manuals and user interfaces in different available languages

Wearing Parts

LZY469	Filter probe sc - wearing parts, (2nd year in operation), 10 min Measuring Interval including 2 Filter module for filtration probe sc	
LZY140	Filter module for filtration probe sc, pk/1	2 modules to be replaced after 1 year

Immersion Mounting assembly

LZX414.00.50000	Rim mounting for filtration probe, made of SS
LZX414.00.60000	Rail mounting for filtration probe, made of SS

List of consumables and warranty periods

LZY130	Set of wear parts for sample pump (Pump membrane + valves) Replacement after 1 year, with 5 min. analysis interval, otherwise 2 years	1 year warranty
LZY139	Exhaust (copper) Replacement after 1 year	1 year warranty
LZY138	Exhaust (2 pcs.) for air cleaning Replacement after 1 year	1 year warranty

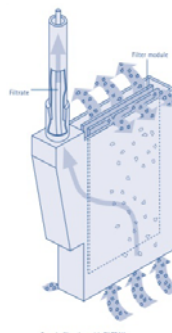
 **Note:** The filtration probe sc is only allowed to be opened by qualified and authorised service personnel.
The consumables in the filtration probe sc should be changed at regular intervals by the service

ACCESSORIES - sampling and sample preparation

FILTRAX (DataSheet DOC053.52.03068)



The FILTRAX sampling system is a reliable and low maintenance device for filtration and pumping of waste water samples from the activated sludge tank or final clarification tank for supplying process instruments with samples free of solids. The treated sample volume is sufficient to supply up to three process instruments.



Two tube metering pumps inside the control unit draw the sample alternately from the two filter modules using a common 5 m long heated suction tube to the control unit that is installed in close proximity to the sampling point. From there the sample is pumped 2 m, 10 m, 20 m or 30 m, depending on the sample tube connected, to the process instruments.

Technical Data	
Subject to change without notice.	
	Filtrax
Designation	Submersible Filtration probe for use with specific HACH LANGE Process Analyzers
Application	Sample preparation for activated sludge, clarified water and surface water
Operation principle	In-situ membrane filtration system, equipped with 2 filter modules (exchangeable); pore size 0,3 µm
Particle retention	≥ 0.30 µm
Process connection	
Installation style	Module carrier directly immersed in the media bypass installation (optional) Control unit placed 5m max from the sampling point
Sample lift height	Module carrier – control unit: 3 m ; control unit – process instrument: 7 m
Sample volume	approximately 900 ml/h sufficient for up to 3 process photometers and probes (AMTAX sc/Inter2/compact, PHOSPHAX sc/Inter2/compact & bypass probes)
Pressure range	atmospheric
pH requirements	5...9
Temperature	
Sample	+ 5°C ... +40°C
Ambient	-20°C ... +40°C
Outputs	Relais contact for signal erroring
Hose length	
Suction hose	5m heated
Sample hose	2m unheated or 10m, 20m, 30m heated
Controller Outputs	Fault signalling contact: floating contact (230 V, max. 3 A) Warning contact: floating contact (230 V, max. 3 A) Service interface: RS 232
Enclosure rating	IP68 (sampling unit); IP55 (control unit)
Material	Stainless Steel
Dimensions & Weight	
Control Unit	430 x 530 x 220 mm (W x H x D); approximately 22 kg
Module carrier	92 x 500 x 340 mm (W x H x D); approximately 9 kg (including 3m suction hose)
Sample hose	2m, 10m, 20m, 30m; approximately 5 kg per 10m
Remarks	Continuous self-cleaning with air bubbles
Power supply	230 VAC ±10%, 50-60 Hz (115 VAC optional)
Maintenance requirement	1 h/month, typically
Inspection interval	6 month
Instrument compatibility	AMTAX sc/Inter2/compact, PHOSPHAX sc/Inter2/compact & bypass probes
Warranty	24 month, fulfilling required inspection intervals, extendable to 60 month

ACCESSORIES - sampling and sample preparation

FILTRAX (DataSheet DOC053.52.03068)

Part No.	Designation
LXV294.XX.01000	Filtrax , Filtration system incl. 2 Filter modules

L	X	V	2	9	4	.	x	x	.	0	x	0	0	0
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Language / Country Code Selection													
Hose length option													
2m heated													5
2m non heated													1
10m heated	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2
20m heated	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3
30m heated	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4

Standard accessories (supplied with the instrument)

1 set of operating instructions	Mounting assemblies for the module carrier
1 maintenance calendar	LZX414.00.40000 and the controller LZX676 are
1 factory test certificate	essential for installation and must be ordered separately.

Further accessories

LZX414.00.40000	Mounting assembly for module carrier (incl. BRO069)
BRO069	Extension pipe 2.0m, with side opening optional
LZX676	Brackets for Filtrax Control Unit Mounting
LZX216	Cleaning container filter modules, FILTRAX
LZX217	Cleaning Set FILTRAX

Documentation (supplied with instruments, respectively on order with extra charge)

DOC023.52.03045	Instrument Manual, Filtrax, GB
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Spare parts for Filtrax

LZX018	Set of annual consumables Including tubing set (LZX667), set of filter mats LZX017, pump roller set LZX019, Pump cartridge LZX777 and set of small parts
LZX675	Sample hose, 2 m non-heated
LZX672	Sample hose, 10 m heated
LZX674	Sample hose, 20 m heated
LZX765	Sample hose, 30 m heated
LZX670	Filter module carrier, complete, 5 m, 230 VAC
LZX024	Compressor, complete, for Filtrax 230 VAC
LZX677	Filter module (2 pcs required)
LZX018	Set of wear parts for FILTRAX (for 1 year)

 **Note:** For Service contract with Warranty extensions, commissioning and trainings please refer to Appendix D.
Please refer to Appendix E for more details about manuals and user interfaces in different available languages

ACCESSORIES - sampling and sample preparation

FILTRAX Bypass (DataSheet DOC053.52.00492)

Part No.	Designation
<u>FILTRAX Bypass (DataSheet DOC053.52.00492)</u>	
	The Filtrax Bypass sample preparation system is intended for situations where the sampling point and the analysis station are far apart (> 30m). The use of resistant plastics for all wetted parts makes the Filtrax bypass especially suitable for applications involving industrial wastewater and process water. The sample is transferred to the overflow vessel with the help of a pump or hydrostatic pressure. Membrane filter plates are integrated in the overflow vessel, so that an ultraclear filtrate is continuously delivered to the analyser. Please select all components listed below A pump for sample delivery should be be preferably customer supplied.
LZH100	PVC overflow vessel for two filter modules including 2 m unheated tube to connect the vessel to the Filtrax control unit, wall mount, and 3 ball valves for inflow, outflow and sludge removal. Pressure p max 0.5 – 6 bar, atmospheric outlet to drain alternatively
LZH004	Stainless Steel overflow vessel for one filter module; 440 x 750 x 190 mm (W x H x D) incl. wall mounting accessories, lid, and 3 ball valves made of SS for inflow, outflow and sludge removal Pressure p max 0.5 – 6 bar, atmospheric outlet to drain
LXV294.52.00000	Filtrax control unit, w/o accessories
LZX677	Filter module, for Filtrax, pk/1
LZX675	Pressure line (2 m non heated)
	optionally 10, 20, 30 m available (please refer to spare sparts listed below)
LZH034	Overflow prevention system including control unit with potential-free contact and level sensor (1" outside thread)
<u>Optional accessories</u>	
LZH003	Sampling pump with cutting device, with 10 m cable Q = 1 m³/h (h = 18 m) to 6 m³/h (h = 12 m) housing, impeller made of cast iron GG25 shackle, hose coupling, lower supporting ring made of Steel
LZH006	chain, made of zinc coated stainless steel, per metre
LZH005	Hose, made of PVC, Ø ID/OD = 25/33 mm, per metre

ACCESSORIES - sampling and sample preparation

FILTRAX eco (DataSheet DOC023.52.90173)



The FILTRAX eco sampling system is used to filter and deliver waste water samples from the aeration basin in order to supply downstream process measuring instruments with a sample free from solid matter.

The FILTRAX eco sampling and sample preparation system comprises three components: a control unit, a module carrier and a filter module. The filter module is immersed with a module carrier at the sample location.

The filter module has a filter membrane covering both sides. This membrane is used to suck in and filter the waste water sample, and then feed it to the control unit.

A pump within the control unit sucks the sample from the filter module through a 5 m long heated suction tube to the control unit, which is installed right next to the sampling location. The sample is then pumped over 2, 10, 20 or 30 m - depending on the sample tube connected - to the process measuring instruments.

The sample delivery is interrupted once a minute for 10 seconds in order to minimize the amount of solid matter adhesion on the filter membranes.

Technical Data	
Subject to change without notice	
	Filtrax eco
Designation	Submersible Filtration probe for use with specific HACH LANGE Process Analyzers
Application	Sample preparation for activated sludge
Operation principle	In-situ membrane filtration system, equipped with 1 filter modules (exchangeable); pore size 0,3 µm
Particle retention	≥ 0.30 µm
Process connection	
Installation style	Module carrier directly immersed in the media Control unit placed 5m max from the sampling point
Sample lift height	Module carrier – control unit: 3 m ; control unit – process instrument: 7 m
Sample volume	approximately 600 ml/h sufficient for up to 2 process photometers and probes (AMTAX sc/Inter2/compact, PHOSPHAX sc/Inter2/compact & bypass probes)
Delivery height	7 m (control unit to process measuring unit)
Pressure range	atmospheric
pH requirements	5...9
Temperature	
Sample	+ 5°C ... +40°C
Ambient	-20°C ... +40°C
Outputs	Relais contact for signal erroring
Hose length	
Suction hose	5 m heated
Sample hose	2 m non heated or 10m, 20m, 30m heated
Controller Outputs	Fault signalling contact: potential free (230 V, max. 3 A) Alarm contact: potential free (230 V, max. 3 A) Service interface: RS 232
Enclosure rating	IP55 (control unit)
Material	Stainless Steel
Dimensions & Weight	
Control Unit	430 x 530 x 220 mm (W x H x D); approximately 20 kg
Filter module	251 x 445 x 17 mm (W x H x D); approximately 3.5 kg (including 3m suction hose)
Sample hose	2m, 10m, 20m, 30m; approximately 5 kg per 10m
Remarks	no automatic cleaning
Power supply	230 VAC ±10%, 50-60 Hz (115 VAC optional)
Maintenance requirement	1 h/month, typically
Inspection interval	6 month
Instrument compatibility	AMTAX s or PHOSPHAX sc or appropriate other probes
Certification	CE, GS
Warranty	24 month, fulfilling required inspection intervals, extendable to 60 month

ACCESSORIES - sampling and sample preparation

FILTRAX eco (DataSheet DOC053.52.03068)

Part No.	Designation
LXV294.52.01010	Filtrax eco , Sampling and Filtration system incl. 1 Filter module

L	X	V	2	9	4	.	x	x	.	0	x	0	1	0
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<u>Language / Country Code Selection</u>													
GB language / EU power cord											5	2	
<u>Hose length option (230 VAC)</u>													
2m non heated													1
2m heated													5
10m heated													2
20m heated													3
30m heated													4

Standard accessories (supplied with the instrument)

1 set of operating instructions	Mounting assemblies for the module carrier
1 maintenance calendar	LZX414.00.40000 and the controller LZX676 are
1 factory test certificate	essential for installation and must be ordered separately.

Further accessories

LZX414.00.40000	Mounting assembly for module carrier (incl. BRO069)
BRO069	Extension pipe 2.0m, with side opening, optional
LZX676	Brackets for Filtrax Control Unit Mounting

Documentation (supplied with instruments, respectively on order with extra charge)

DOC023.52.90173	Instrument Manual, Filtrax eco, GB
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Spare parts for Filtrax

LZX675	Sample hose, 2 m non-heated
LZY679	Sample hose, 2 m heated, 230 Vac
LZX672	Sample hose, 10 m heated, 230 Vac
LZX674	Sample hose, 20 m heated, 230 Vac
LZX765	Sample hose, 30 m heated, 230 Vac
LZX670	Filter module carrier, complete, 5 m, 230 VAC
LZX024	Compressor, complete, for Filtrax 230 VAC
LZX017	Filterpad for control unit, pK/8
LZX677	Filter module, pK/1
EYV017	Plastic bag for filter module storage
LZY690	Hose set, for 1 year operation
LZY678	Module carrier complete with 5 m, 230 VAc suction tube
LZP777	Pump cassette (2 pcs/ year required)
LZX019	2-channel pump rollers (5 pieces)

 **Note:** For Service contract with Warranty extensions, commissioning and trainings please refer to Appendix D.
Please refer to Appendix E for more details about manuals and user interfaces in different available languages

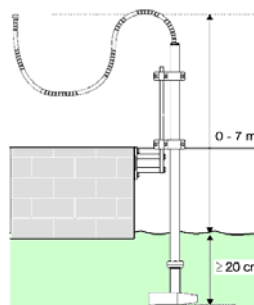
ACCESSORIES - sampling and sample preparation

SIGMATAX 2 for Sample Homogenisation (DataSheet DOC053.52.03409)



The Sigmatax 2 is an automatic homogenisation and sampling system for supplying the process photometers PHOSPHAX Σ Sigma (Total-Phosphorus), TOCTAX and ASTRO TOC (Total Organic Carbon) with water samples with Suspended Solids < 0.5 mm diameter.

Using the immersed sampling probe the necessary sample volume is pumped without coming into contact with pumps. The sample is delivered to a small glass vessel in the control unit and is homogenised using an ultrasonic generator.



Technical Data	
Subject to change without notice	
	Sigmatax 2
Designation	Submersible homogenisation/sampling probe for use with specific HL Process Analyzers
Application	Sample preparation for activated sludge, clarified water and surface water
Operation principle	Sampling controlled by pressure, homogenisation using ultrasonic
Sampling interval	12 ... 20 min
Process connection	
Installation style	Sampling unit directly immersed in the media Control unit 10, 20 or 30m from the sampling point (wall mounted)
Sample lift height	max 7 m using 10 or 20m hose max 6 m using 30m hose
Sample volume	sufficient for up to 2 process photometers (PHOSPHAX Sigma or TOCTAX)
pH requirements	5...9
Temperature	
Sample	+ 5°C ... +30°C
Ambient	-20°C ... +40°C for hose, + 5°C ... +40°C for control unit
Hose length	
Sample hose	10m, 20m or 30m heated
Controller Outputs	Fault signalling contact: floating contact (24V, max 1A) Service interface: RS 232
Enclosure rating	IP68 (sampling unit); IP54 (control unit)
Material	Stainless Steel and plastic ?????
Dimensions & Weight	
Control Unit	366 x 560 x 212 mm (W x H x D); approximately 12 kg
Sampling probe	133 x 404 mm (Ø x L)
with hose	appr. 7.5 kg (10m), 15 kg (20m), 22 kg (30m)
Power supply	230 VAC, 50 Hz, 250 VA
Maintenance requirement	0.5 h/week, typically
Inspection interval	3 month
Instrument compatibility	PHOSPHAX Σ Sigma, TOCTAX and ASTRO TOC
Warranty	24 month, fulfilling required inspection intervals, extendable to 60 month

ACCESSORIES - sampling and sample preparation

SIGMATAX 2 for Sample Homogenisation (DataSheet DOC053.52.03409)

Part No.	Designation
LXV215	SIGMATAX 2 Control unit
LXV231	SIGMATAX 2 Sampling Unit, with 10 m connecting hose, w/o control unit
LXV232	SIGMATAX 2 Sampling Unit, with 20 m connecting hose, w/o control unit
LXV282	SIGMATAX 2 Sampling Unit, with 30 m connecting hose, w/o control unit

Standard accessories supplied with SIGMATAX 2

- 1 set of operating instructions
- 1 maintenance calendar
- 1 Factory Test Certificate



Note:

For a complete system the control unit and the sampling probe must be ordered.
Mounting assembly LZX414.00.10000 is essential for installation and must be ordered separately.
For Service contract with Warranty extensions, commissioning and trainings please refer to Appendix D.

Further accessories

LZX414.00.00000	Rim mounting kit, for sample preparations	without adapter
LZX456	Second fastening point (recommended in case of vibrations)	
DOC023.52.03103	Instrument Manual SIGMATAX 2, GB	

Spare parts

LZX376	Diaphragm compressor (for approx. 1½ years)
LZX306	Probe Wearing Parts (for approx. 6 months)
LZX299	Air filter without fittings (for approx. 12 months)

ACCESSORIES - Automatic cleaning system

High Output Airblast Cleaning System



The High Output Air Blast (HOAB) cleaning system is intended for use in process applications where sensor fouling occurs.

The HOAB cleaning hardware will automatically clean the sensor surface to eliminate slime and other biogrowth.

Technical Data Subject to change without notice.	
	HOAB - High Output Airblast Cleaning System
Application	High Output Air Blast System for attachment to selected sensors to reduce biogrowth and other types of fouling.
Operation principle	Compressed air for automatic cleaning of LDO or NH4D or NO3D sc sc in process
Process connection	
Installation style	for LDO or NH4Dand NO3D sc immersed in open channels or tanks
Temperature:	
Compressor	-20°C ... +50°C
Pressure output	
Output:	230 V model: 2.76 bar (40 psi); 115 V model: 3.10 bar (45 psi)
Air flow rate:	230 V Model: 1.77 m ³ /h (1.04 cfm); 115 V Model: 2.14 m ³ /h (1.26 cfm)
Max. pump duty	60 seconds for every 15 minutes
Controller relay fuse rating	T, 0.25 A, 250 V (all models)
Enclosure rating	NEMA 4X/IP66 Non-metallic
Pollution degree/ installation category	II
Power requirements:	230 V model: 230 VAC, 50 Hz, 1.5 Amps
Compressor dimensions	37 x 32 x 20 cm (14.5 x 12.5 x 7.8 inches) (W x H X D)
Weight (approximately)	10.7 kg (23.5 lb)
Certifications:	Certified to UL & CSA 61010-1 safety standards by ETL (cETLus and CE marks)
Mounting Hardware	made of Stainless Steel
Warranty	2 years

ACCESSORIES - Automatic cleaning system

High Output Airblast Cleaning System

Part No.	Designation
6860X03.99.0001	HOAB - High Output Airblast Cleaning System

6	8	6	0	x	0	3	.	9	9	.	0	0	0	1
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Power supply option	
230 VAc	1
115 VAc	0
Language / Country Code Selection	

Standard accessories (supplied with the instrument)

The following items are included as standard components of the self-cleaning kit:

- Tubing, 7.6 m (25 ft)
- Tie wraps
- HOAB compressor with mounting hardware
- Relay Barrier

Wearing Parts

LZX030	Air filter for inlet air tube for dusty environment
--------	---

Documentation

DOC023.53.00811	Operating Manual HOAB, GB
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Optional accessories

LZY499	Cable kit for HOAB (consisting of EU power cord and relais cable)
LZX651	Solenoid valve with pressure gauge MVR-1" for automatic relais controlled cleaning by air pressure (air pressure supply must be customer supplied)

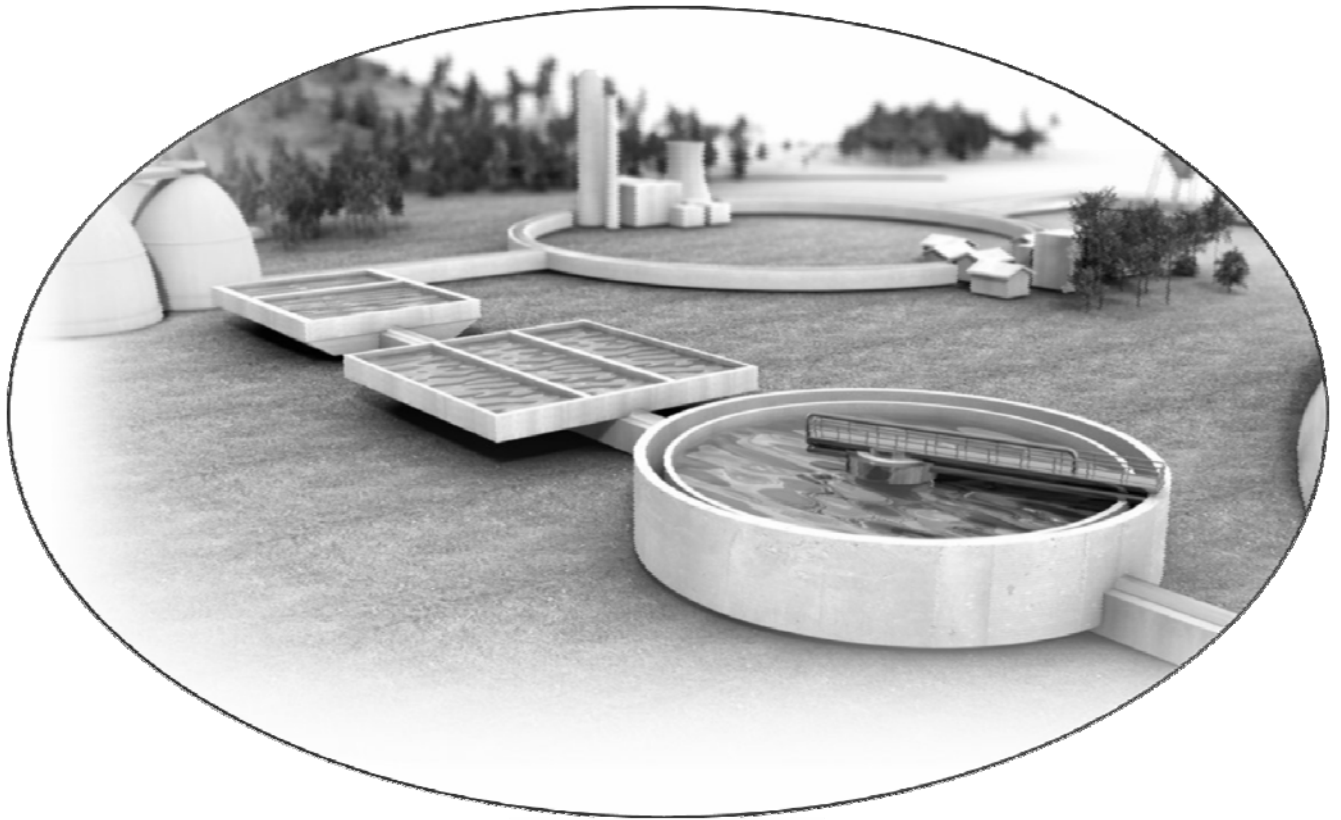
Optional sensor head assemblies

LZY331	Cleaning Head kit for NH4D sc or NO3 D sc probes
6190250	LDO - Cleaning head kit



Process analyzers for inorganic parameters

Product overview



HARDNESS

SP510 Treshold Monitor (DataSheet LIT1457)



The SP510™ Hardness Monitor is designed to monitor water softener effluents continuously to detect hardness breakthrough due to softener exhaustion. It enables commercial and industrial water softener operators to establish automatic control of their systems by initiating regeneration sequences with the instrument's alarm circuit. The Hardness Monitor is also suited for other applications requiring the monitoring of hardness.

By selecting the appropriate hardness indicator and buffer reagents, the monitor will alarm at 1, 2, 5, 10, 20, 50, or 100 mg/L hardness measured as CaCO₃. When the preselected alarm point is exceeded, the alarm relay responds, closing the normally open contacts and opening the normally closed contacts. These dry contacts can be used to actuate annunciators and/or initiate softener regeneration.

Control panel indicators provide "hard" or "soft" sample status.

Technical Data

Subject to change without notice

	SP510 Hardness Monitor
Application	all "Clean" Water applications
Measuring principle	colorimetric; hard or soft indicating with two alarm status LED indicators
Light source	LED 610 nm (life time approximately 50,000 h)
Alarm Trip Points	0.3, 1.0, 2.0, 5.0, 10.0, 20.0, 50.0 and 100 mg/l total hardness as CaCO ₃
Measuring uncertainty	± 25% of trip point
Repeatability	± 10 % of set point value in the range 0.3 - 2 mg/l, ± 4 % of set point value of the remaining measuring ranges
Cycle time	2.0 min @ 60Hz respectively 2.3 min @ 50Hz, selectable
Process connection	
Installation style	Bypass Installation; wall mounting
Sample inlet	¼" OD, quick connect fitting
Pressure range	0.7 to 8.3 bar
Drain (outlet)	½" ID barbed hose fitting; atmospheric outlet
Sample flow	50 ... 500 ml/min
Sample conditioning	Strainer Assembly for sample line, Cat. No. 1850600 recommended
Temperature	
Sample	+5 ... +40°C
Ambient	+5 ... +40°C, 5...95% relative humidity, non-condensing
Storage	-20 ... +60°C
Outputs	1 x SPDT relay, actuated when hard water indicator is on contact ratings: 5 A Ohmic load at 100-240 VAC
Alarms	LED indicators, HARD or SOFT
Enclosure rating	IP62
Material	ABS plastic; window made of acrylic
Dimensions (WxHxD)	32 x 42 x 18 cm (12.5 x 16.5 x 7")
Weight (Shipping)	appr. 11.3 kg
Maintenance requirements	calibration and reagent replacement every 2 months replace pump tubes: T<27°C, every 6 months, T>27°C, every 3 months
Power requirements	115/230 VAC, 50/60 Hz can be switched; 70 VA, 1.25 A fuse
Reagent consumption	1 reagent set / 2 months
Controller compatibility	Stand alone instrument
Warranty	24 Month; extendable to 60 months

HARDNESS

SP510 Treshold Monitor (DataSheet LIT1457)

Part No. Designation

54100XX

SP510 Hardness Monitor

5	4	1	0	0	x	x
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Alarm Trip Point Option

0.3 mg/l CaCO ₃		0	3
1.0 mg/l CaCO ₃		0	1
2.0 mg/l CaCO ₃		0	2
5.0 mg/l CaCO ₃		0	5
10 mg/l CaCO ₃	.....	1	0
20 mg/l CaCO ₃	.....	2	0
50 mg/l CaCO ₃	.....	5	0
100 mg/l CaCO ₃	.....	9	9

Each SP510 Hardness Monitor listed above is shipped with an installation kit, maintenance kit (stirring bar, strainer, spare tube assemblies, a shut-off valve) and a two-month supply of reagents.



Note:

Select the model with the alarm trip point 40 - 50 % higher than your normal effluent hardness.

Recommended accessories for sample conditioning

1850600

Strainer Assembly for sample line, made of PVC

Accessories

5516400

Installation Kit, for CI17/SP510

5516500

Maintenance Kit, 1 year

5448800

Power Cord Kit with Strain Relief, 120 VAC

5448900

Power Cord Kit with Strain Relief, 240 VAC

Reagent supply for 2 month operations

Please select 1 Buffer and 1 Indicator solution for the appropriate Trip point from the table below.
The reagents will last for 60 days operations.

Trip Point	Buffer solution Part No.	500 ml bottle	Indicator solution Part No.	500 ml bottle
0.3 mg/l	2768549		2769249	
1 mg/l	2768549		2769249	
2 mg/l	2768549		2769249	
5 mg/l	2768549		2769249	
10 mg/l	2768649		2769249	
20 mg/l	2768749		2769249	
50 mg/l	2768849		2769249	
100 mg/l	2768949		2769249	

Calibration solution

102133

EDTA standard solution 0.2N (0.1 M), 29 ml DB

102233

Magnesium standard solution, c= 10,000 ± 1,000 mg/L as CaCO₃, 29 ml DB

HYDRAZINE, Oxygen Scavenger

Hydrastat 9186 (DataSheet TE9186revF)



The 9186 Process Analyzer provides a high sensitivity measurement of oxygen scavengers, dissolved hydrazine, and carbohydrazide in water. The measuring principle is based on the electrochemical method of 3-electrode amperometry, which offers excellent zero stability. The combination of working electrode, counter electrode, and reference electrode provides steady, clean readings, with insignificant signal drift.

Response time (T90) is within 60 seconds, and system repeatability is outstanding at $< \pm 2\%$ of reading or $< \pm 1 \mu\text{g/L N}_2\text{H}_4$. This allows the timing and dosing of chemical additions in feedwater to be optimized and helps reduce costs.

The analyzer has been designed with no moving parts or pumps for long performance and minimal care. Maintenance is performed at service intervals of four to five weeks, and commonly requires less than 15 minutes for completion.

Technical Data	
Subject to change without notice	
	Hydrastat 9186
Application	Industrial and boiler waters
Measuring principle	Amperometric, 3 electrode principle
Measuring range	0...500 ppb dissolved N_2H_4 or 0...100 ppb Carbohydrazide
Detection limit	$< 1 \text{ ppb}$
Measuring uncertainty	2% of measured value or $\pm 1 \text{ ppb}$, whichever is greater
Response time T_{90}	$< 60 \text{ sec}$
Interferences	
Calibration	2 point calibration Zero: electrically with hydrazine-free water Slope: using Laboratory Reference values
Calibration interval	1x/month typically
Temperature compensation	automatic
Process connection	
Installation style	Bypass, single stream, with atmospheric outlet
Sample inlet	Swagelok 4 x 6 mm Stainless Steel tubing, free of solids
Drain (outlet)	Nippel for 6 x 8 mm PE hose
Sample flow	10 ... 15 l/h; 12 l/h recommended
Pressure range	0.5 ... 6 bar
Temperature	
Sample	$+5^\circ\text{C} \dots 45^\circ\text{C}$
Ambient	$+5^\circ\text{C} \dots 45^\circ\text{C}$, 10 ... 90% relative humidity, non condensing
Outputs	2x 0/4...20mA, electrical isolated from signal input (800 Ohm max) 4 NO/NC Relays (high/low limit, timer/sequencer, system alarm) RS485 MODBUS or ProfiBus DP 1.0 optional
Enclosure rating	IP65 (NEMA4), optional NEMA4X
Material	Working electrode: Platinum Counter electrode: Stainless Steel Reference: Ag/AgCl/KCl, 0.1 mol Measuring cell: Acrylic Transmitter: Aluminum + polyester coating
Power requirements	100 ... 240 VAC, 50/60 Hz, 25VA
Dimensions	300 x 817 x 224 mm (W x H x D)
Weight (approximately)	4.1 kg
Maintenance requirements	Monthly replenish reagent, calibration
Controller compatibility	Stand alone instrument
Warranty	24 Month; extendable to 60 months

HYDRAZINE, Oxygen Scavenger

Hydrastat 9186 (DataSheet TE9186revD)

Part No. **Designation**

Z09186=A=X0XX **Hydrastat 9186**, Hydrazine Analyzer with automatic calibration feature

Z 0 9 1 8 6 = A = x 0 x x											
Sample Inlet connection option											
Swageloc 4 x 6 mm tubing, Stainless Steel										0	
1/4" O.D. connectors										3	
Enclosure Option											
19" Panel version (Standard)										0	
Power Supply & Output Options											
110...240 VAC + 2 x I/O Output										0	0
110...240 VAC + 2 x I/O Output + RS485 MODBUS										1	1
110...240 VAC + 2 x I/O Output + ProfiBus DP										1	2
Low Voltage Version + 2 x I/O Output										2	0
Low Voltage Version + 2 x I/O Output + RS485 MODBUS										3	1
Low Voltage Version + 2 x I/O Output + ProfiBus DP										3	2

 **Note:** The analyzer is shipped pre-mounted on a panel with controller, probe, cable, flow cell, installation hardware and operating instructions.

Reagents for 30 days operation

Diisopropylamine, 99%, 1l

Diisopropylamine is a Dual use reagent and requires special licence by non-EU purchasers.

Monoethylamine, Diethylamine or Ammonia can be also used; please refer to the instrument manual.

Spare parts

Z09186=A=8000 Hydrastat 9186, 2 years Spare-parts kit

Z09186=A=0300 9186 Working electrode with integrated T-sensor (NTC), w/o top connector cable

Z09186=A=0400 Flow controller for 9186 complete (replacement)

Optional accessories

Z09186=A=0600 Chemical zero cartridge

Z09186=A=0650 Pack of resin for 9186 zero cartridge refilling

Z09186=C=0360 Orion Monoethylamine bottle cap adapter

Documentation

Z621=191=086 9186 Operating instructions, GB

charged when ordered separately

Recommended Reference Laboratory measuring system

using 4-Dimethyl-amino-benzaldehyde method analogous DIN38413-P1

LCW025 Hydrazine Pipette test, Measuring range 0.01 ... 2 mg/l

179032 Hydrazine, Reagent solution, Measuring range 4 ... 600 µg/l

2524025 Hydrazine, AccuVac method, Measuring range 4 ... 600 µg/l

 **Note:** Suitable HACH LANGE Photometer: DR2800, DR5000
For details, please refer to the HACH LANGE Laboratory Pricelist or contact HACH LANGE directly.

SILICA

Silkostat 9210 (DataSheet DOC063.52.30030)

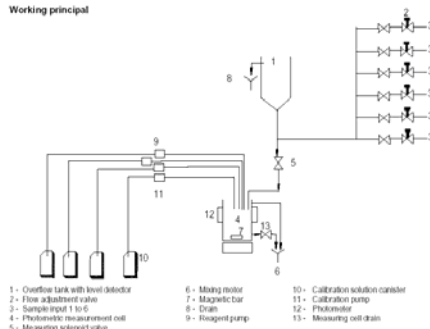


To reduce demineralisation water plant costs, to avoid costly plant shutdowns and repairs, the POLYMETRON 9210 provides continuous monitoring for trace amounts of silica in high purity water applications.

Key features includes low 0.5 ppb detection limit detects, the innovative POLYMETRON "absolute zero" determination to maintain the reproducibility of 0.5 ppb, integrated grab sample ensures on the spot checking, reagents can be made locally, canisters replenishment every 84 days, built-in sequencer (1 to 6 channels) optimizes plant investment.



Working principle



Technical Data

Subject to change without notice

	Silkostat 9210
Application	Boiler feedwater, Steam, Demineralisation, Semiconductor
Measuring principle	photometric; using Molybdenum blue method
Measuring range	0.5 ... 1000 ppb respectively 2 ... 5000 ppb dissolved SiO ₂ , depending on model
Repeatability	± 0.5 ppb or ± 2% (whichever is greater) ± 2 ppb or ± 2 % (whichever is greater)
Response time T ₉₀	< 10 min
Measuring interval	10 minutes or 15 min selectable
Calibration	2 point calibration: chemical zero and slope, Programmable frequency, Automatic optical Zero before each measurement
Calibration interval	user selectable
Process connection	
Installation style	Bypass installation, particle free sample
Sample Stream	1 ... 6, programmable in-built sequencer (model depending)
Sample inlet	4/6 mm ID/OD PE/PTFE tubing (¼" on request)
Drain (outlet)	12 mm ID (½") barbed hose with atmospheric outlet
Sample flow	max. 30 l/h; recommended 10 ... 20 l/h
Pressure range	0.2 ... 6 bar
Temperature	
Sample	+5°C ... +50°C
Ambient	+5°C ... +45°C
Outputs	2 x 0/4...20mA (up to 6 for 6 channel analyser), electrically isolated, can be programmed as required (650 ohms load max) 8 relay outputs (more details see DataSheet) remote control RS485 MODBUS or ProfiBus DP 1.0 optional
Power requirements	100 - 240 VAC, 50/60 Hz, automatical switching, 80VA
Enclosure rating	IP65 (NEMA4X) Protection transmitter box IP54 Cabinet
Material	Panel version: Polystyrene-polybutadiene copolymer Cabinet version: Stove enamelled steel IP54
Dimensions	Panel: 482 x 814 [1095] x 460 mm (W x H x D) [with reagent rack] Cabinet: 600 x 892 x 460 mm (W x H x D)
Weight	Panel: 10 kg Cabinet: 50 kg
Maintenance requirement	55 / 84 days (@ 10 / 15 min interval) "Refill of reagents and calibration solution"
Remarks:	Altitude: < 2000 m; 10 ... 80% relative Humidity
Controller compatibility	Stand alone instrument
Warranty	24 Month; extendable to 60 months

SILICA

Silkostat 9210 (DataSheet DOC063.52.30030)

Part No.	Designation
Z09210=A=X001	Silkostat 9210 , Panel version, 1 channel (basic model)

Z 0 9 2 1 0 = A = x x x x											
Measuring range option											
0 ... 1000 ppb										1	
0 ... 5000 ppb typically low pressure boilers										5	
Enclosure option											
19" Panel version (Standard)										0	
Cabinet version (Wall mounted)										1	
Output options											
I/O Interface (Standard)										0	
I/O Interface + RS485 MODBUS please order Z09125=A=2485 separately											
I/O Interface + ProfiBus DP V1.0 please order Z09125=A=1485 separately											
Multi-Stream Sequencer option (inbuilt)											
1 channel version										1	
2 channel version										2	
4 channel version										4	
6 channel version										6	

Note: The analyzer comes in appropriate configuration depending on selected model option, including
 1 set of dry reagents, consisting of Sodium dehydrate molybdate, Oxalic acid dehydrate,
 Ammonium ferrous (II) sulphate hexahydrate suitable for up to 84 days(@ 15 min cycle) operation time.
 Concentrated Sulfuric Acid is mandatory for reagent preparation and must be purchased separately.

Optional accessories

Z09210=A=8072	Set of 5 canisters with caps and stickers
Z09210=A=0800	Wall-mount enclosure for 921X analysers (Silkostat, Phosphamat) in stove enamelled steel (as Upgrade kit)

Reagents & Consumables

Z09210=C=7010	Set of dry chemicals for 50 days operation (suitable for all Silkostats, series 9210)
97949	Sulfuric Acid is essential for operation and must be purchased locally in the market. 25 ml will be required for preparation of 2 l Reagent 1. Alternatively consider: Sulfuric acid, concentrated, ACS grade, 500 ml

Spare parts

Z09210=A=8000	2-years-spares part kit (suitable for all Silkostats, series 9210)
Z09210=A=8012	9210 Instrument Tech spare part kit (for models with S/N > than XXX)

Documentation

Z221=192=010	Operating manual, POLYMETRON 9210 Silica, GB
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Replacements

Z09210=A=0100	0.5 - 6 bars adaptation kit for 6 solenoid sample valves
Z09125=A=1485	Profibus DP kit with board for 91xx / 92xx and Operator Manual

SILICA

Silica analyser series 5000 (DataSheet LIT4545)



The Hach Series 5000 Silica is a reliable process analyzer for the detection of reactive silica (SiO_2) in ultrapure water.

For applications from semiconductor manufacturing to pharmaceutical processing, high-pressure boiler operation, and power generation, this instrument can provide an early warning that filter breakthrough is imminent – allowing you to intervene promptly.

The Analyser relies on the silicomolybdate/heteropoly blue, also called molybdenum blue method of colorimetric detection @ 810 nm – a method that is reliable and consistently accurate.

The patented, pressurized reagent-delivery system eliminates the need for a peristaltic pump – and all the maintenance that a pump typically requires.

Additionally to the continuous process measurement the analyser provide the possibility to analysis grab samples without stopping the process.

Technical Data	
Subject to change without notice	
	S5000 Silica Analyzer
Application	Pure and Ultra-pure water applications
Measuring principle	photometric; using Molybdenum blue method
Measuring range	0.5 - 5000 $\mu\text{g/l}$ SiO_2
Measuring uncertainty	0.00 - 500 $\mu\text{g/l}$: $\pm 1.0 \mu\text{g/l}$ or $\pm 5 \%$ of reading, whichever is greater 500 - 5000 $\mu\text{g/l}$: $\pm 7 \%$ of reading
Repeatability	$\pm 0.5 \mu\text{g/l}$ or $\pm 1 \%$ of the measured value, whichever is the larger
Measuring interval	8.8 min @ 40°C ... 50°C (sample heater recommended) 15 min @ 5°C ... 40°C sample temperature
Calibration	factory precalibrated automatic calibration in process, on demand or user calibration
Process connection	
Installation style	Bypass installation; Bench or Panel mounting
Sample Stream	Single stream analysis, grab sampling capability or optional multi stream using sample sequencer
Sample inlet	1/4" OD, stainless steel compressing fitting
Drain (outlet)	3/4" NPT PVC
Sample flow	100 ... 300 ml/min
Pressure range	0.35 – 2.1 bar regulated overpressure
Air purge	optional: 1/4" OD, stainless steel compressing fitting, instrument quality air (30l/min)
Temperature	
Sample	5°C ... 50°C
Ambient	10°C ... 45°C; 5 - 95 % relative humidity, non condensing
Outputs	I/O output (0/4...20mA) RS232C Recorder output; selectable for 0...0.01V, 0...0.1V, 0...1V or 4-20 mA Relays: 4 SPDT relays programmable for sample concentration alarm, analyser system warning, analyser system shut-down alarm
Power requirements	115/230 VAC, 50/60 Hz switch selectable, 52 VA, max. 32 W
Enclosure rating	IP65 (NEMA4x)
Material	ABS plastic, housing with gasketed doors (for indoor use)
Dimensions	56.3 x 85.6 x 41.9 (WxHxD)
Weight	36.7 kg (shipping weight)
Reagent consumption	2.9 l of each reagent in 4 weeks with 8.8 minute cycle 2.9 l of each reagent in 7 weeks with 15 minute cycle
Controller compatibility	Stand alone instrument
Warranty	24 Month; extendable to 60 months

SILICA

Silica analyser series 5000 (DataSheet LIT4545)

Part No.	Designation
6000000	HACH S5000 Silica Analyser , without power cord

6	0	0	0	0	0	x
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Model options

Series 5000 Silica Analyzer	0
Series 5000 Silica Analyzer with 120 VAC sample heater	1
Series 5000 Silica Analyzer with 240 VAC sample heater	2

The Hach Series 5000 Silica Analyzer is shipped including a 4 to 7 weeks supply of reagents, an annual maintenance kit, a sample conditioning kit (plastic) and an instructional manual. Power cord needs to be ordered separately if so requested.

Reagents

Silica Reagent Set, S5000 (suitable for 1 month operation)
consisting of

199503	Molybdate 3 reagent, 2.9 l
2347003	Citric Acid Surfactant, 2.9 l
2353103	Amino Acid F Reagent, 2.9 l
2100803	Silica Standard Solution, 0.50 mg/L, 2.9 l (suitable for 10 calibrations)

Accessories

4698100	Annual Maintenance Kit Maintenance Kits include reagent tubing, colorimetric lamp assembly, a stir bar, reagent caps, and fittings to be replaced annually.
4743900	Power cord with European plug, 250 VAC, 10A, 1.83 m
4696400	Power cord with European plug, 125 VAC, 10A, 1.83 m
4598300	Sample pressure conditioning kit, made of stainless steel
4868502	Sample heating, 240 VAC, with digital temperature display, 30 - 50 °C adjustable
LZX521	Compressor with connection kit, 2 x Fitting ¼" OD + 5 m tubing

ortho-PHOSPHATE

PHOSPHAMAT 9211, HR & LR



Industrial, continuously working analyser for the measurement of ortho-phosphates in highly purified water, e.g. boiler feed water, cooling water, semiconductor industry.

The analytical principle is the colorimetric molybdovanadate method, blue-method for low ranges and yellow-method for high ranges, up to 6 internal channels.

Technical Data	
Subject to change without notice	
	PHOSPHAMAT 9211
Designation	
Application	Power plant boiler, feedwater Steam generation, Water supply applications
Measuring principle	photometric; molybdovanadate method, blue-method for low ranges and yellow-method for high ranges
Measuring range	0...5 ppm / 0...50 ppm (mg/l) as PO ₄ ³⁻
Repeatability	±0.1 ppm or ± 3% (whichever is greater)
Detection limit	< 0.1 ppm
Response time T ₉₀	~ 10 min
Measuring interval	9 minutes typical per sample stream
Calibration	2 point calibration: chemical zero and slope Automatic optical Zero before each measurement
Calibration interval	user selectable
Process connection	
Installation style	Bypass installation, particle free sample
Sample Stream	1 ... 6, programmable in-built sequencer
Sample inlet	6 mm OD PE/PTFE tubing
Drain (outlet)	12 mm barbed hose with atmospheric outlet
Sample flow	15 ... 20 l/h
Pressure range	0.2 to 6 bar (3 to 87 psi)
Air purge	
Temperature	
Sample	+5°C ... +50°C Yellow method (0 ... 50 ppm) +5°C ... +35°C Blue method (0 ... 5 ppm)
Ambient	+5°C ... +45°C
Outputs	6 x 0/4...20mA (one per channel), electrically isolated, can be programmed as required (650 Ohm max) 6 relay outputs (more details see DataSheet) the six relays can be assigned to : phosphate high/low concentration limits, lack of sample, active channel information. RS485 MODBUS optional (300 ... 9600 baud, 32 stations max.) Profibus DP (on request)
Power requirements	100 - 240 VAC ±10%, 50/60 Hz, automatic switching, 80VA max
Enclosure rating	IP65 (NEMA4X) Protection transmitter box
Material	Panel version: Polystyrene-polybutadiene copolymer Cabinet version: Stove enamelled steel IP54
Dimensions	Panel: 482 x 1015 x 254 mm (W x H x D) Cabinet: 600 x 878 x 425 mm (W x H x D)
Weight	Panel: 13 kg Cabinet: 65 kg
Maintenance requirement	appr. every 45 days "Refill of reagents and calibration solution"
Remarks:	Altitude: < 2000 m; 10 ... 80% relative Humidity
Controller compatibility	Stand alone instrument
Warranty	24 Month; extendable to 60 months

ortho-PHOSPHATE

PHOSPHAMAT 9211, HR & LR

Part No. **Designation**

Z09211=A=XXXX **Phosphamat 9211**, Panel version, I/O output, 1 channel (basis model)

Z 0 9 2 1 1 = A = x x x x											
<u>Measuring range option</u>											
0 ... 5,000 ppb	(5 mg/l)	.....	3								
0 ... 50,000 ppb	(50 mg/l)	.....	4								
<u>Enclosure option</u>											
19" Panel version	(Standard)	.....	0								
Cabinet version	(Wall mounted)	.....	1								
<u>Output option</u>											
I/O Interface	(Standard)	.....	0								
I/O Interface + RS485 MODBUS	please order Z09125=A=2485 separately										
I/O Interface + ProfiBus DP V1.0	please order Z09125=A=1485 separately										
<u>Multi-Stream Sequencer (inbuilt)</u>											
1 channel version	1										
2 channel version	2										
4 channel version	.....										

Reagent Sets

Z09211=C=7000 9211 PHOSPHAMAT Dry Chemical Set, for 45 day operation, Low Range 0 - 5 ppm, pk/1
 Z09211=C=7001 9211 PHOSPHAMAT Dry Chemical Set, for 45 day operation, High Range 0 - 50 ppm, pk/1
 Sulfuric Acid is essential for operation and must be purchased locally in the market.
 250 ml will be required for preparation of 2 l Reagent 1. Alternatively consider:
 97949 Sulfuric acid, concentrated, ACS grade, 500 ml

Spare Parts

Z09210=A=8000 2-years-spare part kit - 921X (all ranges)
 Includes items and quantities below
 4 x Z151575,00006 PE tubing 4x6 mm (per meter)
 0.5 x Z151400,22387 PE tubing 6 x 8 mm (per meter)
 6 x Z590=050=060 Tubing Polyethylene 1.6 x 3.2mm (per meter)
 0.2 x Z151065,08699 PTFE Tubing 0.8 x 1.6 mm (per meter)
 6 x Z589=010=015 Fitting for 1.5 mm I.D tubing - 10/32 UNF thread

 Z09210=A=8010 9211 PHOSPHAMAT Instrument Tech Spare Part Kit, pk/1
 for 9211 PHOSPHAMAT Low range (0 ... 5 ppm)
 Includes items and quantities below »
 1 x Z09210=A=0250 » Sample level sensor for 921X
 1 x Z09210=C=7000 » 9211 PHOSPHAMAT Dry Chemical Set, for 45 day operation
 4 x Z495=020=001 » 2 liter PE canister with plain cap
 4 x Z50000=C=7100 » Pre-printed stickers for reagents
 1 x Z689=118=008 » Sampling solenoid valve, NPS 0,8 (0,2 - 6 bars)
 1 x Z689=118=024 » "Transfer" sampling solenoid valve, attached to overflow vessel
 1 x Z695=004=004 » Calibration / flush pump
 1 x Z695=114=001 » Reagent pulse pump

 Z09210=A=8011 9211 PHOSPHAMAT Instrument Tech Spare Part Kit, pk/1
 for 9211 PHOSPHAMAT High range (0 ... 50 ppm)
 Includes items and quantities below »
 1 x Z09210=A=0250 » Sample level sensor for 921X
 1 x Z09210=C=7001 » 9211 PHOSPHAMAT Dry Chemical Set, for 45 day operation
 2 x Z495=020=001 » 2 liter PE canister with plain cap
 2 x Z50000=C=7101 » Pre-printed stickers for reagents
 1 x Z689=118=008 » Sampling solenoid valve, NPS 0,8 (0,2 - 6 bars)
 1 x Z689=118=024 » "Transfer" sampling solenoid valve, attached to overflow vessel
 1 x Z695=004=004 » Calibration / flush pump
 1 x Z695=114=001 » Reagent pulse pump

ortho-PHOSPHATE

Series 5000 Phosphate analyser, HR & LR (DataSheet LIT1388)



The Series 5000 Low Range Phosphate Analyzer is ideally suited for monitoring drinking water, and boiler water, and can be used in other situations where trace amounts of phosphate must be carefully tracked.

Depending on the Phosphate concentration in the water sample, the S5000 Phosphate Analyzer is available in 2 versions.

The Series 5000 High Range Phosphate Analyzer provides best results when used in applications involving boiler water, cooling water, and other processes where phosphate-containing additives are used to treat industrial water.

Both instruments require minimal maintenance to achieve reliable performance.

Technical Data	
Subject to change without notice	
	S5000
Designation	
Measuring method	Photometric; Molybdenum blue method
Measuring range	4 ... 5000 µg/l as PO ₄ ³⁻
Detection limit	< 4 µg/l as PO ₄ ³⁻
Accuracy	± 4 µg/l or ± 4 % of the displayed value
Response time T ₉₀	11 min
Calibration	factory precalibrated automatic calibration in process, on demand or user calibration
Process connection	
Installation (Analyser)	Bypass installation; Bench or Panel mounting
Sample Stream	Single stream analysis, grab sampling capability or optional multi stream using sample sequencer
Sample Inlet	¼" OD, stainless steel compressing fitting
Drain (outlet)	¾" NPT PVC
Sample flow	100 ... 300 ml/min
Pressure range	0.35 – 2.1 bar regulated overpressure
Air purge	optional: ¼" OD, stainless steel compressing fitting, instrument quality air (30 l/min)
Temperature	
Sample:	+5°C ... 50°C
Ambient:	+10°C ... 50°C, 5 to 95% relative humidity, non condensing
Outputs	I/O output (0/4...20mA) RS232C Recorder output; selectable for 0...0.01V, 0...0.1V, 0...1V or 4-20 mA 4 SPDT Relays, programmable for sample concentration alarm, analyser system warning, analyser system shut-down alarm
Power requirements	115/230 VAC, 50/60 Hz switch selectable, 52 VA, max. 32 W
Enclosure rating	IP65 (NEMA4x)
Material	ABS plastic, housing with gasketed doors (for indoor use)
Dimensions	563 x 856 x 419 mm (W x H x D)
Weight (approximately)	37 kg (shipping weight)
Reagent consumption	2.9 l of each reagent in 4 weeks
Controller compatibility	Stand alone instrument
Warranty:	12 month, extendable to 60 month

ortho-PHOSPHATE

Series 5000 Phosphate analyser, HR & LR (DataSheet LIT1388)

Part No. Designation

6000X00

S5000 Ortho-Phosphate Analyzer

6	0	0	0	x	0	0
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Measuring range option

High range	0.2 ... 50 mg/l PO43-		1
Low range	0.004 ... 5.0 mg/l PO43-		5

 **Note:** The analyser is supplied with one month reagent set, an annual maintenance kit, operating instructions and a sample conditioning kit. The power cable must be ordered separately if required.

Recommended Accessories

4698133	Annual Maintenance Kit, Series 5000 Phosphate analyser, low range
4698100	Annual Maintenance Kit, Series 5000 Phosphate analyser, high range
4743900	Power cord, 240 VAC, 10A, 2.44 m (8 ft), European plug
4696400	Power cord, 120 VAC, 15A, 1.83 m (6 ft)

Optional Accessories

4765400	Installation Kit S5000 HR
4765800	Installation Kit S5000 LR
4598300	Sample conditioning kit made of stainless steel The stainless steel sample conditioning kit replaces the plastic kit which comes with this analyzer. It will handle up to 3425 kPa (500 psi) and 50°C.
4868502	S5000 Sample heater, 240 VAC with digital temperature display, 20-50°C and flow range 50 to 300 ml/min adjustable
LZX521	Compressor with connection kit, 2xFitting 1/4-inch OD + 5m tubing
4699100	Sample Pressure Conditioning Kit



Reagents & Consumables for 1 month operation

Phosphate LR Reagent Set, S5000 (suitable for 1 month operation)
consisting of

2375503	Anionic Surfactant Solution, 2.9 l
2600303	Ascorbic Acid Reagent package
2599803	Molybdate Reagent Solution for LR, 2.9 l
2059703	Phosphate Standard Solution, 3 mg/l, 2.9 l
2600103	Phosphate Zero Standard Solution, 2.9 l

Phosphate HR Reagent Set, S5000 (suitable for 1 month operation)
consisting of

1420703	Molybdovanadate Reagent, 2.9 l
244903	Sulfuric Acid Standard Solution, 2.9 l
1436703	Phosphate Standard Solution, 30 mg/l, 2.9 l
2375503	Anionic Surfactant Solution, 2.9 l

Spare Parts

4698200	Replacement Tubing Kit, for S5000 Phosphate HR
4698233	Replacement Tubing Kit, for S5000 Phosphate LR
1033814	Seal, ring, for customer connection box conduit hole (4)
4493600	Stir Bar, for sample cell
1320100	Tubing, Tygon, 6 feet, for drain

SODIUM

9240 / 9245 Sodium Analyzer



The Polymetron 924X has been designed as mono-channel or multi-channel Sodium Process Analyzer, providing low-level sodium measurement in high purity water applications. The measurement is based on a direct potentiometric technique using a highly sensitive sodium glass electrode. With a detection limit of 0.01ppb and a range of 0-10,000 ppb this analyzer is ideally suited for monitoring sodium in demineralized water, boiler feed, condensate and all parts of the steam/water cycle.

The instrument has a grab sample feature for manual calibration and measurement of one-off process samples after which the unit automatically returns to on-line monitoring. It is specially designed for low total cost of ownership.

- Measures sodium levels from 0-10,000ppb with a detection limit of 0.01ppb
- Automatic reactivation ensures optimum electrode operation and response time
- Unique temperature compensated constant pH buffering is provided

Technical Data

Subject to change without notice

	9245 Sodimat		9240 Sodimat
Designation	Mono-channel Sodium Process Analyzer		Multi-channel Sodium Process Analyzer
Application	Demineralisation, Boiler feedwater, Steam condensate, Semiconductor On-line monitoring of low level Sodium in ultrapure water and steam condensate		
Measuring principle	Sodium sensitive glass electrode after sample conditioning > pH 10		
Measuring range	0 to 10,000 ppb freely programmable 0 to 200 ppm with K-Kit option		
Conditioning agent	DIPA (recommend) [C6H15N]	Ammonia [NH3]	Ethanolamine [H2N(CH2)2OH]
Detection limit	0.01 ppb	2 ppb	5 ppb
Accuracy			
non cationic application	± 0.1 ppb or ± 5% of reading, whichever is greater	± 1 ppb or ± 5% of reading, whichever is greater	± 2 ppb or ± 7% of reading, whichever is greater
cationic application	± 2 ppb or ± 5% reading, whichever is greater	± 2 ppb or ± 5% of reading, whichever is greater	± 2 ppb or ± 7% of reading, whichever is greater
Repeatability within a 10° variation	< 0.02 ppb or 1.5% reading, whichever is greater	< 0.1 ppb or 1.5% reading, whichever is greater	< 0.2 ppb or 1.5% reading, whichever is greater
Consumption of 1 l	~ 13 weeks	~ 3 weeks	~ 7 weeks
Response time T ₉₀	≤ 3 min (0.1 to 10 ppb)		1 cycle, minimum 10 min
Interferences:			
Phosphate (10 ppm)	Measurement variation less 0.1 ppb.		
Sample temperature	< 0.5% / °C		
Calibration	manual, 1 or 2 point		
Autocal	optional		Standard (automatic known addition 3 point)
Options	K-kit, automatic calibration, filtration system, wall enclosure		K-kit, static heat exchanger, filtration system, wall enclosure
Process requirements			
Number of channels	1 channel		1 to 4 channels
Installation style	Bypass installation in Power station / indoor / demineralized water plant or instrumentation room		
Sample Inlet	6 mm O.D. tubing or ¼" O.D. in PE-low density. ¼" OD in PHED-PTFE-SS as option		
Sample Outlet	Barbed stem for 12 mm (½" I.D.) hose, atmospheric outlet		
Sample Flow	5 L/h during sampling phase		
Pressure	0.2 to 6 bar (3 - 87 psi)		
Sample specifications	< 2 NTU, < 10 ppm Suspended Solids, no oil, no grease		
Acidity	less than 250 ppm (equivalent CaCO ₃) using K-kit; less than 50 ppm without K-kit		
pH range	6 to 10 pH; Cationic application (using K-kit): 2 to 10 pH		
Temperature			
sample	5 to 45°C		
ambient	5 to 50°C		
storage	-20 to 60°C		
Relative humidity	10 to 80%		
to be continued			

SODIUM

9240 / 9245 Sodium Analyzer (DataSheet 9245-A4-E-RevF.0701 & 9240-A4-EN-Ver-A.0908)

Technical Data		
Subject to change without notice		
	9245 Sodimat	9240 Sodimat
Designation	Mono-channel Sodium Process Analyzer	Multi-channel Sodium Process Analyzer
Outputs	4 x 0/4 - 20 (650 ohms) Linear, Dual / Smart	6 x 0/4 - 20 (800 ohms) Linear, Dual, logarithmic / Smart
Relays	2 x Relay (conc), 1 x Warning, 1 x System	4 x Relay (conc), 1 x Warning, 1 x System
Optional	MODBUS RS485, ProfiBus DP V1.0	
Inputs (logic)	Active / Inactive channels / Remote AutoCal	
Display	75x75mm graphic LED backlighting showing concentration, trend curves, diagnostics, alarm status, calibration constants, historical data Menu driven operation with clear messages, User Interface in 5 languages	
Power requirements	90 - 240 VAC $\pm$ 10%, 50/60 Hz, automatical switching, 80VA	
Enclosure rating		
Transmitter	IP65 (NEMA 4)	
Panel	IP50 (Dust protection) IP54 (Splash water proof) optional	
	Instrument is designed to avoid DIPA vapor inside the enclosure. All DIPA vapor is collected and sent to the instrument drain	
Material		
Panel	ABS with Stainless Steel frame	
Enclosure	ABS	
Dimensions		
Panel	850 x 450 x 252.5 mm	[33.46" x 17.71" x 9.94"] (H x L x D)
Enclosure	850 x 450 x 331.5 mm	[33.46" x 17.71" x 13.05"] (H x L x D)
Weight		
Panel	18 kg (20 kg with full canisters)	
Enclosure	23 kg (25 kg with full canisters)	
Maintenance requirement	every 100 days "Refill of electrolyte, reagents and calibration solution", typical (using DIPA)	
Remarks:	Altitude: < 2000 m; 10 ... 80% relative Humidity	
Standardisation		
European standards	EN 61326 (1997) and EN61326 A1 (1998) and EN61326 A2 (2001) Class A for EMC EN601010-1 (2001) for low voltage safety	
International standards	FCC UL & CSA agreement E226594	
Controller compatibility	Stand alone instrument	
Warranty	24 Month; extendable to 60 months	

K-Kit (cationic)

For a high acidity water (> 50 ppm CaCO₃) such as that from a cation exchanger outlet, the regular gaseous conditioning is not sufficient to raise the pH to values superior to 10.3. The forced-gas conditioning system (K-kit) is then needed. The K-Kit option includes a gas pump with no moving parts, a power supply board, additional hydraulics and full installation instructions. For further information contact your local HACH LANGE representative.

Static Heat Exchanger System

A static heat exchanger system is available as an option. It comes complete with inlet and outlet connectors (4/6mm tubing) and mounting (2 flanges and screws). Very easy to install, and requiring no voltage supply, this compact (350 x 40mm) product absorbs changes of heat even on samples flowing at 5 L/h. Specially designed for POWER applications, it has a high resistance to corrosion and deposits, and allows incoming samples from 0 - 60°C to be released to the analyzer within its operating range of 5 - 45°C. For further information contact your local HACH LANGE representative.

SODIUM

9240 / 9245 Sodium Analyzer

Part No.

Designation

Z09245=A=XXXX

9245 Sodium Mono-channel Analyzer

Z 0 9 2 4 5 = A = x x x x												
Measuring range / Application option												
0 ... 10,000 ppb for non cationic applications										0		
0 ... 200 ppm (with K-Kit) for cationic applications										1		
Enclosure option												
19" Panel version (Standard)										0		
Cabinet version (Wall mounted)										1		
Output options												
I/O Interface (Standard)										0		
I/O Interface + RS485 MODBUS please order Z09125=A=2485 separately ...												
I/O Interface + ProfiBus DP V1.0 please order Z09125=A=1485 separately												
AutoCal calibration option												
without AutoCal Standard										0		
with AutoCal option										1		

Standard product description

The 9245 Sodium Single channel Analyzer comes with automatic conditioning (automatic temperature adjustment), automatic reactivation, manual calibration and grab sampling option. AutoCal option is available optionally and must be ordered separately.

Z09240=A=XXXX

9245 Sodium Multi-channel Analyzer

Z 0 9 2 4 0 = A = x x x x												
Measuring range / Application option												
0 ... 10,000 ppb for non cationic applications										0		
0 ... 200 ppm (with K-Kit) for cationic applications										1		
Enclosure option												
19" Panel version (Standard)										0		
Cabinet version (Wall mounted)										1		
Output options												
I/O Interface (Standard)										0		
I/O Interface + RS485 MODBUS please order Z09125=A=2485 separately												
I/O Interface + ProfiBus DP V1.0 please order Z09125=A=1485 separately												
Channel option												
1 channel Standard											1	
2 channel											2	
3 channel											3	
4 channel											4	

Standard product description

The 9240 Sodium Multi channel Analyzer comes with appropriate number of channels, fully automatic conditioning and sample temperature adjustment, automatic automatic reactivation, manual and AutoCal calibration and grab sampling option.

SODIUM

9240 / 9245 Sodium Analyzer Accessories

Part No.	Designation
<u>Accessories</u>	
Z09240=A=8000	1 year spare part kit for 9245-9240 (all ranges) Includes items and quantities below » 1 x Z09240=C=0310 Reference electrode for 9245-9240 sodium analyzer 1 x Z09240=C=0320 Sodium glass electrode for 9245-9240 sodium analyzer 1 x Z363140,00500 KCl 3M electrolyte for reference electrode, 500 ml 1 x Z595=000=002 In-line filter 0.02 x Z151065,08699 PTFE Tubing ø 0.8X1.6mm (per meter) 2 x Z151399,90002 Tygon tubing ø 1.6X3.2mm (per meter) 0.25 x Z151065,08699 PTFE Tubing ø 2X6mm (per meter) 2 x Z151575,00006 PolyEthylene tubing ø 4X6mm (per meter)
Z09240=A=8010	Kit for Instrumentation Technicians on 9245 - 9240 - includes items below Includes items and quantities below » 1 x Z689=132=008 Sampling solenoid valve, 3/2way, NPS 0.8 (0.2 - 6 bars) 1 x Z689=132=024 Solenoid valve on OverFlowVessel, 3/2 ways 1 x Z09240=A=9170 Connector (IP65) for any electrovalve of 924x 1 x Z226=004=013 Teflon coated magnetic stirrer diam 4.5X15mm 1 x Z578=602=703 Quick fitting for ø 8mm O.D. tubing 1 x Z578=601=703 Quick fitting for ø 6mm O.D. tubing 1 x Z518=401=501 Stopper (red) for quick fitting, ø 6mm 1 x Z09200=A=5510 Internal bus communication module for 9245-9240 1 x Z09240=A=1500 Potentiometric measurement module for 9245-9240 1 x Z09240=A=0320 Cable AS7, Length 1 m, Connectors mounted both ends 1 x Z09240=A=0510 DIPA bottle complete with porous cartridge, tap 1 x Z32965 Locking key for 924x enclosure
Z09240=A=8020	Kit of canisters for 9245-9240 sodium analyser Includes: 2 x Z09240=A=9701 Canister complete with cap and tubing PolyEthylene 500mL with handle 2 x Z09073=A=0105 Cap (red) for (490=001=005) canister PE 500mL 1 x Z09240=C=7004 Adhesive sticker for Reactivation tubing 1 x Z09240=C=7005 Adhesive sticker for Automatic Calibration tubing 1 x Z09073=C=0320 Adhesive sticker for DIPA bottle 1 x Z09240=S=7001 Adhesive sticker for Reactivation bottle 1 x Z09240=S=7003 Adhesive sticker for Automatic Calibration bottle 1 x Z490=001=040 Flask PolyEthylene 500mL with anti-drip nozzle (for KCl) 1 x Z09240=S=7002 Adhesive sticker for flask filled with KCl
Z09240=A=8305	Wall-mount enclosure for 9245-9240 sodium analyser made of ABS (windows in PMMA)
Z09240=A=8315	Kit for installation of option "K-kit" on 9245-9240 Sodium analysers (incl pump, board,..., mounting instructions)
Z09240=A=8400	Static heat exchanger system complete (no consumables, capable 1-4channels) Includes inlet&outlet connectors (for 4/6mm tubing) and mounting (2 x flanges and screws)
Z09245=A=8310	Optional Automatic calibration, complete for installation on 9245 Sodium Recommended for sample < 0.1ppb Na
<u>Documentation</u>	
Z221=192=045	Operator's manual in English for 9245 - 1 channel-Sodium analyser , A4 format
Z221=192=040	Operator's manual in English for 9240 - Multi channel-Sodium analyser , A4 format
<u>Communication - optional accessories</u>	
Z09125=A=1485	Profibus DP V1.0 Kit, with board for 91xx / 92xx and Operator Manual
Z09125=A=2485	RS485 JBUS/MODBUS Kit, with board + instruction manual (5 languages) for transmitters model 91XX after February 2004 (CPU-ph2) or 92XX after June 2006 (CPU-ph2):

SODIUM

9240 / 9245 Sodium Analyzer Consumables

Part No.	Designation
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<u>Standards and Reagents</u>	
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2834453	Diisopropylamine 99%, 1l Diisopropylamine is a Dual use reagent and requires special licence by non-EU purchasers. Monoethylamine, Diethylamine or Ammonia can be also used while obtaining some limitations. please refer to the instrument manual.
2835153	Sodium Standard, 10 mg/l as Na ⁺ , 1l
2834253	Sodium Standard, 100 mg/l as Na ⁺ , 1l

<u>Further spare parts</u>	
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Z09240=C=0320	Sodium glass electrode for 9245-9240 sodium analyzer
Z09240=C=0310	Reference electrode for 9245-9240 sodium analyzer
Z363140,00500	KCl 3M electrolyte for reference electrode, 500 ml
Z09240=A=0320	Connection cable, AS7 connector; for 9240/9245 Sodium Glass and Reference electrodes)

TITRATORS

Process analyzer 8810



On-line titration analyser, ion selective electrode analyser, and colorimetric analyser for monitoring and control of industrial processes.

The Polymetron 8810 analyser belongs to the family of continuous automatic chemical analysers. Its operation is based on volumetric analysis with reference to titrimetry, direct measurement via selective electrode or colorimetric. It is an adaptable device designed for a wide range of industrial applications. It takes samples, adds reagents, buffers, masking agents, etc, then automatically performs the required analysis. The system is controlled by an integrated microprocessor.

It is possible to select various types of analysis: pH/redox/titration complexometry and precipitation, direct measurement with selective electrodes or colorimetry. The system is particularly reliable and recommended for on-line industrial applications.

The analyser is offered in a panel version as standard, a wall-mounting enclosure and a free standing cabinet are also available as options.

When in use, the analyser need only be accessed from the front.

The panel can be pivoted for ease of maintenance.

A self-diagnostics program warns the operator in the event of a fault, by providing data of the probable causes.

Optional automatic calibration compensates for any deviations and maintains optimum precision.

The 8810 is therefore suitable for a wide range of applications requiring frequent analysis and control.

Common features of 8810 Titrator models

- ➔ No sample filtration required for most applications
- ➔ Programmable calibration in manual, process or automatic mode
- ➔ Calibration with known solutions for titration or known addition methods for selective electrodes
- ➔ Most analytical procedures used in laboratories can be transferred to the 8810 analyzer
- ➔ Simple maintenance and programming
- ➔ 2 analog outputs 0/4–20mA
- ➔ 3 relays for high and low concentration limits and system alarm
- ➔ Option of 2-channel version

For specific technical data please refer to the appropriate Analyzer DataSheet.

TITRATORS

Process analyzer 8810

Technical Data				
Subject to change without notice				
8810 Process Titrators				
Method	pH	ORP	ISE	Photometric
Sensor	pH + Reference, Pt100	ORP + Reference, Pt100	ISE + Reference, Pt100	Colorimeter
Measuring principle	automatic titration using potentiometric endpoint detection based on volumetric analysis			
Measuring range	Application specific; please refer to the application			
Measuring uncertainty	$\pm 2 \dots \pm 4\%$ (application specific)	$\pm 2 \dots \pm 4\%$ (application specific)	$\pm 2 \dots \pm 4\%$ (application specific)	$\pm 5\%$
Reproducibility	$< \pm 2-4\%$ depending on the application			
Response time T_{90}				
Cycle time	application specific; programmable up to 999 min			
Calibration	automatic, manual, process, on-line (application specific)			
Process connection				
Sample Stream	single or optional multi-stream (depending on model)			
Sampling mode	fixed or loop			in series or interval
Sample inlet	12/14 mm ID hose; no filtration needed, only in coarse particle separation			
Drain (outlet)	12 mm hose, atmospheric outlet			
Sample flow	40 ... 300 l/h			
Pressure range				
Air	4/6 mm tubing, dry, filtered and oilfree air, 4 ... 7 bar			
Rinse Water	4/6 mm PE hose, 6 bar max			
Reagent supply	Application specific			
Temperature				
Sample	+5°C ... +50°C	+5°C ... +50°C	+5°C ... +50°C	+5°C ... +45°C
Ambient				
Outputs	2 x 0/4 ... 20 mA, galvanically isolated, programmable 3 Relays (high, low values, system alarm) RS232			
Enclosure rating	max. IP65 (depending on model)			
Material	Wall mounting Cabinet made of Fibreglass Free standing cabinet made of Stainless Steel			
Power requirement	110/220/240 V (-15% ... +10%), 50-60 Hz, 100 VA			
Dimensions,	Panel mounted version: 482 x 753 x 122 mm (W x H x D) approximately 25 kg			
Weight	Wall mounted version: 600 x 800 x 300 mm (W x H x D) approximately 50 kg			
Enclosure rating	Free-standing cabinet: 600 x 1900 x 400 mm (W x H x D) approximately <100 kg			
Maintenance req.	Application specific; every 1 to 4 weeks			
Remarks	Level control of Sample and Reagent, Calibration solution and Chemical cleaning (depending on model)			
Options	Dilution, Conditioning, Decantation			
Warranty				

8810 TITRATOR - PRODUCT SELECTION GUIDE



Why a selection guide for the 8810?

The purpose of this selection guide is to help defining, identifying and configuring an 8810 Titrator instrument during the quoting process. Due to its complexity and number of options, the 8810 Titrator is difficult to configure and it is quite often a challenge to make sure it is suitable for specific applications or to make sure we have prepared all part numbers. With this guide, we have tried to bring to you the knowledge of our technical product specialists.

This guide is structured in a way that will enable the user, step by step, to identify different factors related to his application (i.e. parameter, measuring range, hardware, options, service...). Not only the technical aspects are described, but also a particular attention has been paid to the 20+ years of experience of this product in successful applications and the importance of having knowledgeable people installing an 8810 Titrator.

How to use this guide?

This selection guide is divided in two sections. The first one (A) lists the general recommendations & options that **must be considered** for any 8810 model. The second one (B) is specific to each parameter. You need to walk through the two sections in order to validate that the 8810 is suitable for your customer's application.



Section B contains, for each parameter, a section called "NOT SUITABLE FOR...". This section is a list of the applications or conditions under which the 8810 Titrator **is not recommended at all**. In case your customer's application is concerned by these limitations, **DO NOT QUOTE** this instrument. In case you still have doubts, please contact your local technical support team.

A) General recommendations & options (all models)

- **Pumps**

In some configurations, two different types of pumps may be available: piston vs. peristaltic. The choice of pump, if not suggested differently, can be done based on the following criteria:

- o Peristaltic pump (or volumetric pump) needs to be selected when cost is a concern for the customer. This pumps is less expansive, but will require more maintenance.
- o Piston pump (or pulse pump) needs to be selected when maintenance frequency is a concern for the customer. This pump is more expansive but requires less maintenance

- **Sample temperature**

Always respect the temperature range of the 8810 Titrator: 5°C – 55°C

- **Sample pressure**

Always respect the pressure at the inlet of the 8810 Titrator: 0.5 – 6 bar

- **Sample flow**

Always respect the flow at the inlet of the 8810 Titrator: 50 – 300 l/h

- **Air source & Rinsing water**

An air supply is required to run the 8810 Titrator : 5 – 7 bar

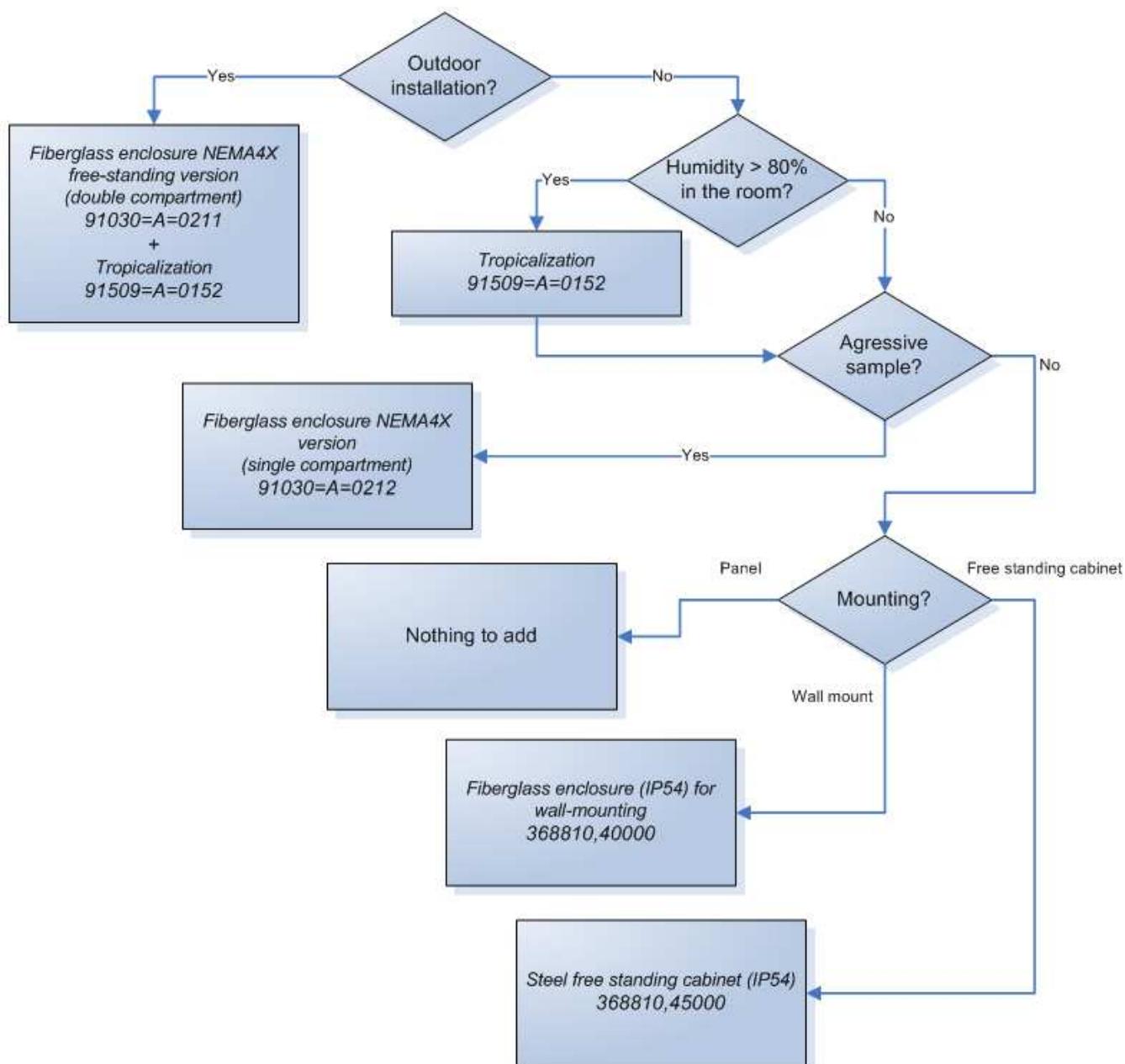
A rinsing water supply is required to run the 8810 Titrator : 1 – 6 bar

- **Particles**

Maximum particles allowed in sample: 3% or 30 g/l, with a diameter maximum of 2 mm

- **Enclosure & Tropicalization**

Follow the following flow and use the suggested P/N's according to the application:



- **Training & Support**

Trained people only are allowed to support and install the 8810 Titrator. **Before quoting**, make sure that a dedicated team will be able to support the product in the country of installation. If a training is required, please contact the Training Manager in our Geneva office.

8810 AMMONIA ANALYZER

Typical applications : Power, Waste water, Drinking water, Surface water

Measuring range :

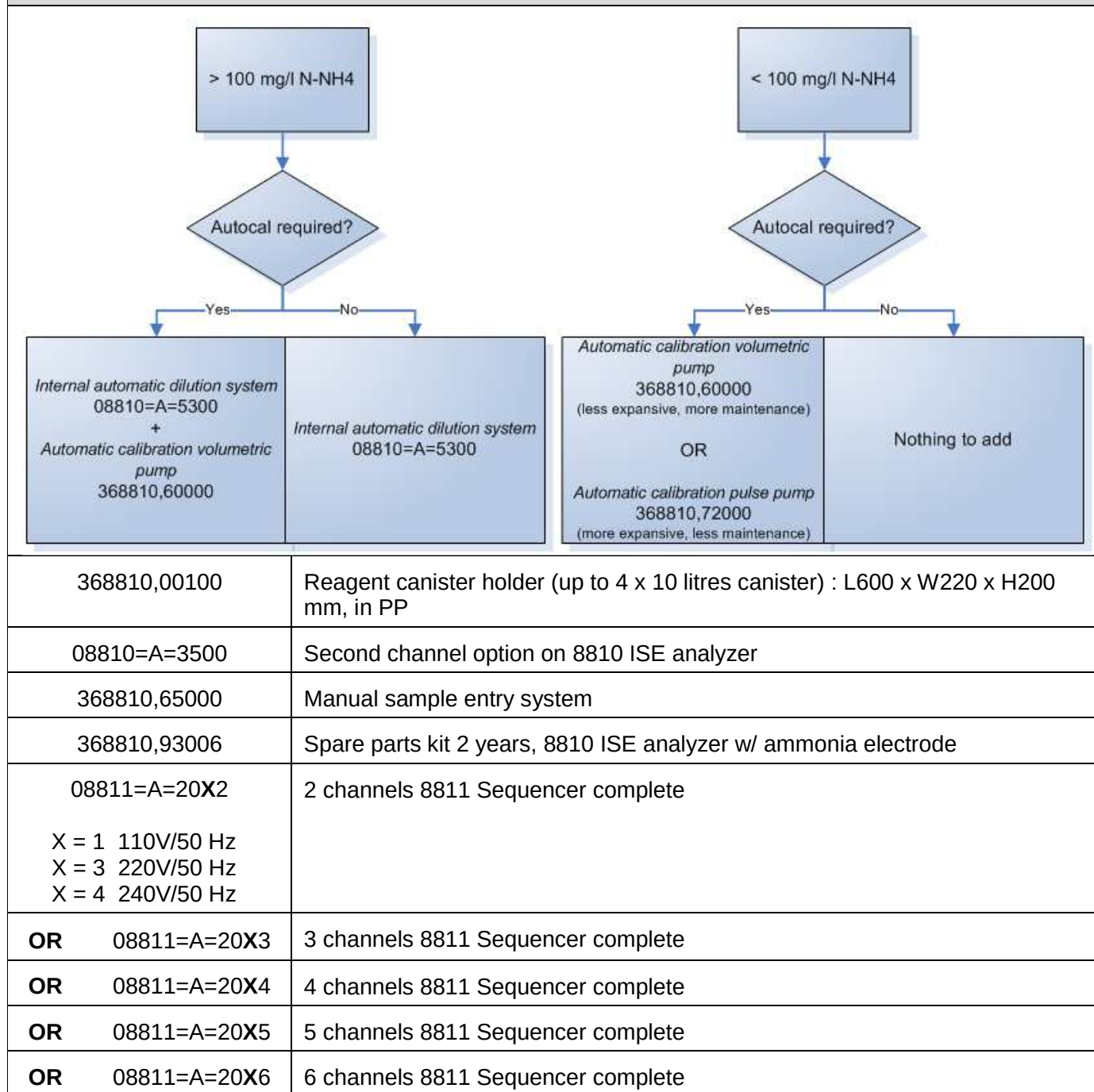
0-1 mg/l N-NH ₄	(programmable) LDL = 0.01 mg/l N-NH ₄	
0-100 mg/l N-NH ₄	(programmable) LDL = 0.1 mg/l N-NH ₄	
4-4 000 mg/l N-NH ₄	(with dilution - programmable) LDL = 4 mg/l N-NH ₄	



NOT SUITABLE FOR!!!: Nuclear, Petrochemical and Water ice rink applications
Or if sample contains cyanide, sulphide or oils (see AMTAX)

STANDARD PRODUCT CONFIGURATION	
PART NUMBER	ITEM DESCRIPTION
368810,36XXX	8810 AMMONIA ANALYZER basic unit 19" panel mounted including : - Titration vessel - Sprinkler - Measuring combination AMMONIA electrode - Temperature sensor Pt 100 - One reagent pump peristaltic for sample conditioning with NaOH - Chemical cleaning (368810,56000) with 10 l canister and reagent level detector - Automatic heating device/controller (368810,76000) - 8810 ISE basic user manual - Installation procedure AMMONIA 0–100 mg/l - Installation procedure AMMONIA 0–1 mg/l
XXX = 220 220V/50Hz	
XXX = 226 220V/60Hz	
XXX = 240 240V/50Hz	
XXX = 115 110V/50Hz	
XXX = 116 110V/60Hz	

OPTIONS



OPERATING MATERIAL/YEAR based on one analysis every 15 minutes		
PART NUMBER	QTY	ITEM DESCRIPTION
590=020=130	2	Grey/grey ismaprene pump tube
125=000=203	1	Ammonia electrode filling solution
125=000=204	1	20 membranes for ammonia electrode
Not supplied by Hach-Lange : to be purchased locally.	Solid state : 10 kg	Sodium hydroxide NaOH in pellets (conditioning)
	OR	OR
	Liquid state : 21 l	Sodium hydroxide NaOH solution > 32% (conditioning)
	7 l	Concentrated hydrochloric acid, HCl ~ 37% (chemical cleaning)
	1 kg	Ammonium chloride NH ₄ Cl (calibration)

FREE ALKALINITY (p value)

Typical applications : Decarbonation processes, Water treatments
Or applications where the pH is above 8.3

Measuring range : 0-500 mg/l CaCO₃ LDL = 1 mg/l CaCO₃
0-10 mval/l CaCO₃



NOT SUITABLE FOR!!!: Bioreactor applications

STANDARD PRODUCT CONFIGURATION	
PART NUMBER	ITEM DESCRIPTION
368810,40XXX XXX = 220 220V/50Hz XXX = 240 240V/50Hz XXX = 115 110V/50Hz XXX = 116 110V/60Hz	8810 FREE ALKALINITY ANALYZER basic unit 19" panel mounted including: - Titration vessel - Sprinkler - Measuring 8404 pH electrode - Pt 100 - Reference electrode 8483B - One reagent piston pump for titration - Chemical cleaning (368810,56000) with 10 l canister and reagent level detector - 8810 pH basic user manual - Installation procedure Free/Total ALKALINITY

OPTIONS	
368810,00100	Reagent canister holder (up to 4 x 10 litres canister) : L600 x W220 x H200 mm, in PP
368810,60000	Automatic calibration volumetric pump (includes 10 l canister and reagent level detector) Add: 368810,75060: 10 L dark canister (for 8810) equipped for Auto-Calibration with a level detector and a cartridge for coloured self-indicator soda-lime (CO ₂ -trap) -- No chemical supplied --
368810,65000	Manual sample entry system
368810,91010	Spare parts kit 2 years, 8810 pH analyzer with pH electrode compatible with piston pump
08811=A=20X2 X = 1 110V/50 Hz X = 3 220V/50 Hz X = 4 240V/50 Hz	2 channels 8811 Sequencer complete
OR 08811=A=20X3	3 channels 8811 Sequencer complete
OR 08811=A=20X4	4 channels 8811 Sequencer complete
OR 08811=A=20X5	5 channels 8811 Sequencer complete
OR 08811=A=20X6	6 channels 8811 Sequencer complete

OPERATING MATERIAL/YEAR based on one analysis every 15 minutes		
PART NUMBER	QTY	ITEM DESCRIPTION
Not supplied by Hach-Lange : to be purchased locally.	2 l	Concentrated sulphuric acid, H ₂ SO ₄ ~95% (titrant solution)
	7 l	Concentrated hydrochloric acid, HCl ~ 37% (chemical cleaning)
	100 g	Sodium carbonate anhydrous Na ₂ CO ₃ (calibration solution)

8810 TOTAL ALKALINITY (m value) ANALYZER

Typical applications : Decarbonation processes, Water treatments, Cooling water
Or applications where the pH is below 8.3

Measuring range : 0-500 mg/l CaCO₃ LDL = 1 mg/l CaCO₃



0-10 mval/l CaCO₃

NOT SUITABLE FOR!!!: Bioreactor applications

STANDARD PRODUCT CONFIGURATION	
PART NUMBER	ITEM DESCRIPTION
368810,40XXX XXX = 220 220V/50Hz XXX = 240 240V/50Hz XXX = 115 110V/50Hz XXX = 116 110V/60Hz	8810 TOTAL ALKALINITY ANALYZER basic unit 19" panel mounted including: - Titration vessel - Sprinkler - Measuring 8404 pH electrode - Reference electrode 8483B - One reagent piston pump for titration - Chemical cleaning (368810,56000) with 10 l canister and reagent level detector - 8810 pH basic user manual - Installation procedure Free/Total ALKALINITY

OPTIONS	
368810,00100	Reagent canister holder (up to 4 x 10 litres canister) : L600 x W220 x H200 mm, in PP
368810,60000	Automatic calibration volumetric pump (includes 10 l canister and reagent level detector) Add: 368810,75060: 10 L dark canister (for 8810) equipped for Auto-Calibration with a level detector and a cartridge for coloured self-indicator soda-lime (CO ₂ -trap) -- No chemical supplied --
368810,65000	Manual sample entry system
368810,91010	Spare parts kit 2 years, 8810 pH analyzer with pH electrode compatible with piston pump
08811=A=20X2 X = 1 110V/50 Hz X = 3 220V/50 Hz X = 4 240V/50 Hz	2 channels 8811 Sequencer complete
OR 08811=A=20X3	3 channels 8811 Sequencer complete
OR 08811=A=20X4	4 channels 8811 Sequencer complete
OR 08811=A=20X5	5 channels 8811 Sequencer complete
OR 08811=A=20X6	6 channels 8811 Sequencer complete

OPERATING MATERIAL/YEAR based on one analysis every 15 minutes		
PART NUMBER	QTY	ITEM DESCRIPTION
Not supplied by Hach-Lange : to be purchased locally.	2 l	Concentrated sulphuric acid, H ₂ SO ₄ ~95% (titrant solution)
	7 l	Concentrated hydrochloric acid, HCl ~ 37% (chemical cleaning)
	100 g	Sodium carbonate anhydrous Na ₂ CO ₃ (calibration solution)

8810 FREE AND TOTAL ALKALINITY (m & p / 2p-m values) ANALYZER

Typical applications : Decarbonation processes, Water treatments, Softening processes
Or applications where the pH is above 8.3

Measuring range : 0-500 mg/l CaCO₃ LDL = 1 mg/l CaCO₃
0-10 mval/l CaCO₃



NOT SUITABLE FOR!!!: Bioreactor applications

STANDARD PRODUCT CONFIGURATION	
PART NUMBER	ITEM DESCRIPTION
368810,40XXX XXX = 220 220V/50Hz XXX = 240 240V/50Hz XXX = 115 110V/50Hz XXX = 116 110V/60Hz	8810 FREE & TOTAL ALKALINITY ANALYZER basic unit 19" panel mounted including: - Titration vessel - Sprinkler - Measuring 8404 pH electrode - Reference electrode 8483B - One reagent piston pump for titration - Chemical cleaning (368810,56000) with 10 l canister and reagent level detector - 8810 pH basic user manual - Installation procedure Free/Total ALKALINITY
368810,71050	Additional reagent piston pump for <u>total</u> alkalinity titration <i>If $m \geq 5p \rightarrow 2$ pumps, otherwise 1 pump is enough</i> <i>m = Total Alkalinity</i> <i>p = Free Alkalinity</i>

OPTIONS	
368810,00100	Reagent canister holder (up to 4 x 10 litres canister) : L600 x W220 x H200 mm, in PP
368810,60000	Automatic calibration volumetric pump (includes 10 l canister and reagent level detector) Add: 368810,75060: 10 L dark canister (for 8810) equipped for Auto-Calibration with a level detector and a cartridge for coloured self-indicator soda-lime (CO ₂ -trap) -- No chemical supplied --
368810,65000	Manual sample entry system
368810,91010	Spare parts kit 2 years, 8810 pH analyzer with pH electrode compatible with piston pump
08811=A=20X2 X = 1 110V/50 Hz X = 3 220V/50 Hz X = 4 240V/50 Hz	2 channels 8811 Sequencer complete
OR 08811=A=20X3	3 channels 8811 Sequencer complete
OR 08811=A=20X4	4 channels 8811 Sequencer complete
OR 08811=A=20X5	5 channels 8811 Sequencer complete
OR 08811=A=20X6	6 channels 8811 Sequencer complete

OPERATING MATERIAL/YEAR based on one analysis every 15 minutes		
PART NUMBER	QTY	ITEM DESCRIPTION
Not supplied by Hach-Lange : to be purchased locally.	4 l	Concentrated sulphuric acid, H ₂ SO ₄ ~95% (titrant solution)
	7 l	Concentrated hydrochloric acid, HCl ~ 37% (chemical cleaning)
	100 g	Sodium hydrogen carbonate Na ₂ HCO ₃ (calibration solution)
	100 g	Sodium carbonate anhydrous Na ₂ CO ₃ (calibration solution)

8810 CALCIUM ANALYZER

Typical applications : Cooling water in Power plants (towers, boilers), Water treatments

Measuring range : 0-500 mg/l CaCO₃ LDL = 1 mg/l CaCO₃



NOT SUITABLE FOR!!!: Calcium measurement in saturated brine
Steel plants

STANDARD PRODUCT CONFIGURATION	
PART NUMBER	ITEM DESCRIPTION
368810,53XXX XXX = 220 220V/50Hz XXX = 240 240V/50Hz XXX = 115 110V/50Hz XXX = 116 110V/60Hz	8810 CALCIUM ANALYZER basic unit 19" panel mounted including: - Titration vessel - Sprinkler - Measuring calcium electrode - Reference electrode 8483B - One reagent piston pump for titration - Chemical cleaning (368810,56000) with 10 l canister and reagent level detector - Automatic heating device/controller (368810,76000) - 8810 ORP basic user manual - Installation procedure ORP CALCIUM
368810,71050	Additional reagent <u>piston</u> pump for conditioning with Triethanolamine/Nitric acid

OPTIONS	
368810,00100	Reagent canister holder (up to 4 x 10 litres canister) : L600 x W220 x H200 mm, in PP
368810,60000	Automatic calibration volumetric pump (includes 10 l canister and reagent level detector)
368810,65000	Manual sample entry system
368810,91010	Spare parts kit 2 years, 8810 ORP analyzer with calcium electrode compatible with piston pump
08811=A=20X2 X = 1 110V/50 Hz X = 3 220V/50 Hz X = 4 240V/50 Hz	2 channels 8811 Sequencer complete
OR 08811=A=20X3	3 channels 8811 Sequencer complete
OR 08811=A=20X4	4 channels 8811 Sequencer complete
OR 08811=A=20X5	5 channels 8811 Sequencer complete
OR 08811=A=20X6	6 channels 8811 Sequencer complete

OPERATING MATERIAL/YEAR based on one analysis every 15 minutes		
PART NUMBER	QTY	ITEM DESCRIPTION
Not supplied by Hach-Lange : to be purchased locally.	750 g	Ethylene glycol-bis(2-aminoethyl)-N,N',N'-tetraacetic acid EGTA (titration)
	7 l	Concentrated hydrochloric acid, HCl ~ 37% (chemical cleaning)
	7 l	Triethanolamine (conditioning)
	1 l	Nitric acid (conditioning)
	250 g	Calcium chloride dehydrate CaCl ₂ .2H ₂ O (calibration solution)

8810 CHLORIDE ANALYZER

Typical applications :

Cooling water in Power plants (towers, boilers), Surface water
Industrial Waste water

Measuring range :

- ❶ 0 – 5 mg/l Cl-
- ❷ 0.5 – 500 mg/l Cl -
- ❸ 50 – 20 000 mg/l Cl -

LDL = 0.5 mg/l Cl - w/o dilution ; 50 mg/l Cl - w/ dilution

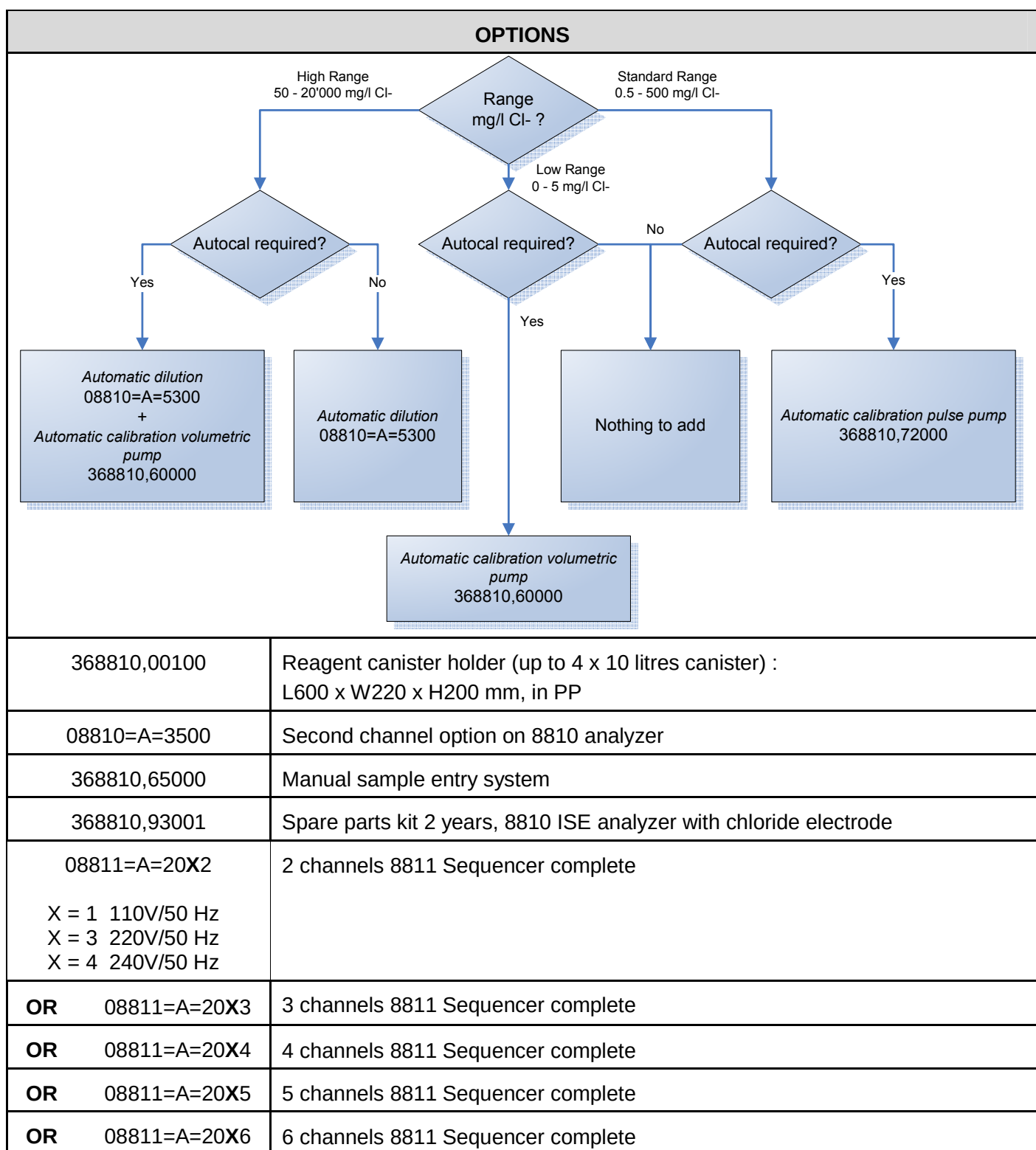


NOT SUITABLE FOR!!!:

Mining applications or ore treatments (i.e. presence of Iron, Gold, Silver)
Or if sample contains Chlorite (ClO₄)
Or if sample pH is below 4
Or if sample contains Ammonium Nitrate (NH₄NO₃) (Explosive factories)
Or if sample contains Sulphides (S-) (i.e. Refinery, Drinking water)

STANDARD PRODUCT CONFIGURATION

PART NUMBER	ITEM DESCRIPTION
❷ & ❸ 368810,31XXX XXX = 220 220V/50Hz XXX = 240 240V/50Hz XXX = 115 110V/50Hz XXX = 116 110V/60Hz OR ❶ 368810,38XXX	8810 CHLORIDE ANALYZER basic unit 19" panel mounted including: - Titration vessel - Sprinkler - Measuring chloride 8471B ion selective electrode - Reference electrode 8483B - One reagent peristaltic pump for sample conditioning with Sodium Hydroxide/Citric acid - Chemical cleaning (368810,56000) with 10 l canister and reagent level detector - Automatic heating device/controller (368810,76000) - 8810 ISE basic user manual - Installation procedure CHLORIDE Same analyzer but for 0.5 – 5 mg/l Cl-, low range applications, with an electric sample valve instead of a pneumatic valve



OPERATING MATERIAL/YEAR based on one analysis every 15 minutes		
PART NUMBER	QTY	ITEM DESCRIPTION
590=020=130	2	Grey/grey ismaprene pump tube
Not supplied by Hach-Lange : to be purchased locally.	Liquid state : 14 l	Sodium hydroxide NaOH solution > 32% (conditioning)
	13 kg	Citric acid monohydrate C ₆ H ₈ O ₇ .H ₂ O(conditioning)
	7 l	Nitric acid concentrated 65 % (cleaning)
	1 kg	Potassium chloride KCl (calibration)

NOTE: Conditioning and cleaning reagents are the same w/ or w/o dilution. Only Calibration solutions vary.

8810 CYANIDE ANALYZER

Typical applications : Industrial Waste water

Measuring range : 0 – 5 mg/l (programmable)
LDL = 0.03 mg/l CN -



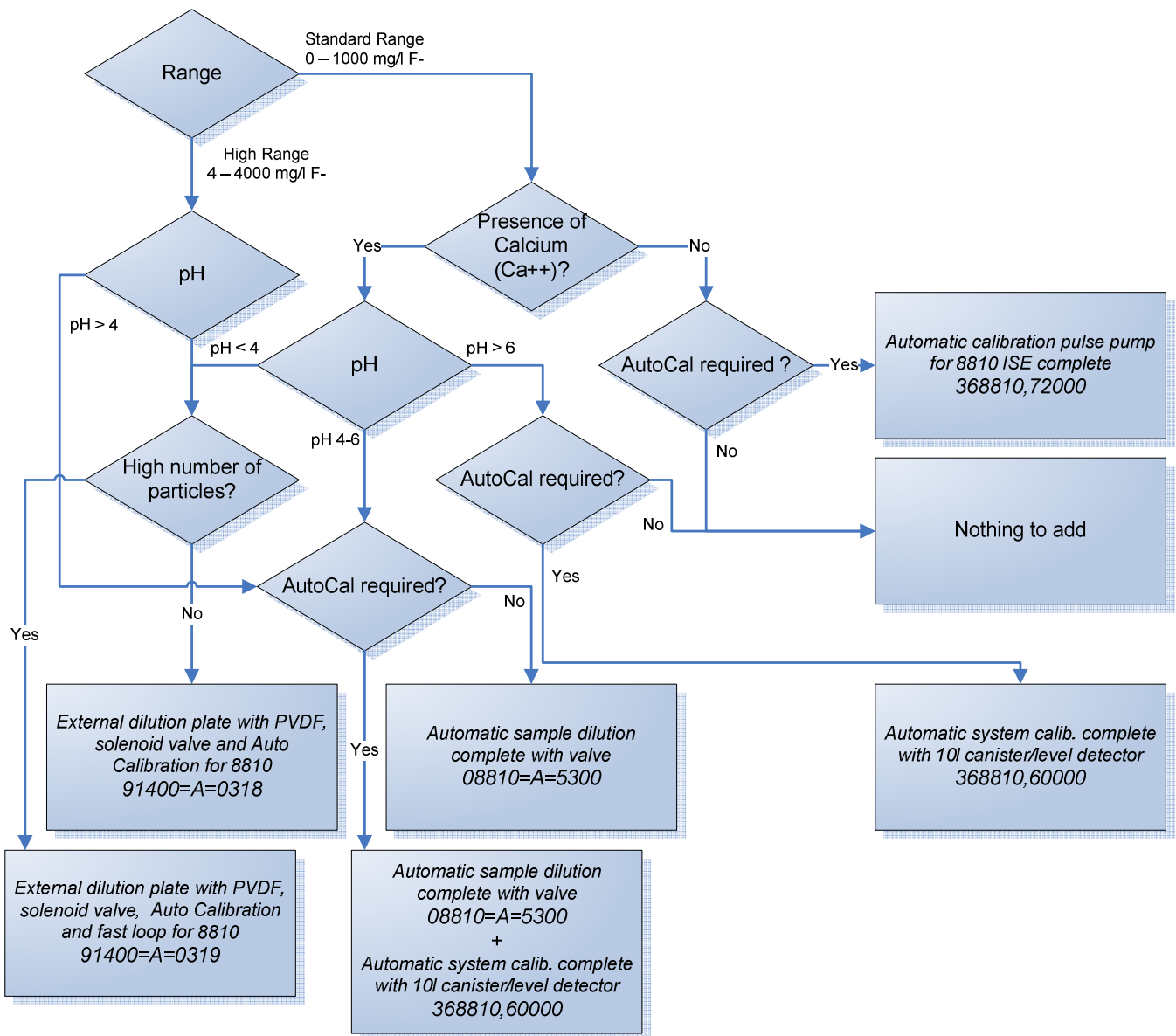
NOT SUITABLE FOR!!!: Mining applications or ore treatments (i.e. presence of Iron, Gold, Silver)
Or if sample contains any Heavy metals (Pb, Hg, Cd, As, Ni, Cu, Zn, Mn..)

STANDARD PRODUCT CONFIGURATION	
PART NUMBER	ITEM DESCRIPTION
368810,30XXX XXX = 220 220V/50Hz XXX = 226 220V/60Hz XXX = 240 240V/50Hz XXX = 115 110V/50Hz XXX = 116 110V/60Hz	8810 CYANIDE ANALYZER basic unit 19" panel mounted including: - Titration vessel - Sprinkler - Measuring cyanide 8474B ion selective electrode - Reference electrode 8483B - Temperature sensor PT100 - One reagent peristaltic pump for sample conditioning with Sodium Hydroxide/EDTA - Chemical cleaning (368810,56000) with 10 l canister and reagent level detector - Automatic heating device/controller (368810,76000) - 8810 ISE basic user manual - Installation procedure CYANIDE

OPTIONS	
NOTE: No automatic calibration available on this application because the compound is chemically unstable. → Grab sample « PROCESS » calibration is recommended.	
368810,00100	Reagent canister holder (up to 4 x 10 litres canister) : L600 x W220 x H200 mm, in PP
08810=A=3500	Second channel option on 8810 analyzer
368810,65000	Manual sample entry system
368810,93000	Spare parts kit 2 years, 8810 ISE analyzer with cyanide electrode
08811=A=20X2 X = 1 110V/50 Hz X = 3 220V/50 Hz X = 4 240V/50 Hz	2 channels 8811 Sequencer complete
OR 08811=A=20X3	3 channels 8811 Sequencer complete
OR 08811=A=20X4	4 channels 8811 Sequencer complete
OR 08811=A=20X5	5 channels 8811 Sequencer complete
OR 08811=A=20X6	6 channels 8811 Sequencer complete

OPERATING MATERIAL/YEAR based on one analysis every 15 minutes		
PART NUMBER	QTY	ITEM DESCRIPTION
590=020=130	2	Grey/grey ismaprene pump tube
Not supplied by Hach-Lange : to be purchased locally.	Solid state : 10 kg	Sodium hydroxide NaOH in pellets (conditioning)
	OR	
	Liquid state : 21 l	Sodium hydroxide NaOH solution > 32% (conditioning)
	10 kg	EDTA tetra sodium tetra hydrate Na ₄ EDTA.4H ₂ O (conditioning)
	7 l	Concentrated hydrochloric acid HCl ~ 37% (chemical cleaning)
	100 g	Potassium Cyanide KCN (calibration standards)

OPTIONS



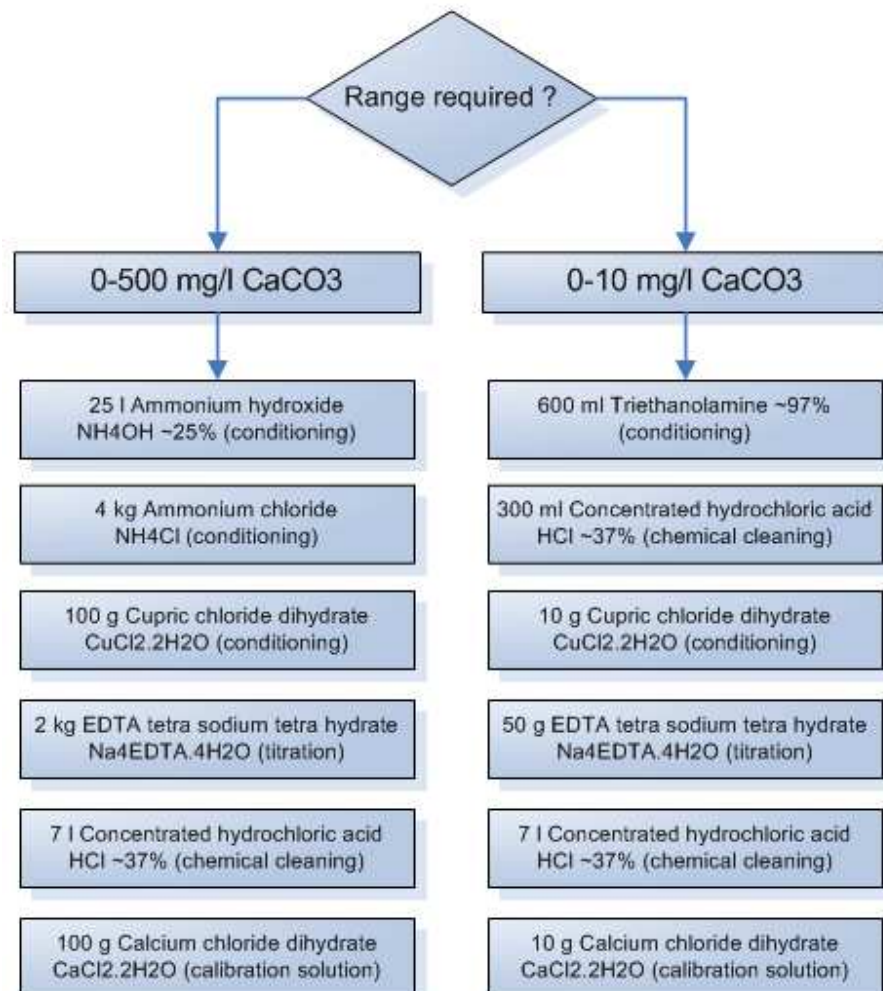
08810=A=3500	Second channel option on 8810 analyzer
368810,00100	Reagent canister holder (up to 4 x 10 litres canister) : L600 x W220 x H200 mm, in PP
368810,93002	Spare parts kit 2 years, 8810 ISE analyzer with fluoride electrode
08811=A=20X2 X = 1 110V/50 Hz X = 3 220V/50 Hz X = 4 240V/50 Hz	2 channels 8811 Sequencer complete
OR 08811=A=20X3	3 channels 8811 Sequencer complete
OR 08811=A=20X4	4 channels 8811 Sequencer complete
OR 08811=A=20X5	5 channels 8811 Sequencer complete
OR 08811=A=20X6	6 channels 8811 Sequencer complete

OPERATING MATERIAL/YEAR based on one analysis every 15 minutes		
PART NUMBER	QTY	ITEM DESCRIPTION
590=020=130	2 or 4	Grey/grey ismaprene pump tube
Not supplied by Hach-Lange : to be purchased locally.	7 l	Concentrated ammonium hydroxide NH ₄ OH ~ 25 % (conditioning) <i>If Al 3+, Fe 3+, Si 4+, or SiF6-- are present in the sample (like Semi-Con. / glass manufacturing /.../ applications)</i>
	12 kg	Sodium Acetate trihydrate CH ₃ COONa.3H ₂ O (conditioning)
	12 kg	Citric acid monohydrate C ₆ H ₈ O ₇ .H ₂ O(conditioning)
	7 l	Concentrated hydrochloric acid HCl ~ 37% (chemical cleaning)
	100 g	Sodium Fluoride NaF (calibration standards)

OPTIONS	
368810,00100	Reagent canister holder (up to 4 x 10 litres canister) : L600 x W220 x H200 mm, in PP
368810,60000	Automatic calibration volumetric pump (includes 10 l canister and reagent level detector)
368810,92012	Spare parts kit 2 years, 8810 ORP analyzer with copper electrode compatible with piston pump
08811=A=20X2 X = 1 110V/50 Hz X = 3 220V/50 Hz X = 4 240V/50 Hz	2 channels 8811 Sequencer complete
OR 08811=A=20X3	3 channels 8811 Sequencer complete
OR 08811=A=20X4	4 channels 8811 Sequencer complete
OR 08811=A=20X5	5 channels 8811 Sequencer complete
OR 08811=A=20X6	6 channels 8811 Sequencer complete

OPERATING MATERIAL/YEAR
based on one analysis every 15 minutes

Not supplied by Hach-Lange : to be purchased locally.



8810 NITRITES ANALYZER

Typical applications : Waste water (nitrification/denitrification)

Measuring range : 0 - 600 mg/l NO₂- (programmable)
 LDL = 5 mg/l NO₂-



NOT SUITABLE FOR!!!: Food processing (i.e. tannery, pigsty)

STANDARD PRODUCT CONFIGURATION	
PART NUMBER	ITEM DESCRIPTION
368810,20XXX XXX = 220 220V/50Hz XXX = 240 240V/50Hz XXX = 115 110V/50Hz XXX = 116 110V/60Hz	8810 NITRITES ANALYZER basic unit 19" panel mounted including: - Titration vessel - Sprinkler - Measuring platinum electrode - Reference electrode 8483B - Temperature sensor PT100 - One reagent <u>peristaltic pump</u> for titration - Chemical cleaning (368810,56000) with 10 l canister and reagent level detector - 8810 ORP basic user manual - Installation procedure
368810,700XX X = 50 24V/50Hz X = 60 24V/60H	Additional reagent <u>peristaltic</u> pump for conditioning with sulphuric acid

OPTIONS	
NOTE: No automatic calibration available on this application because the compound is chemically unstable. → Grab sample « PROCESS » calibration is recommended.	
368810,00100	Reagent canister holder (up to 4 x 10 litres canister) : L600 x W220 x H200 mm, in PP
368810,65000	Manual sample entry system
368810,92000	Spare parts kit 2 years, 8810 ORP analyzer with platinum electrode compatible with peristaltic pump
08811=A=20X2 X = 1 110V/50 Hz X = 3 220V/50 Hz X = 4 240V/50 Hz	2 channels 8811 Sequencer complete
OR 08811=A=20X3	3 channels 8811 Sequencer complete
OR 08811=A=20X4	4 channels 8811 Sequencer complete
OR 08811=A=20X5	5 channels 8811 Sequencer complete
OR 08811=A=20X6	6 channels 8811 Sequencer complete

OPERATING MATERIAL/YEAR based on one analysis every 15 minutes		
PART NUMBER	QTY	ITEM DESCRIPTION
590=020=130	2	Grey/grey ismaprene pump tube (Not applicable if <u>piston pump</u> is used)
Not supplied by Hach-Lange : to be purchased locally.	250 g	Potassium permanganate KMnO ₄ (titration)
	10 l	Concentrated sulphuric acid H ₂ SO ₄ 95-97% (conditioning)
	10 l	Concentrated sulphuric acid H ₂ SO ₄ 95-97% (chem. cleaning)

8810 SULPHIDE ANALYZER

Typical applications : Industrial Waste water (Refinery/Petrochemistry, final effluent)

Measuring range : 0-1 mg/l S²⁻ LDL = 0.1 mg/l S²⁻
 0-150 mg/l S²⁻ (programmable) LDL = 2.0 mg/l S²⁻



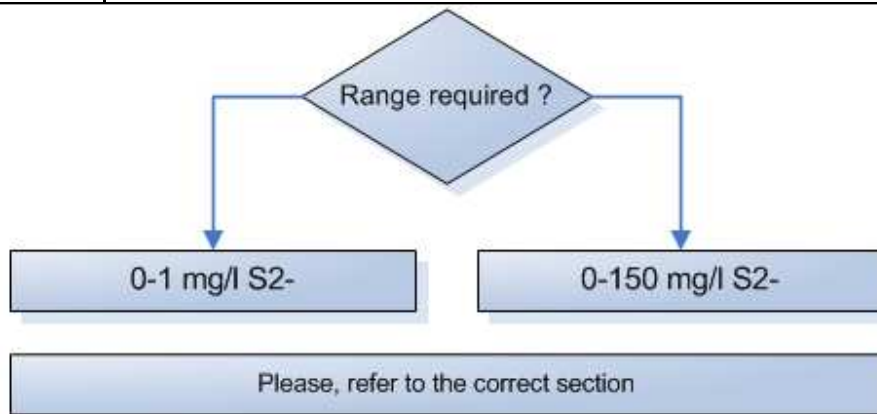
NOT SUITABLE FOR!!!:

Food processing (i.e. tannery, pigsty)
 Or if sample contains sea water (Cl⁻ or NaCl)

STANDARD PRODUCT CONFIGURATION

PART NUMBER

ITEM DESCRIPTION



0-1 mg/l S₂⁻	
368810,24XXX XXX = 220 220V/50Hz XXX = 240 240V/50Hz XXX = 115 110V/50Hz XXX = 116 110V/60Hz OR 368810,54XXX	8810 SULPHIDE ANALYZER basic unit 19" panel mounted including: - Titration vessel - Sprinkler - Measuring sulphide 8490K electrode - Reference electrode 8483B - One reagent <u>peristaltic pump</u> for titration - Dark canister (368810,84000), set of 12 black Viton pump tubes and black Viton connection tube Viton black - Chemical cleaning (368810,56000) with 10 l canister and reagent level detector - 8810 ORP basic user manual - Installation procedure SULPHIDE 0-1mg/l S₂⁻ Same analyzer with a <u>piston pump</u> instead of a peristaltic pump for titration
368810,700XX X = 50 24V/50Hz X = 60 24V/60Hz OR 368810,71050	Additional reagent <u>peristaltic</u> pump for conditioning with Sodium hydroxide Additional reagent <u>piston</u> pump for conditioning with Sodium hydroxide

OPTIONS	
NOTE: No automatic calibration available on this application because the compound is chemically unstable. → Grab sample « PROCESS » calibration is recommended.	
368810,00100	Reagent canister holder (up to 4 x 10 litres canister) : L600 x W220 x H200 mm, in PP
368810,92004	Spare parts kit 2 years, 8810 ORP analyzer with sulphide electrode
08811=A=20X2 X = 1 110V/50 Hz X = 3 220V/50 Hz X = 4 240V/50 Hz	2 channels 8811 Sequencer complete
OR 08811=A=20X3	3 channels 8811 Sequencer complete
OR 08811=A=20X4	4 channels 8811 Sequencer complete
OR 08811=A=20X5	5 channels 8811 Sequencer complete
OR 08811=A=20X6	6 channels 8811 Sequencer complete

OPERATING MATERIAL/YEAR based on one analysis every 15 minutes		
PART NUMBER	QTY	ITEM DESCRIPTION
590=011=130	1/2	Set of 12 grey/grey pump tubes black Viton (for titration reagent) (Not applicable if <u>piston pump</u> is used)
590=020=130	2	Grey/grey ismaprene pump tube (for conditioning reagent) (Not applicable if <u>piston pump</u> is used)
Not supplied by Hach-Lange : to be purchased locally.	10 g	Silver nitrate AgNO3 (titration reagent)
	Solid state : 10 kg	Sodium hydroxide NaOH in pellets (conditioning)
	OR	
	Liquid state : 21 l	Sodium hydroxide NaOH solution > 32% (conditioning)
	7 l	Nitric acid concentrated 65 % (chemical cleaning)

0-150 mg/l S2-

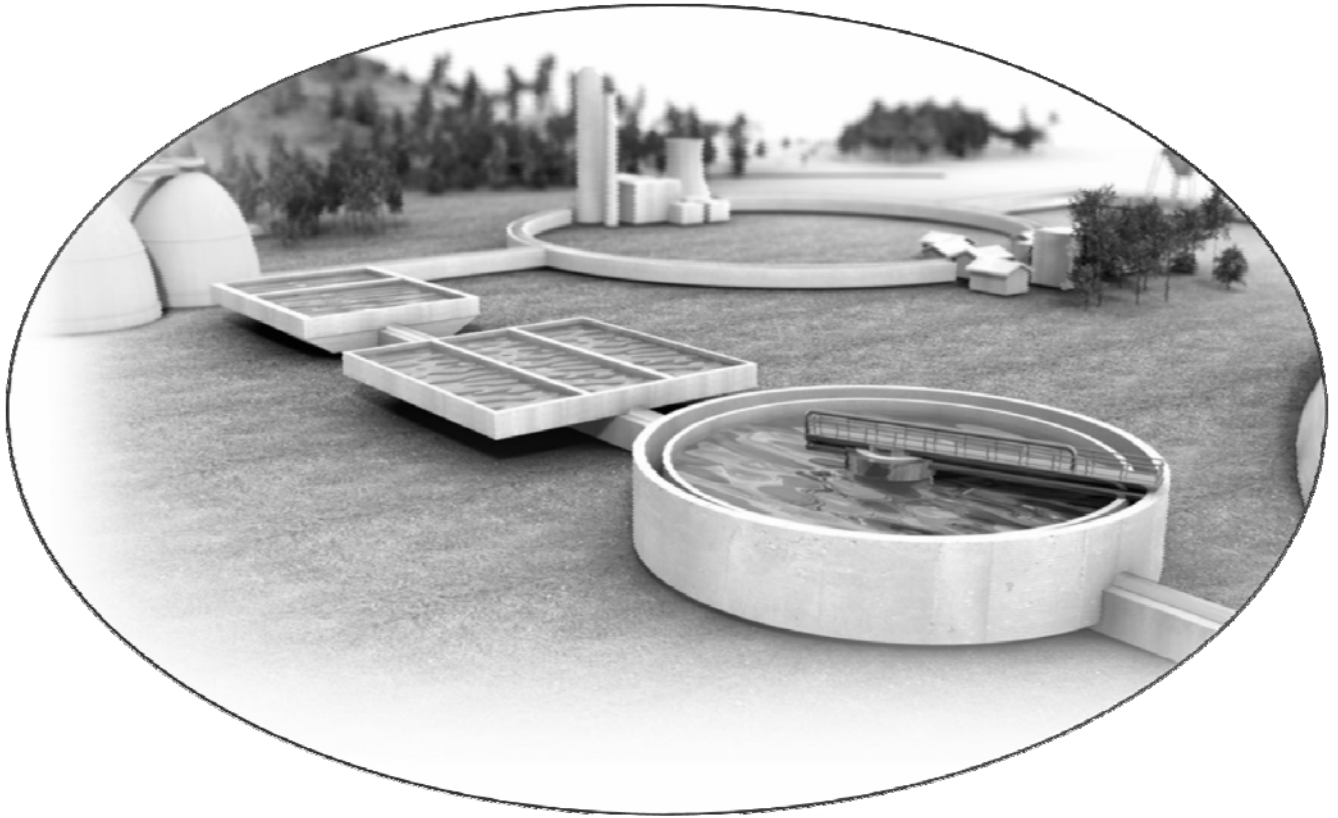
368810,21XXX XXX = 220 220V/50Hz XXX = 240 240V/50Hz XXX = 115 110V/50Hz XXX = 116 110V/60Hz OR 368810,51XXX	8810 SULPHIDE ANALYZER basic unit 19" panel mounted including: - Titration vessel - Sprinkler - Measuring Silver stick electrode - Reference electrode 8483B - One reagent <u>peristaltic pump</u> for titration - Chemical cleaning (368810,56000) with 10 l canister and reagent level detector - 8810 ORP basic user manual - Installation procedure SULPHIDE 0-100mg/l S2- Same analyzer with a <u>piston pump</u> instead of a peristaltic pump for titration
368810,700XX X = 50 24V/50Hz X = 60 24V/60Hz OR 368810,71050	Additional reagent <u>peristaltic</u> pump for conditioning with Sodium hydroxide Additional reagent <u>piston</u> pump for conditioning with Sodium hydroxide

OPTIONS	
NOTE: No automatic calibration available on this application because the compound is chemically unstable. → Grab sample « PROCESS » calibration is recommended.	
368810,00100	Reagent canister holder (up to 4 x 10 litres canister) : L600 x W220 x H200 mm, in PP
368810,65000	Manual sample entry system
368810,920X1	Spare parts kit 2 years, 8810 ORP analyzer with silver stick electrode compatible with pump X : 0 ⇔ peristaltic; 1 ⇔ piston.
08811=A=20X2 X = 1 110V/50 Hz X = 3 220V/50 Hz X = 4 240V/50 Hz	2 channels 8811 Sequencer complete
OR 08811=A=20X3	3 channels 8811 Sequencer complete
OR 08811=A=20X4	4 channels 8811 Sequencer complete
OR 08811=A=20X5	5 channels 8811 Sequencer complete
OR 08811=A=20X6	6 channels 8811 Sequencer complete

OPERATING MATERIAL/YEAR based on one analysis every 15 minutes		
PART NUMBER	QTY	ITEM DESCRIPTION
590=020=130	2	Grey/grey ismaprene pump tube (for conditioning reagent) (Not applicable if <u>piston pump</u> is used)
Not supplied by Hach-Lange : to be purchased locally.	250 g	Cupric sulphate pentahydrate CuSO ₄ , 5H ₂ O (titration reagent)
	Solid state : 10 kg	Sodium hydroxide NaOH in pellets (conditioning)
	OR	
	Liquid state : 21 l	Sodium hydroxide NaOH solution > 32% (conditioning)
	7 l	Nitric acid concentrated 65 % (chemical cleaning)

Controllers, Display Units

Universal Controllers and E-Chem-Controllers



Controller

sc200 Universal Controller (DataSheet DOC053.52.35003)



The sc200 Universal Controller is the most versatile controller on the market. The new sc200 controller is the only controller that allows the use of digital and analog sensors, either alone or in combination, to provide compatibility with the broadest range of sensors. It replaces the HACH LANGE sc100 digital and GLI53 analog controllers with advanced features for easier operator use. The sc200 controller platform can be configured to operate either 2 Digital Sensor Inputs, or 1 or 2 Analog Sensor Inputs, or a combination of Digital and Analog Sensor Inputs. Customers may choose their communication options from a variety of offerings ranging from MODBUS RTU, Profibus DPV1, HART or Analog Outputs.

Technical Data			
Subject to change without notice			
sc200 Controller series			
Designation	Microprocessor controlled system Graphic dot matrix LCD with LED backlighting, Transreflective, 240 x 160 pixels		
Measuring Range	Depending on the connected sensors		
Inputs	2 sensors (sc technology), freely selectable		
Outputs	2 x 0/4 to 20 mA isolated current outputs, max 550 W Operational Mode: Primary or secondary measurement or calculated value (dual channel only) Functional Mode: Linear, Logarithmic, Bi-linear, PID		
	optional		
	3 x 4/20 mA isolated current outputs, max 500Ω @ 18-24 Vdc		
	MODBUS RS232/RS485		
	PROFIBUS DPV1		
Relays	4 electromechanical SPDT (Form C) contacts, 1200W, 5 A, 250 VAC Operational Mode: Primary or secondary measurement, calculated value (dual channel only) or timer		
Data Management	SD card [max. 32 GB] option for easy download of Data & Event Log files (XML format) sensor configurations backup and restoration of configuration files and replication of the configuration from one device to multiple other devices of the same type		
Sensor compatibility			
digital sensors	all HACH LANGE sc sensors		
analog sensors	all combination pH/ORP electrodes		in conjunction with analog sensor card
	GLI pH/pH and ORP sensors, GLI LCP sensors		in conjunction with analog sensor card
	Inductive Conductivity sensors, series 3700		in conjunction with analog sensor card
	Conductive Conductivity sensors, series 3400 and 831x		in conjunction with analog sensor card
	Ultrasonic Flow sensor U53 series		in conjunction with analog sensor card
Temperature			
Ambient	-20°C ... 60°C, 0 ... 95% relative Humidity non condensing (less than 7W sensor load) -20°C ... 50°C, 0 ... 95% relative Humidity non condensing (less than 28W sensor load)		
Storage	-20°C ... 70°C, 0 ... 95% relative Humidity non condensing		
Conduit Openings	1/2" NPT PG-screwed conduit fitting		
Material enclosure	Polycarbonate, Aluminum (powder coated), Stainless Steel		
Enclosure rating	IP66 (NEMA4X)		
Dimensions	½ DIN - 144 x 144 x 180.9 mm (5.7 x 5.7 x 7.12 inches) (W x H x D)		
Weight (approximately)	1.7 kg		
Power requirement	AC powered system	100-240 VAC ± 10%, 50/60Hz	50W with 7W sensor load
			100W with 28W sensor load
	DC powered system	24 VDC -15%/+20%	15W with 7W sensor load
			40W with 28W sensor load
Installation style	wall, pipe and control panel mounting		
Remarks	Several supported languages in the embadded software GB, D, F, I, DK, E, S, PL, CZ, SK, RO, BG, RU, HR		
Certification	CE approved (with all sensor types). Listed for use in general locations to UL and CSA safety standards by ETL (with all sensor types).		
Warranty	24 month, extendable to 60 month		

Controller

sc200 Universal Controller (DataSheet DOC053.52.35003)

Technical Data	
Subject to change without notice	
sc200 - analog pH/ORP sensor card	
Designation	The module allows an analog sensor to connect to the sc200 controller
Measuring range	- 2.00 to 14.00 pH units - 2,100 to 2,100 mV
Repeatability	± 0.1 % of range
Response times	0.5 s
	monitoring of pH sensor impedance and provides an error when the impedance is too low. (e.g., cracked glass or sensor end-of-life)
Temperature	
accepted sensor types	PT100/PT1000/NTC300
Temp. compensation	Automatic from - 20 to 110°C (-4 to 230°F) or manual
Temp. compensation curves	Nernst, Pure Water: Ammonium, Morpholine, user defined (linear)
Temperature ranges	
PT100 / PT1000	-20 to 200°C
NTC300	-20 to 110 °C
Manual	-25 to 400 °C
Temperature accuracy	± 0.5 °C
Temperature drifts	± 0.03 % of reading / °C
Sensor to controller distances (maximal)	
pHD sensor:	914 m
pH combination electrode	30 m with pre-amplifier; depending on electromagnetic interferences, the distance may be shorter
	300 m with pre-amplifier
Calibration	1 or 2-point buffer (pH only) 2-point sample (pH only) 1-point sample (pH and ORP)
Warranty	24 month

Technical Data	
Subject to change without notice	
sc200 - analog Conductivity sensor card	
Designation	The module allows an analog sensor to connect to the sc200 controller
recommended sensor models	Inductive Conductivity sensors, series 3700 Conductive Conductivity sensors, series 3400 and 831x
Measuring range	2 EL conductive sensors series 3400 and 831x sensors
Conductivity	0 ... 200,000 µS/cm sensor and cell constant depending
Resistivity	0-19.99 MΩcm or 0-999.9 kΩcm sensor and cell constant depending
TDS	0 ... 9999 ppb or 0 ... 9999 ppm
Concentration	not applicable
Repeatability	0 to 20 µS/cm, K=1: ± 0.02 µS/cm 20 to 200,000 µS/cm, K=1: ± 0.1 % of reading
Response times	0.5 sec
Temperature	
accepted sensor types	PT100/PT1000
Temp. compensation	Automatic from -20 to 200°C or manual
Temp. compensation curves	Linear, Ammonium, Natural Water, user defined, none
Temperature ranges	-20 to 200°C
Temperature accuracy	± 0.5 °C
Temperature drifts	> 20 µS/cm: ± 0.02 % of reading / °C
Sensor to controller distances (maximal)	
3400 sensor series	91m (300 ft.)
Calibration	Zero, GLI DRY-CAL, 1-point sample
Warranty	24 month

Controller

sc200 1- or 2-channel digital Universal Controller (DataSheet DOC053.52.35003)

Part No. **Designation**

LXV404.99.00501 **sc200** - Universal Controller 1- or 2-channel digital



L X V 4 0 4 . 9 9 . x x x x 1												
Language / Country Code Selection <i>please refer to Appendix E for further info</i>												
Power supply Options												
100-240 VAC, without power cord										0		
100-240 VAC, with EU-power cord										2		
100-240 VAC, with UK-power cord										3		
100-240 VAC, with CH-power cord										4		
24 VDC										7		
Outputs / Interface Options												
2 x I/O outputs - no BUS connection (Standard)										0		
MODBUS RTU										1		
PROFIBUS DP V1.0										3		
HART and 2 x 0/4 - 20 mA outputs										5		
5 x I/O outputs - no BUS connection										9		
Sensor Input Option 1												
Analog: pH/ Redox										1		
Analog: conductivity										2		
mA input										4		
Digital (all sc sensors)										5		
Sensor Input Option 2												
None										0		
Analog: pH/ Redox										1		
Analog: conductivity										2		
mA input										4		
Digital										5		

Note: For accessories, spare and waering parts, please refer to sc200 accessories

Note: The following loop packages have been created to replace former sc60 configurations
Other configurations are not possible, respectivley must be upgraded by selecting optional accessories separately

9221800	KTO: sc200 + 1200-S sc pH consisting of: LXV404.99.20501 & LXV426.99.10001
9221900	KTO: sc200 + 1200-S sc ORP consisting of: LXV404.99.20501 & LXV426.99.20001
9222000	KTO: sc200 + 3798-S sc consisting of: LXV404.99.20501 & LXV428.99.00001
9222100	KTO: sc200 + pH-D-S sc pH consisting of: LXV404.99.20501 & LXV427.99.10001
9222200	KTO: sc200 + pH-D-s sc ORP consisting of: LXV404.99.20501 & LXV427.99.20001
9278100	KTO: sc200 + 5740 sc consisting of: LXV404.99.20501 & LXV425.99.00001

Controller

sc200 - Digital/Analog - Analog E-Chem Controller (DataSheet DOC053.52.35003)

Part No. **Designation**

LXV404.99.00001 **sc200** - Universal Controller Digital / Analog Mix



L X V 4 0 4 . 9 9 . x x x x 1											
Language / Country Code Selection <i>please refer to Appendix E for further info</i>											
Power supply Options											
100-240 VAC, without power cord										0	
100-240 VAC, with EU-power cord										2	
100-240 VAC, with UK-power cord										3	
100-240 VAC, with CH-power cord										4	
24 VDC										7	
Outputs / Interface Options											
2 x 0/4 20 mA outputs										0	
MODBUS 232/485 and 2 x 0/4-20mA outputs										1	
PROFIBUS DP und 2 x 0/4 - 20 mA outputs										3	
HART und 2 x 0/4 - 20 mA outputs										5	
Additional 3 x 0/4 - 20 mA outputs										9	
Sensor Input Option 1											
Digital										5	
Sensor Input Option 2											
Analog inputs											
pH/ORP										1	
Conductivity										2	
Flow										3	
1 x mA input										4	

LXV404.99.00001 **sc200** - Controller 1- or 2-channel analog



L X V 4 0 4 . 9 9 . x x x x 1											
Language / Country Code Selection <i>please refer to Appendix E for further info</i>											
Power supply Options											
100-240 VAC, without power cord										0	
100-240 VAC, with EU-power cord										2	
100-240 VAC, with UK-power cord										3	
100-240 VAC, with CH-power cord										4	
24 VDC										7	
Outputs / Interface Options											
2 x 0/4 20 mA outputs										0	
MODBUS 232/485 and 2 x 0/4-20mA outputs										1	
PROFIBUS DP und 2 x 0/4 - 20 mA outputs										3	
HART und 2 x 0/4 - 20 mA outputs										5	
PROFIBUS DP V1.0										9	
Sensor Input Option 1											
<u>Analog inputs</u>											
pH/ORP conventional pH / ORP & pHD pH/ORP										1	
Conductivity Conductive & Inductive										2	
Flow using GLI U53 U-sonic and Tee-Mount sensors										3	
1 x mA input										4	
Sensor Input Option 2											
None										0	
<u>Analog inputs</u>											
pH conventional pH / ORP & pHD pH/ORP										1	
Conductivity Conductive & Inductive										2	
Flow using GLI U53 U-sonic and Tee-Mount sensors										3	
1 x mA input										4	

 **Note:** Sensor input option 1 must be ≥ Sensor input option 2

Controller

sc200 Controller accessories (DataSheet DOC053.52.35003)

Part No. Designation

Optional Mounting accessories

LZY767	Pole Mounting Assembly Kit, for sc200, pk/1 complete Kit, incl. Pole 1.8m, Socket, Weather guard and UV shield for outdoor installation
9220600	sc200 Weather and Sun Shieldwith UV Protection Screen
8809200	sc200 UV Protection Screen
9221700	sc200 UV Protection Screen Replacement

Communication modules

9012905	pH/ORP sensor card for sc200
9013005	Conductivity sensor card for sc200
9012705	FLOW sensor card
9012805	mA input module for sc200
9334605	Analog mA-Output card - 3 additional 4/20 mA OUT signals (active or passive)
9013205	Modbus module as upgrade kit
YAB104	Profibus DP kit as upgrade kit
9328100	HART network module (sensor depending**)
9328105	SC200 Universal Controller Kit, Network Module, Hart, 3 x outputs
9178500	Profibus M12 connector kit
9275500	Profibus M12 socket Profibus
9178400	Profibus M12 T plug

For further information
please refer to
DOC273.97.80123

Recommended Accessories

9218100	Memory card, Secure Digital, 4 Gbyte
LZY522	SD card reader
LZX887	Interface cable MSV RS232 for sc60/sc100/sc200 for installation of software UpDates and Readout of Datalogger and Events if not done via SD Memory Card

 **Note:** For further accessories like sc extensions cables, BUS cables etc., please refer to the Chapter sc accessories
** LDO, 1720E, Differential pH/ORP, SS7, DO Module, Contacting Conductivity Module, Inductive Conductivity
Module, pH/ORP module, Flow-Ultrasonic Module, 4-20mA Input Module, FP360sc,TSSsc

Documentation

DOC083.98.80040	CD Kit, sc200 Full User Manuals, HACH-LANGE
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Replacements / Wearing parts

5868700	Plug, conduit opening
8806200	Controller Installation Kit
9177800	Spare screws for Controller Installation Kit
9177900	Mounting bracket inserts
6134300	Screw driver, 2.0 mm wide blade (replacement)

SC 200 / E-Chem Loops

9221800	SC200 + 1200 S sc pH (LXV404.99.20501 + LXV426.99.10001)
9221900	SC200 + 1200 S sc Redox (LXV404.99.20501 + LXV426.99.20001)
9222000	SC200 + 3798 S sc (LXV404.99.20501 + LXV428.99.00001)
9222100	SC200 + pH S sc (LXV404.99.20501 + LXV427.99.10001)
9222200	SC200 + pH S sc Redox (LXV404.99.20501 + LXV427.99.20001)
9278100	SC200 + 5740 sc (LXV404.99.20501 + LXV425.99.00001)

Controller

sc1000 Multi-Channel Universal Controller (DataSheet DOC033.52.00400)



One for All and All in One:

The sc1000 Multi-parameter Universal Controller is a fully modular system consisting of a Display Module and one or more Probe Modules.

Probe Module - Each sc1000 Probe Module provides power to the system and can accept up to 8 digital sensors. Probe Modules can be networked together to accommodate many more sensors attached to the same network.

Display Module - The sc1000 Display Module is a full-featured controller with a large color touch-screen display. The intuitive, easy to use interface can be used for any number of parameters. One Display Module controls either a single Probe Module or a number of Probe Modules connected by a digital network. The Display Module is fully portable and can be disconnected and moved anywhere within the system network.

Technical Data	
Subject to change without notice	
sc1000 Display Module	
Designation	Display module for menu-based operation with touch screen
screen display	QVGA, 320 x 240 pixels, 256 colours
Data Management	SD card [max.32 GB] option for easy download of Data & Event Log files (XML format) sensor configurations backup and restoration of configuration files and replication of the configuration from one device to multiple other devices of the same type
Remarks	optional Tri-band data telephone, GSM standards: GSM 900, EGSM 900, GSM 1800 and GSM 1900
Temperature	Operation: -20°C ... 55°C (-4°F ... 131°F); 95% relative humidity, non-condensing Storage: -20°C ... 70°C (-4°F ... 158°F); 95% relative humidity, non-condensing
Power requirement/consumption	powered via probe module; 11 W with GSM option, 10 W w/o GSM option
Housing Material	Plastic housing
Enclosure rating	IP65
Weight (approximately)	1.2 kg
Dimensions	200 x 230 x 50mm (7.9 x 9 x 2 inches) (W x H x D)
sc1000 Probe Module	
Designation	Probe module for the connection of sc sensors and power supply
Measuring ranges	depending on connected sensor
Installation	for wall, pipe and hand rail mounting
Inputs	- up to 8 probes/analyzers with sc digital technology - free combinable and configurable
Outputs/Extensions:	
Internal	- 4 potential-free relay contacts (max 5A 115/230 VAC); programmable as limiting value, status or timer - 4 analogue outputs 0/4-20mA, programmable - 4 analogue/digital inputs; programmable - Field bus connections
External	- any number of potential-free relay contacts (max 5A 115/230 VAC); programmable as limiting value, status or timer - any number of analogue outputs 0/4-20mA, programmable - any number of analog/digital inputs, programmable - Field bus connections
Temperature	Operation: -20°C ... 55°C (-4°F ... 131°F); 95% relative humidity, non-condensing Storage: -20°C ... 70°C (-4°F ... 158°F); 95% relative humidity, non-condensing
Material	Metal housing with corrosion-resistant surface finish
Enclosure rating	IP65 (NEMA 4X)
Power requirement	100-240 VAC ±10%, 50/60Hz, max 75VA
Power consumption	Probe module ca. 2 W Internal fieldbus module ca. 3 W
Dimension (W x H x D)	without Display module 315 x 255 x 120 mm (12.4 x 10.1 x 4.8 inches) with Display module 315 x 255 x 150 mm (12.4 x 10.1 x 6 inches)
Weight w/o Probe module	appr. 5.5 kg (depending on configuration)
Warranty	24 month, extendable to 60 month

Controller

sc1000 Multi-Channel Universal Controller (DataSheet DOC033.52.00400)

Part No.

Designation

LXV402.99.0X001

sc1000 Display Module

L X V 4 0 2 . 9 9 . x x 0 0 1											
Language / Country Code Selection											
ModBus TCP option											
w/o ModBus TCP/IP option										0	
with ModBus TCP/IP option										1	
GSM option											
no GSM module										0	
with GSM module										1	

LXV400.99.XXXX1

sc1000 Probe Module

L X V 4 0 0 . 9 9 . x x x x 1											
Language / Country Code Selection											
Power supply option with 2 connectors for sensors to be operated with 100-240 VAC											
100-240 VAC, Power connectors, without power cord										0	
100-240 VAC, Power connectors, conduit, without power cord										1	
100-240 VAC, Power connectors, with EU-power cord										2	
100-240 VAC, Power connectors, with UK-power cord										3	
100-240 VAC, Power connectors, with CH-power cord										4	
100-240 VAC, Power connectors, with US-power cord										5	
24 VDC										Z	
Relay-/Network-module option											
without Relay- and Network-Card										0	
1 Relay board with 4 Relays (NC)										R	
1 MODBUS RS485 Network board										A	
1 Relay board with 4 Relays (NC) & 1 MODBUS RS485 Network board										B	
1 Profibus-DP Network board										E	
1 Relay board with 4 Relays (NC) & 1 Profibus-DP Network board										F	
I/O Output and Input module option											
no I/O modules										0	
1 analog Output board ²										1	
2 analog Output board ²										3	
3 analog Output board ²										8	
1 analog/digital INPUT board ³										2	
2 analog/digital INPUT board ³										4	
3 analog/digital INPUT board ³										9	
1 analog Output board ² + 1 analog/digital INPUT board ³										5	
2 analog Output board ² + 1 analog/digital INPUT board ³										6	
1 analog Output board ² + 2 analog/digital INPUT board ³										7	
sensor connector option											
up to 4 sc sensors										2	
up to 6 sc sensors										3	
up to 8 sc sensors										4	

Optional Mounting assembly

LZX957

Pole Mounting Assembly Kit, for sc1000, complete, pk/1
complete Mounting Hardware Kit, incl. Pole 1.8m, Socket, Weather guard for outdoor installation

LZX958

sc1000 weather guard for Outside Installation (also suitable for 2 x sc100 controllers)



Note:

² each analog Output board comes with 4 x 0/4-20 mA Outputs

³ each analog/digital INPUT board is equipped with 4 inputs applicable as 0/4-20 mA INPUT or digital INPUT

Each Probe-Module can be equipped with 3 internal extensions. Nevertheless not all configurations listed above are possible. To avoid mis-configurations, we recommend using the sc1000 configurator @ www.hach-lange.com.

For Service contract with Warranty extensions, commissioning and trainings please refer to Appendix D.

Controller

sc1000 Standard Configurations

Part No.	Designation
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 **Note:** Due to the big variety of possible sc1000 combinations, the most favorite models are listed below only. For further specific solutions, please refer to our online configurator at www.hach-lange.com.

Display Modules

LXV402.99.00001	LANGE sc 1000 display module with color graphic display and Touch-screen user interface, with connection to a sc 1000 probe module
LXV402.99.01001	LANGE sc 1000 display module with GSM option with color graphic display and Touch-screen user interface, with connection to a sc 1000 probe module; with GSM for remote access and operation

4-Channel Probe Module configurations

LXV400.99.20021	LANGE sc 1000 probe module (Basic) with connectors for up to 4 sc-sensors, with 100-240 VAC power supply with EU-power cord, with 2 connectors for sensors that operate with 100-240 VAC.
LXV400.99.20121	LANGE sc 1000 probe module (Basic + 4x I/O Output) with connectors for up to 4 sc-sensors, with one analog output board with 4 x 0/4-20 mA OUTPUT, with 100-240 VAC power supply with EU-power cord, with 2 connectors for sensors that operate with 100-240 VAC.
LXV400.99.2R121	LANGE sc 1000 probe module (Basic + 4x I/O Output + Relays) with connectors for up to 4 sc-sensors, with one analog output board with 4 x 0/4-20 mA OUTPUT, with one relay board with 4 relays (NC), with 100-240 VAC power supply with EU-power cord, with 2 connectors for sensors that operate with 100-240 VAC.
LXV400.99.2R521	LANGE sc 1000 probe module (Basic + 4x I/O Output + Relays + Analog Input/Output) with connectors for up to 4 sc-sensors, with one analog output board with 4 x 0/4-20 mA OUTPUT, with one analog/digital INPUT board with 4 inputs applicable as 0/4-20 mA INPUT or digital INPUT, with one relay board with 4 relays (NC), with 100-240 VAC power supply with EU-power cord, with 2 connectors for sensors that operate with 100-240 VAC.
LXV400.99.20621	LANGE sc 1000 probe module (Basic + 8x I/O Output + Analog Input/Output) with connectors for up to 4 sc-sensors, with two analog output boards with 8 x 0/4-20 mA OUTPUT, with one analog/digital INPUT board with 4 inputs applicable as 0/4-20 mA INPUT or digital INPUT, with 100-240 VAC power supply with EU-power cord, with 2 connectors for sensors that operate with 100-240 VAC.
LXV400.99.2B021	LANGE sc 1000 probe module (Basic + MODBUS + Relays) with connectors for up to 4 sc-sensors, with one relay board with 4 relays (NC), with one MODBUS RS485 network board, with 100-240 VAC power supply with EU-power cord, with 2 connectors for sensors that operate with 100-240 VAC.
LXV400.99.2F021	LANGE sc 1000 probe module (Basic + Profibus DP+ Relays) with connectors for up to 4 sc-sensors, with one relay board with 4 relays (NC), with one Profibus-DP network board, with 100-240 VAC power supply with EU-power cord, with 2 connectors for sensors that operate with 100-240 VAC.

Controller

sc1000 Standard Configurations continued

Part No.	Designation
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 **Note:** Due to the big variety of possible sc1000 combinations, the most favorite models are listed below only. For further specific solutions, please refer to our online configurator at www.hach-lange.com.

Display Modules

LXV402.99.00001	LANGE sc 1000 display module with color graphic display and Touch-screen user interface, with connection to a sc 1000 probe module
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LXV402.99.01001	LANGE sc 1000 display module with GSM option with color graphic display and Touch-screen user interface, with connection to a sc 1000 probe module; with GSM for remote access and operation
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6 Channel Probe Module configurations

LXV400.99.20031	LANGE sc 1000 probe module (Basic) with connectors for up to 6 sc-sensors, with 100-240 VAC power supply with EU-power cord, with 2 connectors for sensors that operate with 100-240 VAC.
-----------------	--

LXV400.99.20331	LANGE sc 1000 probe module (Basic + 8x I/O Output) with connectors for up to 6 sc-sensors, with two analog output boards with 8 x 0/4-20 mA OUTPUT, with 100-240 VAC power supply with EU-power cord, with 2 connectors for sensors that operate with 100-240 VAC.
-----------------	--

LXV400.99.2R331	LANGE sc 1000 probe module (Basic + 8x I/O Output + Analog Input/Output) with connectors for up to 6 sc-sensors, with two analog output boards with 8 x 0/4-20 mA OUTPUT, with one relay board with 4 relays (NC), with 100-240 VAC power supply with EU-power cord, with 2 connectors for sensors that operate with 100-240 VAC.
-----------------	--

LXV400.99.2R531	LANGE sc 1000 probe module (Basic + 4x I/O Output + Relays + Analog Input/Output) with connectors for up to 6 sc-sensors, with one analogue output board with 4 x 0/4-20 mA OUTPUT, with one analogue/digital INPUT board with 4 inputs applicable as 0/4-20 mA INPUT or digital INPUT, with one relay board with 4 relays (NC), with 100-240 VAC power supply with EU-power cord, with 2 connectors for sensors that operate with 100-240 VAC.
-----------------	---

LXV400.99.2B031	LANGE sc 1000 probe module (Basic + MODBUS + Relays) with connectors for up to 6 sc-sensors, with one relay board with 4 relays (NC), with one MODBUS RS485 network board, with 100-240 VAC power supply with EU-power cord, with 2 connectors for sensors that operate with 100-240 VAC.
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LXV400.99.2F031	LANGE sc 1000 probe module (Basic + ProfiBUS DP+ Relays) with connectors for up to 6 sc-sensors, with one relay board with 4 relays (NC), with one Profibus-DP network board, with 100-240 VAC power supply with EU-power cord, with 2 connectors for sensors that operate with 100-240 VAC.
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8 Channel Probe Module configurations

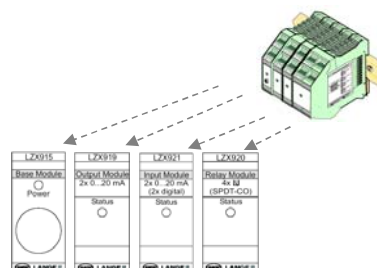
LXV400.99.20041	LANGE sc 1000 probe module with connectors for up to 8 sc-sensors, with 100-240 VAC power supply with EU-power cord, with 2 connectors for sensors that operate with 100-240 VAC.
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sc1000 Universal Controller

External expansion cards for DIN-Rail-Mounting in external Switch Cabinets

Part No. **Designation**

Note: To 1 Base module can be connected up to 13 further external modules.
In case the number of total modules exceeds the maximum allowed participants, a new loop must be installed.



LZX915	Base Module
Designation	The base module is the first module fitted and is fitted on the left on the 35mm DIN rail in the switch cabinet (in accordance with DIN EN 50022). This module is required to be able to operate any combination of expansion modules required.
Function	- Supply of expansion modules with 24VDC and connection to the sc1000 network. - Setting terminating resistor (with DIP switch) for the sc1000 network. - Provision of connection for a display module (LXV402) for the configuration of the system.
Housing	Polyamide, flammability class in accordance with UL 94: V0; enclosure rating IP20 Installation on a DIN rail (35mm) in accordance with DIN EN 50022
Power requirements	24 VDC (max. 30 VDC)
Current Consumption	2000 mA max.
Temperature	Operation: +4°C ... 40°C (39°F ... 104°F); 95% relative humidity, non-condensing Storage: -20°C ... 70°C (-4°F ... 158°F); 95% relative humidity, non-condensing
Weight	150 g
Dimension (W x H x D)	33 x 99 x 125 mm

LZX919	Output Module
Designation	For installation in the switch cabinet. Any expansions required can be combined when a base module is available.
Specifications	2 analogue current outputs, (0–20mA or 4–20mA, Max. 5000hm), Terminals max. 2.5 mm ²
Housing	Polyamide, flammability class in accordance with UL 94: V0; enclosure rating IP20 Installation on a DIN rail (35mm) in accordance with DIN EN 50022
Temperature	Operation: +4°C ... 40°C (39°F ... 104°F); 95% relative humidity, non-condensing Storage: 23 x 100 x 115 mm (1 x 4 x 4.5 inches) (W x H x D)
Power supply	24 VDC from LZX915 basis module
Current consumption	150 mA
Weight	150 g
Dimension (W x H x D)	22.5 x 99 x 115 mm

LZX920	Relais Module
Designation	For installation in the switch cabinet. Any expansions required can be combined when a base module is available.
Specifications	4 × change-over contacts, (SPDT) Current consumption 100mA Maximum switching voltage: 250VAC, 125V DC Nominal switching current: 250VAC, 5A; 125VAC, 5A; 30V DC, 5A Can be programmed for: limit, status or for timer, status indication by LED
Housing	Polyamide, flammability class in accordance with UL 94: V0; enclosure rating IP20 Installation on a DIN rail (35mm) in accordance with DIN EN 50022
Temperature	Operation: +4°C ... 40°C (39°F ... 104°F); 95% relative humidity, non-condensing Storage: -20°C ... 70°C (-4°F ... 158°F); 95% relative humidity, non-condensing
Power supply	24 VDC from LZX915 basis module
Current consumption	100 mA
Weight	200 g
Dimension (W x H x D)	45 x 99 x 115 mm

LZX921	Input Module
Designation	For installation in the switch cabinet. Any expansions required can be combined when a base module is available.
Specifications	Analogue/ digital inputs, can be programmed as 0–20mA or 4–20mA (INPUT or digital INPUT), internal resistance 180 Ohm, Terminals max. 1.5 mm ²
Housing	Polyamide, flammability class in accordance with UL 94: V0; enclosure rating IP20 Installation on a DIN rail (35mm) in accordance with DIN EN 50022
Temperature	Ambient: Modbus TCP/IP License Storage: -20°C ... 70°C (-4°F ... 158°F); 95% relative humidity, non-condensing
Power supply	24 VDC from LZX915 basis module
Current consumption	100 mA
Weight	150 g
Dimension (W x H x D)	22,5 x 99 x 115 mm

sc1000 Universal Controller

Internal expansion cards

Part No. **Designation**

Designation	Internal (plug-in) expansion cards Plug-in expansion cards for installation in the sc1000 probe module	
Analog Outputs YAB019	4 x analog current outputs, (0...20mA or 4...20mA, max. 500Ohm), Terminals max. 1.5 mm ²	
Analog/Digital Input YAB018	4 x analog/digital inputs can be programmed as 0–20mA or 4–20mA (INPUT or digital INPUT), Terminals max. 1.5 mm ²	
Internal Relay YAB076	4 x NC contacts, (UL, SPST-NC, normally closed) Maximum switching voltage: 250VAC, 125V DC Nominal switching current: 250VAC, 5A; 125VAC, 5A 125V DC, 0.15A; 30V DC, 5A Terminals max. 2.5 mm ² , can be programmed for limit, status or for timer	
Fieldbus Interfaces		
MODBUS YAB021		
ProfiBUS DP YAB020	The transmission capacity per card is limited to 24 registers (8x3) As a rule of thumb, 1 ProfiBus Card must be considered for 8 sensors	
Temperature		
Operation	–20°C ... 55°C (–4°F ... 131°F); 95% relative humidity, non-condensing	
Storage	–20°C ... 70°C (–4°F ... 158°F); 95% relative humidity, non-condensing	

Documentation

DOC023.52.03260 User Manual, sc1000, GB
 DOC032.53.90073 sc 100/1000 - Profibus DP/V1 Quick Reference Document
 DOC032.52.90143 sc 1000 Enhanced communications, GB, HACH LANGE

available at www.hach-lange.com
 available at www.hach-lange.com

sc1000 Universal Controller

General accessories

Part No.	Designation		
<u>Cables and connectors for sc1000 Networking</u>			
LZX918	sc 1000-bus plug, pk/1		
LZY488	sc 1000 bus cable, 2 x 0.64 mm, AWG 22/1 (black)	suitable for outdoor use	per m
LZY489	sc 1000 bus cable, 2 x 0.64 mm stranded, AWG 24/19 (violet) recommended for drag chain applications	suitable for outdoor use	per m
LZX998	Interface cable for sc1000, EtherNet Cross over 2 m, pk/1 for Software UpDates and Readout of Datalogger and Events		
LZX847	sc extension cable 0.35 m		
6122400	sc extension cable 1 m		
LZX848	sc extension cable 5 m		
LZX849	sc extension cable 10 m		
LZX850	sc extension cable 15 m		
LZX851	sc extension cable 20 m		
LZX852	sc extension cable 30 m		
LZX853	sc extension cable 50 m		
LZX971	Plug sc-probe cable 5-pole, IP67 (6-8 mm)		
LZX972	Sleeve sc-sensor cable 5-pole, IP67 (6-8 mm)		
LZX987	Plug sc-probe cable 5-pole, IP67 (4-6 mm, grey cable)		
LZX986	Plug and sleeve sc-probe cable 5-pole, IP67 (4-6 mm, grey cable)		
LZY339	sc sensor cable 100 m		
LZY340	sc sensor cable 200 m		
LZY359	sc Sensor cabel 400 m		
5867000	Junction box for sc sensors (not for sc 1000)		
LZY598	sc 1000 Modbus TCP/IP License Kit Serial Nr. of Display required !!		
<u>MODBUS TCP/IP & GSM Options</u>			
LZY598	MODBUS TCP/IP License Kit		
LZY553	Outdoor EtherNet Kit		
YAB055	GSM- Module for sc1000: Data phone MC55 GSM EU, 900/1800/1900 MHz		
LZX956	Antenna for sc1000 Display module, 6 cm, pk/1 being standard of sc1000 Display module + GSM option		
LZX990	sc 1000 Antenna for Outdoor Installations, 900/1800 MHz, 2 DB, 30cm length, 5 m cable, pk/1		
LZX955	Antenna Extension cable, 10 m, pk/1 (only for use with external antenna LZX990)		
LZX969	sc-sensor connectors (2 pieces)		
LZX979	Set of caps for sc1000 probe module		
 Note:	CDA service remote contact only in conjunction with HACH LANGE service contract		
<u>Mounting hardware</u>			
LZX957	sc1000 Pole Mounting Assembly Kit complete Mounting Hardware Kit, incl. Weather guard for outdoor installation near the probe/analyzer		
LZX958	sc1000 weather guard for Outside Installation (also suitable for 2 x sc100 controllers)		
LZX948	Set of small parts for sc1000 roof (LZX958)		
LZX966	Set of small parts mounting hardware sc1000		
LZX355	Wall mounting kit For further details, repsectively further parts, please refer to the chapter "Mounting Assembly"		
<u>Spare Parts for Display Module</u>			
LZX934	Cable for sc1000 display module		
LZX935	Handle belt for sc1000 display module		
LZX924	Display lightning for sc1000 display module		
LZX303	Desiccant		
LZY520	SD card 1 GB, for sc1000 Display module		
LZY522	USB / SD card Reader	SanDisk MobileMate USB reader	
LZY553	Outdoor Ethernet port kit		
<u>Spare Parts for Probe Module</u>			
LZX976	Fuse set		
LZX982	Protection cap für SC-sensor connector		
LZX962	Air fan		
LZX981	Cable gland for rigid metallic conduit, pk/1		

Controller

sc1000 eco



One for All and All in One:

The sc1000 Multi-parameter Universal Controller is a fully modular system consisting of a Display Module and one or more Probe Modules.

Probe Module - Each sc1000 Probe Module provides power to the system and can accept up to 4 digital sensors. Probe Modules can be networked together to accommodate many more sensors attached to the same network.

Display Module - The sc1000 Display Module is a full-featured controller with a large color touch-screen display. The intuitive, easy to use interface can be used for any number of parameters. One Display Module controls either a single Probe Module or a number of Probe Modules connected by a digital network. The Display Module is fully portable and can be disconnected and moved anywhere within the system network.

Technical Data	
Subject to change without notice	
sc1000 eco Display Module	
Designation	Display module for menu-based operation with touch screen
screen display	QVGA, 320 x 240 pixels, 256 colours
Data Management	SD card [max.32 GB] option for easy download of Data & Event Log files (XML format) sensor configurations backup and restoration of configuration files and replication of the configuration from one device to multiple other devices of the same type
Remarks	optional Tri-band data telephone, GSM standards: GSM 900, EGSM 900, GSM 1800 and GSM 1900
Temperature	Operation: -20°C ... 55°C (-4°F ... 131°F); 95% relative humidity, non-condensing Storage: -20°C ... 70°C (-4°F ... 158°F); 95% relative humidity, non-condensing
Power requirement/consumption	powered via probe module; 11 W with GSM option, 10 W w/o GSM option
Housing Material	Plastic housing
Enclosure rating	IP65
Weight (approximately)	1.2 kg
Dimensions	200 x 230 x 50mm (7.9 x 9 x 2inches) (W x H x D)
sc1000 eco Probe Module	
Designation	Probe module for the connection of sc sensors and power supply
Measuring ranges	depending on connected sensor
Installation	for wall, pipe and hand rail mounting
Inputs	- up to 4 probes/analyzers with sc digital technology - free combinable and configurable
Outputs/Extensions:	
Internal	- 4 potential-free relay contacts (max 5A 115/230 VAC); programmable as limiting value, status or timer - 4 analogue outputs 0/4-20mA, programmable - 4 analogue/digital inputs; programmable - Field bus connections
External	- any number of potential-free relay contacts (max 5A 115/230 VAC); programmable as limiting value, status or timer - any number of analogue outputs 0/4-20mA, programmable - any number of analog/digital inputs, programmable - Field bus connections
Temperature	Operation: -20°C ... 55°C (-4°F ... 131°F); 95% relative humidity, non-condensing Storage: -20°C ... 70°C (-4°F ... 158°F); 95% relative humidity, non-condensing
Material	Metal housing with corrosion-resistant surface finish
Enclosure rating	IP65 (NEMA 4X)
Power requirement	100-240 VAC ±10%, 50/60Hz, max 75VA
Power consumption	Probe module ca. 2 W Internal fieldbus module ca. 3 W
Dimension (W x H x D)	without Display module 315 x 255 x 120 mm (12.4 x 10.1 x 4.8 inches) with Display module 315 x 255 x 150 mm (12.4 x 10.1 x 6 inches)
Weight w/o Probe module	appr. 5.0 kg (depending on configuration)
Warranty	24 month, extendable to 60 month

Controller

sc1000 eco

Part No.

Designation

LXV402.99.0X001

sc1000 eco Display Module

L	X	V	4	0	2	.	9	9	.	x	x	0	0	1
Language / Country Code Selection														
ModBus TCP option														
w/o ModBus TCP/IP option 0														
with ModBus TCP/IP option 1														
GSM option														
no GSM module 0														
with GSM module 1														

LXV400.99.XXX21

sc1000 eco Probe Module

L	X	V	4	0	0	.	9	9	.	x	x	x	x	1
Language / Country Code Selection														
Power supply option with 2 connectors for sensors to be operated with 100-240 VAC														
100-240 VAC, Power connectors, without power cord 0														
100-240 VAC, Power connectors, conduit, without power cord 1														
100-240 VAC, Power connectors, with EU-power cord 2														
100-240 VAC, Power connectors, with UK-power cord 3														
100-240 VAC, Power connectors, with CH-power cord 4														
100-240 VAC, Power connectors, with US-power cord 5														
24 VDC Z														
Relay- /Network-module option														
without Relay- and Network-Card 0														
1 Relay board with 4 Relays (NC) R														
1 MODBUS RS485 Network board A														
1 Relay board with 4 Relays (NC) & 1 MODBUS RS485 Network board B														
1 Profibus-DP Network board E														
1 Relay board with 4 Relays (NC) & 1 Profibus-DP Network board F														
I/O Output and Input module option														
no I/O modules 0														
1 analog Output board ² 1														
2 analog Output board ² 3														
3 analog Output board ² 8														
1 analog/digital INPUT board ³ 2														
2 analog/digital INPUT board ³ 4														
3 analog/digital INPUT board ³ 9														
1 analog Output board ² + 1 analog/digital INPUT board ³ 5														
2 analog Output board ² + 1 analog/digital INPUT board ³ 6														
1 analog Output board ² + 2 analog/digital INPUT board ³ 7														
sensor connector option														
up to 4 sc sensors 2														

Optional Mounting assembly

LZX957

Pole Mounting Assembly Kit, for sc1000, complete, pk/1
complete Mounting Hardware Kit, incl. Pole 1.8m, Socket, Weather guard for outdoor installation

LZX958

sc1000 weather guard for Outside Installation (also suitable for 2 x sc100 controllers)



Note:

² each analog Output board comes with 4 x 0/4-20 mA Outputs

³ each analog/digital INPUT board is equipped with 4 inputs applicable as 0/4-20 mA INPUT or digital INPUT

Each Probe-Module can be equipped with 3 internal extensions. Nevertheless not all configurations listed above are possible. To avoid mis-configurations, we recommend using the sc1000 configurator @ www.hach-lange.com.

For Service contract with Warranty extensions, commissioning and trainings please refer to Appendix D.

Controller

sc1000 eco Standard Configurations

Part No.	Designation
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 **Note:** Due to the big variety of possible sc1000 combinations, the most favorite models are listed below only. For further specific solutions, please refer to our online configurator at www.hach-lange.com.

Display Modules

LXV402.99.00001	LANGE sc 1000 display module with color graphic display and Touch-screen user interface, with connection to a sc 1000 probe module
LXV402.99.01001	LANGE sc 1000 display module with GSM option with color graphic display and Touch-screen user interface, with connection to a sc 1000 probe module; with GSM for remote access and operation

4-Channel Probe Module configurations

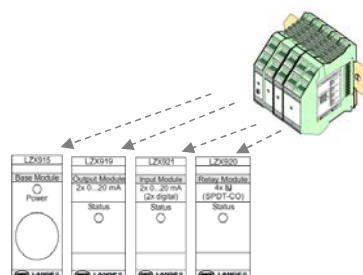
LXV400.99.20021	LANGE sc 1000 probe module (Basic) with connectors for up to 4 sc-sensors, with 100-240 VAC power supply with EU-power cord, with 2 connectors for sensors that operate with 100-240 VAC.
LXV400.99.20121	LANGE sc 1000 probe module (Basic + 4x I/O Output) with connectors for up to 4 sc sensors, with one analog output board with 4 x 0/4-20 mA OUTPUT, with 100-240 VAC power supply with EU-power cord, with 2 connectors for sensors that operate with 100-240 VAC.
LXV400.99.2R121	LANGE sc 1000 probe module (Basic + 4x I/O Output + Relays) with connectors for up to 4 sc-sensors, with one analog output board with 4 x 0/4-20 mA OUTPUT, with one relay board with 4 relays (NC), with 100-240 VAC power supply with EU-power cord, with 2 connectors for sensors that operate with 100-240 VAC.
LXV400.99.2R521	LANGE sc 1000 probe module (Basic + 4x I/O Output + Relays + Analog Input/Output) with connectors for up to 4 sc-sensors, with one analog output board with 4 x 0/4-20 mA OUTPUT, with one analog/digital INPUT board with 4 inputs applicable as 0/4-20 mA INPUT or digital INPUT, with one relay board with 4 relays (NC), with 100-240 VAC power supply with EU-power cord, with 2 connectors for sensors that operate with 100-240 VAC.
LXV400.99.20621	LANGE sc 1000 probe module (Basic + 8x I/O Output + Analog Input/Output) with connectors for up to 4 sc-sensors, with two analog output boards with 8 x 0/4-20 mA OUTPUT, with one analog/digital INPUT board with 4 inputs applicable as 0/4-20 mA INPUT or digital INPUT, with 100-240 VAC power supply with EU-power cord, with 2 connectors for sensors that operate with 100-240 VAC.
LXV400.99.2B021	LANGE sc 1000 probe module (Basic + MODBUS + Relays) with connectors for up to 4 sc-sensors, with one relay board with 4 relays (NC), with one MODBUS RS485 network board, with 100-240 VAC power supply with EU-power cord, with 2 connectors for sensors that operate with 100-240 VAC.
LXV400.99.2F021	LANGE sc 1000 probe module (Basic + ProfiBUS DP+ Relays) with connectors for up to 4 sc-sensors, with one relay board with 4 relays (NC), with one Profibus-DP network board, with 100-240 VAC power supply with EU-power cord, with 2 connectors for sensors that operate with 100-240 VAC.

sc1000 eco Controller

External expansion cards for DIN-Rail-Mounting in external Switch Cabinets

Part No. **Designation**

Note: To 1 Base module can be connected up to 13 further external modules.
In case the number of total modules exceeds the maximum allowed participants, a new loop must be installed.



LZX915	Base Module
Designation	The base module is the first module fitted and is fitted on the left on the 35mm DIN rail in the switch cabinet (in accordance with DIN EN 50022). This module is required to be able to operate any combination of expansion modules required.
Function	- Supply of expansion modules with 24VDC and connection to the sc1000 network. - Setting terminating resistor (with DIP switch) for the sc1000 network. - Provision of connection for a display module (LXV402) for the configuration of the system.
Housing	Polyamide, flammability class in accordance with UL 94: V0; enclosure rating IP20 Installation on a DIN rail (35mm) in accordance with DIN EN 50022
Power requirements	24 VDC (max. 30 VDC)
Current Consumption	2000 mA max.
Temperature	Operation: +4°C ... 40°C (39°F ... 104°F); 95% relative humidity, non-condensing Storage: -20°C ... 70°C (-4°F ... 158°F); 95% relative humidity, non-condensing
Weight	150 g
Dimension (W x H x D)	33 x 99 x 125 mm

LZX919	Output Module
Designation	For installation in the switch cabinet. Any expansions required can be combined when a base module is available.
Specifications	2 analogue current outputs, (0–20mA or 4–20mA, Max. 5000Ohm), Terminals max. 2.5 mm ²
Housing	Polyamide, flammability class in accordance with UL 94: V0; enclosure rating IP20 Installation on a DIN rail (35mm) in accordance with DIN EN 50022
Temperature	Operation: +4°C ... 40°C (39°F ... 104°F); 95% relative humidity, non-condensing Storage: 23 x 100 x 115 mm (1 x 4 x 4.5 inches) (W x H x D)
Power supply	24 VDC from LZX915 basis module
Current consumption	150 mA
Weight	150 g
Dimension (W x H x D)	22.5 x 99 x 115 mm

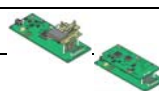
LZX920	Relais Module
Designation	For installation in the switch cabinet. Any expansions required can be combined when a base module is available.
Specifications	4 x change-over contacts, (SPDT) Current consumption 100mA Maximum switching voltage: 250VAC, 125V DC Nominal switching current: 250VAC, 5A; 125VAC, 5A; 30V DC, 5A Can be programmed for: limit, status or for timer, status indication by LED
Housing	Polyamide, flammability class in accordance with UL 94: V0; enclosure rating IP20 Installation on a DIN rail (35mm) in accordance with DIN EN 50022
Temperature	Operation: +4°C ... 40°C (39°F ... 104°F); 95% relative humidity, non-condensing Storage: -20°C ... 70°C (-4°F ... 158°F); 95% relative humidity, non-condensing
Power supply	24 VDC from LZX915 basis module
Current consumption	100 mA
Weight	200 g
Dimension (W x H x D)	45 x 99 x 115 mm

LZX921	Input Module
Designation	For installation in the switch cabinet. Any expansions required can be combined when a base module is available.
Specifications	Analogue/ digital inputs, can be programmed as 0–20mA or 4–20mA (INPUT or digital INPUT), internal resistance 180 Ohm, Terminals max. 1.5 mm ²
Housing	Polyamide, flammability class in accordance with UL 94: V0; enclosure rating IP20 Installation on a DIN rail (35mm) in accordance with DIN EN 50022
Temperature	Ambient: Modbus TCP/IP License Storage: -20°C ... 70°C (-4°F ... 158°F); 95% relative humidity, non-condensing
Power supply	24 VDC from LZX915 basis module
Current consumption	100 mA
Weight	150 g
Dimension (W x H x D)	22,5 x 99 x 115 mm

Controller

sc1000 eco - Internal expansion cards

Part No. **Designation**

Designation	Internal (plug-in) expansion cards Plug-in expansion cards for installation in the sc1000 probe module	
Analog Outputs YAB019	4 x analog current outputs, (0...20mA or 4...20mA, max. 500Ohm), Terminals max. 1.5 mm ²	
Analog/Digital Input YAB018	4 x analog/digital inputs can be programmed as 0–20mA or 4–20mA (INPUT or digital INPUT), Terminals max. 1.5 mm ²	
Internal Relay YAB076	4 x NC contacts, (UL, SPST-NC, normally closed) Maximum switching voltage: 250VAC, 125V DC Nominal switching current: 250VAC, 5A; 125VAC, 5A 125V DC, 0.15A; 30V DC, 5A Terminals max. 2.5 mm ² , can be programmed for limit, status or for timer	
Fieldbus Interfaces		
MODBUS YAB021		
ProfiBUS DP YAB020	The transmission capacity per card is limited to 24 registers (8x3) As a rule of thumb, 1 ProfiBus Card must be considered for 8 sensors	
Temperature		
Operation	–20°C ... 55°C (–4°F ... 131°F); 95% relative humidity, non-condensing	
Storage	–20°C ... 70°C (–4°F ... 158°F); 95% relative humidity, non-condensing	

Controller

sc1000 eco Accessories

Part No.	Designation		
<u>Cables and connectors for sc1000 Networking</u>			
LZX918	sc1000-bus plug, pk/1		
LZY488	sc1000 bus cable, 2 x 0.64 mm, AWG 22/1 (black)		suitable for outdoor use per m
LZY489	sc1000 bus cable, 2 x 0.64 mm stranded, AWG 24/19 (violet) recommended for drag chain applications		suitable for outdoor use per m
LZX998	Interface cable for sc1000, EtherNet Cross over 2 m, pk/1 for Software UpDates and Readout of Datalogger and Events		
LZX847	sc extension cable 0.35 m		
6122400	sc extension cable 1 m		
LZX848	sc extension cable 5 m		
LZX849	sc extension cable 10 m		
LZX850	sc extension cable 15 m		
LZX851	sc extension cable 20 m		
LZX852	sc extension cable 30 m		
LZX853	sc extension cable 50 m		
LZX971	Plug sc-probe cable 5-pole, IP67 (6-8 mm)		
LZX972	Sleeve sc-sensor cable 5-pole, IP67 (6-8 mm)		
LZX987	Plug sc-probe cable 5-pole, IP67 (4-6 mm, grey cable)		
LZX986	Plug and sleeve sc-probe cable 5-pole, IP67 (4-6 mm, grey cable)		
LZY339	sc sensor cable 100 m		
LZY340	sc sensor cable 200 m		
LZY359	sc sensor cable 400 m		
5867000	Junction box for sc sensors (not for sc1000)		
LZY598	sc1000 Modbus TCP/IP License Kit Serial Nr. of Display required !!		
<u>MODBUS TCP / IP & GSM Options</u>			
LZY598	MODBUS TCP/IP License Kit		
LZY553	Outdoor EtherNet Kit		
YAB055	GSM- Module for sc1000: Data phone MC55 GSM EU, 900/1800/1900 MHz (ZBA862 + ZBA864)		
LZX956	Antenna for sc1000 Display module, 6 cm, pk/1 being standard of sc1000 Display module + GSM option		
LZX990	sc1000 Antenna for Outdoor Installations, 900/1800 MHz, 2 DB, 30cm length, 5 m cable, pk/1		
LZX955	Antenna Extension cable, 10 m, pk/1 (only for use with external antenna LZX990)		
LZX969	sc-sensor connectors (2 pieces)		
LZX979	Set of caps for sc1000 probe module		
	Note:		
EVX149	CDA service remote contact only in conjunction with HACH LANGE service contract SIM-Card for SC1000 (for HACH LANGE Sales staff only)		
<u>Mounting hardware</u>			
LZX957	sc1000 Pole Mounting Assembly Kit complete Mounting Hardware Kit, incl. Weather guard for outdoor installation near the probe/analyzer		
LZX958	sc1000 weather guard for Outside Installation (also suitable for 2 x sc100 controllers)		
LZX948	Set of small parts for sc1000 roof (LZX958)		
LZX966	Set of small parts mounting hardware sc1000		
LZX355	Wall mounting kit For further details, respectively further parts, please refer to the chapter "Mounting Assembly"		

Controller

sc1000 eco Spare Parts

Part no.	Designation	
<u>Spare Parts for Display Module</u>		
LZX934	Cable for sc1000 display module	
LZX935	Handle belt for sc1000 display module	
LZX924	Display lightning for sc1000 display module	
LZX303	Desiccant	
LZX963	Multi Media Card, min. 16 MB	
LZY520	SD card 1 GB, for sc1000 Display module	
LZY522	USB / SD card Reader	SanDisk MobileMate USB reader
LZY553	Outdoor Ethernet port kit	
<u>Spare Parts for Probe Module</u>		
LZX976	Fuse set	
LZX982	Protection cap für SC-sensor connector	
YYL045	Power cord CH	
YYL046	Power cord GB	
YYL112	Power cord EU	
YYL113	Power cord US	
LZX962	Air fan	
LZX981	Cable gland for rigid metallic conduit, pk/1	
<u>Documentation</u>		
DOC023.52.03260	User Manual, sc1000, GB	
DOC032.53.90073	sc100/1000 - Profibus DP/V1 Quick Reference Document	available at www.hach-lange.com
DOC032.52.90143	sc1000 Enhanced communications, GB, HACH LANGE	available at www.hach-lange.com

Controller

si792 Industrial 2-wire Transmitters (DataSheet DOC063.52.30008)



Technical Data	
Subject to change without notice	
	si792 / si792X Transmitter series
Designation	Micro-processor controlled Industrial Process transmitter for Liquid Analysis
Connection	2-wire micropower technology
Application range	Water, Waste Water, Process
Parameter	pH, ORP, Conductivity/Resistivity/Salinity/Concentration, Dissolved Oxygen please refer to the analytical part for details
Sensor Inputs	1 sensor (model depending)
Display	Liquid Cristal Display (LCD) 7 segments with symbols Main measured value display: character height 17 mm Temperature display: character height 10 mm
Connection Entry	3 knockouts for M20 x 1.5 cable glands 2 knockouts for 1/2" NPT or rigid metallic conduit
Lightning protection	EN 61000-4-5
Specialities:	
Data retention	Parameters and calibration data: > 10 years (EEPROM)
Passcodes	Modifiable according to FDA 21 CFR, Part 11 "Electronic Signatures" (HART only)
Sensor check	
pH/ORP	Automatic monitoring of glass and reference electrode (can be disabled). Delay: 30 seconds
Conductivity (contacting)	Polarization detection and monitoring of cable capacitance
Conductivity (inductive)	Monitoring of primary coil and its lines for short circuit and of secondary and its lines for open circuit
Dissolved Oxygen	Automatic monitoring for short circuits or open circuits (can be disabled). Delay: 30 seconds.
Sensor monitor	Direct display of measured values from sensor for validation
pH/ORP	electrode potential/temperature
Conductivity (contacting)	Resistance/temperature
Conductivity (inductive)	Direct display of measured values from sensor for validation (resistance/temperature)
Dissolved Oxygen	Direct display of uncorrected sensor signal (sensor current/temperature)
Power requirements	
HART	14 – 30 VDC (30 VDC maximum) specially for D.O.: 100 mA maximum, 0.8 W maximum (Ex)
FF and ProfiBus PA	FISCO bus supply: 9 to 17.5 VDC; Linear barrier: 9 to 24 VDC
Loop current—HART	4 – 20 mA floating; 3.80–22.00 mA specifiable
Current consumption	< 13.2 mA
FF and Profibus PA	
Maximum current in case of fault (FDE) — FF and Profibus PA	< 17.6 mA
Measurement error ^{3,4}	< 0.3% of current value + 0.05 mA
to be continued	

¹ Applies to si792(x) C and si792x C-FF transmitter only

² Applies to si792x C-PA transmitter only

³ (± 1 count plus sensor error)

⁴ IEC 746 Part 1, at nominal operating conditions

⁶ si792(x) D and si792x D-FF only

Controller

si792 Industrial 2-wire Transmitters (DataSheet DOC063.52.30008)

Technical Data	
Subject to change without notice	
	si792 / si792X Transmitter series
Communication	
Analog Outputs	1 x 4 – 20 mA linear to measured value or Logarithmic scalable
HART	Digital communication by FSK modulation of loop current, reading of device identification, measured values, status and messages, reading and writing of parameters, start of product calibration, signaling of configuration changes according to FDA 21 CFR Part 11. Output averaging time constant: 0–120 seconds
Foundation Fieldbus (FF H1)	Bus-powered device with constant current consumption. Cyclic and acyclic data exchange. 1 resource block, 1 transducer block, 3 analog input function blocks
pH/ORP specific	selectable: pH, ORP, temperature, Rglass, Rref, slope, asymmetry potential
Conductivity cont. specific	selectable: conductivity, resistivity, concentration, salinity, temperature, cell constant
Conductivity ind. specific	Selectable: conductivity, concentration, salinity, temperature, cell constant
Dissolved Oxygen specific	selectable: O2 saturation, O2 concentration, temperature, zero, slope, volume concentration
	Execution time: 50 ms
	Certified to ITC 4.6
	Physical interface: to IEC 1158-2
	Address range: 017 to 246
Profibus-PA (DPV1)	Bus-powered device with constant current consumption. Cyclic and acyclic data exchange. Physical block, 2 analog input function blocks, 2 discrete input blocks, logbook block, alarm block. PNO directive: PROFIBUS-PA, Profile for Process Control Devices, Version 3.0
	Physical interface: Physical interface: MBP-IS (Manchester Bus Powered-Intrinsically Safe) to IEC 1158-2 (DIN-EN 61158-2)
	Connection: via segment coupler to SPC, PC, PCS
	Address range: 1 to 126
Certification	Certification applies to the controller / does not apply to all sensors
EU Certification	
CE Marked to	EMC Directive 2004/108/EC ATEX Directive 94/9/EC
ATEX Certification	
si792 models	non hazardous areas
si792X models	ATEX II 2 (1) G EEx ib (ia) IIC T6 available for I/O+Hart models; pending for models with FF and PA communication
FM Certification (US)	
si792 models	FM Listed for: non hazardous and Class I, Division 2
si792X models	FM Listed for: Class I, Division 1, Groups A, B, C, D Class II, Division 1, Groups E, F Class III, Division 1 Class I, Zone 0, AEx ia, Group IIC T4 Enclosure: Type 2
CSA Certification (CA)	
si792 models	CSA Certified to: non hazardous and Class I, Division 2
si792X models	CSA Certified to: Class I, Division 1, Groups A, B, C, D Class I, Division 2, Groups A, B, C, D Sensor: Class I, Zone 0, Group IIC Transmitter: Class I, Zone 1, Group IIC Enclosure: Type 2
Environmental:	
Temperature	
Operation	–20 to 55°C (–4 to 131°F), 10 ... 95% r.H. non condensing
Storage	–20 to 70°C (–4 to 158°F), 10 ... 95% r.H. non condensing
Installation style	Wall, pipe and control panel mounting
Material	PBT (Polybutylene terephthalate)
Enclosure rating	IP65
Dimension (Front)	144 x 144 x 27 mm (W x H x D)
Dimension (overall)	144 x 159 x 105 mm (W x H x D)
Weight (approximately)	1 kg
Documentation	Manuals available in GB-D-F-E-I-TR
Warranty	24 month, optionally extendable to 60 month

Controller

si792 Industrial 2-wire Transmitters - Analytical Information

Technical Data	
Subject to change without notice	
si792 / si792X Transmitter series	
si792/si79X P	pH/ORP measurement
Inputs	1 x Input for Combination or Differential pH/ORP Sensors 1 x Input for Glass/reference electrode acc. IEC 746 Part 1, at nominal operating conditions Input resistance—glass electrode $>0.5 \times 10^{12} \Omega$ Input resistance—reference electrode $>1 \times 10^{10} \Omega$ Input current—glass electrode $<2 \times 10^{-12} \text{ A}$ Input current—reference electrode $<1 \times 10^{-10} \text{ A}$
Measuring range	
pH/ORP	– 2.00 to 16.00 pH units
ORP	– 1999 to 1999 mV
Measuring error	
pH/ORP	$< 0.02 \text{ pH units plus sensor error; TC: } 0.002 \text{ pH/K}$
ORP	$<1 \text{ mV plus sensor error; TC: } 0.1 \text{ mV/K}$
Temperature	2-wire connection; accepts Pt100 / Pt1000 / NTC300Ω
Measuring range	
Pt100 / Pt1000	– 20.0 to 200.0°C (–4 to 392°F) applies to models with I/O/HART and FF option – 20.0 to 150.0°C (–4 to 302°F) applies to models with Profibus PA option
NTC300Ω	– 20.0 to 110.0°C (–4 to 230°F) applies to all communication option models
Measurement error ^{3,4}	$< 0.5 \text{ K}$ ($< 1 \text{ K}$ for Pt100; $<1 \text{ K}$ for NTC $>100 \text{ °C}$)
Temperature compensation of sample	Linear –19.99 to 19.99%/K (25°C reference temperature)
Calibration	
pH/ORP	
Offset range	$\pm 60 \text{ mV}$
Slope range	80 to 103% (47.5 to 61 mV/pH unit)
Calibration timer	0 to 9999 hours
ORP	
Calibration range	–700 to 700 mV (si792 P, si792x P and si792x P-FF only)
Calibration timer	0 to 9999 hours (si792 P, si792x P and si792x P-FF only)
si792/si792X D	Dissolved Oxygen
Inputs	1 x Input for Type A sensors: OxyFerm, OxySens Type B sensors: OxyGold G
Measuring current	0–1200 nA; resolution: 20 pA
Measurement error ^{3,4}	0.5% measured value + 0.05 nA
Temperature coeff.	0.005 nA/K
Permitted guard current	$\leq 20 \mu\text{A}$
Polarization voltage	400–1000 mV; resolution: approximately 3 mV
Measuring Range	
% Saturation	0 – 199.9% / 200–500% (–10 to 80 °C)
Concentration	0–9999 µg/L; 0–9999 ppb; 0–50.00 mg/L; 0–50.00 ppm (–10 to 80 °C)
Process pressure	0–9.999 bars (0–999.9 kPa/0–145 PSI)
Pressure correction	0–9.999 bars (0–999.9 kPa/0–145 PSI)
Salinity correction	0–45 ‰ [g/kg]
Calibration	
Type A sensor	Slope 25–130 nA (25 °C, 1013 mbars); Zero point $\pm 2 \text{ nA}$
Type B sensor	Slope 200–550 nA (25 °C, 1013 mbars), Zero point $\pm 2 \text{ nA}$
Timer	0 to 9999 hours, adjustable
Temperature	2-wire connection; accepts NTC30kΩ / NTC22kΩ
Measuring Range	– 20.0 to 150.0°C (–4 to 302°F)
Adjustment range	10 K
Resolution	0.1°C; 0.1°F
Measurement error ^{3,4}	$< 0.5 \text{ K}$ ($< 1 \text{ K}$ at $T >100 \text{ °C}$)
to be continued	

Controller

si792 Industrial 2-wire Transmitters - Analytical Information

Technical Data	
Subject to change without notice	
	si792 / si792X Transmitter series
si792/si79X C	Conductivity measurement (conductive/contacting)
Measuring principle	Conductive (contacting)
Measuring range	
2 EL Procedure	0.2 μ S - 200 mS
4 EL Procedure	0.2 μ S - 1000 mS
Resolution	3 / 2 / 1 / 0 decimals in measuring range $10^1 / 10^2 / 10^3 / 10^4$ μ S/cm; mS/cm; S/cm
Resistivity	0.000 – 9.999 M Ω /cm, 00.00 – 99.99 M Ω /cm, 000.0 – 999.9 M Ω /cm
Concentration	
NaCl	0.00 – 9.99% by weight 0 – 100°C (32–212°F)
HCl	0.00 – 9.99% by weight 0 – 50°C (32–122°F)
NaOH	0.00 – 9.99% by weight 0 – 100°C (32–212°F)
H2SO4	0.00 – 9.99% by weight 0 – 110°C (32–230°F)
HNO3	0.00 – 9.99% by weight 0 – 50°C (32–122°F)
Salinity	0.0 – 45‰ (0 – 35 °C)
USP	00.00 – 99.99 μ S/cm
Measurement error	< 1% measured value + 0.4 μ S
Temperature	2-wire connection; accepts Pt100 / Pt1000 / NTC 100 k Ω / NTC30k Ω / NTC8.55k Ω
Measuring range	
Pt100 / Pt1000	– 20.0 to 200.0°C (–4 to 392 °F) applies to models with I/O/HART and FF option – 20.0 to 150.0°C (–4 to 302 °F) applies to models with ProfiBus option
NTC 100 k Ω	– 20.0 to 150.0°C (–4 to 302 °F) applies to models with ProfiBus option
NTC 30 k Ω	– 20.0 to 130.0°C (–4 to 266°F)
NTC 8.55 k Ω	– 20.0 to 130.0°C (–4 to 266°F) applies to models with I/O/HART and FF option
Adjustment range	10 K
Resolution	0.1°C; 0.1°F
Measurement error ^{3,4}	< 0.5 K (< 1 K for Pt100;<1 K for NTC >100 °C)
Temperature compensation of sample	
Linear	by entry of temperature coefficient (00.00–19.99%/K). T _{ref} = 25 °C
Non-linear	for natural waters according to EN 27888
NaCl (Ultra-pure)	for ultrapure water with NaCl traces (0–120 °C)
HCl (Ultra-pure)	for ultrapure water with HCl traces (0–120 °C)
NH3 (Ultra-pure)	for ultrapure water with NH3 traces (0–120 °C)
Off	Temperature compensation turned off / Conductivity at current Temperature
si792/si79X T	Conductivity measurement (torroidal/inductive)
Measuring principle	Inductive procedure
compatible sensors	7MA2200 series, 3700 series, 8398 series
Measuring range	
Conductivity	0.00–1999 mS/cm
Concentration	0–100% by weight
Salinity	0.0–45 ‰ (0–35 °C)
Resolution	
Conductivity	3 / 2 / 1 / 0 decimals in measuring range $10^1 / 10^2 / 10^3 / 10^4$ μ S/cm; mS/cm; S/cm
Concentration	0.00–100.0% by weight
Salinity	0.0–45 ‰ (0–35 °C)
Measurement error ^{3,4}	< 1% measured value + 0.02 mS/cm
Temperature	2-wire connection; accepts Pt100 / Pt1000 / NTC30k Ω / NTC100k Ω
Measuring range	
Pt100 / Pt1000	– 20.0 to 200.0°C (–4 to 392 °F)
NTC 30 k Ω	– 20.0 to 150.0°C (–4 to 302 °F) applies to models with ProfiBus option
NTC 100 k Ω	– 20.0 to 130.0°C (–4 to 266°F)
Adjustment range	10 K
Resolution	0.1°C; 0.1°F
Measurement error ^{3,4}	< 0.5 K (< 1 K for Pt100;<1 K for NTC >100 °C)
Concentration	
NaCl	0 – 26% at 0 °C 0 – 28% at 100 °C (212 °F)
HCl	0 – 18% at –20 °C (–4 °F) 0 – 18% at 50 °C (122 °F) 22 – 39% at –20 °C (–4 °F) 22–39% 50 °C (122 °F)
NaOH	0–13% 0 °C (32 °F) 0–24% 100 °C (212 °F) 15–50% 0 °C (32 °F) 35–50% 100 °C (212 °F)
H2SO4	0–26% –17 °C (1.4 °F) 0–37% 110 °C (230 °F) 28–88% –17 °C (1.4 °F) 39–88% 115 °C (239 °F) 94–99% –17 °C (1.4 °F) 89–99% 115 °C (239 °F)
HNO3	0–30% –17 °C (1.4 °F) 0–30% 50 °C (122 °F) 35–96% –20 °C (–4 °F) 35–96% 50 °C (122 °F)

Controller

si792 Industrial 2-wire Transmitters

Part No. **Designation**

si792 transmitter series

L X V 5 0 x . 9 9 . 7 x x 0 2

Model option

si792 P	pH / ORP	.....	0
si792 C	Conductive / Contacting Conductivity	.....	1
si792 T	Inductive Conductivity 7MA2200 and 8398 sensors	....	2
si792 E	Inductive Conductivity 3700 sensors	.....	3
si792 D	Dissolved Oxygen	.....	4

Language / Country Code Selection

Protection class / Communication option

non EEx: 1 x I/O with HART	(Standard)	.....	0	0
ATEX Zone 1: 1 x I/O with HART	.....		0	1
ATEX Zone 1: PROFIBUS PA	.....		6	1
ATEX Zone 1: FOUNDATION FIELDBUS	.....		7	1



Note:

Instrument Manuals are currently available in English, German, French, Spanish, Italian and Turkish. According to ATEX requirements, the seller/reseller must provide a manual in local language. Therefore the si792X series Transmitters may have limitations to sales. Please contact HACH LANGE.

Optional Mounting assembly

LZY483	Pipe Mount Installation Kit for si79X Transmitter series, pk/1
LZY484	Panel Mount Installation Kit, for si79X Transmitter series, pk/1
LZY576	Pole Mounting Assembly Kit, for si79X Transmitter series complete Mounting Hardware Kit, incl. Pole 1.8m, Socket, Weather guard for outdoor installation composed of: "Pipe Mount" Installation Kit for si79X Transmitter series, pk/1 Weather guard, for si79X Transmitter series Mounting pipe, 1.8 m, 40mm Ø Stand Installation kit
LZY483	
LZY485	
HRO304	
ATS010	
LZX416	

Optional accessories

LZY718	Isolating power supply HART, ATEX zone 1, for DIN rail mounting, pk/1 to supply a two wire transmitter, output 4-20 mA, intrinsically safe entrance 4 -20 mA with EEX IA/IB IIB/IIC, auxiliary energie UC 24V
LZY719	Isolating power supply HART, ATEX zone 1, for DIN rail mounting, pk/1 to supply a two wire transmitter, output 4-20 mA, intrinsically safe entrance 4 -20 mA with EEX IA/IB IIB/IIC, auxiliary energie AC 95-253V, secondary 24 VDC

Spare Parts

LZY485	Protective Hood si792 / si794
LZY486	si79X, Installation Kit
LZY487	Rear Housing, for si79X Transmitter series, pk/1

Documentation

DOC086.98.00794	Documentation Package, si792 Transmitter series, CD-ROM, pk/1 include Manuals, QuickStart Guides, ATEX EC type examination certificates, FM / CSA control drawings, Declaration of Conformity (CE), Device Descriptions for system integration in HART, Profibus PA and Foundation Fieldbus networks
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Controller

si794 Industrial 4-wire Transmitters (DataSheet DOC063.52.30008)



si794 E-Chem transmitter,

4-wire technique,
variable power supply 20...253 V AC/DC,
4 relais contacts,
2 analog current outputs,
PID controller,
2 parameter sets,
several supported languages in the embadded software
German, English, French, Italian, Spanish.

Technical Data	
Subject to change without notice	
	si794 Transmitter series
Designation	Micro-processor controlled Industrial Process transmitter for Liquid Analysis
Connection	4-wire micropower technology
Application range	Water, Waste Water, Process
Parameter	pH, ORP, Conductivity/Resistivity/Salinity/Concentration, Dissolved Oxygen/D.O. trace please refer to the analytical part for details
Sensor Inputs	1 sensor (model depending)
Display	Liquid Cristal Display (LCD) 7 segments with symbols Main measured value display: character height 17 mm Temperature display: character height 10 mm
Connection Entry	3 knockouts for M20 x 1.5 cable glands 2 knockouts for 1/2" NPT or rigid metallic conduit
Protection	
Lightning protection	EN 61000-4-5
Electrical safety	Safe electrical isolation of all extra-low-voltage circuits against mains by double insulation according to EN 61010-1
Specialities:	
Data retention	Parameters and calibration data: > 10 years (EEPROM)
Sensor check	
pH/ORP	Automatic monitoring of glass and reference electrode (can be disabled). Delay: 30 seconds
Conductivity	
contacting	Polarization detection and monitoring of cable capacitance
inductive	Monitoring of primary coil and its lines for short circuit and of secondary and its lines for open circuit
Dissolved Oxygen	Automatic monitoring for short circuits or open circuits (can be disabled)
Dissolved Oxygen trace	Automatic monitoring for short circuits or open circuits (can be disabled)
Sensor monitor	
pH/ORP	Provides information on the sensor condition. Evaluation of zero/slope, response time, calibration interval, Sensocheck
Conductivity	
contacting	Resistance/temperature
inductive	Direct display of measured values from sensor for validation (resistance/temperature)
Dissolved Oxygen (si794D + D trace)	Provides information on the sensor condition. Evaluation of zero/slope, response time, calibration interval, Sensocheck
Mode indication	5 mode indicators "meas", "cal", "alarm", "cleaning", "config" 18 further icons for configuration and messages
Alarm indication	Red LED in case of alarm or HOLD, user defined
Service functions	Current specifiable for output 1 and 2 (0 ... 22 mA) Controller output entered directly (start of control process) Device self-test (automatic memory test: RAM, FLASH, EEPROM) Display test of all segments Display of last error occurred Sensor monitor (see above) manual control of 4 Relay contacts
Power requirements	
	24 (-15%) ... 230 (+10%) V AC/DC autoswitching, 45 ... 65 Hz; ~ 5VA, 2.5W
	Overvoltage category II, protection class II
to be continued	

* user selectable

¹ IEC 746 Part 1, at nominal operating conditions

² ± 1 count

³ plus sensor error

Controller

si794 Industrial 4-wire Transmitters (DataSheet DOC063.52.30008)

Technical Data	
Subject to change without notice	
si794 Transmitter series	
Communication/Outputs	
Analog Outputs	2 x 0/4 – 20 mA linear to measured value or Logarithmic scalable 22 mA in case of error messages
Output 1	0/4 – 20 mA, max. 10V, floating (galvanically connected to output 2)
Measurement Error	< 0.3% current value + 0.05 mA
Averaging filter	low pass, filter time interval: 0 ... 120 sec
Process variable	
pH/ORP specific	pH or mV signal Start/end of scale: Configurable within the measuring range for pH or mV Span allowed: pH 2.00 ... 18.00 / 200 ... 3000 mV
Conductivity specific	
si794 C & si794 I	Conductivity, resistivity, concentration or salinity Start/end of scale: Configurable within the measuring range Minimum Span: linear: 5% of selected range logarythmic: 1 decade
Dissolved Oxygen	D.O. concentration or saturation Start/end of scale: Configurable within the measuring range Span allowed: 5 - 500%, 0.5 - 50 mg/l/ppm
Output 2	0/4 – 20 mA, max. 10V, floating (galvanically connected to output 1)
Measurement Error	< 0.3% current value + 0.05 mA
Averaging filter	low pass, filter time interval: 0 ... 120 sec
Process variable	
pH/ORP specific	Temperature Start/end of scale: 20 ... 200 °C (-4 ... 392°F) Span allowed: 20 ... 220 K (36 ... 396°F)
Conductivity specific	
si794 C & si794 I	Temperature Start/end of scale: 20 ... 200 °C (-4 ... 392°F) Span allowed: +20 ... 320 K (36 ... 608°F)
Dissolved Oxygen	Temperature Start/end of scale: 20 ... 200 °C (-4 ... 392°F) Span allowed: +20 ... 170 K (68 ... 338°F)
Power Output	for operating an ISFET adapter
pH specific	+3 V (V0 = 2.9 ... 3.1 V / Ri = 360 Ω -3 V (V0 = -4.8 ... -3,7 V / Ri = 360 Ω
HOLD Input	Galvanically separated (OPTO coupler)
Function	Switches analyzer to HOLD mode
Switching Voltage	inactive 0 ... 2 V (AC/DC) active 10 ... 30 V (AC/DC)
CONTROL Input	
Function	
pH	Control input for automatic cleaning/calibration system
Conductivity	
si794 C	Switch-over to second parameter set
si794 I	Switch-over to second parameter set
Dissolved Oxygen	Control input for automatic cleaning
Switching Voltage	inactive 0 ... 2 V (AC/DC) active 10 ... 30 V (AC/DC)
Controller function	PID; output via relay contacts
pH specific	Relais R1: base valve Relais R2: acid valve
Setpoint specs	pH -2.00 ... 16.00 / -1500 ... +1500 mV
Neutral zone	pH 0.00 ... 5.00 / 0000 ... 500 mV
Conductivity specific	Setpoint and Neutral zone as desired within measuring range
D.O. specific	Relais R1: below setpoint Relais R2: above setpoint
Setpoint specs	0 - 500%; 0.00 - 50.0 mg/l / ppm
Neutral zone	0.0 - 50%; 0.00 - 5.00 mg/l / ppm
P action component	Controller gain KR: 0010 ... 9.999 %
I action component	Reset time Tr: 0000 ... 9.999 s (0000 s = no integral action)
D action component	Rate time Td: 0000 ... 9.999 s (0000 s = no derivative action)
Controller type	Pulse length or pulse frequency controlled
Pulse period	0001 ... 0600 s, min. ON time 0.5 (pulse length controller)
Max. pulse frequency	0001 ... 0180 min ⁻¹ (pulse frequency controller)

Controller

si794 Industrial 4-wire Transmitters (DataSheet DOC063.52.30008)

Technical Data	
Subject to change without notice	
	si794 Transmitter series
Limit values	Output via relay contacts R1, R2
	Contacts R1, R2 floating but inter-connected
Contact ratings	AC< 250 V / < 3 A / < 750 VA DC< 30 V / < 3 A / < 90 W
Contact response	N/C oder N/O
Delay	0000 ... 9.999 s
Set points	as desired within range; user selectable
Hysteresis	
pH specific	00.00 ... 05.00 pH / 0000 ... 0500 mV
Conductivity specific	0 ... 50% full scale
Dissolved Oxygen	00.00 - 50.0%, 00.00 - 05.00 mg/l / ppm
Alarm contact	Relay contact, floating
Contact ratings	AC< 250 V / < 3 A / < 750 VA DC< 30 V / < 3 A / < 90 W
Contact response	N/C (fail safe type)
Delay	0000 ... 0600 s
Parameter Sets	
pH/ORP specific	2 selectable parameter sets for different applications; user selectable
Conductivity specific	same Please refer to manual for further details
Environmental:	
Temperature	
Operation	-20 to 55°C (-4 to 131°F), 10 ... 95% r.H. non condensing
Storage	-20 to 70°C (-4 to 158°F), 10 ... 95% r.H. non condensing
Installation style	Wall, pipe and control panel mounting
Material	PBT (Polybutylene terephthalate)
Enclosure rating	IP65 / NEMA 4X
Dimension (Front)	144 x 144 x 27 mm (W x H x D)
Dimension (overall)	144 x 159 x 105 mm (W x H x D)
Weight (approximately)	1 kg
Documentation	Manuals available in GB-D-F-E-I-TR
Certification	
EMC	EN 61326 (industrial levels)
Warranty	24 month, optionally extendable to 60 month

Controller

si794 Industrial 4-wire Transmitters (DataSheet DOC063.52.30008)

Technical Data	
Subject to change without notice	
	si794 P Transmitter model
	pH/ORP measurement
Inputs	1 x Input for Combination pH/ORP Sensors (ISFET possible)
	1 x Input for Glass/reference electrode acc. IEC 746 Part 1, at nominal operating conditions
	Input resistance—glass electrode $>0.5 \times 10^{12} \Omega$
	Input resistance—reference electrode $>1 \times 10^{10} \Omega$
	Input current—glass electrode $<2 \times 10^{-12} \text{ A}$
	Input current—reference electrode $<1 \times 10^{-10} \text{ A}$
Measuring range	
pH/ORP	– 2.00 to 16.00 pH units
ORP	– 1999 to 1999 mV
Measuring error	
pH/ORP	$< 0.02 \text{ pH units plus sensor error; TC: } 0.002 \text{ pH/K}$
ORP	$<1 \text{ mV plus sensor error; TC: } 0.1 \text{ mV/K}$
Temperature	2-wire connection; accepts Pt100 / Pt1000 / NTC30k Ω / NTC8.5 Ω / NTC3k Ω
Measuring range	
Pt100 / Pt1000	– 20.0 to 200.0°C (–4 to 392°F)
NTC30k Ω	– 20.0 to 150.0°C (–4 to 302°F)
NTC8.5k Ω	– 10.0 to 130.0°C (–4 to 266°F)
NTC30 Ω	– 0.0 to 100.0°C (+32 to 212°F)
Resolution	0.1°C / 1°F
Measurement error ^{1,2,3}	$< 0.5 \text{ K}$ ($< 1 \text{ K}$ for Pt100; $<1 \text{ K}$ for NTC $>100 \text{ °C}$)
Temperature compensation of sample	Linear –19.99 to 19.99%/K (25°C reference temperature)
Calibration	
Calibration timer	0 to 9.999 hours
pH	automatic Buffer recognition, manual input of buffer values, data-entry of pre-measured electrodes
Zero adjustment	$\pm 200 \text{ mV}$
Offset range	$\pm 60 \text{ mV}$
Slope range	80 to 103% (47.5 to 61 mV/pH unit)
Calibration timer	0 to 9.999 hours
ORP	
Calibration range	–700 to 700 mV
Calibration timer	0 to 9.999 hours
to be continued	

Controller

si794 Industrial 4-wire Transmitters (DataSheet DOC063.52.30008)

Technical Data	
Subject to change without notice.	
si794 D & si794 D trace Transmitter models	
Dissolved Oxygen	
Inputs	1 x Input for Type A sensors: OxyFerm, OxySens Type B sensors: OxyGold
Measuring current si794 D si794 D trace	-2 - 1800 nA; resolution: 0.05 nA 0 - 600 nA; resolution: 0.01 nA
Measurement error ^{1,2,3}	
si794 D	0.5% measured value + (0.5% or 0.05 mg/l or 0.05 ppm)
si794 D trace	0.5% measured value + (0.005 mg/l or 0.005 ppm)
Permitted guard current	≤ 20 µA
Polarization voltage	0 - 1000 mV; resolution 3 mV
Measuring Range	
% Saturation	
si794 D	0 - 500% (-10 to 80 °C)
si794 D trace	0 - 120% (-10 to 80 °C)
Concentration	
si794 D	0 - 50.00 mg/L; 0 - 50.00 ppm (-10 to 80 °C)
si794 D trace	0 - 9999 µg/l / ppb; 0.000 - 9.999 µg/l / ppb; 0.00 - 50.00 ppm (-10 to 80 °C)
Process pressure	0-9.999 bars (0-999.9 kPa/0-145 PSI)
Pressure correction	0-9.999 bars (0-999.9 kPa/0-145 PSI)
Salinity correction	0-45 ‰ [g/kg]
Calibration	
Type A sensor	Slope 25-130 nA (25 °C, 1013 mbars); Zero point ± 2 nA
Type B sensor	Slope 200-550 nA (25 °C, 1013 mbars); Zero point ± 2 nA
Timer	0 to 9999 hours, adjustable
Temperature	2-wire connection; accepts NTC30kΩ / NTC22kΩ
Measuring Range	- 20.0 to 150.0°C (-4 to 302°F)
Adjustment range	10 K
Resolution	0.1°C; 0.1°F
Measurement error ^{1,2,3}	< 0.5 K (< 1 K at T >100 °C)
to be continued	

 **Note:** The trace resolution (display ppb, µg/L) can only be used with the SI794 D tr

Controller

si794 Industrial 4-wire Transmitters (DataSheet DOC063.52.30008)

Technical Data	
Subject to change without notice	
	si794 C Transmitter model
	Conductivity measurement (conductive/contacting)
Measuring principle	Conductive (contacting)
Measuring range	
2 EL Procedure	0 µS - 999.9 mS depending on cell constant k of selected sensor
k = 0.01	0.01 - 200 µS/cm model 8310
k = 0.1	0.1 - 2,000 µS/cm model 8311
k = 1.0	1 - 20,000 µS/cm model 8312
4 EL Procedure	0.2 µS - 999.9 mS depending on cell constant k of selected sensor
k = 0.0471	0.2 ... 500 mS/cm model 7MA2100
Resolution	3 / 2 / 1 / 0 decimals in measuring range $10^1 / 10^2 / 10^3 / 10^4$ µS/cm; mS/cm; S/cm
Resistivity	00.00 – 99.99 MΩ/cm
Concentration	
NaCl	0.00 – 9.99% by weight 0 – 60°C (32–212°F)
HCl	0.00 – 9.99% by weight -20 – 50°C (32–122°F)
NaOH	0.00 – 9.99% by weight 0 – 100°C (32–212°F)
H2SO4	0.00 – 9.99% by weight -17 – 110°C (32–230°F)
HNO3	0.00 – 9.99% by weight -17 – 50°C (32–122°F)
Salinity	0.0 – 45‰ (0 – 35 °C)
USP	00.00 – 99.99 µS/cm
	Water monitoring in the pharmaceutical industry (USP) with additional user-defined limit value (%), output via relay contact
Measurement error	< 1% measured value + 0.4 µS / cm
Response time T ₉₀	< 1 sec at SensoCheck off; < 3 sec at SensoCheck on
Temperature	2-wire connection; accepts Pt100 / Pt1000 / NTC30kΩ / NTC8.5Ω
Measuring range	
Pt100 / Pt1000	– 20.0 to 200.0°C (–4 to 392°F)
NTC30kΩ	– 20.0 to 150.0°C (–4 to 302°F)
NTC8.5kΩ	– 10.0 to 130.0°C (–4 to 266°F)
Resolution	0.1°C / 1°F
Measurement error ^{1,2,3}	< 0.5 K (< 1 K for Pt100; < 1 K for NTC > 100 °C)
Temperature compensation of sample	
Linear	by entry of temperature coefficient (00.00–19.99%/K). T _{ref} = 25 °C
Non-linear	for natural waters according to EN 27888
NaCl (Ultra-pure)	for ultrapure water with NaCl traces (0–120 °C)
HCl (Ultra-pure)	for ultrapure water with HCl traces (0–120 °C)
NH3 (Ultra-pure)	for ultrapure water with NH3 traces (0–120 °C)
Off	Temperature compensation turned off / Conductivity at current Temperature
Calibration/Standardisation	
	manual input of cell constant (permissible cell constant: k = 0.05 ... 19.999 cm ⁻¹)
	manual input of standard solution
	Single point process calibration
	Temperature probe adjustment
to be continued	

si794 Industrial 4-wire Transmitters (DataSheet DOC063.52.30008)

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Controller

si794 Industrial 4-wire Transmitters (DataSheet DOC063.52.30008)

Part No. **Designation**

si794 transmitter series

L	X	V	5	0	x	.	9	9	.	0	0	0	0	2
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Model option

si792 P	pH / ORP	5
si794 C	Conductive/Contacting Conductivity (2EL / 4EL)	6
si794 I	Inductive Conductivity (3700/2200 sensor series)	7
si794 D	Dissolved Oxygen	8
si794 D tr	Dissolved Oxygen trace	9

Language / Country Code Selection

 **Note:** Transmitter comes with individual testing report, user manual ("DIN A6"), printed version english, CD-ROM including manuals in 5 languages, Quick start guide (printed version, 5 languages) Instrument Manuals are currently available in English, German, French, Spanish, Italian and Turkish

Optional Mounting assembly

LZY484	Panel Mount Installation Kit, for si79X Transmitter series, pk/1
LZY576	Pole Mounting Assembly Kit, for si79X Transmitter series complete Mounting Hardware Kit, incl. Pole 1.8m, Socket, Weather guard for outdoor installation composed of: "Pipe Mount" Installation Kit for si79X Transmitter series, pk/1
LZY483	Weather guard, for si79X Transmitter series
LZY485	Mounting pipe, 1.8 m, 40mm Ø
HRO304	Stand
ATS010	Installation kit
LZX416	

Spare Parts

LZY487	Rear Housing, for si79X Transmitter series, pk/1
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Documentation

DOC083.98.90130	Documentation Package, si794 Transmitter series, CD-ROM, pk/1 include Manuals, QuickStart Guides and Safety Instructions
DOC083.98.90130	SI794 P User Manual
DOC083.98.90130	SI794 I User Manual
DOC083.98.90130	SI794 C User Manual
DOC083.98.90130	SI794 D User Manual
DOC083.98.90130	SI794 D tr User Manual

Controller

MONEC 9135 Single Channel pH/ORP Controller



The MONEC 9135 is a single channel pH/ORP transmitter and has been designed to operate with a wide range of analogue pH and ORP sensors for measuring and/or continuous control of pH/Temperature or Redox potential (ORP) in nearly all non-hazardous applications .

Equipped with Standard and specific temperature compensation, user selectable calibration methods, integrated controller and autodiagnostic functions and finally several communication outputs, the MONEC series stands for reliable and precise measurements in the field of Drinking water, Waste water and Industrial applications, as well as for Pure and Ultrapure Water applications.

Technical Data	
Subject to change without notice	
	MONEC 9135 pH/ORP Transmitter
Designation	Single channel pH/ORP Transmitter for respective measurement
Applications	Drinking and waste water Industrial process control : chemical, petrochemical, pulp and paper, food and beverage, sugar, steel, surface treatment industries Pure and Ultrapure water analysis : steam generation and electricity production, semiconductors, pharmaceutical industries
Analysis	
pH	-3 ... 14 pH
ORP	-1500 ... 1500 mV
Temperature	Pt100 or Pt1000: -20 ... 200°C (4 to 392°F)
Resolution	0.01 pH/0.1 pH (adjustable) / 1 mV / 0.1°C
Calibration	2 point (automatic & manual), 1-point process
Control function	frequency mode, pulse modes, combined, bidirectional proportional function
Sensor control	Autodiagnostic of the measurement loop by impedance control
Cable glands	2 x PG13 and 2 x PG11
Connections	2.5 mm ² terminals with screws demountable terminals for the mains and relays
Cable length	0 ... 25 m (high impedance) 0 ... 100 m (low impedance)
Temperature	
Operation	- 20°C ... 60°C (4 to 140°F), 10 ... 90% relative Humidity, non condensing
Storage	- 20°C ... 70°C (4 to 158°F)
Compensation	Nernst, ultrapure water, different tables
Supported electrode types	- glass (with or without preamplifier) - antimony - redox - programmable (slope + Uiso + pHiso)
Outputs	2 x 0/4-20 mA galvanically separated; freely selectable, scaleable - linear, bilinear or logarithmic 4 Relays optional (250 VAC, 3 A max., 100 VDC, 0,5 A max.) optional MODBUS RS485 Profibus DP
Power requirements	100 ... 240 VAC, ±10% 50/60 Hz, 25 VA autoswitching
Low Voltage version (optional)	13 ... 30 VAC, 50/60 Hz 18 ... 42 VDC
Installation style	wall, pipe and control panel mounting
Material	Polyester-coated Aluminum housing
Enclosure rating	IP65 (NEMA 4X)
Dimensions	144 x 144 x 150 mm (5.7 x 5.7 x 5.9 inches) (W x H x D)
Weight (approximately)	2 kg (4.4 lbs)
Remarks:	Multi-lingual display: English, French, German, Italian, Spanish, Dutch
Warranty	24 month, extendable to 60 month

Controller

MONEC 9135 Single Channel pH/ORP Controller

Part No.	Designation
Z09135=A=0000	MONEC 9135 , pH/ORP Controller

Z 0 9 1 3 5 = A = 0 0 x x											
Measure											
pH/Temperature/ORP 3 5											
Power Supply & Outputs Options											
110...240 VAC + 2 x I/O Output										0	0
110...240 VAC + 2 x I/O Output + 4 Relays										0	4
110...240 VAC + 2 x I/O Output + RS485 MODBUS										1	1
110...240 VAC + 2 x I/O Output + RS485 MODBUS + 4 Relays										1	5
110...240 VAC + 2 x I/O Output + ProfiBus DP										1	2
110...240 VAC + 2 x I/O Output + ProfiBus DP + 4 Relays										1	6
Low Voltage Version + 2 x I/O Output										2	0
Low Voltage Version + 2 x I/O Output + 4 Relays										2	4
Low Voltage Version + 2 x I/O Output + RS485 MODBUS										3	1
Low Voltage Version + 2 x I/O Output + RS485 MODBUS + 4 Relays										3	4
Low Voltage Version + 2 x I/O Output + ProfiBus DP										3	5
Low Voltage Version + 2 x I/O Output + ProfiBus DP + 4 Relays										3	6

Standard accessories (supplied with the instrument)

The transmitter comes in a cardboard box with instruction manual, 4 cable glands, screws for panel mounting, and a quality certificate of conformity to specifications.

Optional Accessories

Z09135=T=0000	MONEC 9125 Transmitter Detailed test certificate
Z09125=A=1485	Profibus DP kit with board for 91xx / 92xx and Operator Manual

Documentation

Z621=191=035	Instruction manual in English 9135
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 **Note:** Please consider our Preference Packages in addition and refer to the Chapter "Electrochemistry"

Controller

MONEC 912X Conductivity/Resistivity/Concentration Controller



The MONEC 9125 transmitter and associated measuring sensors have been designed for measuring and continuous control of Conductivity, Resistivity or Concentration (with possibility of temperature measurement) in municipal and industrial processes.

Equipped with Standard and specific temperature compensation, user selectable calibration methods, integrated controller and autodiagnostic functions and finally several communication outputs, the MONEC series stands for reliable and precise measurements in the field of Drinking water, Waste water and Industrial applications, as well as for Pure and Ultrapure Water applications.

The Dual Channel conductivity Controller has a Calculation function allowing calculation of:

- Percent accepted: $C2/C1 * 100$ [%]
- Percent rejected: $(1 - C2/C1) * 100$ [%]
- Difference: $C1 - C2$
- Ratio: $C1/C2$

Technical Data	
Subject to change without notice	
MONEC 912X Mono and Dual channel conductivity transmitters	
Designation	Mono and Dual channel conductivity transmitter depending on selected model
Applications	Drinking and waste water Industrial process control : chemical, petrochemical, pulp and paper, food and beverage, sugar, steel, surface treatment industries Pure and Ultrapure water analysis : steam generation and electricity production, semiconductors, pharmaceutical industries
Analysis	
Conductivity	
Conductive sensors	
Cell constant [m-1]	k = 0.01 k = 0.10 k = 1.0
Measuring range	0.01 µS/cm ... 200 µS/cm 0.1 µS/cm ... 2 mS/cm 1 µS/cm ... 20 mS/cm
Inductive sensors	
Cell constant [m-1]	k = 1.0 k = 2.35 k = 10
Measuring range	50 µS/cm ... 1 S/cm 200 µS/cm ... 2 S/cm 1 mS/cm ... 10 S/cm
Temperature	Pt100 or Pt1000: -20 ... 200°C (4 to 392°F)
Concentration ¹	HCl 0...18%, HNO ₃ 0...30%, H ₂ SO ₄ 0...30%, NaOH 0...15%, NaCl 0...26%
Resolution	min. 0.001 µS/cm, 0.1°C
Calibration	Electric, 1 point or 2 points against standard or manual entry of cell constant
Control function	frequency mode, pulse modes, combined, bidirectional proportional function
Sensor control	continuous autoadaptive sensor frequency for polarization compensation with system alarm
Cable entry	2 x PG13 and 2 x PG11 cable glands
Connections	2.5 mm ² terminals with screws demountable terminals for the mains and relays
Cable length	100 m maximum
Temperature	
Operation	- 20°C ... 60°C (4 to 140°F), 10 ... 90% relative Humidity, non condensing
Storage	- 20°C ... 70°C (4 to 158°F)
Compensation	fixed programmable coefficient in %/°C or in %/°F - non-linear, for ultrapure water - non-linear, freely programmable for concentration - specific software to conform to USP pharmaceutical regulations
Supported electrode types	Conductive and Inductive sensors
Outputs	2 x 0/4-20 mA galvanically separated; freely selectable, scaleable - linear, bilinear or logarithmic 4 Relays optional (250 VAC, 3 A max., 100 VDC, 0,5 A max.) optional MODBUS RS485 Profibus DP
Power requirements	100 ... 240 VAC, ±10% 50/60 Hz, 25 VA autoswitching
Low Voltage version (optional)	13 ... 30 VAC, 50/60 Hz 18 ... 42 VDC
Installation style	wall, pipe and control panel mounting
Material	Polyester-coated Aluminum housing
Enclosure rating	IP65 (NEMA 4X)
Dimensions	144 x 144 x 150 mm (5.7 x 5.7 x 5.9 inches) (W x H x D)
Weight (approximately)	2 kg (4.4 lbs)
Remarks:	Multi-lingual display: English, French, German, Italian, Spanish, Dutch
Warranty	24 month, extendable to 60 month

¹ applies to 9125 Concentration model

Controller

MONEC 912X

Part No.

Designation

Z091XX=A=0000

MONEC 912X, Conductivity/Resistivity/Concentration Controller

Z 0 9 1 x x = A = 0 0 x x

Controller / Channel Option			
2 channel	2 0		
1 channel	2 5		
Measurement Option			
<u>1 Channel Analyser model</u>			
Conductivity/Resistivity	0		
Concentration	1		
<u>2 Channel Analyser model</u>			
Conductivity	0		
Power Supply & Outputs Options			
110...240 VAC + 2 x I/O Output	0 0		
110...240 VAC + 2 x I/O Output + 4 Relays	0 4		
110...240 VAC + 2 x I/O Output + RS485 MODBUS	1 1		
110...240 VAC + 2 x I/O Output + RS485 MODBUS + 4 Relays	1 5		
110...240 VAC + 2 x I/O Output + ProfiBus DP	1 2		
110...240 VAC + 2 x I/O Output + ProfiBus DP + 4 Relays	1 6		
Low Voltage Version + 2 x I/O Output	2 0		
Low Voltage Version + 2 x I/O Output + 4 Relays	2 4		
Low Voltage Version + 2 x I/O Output + RS485 MODBUS	3 1		
Low Voltage Version + 2 x I/O Output + RS485 MODBUS + 4 Relays	3 4		
Low Voltage Version + 2 x I/O Output + ProfiBus DP	3 5		
Low Voltage Version + 2 x I/O Output + ProfiBus DP + 4 Relays	3 6		

Standard accessories (supplied with the instrument)

The transmitter comes in a cardboard box with instruction manual, 4 cable glands, screws for panel mounting, and a quality certificate of conformity to specifications.

Optional Accessories

Z09125=T=0000

MONEC 9125 Transmitter Detailed test certificate

Z09125=A=1485

Profibus DP kit with board for 91xx / 92xx and Operator Manual

Documentation

Z621=191=025

Instruction manual in English 9125 Conductivity Analyzer

Z621=191=125

Instruction manual in English 9125 Concentration Analyzer

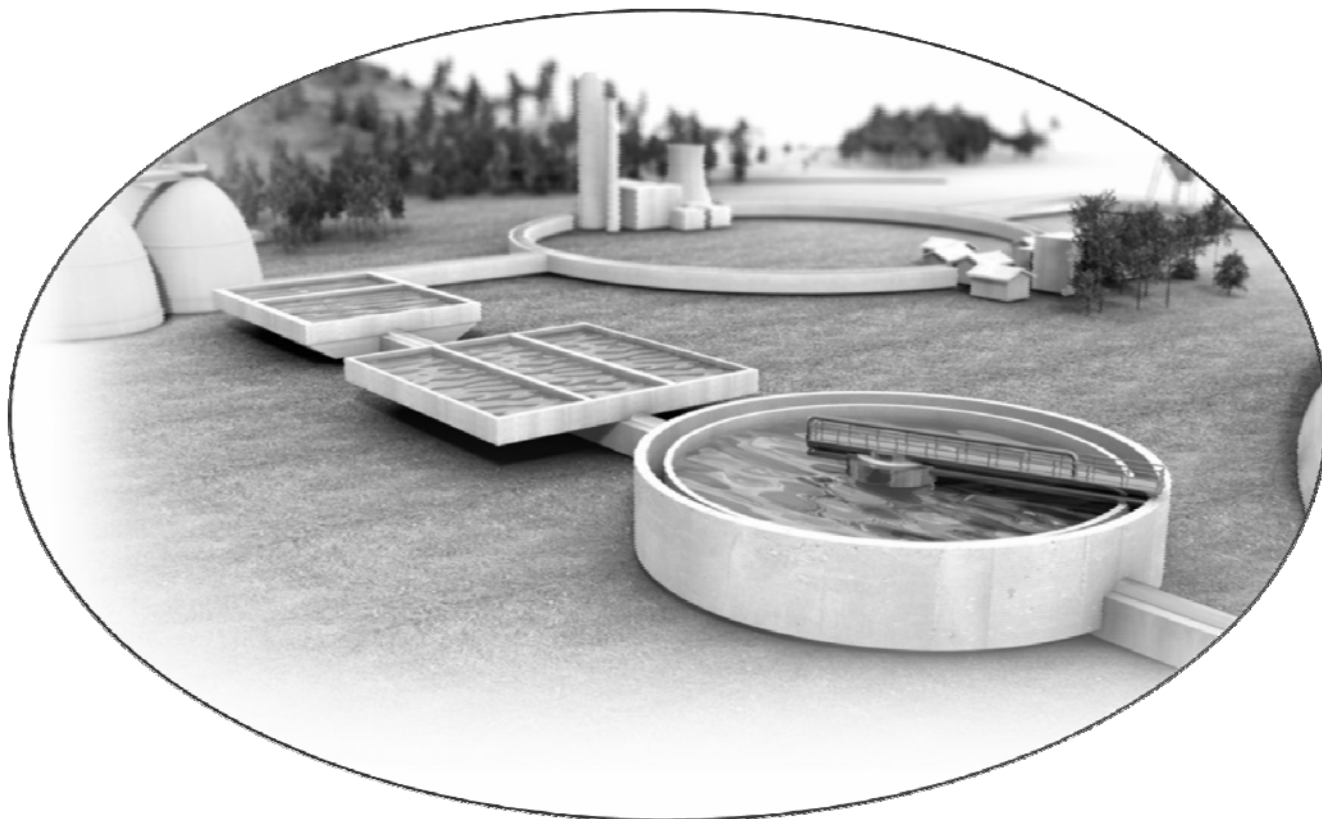


Note:

Please consider our Preference Packages in addition and refer to the Chapter "Electrochemistry"

Electrochemistry

Analytical Systems for pH/ORP/Conductivity and Dissolved Oxygen Measurement in Process



Electrochemistry

Controller overview

Analytical overview Subject to change without notice								
	MONEC series	si792	si792X	si794	sc200	sc60	sc100	sc1000
pH								
Conventional	X	X	X	X	X	X	X	X
Differential	-	X ^B	X ^B	-	X	X	X	X
ORP								
Conventional	X	X	X	X	X	X	X	X
Differential	-	X ^B	X ^B	-	X	X	X	X
Conductivity								
Conductive 2 EL	X	X	X	X	X	X	X	X
Conductive 4 EL	-	X	X	X	X	-	-	-
Inductive/Torroidal	X ¹	X	X ¹	X	X	X	X	X
Concentration	X ¹	X	X ¹	X	X	X	X	X
Dissolved Oxygen								
Drinking Water	-	X	X	X	X	X	X	X
Waste Water	-	X	X	X	X	X	X	X
Ultra-Pure	X	X	X	si794D tr	-	-	-	-
Food & Beverage	-	X	X	X	-	-	-	-
N° of Channels								
1	X	X	X	X	X	X	-	-
2	-	-	-	-	X	-	X	-
Multi	-	-	-	-	-	-	-	X
Communication Protocols								
I/O	2 x I/O	1 x I/O	1 x I/O	2 x I/O	2 x I/O*	2 x I/O	2 x I/O	multiple
HART	-	X	X	-	X	-	-	-
MODBUS	X	-	-	-	X	X	X	X
PROFIBUS PA	-	X	X	-	X	-	-	-
PROFIBUS DP	DP V1.0	-	-	-	DP V1.0	DP V1.0	DP V1.0	DP V1.0
Foundation Fieldbus	-	X	X	-	-	-	-	-
Power	4 wire	2 wire	2 wire	4 wire	4 wire	4 wire	4 wire	4 wire
	13...30 VAC 50/60 Hz 18...42 VDC 100...240 VAC 50/60Hz	14 ... 30 VDC for HART FISCO bus supply: 9 to 17.5 VDC; Linear barrier: 9 to 24 VDC for FF and PA		20-253 V AC/DC 45- 65 Hz	24 VDC -15%/+20% 100-230 VAC ± 10%, 50/60Hz			
Relays	0 or 4	-	-	2	4	3	3	internal or external
Enclosure rating	IP65 (NEMA4) (NEMA4X optional)	IP65 (NEMA4) (NEMA4X optional)	IP65 (NEMA4) (NEMA4X optional)	IP65 (NEMA4) (NEMA4X optional)	IP66 (NEMA 4X)	IP66 (NEMA 4X)	IP66 (NEMA 4X)	IP66 (NEMA 4X)

Notes: 1 depending on sensor model

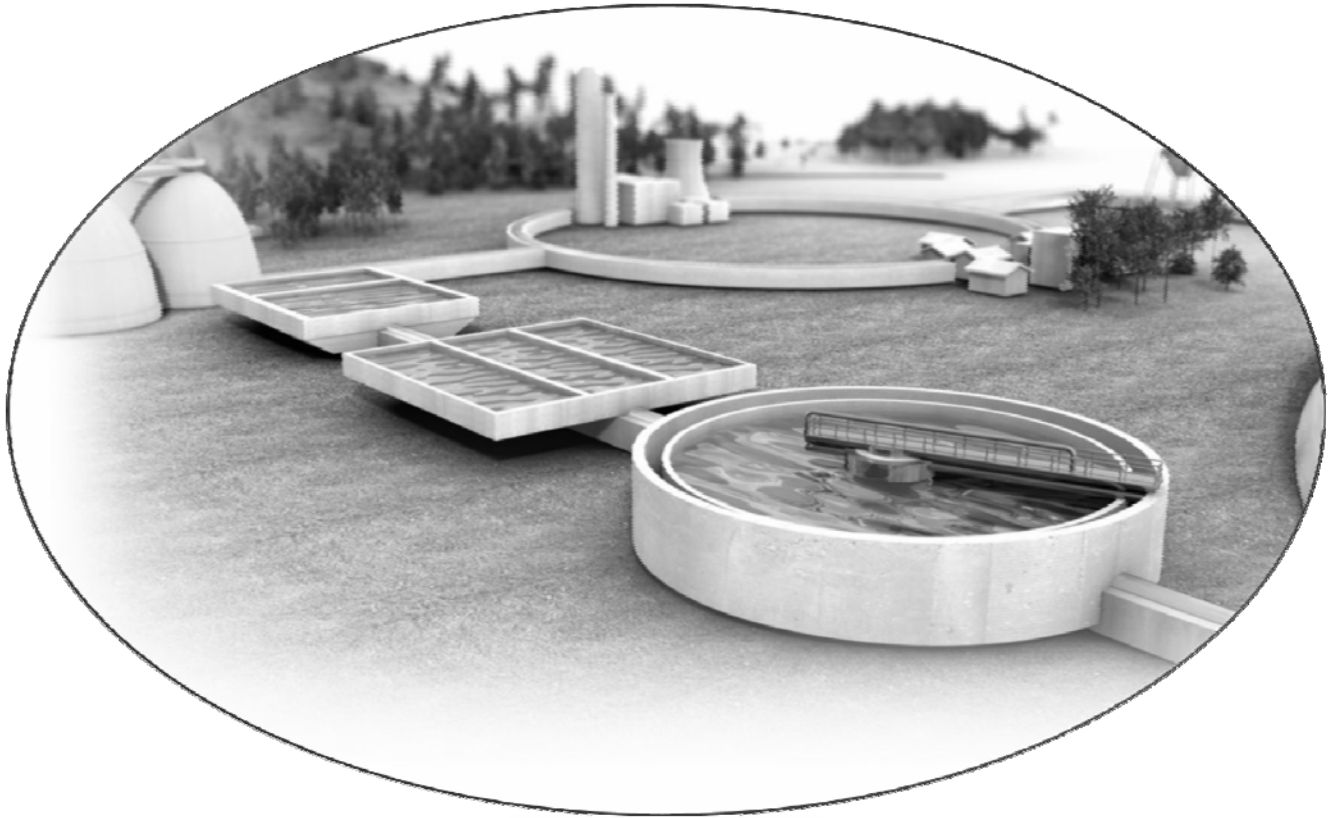
A requires 2 channel input

* extendable to 5 outputs

B no ATEX Certification; US Certification: Class 1 Div1

Electrochemistry

Analytical Solutions for pH/ORP Measurement in Process



Electrochemistry pH

General overview



MONEC 9135



SI 792



SI 794

Controller compatibility										
sc 200 / sc 1000	x									
sc 200 / sc 1000 + ADpHD										
sc 200 / sc 1000 + AD1200 sc		x	x	x	x	x	x	x	x	x
sc 200 + pH/ORP/DO Module		x	x	x	x	x	x	x	x	x
SI 792		x	x	x	x	x	x	x	x	x
SI 794		x	x	x	x	x	x	x	x	x
MONEC 9135	x	x	x	x	x	x	x	x	x	x

Cable fixed length or Top connector	AS9 screw head	S7 screw head	TOP68 plug	S7 screw head	SMEK plug	10m fixed cable	S7 screw head	S7 screw head	TOP68 plug	S7 screw head
Cable with top connector										
3 m cable	Z359016,10110	LZY037 (5m)	LZX547 (5m)	LZY037 (5m)	LZY021 (5m)		LZY037 (5m)	LZY037 (5m)	LZX548 (5m)	LZU1003.99
5 m cable	Z359016,10120	LZY031 (10m)	LZX534 (10m)	LZY031 (10m)	LZY581 (10 m)		LZY031 (10m)	LZY031 (10m)	LZX516 (10m)	LZY021 (5m)
10 m cable	Z359016,10122	Z359016,10122		Z359016,10122	LZY582 (20m)		Z359016,10122	Z359016,10122		LZY581 (10 m)
20 m cable										LZU1015.99
pH sensors & Temperature sensors										
Sensor model	8362	LZY025	LTLCON PT100	LZX885	LZY027	8350 series	8418B	8416	PRO140_PT100	LZY023
Part No.	Z08362-A=0000	LZY025	LZX537	LZX885	LZY027	Z08350-X=000X	Z368418,00000	Z368416,00000	LZX546	
			LTLCON LZX536				Z368418,00000	Z368416,00000	PRO140 LZX545	

Electrode specs										
pH range	2...12	0 ... 14	2 ... 11	0 ... 14	2 ... 13	0 ... 14	0 ... 14	2...14	0 ... 14	2 ... 13
Temperature	0...80°C	-30°C ... 80°C	-20°C ... 50°C	0 ... +80°C	0°C ... +100°C	0°C ... +110°C	0°C ... +100°C	0°C ... +110°C	-5°C ... +135°C	0°C ... +100°C
P _{max} @ T _{max}	4 bar @ 25°C	max. 6 bar	max 3.5 bar		max. 10 bar	10 bar @ 80°C	max 2.5 bar	16bar @ 25°C	max 34 bar1	max. 10 bar
Temperature sensor	Pt100, class A	no	LTLCONPT100	no	Pt1000	Pt100	no	no	PRO140PT100	none
			Pt100 integrated						Pt100 integrated	
			LTLCON w/o						PRO140 w/o	
Reference electrode	combination glass electrode for pure water applications	Liquid KCl electrolyte, refillable, Ag/AgCl	KCl, saturated KCl/AgCl crystal	EVEREF B double liquid junction, POLY-LITE Polymer	Polymer electrolyte, Ag/AgCl	Polymer electrolyte, KNO3 and KCl	Gel, Argenthal	Argenthal, XEROLYT (solid KCl gel)	Gel KCl/AgCl + KNO3	Polymer electrolyte, Ag/AgCl
Electrode shaft material	see datasheet	Glass	PES (Polyethersulfon)	Glass	Glass	PPS (Polyphenylene Sulphide)	Glass	Glass	Glass	Glass
Diaphragm		triple ceramic diaphragm	ring diaphragm porous Teflon	2 open holes	hole diaphragm	porous Teflon	ceramic junction	open junction	ring diaphragm, porous Teflon double	Annular gap
Application	ultra-pure and pure water application	Boiler Feed and Ultra-pure water, water <100 µS/ cm Conductivity, plating baths, critical media	Drinking water, ground water, surface water of low temperature (below 5°C) and low conductivity (10...100 µS/cm)	general purpose, withstand organic solvents, liquids with low ion concentration or partly aqueous samples	Service water, waste water, suspensions, food processing, organic solvents, hot acids and caustics	Horizontal, Vertical or up-side down mounting Water and WW Treatment, Coagulation and Flocculation Process, Monitoring and Control Pulp Stock Applications, Ore Separation	general application, drinking water	gel pH electrode for industry applications, pressurized gel for high pressure applications, samples contain proteins, sulfides, emulsion, suspensions, high acid solutions etc.	industrial process water, harsh conditions, high temperature, high pressure, sterilizable	Drinking water, waste water and process water
not suitable for	other applications than pure water		Temp > 5°C, conductivity > 100µS/cm	water contain fluoride with pH<6	water contain fluoride with pH<6	water contain fluoride with pH<6	sterilization, autoclaving process, water containing fluoride with pH<6	sterilization, autoclaving process, water containing fluoride with pH<6	water containing fluoride with pH<6	water contain fluoride with pH<6

Pure Water	X	X								
Potable Water			specialy for low temperature low conductivity	X	X	X > 100µS/cm	X > 100µS/cm			x
Food & Beverage				X not sterilizable	X not sterilizable				X Sterilizable	
In-process				X	X	X	X	suited for high temperature/ high pressure applications		
Waste Water										x
Neutralisation				X	X			X		x
Industrial influent				X	X	X		X		
Municipal influent				X	X	X				x
Aeration				X	X	X				x
Digester										
Effluent				X	X	X				x
Documents	DOC053.52.90082	DOC053.52.90096			DOC053.52.90093	Doc. Number 221=683=050			DOC053.52.90093	DOC053.52.90093

Note:

suitable for critical media, e.g. plating baths, solvents etc.

recommended as Standard electrode for standard applications

recommended as Standard electrode for standard applications



MONEC 9135



SI 792



SI 794

Controller compatibility										
sc 200 / sc 1000										
sc 200 / sc 1000 + ADpHD										
sc 200 / sc 1000 + AD1200 sc	x	x	x	x	x	x	x	x	x	x
sc 200 + pH/ORP/DO Module	x	x	x	x	x	x	x	x	x	x
SI 792	x	x	x	x	x	x	x	x	x	x
SI 794	x	x	x	x	x	x	x	x	x	x
MONEC 9135	x	x	x	x	x	x	x	x	x	x
Cable fixed length or Top connector	S8 screw head	S8 screw head	S8 screw head	MP-4 plug	MP-4 plug	TOP68 plug	5m fixed cable	3 m fixed cable	S7 screw head	S7 screw head
Cable with top connector										
3 m cable	LZU1003.99	LZU1003.99	LZU1003.99	LZU9300.99	LZU9300.99				LZY037 (5m)	LZY037 (5m)
5 m cable	LZU1005.99	LZU1005.99	LZU1005.99	LZU9301.99	LZU9301.99				LZY031 (10m)	LZY031 (10m)
10 m cable	LZU1010.99	LZU1010.99	LZU1010.99	LZU9302.99	LZU9302.99	LZX548 (5m)			Z359016,10122	Z359016,10122
20 m cable	LZU1015.99	LZU1015.99	LZU1015.99	LZU9303.99	LZU9303.99	LZX516 (10m)				
pH sensors & Temperature sensors										
Sensor model	LZU5300.98.0002	LZU5303.98.0002	LZU5330.98.0002	LZU5334T.98.002	LZU5336T.98.002	HIGHPH_PT100	pHPULP_PT100	PHRET_PT100	Pt1000	Pt1000
Part No.						LZX540	LZX475	LZX477	LZY473	LZY029
								PHRET LZX476		
Electrode specs										
pH range	0 ... 14	0 ... 14	0 ... 14	0 ... 14	0 ... 14	1 ... 14	1 ... 14	0 ... 14	-30°C ... +135°C	-30°C ... +135°C
Temperature	0°C ... +80°C	0°C ... +80°C	0°C ... +100°C	0°C ... +100°C	0°C ... +80°C	0°C ... +80°C	-5°C ... 135°C	-5°C ... 135°C	10 bar	10 bar
p _{max} @ T _{max}	max. 6 bar	max. 6 bar	max. 5 bar	max. 5 bar	max. 6 bar	3.5 bar	10 bar @ 25°C 7.0 bar @ 100°C 3.5 bar @ 120°C	max 15 bar		
Temperature sensor	none	none	none	Pt 1000	Pt 1000	LZX540 Pt100 integrated	Pt 100	PHRETPT100 Pt100 integrated PHRET w/o		
Reference electrode	Ag/AgCl wire Gel electrolyte	Cartridge Gel electrolyte	Cartridge Gel electrolyte	Cartridge Gel electrolyte	Cartridge Gel electrolyte	Gel KCl/AgCl	exterior EPH gel; interior KCl/AgCl	KCl/AgCl + KNO3 gel		
Electrode shaft material	Glass	Glass	Glass	Glass	Glass	PES (Polyethersulfon)	Stainless Steel	Stainless Steel	Stainless Steel, Mat. 1.4571	Glass
Diaphragm	Ceramic	3 Ceramics	ring of porous PTFE	ring of porous PTFE	3 Ceramics	ring diaphragm, porous Teflon	ring diaphragm porous Teflon double	ring diaphragm porous Teflon double		
Application	Swimming pools, drinking waters. Aqueous samples in general.	Swimming pools, drinking water, gas scrubbing towers, boiler waters, detoxification, outlet waters from a waste water treatment plant (WWTP), etc.	Waste water, galvanising industry, osmosis processes, demineralized water, dirty or viscous samples , etc.	Waste water, galvanising industry, osmosis processes, demineralized water, dirty or viscous samples , etc.	Swimming pools, drinking water, gas scrubbing towers, boiler waters, detoxification, outlet waters from a waste water treatment plant (WWTP), etc.	suitable for high pH values, range of 9...14	Inline applications; optional retractable; sterilizable suitable up to 15% TS content, Pulp, Paper, high temperature	Inline applications, high temperature, sterilizable	General purpose T- sensor for non- corrosive applications	General purpose T- sensor
not suitable for	Low conductivity, dirty or viscous solutions.	Low-conductivity solutions. Viscous or dirty solutions able to clog quickly the diaphragm.			Low-conductivity solutions. Viscous or dirty solutions able to clog quickly the diaphragm.		water contain fluoride with pH<6	waste water, water contain high solids; use PHPULP, water contain fluoride with pH<6		
Pure Water									X	X
Potable Water	x	x			x				X	X
Food & Beverage		x	x	x					X	X
In-process						specially for high pH	X	X	X	X
Waste Water										
Neutralisation			x			specially for high pH	X	X	X	X
Industrial influent			x	x			X		X	X
Municipal influent									X	X
Aeration									X	X
Digester									X	X
Effluent	x	x			x				X	X
DOC013.97.90261 DOC013.97.90262 DOC013.97.90263 DOC013.97.90275 DOC013.97.90277										

recommended as
low cost version
for retractable
inline applications
with non-
demanding
conditions

     					
Controller compatibility					
sc 200 / sc 1000		x	x	x	x
sc 200 / sc 1000 + ADpHD	x				
sc 200 / sc 1000 + AD1200 sc					
sc 200 + pH/ORP/DO Module					
SI 792					
SI 794					
MONEC 9135					
Cable fixed length or Top connector	6 m fixed cable	10 m fixed cable	10 m fixed cable	10 m fixed cable	7.7 m fixed cable
Cable with top connector 3 m cable 5 m cable 10 m cable 20 m cable	n.a.	n.a.	n.a.	n.a.	n.a.
pH sensors & Temperature sensors					
Sensor model Part No.	pHD series PDXXX.99	pHD sc series DPDXXX.99	pHD S sc LXV427.99.10001	1200 S sc LXV426.99.10001	8362 sc 6178002
Electrode specs					
pH range	-2...14 (1)	-2...14 (1)	0 ... 14	0 ... 14	2 ... 12
Temperature	-5 ... 95°C	-5 ... 70°C	0 ... 50°C	-5 ... 50°C	0 ... 80°C
P _{max} @ T _{max}	6.9bar@105°C	6.9 bar@70°C	max 2 bar overpressure	max 2 bar overpressure	4 bar @ 25°C
Temperature sensor	NTC3000hm	NTC3000hm	NTC3000hm	Pt100	Pt100, class A
Reference electrode	Differential pH electrode with high impedance glass	Differential pH electrode with high impedance glass	Differential pH electrode with high impedance glass	combination glass electrode with EVEREF B double liquid junction, POLYLITE Polymer	combination glass electrode for pure water
Electrode shaft material	see datasheet	see datasheet	see datasheet	see datasheet	see datasheet
Diaphragm	salt bridge (pHD) with Kynar® (PVDF)			2 open holes	
Application	PEEK: most process solutions Ryton: less aggressive process solutions, non-oxidizing, water-based acid, alkaline and salt solutions, all common automotive fluids; PD1P3.99 respectively DPD1P3.99 weak HF conc (<1%) or intermittent, when Fluorides are present, pH never below 6	less aggressive process solutions, non-oxidizing, water-based acid, alkaline and salt solutions, all common automotive fluids	less aggressive process solutions, non-oxidizing, water-based acid, alkaline and salt solutions	pure water	
not suitable for	Ryton: not for very acidic and very alkaline solutions, Non-oxidizing organic chemicals have little effect; amines, aromatic compounds and halogenated compounds may cause swelling and softening over extended periods of time at elevated temperatures;	Ryton: oxidizing, concentrated acid, alkaline and salt solutions Stainless steel: no corrosive liquids or high chloride concentrations, water contain fluoride with pH<6	corrosive liquids or high chloride concentrations, water contain fluoride with pH<6	other applications than pure water and clean water	
Pure Water					X
Potable Water	X	X			
Food & Beverage					
In-process	X	X			
Waste Water					
Neutralisation	X	X	X	X	
Industrial influent	X	X	X	X	
Municipal influent		X	X	X	
Aeration		X	X	X	
Digester	X	X			
Effluent		X	X	X	
	DOC 053.52.00013	DOC 053.52.00013	DOC023.52.03251	DOC023.52.03253	DOC053.53.90082

⚠ Note: (1) model depending

Electrochemistry pH/ORP ATEX

General overview



SI 792 X



Isolating power supply
LZY718/LZY719

for EEX

Cable fixed length or Top connector	Coaxial	Coaxial	Coaxial	SMEK	SMEK
Cable with top connector					
3 m cable	LZY037 (5m)	LZY037 (5m)	LZY037 (5m)	LZY021 (5m)	LZY021 (5m)
5 m cable	LZY803 (10m)	LZY803 (10m)	LZY803 (10m)	LZY581 (10m)	LZY581 (10m)
10 m cable					
20 m cable					
pH sensors ORP sensors & Temperature sensors					
Sensor model	LZY796.98	LZY795.98	LZY794.98	LZY783.98	LZY826

Coaxial	Coaxial
LZY037 (5m)	LZY037 (5m)
LZY803 (10m)	LZY803 (10m)
LZY028.98	LZY792.98

Electrode specs					
pH/ORP range	2 ....13 pH	2 ....12 pH	2 ....13 pH	2 ....13 pH	2 ....13 pH
Temperature	0 ....100	-5 +80	-5 +80	0 +100	0 +100
P_{max} @ T_{max}	max. 10 bar	max. 0,5 bar	max. 10 bar	max. 10 bar	max. 10 bar
Temperature sensor	no	no	no	yes Pt1000	yes Pt100
Electrolyte	Polymer with visible KCl reserve	Gel with visible KCl reserve	Gel with visible KCl reserve	Polymer with visible KCl reserve	Polymer with visible KCl reserve
Electrode shaft material	Glass	Glass	Glass	Glass	Glass
Diaphragm	KPG ring diaphragm	ceramic diaphragm	3x ceramic diaphragm	hole diaphragm	KPG ring diaphragm
Application	clear water, waste water	pure water	pure water <100µS/cm	waste water	clear water, waste water
ATEX certification	EEx II 1/2 G Ga/Gb Ex ia IIC T3/T4/T6	EEx II 1/2 G Ga/Gb Ex ia IIC T3/T4/T6	EEx II 1/2 G Ga/Gb Ex ia IIC T3/T4/T6	EEx II 1/2 G Ga/Gb Ex ia IIC T3/T4/T6	EEx II 1/2 G Ga/Gb Ex ia IIC T3/T4/T6

+/-2000 mV ORP	+/-2000 mV ORP
-5 +100°C	0 ....140°C
max. 10 bar	max. 10 bar
no	no
Polymer with visible KCl reserve	Gel with KCl reserve
Glass	Glass
KPG ring diaphragm	Ceramic
waste water	waste water
EEx II 1/2 G Ga/Gb Ex ia IIC T3/T4/T6	EEx II 1/2 G Ga/Gb Ex ia IIC T3/T4/T6

Pure Water		x	x		
Potable Water	x			x	x
Food & Beverage	x			x	x
In-process					
Waste Water	x			x	x
Neutralisation					
Industrial influent	x			x	x
Municipal influent	x			x	x
Aeration					
Digester					
Effluent	x			x	x

	x
x	x
x	x
x	x
x	x
x	x

Electrochemistry ORP

General overview



MONEC 9135



si794



si792

sc 200 / sc 1000											
sc 200 / sc 1000 + ADpHD											
sc 200 / sc 1000 + AD1200 sc	x	x	x	x	x	x	x	x	x	x	x
sc 200 + pH/ORP/DO Module	x	x	x	x	x	x	x	x	x	x	x
SI 792	x	x	x	x	x	x	x	x	x	x	x
SI 794	x	x	x	x	x	x	x	x	x	x	x
MONEC 9135	x	x	x	x	x	x	x	x	x	x	x

Cable fixed length or Top connector	10 m fixed cable	S7 screw head	S8 screw head	S8 screw head	S8 screw head	S8 screw head	S8 screw head	S8 screw head	fixed cable	S7 screw head	S7 screw head
Cable with top connector											
3 m cable			LZU1003.99	LZU1003.99	LZU1003.99	LZU1003.99	LZU1003.99	LZU1003.99	3m fixed cable		
5 m cable		LZY037 (5m)	LZU1005.99	LZU1005.99	LZU1005.99	LZU1005.99	LZU1005.99	LZU1005.99		LZY037 (5m)	LZY037 (5m)
10 m cable		LZY031 (10m)	LZU1010.99	LZU1010.99	LZU1010.99	LZU1010.99	LZU1010.99	LZU1010.99		LZY031 (10m)	LZY031 (10m)
20 m cable		Z359016,10122	LZU1015.99	LZU1015.99	LZU1015.99	LZU1015.99	LZU1015.99	LZU1015.99		Z359016,10122	Z359016,10122
ORP sensors & Temperature sensors											
Sensor model Part No.	8351 Z08351=C=0000	LZY028	LZU5350.97.0002	LZU5354.97.0002	LZU5362.97.0002	LZU5361.97.0002	LZU5355.97.0002	LZU5358.97.0002		Pt1000 LZY473	Pt1000 LZY029

Electrode specs											
ORP range	± 1500 mV	± 2000 mV	± 2000 mV	± 2000 mV	± 2000 mV	± 2000 mV	± 2000 mV	± 2000 mV	± 2000 mV		
Temperature	0°C ... +110°C	0°C ... +100°C	0°C ... +100°C	0°C ... +80°C	0°C ... +80°C	0°C ... +80°C	0°C ... +80°C	0°C ... +80°C	0°C ... +55°C	-30°C ... +135°C	-30°C ... +135°C
P _{max} @ T _{max}	10 bar @ 80°C 3.5 bar @ 110°C	max. 6 bar	max. 5 bar	max. 6 bar	max. 6 bar	max. 6 bar	max. 6 bar	max. 2 bar	max. 6 bar	10 bar	10 bar
Temperature sensor	non Platinum	non Platinum	non Platinum	non Gold	non Platinum	non Platinum	non Platinum	non Platinum	non Platinum		
Redox sensing element	Polymer electrolyte, KNO3 and KCl	Gel electrolyte, non-refillable Ag/AgCl	Cartridge Gel electrolyte, Ag/AgCl	encapsulated Ag/AgCl crystals Gel electrolyte,	encapsulated Ag/AgCl crystals Gel electrolyte,	Ag wire coated with AgCl	encapsulated Ag/AgCl crystals solid electrolyte,	encapsulated Ag/AgCl crystals solid electrolyte,			
Reference electrode											
Electrode shaft material	PPS (Polyphenylene Sulphide)	Glass (Duran)	Glass	Glass	Glass	interior glass / exterior PC	Glass	Glass	Glass	Stainless Steel, Mat. 1.4571	Glass
Diaphragm	porous Teflon	Glass	ring of porous PTFE	Ceramic	3 Ceramics	Ceramic	open circular	Ceramic			
Application	General purpose Horizontal, Vertical or up-side down mounting	General purpose	Waste water, galvanising industry, osmosis processes, demineralized water, dirty or viscous samples, etc.	Acid samples containing Fe or Cr.	Swimming pools, drinking water, gas scrubbing towers, boiler waters, detoxification, outlet waters from a waste water treatment plant (WWTP), etc.	Swimming pools, drinking waters. Aqueous samples in general.	Dirty water, with mud, wastewater, etc.	Swimming pools, drinking waters. Aqueous samples in general.		General purpose T-sensor for non-corrosive applications	General purpose T-sensor
not suitable for	water contain fluoride with pH<6	water contain fluoride with pH<6		Low-conductivity solutions. Viscous or dirty solutions able to clog quickly the diaphragm.	Low-conductivity solutions. Viscous or dirty solutions able to clog quickly the diaphragm.	Low conductivity, dirty or viscous solutions. Products with colloids or solids in suspension. Samples containing substances which react with the silver ion.	Rapid alteration of the polymer by: solutions with pH < 2, very clean water, distilled and de-mineralised water. Temperature > 80°C. Pressure > 2 bar. This electrode is not recommended for installation on pipe.	Low conductivity, dirty or viscous solutions. Products with colloids or solids in suspension. Samples containing substances which react with the silver ion.			

Pure Water		X									
Potable Water	X	X			x	x		x			
Food & Beverage	X	X	x				x				
not sterilizable	X	X									
In-process	X	X		x							
Waste Water			x				x				
Neutralisation		X	x				x				
Industrial influent	X	X	x				x				
Municipal influent	X	X					x				
Aeration	X	X					x				
Digester											
Effluent	X	X			x						

Documents

Document Number
221=683=050

DOC053.52.90093

DOC013.97.90281

DOC013.97.90283

DOC013.97.90287

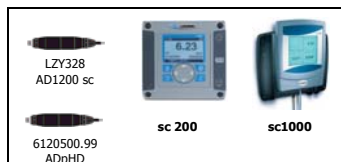
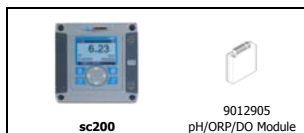
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Electrochemistry ORP

General overview



sc 200 / sc 1000					
sc 200 / sc 1000 + ADpHD	x				
sc 200 / sc 1000 + AD1200 sc					
sc 200 + pH/ORP/DO Module					
SI 792					
SI 794					
MONEC 9135					

Cable fixed length or Top connector	6 m fixed cable	10 m fixed cable	10 m fixed cable	10 m fixed cable	7.7 m cable
Cable with top connector					
3 m cable					
5 m cable					
10 m cable					
20 m cable					
ORP sensors & Temperature sensors					
Sensor model Part No.	pHD series RDXXX.99	pHD sc series DRDXXX.99	pHD S sc LXV427.99.20001	1200 S sc LXV426.99.20001	8362 sc 6178003

Electrode specs					
ORP range	± 1500 mV	± 1500 mV	± 2000 mV	± 1500 mV	± 1500 mV
Temperature	-5 ... 95°C	-5 ... 70°C	0 ... 50°C	-5 ... 50°C	0 ... 80°C
P _{max} @ T _{max}	6.9 bar @ 105°C	6.9 bar @ 70°C	max 2 bar overpress	max 2 bar overpressure	4 bar @ 25°C
Temperature sensor	NTC3000hm	NTC3000hm	non Platinum	non Platinum	Pt100, class A Platinum
Redox sensing element	Platinum Optional: Gold	Platinum Optional: Gold	Platinum	Platinum	Platinum
Reference electrode	Differential pH electrode with high impedance glass	Differential pH electrode with high impedance glass	Differential pH electrode with high impedance glass	combination glass electrode with EVEREF B double liquid junction, POLYLITE Polymer	combination glass electrode for pure water
Electrode shaft material	see datasheet	see datasheet	see datasheet	see datasheet	see datasheet
Diaphragm	salt bridge (pHD) with Kynar® (PVDF)	salt bridge (pHD) with Kynar® (PVDF)	salt bridge (pHD) with Kynar® (PVDF)	Glass	Glass
Application	PEEK: most process solutions Ryton: less aggressive process solutions, non-oxidizing, water-based acid, alkaline and salt solutions, all common automotive fluids; PD1R3.99 respectively DPD1R3.99 for weak HF conc (<1%) or intermittent, when Fluorides are present, pH never below 6		less aggressive process solutions, non-oxidizing, water-based acid, alkaline and salt solutions, all common automotive fluids	less aggressive process solutions, non-oxidizing, water-based acid, alkaline and salt solutions	pure water
not suitable for	Ryton: not for very acidic and very alkaline solutions, Non-oxidizing organic chemicals have little effect; amines, aromatic compounds and halogenated compounds may cause swelling and softening over extended periods of time at elevated temperatures		Ryton: oxidizing, concentrated acid, alkaline and salt solutions Stainless steel: no corrosive liquids or high chloride concentrations, water contain fluoride with pH<6	corrosive liquids or high chloride concentrations, water contain fluoride with pH<6	other applications than pure water

Pure Water					X
Potable Water	X	X			
Food & Beverage					
In-process	X	X			
Waste Water					
Neutralisation	X	X	X	X	
Industrial influent	X	X	X	X	
Municipal influent		X	X	X	
Aeration		X	X	X	
Digester	X	X			
Effluent		X	X	X	

DOC 053.52.00013 DOC 053.52.00013 DOC023.52.03251 DOC023.52.03253 DOC053.53.90082

pHD pH/pHD ORP S sc

Digital Differential pH & ORP Immersion sensors (DataSheet DOC053.52.03255)



pHD sc - high class differential sensors for operation life

pHD™ Differential Electrode Measurement Technique uses 3 electrodes instead of the 2 normally used in conventional pH sensors. Process and reference electrodes measure the pH differentially with respect to a third ground electrode. The end result is unsurpassed measurement accuracy, reduced reference junction potential, and elimination of sensor ground loops. These sensors provide greater reliability, resulting in less downtime and maintenance.

Due to its special design, the reference system of the pHD S sc electrode is protected by a salt-bridge and does not come in contact with the media being immersed.

As a result, poisoning of the reference electrode cannot attack the electrode and reduces necessary cleaning and maintenance intervals.



Controller compatibility



sc200



sc1000

Technical Data		
Subject to change without notice		
	pHD S sc pH	pHD S sc ORP
Sensor style	Differential pH sensor	Differential ORP sensor with Platinum/Titanium electrode
Temperature sensor	NTC300 integrated	NTC300 integrated
Measuring range		
pH/ORP	0 ... 14 pH	±2000 mV
Temperature	-5°C ... 75°C	-5°C ... 75°C
Accuracy		
pH/ORP	± 0.02 pH	± 5 mV
Temperature	± 0.5°C	n.a.
Sensitivity	± 0.01 pH	± 0.5 mV
Stability	0.03 pH / 24h non cumulative	2 mV/24h non cumulative
Response time T ₉₀		
pH, mV	T90 < 5 sec	T90 < 5 sec
Temperature	T90 < 2 min	T90 < 2 min
Temp. compensation	Automatic or manual	none
Calibration	Automatic - 1 or 2 point with buffer, manual 1 or 2 point with buffer	Manual 1 point, factory calibrated
Process connection	Immersion style, chain or pole mounting with appropriate mounting hardware	
Sample pressure p _{max}	20 m immersion depth (corresponding to 2 bar)	
Flow velocity v _{max}	3 m/s	
Temperature		
Operation	-5°C ... 50 °C	
Storage	-20°C ... 60°C; 95 % relative humidity, non-condensing	
Materials		
Sensor Housing	Stainless steel metal housing with Ryton® (PVDF) ends and salt bridge	
Sensor cable	Polyurethane, 4 conductor with shield, rated to 105°C	
other materials	Ryton (PVDF) Salt Bridge: Ryton (PVDF) Glass process electrode Titanium Ground electrode Viton-O-ring seal	Ryton (PVDF) Salt Bridge: Ryton (PVDF) Glass & Platinum process electrode Titanium Ground electrode Viton-O-ring seal
Sensor cable	10 m hardwired, with encapsulated IP 68 connector, extendable with sc sensor cables up to 110m	
Power consumption	< 7 W	
Dimensions	44 mm x 342 mm (Ø x L)	
Weight	approx. 0.9 kg	
Controller compatibility	any sc controller out of sc controller series (sc 200 / sc1000)	
Warranty	1 year warranty / 24 month pro-rated replacement	

pHD pH/pHD ORP S sc

Digital Differential pH & ORP Immersion sensors (DataSheet DOC053.52.03255)

Part No. Designation

LXV427.99.10001 **pHD S sc**, Digital sensor, with 10 m connection cable, without sc controller

L X V 4 2 7 . 9 9 . x 0 0 0 1

Language / Country Code Selection

Measure option

pH sensor (pH 0...14) 1
ORP sensor with Platinum electrode (± 2000 mV) 2



Note:

sc Digital Controller, and sc extension cables must be ordered separately
For technical data, interfaces and additional costs, refer to the chapter sc controller/display units
The maximum cable length between the sensor and controller is limited to 100m.
Using different cables instead of the below mentioned, will void the warranty.
2 Please refer to Appendix C for more details about manuals and user interfaces in different available languages
For suitable Mounting hardware, please refer to the chapter "E-Chem Mounting Hardware".
For pH Buffer and ORP Reference Solutions, please refer to chapter Appendix A "Reagents and Consumables"
For Service contract with Warranty extensions, commissioning and trainings please refer to Appendix B

Replacements/Consumables

Replacement Salt Bridge

The double junction salt bridge on the standard cell of all Hach pHD™ Differential technique sensors is field-replaceable. Each salt bridge has a ceramic inner junction, Viton O-ring, and contains binary, equi-transferrant fill solution. (Salt bridges are shipped in a salt solution.)

pHD sc & pHD sensors sensor body material	Salt bridge material outer junction	
PEEK	Kynar (PVDF)	
Ryton	Kynar (PVDF)	

SB-P1SV
SB-R1SV

5H1304 O-ring, Viton, pk/1
5H1306 O-ring, EDPM, pk/1
25M1A1025-115 Standard Cell Solution (equitransferrant pH 7 buffer, 500 ml)

Digital extension cable (between sc controller and probe)

LZX848 Digital Extension Cable, 5 m
LZX849 Digital Extension Cable, 10 m
LZX850 Digital Extension Cable, 15 m
LZX851 Digital Extension Cable, 20 m
LZX852 Digital Extension Cable, 30 m
LZX853 Digital Extension Cable, 50 m

5867000 Digital Termination Box
Only used when the desired length of cable between the digital sensor/digital gateway and sc digital controller (sc60 or sc100) is greater than 100 m (max. 400 m).

Cleaning Systems for pHD sc and pHD Sensors

1000A3335-006 Cleaning Systems for pHD sc and pHD Sensors, complete system, 230 VAC, pk/1
Air blast cleaning system, 230VAC, includes Kynar® (PVDF) washer head with 7.6 m (25 ft) tubing and quick connect fitting, and a compressor in a NEMA 4X enclosure

1000A3335-004 Air/Water blast cleaning - head only, pk/1
includes ¼" barb fitting. This washer head is intended for immersion applications with a user-supplied air or water wash system only.

Documentation

DOC023.52.03251 Operating Manual pHD S sc pH/ORP sensor, GB *charged if ordered separately*

pH/ORP

pHD Digital Combination pH/ORP Sensors (DataSheet DOC053.52.00013)



The ADpHD Digital Gateway allows to operate analog differential electrodes by any sc controller. This might be of interest if the process conditions exceed the specifications of a digital pHD sensor model (with inbuilt AD converter).

A complete system consists of the following components and have to be ordered individually.

- ⇒ ADpHD Digital Gateway
- ⇒ Digital extension cable to connect the Gateway to the sc Digital Controller
- ⇒ Suitable Hach Lange pHD-pH or pHD-ORP electrodes

Controller compatibility



sc1000

Technical Data	
Subject to change without notice.	
	AD pHD sc Digital Gateway
Designation	AD converter to operate analog pHD-pH/ORP sensors with sc controller series pHD™ Differential Electrode Measurement Technique uses 3 electrodes instead of the 2 normally used in conventional pH sensors. Process and reference electrodes measure the pH differentially with respect to a third ground electrode. The end result is unsurpassed measurement accuracy, reduced reference junction potential, and elimination of sensor ground loops. These sensors provide greater reliability, resulting in less downtime and maintenance.
Connectors	
output (to sc Controller)	using sc digital cables with sc plugs
Electrode input	using suitable electrode cables with bare leads to be connected to digital gateway
Temperature	
Operation	-20°C ... 60°C (-4 to 140 °F)
Storage	-20°C ... 60°C; 95 % relative humidity, non-condensing
Materials	
Gateway housing	ABS plastic
Dimensions	3.4 cm x 17.5 cm (1 3/8 x 7") (Ø x L)
Weight	145 g (5 oz)
Controller compatibility	sc1000
Warranty	2 years

Part No.

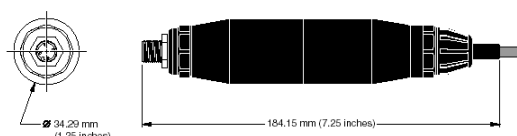
Designation

6120500.99

AD pHD, Digital Gateway for analog pHD-pH and pHD-ORP sensors

6 1 2 0 5 0 0 . x x

Language / Country Code Selection



pH Measurement

Differential pH sensors (DataSheet DOC053.52.00013)



pHD and pHD sc - high class differential sensors for operation life

pHD™ Differential Electrode Measurement Technique uses 3 electrodes instead of the 2 normally used in conventional pH sensors. Process and reference electrodes measure the pH differentially with respect to a third ground electrode.

The outcome is unsurpassed measurement accuracy, reduced reference junction potential, and elimination of sensor ground loops. These sensors provide greater reliability, resulting in less downtime and maintenance.

Due to its special design, the reference system of the pHD S sc electrode is protected by a salt-bridge and does not come in contact with the media being immersed.

As a result, poisoning of the reference electrode cannot attack the electrode and reduces necessary cleaning and maintenance intervals.



Technical Data		
Subject to change without notice		
	pHD-pH sc	pHD-pH
Designation	Digital Differential pH sensor with inbuilt digital electronics	Analog Differential pH sensor
Temperature sensor	NTC300 integrated	
Measuring range		
pH	-2 ... 14 pH	
Temperature	-5°C ... 70°C	-5°C ... 95°C
Accuracy		
pH	± 0.02 pH	
Temperature	± 0.5°C	
Sensitivity	± 0.01 pH	
Stability	2 mV/24h non cumulative	
Response time T ₉₀		
pH, mV	< 5 sec	
Temperature	< 2 min	
Temperature compensation	Automatic in specified range or manually fixed at a user-entered temperature; additional selectable temperature correction factors (ammonia, morpholine, or user-defined pH/°C linear slope) available for pure water automatic compensation from 0.0 to 50 °	
Calibration	Automatic - 1 or 2 point with buffer, manual 1 or 2 point with buffer	
Process connection	Sensors are available in four mounting styles - convertible, insertion, sanitary, and immersion	
Sample pressure p _{max}	6.9 bar @ 70°C	6.9 bar @ 105°C
Flow velocity v _{max}	3 m/s (10 ft./sec)	
Temperature		
Operation	-5°C ... 70°C	-5°C ... 95°C
Storage	-30°C ... 70°C; 95 % relative humidity, non-condensing	
Materials		
Sensor Housing	PEEK® or Ryton® (PVDF) body PEEK: recommended for strong Acids RYTON: Suitable in almost every applications, for strong caustics and weak acids not suitable for strong acids	
Sensor cable	PUR (Polyethylene) 5-conductor, shielded, rated to 105 °C (221 °F), 10 m (33 ft) standard length	Five-conductor (+ 2 isolated shields) cable with XLPE (cross-linked poly-ethylene) jacket; rated to 150 °C (302 °F); 6 m (20 ft) standard length
other materials	salt bridge of matching material with Kynar® junction, glass process electrode, titanium ground electrode, and Viton® O-ring seals	
Controller compatibility	sc controller series	sc controller series with AD pHD
Power consumption	< 7 W	
Dimensions	please refer to Technical DataSheet	
Weight	0.316 kg (11Oz)	
Warranty	1 year warranty / 24 month pro-rated replacement	

Note:

For technical drawings and schemes please refer to the Technical DataSheet.

pH Measurement

pHD Analog Combination pH Sensors (DataSheet DOC053.52.00013)

Part No. **Designation**



Analog pHD pH sensors comes with a built-in preamplifier, integral cable 6 m terminated with stripped and tinned wires; requires a digital gateway and sc extension cable for operation with any sc controller.

PDXXX.99

pHD™, Analog Differential pH Sensors

P	D	x	x	x	.	9	9
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Sensor body material and style option

PEEK (Polyetheretherketone)

Convertible style (1" NPT at both ends) ^A	1	P
Insertion style (no threads on electrode end)	2	P
Sanitary style (2" flange for Tri-Clover fitting)	3	P

Ryton (Polyphenylenesulfide)

Convertible style (1" NPT at both ends) ^A	1	R
--	---	---

Electrode glass option

Glass, wide-range (0-14 pH; general purpose)	1
Glass, HF-resistant	3



Note:

sc Digital Controller, AD pHD Gateway, and sc connection/extension cables must be ordered separately
For technical data, interfaces and additional costs, refer to the chapter sc controller/display units
The maximum cable length between the sensor and controller is limited to 110m.
Using different cables instead of the below mentioned, will void the warranty.
If the total length exceeds 110m, a digital termination box (5867000) is required.
The maximum cable length is limited to 410m in total then. (for sc60/100 only; not for sc1000)
Please refer to Appendix C for more details about manuals and user interfaces in different available languages
For suitable Mounting hardware, please refer to the chapter "E-Chem Mounting Hardware".
For pH Buffer and ORP Reference Solutions, please refer to chapter Appendix A "Reagents and Consumables"
For Service contract with Warranty extensions, commissioning and trainings please refer to Appendix B

Optional accessories

^A When immersion mounting a convertible style sensor, it is recommended to order an optional protector made of the same material as the sensor.
The protector threads onto the end of the sensor:



1000F3374-002
1000F3374-003

Sensor protector, made of PEEK
Sensor protector, made of Ryton

6120500.99

AD pHD, Digital Gateway for analog pHD-pH and pHD-ORP sensors

6	1	2	0	5	0	0	.	9	9
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Language / Country Code Selection

Digital extension cable (between sc controller and probe)

LZX848	Digital Extension Cable	5 m
LZX849	Digital Extension Cable	10 m
LZX850	Digital Extension Cable	15 m
LZX851	Digital Extension Cable	20 m
LZX852	Digital Extension Cable	30 m
LZX853	Digital Extension Cable	50 m



Note:

For further accessories and spare parts please refer to page 20, "Common spare parts for pHD and pHD sc sensors"

pH Measurement

pHD Digital Combination pH Sensors (DataSheet DOC053.52.00013)

Part No. **Designation**



Digital sensors include all built-in digital electronics and integral 10 m cable, terminated with sc connector, ready to use with any sc controller out of the sc digital controller series.

DPDXXX.99

pHD™, Digital Differential pH Sensors

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Sensor body material and style option

PEEK (Polyetheretherketone)

Convertible style (1" NPT at both ends) ^A	1 P
Insertion style (no threads on electrode end)	2 P
Sanitary style (2" flange for Tri-Clover fitting)	3 P

Ryton (Polyphenylenesulfide)

Convertible style (1" NPT at both ends) ^A	1 R
--	------------

Electrode glass option

Glass, wide-range (0-14 pH; general purpose)	1
Glass, HF-resistant	3



Note:

sc Digital Controller, and sc extension cables must be ordered separately
For technical data, interfaces and additional costs, refer to the chapter sc controller/display units
The maximum cable length between the sensor and controller is limited to 110m.
Using different cables instead of the below mentioned, will void the warranty.
Please refer to Appendix C for more details about manuals and user interfaces in different available languages
For suitable Mounting hardware, please refer to the chapter "E-Chem Mounting Hardware".
For pH Buffer and ORP Reference Solutions, please refer to chapter Appendix A "Reagents and Consumables"
For Service contract with Warranty extensions, commissioning and trainings please refer to Appendix B

Optional accessories

^A When immersion mounting a convertible style sensor, it is recommended to order an optional protector made of the same material as the sensor.
The protector threads onto the end of the sensor:

1000F3374-002
1000F3374-003

Sensor protector, made of PEEK
Sensor protector, made of Ryton



Digital extension cable (between sc controller and probe)

LZX848	Digital Extension Cable	5 m
LZX849	Digital Extension Cable	10 m
LZX850	Digital Extension Cable	15 m
LZX851	Digital Extension Cable	20 m
LZX852	Digital Extension Cable	30 m
LZX853	Digital Extension Cable	50 m



Note:

For further accessories and spare parts please refer to page 20, "Common spare parts for pHD and pHD sc sensors"

pH Measurement

Differential ORP sensors (DataSheet DOC053.52.00013)



pHD and pHD sc - high class differential sensors for operation life

pHD™ Differential Electrode Measurement Technique uses 3 electrodes instead of the 2 normally used in conventional pH sensors. Process and reference electrodes measure the pH differentially with respect to a third ground electrode. The end result is unsurpassed measurement accuracy, reduced reference junction potential, and elimination of sensor ground loops. These sensors provide greater reliability, resulting in less downtime and maintenance.

Due to its special design, the reference system of the pHD S sc electrode is protected by a salt-bridge and does not come in contact with the media being immersed.

As a result, poisoning of the reference electrode cannot attack the electrode and reduces necessary cleaning and maintenance intervals.



Technical Data		
Subject to change without notice		
	pHD-ORP sc	pHD-ORP
Designation	Digital Differential ORP sensor with inbuilt digital electronics	Analog Differential ORP sensor
Temperature sensor	NTC300 integrated	
Measuring range		
ORP	± 2000 mV	
Temperature	-5°C ... 70°C	-5°C ... 95°C
Accuracy		
ORP	± 5 mV	
Temperature	± 0.5°C	
Sensitivity	± 0,01 pH	
Stability	2 mV/24h non cumulative	
Response time T ₉₀		
ORP, mV	< 5 sec	
Temperature	< 2 min	
Temperature compensation	none	
Calibration	1 point with ORP reference solution	
Process connection	Sensors are available in four mounting styles - convertible, insertion, sanitary, and immersion	
Sample pressure p _{max}	6.9 bar @ 70°C	6.9 bar @ 105°C
Flow velocity v _{max}	3 m/s (10 ft./sec)	
Temperature		
Operation	-5°C ... 70°C	-5°C ... 95°C
Storage	-30°C ... 70°C; 95 % relative humidity, non-condensing	
Materials		
Sensing element	Platinum or Gold (Gold is recommended for media containing zinc, cyanide, cadmium or nickel)	
Sensor Housing	PEEK® or Ryton® (PVDF) body PEEK: recommended for strong Acids RYTON: Suitable in almost every applications, for strong caustics and weak acids not suitable for strong acids	
Sensor cable	PUR (Polyethylene) 5-conductor, shielded, rated to 105 °C (221 °F), 10 m (33 ft) standard length	Five-conductor (+ 2 isolated shields) cable with XLPE (cross-linked poly-ethylene) jacket; rated to 150 °C (302 °F); 6 m (20 ft) standard length
other materials	salt bridge of matching material with Kynar® junction, glass process electrode, titanium ground electrode, and Viton® O-ring seals	
Controller compatibility	sc controller series	sc controller series with AD pHD
Dimensions	please refer to Technical DataSheet	
Weight	0.316 kg (11Oz)	
Warranty	1 year warranty / 24 month pro-rated replacement	



Note:

For technical drawings and schemes please refer to the Technical DataSheet.

ORP Measurement

pHD Analog Combination ORP Sensors (DataSheet DOC053.52.00013)

Part No. **Designation**



Analog pHD ORP sensors comes with a built-in preamplifier, integral cable 6 m terminated with stripped and tinned wires; requires a digital gateway and sc extension cable for operation with any sc controller.

RDXXX.99

pHD™, analog Differential ORP Sensors

R D x x x . 9 9

Sensor body material and style option

PEEK (Polyetheretherketone)

- Convertible style (1" NPT at both ends)^A **1 P**
- Insertion style (no threads on electrode end) **2 P**
- Sanitary style (2" flange for Tri-Clover fitting) **3 P**

Ryton (Polyphenylenesulfide)

- Convertible style (1" NPT at both ends)^A **1 R**

Sensing element option

- Platinum **5**
- Gold (recommended for media containing zinc, cyanide, cadmium or nickel) **6**



Note:

sc Digital Controller, AD pHD Gateway, and sc connection/extension cables must be ordered separately
For technical data, interfaces and additional costs, refer to the chapter sc controller/display units
The maximum cable length between the sensor and controller is limited to 110m.
Using different cables instead of the below mentioned, will void the warranty.
If the total length exceeds 110m, a digital termination box (5867000) is required.
The maximum cable length is limited to 410m in total then. (for sc60/100 only; not for sc1000)
Please refer to Appendix C for more details about manuals and user interfaces in different available languages
For suitable Mounting hardware, please refer to the chapter "E-Chem Mounting Hardware".
For pH Buffer and ORP Reference Solutions, please refer to chapter Appendix A "Reagents and Consumables"
For Service contract with Warranty extensions, commissioning and trainings please refer to Appendix B

Optional accessories

^A When immersion mounting a convertible style sensor, it is recommended to order an optional protector made of the same material as the sensor.
The protector threads onto the end of the sensor:



1000F3374-002
1000F3374-003

Sensor protector, made of PEEK
Sensor protector, made of Ryton

6120500.99

AD pHD, Digital Gateway for analog pHD-pH and pHD-ORP sensors

6 1 2 0 5 0 0 . 9 9



Language / Country Code Selection

9012905

pH/ORP sensor card for sc200



Digital extension cable (between sc controller and probe)

- LZX848 Digital Extension Cable 5 m
- LZX849 Digital Extension Cable 10 m
- LZX850 Digital Extension Cable 15 m
- LZX851 Digital Extension Cable 20 m
- LZX852 Digital Extension Cable 30 m
- LZX853 Digital Extension Cable 50 m



Note:

For further accessories and spare parts please refer to page 20, "Common spare parts for pHD and pHD sc sensors"

ORP Measurement

pHD Digital Combination ORP Sensors (DataSheet DOC053.52.00013)

Part No. **Designation**



Digital sensors include all built-in digital electronics and integral 10 m cable, terminated with sc connector, ready to use with any sc controller out of the sc digital controller series.

DRDXXX.99

pHD™, Digital Differential ORP sensors

D	R	D	x	x	x	.	9	9
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Sensor body material and style option

PEEK (Polyetheretherketone)

Convertible style (1" NPT at both ends) ^A	1	P
Insertion style (no threads on electrode end)	2	P
Sanitary style (2" flange for Tri-Clover fitting)	3	P

Ryton (Polyphenylenesulfide)

Convertible style (1" NPT at both ends) ^A	1	R
--	---	---

Sensing element option

Platinum	5
Gold (recommended for media containing zinc, cyanide, cadmium or nickel)	6



Note:

sc Digital Controller, and sc extension cables must be ordered separately
 For technical data, interfaces and additional costs, refer to the chapter sc controller/display units
 The maximum cable length between the sensor and controller is limited to 110m.
 Using different cables instead of the below mentioned, will void the warranty.
 Please refer to Appendix C for more details about manuals and user interfaces in different available languages
 For suitable Mounting hardware, please refer to the chapter "E-Chem Mounting Hardware".
 For pH Buffer and ORP Reference Solutions, please refer to chapter Appendix A "Reagents and Consumables"
 For Service contract with Warranty extensions, commissioning and trainings please refer to Appendix B

Optional accessories

^A When immersion mounting a convertible style sensor, it is recommended to order an optional protector made of the same material as the sensor.
 The protector threads onto the end of the sensor:

1000F3374-002
 1000F3374-003

Sensor protector, made of PEEK
 Sensor protector, made of Ryton



Digital extension cable (between sc controller and probe)

LZX848	Digital Extension Cable	5 m
LZX849	Digital Extension Cable	10 m
LZX850	Digital Extension Cable	15 m
LZX851	Digital Extension Cable	20 m
LZX852	Digital Extension Cable	30 m
LZX853	Digital Extension Cable	50 m



Note:

For further accessories and spare parts please refer to page 20, "Common spare parts for pHD and pHD sc sensors"

pH & ORP Measurement

pHD and pHD sc Combination pH/ORP sensors - common accessories

Part No. Designation

pHD Sensor replacements (for analog and digital models)

Replacement Salt Bridge

The double junction salt bridge on the standard cell of all Hach pHD™ Differential technique sensors is field-replaceable. Each salt bridge has a ceramic inner junction, Viton O-ring, and contains binary, equi-transferrant fill solution. (Salt bridges are shipped in a salt solution.)

pHD sc & pHD sensors sensor body material	Salt bridge material outer junction	
SB-P1SV	PEEK	
SB-R1SV	Ryton	

5H1304 O-ring, Viton, pk/1
5H1306 O-ring, EDPM, pk/1

25M1A1025-115 Standard Cell Solution for pHD and pHD sc sensors
specially formulated solution to replenish standard cell chamber in pHD™ Differential sensors while replacing salt bridge; packaged in resealable 500 ml bottle

25M8A1002-101 Gel Powder, for high temperature applications, pk/2 grams

Sensor storage caps (Replacement)

1000A3378-001 Sensor storage cap for pHD sensors (Replacement)

Digital extension cable (between sc controller and probe)

LZX848 Digital Extension Cable, 5 m
LZX849 Digital Extension Cable, 10 m
LZX850 Digital Extension Cable, 15 m
LZX851 Digital Extension Cable, 20 m
LZX852 Digital Extension Cable, 30 m
LZX853 Digital Extension Cable, 50 m

5867000 Digital Termination Box
Only used when the desired length of cable between the digital sensor/digital gateway and sc digital controller (sc60 or sc100) is greater than 100 m (max. 400 m).

Cleaning Systems for pHD sc and pHD Sensors

1000A3335-006 Cleaning Systems for pHD sc and pHD Sensors, complete system, 230 VAC, pk/1
Air blast cleaning system, 230 V, includes Kynar® (PVDF) washer head with 7.6 m (25 ft) tubing and quick connect fitting, and a compressor in a NEMA 4X enclosure

1000A3335-005 Cleaning Systems for 1" pHD sc and pHD sensors for 115 VAC operation

1000A3335-004 Air/Water blast cleaning - head only, pk/1
includes ¼" barb fitting. This washer head is intended for immersion applications only with a user-supplied air or water wash system.

pH/ORP Measurement

1200 S sc Digital Immersion sensors (DataSheet DOC053.52.03253)



The 1200 S sc sensor is based on a high quality pH combined electrode. The perforated membrane combined with a polymerised solid electrolyte makes this electrode particularly insensitive to soiling and thus guarantees low user maintenance.

The probe is specially suitable for soiled media, like biological treated waste water (municipal and/or industrial) or process water.

The digital technology design allows these sensors to be combined with any other sc sensor, probe or analyzer as required.

Controller compatibility



sc200



sc1000

Technical Data		
Subject to change without notice.		
	1200 S sc pH	1200 S sc ORP
Sensor style	Combination sensor	Combination sensor with Platinum electrode
Temperature sensor	Pt100 integrated	Pt100 integrated
Reference system	Aq/AqCl polymer	
Membrane	Perforated membrane	
Measuring range		
pH/ORP	0 ... 14 pH	±1500 mV
Temperature	-5°C ... 50°C	-5°C ... 50°C
Accuracy		
pH/ORP	± 0.02 pH	± 5 mV
Temperature	± 0.2°C	n.a.
Response time T ₉₀		
pH, mV	T90 < 15 sec	T90 < 15 sec
Temperature	T90 < 2 min	T90 < 2 min
Temperature compensation	Automatic or manual	none
Calibration	Automatic - 1 or 2 point with buffer, manual 1 or 2 point with buffer	Manual - 1 point, factory calibrated
Process connection	Immersion style, chain or pole mounting with appropriate mounting hardware	
Sample pressure p _{max}	20 m immersion depth respectively 2 bar over-pressure	
Flow velocity v _{max}	4 m/s	
Temperature		
Operation	-5°C ... 50 °C	
Storage	-20°C ... 60°C; 95 % relative humidity, non-condensing	
Materials		
Sensor Housing	Stainless steel metal housing	
Sensor cable	Polyurethane	
other materials	PPS PPS, Glass/platinum	
Sensor cable	10 m hardwired, with encapsulated IP 68 connector, extendable with sc sensor cable up to 110m	
Power consumption	< 7 W	
Dimensions	42 mm x 504 mm (Ø x L)	
Required Maintenance:	Change of sealing 1x/2 years (after 1000 hours)	
Weight	approx. 1 kg	
Controller compatibility	sc200 or sc1000	
Warranty	24 month for sensor excluding pH/ORP sensor	

pH/ORP Measurement

1200 S sc Digital Immersion sensors (DataSheet DOC053.52.03253)

Part No. Designation

LXV426.99.10001 **1200-S sc Digital sensor**, with 10 m connection cable, without sc controller

L X V 4 2 6 . 9 9 . x 0 0 0 1

Language / Country Code Selection *please refer to Appendix E for further info*

Sensor model option

pH sensor (pH 0...14)	1
ORP sensor with Platinum electrode (± 1500 mV)	2

Note: The sensors includes built-in digital electronics, a replaceable Ø12mm pH or ORP combination electrode and integral 10 m cable terminated with connector for the sc digital controller series.
sc Digital Controller, AD pH/D Gateway, and sc connection/extension cables must be ordered separately
For technical data and interfaces, refer to the chapter sc controller/display units
The maximum cable length between the sensor and controller is limited to 110m.
Using different cables instead of the below mentioned, will void the warranty.
For suitable Mounting hardware, please refer to the chapter "E-Chem Mounting Hardware".

Replacements

LZX889	1200 S sc, pH electrode with fitting (Replacement)
LZX890	1200 S sc, ORP electrode with fitting (Replacement)
LZX899	Protection cap for electrode, replacement



Digital extension cable (between sc controller and probe)

LZX848	Digital Extension Cable	5 m
LZX849	Digital Extension Cable	10 m
LZX850	Digital Extension Cable	15 m
LZX851	Digital Extension Cable	20 m
LZX852	Digital Extension Cable	30 m
LZX853	Digital Extension Cable	50 m

Documentation

Operation Manual 1200 S sc pH/ORP sensor, GB

charged if ordered separately

pH/ORP

1200 sc Digital Combination pH/ORP Sensors (DataSheet DOC053.52.03255)



The 1200 sc is a collective product name for a package which consists of a Hach Lange analog Combination pH or ORP electrode and a AD1200 sc Digital Gateway. This product allows any Hach Lange combination electrode which is listed in the following to be operated by a sc controller.

A complete system consists of the following components and have to be ordered individually.

- ⇒ AD1200 sc Digital Gateway
- ⇒ Digital extension cable to connect the Gateway to the sc Digital Controller
- ⇒ Suitable Hach Lange analog pH/ORP combination electrode
- ⇒ Separate analog sensor cables if required

Technical Data	
Subject to change without notice	
AD1200 sc Digital Gateway	
Designation	AD converter to operate analog pH or ORP combination sensors with sc controller series
I-sensor compatibility	Pt100 and Pt1000
Connectors	
output (to sc Controller)	using sc digital cables with sc plugs
Electrode input	using suitable electrode cables with bare leads to be connected to digital gateway
Special notes	Electrode cables must have a diameter between 5.6 ... 6.5 mm Ø to ensure IP68 protection rate (suitable cables e.g. LZX548 and LZX546), otherwise the Gateway adapter set LZY288 is recommended
Temperature	
Operation	-20 ... 60 °C (-4 to 140 °F)
Storage	-20°C ... 60°C; 95 % relative humidity, non-condensing
Materials	
Gateway housing	ABS plastic
Dimensions	3.4 cm x 17.5 cm (1⅜ x 7") (Ø x L)
Weight	145 g (5 oz)
Controller compatibility	sc200 or sc1000
Warranty	2 years

Part No.

Designation

6120600.99

AD pHD, Digital Gateway for conventional analog pH and ORP sensors



6120600.99

Language / Country Code Selection

to be continued

pH/ORP

1200 sc Digital Combination pH/ORP Sensors (DataSheet DOC053.52.03255)

Part No. Designation

9012905 pH/ORP sensor card for sc200



Technical Data	
Subject to change without notice	
9012905- analog pH/ORP sensor card	
Designation	The module allows an analog sensor to connect to the sc200 controller
Measuring range	- 2.00 to 14.00 pH units
	- 2,100 to 2,100 mV
Repeatability	± 0.1 % of range
Response times	0.5 s
	monitoring of pH sensor impedance and provides an error when the impedance is too low. (e.g., cracked glass or sensor end-of-life)
Temperature	
accepted sensor types	PT100/PT1000/NTC300
Temp. compensation	Automatic from - 20 to 110°C (-4 to 230°F) or manual
Temp. compensation curves	Nernst, Pure Water: Ammonium, Morpholine, user defined (linear)
Temperature ranges	
PT100 / PT1000	-20 to 200°C
NTC300	-20 to 110 °C
Manual	-25 to 400 °C
Temperature accuracy	± 0.5 °C
Temperature drifts	± 0.03 % of reading / °C
Sensor to controller distances (maximal)	
pH sensor:	914 m
pH combination electrode	30 m with pre-amplifier; depending on electromagnetic interferences, the distance may be shorter
	300 m with pre-amplifier
Calibration	1 or 2-point buffer (pH only)
	2-point sample (pH only)
	1-point sample (pH and ORP)
Warranty	24 month

Optional accessories

LZY288

Cable gland kit for AD1200sc

This kit allows the connection of Analon, Polymetron or other HACH LANGE electrodes with integrated or external temperature sensors to the gateway.
consisting of:

1 assembling instruction, 1 adapter for gateway housing, 1 cable gland
5 Different rubber inlays for sensor cables (1x3 mm, 2x3 mm, 1x 3+6 mm, 2x5 mm, 1x6...8 mm)

alternatively



LZY328

Kto AD1200 sc, Digital Gateway with Cable Gland Kit

consisting of: 6120600 + LZY288



Note:

sc Digital Controller, and sc extension cables (must be ordered separately)

For technical data, interfaces and additional costs, refer to the chapter sc controller/display units

The maximum cable length between the sensor and controller is limited to 110m (using sc digital extension cables).

pH sensors

Ø12mm 120mm Standard electrodes

Sensors Specs	pH combination electrode	pH combination electrode	pH combination electrode with PT1000	pH combination electrode "PRO140"	pH combination electrode "PRO140" with PT100	pH combination electrode "HighPH" with PT100	pH combination electrode
							
Application	Boiler-feed water and ultra-pure water with conductivities <100 µS/cm; plating baths, critical media	Service water, waste water, suspensions, food processing, organic solvents, hot acids and caustics	Service water, waste water, suspensions, food processing, organic solvents, hot acids and caustics	General purpose pH process electrode for harsh operating conditions; in particular for high temperature and/or high pressure applications; sterilizable (suitable for SIP, CIP Applications)		pH process electrode in particular for high pH applications in range of 9...14	general purpose, withstand organic solvents, liquids with low ion concentration or partly aqueous samples
Measuring range	pH 0 ... 12	pH 2 13	pH 2 13	pH 0 ... 14		pH 1 14	pH 0 ... 14
Permissible Tmax	-30°C ... + 80°C	0°C ... + 100°C	0°C ... + 100°C	0 ... 135°C		0°C ... + 80°C	0 ... +80°C
Permissible pmax @ Tmax	6 bar	10 bar	10 bar	16 bar		3.5 bar	
Reference electrode	liquid KCl electrolyte, refillable, triple ceramic diaphragm, Ag/AgCl	Polymer, capillary precision glass diaphragm, Ag/AgCl	Polymer electrolyte, hole diaphragm, Ag/AgCl	KCl/AgCl + KNO3-Gel, double ring diaphragm, porous Teflon Reference: Ag/AgCl		KCl/AgCl ring diaphragm, porous Teflon	EVEREF B double liquid junction, POLYLITE Polymer
Electrode shaft material	Glass (Duran)	Glass (Duran)	Glass (Duran)	Glass	Glass	PES (Polyethersulfon)	Glass
Top connector plug	S7 type	S7 type	SMEK type	Top 68 type	Top 68 type	Top 68 type	S7 type
Plug/cable combination							
5 m cable		LZY037	LZY021	LZX548	LZX548	LZX548	LZY037
10 m cable		LZY031	LZY581	LZX516	LZX516	LZX516	LZY031
20 m cable		Z359016,10122	LZY582	-	-	-	Z359016,10122
Special cable for sensor monitoring							
5 m cable	n.a.	LZY020	n.a.	n.a.	n.a.	n.a.	n.a.
Thermometer	none	none	inbuild Pt1000	none	Pt100 inbuilt	Pt100 inbuilt	none
Process connection	Pg 13.5 thread	Pg 13.5 thread	Pg 13.5 thread	Pg 13.5 thread	Pg 13.5 thread	Pg 13.5 thread	Pg 13.5 thread
Dimensions	Ø12 x 120 mm	Ø12 x 120 mm	Ø12 x 120 mm	Ø12 x 120 mm	Ø12 x 120 mm	Ø12 x 120 mm	Ø12 x 120 mm
Weight	appr. 0.15 kg	appr. 0.15 kg	appr. 0.15 kg	appr. 0.15 kg	appr. 0.15 kg	appr. 0.15 kg	appr. 0.15 kg
Order Number:	LZY025	LZY023	LZY027	LZX545	LZX546	LZX540	LZX885

DataSheet	DOC053.52.90096	DOC053.52.90093	DOC053.52.90093	DOC053.52.90093	DOC053.52.90093		
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pH & Temperature sensors

Ø12mm 120mm Standard electrodes continued

Sensors Specs	pH combination electrode "LTLCON"	pH combination electrode "LTLCON" with PT100	pH combination electrode "8418B"	pH combination electrode "8416"
				
Application	pH process electrode for Drinking water, ground water, surface water applications, in particular with low temperature (below 5°C) and low conductivity (10...100 µS/cm) characteristics		pH process electrode for Drinking Water and non-demanding general purpose application	gel pH electrode for industrial applications, pressurized gel for high pressure applications, samples contain proteins, sulfides, emulsion, suspensions, high acid solutions etc.
Measuring range	pH 2 ... 11		pH 0 ... 14	pH 2 ... 14
Permissible Tmax	-20°C ... 50°C		0 ... +100°C	0 ... +110°C
Permissible pmax @ Tmax	3.5 bar		2.5 bar	16bar @ 25°C 6bar @ 100°C
Reference electrode	KCl gel, saturated KCl/AgCl crystal		Gel, Argenthal ceramic junction	Argenthal, XEROLYT (solid KCl gel) open junction
Electrode shaft material	PES (Polyethersulfon)		Glass	Glass
Top connector plug	Top 68 type	Top 68 type	S7 type	S7 type
Plug/cable combination				
5 m cable	LZX547 (2 wire)	LZX548 (4-wire)	LZY037	LZY037
10 m cable	LZX534 (2 wire)	LZX516 (4-wire)	LZY031	LZY031
20 m cable	-	-	on request	on request
Special cable for sensor monitoring				
5 m cable	n.a.	n.a.	n.a.	n.a.
Thermometer	none	Pt100 inbuilt	none	none
Process connection	Pg 13.5 thread	Pg 13.5 thread	Pg 13.5 thread	Pg 13.5 thread
Dimensions	Ø12 x 120 mm	Ø12 x 120 mm	Ø12 x 120 mm	Ø12 x 120 mm
Weight	appr. 0.15 kg	appr. 0.15 kg	appr. 0.15 kg	appr. 0.15 kg
Order Number:	LZX536	LZX537	Z368418,00000	Z368416,00000

DataSheet				
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Thermometer Pt1000	Thermometer Pt1000	Thermometer Pt100
		
All standard applications	All non-corrosive applications, typically used in chemical industries and Power Plants	high durability even for demanding applications like in Petrochemical industry and Electroplating processes
-30°C ... +135°C	-30°C ... +135°C	-30°C ... +150°C
10 bar @ 135°C	10 bar @ 135°C	10 bar @ 150°C
n.a.	n.a.	n.a.
Glass (Duran)	Stainless Steel, Mat. 1.4571	PVDF
S7 type	S7 type	3 m fixed cable
LZY037	LZY037	
LZY031	LZY031	
Z359016,10122	Z359016,10122	
n.a.	n.a.	n.a.
Pt1000 (2-wire)	Pt1000 (2-wire)	Pt100 (3-wire)
Pg 13.5 thread	Pg 13.5 thread	Pg 13.5 thread
Ø12 x 120 mm	Ø12 x 120 mm	Ø12 x 110 mm
appr. 0.15 kg	appr. 0.15 kg	appr. 0.10 kg
LZY029	LZY473	Z368495,00000

DOC053.52.90091	DOC053.52.90091	DOC053.52.90091
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pH sensors

¾" and special electrodes

Sensors Specs	pH combination electrode 8350 series	pH combination electrode "pHPULP Pt100"	pH combination electrode "pHRET"	pH combination electrode "pHRET Pt100"
				
Application	Horizontal, Vertical or up-side down mounting Water and WW Treatment, Coagulation and Flocculation Process, Monitoring and Control Pulp Stock Applications, Ore Separation	Inline applications; optional retractable; sterilizable suitable up to 15% TS content, Pulp, Paper, high temperature	Inline applications, high temperature, sterilizable	Inline applications, high temperature, sterilizable
Measuring range	pH 0 ... 14 (1)	pH 1 ... 14	pH 0 ... 14	pH 0 ... 14
Permissible Tmax	0°C ... +110°C (1)	-5°C ... 135°C	-5°C ... 135°C	-5°C ... 135°C
Permissible pmax @ Tmax	10 bar @ 80°C 3.5 bar @ 110°C	10 bar @ 25°C 7.0 bar @ 100°C 3.5 bar @ 120°C	max 15 bar	max 15 bar
Reference electrode	Polymer electrolyte, KNO3 and KCl	exterior EPH gel; interior KCl/AgCl	KCl/AgCl + KNO3 gel	KCl/AgCl + KNO3 gel
Electrode shaft material	PPS (Polyphenylene Sulphide)	Stainless Steel	Stainless Steel	Stainless Steel
Cable	10 m integral cable	5 m integral cable	3 m integral cable	3 m integral cable
Thermometer	Pt100 inbuilt	Pt100 inbuilt	none	Pt100 inbuilt
Process connection	¾" NPT	R ¾"	inline in conjunction with inline retractable armature LZX465	
Dimensions	Ø 26.4 x 150 mm	Ø 22 x 300 mm	Ø 12 x 205 mm	Ø 12 x 205 mm
Weight				
Order Number:	please refer tp page 23	LZX475	LZX476	LZX477

DataSheet	TE8350revE			
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 **Note:** (1) model depending

ORP & Temperature sensors

Ø12mm 120mm standard and ¾" electrodes

Sensors Specs	ORP combination electrode	ORP combination electrode
		
Application	general purpose	general purpose horizontal, vertical or up-side down mounting
Measuring range	± 2000 mV	± 1500 mV
Permissible Tmax	0°C ... +100°C	0°C ... +110°C
Permissible pmax @ Tmax	max. 6 bar	10 bar @ 80°C 3.5 bar @ 110°C
Reference electrode	Gel electrolyte, non-refillable Ag/AgCl	Polymer electrolyte, KNO3 and KCl
Electrode shaft material	Glass (Duran)	PPS (Polyphenylene Sulphide)
Top connector plug	S7 screw head	10 m fixed cable
Plug/cable combination		
5 m cable	LZY037	
10 m cable	LZY031	
20 m cable	on request	
Special cable for sensor monitoring		
5 m cable	n.a.	
Thermometer	none	none
Process connection	Pg 13.5 thread	¾" NPT thread
Dimensions	Ø12 x 120 mm	Ø26.4 x 150 mm
Weight	appr. 0.15 kg	appr. 0.62 kg
Order Number:	LZY028	Z08351=C=0000
DataSheet	DOC053.53.90093	TE8350revE

Thermometer Pt1000	Thermometer Pt1000	Thermometer Pt100
		
All standard applications	All non-corrosive applications, typically used in chemical industries and Power Plants	high durability even for demanding applications like in Petrochemical industry and Electroplating processes
-30°C ... +135°C 10 bar @ 135°C	-30°C ... +135°C 10 bar @ 135°C	-30°C ... +150°C 10 bar @ 150°C
n.a.	n.a.	n.a.
Glass (Duran)	Stainless Steel, Mat. 1.4571	PVDF
S7 type	S7 type	3 m fixed cable
LZY037	LZY037	
LZY031	LZY031	
on request	on request	
n.a.	n.a.	n.a.
Pt1000 (2-wire)	Pt1000 (2-wire)	Pt100 (3-wire)
Pg 13.5 thread	Pg 13.5 thread	Pg 13.5 thread
Ø12 x 120 mm	Ø12 x 120 mm	Ø12 x 110 mm
appr. 0.15 kg	appr. 0.15 kg	appr. 0.10 kg
LZY029	LZY473	Z368495,00000
DOC053.52.90091	DOC053.52.90091	DOC053.52.90091

pH / ORP sensors

Ø12mm 120mm Standard electrode accessories

Part No.

Designation

Connection cables

TOP68 plug sensor cables

LZX548	Plug cable combination, TOP68 type, 4 wire, 5 m
LZX516	Plug cable combination, TOP68 type, 4 wire, 10 m
LZX547	Plug cable combination, TOP68 type, 2 wire, 5 m
LZX534	Plug cable combination, TOP68 type, 2 wire, 10 m



SMEK plug sensor cables

LZY021	Plug cable combination, SMEK type, 5 m
LZY581	Plug cable combination, SMEK type, 10 m
LZY582	Plug cable combination, SMEK type, 20 m



S7 plug sensor cables (Single shielded, 2 wire)

Z359016,10110	Plug cable combination, S7 plug, 3 m
LZY037	Plug cable combination, S7 plug, 5 m
Z359016,10120	Plug cable combination, S7 plug, 10 m
Z359016,10122	Plug cable combination, S7 plug, 20 m



VP-Plug

LZY079	Sensor cable with VP plug, 5m
LZY353	Sensor cable with VP plug, 10m
LZY354	Sensor cable with VP plug, 20m



MP4-Plug

LZU9300.99	Multiple cable with MP-4 connector, 3 m
LZU9301.99	Multiple cable with MP-4 connector, 5 m
LZU9302.99	Multiple cable with MP-4 connector, 10 m
LZU9303.99	Multiple cable with MP-4 connector, 15 m



AS9-Plug

LZU1003.99	Coaxial cable with AS9 connector, 3 m
LZU1005.99	Coaxial cable with AS9 connector, 5 m
LZU1010.99	Coaxial cable with AS9 connector, 10 m
LZU1015.99	Coaxial cable with AS9 connector, 15 m
LZU1020.99	Coaxial cable with AS9 connector, 20 m
LZU1025.99	Coaxial cable with AS9 connector, 25 m



Electrode filling solution and accessories

C74450A184A1	KCl supply reservoir for connection to refillable combination electrodes or reference electrodes (e.g. LZY025)
C74450A184D1	Hose, 2 m long to connect the KCl supply reservoir to the reference electrode/combination electrode
C20C320	KCl filling solution 3 M, 500ml alternatively
LZY091	KCl in plastic bottle (1 kg)
62011	Wash bottle, 500 ml (e.g. for easy refilling of KCl)



Calibration Tools

pH Calibration Solution, NIST, 500 ml

Z 3 6 3 1 3 x , 0 0 5 0 0

<u>pH option</u>	
pH 4.00	0
pH 6.88	1
pH 9.22	2

3/4" pH / ORP sensors

8350 Combination sensor series (DataSheet TE8350revE)



pH/redox combination probes Models 8350/8351
For immersion and flow-through installations

Applications

- For all measurements in drinking, waste and industrial process water
- Treatment of effluents, cooling towers
- Measurements of corrosive chemical products

Features

- Wide measuring range: 0 to 14 pH, ±1500 mV redox
- Quick response time for accurate temperature compensation (built-in Pt100)
- Optimised life-expectancy : high resistance to poisoning due to the double junction
- Chemical resistance of body and junction materials, glass bulb protection against shocks
- Maintenance free : Combination gelified electrode
- Auto-diagnostic of electrodes : glass and reference impedances self-checking
- Possible installation from all positions, horizontal and upside down
- Built-in low noise cable (10 m/33 ft)

Technical Data				
Subject to change without notice				
	8350.0	8350.3	8350.4	8350.5
Sensor model				
Designation				
Application	high temperature corrosive media	high temperature corrosive media	fouling samples no organic samples	water samples containing F-
pH Measuring range	0 ... 14	0 ... 14	0 ... 12	0 ... 12
Accuracy	0.05 pH @ 25°C			
Response time				
pH, mV	95% of signal within 10 sec			
Drift	< 2 mV / week (typical)			
Temperature sensor	Pt100			
	integral in sensor body no direct contact with media	Temperature sensor outside electrode body / direct contact with media made of glass		
Process connection	¾" NPT thread at both sensor ends			
	Installation possible: vertical, horizontal, upside down, inline or immersion			
permissible T _{max}	110°C	110°C	80°C	110°C
permissible p _{max}	10 bar @ 80°C 3.5 bar @ 110°C	0 ... 110°C 10 bar @ 80°C	0 ... 80°C 10 bar @ 25°C	0 ... 110°C 10 bar @ 80°C
Further Probe specs				
Diaphragm	Flat PTFE junction (Teflon)			
Impedance measurement	no	yes by Pt ring	yes by SS ring	yes by SS ring
Impedance	150 to 500 MΩ	150 to 500 MΩ	50 to 250 MΩ	100 to 150 MΩ
Electrode	Glass	Glass	Glass	Glass
Electrolyte	KNO3 and KCl			
Shaft material	PPS	PPS	CPVC	PPS
Special notes	not suitable for water samples containing fluoride @ pH< 6			
	liquid earth rod, domed glass with guard	liquid earth rod, domed glass with guard	liquid earth rod, flat glass	liquid earth rod, domed glass with guard
Dimensions	150 x 26.4 mm			
Cable	fixed 10 m low noise cable			
	for cable length > 10m up to < 25m use junction box Z08350=A=8500 + cable Z358048,00000			
	for cable length > 25m use junction box (with pre-amp) Z08350=A=8000 + cable Z370=506=025			



Note:

Select flat sensor for viscous/ fibrous solutions as pulp stock
For technical Data of 8351 ORP sensor model please refer to the Technical DataSheet

3/4" pH / ORP sensors

8350 Combination sensor series (DataSheet TE8350revE)

Part No. Designation

Z0835X=X=000X

8350, 3/4" sensor series

Z 0 8 3 5 x = x = 0 0 0 x

pH sensor model option

8350.0		0		A		0
8350.3		0		A		3
8350.4		0		C		4
8350.5		0		C		5

ORP sensor model option

8351		1		C		0
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Optional Accessories

Z08350=A=8500

Junction box, for 8350/8351, IP65, Aluminium epoxy painted
(for distances > 10m up to < 25m)

Z358048,00000

Coaxial cable for high impedance measurements, length per metre

Z08350=A=8000

Junction box with built-in preamplifier, for 8350/8351, IP65, Aluminium epoxy painted
(for distances > 25m)

Z370=506=025

Low impedance cable (for use with pre-amplifier), length per metre

Calibration Tools

pH Calibration Solution, NIST, 500 ml

Z 3 6 3 1 3 x , 0 0 5 0 0

pH option

pH 4.00	.....	0
pH 6.88	.....	1
pH 9.22	.....	2



Note:

For suitable Mounting hardware, please refer to the chapter "E-Chem Mounting Hardware".

pH sensors for Pure water applications

8362 and 8362sc Pure Water pH sensor (DataSheet TE8362revD & L2409)



Applications

- Steam generation (power, other industries) : feedwater, boiler water, condensate recovery
- Pure water treatment systems (any industries) : demineralized water, deionized water

Advantages

- Specially designed for pure water: no retaining areas, minimized junction potential, electrostatic charge and stray current protected;
- Highly accurate : automatic temperature compensation for ultra-pure water applications that meet or exceed ASTM standard;
- Simple universal mounting;
- Minimal maintenance : no filling solution required, sensor visible for preventive maintenance, easily removable if necessary;
- Easy on-line calibration : quick-release sample cup used as calibration vessel.

Technical Data		
Subject to change without notice		
	8362	8362 sc
Designation	Complete measuring system, consisting of Flow-thru cell, pH electrode, T-sensor with 3 m cable each; designated for ultra-pure/pure water pH measurement	
Controller compatibility	MONEC 9135 controller or sc60/100/1000 using AD1200 Gateway	sc200 / sc1000
Temperature sensor	Pt100, grade A (± 0,15°C)	
Measuring range		
pH	2 ... 12	
Temperature	0 to 80 °C (32 to 176 °F)	
Accuracy	0.05 pH for conductivity > 0.1 µS/cm 0.1 pH for conductivity < 0.1 µS/cm	
Response time T ₉₀		
pH, mV	90% of signal within 20 sec	
Process connection	Bypass with atmospheric outlet (after sample cooler and pressure reducer if applicable)	
Inlet	1/8" NPT thread	
Outlet	1/8" NPT thread	
Flow requirement	100 to 300 ml/min - Ideal : 150 ml/min	
permissible T _{max}	80°C max (32°F - 176°F)	
permissible p _{max}	4 bar @ 25°C (60 psi); outlet must be at atmospheric pressure	
Material		
Measurement chamber	electropolished Stainless Steel 316L and PMMA (polymethyl metacrylate)	
Electrode	Glass	
Electrolyte	KNO3 and KCl	
Shaft material	316L stainless steel	
Special notes		panel pre-mounted for easy and fast installation; integrated flow-meter for accurate results and junction box
Cable	3 m cable for pH and temperature further cable lengths optional	7.7 m sc cable (supplied with the instrument)
Maintenance	1h/month typical	
Dimensions		304.8 x 384.4 x 165.1 mm
Weight		3.6 kg (8 lb)
Warranty	24 month for sensor excluding pH/ORP sensor	

 **Note:** 8362 sc is also available as ORP model

pH sensors for Pure water applications

8362 Pure Water pH sensor (DataSheet TE8362revD)

Part No.

Designation

Z08362=A=00XX

8362 ultrapure water pH system, analog module (for use with MONEC 9135), w/o controller



Z 0 8 3 6 2 = A = 0 0 x x

Cable length

3 m	.....	0 0
10 m	.....	1 0



Note:

Controller must be ordered separately; please refer to the chapter "Controller/Display Units"
8362 Ultra-pure water pH system consists of Flow-thru cell, pH electrode, T-sensor with appropriate cable length for pH and T-sensor depending on the selected model. Above mentioned system can be operated on a sc60/100/1000 controller too, but requires the AD1200 Digital gateway with cable gland accessories LZ328. For further information please refer to the chapter "1200 sc Digital Combination pH/ORP Sensors" For operation with the sc sensor controllers, please choose preferably the 8362 sc model.

Spare Parts/Replacement

Z08362=A=2000

8362 pH electrode

Z08362=A=1001

8362 temperature sensor, Pt100

Z08362=A=4000

Kit of 2 SS 1/8" NPT fittings for inlet/outlet connections

Z08362=C=4000

Flow-thru chamber for 8362, made of Polymethylmethacrylate (PMMA)

Z221=183=062

Operating manual 8362, GB

charged if ordered separately

Electrode cables

8362 T-sensor cable

Z 0 8 3 6 2 = A = 3 0 0 x

Cable length option

3 m	.....	1
10 m	.....	2
20 m	.....	3

8362 pH sensor cable

Z 3 5 9 0 1 6 , 1 0 1 x x

Cable length option

3 m	.....	1 0
10 m	.....	2 0
20 m	.....	2 2

Calibration Tools

pH Calibration Solution, NIST, 500 ml

Z 3 6 3 1 3 x , 0 0 5 0 0

pH option

pH 4.00	.....	0
pH 6.88	.....	1
pH 9.22	.....	2

pH sensors for Pure water applications

8362sc Pure Water pH sensor (DataSheet L2409)

Part No.

Designation

617800X

8362 sc Ultrapure Water measuring system

6 1 7 8 0 0 x



Model

pH panel	2
ORP panel	3



Note:

Measuring system includes pH respectively ORP sensor, digital electronics junction box, flow meter and 7.7 m (25 ft.) digital interconnect cable.
Compatible with sc60/100 and sc1000 controller.
Controller must be ordered separately; please refer to the chapter "Controller/Display Units"
The maximum cable length between the sensor and controller is limited to 110m.

Digital extension cable (between sc controller and probe)

LZX848	Digital Extension Cable	5 m
LZX849	Digital Extension Cable	10 m
LZX850	Digital Extension Cable	15 m
LZX851	Digital Extension Cable	20 m
LZX852	Digital Extension Cable	30 m
LZX853	Digital Extension Cable	50 m

Spare Parts/Replacement

Z08362=A=2000	8362 pH electrode
Z08362=A=1001	8362 temperature sensor, Pt100
Z08362=A=4000	Kit of 2 SS 1/8"NPT fittings for inlet/outlet connections
Z08362=C=4000	Flow-thru chamber for 8362, made of Polymethylmethacrylate (PMMA)

Calibration Tools

pH Calibration Solution, NIST, 500 ml

Z 3 6 3 1 3 x , 0 0 5 0 0

pH option

pH 4.00	0
pH 6.88	1
pH 9.22	2

pH sensors

8346 pH/ORP sensor (DataSheet TE8346revD)

Part No.	Designation	
<u>8346 Preference Package</u>		
Z9135/P10/2	pH Measurement Package in Waste and Process Water with mechanical cleaning (220V) 1000 mm immersion depth; 9135 pH/ORP transmitter with relays consisting of: 9135 pH/ORP Single channel transmitter with 4 relay-board Immersion sensor (1m) PP, model 8346, NW100/ND10, flange PVC Power supply 220V/ 50/60 Hz Antimony ring electrode, model 8438 Reference electrode, model 8429 B Temperature sensor, 1m 5m screened cable, 6 cores, type 2666	
<u>Individual items</u>		
Z09135=A=0004	9135 pH/ORP Single channel transmitter with 4 relay-board	
Z363389,01000	Immersion sensor (1m) PP, model 8346, NW100/ND10, flange PVC	
Z08346=A=5220	Power supply 220V/ 50/60 Hz	
Z363629,84380	Antimony ring electrode, model 8438	
Z368429,00000	Reference electrode, model 8429 B	
Z363389,21000	8346.2T - Pt100 for 8346, Immersion depth 1000 mm	
Z370=506=025	6 conductor, low impedance cable, type 2666, per metre	
<u>Spare Parts</u>		
Z363700,74106	Diaphragm assembly for 8346.-E consisting of 3 diaphragms; 3 hex nuts PP; 6 seal	
Z363700,83462	Cleaning bar assembly for 8346. consisting of: 1 sintered ceramic bar, 1 hud, 1 screw	
Z151380,00000	Electrolyte tybing, per m	
Z359025,00060	Support rod	
Z363633,10000	Electrolyte reservoir for wall mounting	
<u>Optional accessores/Other items</u>		
<u>Immersion Probe 8346.E (with Electromotor)</u>		
Z363389,00500	500 mm Immersion depth	
Z363389,01000	1000 mm Immersion depth	
Z363389,01500	1500 mm Immersion depth	
<u>Pressurizing the Electrolyte Reservoir</u>		
Z599990,05704	Quick-connect plug	for use with Instrument Air
Z599990,05604	Quick-connect jack	for use with Instrument Air
Z599990,05704	Quick-connect plug	for use with Hand Pump
Z359026,10000	Pressure adaptor with gauge, model 8538.1	for use with Hand Pump
<u>Electrodes</u>		
Z363629,84361	ORP electrode, Gold ring, model 8436	-10 ... + 50°C (14–122°F)
Z363629,84351	ORP electrode, Platinum ring, model 8435	-10 ... + 50°C (14–122°F)
Z363629,84380	pH electrode, Antimony ring, model 8438	-10 ... + 120°C (14–248°F)
Z368429,00000	Reference electrode, model 8429-B	depending on measurement electrode
<u>Temperature Sensors</u>		
Z363389,20500	8346.1T - Pt100 for 8346, Immersion depth 500 mm	
Z363389,21000	8346.2T - Pt100 for 8346, Immersion depth 1000 mm	
Z363389,21500	8346.3T - Pt100 for 8346, Immersion depth 1500 mm	

pH/ORP Preference Packages

MONEC 9135 series



The MONEC 9135 is a single channel pH/ORP transmitter and has been designed to operate with a wide range of pH and ORP sensors for measuring and/or continuous control of pH/Temperature or Redox potential (ORP) in nearly all non-hazardous applications .

Equipped with Standard and specific temperature compensation, user selectable calibration methods, integrated controller and autodiagnostic functions and finally several communication outputs, the MONEC series stands for reliable and precise measurements in the field of Drinking water, Waste water and Industrial applications, as well as for Pure and Ultrapure Water applications.

Note: For technical data, please refer to the chapter "Controller & Transmitters"

Part No. Designation

Preference Packages for Flow Thru applications in Drinking & Industrial Process Water



MONEC 9135 pH Measuring system

Z 9 1 3 5 / P 0 5 / x

Controller configuration

Controller w/o relays	1
Controller with 4 relays	2

Note: The preference packages are favourably priced measurement systems for pH, consisting of:

Z08350=C=0005	pH electrode with 10 m cable and temperature sensor, model 8350.5
Z08350=A=9500	Flow T-piece for 8350/51 electrode, PVC, ND40
Z08350=A=9510	Kit with 2 adapters ND40- 1" for 8350/8351 probes and MONEC 9135 controller depending on the selected configuration
Z09135=A=0000	9135 pH/ORP Single channel transmitter (without relay) alternatively
Z09135=A=0004	9135 pH/ORP Single channel transmitter with 4 relay-board

Preference Packages for Flow Thru applications in Pure & Ultra-Pure Water



MONEC 9135 pH Measuring system

Z 9 1 3 5 / P 0 1 / x

Controller configuration

Controller w/o relays	1
Controller with 4 relays	2

Note: The preference packages are favourably priced measurement systems for pH, consisting of:

Z08362=A=0000	pH flow-through system with electrode, 3 m cable and Pt100 sensor, up to 80°C @ 6 bar and MONEC 9135 controller depending on the selected configuration
Z09135=A=0000	9135 pH/ORP Single channel transmitter (without relay) alternatively
Z09135=A=0004	9135 pH/ORP Single channel transmitter with 4 relay-board

Note: All preference packages are supplied without pH Buffer solutions
For suitable Buffer solution please consult the chapter Consumables

pH/ORP Preference Packages

MONEC 9135 series continued

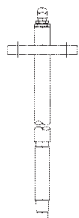
Part No.

Designation

Preference Packages for Immersion applications in Waste Water

MONEC9135 pH Measuring system

Z 9 1 3 5 / P 0 x / x



Controller relais option + Immersion pipe with adjustable flange

Controller w/o relais

+ 500 mm Immersion length	6	1
+ 1000 mm Immersion length	7	1
+ 1500 mm Immersion length	8	1

Controller with 4 relais

+ 500 mm Immersion length	6	2
+ 1000 mm Immersion length	7	2
+ 1500 mm Immersion length	8	2



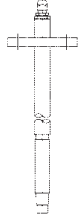
Note:

The preference packages are favourably priced measurement systems for pH, consisting of:

Z08350=C=0005	pH electrode with 10 m cable and temperature sensor, model 8350.5 and MONEC 9135 controller depending on the selected configuration
Z09135=A=0000	9135 pH/ORP Single channel transmitter (without relay) alternatively
Z09135=A=0004	9135 pH/ORP Single channel transmitter with 4 relay-board and Immersion pipe with adjustable flange in appropriate length (PP, NW 32/ND 10, flange PVC)
Z08350=A=1005	Immersion pipe with adjustable flange, PP NW 32/ND 10 (0.5m), flange PVC
Z08350=A=1010	Immersion pipe with adjustable flange, PP NW 32/ND 10 (1m), flange PVC
Z08350=A=1015	Immersion pipe with adjustable flange, PP NW 32/ND 10 (1.5 m), flange PVC

MONEC 9135 ORP Measuring system

Z 9 1 3 5 / R 0 x / x



Controller relais option + Immersion pipe with adjustable flange

Controller w/o relais

+ 1000 mm Immersion length	2	1
+ 1500 mm Immersion length	3	1

Controller with 4 relais

+ 500 mm Immersion length	1	2
+ 1000 mm Immersion length	2	2
+ 1500 mm Immersion length	3	2



Note:

The preference packages are favourably priced measurement systems for ORP, consting of

Z08351=C=0000	8351 redox combined sensor, guarded platinum sensor, PPS body, 10m cable and MONEC 9135 controller depending on the selected configuration
Z09135=A=0000	9135 pH/ORP Single channel transmitter (without relay) alternatively
Z09135=A=0004	9135 pH/ORP Single channel transmitter with 4 relay-board and Immersion pipe with adjustable flange in appropriate length (PP, NW 32/ND 10, flange PVC)
Z08350=A=1005	Immersion pipe with adjustable flange, PP NW 32/ND 10 (0.5m), flange PVC
Z08350=A=1010	Immersion pipe with adjustable flange, PP NW 32/ND 10 (1m), flange PVC
Z08350=A=1015	Immersion pipe with adjustable flange, PP NW 32/ND 10 (1.5 m), flange PVC



Note:

All preference packages are supplied without pH Buffer solutions
For suitable Buffer solution please consult the chapter Consumables

Drinking Water pH selection guide (Part 1)

For PG13,5 – 12mmØ – 120mm electrodes

RANGE OF OPERATING PROCESS CONDITIONS IN DRINKING WATER

Technical Data Subject to change without notice	
pH range	6 to 10
Temperature range (oC)	0 to 40
Pressure range (bar)	0 to 6
Conductivity (µS/cm)	25 to 2000 µS/cm
Application	Inlet (raw water), flocculation, disinfection, clean water

SENSOR SELECTIONS

Normal Process conditions



12 mm

S8 Sensor Connector:

LZU5303.97.0002 (without temp sensor)

MP4 Sensor Connector:

LZU5336T.97.0002 (with temp sensor)

Cold water or very low conductivity

(<100µS, -20 to +50°C)



Top68 Sensor Connector:

LZX536 (without temp sensor)

LZX537 (with temp sensor)

Tender (low cost electrode/one)



S8 Sensor Connector:

LZU5300.97.0002 (without temp sensor)

CABLE SELECTIONS

AS9



Variation

For S8 sensor plug IP65

LZU1005.99 (5m)

LZU1010.99 (10m)

MP4



For MP4 sensor plug IP67

LZU9301.99 (5m)

LZU9302.99 (10m))

Top68



For Top68 sensor plug

LZX548 (5m)

LZX516 (10m)

Drinking Water pH selection guide (Part 2)

For PG13,5 – 12mmØ – 120mm electrodes

MOUNTING HARDWARE SELECTIONS	
Immersion	<u>Variation</u> <u>Pole Mount</u> LZU6101.99 (80cm PVC) – for single electrode LZU6301.99 (80cm PVC auto-cleaning) - for single electrode <u>Float option</u> LZU6000.99 (PVC) LZU6901.99 (PVC auto-cleaning) <u>Chain Mount</u> LZU230.99.11412
	
Retractable fitting +Welding-type connector	<u>Inline DN25</u> LZY236 (with flushing connector, without pneumatic drive) <i>more variations see price list</i> LZU6121.99 welding-type connector, straight
	
Insertion + Welding-type connector	<u>Inline DN25</u> LZU7701.99 (PVC) + LZU6109.99 (PVC) LZU7801.99 (SS) + LZU6121.99 (SS) LZU6121.99 welding-type connector, straight <u>Tender</u> LZU7601.99 (3/4" NPT PVC)
	
Flow through cell	LZU6006.99 (2Sensors, flow detection) 6bar, max.45°C <i>more flow through cells see price list</i>
	
Cleaning system	<u>Airblast</u> 6860103.99.0001 (230VAC) <u>Chemical</u> Z08544=A=0004 (hose pump 230VAC)230VAC)

Drinking Water pH selection guide (Part 3)

For PG13,5 – 12mmØ – 120mm electrodes

CONTROLLER/TRANSMITTER SELECTIONS	
sc200 	<u>Variation</u> <u>Analogue - 1 channel</u> LXV404.99.00101 <u>Analogue - 2 channel</u> LXV404.99.00111
sc1000 	<u>4 channel Probe Module</u> LXV400.99.00121 - (Basic + 4x I/O Output) <u>Display Module</u> LXV402.99.00001 - without GSM LXV402.99.01001 - with GSM + Digital Gateway for analogue Sensors (pH) LZY328
SI-794 	<u>4-Wire Controller</u> LXV505.99.00002
SI-792 	LXV500.99.70002 - non-EX LXV500.99.70102 - Hart, ATEX Zone 1 LXV500.99.76102 - Profibus PA, ATEX Zone 1 LXV500.99.77102 - Foundation F-Bus, ATEX Zone 1
HACH SI62X (Tender Option) 	<u>SI627 P</u> LXV2702.98.00002 (panel mount 230VAC, 1x mA output) <u>SI628 P</u> LXV2800.98.00002 (wall mount 230VAC, 1x mA output, on&off control, 2Relais) <u>SI629 P</u> LXV2900.98.00002 (wall mount 230VAC1x mA output, on&off control, proportional control, 1-2Relais, manually 1P calibration)

Municipal wastewater pH selection guide (Part 1)

for PG13,5 – 12mm Ø – 120mm electrodes

Technical Data

Subject to change without notice

Range of Operating Process Conditions in Municipal Waste Water

pH range	5 to 11
Temperature range (oC)	0 to 60
Pressure range (bar)	0 to 5
Conductivity (µS/cm)	1000 to 10000 µS/cm2 (average is typically above 2500)
Applications	Influent, Aeration Basin, SBR, Nitrification/Denitrification, Digester, Disinfection - Chlorination, Effluent

SENSOR SELECTIONS

High Solids with Low Flow - Fouling Environment

12 mm



S8 Sensor Connectors:

LZU5330.97.0002 (without temp sensor)

MP4 Sensor Connectors:

LZU5334T.97.002 (with temp sensor)

High temperature/High Pressure



Top68 Sensor Connectors:

LZX545 (without temp sensor)

LZX546 (with temp sensor)

CABLE SELECTIONS

AS9

Variation



For S8 sensor plug IP65

LZU1005.99 (5m)

LZU1010.99 (10m)

MP4



For MP4 sensor plug IP67

LZU9301.99 (5m)

LZU9302.99 (10m)

TOP68



For Top68 sensor plug

LZX548 (5m)

LZX516 (10m)

Municipal wastewater pH selection guide (Part 2)

for PG13,5 – 12mm Ø – 120mm electrodes

MOUNTING HARDWARE SELECTIONS

Immersion



Variation

Pole Mount

LZU6101.99 (80cm PVC) – for single electrode

LZU6301.99 (80cm PVC auto-cleaning) - for single electrode

Float option

LZU6000.99 (PVC)

LZU6901.99 (PVC auto-cleaning)

Chain Mount

LZU230.99.11412

more immersion armatures see price list

Retractable fitting + Welding-type connector



Inline DN25

LZY236 (with flushing connector, w/o pneumatic drive)

more variations see price list

LZU6121.99 welding-type connector, straight

Insertion + Welding-type connector



Inline DN25

LZU7701.99 (PVC) + LZU6109.99 (PVC)

LZU7801.99 (SS) + LZU6121.99 (SS)

LZU6121.99 welding-type connector, straight

Tender

LZU7601.99 (3/4" NPT PVC)

Cleaning system

Airblast

6860103.99.0001 (230VAC)

Chemical

Z08544=A=0004 (hose pump 230VAC)

Municipal wastewater pH selection guide (Part 3)

for PG13,5 – 12mm Ø – 120mm electrodes

CONTROLLER/TRANSMITTER SELECTIONS

sc200



Variation

Analogue - 1 channel

LXV404.99.00101

Analogue - 2 channel

LXV404.99.00111

sc1000



4 channel Probe Module

LXV400.99.00121 - (Basic + 4x I/O Output)

Display Module

LXV402.99.00001 - without GSM

LXV402.99.01001 - with GSM

+

Digital Gateway for analogue Sensors (PH)

LZY328

SI-794



4-Wire Controller

LXV505.99.00002

SI-792



Only for analogue sensors

LXV500.99.70002 - non-EX

LXV500.99.70102 - Hart, ATEX Zone 1

LXV500.99.76102 - Profibus PA, ATEX Zone 1

LXV500.99.77102 - Foundation F-Bus, ATEX Zone 1

Industrial Wastewater pH selection guide (Part 1)

for PG13,5 – 12mmØ – 120mm electrodes

Technical Data
Subject to change without notice

Range of Operating Process Conditions in industrial waste water	
pH range	2 to 13
Temperature range (oC)	0 to 100
Pressure range (bar)	0 to 7
Conductivity (µS/cm)	1000 to 10000 µS/cm2 (in average more than 2500)
TSS (mg/L)	3 - 6g/l (biological tank) Types: oils and fats, abrasive media
Plants with waste water	Diary, food and beverage, tannery, textile, pulp and paper, fertilizer, steel processing
	plating, chemical & refinery, semi conductor....
Application	inlet, neutralisation, biological tank, SBR, digester, bioreactor

SENSOR SELECTIONS

High suspended solid contaminated area



12mm

S8 Sensor Connector:

LZU5330.97.0002 (without temp sensor)

MP4 Sensor Connector:

LZU5334T.97.002 (with temp sensor)

High temperature/high pressure



Top68 Sensor Connector:

LZX545 (without temp sensor)

LZX546 (with temp sensor)

CABLE SELECTIONS

AS9



Variation

For S8 sensor plug IP65

LZU1005.99 (5m)

LZU1010.99 (10m)

MP4



For MP4 sensor plug IP67

LZU9301.99 (5m)

LZU9302.99 (10m))

TOP68



For Top68 sensor plug

LZX548 (5m)

LZX516 (10m)

Industrial Wastewater pH selection guide (Part 2)

for PG13,5 – 12mmØ – 120mm electrodes

MOUNTING HARDWARE SELECTIONS

Immersion



Variation

Pole Mount

LZU6101.99 (80cm PVC) – for single electrode

LZU6301.99 (80cm PVC auto-cleaning)-for single electrode

Float option

LZU6000.99 (PVC)

LZU6901.99 (PVC auto-cleaning)

Chain Mount

LZU230.99.11412

Retractable fitting + Welding-type connector



Inline DN25

LZY236 (with flushing connector, without pneumatic drive)
more variations see price list

LZU6121.99 welding-type connector, straight

Insertion + Welding-type connector



Inline DN25

LZU7701.99 (PVC) + **LZU6109.99** (PVC)

LZU7801.99 (SS) + **LZU6121.99** (SS)

LZU6121.99 welding-type connector, straight

Tender

LZU7601.99 (3/4" NPT PVC)

Cleaning system

Airblast

6860103.99.0001 (230VAC)

Chemical

Z08544=A=0004 (hose pump 230VAC)

Industrial Wastewater pH selection guide (Part 3)

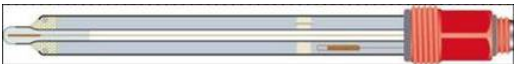
for PG13,5 – 12mmØ – 120mm electrodes

CONTROLLER / TRANSMITTER SELECTIONS	
sc200	<u>Variation</u> <u>Analogue- 1 channel</u> LXV404.99.00101 <u>Analogue - 2 channel</u> LXV404.99.00111
	
sc1000	<u>4 channel Probe Module</u> LXV400.99.00121 - (Basic + 4x I/O Output) <u>Display Module</u> LXV402.99.00001 - without GSM LXV402.99.01001 - with GSM + Digital Gateway for analogue Sensors (pH) LZY328
	
SI-794	<u>4-Wire Controller</u> LXV505.99.00002
	
SI-792	<u>Only for analogue Sensors</u> LXV500.99.70002 - non-EX LXV500.99.70102 -Hart, ATEX LXV500.99.76102 - Profibus PA, ATEX Zone 1 LXV500.99.77102 - FF-Bus, ATEX Zone 1
	

Industrial Process Water pH selection guide (Part 1)

for PG13,5 – 12mmØ – 120mm electrodes

Technical Data	
Subject to change without notice	
Range of Operating Process Conditions in industrial Process water	
pH & ORP Range	2 to 12 (0-14 for HP/HT Option)
Temperature range (oC)	0 to 100 (to 135°C for HP/HT option)
Pressure range (bar)	0 to 5 (6-34bar for HP/HT Option)
Conductivity (µS/cm)	> 0 µS/cm (Ultrapure)
Key Process Water Markets	Power, Industry
Applications	Raw water, water preparation (e.g. for boiler feed water), make up, reverse osmosis, demineralisation

SENSOR SELECTIONS	
Normal process conditions 	12mm S8 Sensor Connector: LZU5303.97.0002 (without temp sensor) MP4 Sensor Connector: LZU5336T.97.002 (with temp sensor)
Ultra Pure Water 	S8 Sensor Connector: Z08362=A=0000 (KTO sensor/cable/flow through cell) - for MONEC 9135 Controller 6178002 (KTO sensor/cable /flow through cell) - for sc Controller
Pure Water - KCL refillable electrode low conductivity < 100 µS/cm 	S8 Sensor Connector: LZY025 (refillable KCl electrode KCL without temp sensor) C74450A184A1 (KCL Reservoir) + C74450A184D1 (2m hose) + C20C320 (KCl solution)
High temperature/high pressure 	Top68 Sensor Connector: LZX545 (without temp sensor) LZX546 (with temp sensor)

Industrial Process Water pH selection guide (Part 2)

for PG13,5 – 12mmØ – 120mm electrodes

CABLE SELECTIONS

AS9



12mm

For S8 sensor plug IP65

LZU1005.99 (5m)

LZU1010.99 (10m)

TOP68



For Top68 sensor plug

LZX548 (5m)

LZX516 (10m)

MP4



For MP4 sensor plug IP67

LZU9301.99 (5m)

LZU9302.99 (10m))

MOUNTING HARDWARE SELECTIONS

Immersion



12mm

Pole Mount

LZU6101.99 (80cm PVC) – for single electrode

LZU6301.99 (80cm PVC auto-cleaning) - for single electrode

Float option

LZU6000.99 (PVC)

LZU6901.99 (PVC auto-cleaning)

Chain Mount

LZU230.99.11412

Retractable fitting + Welding-type connector



Inline DN25

LZY236 (with flushing connector, without pneumatic drive)

more variations see price list

LZU6121.99 welding-type connector, straight

Industrial Process Water pH selection guide (Part 3)

for PG13,5 – 12mmØ – 120mm electrodes

MOUNTING HARDWARE SELECTIONS

Insertion + Welding-type connector



Inline DN25

LZU7701.99 (PVC) + **LZU6109.99** (PVC)

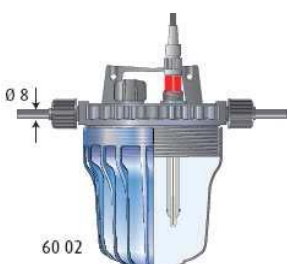
LZU7801.99 (SS) + **LZU6121.99** (SS)

LZU6121.99 welding-type connector, straight

Tender

LZU7601.99 (3/4" NPT PVC)

Flow through cell



LZU6006.99 (2Sensors, flow detection)

6bar, max.45°C

more flow through cells see price list

Cleaning system

Airblast

6860103.99.0001 (230VAC)

Chemical

Z08544=A=0004 (hose pump 230VAC)

CONTROLLER/TRANSMITTER SELECTIONS

sc200



12mm

Analogue - 1 channel

LXV404.99.00101

Analogue - 2 channel

LXV404.99.00111

sc1000



4 channel Probe Module

LXV400.99.00121 - (Basic + 4x I/O Output)

Display Module

LXV402.99.00001 - without GSM

LXV402.99.01001 - with GSM

+

Digital Gateway for analogue sensors (pH)

LZY328

Industrial Process Water pH selection guide (Part 4)

for PG13,5 – 12mmØ – 120mm electrodes

CONTROLLER / TRANSMITTER SELECTIONS

SI-794



4-Wire Controller
LXV505.99.00002

SI-792



Only for analogue sensors
LXV500.99.70002 - non-EX

LXV500.99.70102 - Hart, ATEX Zone 1

LXV500.99.76102 - Profibus PA, ATEX Zone 1

LXV500.99.77102 - Foundation F-Bus, ATEX Zone 1

Monec 9135 (for Ultra Pure Water)

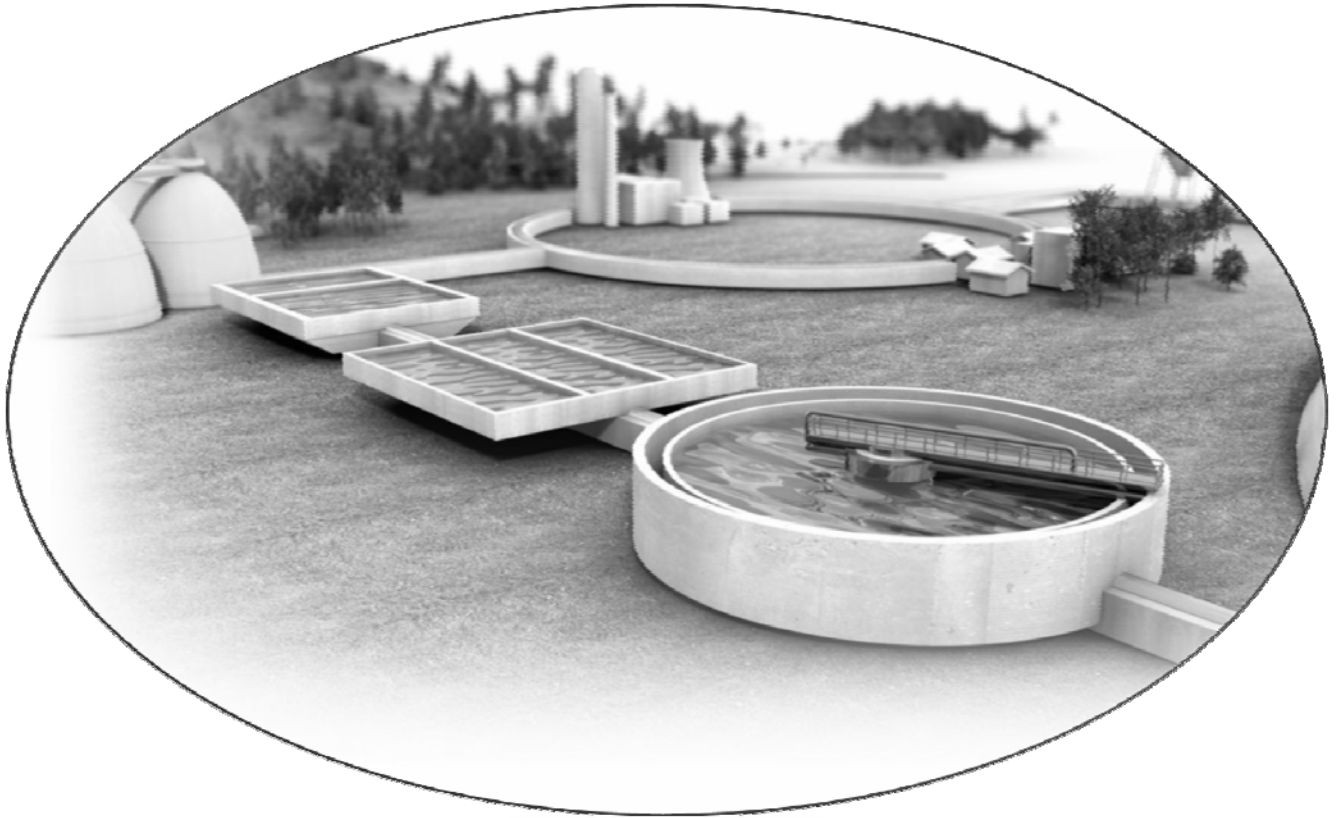


Z09135=A=0000 (without relays)

Z09135=A=0004 (with 4 relays)

Electrochemistry

Analytical systems for Conductivity / Concentration measurement in process



Electrochemistry Conductivity

General overview

MONEC 9125 Concentration Transmitter
pre-programmed methods for
HCl 0...18%
HNO₃ 0...30%
H₂SO₄ 0...30%
NaOH 0...15%
NaCl 0...26%



MONEC 9135

si79x Transmitter series
pre-programmed methods for

NaCl 0 - 26% at 0 °C
0 - 26% at 100 °C (212 °F)
HCl 0 - 18% at -20 °C (-4 °F)
0 - 18% at 50 °C (122 °F)
NaOH 0 - 15% at 0 °C (32 °F)
0 - 24% at 100 °C (212 °F)
H₂SO₄ 0 - 26% at -17 °C (1.4 °F)
0 - 27% at 110 °C (230 °F)
HNO₃ 0 - 30% at -17 °C (1.4 °F)
0 - 30% at 50 °C (122 °F)
Salinity USP 0.0 - 45‰ (0 - 35°C)
00.00 - 99.99 µS/cm



SI 792



SI 794

Controller compatibility								
sc 200 / sc 1000								
sc 200 / sc 1000 + AD 3400				X	X	X	X	X
sc 200 / sc 1000 + AD 3700								
sc 200 + Cond Module				X	X	X	X	X
SI 792	X	X	X	X	X	X	X	X
SI 792 X (ATEX)								
SI 794	X	X	X	X	X	X	X	X
MONEC 9135	X	X	X	X	X	X	X	X

Cable fixed length or Top connector	5m fixed cable	5m fixed cable	5m fixed cable					5m fixed cable
Cable with top connector				Z08319=A=0005 Z08319=A=0015 Z08319=A=0020	use Z08319=A=1115 (5m) in conjunction with AD3400 Gateway only, because of cable diameter compatibility!			
Conductivity sensors								
Sensor model Part No.	8398.2 Z08398=A=2000	8398.3 Z08398=A=3000	8398.5 Z08398=A=5000	8310/8315 Z08310=A=0000 Z08315=A=0000	8311/8316 Z08311=A=0000 Z08316=A=0000	8312/8317 Z08312=A=0000 Z08317=A=0000	8394 Z08394=A=1500 Z08394=A=2000	2EL LZV082

Electrode specs								
Measuring principle	Inductive	Inductive	Inductive	2EL Conductive	2EL Conductive	2EL Conductive	2EL Conductive	2EL Conductive
Measuring range								
Conductivity	0.2 ... 2000 mS/cm			0.01 ... 20 (A) 0.01 ... 50 (B) 0.01 ... 200 (C) µS/cm	0.01 ... 200 (A) 0.01 ... 500 (B) 0.01 ... 2000 (C) µS/cm	1 ... 2000 (A) 1 ... 5000 (B) 1 ... 20000 (C) µS/cm	0.01 ... 20 (A) 0.01 ... 50 (B) 0.01 ... 200 (C) µS/cm	1 ... 2000 (A) 1 ... 2500 (B) µS/cm
Concentration	Yes, using 9125 Concentration Transmitter			Yes, in conjunction with si79x Transmitter series				
Temperature	140°C	140°C	140°C	0 ... 125°C for models 3410/3411/3412 0 ... 150°C for models 3415/3416/3417 and 3494				up to 80°C
p _{max} @ T _{max}	140°C, 18 bar	140°C, 18 bar	140°C, 18 bar	10 bar @ 125°C for models 3410/3411/3412 25 bar @ 150°C for models 3415/3416/3417 and 3494				6 bar max.
Temperature sensor	Pt100 inbuilt	Pt100 inbuilt	Pt100 inbuilt	Pt100 inbuilt	Pt100 inbuilt	Pt100 inbuilt	Pt100 inbuilt	Pt100 inbuilt
Cell constant k	2.35	2.35	2.35	0.01	0.1	1.0	0.01	1.0
Electrode shaft material	PEEK	PEEK	PEEK	Polyester black or SS316L			SS316L	Graphite
Process connection	Sanitary style 2" clamp	DN50 union nut	DN20 flange or shaft	¾" NPT	¾" NPT	¾" NPT	Sanitary style 1.5 or 2" clamp	Pg 13.5 thread
max cable length	50 m	50 m	50 m	depending on application				
EEx protection according DIN50014 / EN50020 rating: II 2G Eex ia IIC T4 zone 1	no	no	no	yes	yes	yes	yes	yes
Max. cable length in EEx zone 1 in conjunction with si792X transmitter series	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Degree of protection	not specified	not specified	not specified	IP65	IP65	IP65	IP65	IP68
Application	Water, waste water, dirty cooling water, fouled water, chemical leakages, general CIP applications, Industrial applications, like concentration measurement, etc. For further information please refer to chapter 3700sc			Typical: High Purity Water, Deionised Water, Steam Condensate, Injection Water	Typical: RO Permeate, Boiler Water, Soft Drinking Water	Typical: Untreated Raw Water, Cooling Water, Drinking Water	Typical: High Purity, Deionised Water, Steam Condensate, Pharmaceutical	Typical: Drinking Water and other clean water water applications

Pure Water				X	X	X	X	
Potable Water					X	X		X
Food & Beverage	X	X	X	X	X	X		
In-process	X	X	X	X	X	X	X	X
Waste Water								
Neutralisation			X					
Industrial influent			X					
Municipal influent			X					
Aeration								
Digester								
Effluent								X
In process			X					

Documents

DOC053.53.90097

DOC053.53.90097

DOC053.53.90097

DOC053.53.90097

DOC053.53.90095

Note:

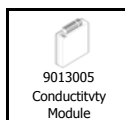
- A in conjunction with sc controllers
- B in conjunction with si79X and SIPAN Field controllers
- C in conjunction with MONEC 9125 Conductivity controller

Electrochemistry Conductivity

General overview



SI 792 X



9013005
Conductivity
Module



sc200

Concentration Curves

H3PO4: 0-40%
HCl: 0-18%; 22-36%
NaOH: 0-16%
CaCl2: 0-23%
HI03: 0-28%; 36-96%
H2SO4: 0-30%; 40-80%
1 customized calibration curve
with up to 10 calibration points
TDS

Controller compatibility								
sc 200 / sc 1000								
sc 200 / sc 1000 + AD 3400	x	x						
sc 200 / sc 1000 + AD 3700								
sc 200 + Cond Module	x	x	x					
SI 792	x	x	x	x	x	x	x	x
SI 792 X								
SI 794	x	x	x	x	x	x	x	x
MONEC 9135								

Cable fixed length or Top connector	S8 screw head	S8 screw head	MP-5 Plug	MP-5 Plug	MP-5 Plug	MP-5 Plug	MP-5 Plug	5m fixed cable
Cable with top connector								
3 m cable	LZU1003.99	LZU1003.99	LZU9044.99	LZU9044.100	LZU9044.101	LZU9044.102	LZU9044.103	
5 m cable	LZU1005.99	LZU1005.99	LZU9045.99	LZU9045.100	LZU9045.101	LZU9045.102	LZU9045.103	
10 m cable	LZU1010.99	LZU1010.99	LZU9046.99	LZU9046.100	LZU9046.101	LZU9046.102	LZU9046.103	
15 m cable	LZU1015.99	LZU1015.99	LZU9047.99	LZU9047.100	LZU9047.101	LZU9047.102	LZU9047.103	
Conductivity sensors								
Sensor model Part No.	5395 LZU5395.97.0002	5396 LZU5396.97.0002	5399 LZU5399.97.0002	5390 LZU5390.97.0002	5392 LZU5392.97.0002	5388 LZU5388.97.0002	5398 LZU5398.97.0002	4EL 7MA21008BC

Electrode specs								
Measuring principle	2EL Conductive	2EL Conductive	2EL Conductive	2EL Conductive	2EL Conductive	2EL Conductive	2EL Conductive	4EL Conductive
Measuring range	0.1 µS/cm ... 50 m	1 µS/cm ... 200 m	100 µS/cm ... 500	0.1 µS/cm ... 10 m	0.5 µS/cm ... 80 m	10 µS/cm ... 80 m	0.5 µS/cm ... 80 m	0.1 ... 500 mS/cm
Conductivity								
Concentration								
Temperature	0 ... 80°C	0 ... 80°C	0 ... 80°C	0 ... 100°C	0 ... 100°C	0 ... 80°C	0 ... 80°C	100°C
p _{max} @ T _{max}	2 bar @ 25°C	2 bar @ 25°C	2 bar @ 25°C	6 bar @ 25°C	6 bar @ 25°C	6 bar @ 25°C	6 bar @ 25°C	6 bar max.
Temperature sensor	no	no	Pt1000	Pt1000	Pt1000	Pt1000	Pt1000	Pt100 inbuilt
Cell constant k	0.1	1.0	10.0	0.15	0.3	0.6	0.3	0.0471
Electrode shaft material	Glass,Platinum	Glass,Platinum	Glass,Platinum	titanium, PVDF, s.steel	titanium, PVDF, s.steel	titanium	titanium	epoxy resin with graphite
Process connection	PG 13.5	PG 13.5	PG 13.5	1/2" NPT	1/2" NPT	PG 13.5	PG 13.5	DN50 conical flange
max cable length	depending on application	depending on application	depending on application	depending on application	depending on application	depending on application	depending on application	50 m
EEX protection according DIN50014 / EN50020 rating: II 2G Eex ia IIC T4 zone 1	no	no	no	no	no	no	no	yes
Max. cable length in EEx zone 1 in conjunction with si792X transmitter series	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Degree of protection								IP54
Application	Typical: RO Permeate Boiler Water Soft Drinking Water	Typical: Untreated Raw Water, Cooling Water Drinking Water	Typical: Samples with high conductivities, sea waters,	Typical: Clean waters, low conductivity waters, etc.	Typical: Drinking waters, municipal waters, water	Typical: Drinking waters, municipal waters, water	Typical: Drinking waters, municipal waters, water	Typical: Clean water and slightly coating forming media; pH 3..11 (25°C) pH 4..10 (>25°C)

Pure Water	X			X	X		X	
Potable Water	X	X	X	X	X	X	X	X
Food & Beverage		X						
In-process		X	X					X
Waste Water								
Neutralisation			X					X
Industrial influent			X					X
Municipal influent			X					X
Aeration								
Digester								
Effluent		X	X		X	X	X	X
In process			X					X

Documents

DOC013.97.90292

DOC013.97.90293

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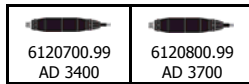
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Electrochemistry Conductivity

General overview



AD3700 sc
pre-programmed methods for
TDS 0 ... 9999 ppm
H₂SO₄ 0 ... 30%
40 ... 80%
93 ... 99%
NaOH 0...16%

Specialty:
1 customized calibration curve with
up to 10 calibration points



sc 200



sc1000

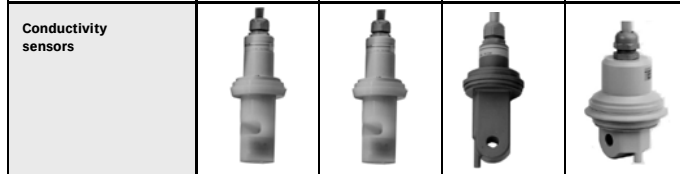
Controller compatibility				
sc 200 / sc 1000				
sc 200 / sc 1000 + AD 3400				
sc 200 / sc 1000 + AD 3700				
sc 200 + Cond Module				
SI 792	x	x	x	x
SI 792 X		x		
SI 794	x	x	x	x
MONEC 9135				

x	x
x	x
x	x
x	x
x	x

x

Cable fixed length or Top connector	5m fixed cable	5m fixed cable	5m fixed cable	5m fixed cable
Cable with top connector 3 m cable 5 m cable 10 m cable 15 m cable				

6m fixed cable	6m fixed cable



Sensor model Part No.	Ind (FEP) 7MA22008BF	Ind (FEP) EEX 7MA22008EB	Ind 7MA22008DA	Ind - San 7MA22008CB

3798 sc

Electrode specs				
Measuring principle	Inductive	Inductive	Inductive	Inductive
Measuring range				
Conductivity	0.1 ... 2500 mS/cm	0.1 ... 2500 mS/cm	0.1 ... 2500 mS/cm	0.1 ... 2500 mS/cm
Concentration	yes	yes	yes	yes
Temperature	130°C	130°C	130°C	130°C
p _{max} @ T _{max}	10 bar max.	10 bar max.	10 bar max.	10 bar max.
Temperature sensor	Pt100 inbuilt	Pt100 inbuilt	Pt100 inbuilt	Pt100 inbuilt
Cell constant k	3.82	3.82	3.0	3.16
Electrode shaft material	FEP	FEP	PEEK	PEEK
Process connection	DN50 conical flange	DN50 conical flange	DN50 conical flange	Varivent
max cable length	50 m	50 m	50 m	50 m
EEX protection according DIN50014 / EN50020 rating: II 2G Eex ia IIC T4 zone 1	no	yes	no	no
Max. cable length in EEx zone 1 in conjunction with si792X transmitter series	n.a.	5 m	n.a.	n.a.
Degree of protection	IP65	IP67	IP65	IP65
Application	Industrial applications like CIP applications, phase separation of product/water applications, product monitoring in food and beverage industry, Concentration measurement and control of acids and caustics, For further information please refer to chapter			

Inductive	Inductive
200 µS/cm ... 2,000 mS/cm	200 µS/cm ... 2,000 mS/cm
yes	yes
up to 200°C depending on sensor material	
up to 13.8 bar @ 200°C depending on sensor material	
Pt1000 inbuilt	Pt1000 inbuilt
4.44	4.44
available in PP, PVDF, PEEK and PFA Teflon	
Sanitary style 2" clamp	¾" NPT thread (convertible style)
100m / 400m	100m / 400m
PEEK and PFA Teflon sensor models only in conjunction with si792X models with restriction to Tmax = 120°C; max. 2 m/ sec flow Conductivity > 0.1 µS/cm 6 m (electrode dependant)	
IP68	IP68
General purpose Water, waste water, dirty cooling water, fouled water, chemical leakages, general CIP applications, Industrial applications, like concentration measurement, etc. For further information please refer to chapter 3700sc	

Inductive
250 µS/cm ... 2,500 mS/cm
no
-5 ... 50°C
20 m resp. 2 bar
Pt100 inbuilt
2.35
PEEK, SS, PPS
Immersion mounting 100m / 400m
n.a.
Non-corrosive media in Municipal and Industrial applications

Pure Water				
Potable Water				
Food & Beverage			x	x
In-process	x	x	x	x
Waste Water				
Neutralisation				
Industrial influent				
Municipal influent				
Aeration				
Digester				
Effluent				
In process				

x	x
x	x
x	x
x	x
x	x

(X)
x
x
x
x

Documents

DOC053.53.90100

DOC053.53.90100

DOC053.53.90100

DOC053.53.90098

DOC 053.52.00014

DOC 053.52.00014

Conductivity/Concentration measurement

General Material Compatibility overview

PEEK

= Polyetheretherketone

This material type is ideal for the widest range of applications within the chemical, pulp & paper, and refinery industries. The only known materials to severely attack PEEK are very high concentrations of acids, such as nitric or sulfuric acid. It has a higher temperature capability than the Polypropylene or PVDF sensors.

PFA Teflon

= Perfluoroalkoxy Teflon

This material type is ideal for extremely corrosive applications, especially high concentrations of sodium hydroxide, nitric acid, sulfuric acid, or hydrofluoric acid. It has the highest temperature rating of the four sensor types. It is also ideal for applications which have a tendency to coat the sensor.

PP

= Polypropylene:

This material type is ideal for wastewater applications where the temperatures and pressures are close to ambient and chemical compatibility is not a serious concern.

PVDF

= PolyVinylidene Fluoride, also called "KYNAR"[®]

This material type is one of the most rigid and abrasion-resistant materials. It has good chemical resistance to halogens, such as chlorine or bromine. It is ideal for applications which require higher pressure ratings, but do not have high temperatures, such as water treatment applications in the semiconductor industry.

Material		PEEK			PVDF			PP			EPDM			VITON			Stainless Steel		
Temperature in °C		20	60	100	20	60	100	20	60	100	20	60	100	20	60	100	20	60	100
Chemical component	%																		
Sulphuric acid	10	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	50	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes
	95	No	No	No	Yes	Yes	No	Yes	No	No	Yes	No	No	Yes	Yes	No	Yes	Yes	Yes
Hydrochloric acid	10	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No
	sat	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	Yes	Yes	Yes	No	No	No
Nitric acid	<25	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes
	50	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
	95	No	No	No	Yes	Yes	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Phosphoric acid	<25	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No
	50	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No
	95	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes	No	No	No	No
Hydrofluoric acid	40	No	No	No	Yes	Yes	Yes	Yes	Yes	No	No	No	No	Yes	Yes	Yes	No	No	No
	75	No	No	No	Yes	Yes	Yes	Yes	Yes	No	No	No	No	Yes	Yes	Yes	No	No	No
Acetic acid	10	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes
	glacial	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes	No	No	No	No	Yes	Yes	Yes
Formic acid	80	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	No	No	No	Yes	Yes	Yes
Citric acid	50	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Calcium hydroxide	Sat	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Potassium hydroxide	50	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes
Sodium hydroxide	10	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes
	40	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes
Ammonia	10	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	No	No	No	Yes	Yes	Yes
	30	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	No	No	No	Yes	Yes	No
Ammonium chloride	Sat	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Zinc chloride	50	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Iron chloride	50	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No
Sodium sulphite	Sat	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes
Sodium carbonate	Sat	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes
Potassium chloride	Sat	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes
Sodium sulphate	Sat	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Calcium chloride	Sat	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sodium chloride	Sat	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sodium nitrate	50	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Aluminium chloride	Sat	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No
Hydrogen peroxide	30	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes
Sodium hypochlorite	50	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes
Potassium dichromate	Sat	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Chlorinated salt water		Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	Yes	Yes	No	No	No	No
Ethanol	80	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cyclohexane		Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Toluene		Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No	Yes	Yes	Yes
Trichloroethane		Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	No
Water		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

momentarily

For further substances we recommend to refer to

<http://www.coleparmer.com/techinfo/chemcomp.asp>

Conductivity, inductive

Digital Conductivity Sensor Model 3798 (DataSheet DOC053.52.03252)



The 3798-S-sc sensor is using a non-contacting, inductive measurement technique and therefor particularly suitable for heavily soiled media, such as municipal and industrial wastewater.

Nevertheless the wide measuring range also allows reliable measurement in polluted surface water and drinking water. Its resitant PEEK housing makes the sensor lastingly resitant.

The 3798 S sc sensor comes factory precalibrated for immediate use. Calibration can be done by using either an Electrical Calibration tool or conventional Conductivity Standards.

Controller compatibility



sc200



sc1000

Technical Data	
Subject to change without notice	
	3798 S sc
Designation	Immersion style Inductive Conductivity probe for non-corrosive Waste Water Applications
Sensor style	Inductive Conductivity Sensor with integrated Pt100
Cell constant k	2.35 cm ⁻¹
Measuring range	
Conductivity	250 µS/cm ... 2.5 S/cm (2.500.000 µS/cm)
Temperature	-5 ... 60 °C
Response time T ₉₀	
Conductivity	< 2 s
Temperature	< 2 min
Accuracy	
Conductivity	± 1% of actual value or ± 0,004 mS/cm whichever is greater
Temperature	± 0.2°C
Reproducibility	< 0.2 %
Temperature compensation	Automatic or manual
Calibration	Zero value calibration in air. Fixed value calibration with defined resistance or with standard solution
Process connection	
Installation style	Immersion style; Immersed directly into the media using pole or chain mounting
Max. flow rate	4 m/s
Pressure p _{max}	20 m immersion depth (corresponding to 2 bar)
Temperature	
Operation	-20 ... 50 °C
Materials	
Sensor Housing	Stainless steel metal housing
Sensing element	PEEK (Polyetheretherketone)
Sensor cable	Polyurethane
other materials	PPS
Sensor cable	10 m hardwired, with encapsulated IP 68 connector, extendable with sc sensor cables up to 100m
Power consumption	< 7 W
Weight	Approx. 1 kg
Dimensions	42 mm x 360 mm (Ø x L)
Required Maintenance:	Change of sealing 1x/2 years (after 1000 hours)
Controller compatibility	any digital sc controller
Warranty	2 years fulfilling the required service intervals

Conductivity, inductive

Digital Conductivity Sensor Model 3798 (DataSheet DOC053.52.03252)

Part No. Designation

LXV428.99.00001 **3798-S sc** Digital Inductive Conductivity Sensor

L	X	V	4	2	8	.	9	9	.	0	0	0	0	1
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Language / Country Code Selection

 **Note:** Each sensor includes a PEEK inductive sensor and integral 10 m cable terminated with connector for the sc200/sc1000 digital controller.
 sc Digital Controller, and sc extension cables (must be ordered separately)
 For technical data and interfaces, refer to the chapter sc controller/display units
 The maximum cable length between the sensor and controller is limited to 100m.
 For further extension cables, please consult the chapter sc controller/display units accessories
 Using different cables instead of the below mentioned, will void the warranty.
 For suitable Mounting hardware, please refer to the chapter "E-Chem Mounting Hardware".

Accessories

LZX985 Electrical Calibration tool for 3798-S sc

Conductivity Reference /calibration solutions*

25M3A2000-119	100-1000 $\mu\text{S}/\text{cm}$	1 Liter bottle
25M3A2050-119	1000-2000 $\mu\text{S}/\text{cm}$	1 Liter bottle
25M3A2100-119	2000-150,000 $\mu\text{S}/\text{cm}$	1 Liter bottle
25M3A2200-119	200,000-300,000 $\mu\text{S}/\text{cm}$	1 Liter bottle

* Specify the desired conductivity value of the solution.

Digital extension cable (between display unit and probe)

LZX848	Digital Extension Cable, 5 m
LZX849	Digital Extension Cable, 10 m
LZX850	Digital Extension Cable, 15 m
LZX851	Digital Extension Cable, 20 m
LZX852	Digital Extension Cable, 30m
LZX853	Digital Extension Cable, 50 m

Documentation

DOC023.52.03252 Operation Manual, 3798 S sc, Immersion Conductivity probe, GB

charged if ordered separately

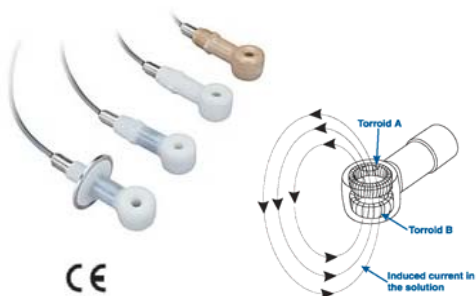
Conductivity, inductive

3700 Conductivity sensor series - Application Guide

Industry	Application	Recommended Sensor and Material
Metals Finishing and Mining	Plating bath monitoring Alkaline/caustic wash Rinse water Pickling processes Metals recovery Copper floatation Scrubbers	Convertible (Polypropylene) Convertible (Polypropylene) Convertible (Polypropylene) Convertible (PVDF) Convertible (PEEK) Convertible (PEEK) Convertible (Polypropylene)
Chemicals and Refining	Acid production Caustic production Phosphates Fertilizers Detergents Glycerin Moisture detection Scrubbers Wastewater Oil well drilling mud Leak detection Alkylation Spill detection	Convertible (PFA Teflon) Convertible (PFA Teflon) Convertible (PFA Teflon) Convertible (PFA Teflon) Convertible (PFA Teflon) Convertible (PVDF) Convertible (PVDF or PFA Teflon) Convertible (PVDF) Convertible (PVDF) Convertible (PEEK) Convertible (PEEK) Convertible (PFA Teflon) Convertible (PEEK)
Food and Beverage	Brine concentration Desalting Cheese production Caustic peeling Pickle making CIP applications Rinse water control Sugar carbonation	Convertible (Polypropylene) Convertible (Polypropylene) Sanitary (PFA Teflon) Convertible (PFA Teflon) Sanitary (Polypropylene) Sanitary (PFA Teflon) Convertible (Polypropylene) Convertible (PFA Teflon)
Pulp and Paper	White, black and green liquor Stock washing Wash and cooking liquor control Scrubbers Spill detection	Convertible (PEEK) Convertible (PEEK) Convertible (PEEK) Convertible (PEEK) Convertible (PEEK)
Textile Manufacturing	Rinse water Dye baths Bleaching Mercerizing Acid washing Carbonizing and scouring baths	Convertible (Polypropylene) Convertible (Polypropylene) Convertible (Polypropylene) Convertible (Polypropylene) Convertible (Polypropylene) Convertible (Polypropylene)
Natural Waters, Lakes, Streams, and Sea Water	Water pollution monitoring Salt intrusion Salinity	Convertible (Polypropylene) Convertible (Polypropylene) Convertible (Polypropylene)
Clean Water Treatment	Ion exchange regeneration Reverse osmosis concentrate monitoring Softener regeneration Acid/caustic concentration control	Convertible (Polypropylene) Convertible (Polypropylene) Convertible (Polypropylene) Convertible (PVDF)
Wastewater Treatment	Acid/caustic concentration control Spill detection	Convertible (PEEK) Convertible (PEEK)
Steam Generation	Boiler blowdown Flue gas scrubbers	Convertible (Polypropylene) Convertible (Polypropylene)

Conductivity, inductive

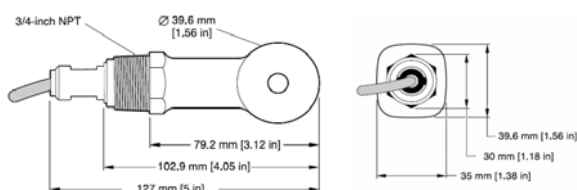
3700 Conductivity sensor series (DOC053.52.00014)



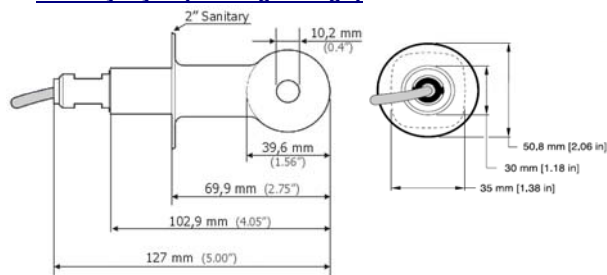
The 3700 inductive conductivity sensors comes with a choice of material and body styles, providing high flexibility to applications and process connections

- Convertible – 2-inch NPT, designed for tee, other flow through, insertion, and pipe mountings for immersion.
- Sanitary (CIP) –2-inch flange, special cap, and EPDM compound gasket. Conforms to provisions of 3-A Sanitary Standards.

convertible style



sanitary style (2" flange design)



- ➔ Inductive conductivity sensors for use in industrial process water
- ➔ Wetted Material available in PP, PVDF, PEEK or PFA Teflon
- ➔ Concentration measurement of concentrated acids and lyes
 - ➔ wide measuring range
- ➔ integrated Pt1000 for temperature compensation
- ➔ Versatile process connections
 - ➔ Convertible style – 3/4" NPT design
 - ➔ Sanitary style – 2" flange design

		D37XXE2T.99 digital sensor preference packages (consisting of analog sensor model + AD3700 digital gateway + 1 m digital sc sensor cable)	37XXE2T.99 analog sensor models
	sc1000	yes	
	sc200	yes	requires conductivity module card (9013005)
	si792		all sensor models without limitations
	si792X 		PEEK or PFA Teflon designed sensor models only for II 2G Eex ia IIC T4 zone 1 with restriction to Tmax = 120°C; max. 2 m/ sec flow Conductivity > 0.1 µS/cm
	si794		all sensor models without limitations

Conductivity, inductive

3700 Conductivity sensor series (DOC053.52.00014)

Technical Data	
Subject to change without notice	
	3700 / 3700 sc
Designation	Inductive Conductivity sensor for Conductivity and Concentration Measurement
Sensor style	Inductive Conductivity Sensor with integrated Pt1000
Cell constant k	4.44 cm ⁻¹
Measuring range	
Conductivity	200 µS/cm ... 2.0 S/cm (2.000.000 µS/cm)
Temperature	-10 ... 200°C
Response time T ₉₀	
Conductivity	< 2 s
Temperature	< 2 min
Accuracy	
Conductivity	± 1% of actual value or ± 0.004 mS/cm whichever is greater
Temperature	± 0.2°C
Reproducibility	< 0.2 %
Temperature compensation	Automatic or manual
Calibration	Zero value calibration in air. Fixed value calibration with defined resistance or with standard solution
Process connection	¾" NPT or 2" flange design depending on sensor model option
Installation style	Immersion, Insertion, Union and Sanitary Mounting
Max. flow rate	3 m/s
Pressure p _{max} @ T _{max}	
Polypropylen	6.9 bar @ 100°C
PVDF	6.9 bar @ 120°C
PEEK	13.8 bar @ 200°C
PFA Teflon	13.8 bar @ 200°C
Temperature	
Operation	-10 ... 200°C (limited by choosen sensor body material and mounting hardware)
Materials	
Sensor Housing	PP, PVDF, PEEK or PFA Teflon
Sensor cable (sensor material see below)	5 conductor (plus two isolated shields) cable with XXXX jacket; rated to XXX°C, 6 m (20 ft.) long (XXXX sensor material depending; see below)
PP & PVDF	XLPE (cross-linked polyethylene) jacket; rated to 150°C (302°F)
PEEK & PFA Teflon	Teflon-coated jacket; rated to 200°C (392°F)
Weight	depending on sensor style and material
Dimensions	depending on sensor style and material
Controller compatibility	
analog models	si79X transmitter series
digital models	sc 1000 controller in conjunction with AD3700 digital gateway or sc200 with µS module card
EEx protection acc. DIN 50014/EN 50020	II 2G Eex ia IIC T4 zone 1 / using si792X in conjunction with PEEK or PFA Teflon designed sensor models at maximum process temperature of 125°C (Temperature class 4), max. 2 m/ sec flow, Conductivity > 0.1 µS/cm
Warranty	12 months

Conductivity, inductive

3700sc Digital Conductivity Sensor series (DOC053.52.00014)

Part No. Designation

3700 sc Conductivity sensor series

D	3	7	x	x	E	2	T	.	9	9
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Sensor Body Style and Body material option

Sanitary style (2" flange design) (suitable for CIP/SIP depending on material)

made of PP	(pmax 6.9 bar @ 100°C)	0	5
made of PVDF	(pmax 6.9 bar @ 120°C)	0	6
made of PFA Teflon	(pmax 13.8 bar @ 200°C)	0	8

Convertible style (¾" NPT threaded)

made of PP	(pmax 6.9 bar @ 100°C)	2	5
made of PVDF	(pmax 6.9 bar @ 120°C)	2	6
made of PEEK	(pmax 13.8 bar @ 200°C)	2	7
made of PFA Teflon	(pmax 13.8 bar @ 200°C)	2	8

Note: All 3700 sc Digital Sensors comes in appropriate body material, with 6 m (20 ft) integral cable, digital gateway (6120800.99) and a 1 m digital extension cable. sc Digital Controller (sc200/sc1000), and sc extension cables (must be ordered separately) For technical data and interfaces, refer to the chapter sc controller/display units

The maximum cable length between the sensor and controller is limited to 100m. Using different cables instead of the below mentioned, will void the warranty. If the total length exceeds 110m, a digital termination box (5867000) is required. The maximum cable length is limited to 410m in total. (not compatible with sc1000) For suitable Mounting hardware, please refer to the chapter "E-Chem Mounting Hardware".

Accessories

Digital Extension Cables

LZX848	Digital Extension Cable, 5 m
LZX849	Digital Extension Cable, 10 m
LZX850	Digital Extension Cable, 15 m
LZX851	Digital Extension Cable, 20 m
LZX852	Digital Extension Cable, 30 m
LZX853	Digital Extension Cable, 50 m

Replacements

6120800.99	AD3700 sc , Digital Gateway to operate 3700 sensors
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Note: sc Digital Controller and sc extension cables (must be ordered separately) For technical data and interfaces, refer to the chapter sc controller/display units

Note: The AD3700 sc Digital Gateway is pre-calibrated for Concentration Measurement of H2SO4 in the range of 0...30%, 40...80% and 93...99% NaOH in the range of 0...16% furthermore the Digital Gateway accepts measurement by factor or user defined calibration curves up to 10 calibration points.



Conductivity, inductive

3700 Conductivity Sensor series (DOC053.52.00014)

Part No.

Designation

3700 Conductivity sensor series

3	7	x	x	E	2	T	.	9	9
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Sensor Body Style and Body material option

Sanitary style (suitable for CIP/SIP depending on model)

made of PP	(pmax 6.9 bar @ 100°C)	0	5
made of PVDF	(pmax 6.9 bar @ 120°C)	0	6
made of PFA Teflon	(pmax 13.8 bar @ 200°C)	0	8

Convertible style

made of PP	(pmax 6.9 bar @ 100°C)	2	5
made of PVDF	(pmax 6.9 bar @ 120°C)	2	6
made of PEEK	(pmax 13.8 bar @ 200°C)	2	7
made of PFA Teflon	(pmax 13.8 bar @ 200°C)	2	8



Note:

All 3700 analog sensors comes in appropriate body materials with 6 m (20 ft) integral cable
 Analog sensors are compatible with si792/792X/794 and sc200 analog models only
 For EEX applications (II 2G Eex ia IIC T4 zone 1) only si792X in conjunction with PEEK or PFA Teflon
 overmolded sensor models at maximum process temperature of 125°C (Temperature class 4), max. 2 m/
 sec flow, Conductivity > 0.1 µS/cm, are suitable.
 The maximum cable length between the sensor and controller is limited to 50 m.
 The maximum cable length in Eex application between the sensor and controller is limited to 5 m.
 The transmitter SI792XE may be operated with the following sensor types: D3708E2T.99,
 D3727E2T.99, D3728E2T.99

Sanitary style – has an integral 2" flange and comes with special cap and EPDM compound gasket
 The gasket and cap are also available separately as spare parts.

Spare Parts

70F1037-003	2" Solid End Cap, made of SS304 (for 3700 inductive conductivity sensor "Sanitary style")
9H1327	Gasket, made of EDPM, 2"

Optional accessories

60A2053	Junction Box for analog cable extension, Aluminum, for surface mount
1W1100	Interconnect Cable, 6 wire, for analog 3700 sensor series (order / feet) crosslinked polyethylene jacket rated to 150°C

Conductivity Reference Solutions

C20C280	0.001 Molar KCl, 148 µS/cm @ 25 °C	500 ml bottle
C20C270	0.01 Molar KCl, 1413 µS/cm @ 25 °C	500 ml bottle
C20C250	0.1 Molar KCl, 12.88 mS/cm @ 25 °C	500 ml bottle
25M3A2000-119	100-1000 µS/cm*	1 Liter bottle
25M3A2050-119	1000-2000 µS/cm*	1 Liter bottle
25M3A2100-119	2000-150,000 µS/cm*	1 Liter bottle
25M3A2200-119	200,000-300,000 µS/cm*	1 Liter bottle

* Specify the desired conductivity value of the solution.

Conductivity, inductive

3700 Conductivity sensor series - Installation Guide

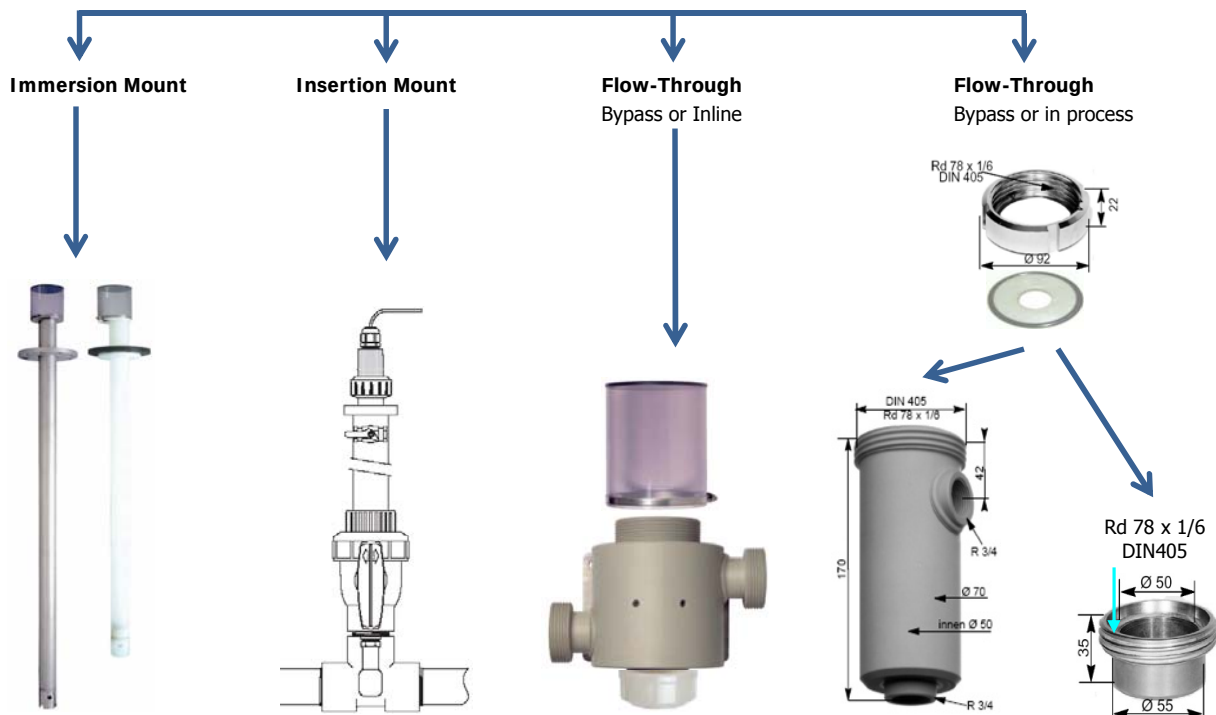
370XE2T sensor series



3725E2T, made of PP	pmax 6.9 bar @ 100°C
3726E2T, made of PVDF	pmax 6.9 bar @ 120°C
3727E2T, made of PEEK	pmax 13.8 bar @ 200°C
3728E2T, made of PFA Teflon	pmax 13.8 bar @ 200°C



ATEX II 2G Ex ia IIC T4 zone 1 / using si792X in conjunction with PEEK or PFA Teflon designed sensor models at maximum process temperature of 125°C (Temperature class 4), max. 2 m/ sec flow, Conductivity > 0.1 µS/cm
Permitted range of the ambient emperature- 20°C < Ta < + 55°C



Order number:

LZU220.99.1E331
made of PP-H
(0 bar @ 90 C, 1 bar @ 30 C)

LZU220.99.2E331
made of PVDF
(0 bar @ 120 C, 1 bar @ 50 C)

with flange DN65 PN16

Immersion length 1000mm, sensor adapter 3/4" inside thread
For other configurations and specifications refer to the appendix.

DataSheet
DOC273.98.90080

Order number:

Retractable fitting incl.2" NPT- insertion mounting assembly with ball valve:

MHZ118M9NZ
made of S316,
5.5bar at 95 C

MH138M9NZ
made f CPVC
3.5 bar at 90 C

incl. Teflon valve seats, and VitonO-ring seals mounting on 2.0" threaded tee or welding flange (customer supplied)

DataSheet
DOC 053.52.00014

Order number:

Flow fitting, Inlet/Outlet 180 staggered, made of PP-H
6 bar @ 40 C;
1.5 bar @ 90 C

LZU215.99.1E220
1/4" process connection

LZU215.99.1E220
DN25 process connection

For other configurations and specifications refer to the appendix

DataSheet
DOC273.98.90079

Order Number:

Flow fitting

LZY038
made of PP
6 bar @ 20 C
0.2 bar @ 90 C

LZY039
made of PVDF
6 bar @ 20 C
1 bar @ 130 C

LZY041
Union nut, SS 1.4301

LZH122
Elektrode holder

DataSheet
DOC053.72.90101

Order Number:

LZY043
Welding connector, SS 1.4301 with 1 gasket (Viton)

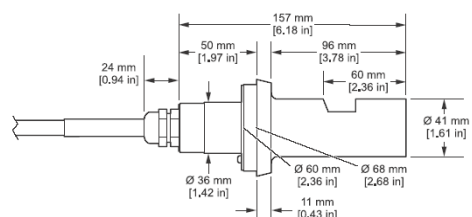
LZH122
Electrode holder

LZY041
Union nut, SS 1.4301

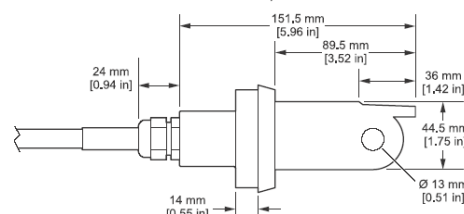
DataSheet
DOC053.72.90101

Conductivity, inductive

2200 series Conductivity sensors (DataSheet DOC053.53.90100)



sensor models: 7MA22008BF/EB



sensor model: 7MA22008DA

- ➔ Inductive conductivity sensors for use in industrial process water
- ➔ Concentration measurement of concentrated acids and lyes
- ➔ integrated Pt100 for temperature compensation
- ➔ Universal application
 - ➔ DN50 conical flange design for installation in immersion and flow fittings
 - ➔ wide measuring range
 - ➔ Wetted Material available in PEEK or FEP

Controller compatibility



si79X series

Technical Data			
Subject to change without notice			
	7MA22008DA	7MA22008BF	7MA22008EB
Designation	Inductive Conductivity sensor with integrated Temperature sensor		
Fields of applications (typical)	Industrial process water chemical industry and food & beverage Industry	Industrial process water concentration measurement of acids and lyes	Industrial process water concentration measurement of acids and lyes
Measurement method	Inductive		
Cell constant K	3.00	3.82	3.82
Temperature sensor	Pt100 inbuilt		
Measuring range	100 µS/cm ... 2,500 mS/cm		
Response time t ₉₀	50s	100s	100s
Temperature			
Process connection	DN50 conical flange		
T _{max} operation	130°C (applies to immersed sensor part)		
p _{max} @ T _{max}	10 bar		
Wetted material	PEEK	PEEK	FEP
Dimension	please refer to technical drawings		
Weight	~ 1.2 kg		
cable	5 m integral cable, extendable to 50 m max. / for EEx applications: 5 m max.		
Protection class acc. DIN EN 60529	IP65	IP65	IP67
Certification & Approvals	loop rating in conjunction with (1) = si792/si792X; (2) = si792X transmitters		
ATEX	not applicable	not applicable	II 2G Eex ia IIC T4 zone 1 (2)
FM	Class 1 Div 2 (1)(2)	Class 1 Div 2 (1)(2)	Class 1 Div 1 (2)
CSA	Class 1 Div 2 (1)(2)	Class 1 Div 2 (1)(2)	Class 1 Div 2 (2)

FEP Perfluoroethylenepropylene
PEEK Polyetherketone

Conductivity, inductive

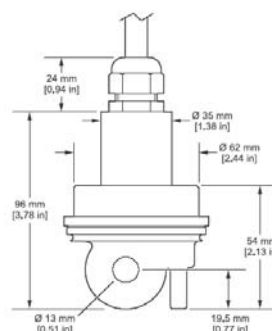
2200 series Conductivity sensors (DataSheet DOC053.53.90100)

Part No.	Designation
<u>Inductive Conductivity sensor with DN50 conical flange</u>	
7MA22008DA	Inductive Conductivity sensor, made of PEEK, integrated Pt100 T-sensor, 5 m fixed cable Process connection: DN50 conical flange Cell constant $k = 3.00 \text{ cm}^{-1}$; Measuring range: 100 $\mu\text{S/cm}$... 2,500 mS/cm max. 10 bar @ max 130°C
7MA22008BF	Inductive Conductivity sensor, made of FEP, integrated Pt100 T-sensor, 5 m fixed cable Process connection: DN50 conical flange Cell constant $k = 3.82 \text{ cm}^{-1}$; Measuring range: 100 $\mu\text{S/cm}$... 2,500 mS/cm max. 10 bar @ max 130°C
7MA22008EB	Inductive Conductivity sensor, made of FEP, integrated Pt100 T-sensor, 5 m fixed cable Intrinsic safe EEx ia IIC T4, ambient temperature < 80°C; Medium temperature < 130°C Process connection: DN50 conical flange Cell constant $k = 3.82 \text{ cm}^{-1}$; Measuring range: 100 $\mu\text{S/cm}$... 2,500 mS/cm max. 10 bar @ max 130°C
<u>Recommended Calibration tools</u>	
LZY011	Electrical Calibration tool for 2200 Inductive conductivity sensor series
<u>Optional accessories</u>	
LZY318	Junction box for extension cable, 10 terminals, (W x L x H = 75 x 110 x 55 mm)
C79451A3300N100	Extension cable, for series 2200 Inductive Conductivity sensors, 10 m
C79451A3300N200	Extension cable, for series 2200 Inductive Conductivity sensors, 20 m
C79451A3300N300	Extension cable, for series 2200 Inductive Conductivity sensors, 30 m
C79451A3300N500	Extension cable, for series 2200 Inductive Conductivity sensors, 50 m
<u>Replacements</u>	
LZY042	Standard gasket, made of Viton, pk/5 for flow through armatures and welding fittings with DN 50 conical flange process connection



Conductivity, inductive

2200 series Conductivity sensor - Varivent design (DataSheet DOC053.53.90098)



- ➔ Inductive conductivity sensors for use in Food & Beverage industry
 - ➔ Dairies, Breweries, Bottled Water, Juice and Soft Drink Production
 - ➔ suitable for CIP/SIP applications
- ➔ Varivent process connection for installation in Varivent fittings
 - ➔ suitable for DN40 to DN150 Standard fittings, e.g. VARINLINE® Access Unit

Controller compatibility



si79X series

Technical Data	
Subject to change without notice	
	7MA22008CB
Designation	Inductive Conductivity sensor with integrated Temperature sensor
Fields of applications (typical)	Food & Beverage industry, e.g. Dairies, Breweries, Bottled Water, Juice and Soft Drink Production
Measurement method	Inductive
Cell constant K	3.16
Temperature sensor	Pt100 inbuilt
Measuring range	100 µS/cm ... 2,500 mS/cm
Response time t ₉₀	50s
Temperature	
Process connection	Varivent
T _{max} operation	130°C (applies to immersed sensor part)
p _{max} @ T _{max}	10 bar
Wetted material	PEEK
Gasket	EDPM (for up to 135°C), VITON (for up to 200°C)
Dimension	please refer to technical drawings
Weight	~ 1.2 kg
cable	5 m integral cable, extendable to 50 m max.
Protection class acc. DIN EN 60529	IP65
Certification & Approvals	loop rating in conjunction with (1) = si792/si792X; (2) = si792X transmitters
ATEX	not applicable
FM	Class 1 Div 2 (1)(2)
CSA	Class 1 Div 2 (1)(2)

EDPM ethylene propylene diene M-class rubber
 VITON Viton is a brand of synthetic rubber and fluoropolymer elastomer registered trademark of DuPont Performance Elastomers

Conductivity, inductive

2200 series Conductivity sensor - Varivent design (DataSheet DOC053.53.90098)

Part No.	Designation
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	<u>Inductive Conductivity sensor with DN50 conical flange</u>
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7MA22008CB	Inductive Conductivity sensor, made of PEEK, integrated Pt100 T-sensor, 5 m fixed cable Process connection: Varivent® DN40 to DN125 Cell constant $k = 3.16 \text{ cm}^{-1}$; Measuring range: 100 $\mu\text{S/cm}$... 2,500 mS/cm max. 10 bar @ max 130°C including 1 x EDPM Gasket
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	<u>Recommended Calibration tools</u>
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LZY011	Electrical Calibration tool for 2200 Inductive conductivity sensor series
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	<u>Optional accessories</u>
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LZY318	Junction box for extension cable, 10 terminals, (W x L x H = 75 x 110 x 55 mm)
C79451A3300N100	Extension cable, for series 2200 Inductive Conductivity sensors, 10 m
C79451A3300N200	Extension cable, for series 2200 Inductive Conductivity sensors, 20 m
C79451A3300N300	Extension cable, for series 2200 Inductive Conductivity sensors, 30 m
C79451A3300N500	Extension cable, for series 2200 Inductive Conductivity sensors, 50 m

	<u>Replacements</u>
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LZY087	EPDM gasket, for Varivent fittings, pk/5	for up to 135°C
LZY088	Viton gasket, for Varivent fittings, pk/25	for up to 200°C

POLYMETRON 8398

Inductive probe



The 8398 range of probes makes use of inductive technology, which is particularly recommended for corrosive and fouling applications: conductivity, concentration measurements.

Accurate interface control for the "clean in place" processes in food and pharmaceutical industries

Determination of solution concentrations for "clean in place" processes, resin regeneration in water treatment plants, caustic metal cleaning processes

Waste water stream control in municipal waste water treatment plants and many other industries

Technical Data			
Subject to change without notice			
	Flow through		Immersion
Model Type	8398.2 2" triclamp	8398.3 DN50 (DIN 11851)	8398.5 1"G thread
Probe			
cable material	Poly Ether Ether Ketone (PEEK)		
length	5 m		
weight	700 g		
Operating conditions			
Temperature	140°C		
Pressure	18 bar		
Analysis			
Mesuring range	0 to 2000 mS/cm		
Repeatability	< +/- 2% or +/- 0.004 mS/cm whichever is greater		
Cell constant	2.35		
Response time T ₉₀	in temperature: < 2 mn @ t90 in conductivity: < 1s @ t90		
Accessoires available			
Connexion type	2" Clamp	DN50 nut	DN20 flange or shafts
Gaskets	2" or DN50 EPDM / VITON gasket		EPDM gasket, standard supply VITON gasket, in option
Installation	316L SS : welding ferrule, Tees (DN65, DN50),		Immersion kit: PP, SS, Shafts=0.5 m
	Flow-through chamber conforms to 3A standards		Fixation=clips, adjustable or fixed
		PVC,PPH,PVDF: welding ferrule, flow-through chamber	PVC flanges

POLYMETRON 8398

Flow-through application

FOOD INDUSTRIES PHARMACEUTICAL INDUSTRIES CLAMP VERSION		FOOD INDUSTRIES OTHER INDUSTRIES DIN VERSION	
Welding stainless steel ferrule kit EPDM gasket clamp 08398=A=0510		welding ferrule kit, gasket (EPDM or VITON), SS nut and 08398=A=0500 08398=A=5310 08398=A=5320 08398=A=5330	
		ferrule SS PVC PP PVDF	

**Installation
in DN50 pipes**

08398=A=7000

08398=A=6000

**Installation
in DN65 pipes**

08398=A=7500

08398=A=6500

**Installation
in flow-through
chamber**

08398=A=8200

08398=A=8300
08398=A=8310*
08398=A=8320*
08398=A=8330*

SS
PVC
PP
PVDF

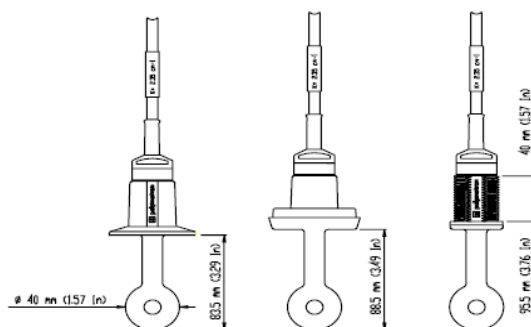
*Dimensions not represented

Note: When order, please add a "Z" in front of all shown article numbers, e.g. Z08398=A=8200

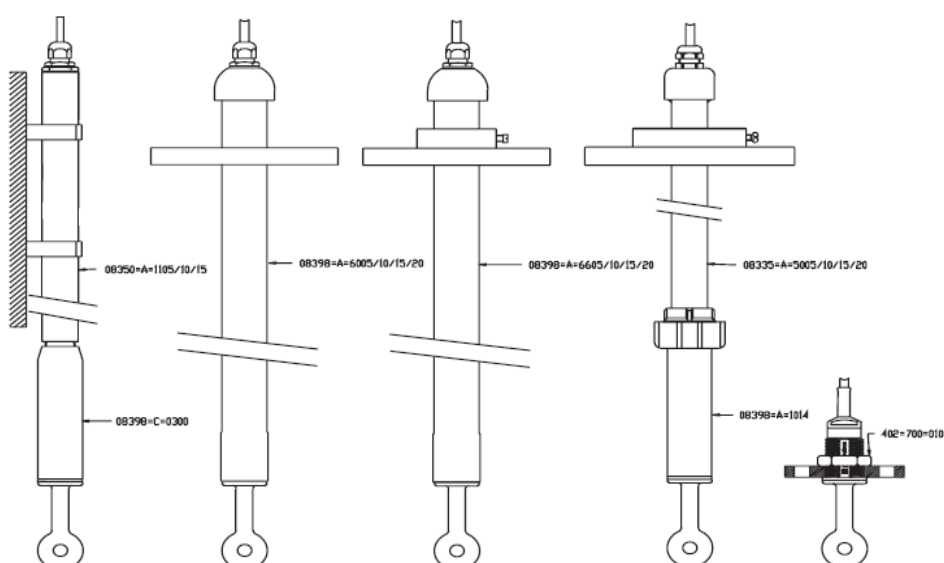
POLYMETRON 8398

Immersion application

8398 probes



Immersion application (Z08398=A=5000)



Immersion shafts available

Part no.	Material	Length	Specifications	PVC flange type	Adaptor needed
Z08335=A=5005	PP	0.5m	DN65	Adjustable	Z08398=A=1014
Z08335=A=5010	PP	1m	DN65	Adjustable	Z08398=A=1014
Z08335=A=5015	PP	1.5m	DN65	Adjustable	Z08398=A=1014
Z08335=A=5020	PP	2m	DN65	Adjustable	Z08398=A=1014
Z08398=A=6005	PP	0.5m	DN50	Fixed	none
Z08398=A=6010	PP	1m	DN50	Fixed	none
Z08398=A=6015	PP	1.5m	DN50	Fixed	none
Z08398=A=6020	PP	2m	DN50	Fixed	none
Z08350=A=1105	PP	0.5m	DN32	Clips	Z08398=C=0300
Z08350=A=1110	PP	1m	DN32	Clips	Z08398=C=0300
Z08350=A=1115	PP	1.5m	DN32	Clips	Z08398=C=0300
Z08398=A=6605	PP	0.5m	DN50	Adjustable	none
Z08398=A=6610	PP	1m	DN50	Adjustable	none
Z08398=A=6615	PP	1.5m	DN50	Adjustable	none
Z08398=A=6620	PP	2m	DN50	Adjustable	none
Z08878=A=1500	SS	1.5m	DN32	No	Z08398=C=0500
Z08878=C=1500	SS	1.5m	extension	*	*
Z08878=A=1600	SS	*	Probe holder	*	*

Conductivity, conductive

Conductive Conductivity Sensor 3400 / 831X / 8394 series (DOC053.52.00015)



3400 sensor series - high quality Conductivity probes

The high quality Stainless Steel or graphite probes of the 3400 family are available with three different cell constants, namely 0.01 cm⁻¹, 0.1 cm⁻¹ and 1 cm⁻¹ covering a measuring range from 0.01 µS/cm to 20 mS/cm.

The specific cell constant of each probe is determined in conformity with ISO 7888/ ASTM D 1125 and entered in the sc controller when it is first taken into operation (HACH LANGE DRY-CAL* method).

The application spectrum extends from drinking water to ultrapure water at high temperatures and pressures or other clean media applications.

Controller compatibility



Technical Data

Subject to change without notice

3400 sc / 831X / 8394 sensors				
Designation	High-Quality-Conductivity sensors for Middle-/Pure and Ultra-Pure Conductivity measurement			
Sensor design	2 conductor electrode with integrated Pt100, grade A			
Model	3410 & 3415	3411 & 3416	3412 & 3417	3494 A/B/C/D
Cell constant k	0.01 cm ⁻¹	0.1 cm ⁻¹	1.0 cm ⁻¹	0.01 cm ⁻¹
Accuracy	± 2%	± 2%	± 2%	± 2%
Measuring range				
Conductivity				
si 79X series	0.01 ... 50 µS/cm	0.1 ... 500 µS/cm	1 ... 2000 µS/cm	0.01 ... 50 µS/cm
SIPAN series	0.01 ... 50 µS/cm	0.1 ... 500 µS/cm	1 ... 2000 µS/cm	0.01 ... 50 µS/cm
sc controller series	0.01 ... 20 µS/cm	0.1 ... 200 µS/cm	1 ... 2000 µS/cm	0.01 ... 20 µS/cm
Temperature	-10 ... 200°C			
Response time T ₉₀				
Conductivity	< 2 s			
Temperature	< 2 min			
Accuracy				
Conductivity	± 1% of actual value or ± 0,004 mS/cm whichever is greater			
Temperature	± 0,2°C			
Reproducibility	< 0.2 %			
Calibration	HACH LANGE DRY-Cal or calibration with standards			
Materials				
Sensor Materials	3410	3411	3412	
Head / Body	Polyester / SS	Polyester / SS	Polyester / Graphite	
T _{max} operation	125°C for models 3410/3411/3412			
p _{max} @ T _{max}	10bar @ 125°C	10bar @ 125°C	10bar @ 125°C	
Sensor Materials	3415	3416	3417	3494
Head / Body	SS / SS316L	SS / SS316L	SS / SS316L	SS / SS316L (Ra< 0.4 µm)
T _{max} operation	150°C for models 3415/3416/3417 and 3494 A/B/C/D			
p _{max} @ T _{max}	25bar @ 150°C	25bar @ 150°C	25bar @ 150°C	15bar @ 150°C 25bar @ 100°C
Process connection	¾" NPT	¾" NPT	¾" NPT	1.5" or 2" Triclamp
Installation style	Bypass or inline			
Sensor cable	with sensor plug and open ends to controller/digital gateway; Protection class IP65; available in 5, 10 and 20 m length; max 5 m for Ex-applications in conjunction with si792X only			
Weight	depending on sensor style and material			
Dimensions	depending on sensor style and material			
Controller compatibility	sc1000 controller using AD3400 Digital Gateway, sc200 controller with card (9013005) MONEC 9125 and si79X controller (analog sensors only)			

Conductivity, conductive

Digital Conductivity sensor series 3400 / 831X / 8394 series (DOC053.52.00015)

Part No.

Designation



3400 sc 1/4" NPT Conductivity sensor series

D 3 4 1 x . 9 9

Sensor model option

Standard probes (max. 10bar @ 125°C)

Cell constant k = 0.01	0 ... 20 µS/cm	0
Cell constant k = 0.1	0 ... 200 µS/cm	1
Cell constant k = 1.0	0 ... 2000 µS/cm	2

High temperature probes (max. 25bar @ 150°C)

Cell constant k = 0.01	0 ... 20 µS/cm	5
Cell constant k = 0.1	0 ... 200 µS/cm	6
Cell constant k = 1.0	0 ... 2000 µS/cm	7

Language / Country Code Selection



3494 sc Conductivity sensor series - Sanitary style

Cell constant k = 0.01, 0.01 ... 20 µS/cm, 150°C max

D 3 4 9 4 x . 9 9

Sensor model option

Standard sensor

1.5" connection	C
2.0" connection	D

Sensor with Material certificate 3.1B

1.5" connection	A
2.0" connection	B

Language / Country Code Selection

Note: All 3400 and 3494 sc Digital Sensors comes in appropriate body materials, including top connector cable 5m (Z08315=A=1115), an AD3400sc digital gateway (6120800.99) and a 1 m digital extension cable.
sc Digital Controller, and sc extension cables (must be ordered separately)
For technical data and interfaces, refer to the chapter sc controller/display units
The maximum cable length between the sensor and controller is limited to 110m.
Using different cables instead of the below mentioned, will void the warranty.
If the total length exceeds 110m, a digital termination box (5867000) is required (for use with sc200 only). The maximum cable length is limited to 410m in total.
For suitable Mounting hardware, please refer to the chapter "E-Chem Mounting Hardware".

Accessories

Digital Extension Cables

LZX848	Digital Extension Cable, 5 m
LZX849	Digital Extension Cable, 10 m
LZX850	Digital Extension Cable, 15 m
LZX851	Digital Extension Cable, 20 m
LZX852	Digital Extension Cable, 30 m
LZX853	Digital Extension Cable, 50 m

Conductivity, conductive

Analog Conductivity sensor series 831X / 8394 series (DOC053.52.00015)

Part No. Designation



831X 3/4" NPT Conductivity sensor series

Z 0 8 3 1 x = A = 0 0 0 0

Sensor model option

Standard probes (max. 10bar @ 125°C)

Cell constant k = 0.01	0.01 ... 50 µS/cm	0
Cell constant k = 0.1	0.1 ... 500 µS/cm	1
Cell constant k = 1.0	1.0 ... 2000 µS/cm	2

High temperature probes (max. 25bar @ 150°C)

Cell constant k = 0.01	0.01 ... 50 µS/cm	5
Cell constant k = 0.1	0.1 ... 500 µS/cm	6
Cell constant k = 1.0	1.0 ... 2000 µS/cm	7



3494 sc Conductivity sensor series - Sanitary style
Cell constant k = 0.01, 0.01 ... 50 µS/cm, 150°C max

Z 0 8 3 9 4 = A = x x x x

Sensor model option

Standard sensor

1.5" connection	1	5	0	0
2.0" connection	2	0	0	0

Sensor with Material certificate 3.1B

1.5" connection	1	5	1	1
2.0" connection	2	0	1	1

Conductivity, conductive

3400 / 831X / 8394 series Conductivity sensor accessories

Part No. **Designation**

Replacements for 3400 sc series

Replacement sensor	Sensor bundle	Body Material	k	Measuring range using sc controllers	T _{max}	P _{max}
Z08310=A=0000	D3410.99	Polyester black	0.01	0 - 20 µS/cm	125°C	10 bar @ 125°C
Z08315=A=0000	D3415.99	SST 316 L	0.01	0 - 20 µS/cm	150°C	25 bar @ 150°C
Z08311=A=0000	D3411.99	Polyester black	0.1	0 - 200 µS/cm	125°C	10 bar @ 125°C
Z08316=A=0000	D3416.99	SST 316 L	0.1	0 - 200 µS/cm	150°C	25 bar @ 150°C
Z08312=A=0000	D3412.99	Polyester black	1.0	0 - 2000 µS/cm	125°C	10 bar @ 125°C
Z08317=A=0000	D3417.99	SST 316 L	1.0	0 - 2000 µS/cm	150°C	25 bar @ 150°C
Z08394=A=1511	D3494A.99	SS316L, (Ra < 0.4 µm)	0.01	0 - 20 µS/cm	150°C	10 bar @ 150°C 25 bar @ 100°C
Z08394=A=2011	D3494B.99					
Z08394=A=1500	D3494C.99					
Z08394=A=2000	D3494D.99					

 **Note:** Material Certificate 3.1B including material conformity certificate and roughness certificate. These certificates ensure that each 8314 probe delivered meets the Food and Drug administration (FDA) requirements. Ideal for applications such as the monitoring of ultra pure water, pharmaceutical and use in the food industry.

831X sensor connection cable with IP65 sensor plug and open ends

Z08319=A=0005 5m cable for 2 electrode conductivity sensors series 831X
 Z08319=A=0010 10m cable for 2 electrode conductivity sensors series 831X
 Z08319=A=0020 20m cable for 2 electrode conductivity sensors series 831X

alternatively

Z08319=A=0000 Top connector for 831X Conductivity sensors with connection drawing
 Z588800,29050 Shielded 4 conductor cable (per metre)

Z08319=A=1115 5m cable for 2 electrode conductivity sensors series 831X, for use with AD3400 Gateway¹



 **Note:** Sensor cables can be used for connection to MONEC, SIPAN or si79x Controllers
 To connect a 831X Cond. sensor to a AD3400 Digital gateway, please use cable Z08315=A=1115.
¹ cable diameter = 5.4 ± 0.3 mm

Conductivity Calibration Solutions

C20C280	0.001 Molar KCl, 148 µS/cm @ 25 °C	500 ml bottle
C20C270	0.01 Molar KCl, 1413 µS/cm @ 25 °C	500 ml bottle
C20C250	0.1 Molar KCl, 12.88 mS/cm @ 25 °C	500 ml bottle
25M3A2000-119	100-1000 µS/cm*	1 Liter bottle
25M3A2050-119	1000-2000 µS/cm*	1 Liter bottle
25M3A2100-119	2000-150,000 µS/cm*	1 Liter bottle
25M3A2200-119	200,000-300,000 µS/cm*	1 Liter bottle

* Specify the desired conductivity value of the solution.

Conductivity, conductive

3400 sc Digital Conductivity sensor accessories

Part No. **Designation**

6120700.99 **AD3400 sc**, Digital Gateway to operate 3400 sensor series

 **Note:** sc Digital Controller, and sc extension cables (must be ordered separately)
For technical data and interfaces, refer to the chapter sc controller/display units
The maximum cable length between the sensor and controller is limited to 110m (using sc digital extension cables).



Technical Data	
Subject to change without notice	
AD3400 sc Digital Gateway	
Designation	AD converter to operate analog 831X/8394 sensors with sc controller series
Controller compatibility	sc 1000 digital controller
T-sensor compatibility	Pt100 and Pt1000
Connectors	
output (to sc Controller)	using sc digital cables with sc plugs
Electrode input	using suitable electrode cables with bare leads to be connected to digital gateway recommended cable: Z08315=A=1115
Temperature	
Operation	-20 ... 60 °C (-4 to 140 °F)
Storage	-20°C ... 60°C; 95 % relative humidity, non-condensing
Materials	
Gateway housing	ABS (Acrylonitrile butadiene styrene) plastic
Dimensions	3.4 cm x 17.5 cm (1 3/8 x 7") (Ø x L)
Weight	145 g (5 oz)
Warranty	2 years

9013005 Conductivity sensor card for sc200



Technical Data	
Subject to change without notice	
9013005- analog Conductivity sensor card	
Designation	The module allows an analog sensor to connect to the sc200 controller
recommended sensor models	Inductive Conductivity sensors, series 3700 Conductive Conductivity sensors, series 3400 and 831x
Measuring range	2 EL conductive sensors series 3400 and 831x sensors Inductive sensors series 3700 sensors
Conductivity	0 ... 200,000 µS/cm (0) ... 200 µS ... 2,000,000 µS/cm sensor and cell constant depending
Resistivity	0-19.99 MΩcm or 0-999.9 kΩcm not applicable sensor and cell constant depending
TDS	0 ... 9999 ppb or 0 ... 9999 ppm 0 ... 9999 ppm
Concentration	not applicable H3PO4: 0-40% HCl: 22-36% HCl: 0-18% NaOH: 0-16% CaCl2: 0-22% HNO3: 36-96% HNO3: 0-28% H2SO4: 40-80% H2SO4: 0-30%
Repeatability	0 to 20 µS/cm, K=1: ± 0.02 µS/cm < 500 µS/cm: ± 2.5 µS/cm 20 to 200,000 µS/cm, K=1: ± 0.1 % of reading > 500 µS/cm: ± 0.5 % of reading
Response times	0.5 sec 1 sec
Temperature	
accepted sensor types	PT100/PT1000 PT1000
Temp. compensation	Automatic from -20 to 200°C or manual Automatic from -20 to 200°C or manual
Temp. compensation curves	Linear, Ammonium, Natural Water, user defined, none Linear, Natural Water, user defined, none. Available curves depend on the selected type of measurement (Conductivity, Concentration or TDS).
Temperature ranges	-20 to 200°C -20 to 200°C
Temperature accuracy	± 0.5 °C ± 0.5 °C
Temperature drifts	> 20 µS/cm: ± 0.02 % of reading / °C > 500 µS/cm: ± 0.02 % of reading / °C
Sensor to controller distances (maximal)	
3400 sensor series	91m (300 ft.) 61 m for Full-scale value 200 to 2,000 µS/cm 91 m for Full-scale value 2 to 2,000 mS/cm
Calibration	Zero, GLI DRY-CAL, 1-point sample Zero, 1-point Cond (or Concentration or TDS)
Warranty	24 month

Conductivity calibration systems

9126 Purecal - for pure and ultrapure systems (DOC063.52.30055)



The POLYMETRON 9126 is used as a certified reference for calibrating and /or validating on-line conductivity measurements for pharmaceutical, semiconductor, power plant pure and ultrapure water systems. The conductivity probes remain in process.

The POLYMETRON 9126 can be mounted in parallel or in series with conductivity measuring systems being checked. It can also be used as a backup unit for all conductivity installed units.

Conforming to ASTM D5391, D1125, NIST standards

Technical Data	
Subject to change without notice	
POLYMETRON 9126	
Designation	POLYMETRON 9126 including a 9125 conductivity transmitter with a flow chamber and a high purity conductivity probe (Cell constant k=0.01 with Pt100 sensor grade A)
Accuracy	Whole analyser: $\pm 2\%$; Temperature: $\pm 0.2\text{ }^{\circ}\text{C}$
Measuring range	Resistivity 5 k Ω cm to 100 M Ω cm $\pm 2\%$ of the value displayed
Repeatability	Conductivity: 0.01 to 200 $\mu\text{S/cm}$ $\pm 2\%$ of the value displayed
Temperature compensation	Temperature: -20 to 200 $^{\circ}\text{C}$ (-4 to 392 $^{\circ}\text{F}$) $\pm 0.2\text{ }^{\circ}\text{C}$
	Modes available: Uncompensated for USP waters; Ultrapure compensation (HCl or NaCl)
	Compensation range: -20 to 200 $^{\circ}\text{C}$ (-4 to 392 $^{\circ}\text{F}$)
Operating conditions	
Temperature	-20 to 60 $^{\circ}\text{C}$ (-4 to 140 $^{\circ}\text{F}$)
Humidity	10 to 90%
Sampling	
Max. temperature	100 $^{\circ}\text{C}$ (212 $^{\circ}\text{F}$) at 1 bar
Max. pressure	10 bar at 70 $^{\circ}\text{C}$ (160 $^{\circ}\text{F}$)
Min. flow rate	> 20 L/h (5.3 gal/h)
Display + menu	
Presentation	Inclined plane (30 $^{\circ}$) with backlight, 5 lines of 16 characters: icons & graphic zone (80 $\times$ 64 pixels)
Languages	English, French, German, Italian, Spanish
Cell constant	Automatic calculation of cell constant being checked
Traceability	Last 10 calibrations / validations memorised
Enclosure material	Calibration bench ABS
Dimensions (H $\times$ W $\times$ D)	450 $\times$ 250 $\times$ 460 mm
Weight	7 kg
Connections	
Sample Inlet + Outlet	Compression fitting DN8 or 5/16 inch
Tubing material	PE if sample <60 $^{\circ}\text{C}$ (140 $^{\circ}\text{F}$), PTFE if sample >60 $^{\circ}\text{C}$ (140 $^{\circ}\text{F}$)
Power supply	IP 67 waterproof female connector, supplied as standard
4-20 mA	IP 67 waterproof socket female with connector as option
To tested transmitter	IP 67 waterproof socket
Power supply	Version Z09126=A=0000 : 90 to 265 VAC, 50/60 Hz
	Version Z09126=A=0020: 3 to 30 VAC and 18 to 42 VDC
Consumption	25 VA
Outputs	
Analogue	2 $\times$ 0/4-20 mA (linear, bilinear, log) $\pm 0.1\text{ mA}$ (temperature + conductivity/resistivity)
Maximum load	800 Ω
Alarms	2 thresholds or limits according to USP
Enclosure protection	IEEC 61010-1 (low voltage directive), IP65, NEMA4X
Certification	Quality certificate EMC, ASTM D5391-99; ASTM D1125, NIST EN 50081-1+ EN 50082-2 (RFI)
Recertification	Once per year at HL Duesseldorf service department

 **Note:** Delivery: Operators manual, quick guide flow chart, calibration certificate of the system, socket for supply cable, tool for plugs and sampling tube disconnection, 2 $\times$ DN/DN6 reduction sleeves for connection to DN6 tubing.

Conductivity preference packages

MONEC 9125 series



The MONEC 9125 transmitter and associated measuring sensors have been designed for measuring and continuous control of Conductivity, Resistivity or Concentration (with possibility of temperature measurement) in municipal and industrial processes.

Equipped with Standard and specific temperature compensation, user selectable calibration methods, integrated controller and autodiagnostic functions and finally several communication outputs, the MONEC series stands for reliable and precise measurements in the field of Drinking water, Waste water and Industrial applications, as well as for Pure and Ultrapure Water applications.

Part No.

Designation

Preference Packages for Flow-Through applications in Drinking & Industrial Process Water

MONEC 9125 Conductivity Measuring system

Z 9 1 2 5 / C 0 x / x

Controller Relais option + Conductivity sensor option + 5m cable

Controller w/o relais

Measuring range

+ 8310 sensor (k = 0.01)	0.01 ... 200 µS/cm	1	1
+ 8311 sensor (k = 0.1)	0.1 ... 2000 µS/cm	2	1
+ 8312 sensor (k = 1.0)	1 ... 20 mS/cm	3	1

Controller with 4 relais

+ 8310 sensor (k = 0.01)	0.01 ... 200 µS/cm	1	2
+ 8311 sensor (k = 0.1)	0.1 ... 2000 µS/cm	2	2
+ 8312 sensor (k = 1.0)	1 ... 20 mS/cm	3	2



The preference packages are favourably priced measurement systems, consting of

Z08310=A=0000

2-electrode sensor (k=0.01), Tmax. 125°C @ Pmax. 10bar, Pt100 and ¾" NPT thread

Z08311=A=0000

2-electrode sensor (k=0.1), Tmax. 125°C @ Pmax. 10bar, Pt100 and ¾" NPT thread

Z08312=A=0000

2-electrode sensor (k=1.0), Tmax. 125°C @ Pmax. 10bar, Pt100 and ¾" NPT thread

and MONEC 9125 controller depending on the selected configuration

Z09125=A=0000

9125 Conductivity Single channel transmitter (without relay)

alternatively

Z09125=A=0004

9125 Conductivity Single channel transmitter with 4 relay-board

and

Z08318=A=0001

Flow cell made from stainless steel, Tmax. 150°C @ 25 bar

Z08319=A=0005

5 m connecting cable with connector, IP 65

Preference Packages for Flow-Through CIP applications Sanitary Design, e.g. food & beverage

MONEC 9125 Conductivity Measuring system

Z 9 1 2 5 / C 0 4 / x

with 2" Sanitary welding ferrule

Controller Relais option

Controller w/o relais	1
Controller with 4 relay board	2



The preference packages are favourably priced measurement systems, consting of

Z08394=A=2011

2" Sanitary flanged 2-electrode sensor (k=0,01), Tmax. 150°C @ pmax. 25bar, with Mat.Cert. 3.1B

Z08319=A=0005

5 m connecting cable with connector, IP 65

Z08394=A=0510

Kit for 2" clamp probe with EPDM gasket,clamp and welding ferrule

and MONEC 9125 controller depending on the selected configuration

Z09125=A=0000

9125 Conductivity Single channel transmitter (without relay)

alternatively

Z09125=A=0004

9125 Conductivity Single channel transmitter with 4 relay-board

Conductivity preference packages

MONEC 9125 series

Part No.

Designation

Preference Packages for Flow-Through CIP applications Sanitary Design, e.g. food & beverage



MONEC 9125 Conductivity Measuring system

Z	9	1	2	5	/	C	x	x	/	x
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with 4 Relais board, with DIN fitting DN50 or DN65 for food industry

Fitting option

DIN fitting DN65 (Kit with tee, gasket, nut)	1	1	.....	2
DIN fitting DN50 (welding ferrule, gasket, nut)	1	0	.....	2

The preference packages are favourably priced measurement systems, consting of

Z08398=A=3000

8398 Inductive conductivity probe, DN 50 (DIN 11851), k = 2.35, PEEK, 0 ... 2000 mS/cm and

Z402=400=500

DN 50 nut for 8398.3

Z429=600=500

EPDM gasket for 8398.3 probe

Z581=200=500

Welding ferrule for 8398.3 probe

or

Z08398=A=6500

Kit (tee, gasket, nut) for 8398.3 in DN 65 pipes

and MONEC 9125 controller depending on the selected configuration

Z09125=A=0004

9125 Conductivity Single channel transmitter with 4 relay-board

Preference Packages for Immersion applications e.g. Waste Water



MONEC 9125 Conductivity Measuring system

Z	9	1	2	5	/	C	1	4	/	x
---	---	---	---	---	---	---	---	---	---	---

with 1500 mm Immersion pipe with adjustable flange

Controller Relais option

Controller w/o relays	1
Controller with 4 relay board	2

The preference packages are favourably priced measurement systems, consting of

Z09125=A=0000

9125 Conductivity Single channel transmitter (without relay)

alternatively

Z09125=A=0004

9125 Conductivity Single channel transmitter with 4 relay-board

and

Z08398=A=5000

Inductive conductivity sensor with 5 m connecton cable, k = 2.35, 0 to 2000 mS/cm, made of PEEK, Pt100 Temperature sensor and 1" thread

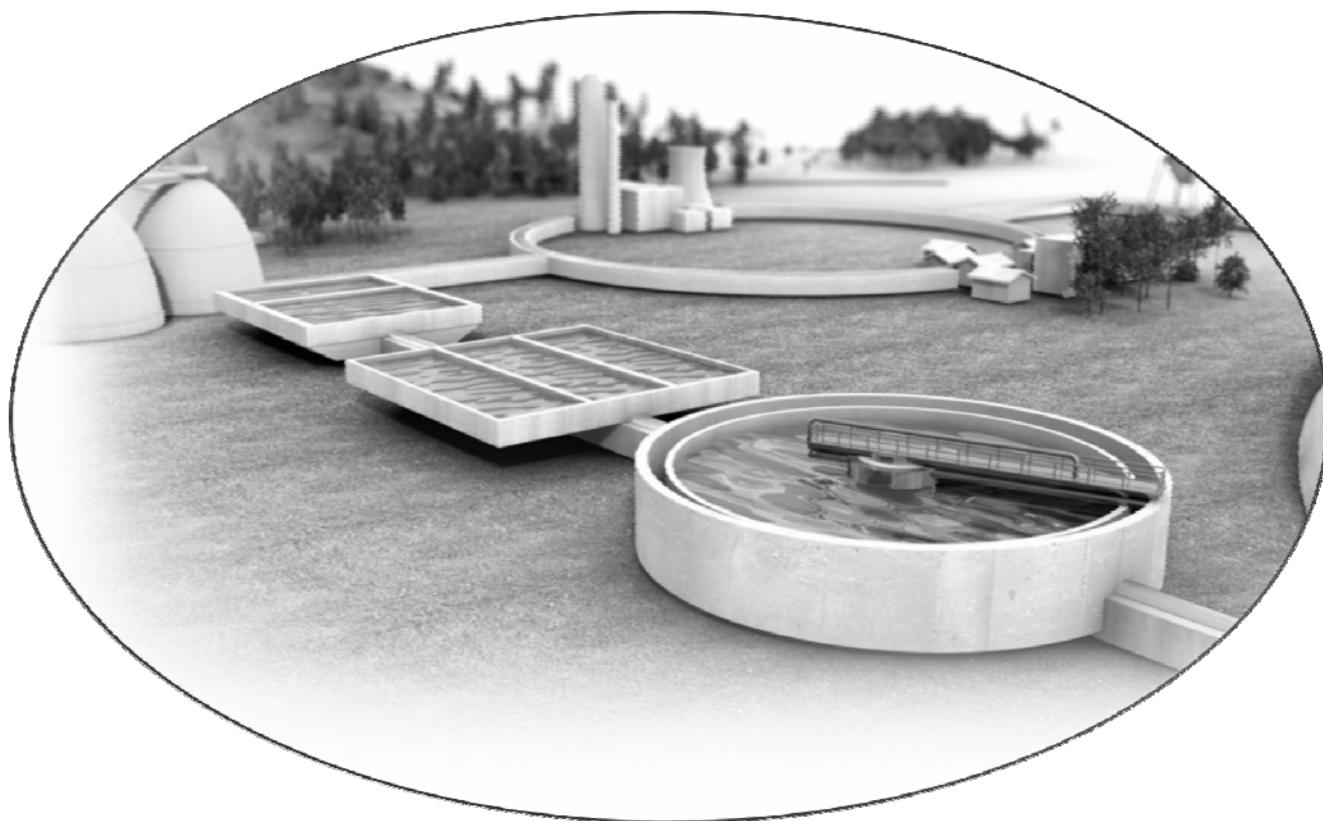
Z08398=A=6615

Immersion pipe with sliding flange, DN 50, PP, length 1.5 m

 **Note:** All packages are supplied without calibration solutions

Electrochemistry

Analytical Solutions for Dissolved Oxygen Measurement in Process



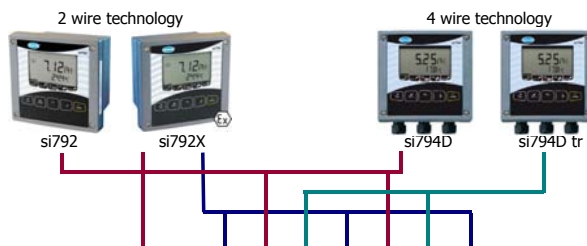
Electrochemistry Dissolved Oxygen

General overview



MONEC 9182

Cable fixed length or Top connector	10 m cable
Cable with top connector	3 m cable 5 m cable 10 m cable 20 m cable
Dissolved Oxygen sensors & Temperature sensors	
Sensor model	9182
Part No.	Z09182=A=0000 (Kit to order)



X m fixed cable	VP6 plug	VP6 plug
-	LZY079 (EEX) LZY353 LZY354	LZY079 (EEX) LZY353 LZY354
		
OxySens	OxyFerm	OxyGold
LZY078 5m LZY458 10m (non Eex)	LZY075	LZY072

Measuring range	
Dissolved Oxygen	0 ... 2000 µg/l
sensor type	amperometric Clark sensor
cable connection	Top connector
Temperature	
sensor type	Pt100 inbuilt
Measuring range	0 ... +45°C
compensation range	0 ... +45°C
Material	
Electrode shaft	
Electrode material	
Process connection	1/4" NPT
T _{max}	
P _{max}	atmospheric
Flow rate	4 ... 10 l/h
Response time	
typical installation	Bypass using Flow Cell Z09078=A=2000
Application	High purity water, e.g. Boiler water, condensate
Notes	
max cable length	
Certification	
EEX	
EEX Note	

40 µg/l ... 40 mg/l	10 µg/l ... 40 mg/l	1 µg/l ... 40 mg/l
amperometric Clark sensor	amperometric Clark sensor	amperometric Clark sensor
integral cable	VP6 plug	VP6 plug
NTC22kΩ inbuilt	NTC22kΩ inbuilt	NTC22kΩ inbuilt
0 ... +60°C	0 ... +130°C	0 ... +130°C
SS Mat. 1.4435 PEEK	SS Mat. 1.4435	SS Mat. 1.4435 Gold
Silver-platinum combination	Silver-platinum combination	Silver-platinum combination
Pg 13.5	Pg 13.5	Pg 13.5
0 ... 60°C	0 ... 130°C	0 ... 130°C
0 ... 4 bar	0 ... 4 bar	0 ... 12 bar
≥ 0.03 m/s	≥ 0.03 m/s	≥ 0.1 m/s
T ₉₈ = 60 sec max. at 25°C, from air to nitrogen		
Immersion or Bypass	Inline or Bypass	Inline or Bypass
typical: water and waste water applications	low carbonated beverage and chemical applications, CIP / SIP	ultra-pure water, non- or low-carbonated beverages and chemical industries; CIP / SIP
disposable, maintenance free D.O. sensor	comes with Mat. Cert. 3.1B; replaceable cathode UpSide Down Mounting possible using special electrolyte, e.g. for almost empty tanks	comes with Mat. Cert. 3.1B; replaceable cathode
		20 m 5m for EEX
II 1/2G EEx ia IIC T4/T5/T6 using si792x D cable length will be limited to 5 m max.		

Pure Water	X
Potable Water	
Food & Beverage	
In-process	

X	X	X
	X	X
	X	X

Waste Water	
Neutralisation	
Industrial influent	
Municipal influent	
Aeration	
Digester	
Effluent	
In process	

X		
X		
X		

Fish Farming	
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X		
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Electrochemistry Dissolved Oxygen

General overview



USC5000/7000
or directly to PLC

10 m fixed cable	10 m fixed cable
EVITA Oxy	EVITA Oxy
085G406X.XX.001	085G407X.XX.001

0 ... 50 mg/l model dependant	0 ... 50 mg/l model dependant
amperometric Clark sensor	amperometric Clark sensor
integral cable	integral cable
Pt1000 inbuilt	Pt1000 inbuilt
0 ... +40°C	0 ... +40°C
0 ... +40°C	0 ... +40°C
-	-
Gold / Silver	Gold / Silver
Ball-float mounting	Immersion mounting
40°C	40°C
n.a.	n.a.
> 2-3 cm/sec	> 2-3 cm/sec
Ball-float mounting	Immersion mounting
typical: water and waste water applications	typical: water and waste water applications; fish farming
	special fish farming model
10 or 50 m cable	
not applicable	not applicable

X	X
	X



sc200



sc1000

10 m fixed cable	X m fixed cable
5740 sc	LDO II
LXV425.99.00001	LXV416.99.20xx1

0 ... 40 mg/l	0 ... 20 mg/l
amperometric Clark sensor	Luminescent Technology
integral cable	integral cable
NTC30kΩ inbuilt	NTC30kΩ inbuilt
0 ... +50°C	0 ... +50°C
0 ... +50°C	0 ... +50°C
NORYL	NORYL, SS316, Mat. 1.4401
Cathode: Ni-Cr	- (optical)
Anode: Lead	- (optical)
1" NPT	1 1/8" NPT
50°C	50°C
10 bar max (resp. 107 m depth)	10 bar max (resp. 107 m depth)
> 2-3 cm/s	independent
T ₉₀ = 120 sec	T ₉₀ < 40 sec
Typical: Immersion mounting; inline or bypass using appropriate mounting assemblies	
typical: water and waste water applications	typical: water and waste water applications; fish farming
	special sea water resistant cable available
extendable to 410 m total	
not applicable	not applicable

	X
	(X)

X	X
X	X

Dissolved Oxygen

LDOsc- Luminescent Dissolved Oxygen sensor (DataSheet DOC053.52.30177)



Hach's next generation LDO® Probe requires no calibration for the entire 2 year life of the sensor cap, which means it is ready to start measuring your DO (Dissolved Oxygen) right out of the box.

Extremely reliable - 36-month warranty on probe
The optimised temperature sensor and the new 3D factory calibration make O2 measurement even more accurate
No electrolyte or membrane changes necessary
Remote functions for simple and convenient data transfer via Internet and SMS
Constantly provides information on the current sensor status via PROGNOSYS early warning system

Controller compatibility



sc200



sc1000

Technical Data	
Subject to change without notice	
	LDOsc
Designation	Dissolved Oxygen sensor, luminescence-time detection technology calibration-free, H2S-resistant
T-sensor	PT100 integrated, external sensor
Measuring range	
Dissolved Oxygen	0 - 20 mg/l (ppm), 0 - 200% Saturation
Temperature	0 ... 50°C (32...122°F)
Measuring accuracy	
Oxygen	± 0.05 mg/l @ DO < 1 mg/l; ± 0.1 mg/l @ DO < 5 mg/l; ± 0.2 mg/l @ ≥ DO 5 mg/l
Temperature	± 0.2°C
Repeatability	± 0.1 mg/l
Resolution	0.01 mg/l, 0.01 ppm, 0.1 % saturation
Response time T ₉₀ / T ₉₅	< 40 sec at 20°C / < 60sec
Compensation	
Temperature	Automatic or manual
Pressure	Automatic or manual
Salinity	manual
Calibration	factory precalibrated
Calibration/Verification	Air Calibration: one point, 100% water saturated air; process calibration against reference instrument
Interferences	No Interferences from the following: H2S, pH, K+, Na+, Mg2+, Ca2+, NH4+, Al3+, Pb2+, Cd2+, Zn2+, Cr (total), Fe2+, Fe3+, Mn2+, Cu2+, Ni2+, Co2+, CN-, NO3-, SO42-, S2-, PO43-, Cl-, anion active surfactants, crude oils, Cl2 < 4 ppm
Process connection	1" NPT outer thread
Installation style	Immersion style using pole or chain mounting; Inline or Bypass using appropriate assembly
Min. Flow rate	not required
Max. sample pressure	Submersible to 35 m (115 ft)
Wetted Material	
Probe body	SS 1.4404 (AISI 316L) probe body and screws CPVC sensor end and cable end Polyurethane, over modling on cable end and cable jacket Noryl, nut on the cable end
Sensor	Acrylic
Enclosure rating	IP68
Certifications	ETL listed to ANSI/ISA, CSA and FM standards for use in hazardous location. Note: This product does not fulfill the requirements of the 94/9/EC Directive (ATEX Directive).
Haz location classification	Class I Division 2, Groups A-D, T4 / Class I, Zone 2 Group 2C, T4 Note: This product does not fulfill the requirements of the 94/9/EC Directive (ATEX Directive).
Weight	1.0 kg (2 lb, 3 oz.)
Dimensions	49.3 x 255.7 mm (1.9 x 10 inch) (Ø x L)
Sensor cable	10 m (optional with 30m, 60m, 100m), with encapsulated IP 68 connector, extendable up to 100 m using sc cables; up to 1000 m using junction box (for sc200 only)
Controller compatibility	sc200 or sc1000 digital controller
Power requirements	12VDC, 0.25A, 3W
Warranty	3 years for probe 2 years for sensor cap (typical application)

Dissolved Oxygen

LDOsc- Luminescent Dissolved Oxygen sensor (DataSheet DOC053.52.30177)

Part No.	Designation
LXV416.99.20S01	LDOsc seawater version process sensor with 10m cable



Note: The **Class1 Division 2 and Sea Water LDOsc** models have the same measurement specifications as the standard LDOsc models. Please refer the LDOsc launch package for more details. The resistance to corrosion is ensured by a PVC outer sleeve that covers the Stainless Steel body of the probe. The temperature sensor is also protected against corrosion.
Class 1 Div2 model: The probe is suitable for use in the Hazardous environment and is rated: Class I Division 2, Groups A–D, T4 / Class I, Zone 2 Group 2C, T4
 This product does not fulfill the requirements of the 94/9/EC Directive (ATEX Directive). It can therefore only be sold in countries accepting the US Hazloc norms.

LXV416.99.20xx1	LDOsc luminescent DO process sensor
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L	X	V	4	1	6	.	9	9	.	2	0	x	x	1
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Warranty option

Standard Warranty		0
5 Years Warranty	 TSELTW01 for 10 m cable length	W
5 Years Warranty	 TSELTW02 for cable lengths > 10 m	W

Cable length option

10 m	 Standard	0
30 m	.....	3
60 m	.....	1
100 m	.....	2

Note: Standard delivery comprises
 LDOsc - Dissolved Oxygen sensor with appropriate cable length,
 1 Sensor cap, 2 calibration bags and user manual.
 Extended warranty: Please order warranty extension package (TSELTW0x) separately
 Delivery time for special sensor cable length will be appr. 10 ... 12 weeks; please contact HACH LANGE.
 sc Digital Controller and sc connection/extension cables (must be ordered separately).
 For technical data and interfaces, refer to the chapter sc controller/display units.
 The maximum cable length between the sensor and controller is limited to 100m using sc digital extension cables. Using different cables instead of the below mentioned, will void the warranty.
 If the total length exceeds 100m, a digital termination box 5867000 is required (not suitable for sc1000) .
 The maximum cable length is limited to 1000 m in total.
 For suitable Mounting hardware, please refer to the chapter "E-Chem Mounting Hardware".

Special Item /LDO II sc Luminescent DO Process sensor Retrofit package

LXV416.99.2UP01	LDOsc process sensor, 10 m cable, HACH LANGE, including Adapter 1 7/8" / 1" FNPT (PN 92534000) used mount LDOsc to existing LDO series I installations
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Consumables & Replacements

9021150	LDOsc - Sensor replacement cap, pk/1 including sensor setup cap
9253800	Cleaning head for LDOsc

Digital Extension Cables

LZX848	Digital Extension Cable, 5 m
LZX849	Digital Extension Cable, 10 m
LZX850	Digital Extension Cable, 15 m
LZX851	Digital Extension Cable, 20 m
LZX852	Digital Extension Cable, 30 m
LZX853	Digital Extension Cable, 50 m

5867000	Digital Termination Box, for sc200
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The Digital Termination Box is only used when the desired length of cable between the digital sensor/digital gateway and sc200 digital controller is between 100 m (328 ft) and 1000 m (3280 ft) (used in conjunction with digital extension cables).

Dissolved Oxygen

LDOsc- Luminescent Dissolved Oxygen sensor (DataSheet DOC053.52.30177)

Part No. Designation

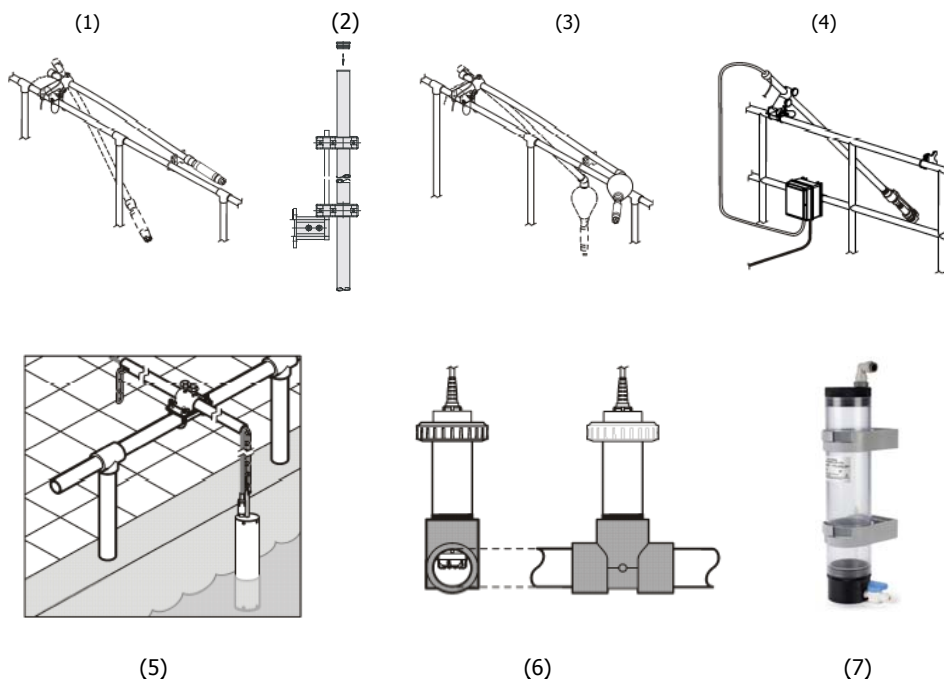
Optional accessories

9253900

LDOsc - Sensor guard

used to avoid mechanical damage of sensor cap in harsh environment, e.g. for fish farming applications

Installation / Mounting options



- LZY714.99.21810 Pole mounting hardware DO with Swivel, 1"NPT, PVC pole, 2m (1)
 LZY714.99.21820 Pole mounting hardware DO with Swivel, 1"NPT, SS pole, 2m (1)
 LZY714.99.23820 Pole mounting hardware DO with wall bracket 10cm, SS pole, 2m (2)

on request

- LZX914.99.42200 Ball Float Mount Kit, PVC, 2.3 m adjustable (3)
 typically for use in tanks or open channels with variable water levels
 consisting of Pole kit (2.3 m pipe, float, screw cap, etc.),
 Pivoting and swiveling bracket (276G1200), Sensor adapter (LZY276)

- 6860003.99.0001 High Output Air Blast Cleaning System 115V AC
 6860103.99.0001 High Output Air Blast Cleaning System 230V AC (4)
 LZY812 Air Blast Head set for LZY714 Mounting hardware (4)
 compressor and air hose are not supplied with kit



- LZX914.99.12200 Chain Mount Kit, PVC, for 1" NPT threaded sensors (5)
 LZX914.99.11200 Chain Mount Kit, SS, for 1" NPT threaded sensors (5)

- 9257000 Inline Flow-Through Assembly, Union Mount style, for LDOsc sensor (6)
 Includes 2" all ends FNPT threaded pipe tee, made of CPVC and union adapter.

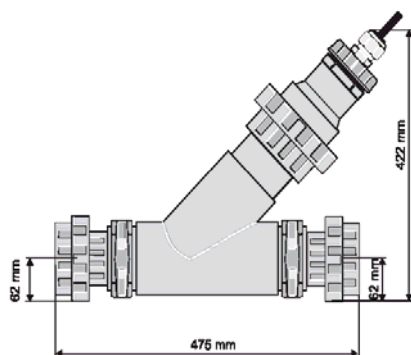
- 7300800 Flow cell for 1" NPT threaded sensors (7)
 3/8 inch inlet and 1/2 inch outlet
 Inlet pressure 20 PSIG (138 kPa) maximum 0–40 °C (32–104 °F). Do not exceed sensor
 maximum operating pressure and temperature. Maximum flow rate: 2 gal/min (7.5 L/min).

to be continued

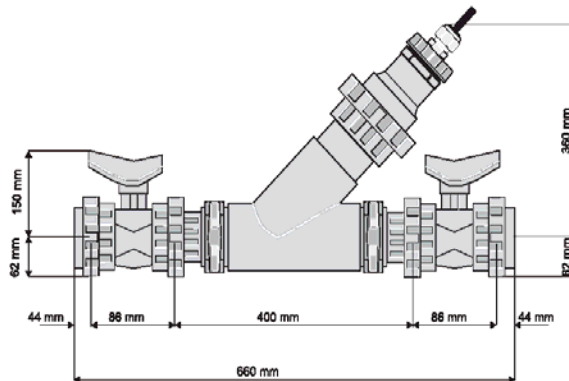
Dissolved Oxygen

LDOsc- Luminescent Dissolved Oxygen sensor (DataSheet DOC033.72.03208)

Part No.	Designation
LZH052	Bypass for LDO Sensor PVC Box with d=90 mm
LZH076	Inline Bypass - also need LZY276
LZH077	2" PVC Inline armature incl 2 ball valves - also need LZY276



LZH076



LZH077

LZY276	Adapter 1 7/8" / 1", PVC
LZY003	1" pipe coupling, Stainless Steel for LZX914

Warranty extended contracts

TSELTW01	5 years warranty contract for LDO (with 10m cable), without service and sensor replacement cap
TSELTW02	5 years warranty contract for LDO (with long cable), without service and sensor replacement cap

Dissolved Oxygen

5740 sc Clark sensor (DataSheet: DOC053.52.03254)



5740 sc

is a digital galvanic oxygen sensor with characteristics way above the standard in its class. Procurement and operating costs are significantly lower for this sensor than for the usual amperometric systems.

The sensor has been designed with a nickel-lead cell with a large, cylindrical membrane. This arrangement and the robust design ensure long service life, easy sensor cleaning and very reliable measured values. The sensor is therefore excellently suited to measurements in municipal and industrial wastewater.

In summary: a sensor with an excellent price-performance ratio.

Controller compatibility



sc200



sc1000

Technical Data	
Subject to change without notice	
	5740 sc
Designation	Dissolved Oxygen "Clark-style" sensor, Galvanic principle with integrated Membran Leakage Detection
T-sensor	integrated NTC 50kΩ
Measuring range	
Dissolved Oxygen	0 - 20 mg/l (ppm), 0 - 200% Saturation
Temperature	0 ... 50 °C
Measuring accuracy	
Oxygen	± 2% of Measuring Range
Temperature	± 0.2°C
Reproducibility	± 0.5% of Measuring Range
Sensitivity	± 0.05% of Measuring Range
Resolution	<10 mg/l: ±0.01 mg/l (ppm); ± 0.1 % saturation >10 mg/l: 0.1 mg/l (ppm); ±0.1 % saturation
Response time T ₉₀	60 sec @ 20°C
Compensation	
Temperature	Automatic or manual
Pressure	Automatic or manual
Salinity	manual
Calibration	Automatic (air/sample)
Process connection	1"NPT thread
Installation style	Immersion style using pole or chain mounting
Min. Flow rate	> 2-3 cm/sec
Max. sample pressure	10 bar absolut
Wetted Material	
Sensor housing	Noryl
O-Ring	Viton
Membrane	Polypropylene
Sensor head	Noryl, Ryton
Cable strain relief	Nylon
Electrode Material	Cathode: Nickel-Chromium Anode: Lead
Membrane Thickness	40 µm
Weight	~ 0.26 kg
Dimensions	44 mm x 203 mm (Ø x L)
Sensor cable	10 m, with encapsulated IP 68 connector, extendable using sc cables
Speciality	Integrated Membran Leakage Detection
Controller compatibility	sc 200, sc 1000

Dissolved Oxygen

5740 sc Clark sensor (DataSheet: DOC053.52.03254)

Part No.	Designation
LXV425.99.00001	5740 sc Digital Galvanic DO Sensor, w/o sc controller

L	X	V	4	2	5	.	9	9	.	0	0	0	0	1
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Language / Country Code Selection

 **Note:** The sensor comes with a replaceable cartridge (with a factory installed, semi-permeable membrane), protector, 12 disposable calibration bags for highly accurate "Saturated Air Method" with integral 10 m cable terminated with connector for the sc digital controllers.
sc Digital Controller, and sc connection/extension cables (must be ordered separately)
For technical data, interfaces and additional costs, refer to the chapter sc controller/display units
The maximum cable length between the sensor and controller is limited to 110m (using sc digital extension cables).
Using different cables instead of the below mentioned, will void the warranty.
If the total length exceeds 110m, a digital termination box 5867000 (not suitable for sc1000) is required. The maximum cable length is limited to 410m in total.
For suitable Mounting hardware, please refer to the chapter "E-Chem Mounting Hardware".

9278100	LOOP Controller contains: sc200 Controller, 1Digital EU Cord 5700 sc DO probe
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Consumables & Replacements

6135200	5740 sc Replacement Cartridge incl. galvanic sensor and o-rings
276M1210	Replacement Calibration Bags (package of 12 for "in air" calibration use only)

Digital Extension Cables

LZX848	Digital Extension Cable, 5 m
LZX849	Digital Extension Cable, 10 m
LZX850	Digital Extension Cable, 15 m
LZX851	Digital Extension Cable, 20 m
LZX852	Digital Extension Cable, 30 m
LZX853	Digital Extension Cable, 50 m

Optional accessories

Air Blast Cleaning System for 5740 sc
Self-contained Air Blast Cleaning System consists of CPVC washer head with 7.6 m (25 ft) tubing for air delivery, quick-disconnect tube fitting, and compressor in NEMA 4X enclosure.

6136100	Air Blast Cleaning system for 5740 sc, 115 VAC operation
6136200	Air Blast Cleaning System for 5740 sc, 230 VAC operation
6130500	Washer Head for Air Blast Cleaning System for 5740 sc

Flow-through Union Mounting Hardware for 5740 sc

Only for use with union mount style sensor; consists of a PVC 2-inch "Y" tee with socket-weld connections, and 2-inch union.

6136300	Flow-through Union Mounting Hardware (e.g. for drinking water applications)
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Installation, Mounting options

LZY714.99.21810	Pole mounting hardware DO with Swivel, 1"NPT, PVC pole, 2m
LZY714.99.21820	Pole mounting hardware DO with Swivel, 1"NPT, SS pole, 2m
LZX914.99.12200	Chain Mount Kit, PVC, for 1" NPT threaded sensors
LZX914.99.11200	Chain Mount Kit, SS, for 1" NPT threaded sensors
LZH102	PVC tube for LDO sensor, 100 mm length, 1 1/2" external thread
LZY048	Screw Cap 1.5 " with chain link

OXYGEN, Dissolved

EVITA Oxy (DataSheet DOC023.52.00076)



The Hach LANGE **EVITA OXY** Transmitter performs with less than 30 minutes of maintenance a year. The factory "all-inclusive" sensor contains electrolyte, membranes and electrodes. There is no need for regeneration — simply replace the sensor every two years and it's done after 5 minutes.

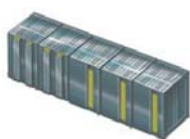
Unique self-cleaning design — the spherical form and the "fins" ensure that contaminants will not stick to the sensor.

Immersed cleaning systems are ! Wipe the sensor down three times per year during normal calibration to ensure optimal performance.

Automatic Calibration "Tilt-Cal"

Calibration is done automatically by simply tilting the transmitter. It takes 5 minutes, and typically 3-4 times a year.

Controller compatibility



Direct PLC connection



USC series

General Data Subject to change without notice	
	EVITA OXY 4100 
Designation	Dissolved Oxygen "Clark-style" sensor with integrated Membran Leakage Detection, 2-wire on current loop powered, for DO measurement in water/waste water
T-sensor	Pt1000 inbuilt
Sensor style	Ball-float style
Measuring range	
Dissolved Oxygen	0 to 50 mg/l, 0 to 500% (configurable, depending on used Oxy sensor)
Temperature	0 to 40°C
Reproducibility	
Response time T ₉₀	depending on Membrane thickness in use
	7 s 25 µm: Measuring range: 0 - 2.0 ppm
	22 s 50 µm: Measuring range: 0.1 - 10 ppm
	110 s 125 µm: Measuring range: 2.0 - 50 ppm
Compensation	
Temperature	40°C
Calibration	"Tilt-Cal" - AutoCalibration in air
Process connection	
Required Flow rate	> 2-3 cm/sec
Max. sample pressure	1 m submersible up to 10 m
Sensor cable	10 m cable as Standard, 2 x 0.75 mm ² shielded
Controller compatibility	Direct connection to SCADA/PLC or with USC5000/6000/7000
Outputs	0/4 ... 20 mA HART® communication superposed on current output
Power requirements	12-30 VDC, 720 mVA (max)
Operation Temperature	
Enclosure rating	IP 68 (1 m); NEMA 6P (3')
Weight	2.7 kg (6 lb)
Dimensions	240 mm Ø (9.6")
Warranty	1 year

OXYGEN, Dissolved

EVITA Oxy - USC series

Subject to change without notice		
	Signal Convertor	
Designation	USC 5000	USC7000
Measurement range	Dissolved oxygen: 0 to 10–500 %, 0 to 0.1–50 mg/L or ppm	
	Temperature: 0–70 °C	
Measurement uncertainty	Oxygen: ± 0.5 %	
	Temperature: 0.1 °C	
Current outputs*	1 x 4–20 mA (scalable),	4 x 4–20 mA (scalable)
	24 V actively galvanically isolated	24 V actively galvanically isolated
	Maximum load: 800 Ohm	Maximum load: 800 Ohm
Relay outputs*	None	5 relay outputs SPST
		(max. 48 VAC, or 30 Vrms 4 A)
Digital input*	1 digital input 12–30 V DC	
Display	Alphanumeric LCD display illuminated background	
Protection type	IP 67 according to IEC 529; NEMA 4X	
Ambient temperature:		
Storage	-40° C to + 70° C	
Operation:	-40° C to + 50° C	
Environment	Indoor use, height up to 2000 m	
Pollution degree	II	
Relative humidity	80 % up to 31 °C, linear decreasing to 50 % at 40 °C	
Power supply	100–240 Vac +10 %/–15 %, 50/60 Hz. 5–20 VA, Fuse: T500 mA/250 V	
Automatic calibration	Compensation of the temperature, of the air pressure, of the humidity and of the salinity	
Cable gland	Jacob GmbH, catalogue number 50.013 PA (PG 13.5), 6–12 mm cable diameter	
Blind screw connection	Jacob GmbH, catalogue number 1013 PA	
Approvals	Approval according to CE, Emission/immunity EMC: EN 61326	

 **Note:** * The insulation between the mains connection and all in- and output terminals of the USC signal converter is provided by double or reinforced insulation of 2300 V AC strength (category II).

Optionen

Part No.	Designation
085G4145.52.001	USC 5000 signal converter IP67 85-264 V AC
085G4146.52.001	USC 7000 signal converter IP67 85-264 V AC
085G4147.52.001	USC 7000 signal converter IP67 11-30 V DC

OXYGEN, Dissolved

EVITA Oxy ball float style (DataSheet DOC023.52.00076)



EVITA Oxy, Sytem Package 3

0 8 5 G 4 0 0 x . 5 2 . 0 0 1

DO Measuring range option (w/o Signal Converter)

0 ... 3 mg/l	2
0 ... 5 mg/l	3
0 ... 10 mg/l	4
0 ... 15 mg/l	5
0 ... 20 mg/l	6

Language / Country Code Selection

Manual in GB language 5 2

Note: Standard delivery of HACH LANGE EVITA Oxy, Sytem Package 3 w/o USC, for direct connection to PLC/SCADA respectively as extension kit , comprises OXY 4100 oxygen transmitter (085G406X.52.001), OXY 1100 oxygen sensor (085G00XX), Mounting bracket (085G4085) and manual in English language.
For Mounting hardware, please refer to "EVITA Oxy Mounting hardware"



EVITA Oxy, Sytem Package 2

0 8 5 G 4 0 0 x . 5 2 . 0 0 1

with USC5000

DO Measuring range Option

0 ... 20 mg/l	1
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Language / Country Code Selection

Manual in GB language 5 2

Note: Standard delivery of HACH LANGE EVITA Oxy, Sytem Package 2 comprises
1 x USC5000 Signal Converter, Field housing IP67, 85-264 VAC 50/60 Hz (085G4145.52.001),
1 x 0/4 - 20 mA output with digital HART®, No relais, Integrated pressure sensor,
1 x OXY 4100 oxygen transmitter, ball float style (085G4064.52.001),
1 x OXY 1100 oxygen sensor, Measuring range 0...20 mg/l (085G0022),
1 x Mounting bracket (085G4085) and manual in English language.
For Mounting hardware, please refer to "EVITA Oxy Mounting hardware"

OXYGEN, Dissolved

EVITA Oxy - immersion style (DataSheet DOC023.52.00076)

Part No.

Designation



EVITA Oxy, Sytem Package 2A
with USC5000

0 8 5 G 4 0 0 x . 5 2 . 0 0 1

DO Measuring range Option

0 ... 20 mg/l 9

Language / Country Code Selection

Manual in GB language 5 2



Note:

Standard delivery of HACH LANGE EVITA Oxy, Sytem Package 2 comprises
1 x USC5000 Signal Converter, Field housing IP67, 85-264 VAC 50/60 Hz (085G4145.52.001),
1 x 0/4 - 20 mA output with digital HART®, No relais, Integrated pressure sensor,
1 x OXY 4150 oxygen transmitter, probe-style (085G4074.52.001),
1 x OXY 1100 oxygen sensor, Measuring range 0...20 mg/l (085G0022),
1 x Mounting bracket (085G4085), Adaptor 50 mm pipe to 1¼" thread (085G3325)
and manual in English language.
For Mounting hardware, please refer to "EVITA Oxy Mounting hardware"

Evita Oxy, System Package 4

0 8 5 G 4 0 1 x . 5 2 . 0 0 1

DO Measuring range Option

4...15 mg/l 0

2...20 mg/l 6

Language / Country Code Selection

Manual in GB language 5 2

Evita Oxy, System Package 5

0 8 5 G 4 0 1 x . 5 2 . 0 0 1

Fish farming applications

DO Measuring range Option

3...20 mg/l 4

Language / Country Code Selection

Manual in GB language 5 2

OXYGEN, Dissolved

EVITA Oxy - Common accessories (DataSheet DOC023.52.00076)

Part No.

Designation

EVITA Oxy 41X0 Transmitter w/o sensor

0 8 5 G 4 0 x x . 5 2 . 0 0 1



Measuring range option

4100 Transmitter (ball-float style) with 10 m cable

0 ... 3 mg/l	6 0
0 ... 5 mg/l	6 1
0 ... 10 mg/l	6 2
0 ... 15 mg/l	6 3
0 ... 20 mg/l	6 4
0 ... 30 mg/l	6 5
0 ... 100%	6 6

4100 Transmitter with 50 m cable

0 ... 20 mg/l	6 9
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4150 Transmitter (probe style) with 10 m cable

0 ... 3 mg/l	7 0
0 ... 5 mg/l	7 1
0 ... 10 mg/l	7 2
0 ... 15 mg/l	7 3
0 ... 20 mg/l	7 4
0 ... 30 mg/l	7 5
0 ... 100%	7 6

4150 Transmitter with 50 m cable

0 ... 20 mg/l	7 9
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Language / Country Code Selecti please refer to Appendix E for further info

Manual in GB language	5 2
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Note: OXY 4100 oxygen transmitter (Ball float style)
4-10 mA current output with digital HART;
sensor (085G40XX) is not included and must be ordered separately!
OXY 4150 oxygen transmitter (Probe style)
4-10 mA current output with digital HART;
sensor (085G40XX) and adapter (085G3325) are not included and must be ordered separately!
For Mounting hardware, please refer to "EVITA Oxy Mounting hardware"

Oxy 1100 Dissolved Oxygen sensor

0 8 5 G 0 0 x x



Membrane Thickness/Measuring range

Packaging design

Measuring range 0.002 - 2 ppm Dissolved Oxygen

25µm Membrane, 0.002 - 2 ppm DO	pk/1	2 1
25µm Membrane, 0.002 - 2 ppm DO	pk/5	2 4
25µm Membrane, 0.002 - 2 ppm DO	pk/10	2 5

Measuring range 0.1 - 10 ppm Dissolved Oxygen

50µm Membrane, 0.1 - 10 ppm DO	pk/1	2 2
50µm Membrane, 0.1 - 10 ppm DO	pk/5	2 6
50µm Membrane, 0.1 - 10 ppm DO	pk/10	2 7

Measuring range 2 - 50 ppm Dissolved Oxygen

125µm Membrane, 2.0 - 50 ppm DO	pk/1	2 3
125µm Membrane, 2.0 - 50 ppm DO	pk/5	2 9
125µm Membrane, 2.0 - 50 ppm DO	pk/10	3 0

Note: The OXY 1100 Membrane Cartridges come ready to use.
Pre-assembled anode, cathode, electrolyte, and membrane in a foil pack.
The standard 50µm cartridge can last 2 years!
All are available individually or in packages of 5 or 10 pieces.

192LX0220

Silica fat MS4 conductive, 100 g

OXYGEN, Dissolved

EVITA Oxy - Common accessories (DataSheet DOC023.52.00076)

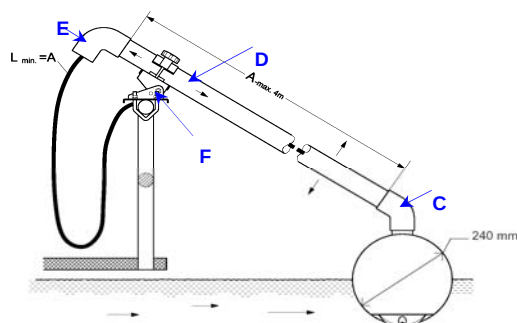
Part No. Designation

Mounting assembly for EVITA Oxy 4100 ball-float style

191L8651	2.5 m tube & bend, made of PVC, 50 mm Ø (D)
191L8654	4.0 m tube & bend, made of PVC, 50 mm Ø (D)
191L8652	45° tube elbow, PVC, 50 mm Ø (C)
191L8653	90° tube elbow, PVC, 50 mm Ø (E)
191L8652	45° tube elbow
085G4085	Mounting bracket for 1½" to 50 mm PVC pipe (AISI 316)

Part in Picture

D
D
C
E
E
F

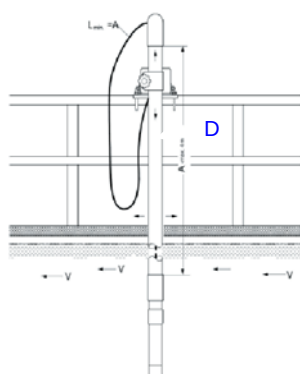


Mounting assembly for EVITA Oxy 4150 probe style

085G4085	Mounting bracket for 1½" to 50 mm PVC pipe (AISI 316)
191L8651	2.5 m tube & bend, made of PVC, 50 mm Ø (D)
191L8654	4.0 m tube & bend, made of PVC, 50 mm Ø (D)
085G3325	Adaptor 50 mm pipe to 1¼" thread (supplied with preference packages) alternatively
081B0028	Union fitting for 50mm pipes and 1¼" thread
191L8653	90° tube elbow, PVC, 50 mm Ø (E)

D
D

E



- F
- A: OXY 4150/3150; diameter 50 mm
- B: adaptor with 1¼" pipe thread (085G3325) or union with diameter 50 mm (081B0028); is supplied with system packages 1A and 2A
- C: adaptor with 1½" and 50 mm outside diameter (081B0027); is supplied with system packages 1A and 2A
- D: PVC or ABS socket; inside diameter: 50 mm or 1½"; supplied by customer
- E: PVC or ABS tube; 50 mm or 1½"; supplied by customer
- F: 90° PVC or ABS elbow; inside diameter: 50 mm or 1½"; supplied by customer
- Q: PVC or ABS adhesive; supplied by customer

085G4081	Cable bracket for OXY models 4150 and 3150 for cable suspension Part B must be customer supplied.
085G4084	Sun shield for USC5000/7000 IP67 (stainless steel, weight 1 kg)
081B4000.72.001	Power supply EVITA INSITU/INLINE 85-264 V AC; 50/60 Hz (24V DC 6A)



OXYGEN, Dissolved

OXISTAT T 9182 (DataSheet TE9182revD)



Dissolved oxygen analyzer designed for measurement in high purity water with automatic temperature compensation, e.g. in boiler water and condensate. Controller suitable for wall, pipe or control panel mounting.

- ➔ User-friendly menu-based programming
- ➔ Easy to install
- ➔ Long-life membranes pre-mounted on retaining caps to suppress any delicate membrane handling
- ➔ Two-point calibration: zero & slope
- ➔ Fast calibration procedure:
from ppm level (air) to process ppb values in less than 15 minutes!
- ➔ Two smart analog outputs (measurement/temperature)
with automatic recognition of the analyser status
- ➔ Four relays for high/low limits, system error and timer

Technical Data	
Subject to change without notice	
	9182 T
Designation	Measuring system for online monitoring of DO in high purity water and condensates
Measuring principle	amperometric (Clark Cell)
T-sensor	integrated PT100
Measuring range	
Dissolved Oxygen	0 ... 2000 µg/l (ppb), ((0-9999 ppb when calibrating in air))
Temperature	0 ... 45°C1
Reproducibility	± 0.5 ppb or ± 5% (whichever is greater)
Sensitivity	± 0.5% of Measuring Range
Resolution	0.01 mg/l, 0.01 ppm, 0.01 % saturation
Response time T ₉₀	< 30 sec For step change 1-40 ppb
Compensation	
Temperature	Automatic in the range of 0 ... 45°C
Pressure	Automatic or manual
Salinity	manual
Calibration	2-point (Zero + slope) Zero: Electrically or with oxygen free water Slope: in air or process using a laboratory reference value
Process connection	Bypass Installation with atmospheric outlet
Inlet	¼" NPT (4/6 mm ID/OD stainless steel tubing recommended)
Outlet (Drain)	¼" NPT (6/8 mm ID/OD tubing recommended)
Required Flow rate	4 ... 10 l/h
Max. sample pressure	Outlet at atmospheric pressure
Wetted Material	
Electrodes	Gold cathode, Silver anode
O-Ring	Viton
Membrane	PFA (Perfluoroalkoxy)
Sensor head	Noryl, Viton
Sensor body	Noryl
Flow-through cell	SS 316L
Sensor cable	10 m
Controller compatibility	MONEC 9100
Outputs	2 x 0/4-20 mA fully programmable, 800 Ohms load max. - 1 x measurement (linear or dual range) and 1 x for the temperature (linear), or - two measurements (linear or dual range) 4 relays (min/max., system alarm, timer) optional RS485, ProfiBus DP
Power requirements	90...265 VAC, 50/60 Hz, ~25VA low Voltage version on request
Operation Temperature	-20 ... +60°C
Enclosure rating	IP65, NEMA 4 (optional NEMA4X)
Weight	10 kg
Dimensions	
Controller	144 x 144 x 155 mm (W x H x D)
Flow-through cell	50 x 185 x 46 mm (W x H x D) with installed electrode
Warranty	2 years for the controller

OXYGEN, Dissolved

OXISTAT T 9182 (DataSheet TE9182revD)

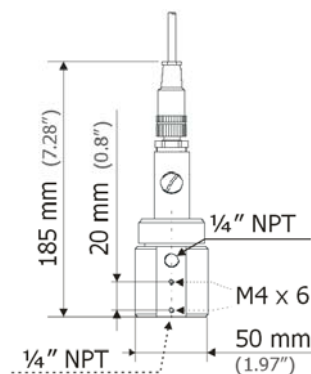
Part No.	Designation
Z09182=A=0000	OXISTAT T 9182 consisting of: Transmitter, Dissolved Oxygen Measuring probe, Flow through cell (SS316L), 10 m cable Start-up / 2 year operation kit: electrolyte, calibration cap, filling syringe and 4 premounted membranes for ppb range analysis.

Consumables (suitable for 2 years operation under normal conditions)

Z09185=A=3500	DO membranes (ppb); premounted, made of PFA, pk/4
Z09181=A=3600	KBr Filling solution, 100ml bottle

Spare Parts & Replacements

Z09182=A=1200	Calibration cap
Z09078=A=2000	Flow through cell, made of SS316L
Z09182=A=1000	Oxygen electrode (ppb) without probe body
Z09078=C=1010	Probe body oxygen ppb, made of NORYL
Z09180=A=8010	Connection cable 10m
Z221=191=082	9182 Instruction manual in English



Dissolved Oxygen sensors

Ø 12 mm Sensors and Accessories - Specifications

Controller compatibility



si792/792X/794



SIPAN 32/32X / 34

Technical Data			
Subject to change without notice			
	OxyGold G	OxyFerm	OxySens
			
Field of applications:	ultra-pure water, non- or low-carbonated beverages and chemical industries; steam sterilizable; with 3.1b certificate	low carbonated beverage and chemical applications; steam sterilization, autoclavation and CIP; with 3.1b certificate	waste water and water, e.g. fish farming
Measuring range depending on controller	1µg/l ... 40mg/l	10µg/l ... 40 mg/l	40µg/l ... 40mg/l
T _{max}	0 ... 130°C	0 ... 130°C	0 ... 60°C
P _{max}	0 ... 12 bar	0.5 ... 4 bar	0 ... 4 bar
Response time T98	< 60 sec	< 60 sec	< 60 sec
General Information			
Polarisation Voltage	670 ± 50mV	670 ± 50mV	670 ± 50mV
Temperature sensor	NTC 22 KOhm integrated	NTC 22 KOhm integrated	NTC 22 KOhm integrated
Min. required flow rate	> 0.1 m/s	> 0.02 m/s	> 0.02 m/s
Drift	< 1% / week	< 2% / week	< 2% / week
Special Information		UpSide Down Mounting possible using special electrolyte gel, e.g. for almost empty tanks	maintenance-free DO sensor; no change of membrane or electrolyte required
Cable	VP plug connector LZY079 5m, LZY353 10m LZY354 20m	cable VP plug LZY079 5m, LZY353 10m LZY354 20m	LZY078 5m fixed and sealed LZY458 10m fixed and sealed
Process connection			
Typical Installation	Inline or Bypass	Inline or Bypass	Immersion, Inline or Bypass
Electrode Shaft Ø	12 mm Ø	12 mm Ø	12 mm Ø
Mounting length	120 mm	120 mm	120 mm
Protection class acc. EN 60529			
	IP68	IP68	IP68
Sensor body material	SS316 Mat 1.4435 and Gold	SS316 Mat. 1.4435	SS 316 Mat. 1.4435 and PEEK
Membrane material	Optiflow		
Sealings	FDA-EPDM, Silicon	Silicon, Viton	Silicon, NBR O-Ring
Ex protection	II 1/2G Eex ia II c T4/T5/T6 in conjunction with si792x D EC-Type Examination Certificate No: TÜV 03 ATEX 7005X; ATEX-Certificate: CE0035 maximum permissible cable length: 5 m		
weight	0.2 kg		
Controller compatibility	si792, si792x, si794 SIPAN 32/32x	si792, si792x, si794 SIPAN 32/32X/34	si792, si792x, si794 SIPAN 32/32X/34

 **Note:** For suitable Mounting hardware, please refer to the chapter "E-Chem Mounting Hardware".

Dissolved Oxygen sensors

Ø 12 mm Sensors and Accessories - Specifications

Part No.	Designation
LZY072	OxyGold G Dissolved Oxygen sensor, Ø12 x 120 mm, Pg13.5, VP6 top connector (IP68) with integrated 22kOhm NTC Temperature sensor, Eex-Label: II 1/2G EEx IA II C T4/T5/T6, ATEX No: TUV 03 ATEX 7005X Measuring range: 2 µg/l ... 40 mg/l, up to 12 bar and 0 ... 130°C, suitable for ultra-pure water, non- or low-carbonated beverages and chemical industries. steam sterilizable, comes with Material Certificate 3.1B made of SS316L Mat. 1.4435, Gold; Sealing material: EDPM Response time T98% < 60sec, Pressure equipment Directive for Gas 1/Liquids 1 Art. 3.3 SEP
LZY075	OxyFerm Dissolved Oxygen sensor, Ø12 x 120 mm, Pg13.5, VP6 top connector (IP68) with integrated 22kOhm NTC Temperature sensor, Eex-Label: II 1/2G EEx IA II C T4/T5/T6, ATEX No: TUV 03 ATEX 7005X Measuring range: 10 µg/l ... 40 mg/l, up to 4 bar and 0 ... 130°C, suitable for beverage (low carbonated media) and chemical industries steam sterilization, autoclavation and CIP, comes with Material Certificate 3.1B made of SS316L Mat. 1.4435; Sealing material: EDPM Response time T98% < 60sec, Pressure equipment Directive for Gas 1/Liquids 1 Art. 3.3 SEP
LZY078	OxySens Dissolved Oxygen sensor, Ø12 x 120 mm, Pg13.5, 5 m integral cable (IP68) with integrated 22kOhm NTC Temperature sensor, Eex-Label: II 1/2G EEx IA II C T4/T5/T6, ATEX No: TUV 03 ATEX 7005X Measuring range: 40 µg/l ... 40 mg/l, up to 4 bar and 0 ... 60°C, maintenance-free disposable gneral purpose sensor suitable for water, waste water, fish farming application made of SS316L Mat. 1.4435, PEEK Sealing material: EDPM Response time T98% < 60sec, Pressure equipment Directive for Gas 1/Liquids 1 Art. 3.3 SEP
LZY458	OxySens Dissolved Oxygen sensor, Ø12 x 120 mm, Pg13.5, 10 m integral cable (IP68) with integrated 22kOhm NTC Temperature sensor, Measuring range: 40 µg/l ... 40 mg/l, up to 4 bar and 0 ... 60°C, maintenance-free disposable gneral purpose sensor; suitable for water, waste water, fish farming application made of SS316L Mat. 1.4435, PEEK Sealing material: EDPM Response time T98% < 60sec, Pressure equipment Directive for Gas 1/Liquids 1 Art. 3.3 SEP

Sensor connection cables, VP plug style

LZY079	Connection cable for sensors with VP plug connector, 5m
LZY353	Connection cable for sensors with VP plug connector, 10m
LZY354	Connection cable for sensors with VP plug connector, 20m



for non-Ex application only
for non-Ex application only

Sensor accessories & Consumables

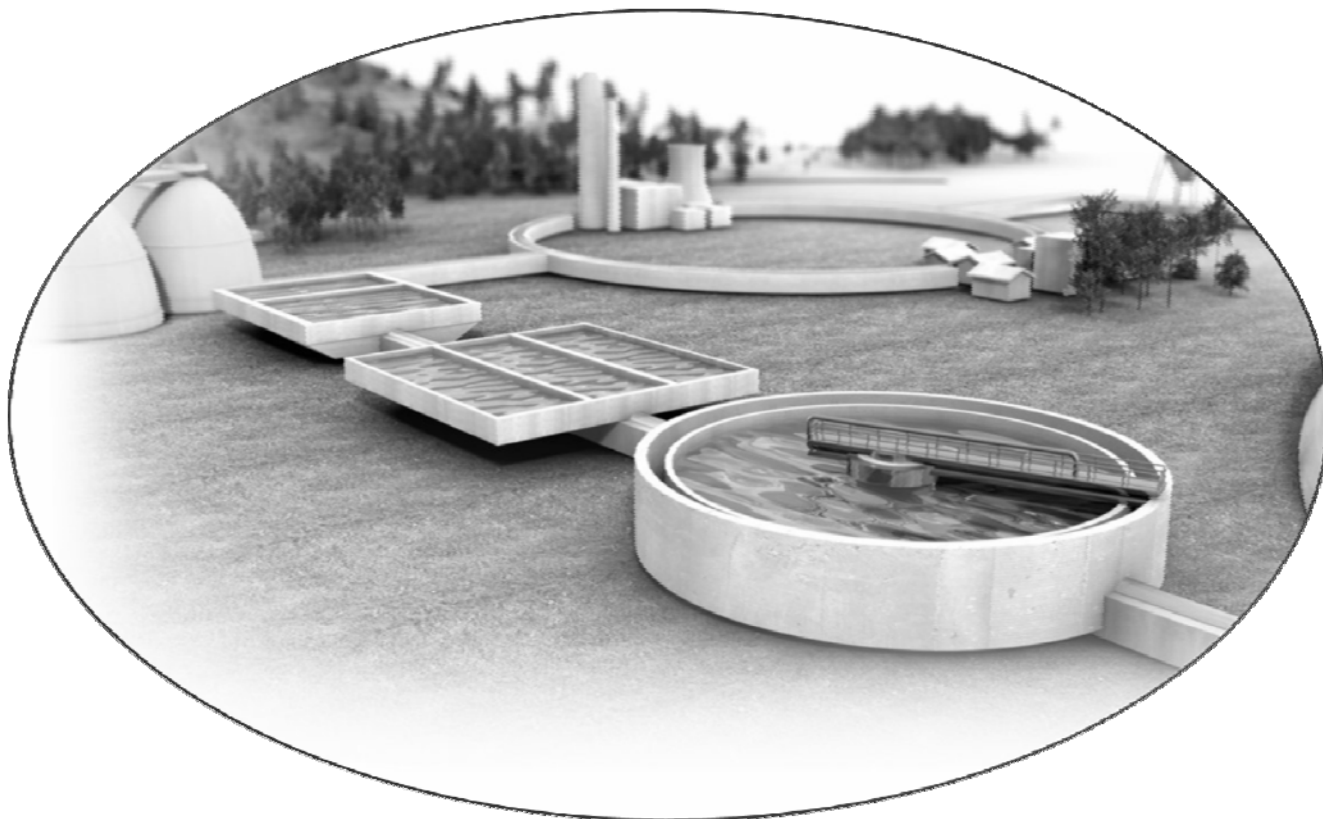
for OxyGold sensors

LZY073	Membrane Replacement Kit for OxyGold D.O. sensors consting of: 3 membrane heads, 3 O-rings (EDPM)
LZY074	OxyLyte G - Filling solution for OxyGOLD sensor series, 50 ml
LZY081	Polarisation Module "G" for D.O. sensor models OxyGOLD G and OxyFERM, pk/1 not suitable for OxyGold B, because of different Polarisation Voltage

for OxyFerm sensors

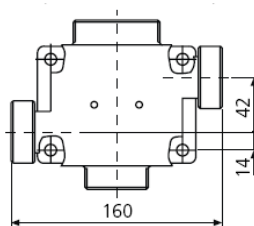
LZY076	Membrane Replacement Kit for OxyFerm D.O. sensors including 3 Membrane heads, 3 O-rings (EDPM), Electrolyte filling solution 20ml, 1 pipette
LZY077	OxyLyte - Filling solution for OxyFerm sensor, 50 ml
LZY081	Polarisation Module "G" for D.O. sensor models OxyGOLD G and OxyFERM, pk/1

Mounting Assemblies for Electrochemical sensors

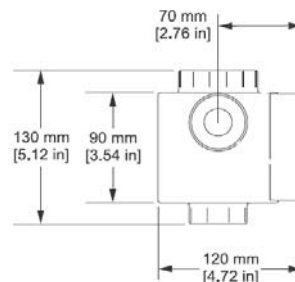


Mounting assemblies, model LZU215

Flow-through Mounting Assemblies for E-Chem sensors (DataSheet DOC273.98.90079)



Thread connection,
DN25, 180° staggered,
with connection for optional
cleaning system



- easy installation
- flexibility due to variety of adaptors
- for use with PG13.5, 3/4" and 1" sensors
- available in PP-H
 - PP-H: 90°C max at 1.5 bar
 - max 6 bar @ 40°C
- optional cleaning system
- optional calibration cup

Sensor adapters

3 x Pg 13.5



1 x 3/4"
for 3700 series



1 x 3/4"
for 8350 series



1 x 1"
for pHd series



Optional accessories

Cleaning system
LZU215.99.60000



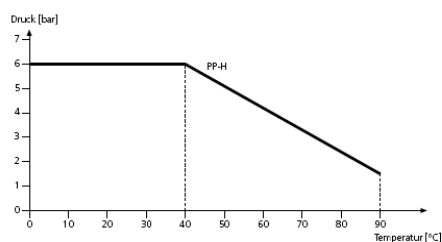
Calibration cup
LZU215.99.70000



Protection cap
LZU215.99.30000



Pressure / Temperature resistivity



Mounting assemblies, model LZU215

Flow-through Mounting Assemblies for E-Chem sensors (DataSheet DOC273.98.90079)

Part No.

Designation

Flow-Thru armature, made of PP-H

(p_{max} 6 bar @ 40°C; 1,5 bar @ 90°C); 180° staggered flow direction,
pre-configured for optional upgrading cleaning tool, Viton sealing o-rings

Material

PP-H T max @ p max 6 bar @ 40°C; 1.5 bar @ 90°C 1

Sensor adapter option

3 x Pg 13.5 sensors 1
¾" int. thread for 8350 pH/ORP sensor series D
¾" int. thread for 37XX Inductive Conductivity sensor series E
1" int. thread for pH sensors G

Process connection option

DN25 coupling 1
G1/4" Standard item 2

Inlet/Outlet Design option

Inlet/Outlet 180° staggered prepared for optional cleaning system 2

Head assembly

none in conjunction with ¾" and 1" sensor adapters 0
Standard Protection Cap in conjunction with Pg 13.5 sensor adapter only 1

LZU215.99.11221

 **Note:** LZY215.99.1X22X are standard items and have short delivery time.
Other item configuration have a delivery time of ~ 6-8 weeks.

Optional Accessories

LZU215.99.50000 Process connection 1 - DN25 coupling
LZU215.99.60000 Cleaning nozzle, made of PP
LZU215.99.70000 Calibration cup

LZU215.99.41000 Sensor adapter for LZU215, 3 x Pg 13.5, made of PP
LZU215.99.42000 Sensor adapter for LZU215, 1 x ¾" for 8350, made of PP
LZU215.99.43000 Sensor adapter for LZU215, 1 x ¾" for 37xx, made of PP
LZU215.99.44000 Sensor adapter for LZU215, 1 x 1" für pH sc, made of PP

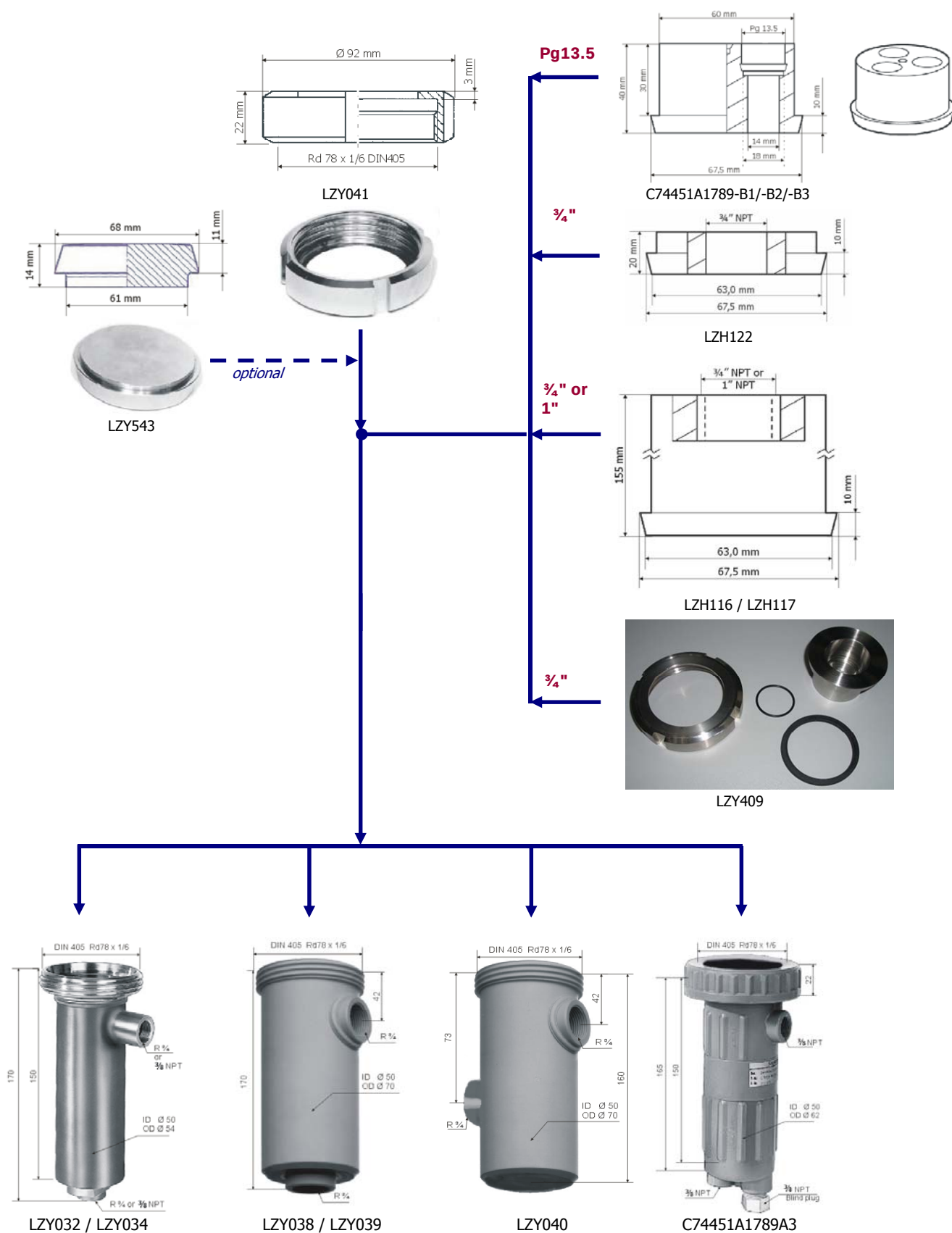
Replacements

LZU215.99.80000 Sealing kit, made of EPDM
LZU215.99.85000 Sealing kit, made of Viton (FKM)

LZU215.99.30000 Protection cap, for LZU215/220

Mounting assemblies

Flow-through Mounting Assemblies E-Chem sensors



Mounting assemblies

Flow-through Mounting Assemblies E-Chem sensors

Designation	Flow fitting for bypass installtion of E-Chem sensors					
HACH LANGE P/N	LZY032	LZY034	LZY038	LZY039	C74451A1789A3	LZY040
Process connection	⅜" NPT	G ¾"	G ¾"	G ¾"	⅜" NPT	G ¾"
	90° staggered					180° staggered
Material	Stainless Steel Mat 1.4401		PP	PVDF	PP	
Gasket	made of Viton					
Temperature T _{max}	160°C		90°C	130°C	90°C	90°C
p _{max} @ T _{max}	16bar / 160°C 25bar / 20°C		6bar / 20°C 0.2bar / 90°C	6bar / 20°C 1bar / 130°C	1.5bar / 20°C 0.2bar / 90°C	6bar / 20°C 0.2bar / 90°C
Dimensions	please refer to technical drawings					
Weight	~ 1.5 kg		~ 0.25 kg		~ 1.5 kg	~ 0.25 kg
Flow rate	recommended flow rate: 0.1 ... 0.5 l/min (max. 10 l/min)					

Designation	Electrode holders for armatures						
HACH LANGE P/N	C74451A1789 &			LZH116	LZH117	LZH122	LZY409
HACH LANGE P/N	B1	B2	B3				
Process connection	Electrode holder with conical flange for use with Bypass flow fittings or welding connector						
model option	for 3 electrodes Ø12 x 120 mm			for 1 x pHd electrode	for 1 x 8350 ¾" electrode	for 1 x 372X ¾" electrodes	for 1 x 3400 ¾" electrodes
Electrode thread type	Pg 13.5 thread			1" NPT	¾" NPT	¾" NPT	¾" NPT
Material	PP	SS Mat. 1.4401	PVDF	PP			SS Mat. 1.4401
Temperature T _{max}	90°C	140°C	100°C	80°C			140°C
p _{max} @ T _{max}	6bar / 20°C 4bar / 90°C	10bar / 140°C	6bar / 20°C 4bar / 90°C	6 bar / 20°C atmospheric pressure / 80°C			10bar / 140°C
Dimensions	see drawing (DataSheet DOC053.52.90101)						
Weight	~ 0.1 kg	~ 0.5 kg	~ 0.1 kg	~ 0.1 kg			~ 0.7 kg

372X electrodes = HACH LANGE 3700 Inductive Conductivity sensor series, convertible style model option

Mounting assemblies

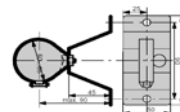
Flow-through Mounting Assemblies for E-Chem sensors

Part No.	Designation	
<u>Flow through armatures for bypass installations</u>		
LZY032	Flow fitting for bypass installation, DN50, made of Stainless steel, Mat. No. 1.4401 Process connection $\frac{3}{8}$ " NPT, 90° staggered, including 1 Viton gasket	<i>Note 1</i>
LZY034	Flow fitting for bypass installation, DN50, made of Stainless steel, Mat. No. 1.4401 Process connection G $\frac{3}{4}$ ", 90° staggered, including 1 Viton gasket	<i>Note 1</i>
LZY038	Flow fitting for bypass installation, DN50, made of Polypropylene (PP) Process connection G $\frac{3}{4}$ ", 90° staggered, including 1 Viton gasket	<i>Note 1</i>
LZY039	Flow fitting for bypass installation, DN50, made of polyvinylidene fluoride (PVDF) Process connection G $\frac{3}{4}$ ", 90° staggered, including 1 Viton gasket	<i>Note 1</i>
C74451A1789A3	Flow fitting for bypass installation, DN50, made of Polypropylene (PP) Process connection $\frac{3}{8}$ " NPT, 90° staggered, including 1 Viton gasket and union nut made of PP	<i>Note 2</i>
LZY040	Flow fitting for bypass installation, DN50, made of Polypropylene (PP) Process connection G $\frac{3}{4}$ ", 180° staggered, including 1 Viton gasket	<i>Note 1</i>

- Note:**
- 1 Electrode holder and union nut must be ordered separately
 - 2 Electrode holder must be ordered separately

<u>Electrode holders and accessories</u>		
C74451A1789B2	Electrode holder for installation of 3 sensors, Pg 13.5; made of Stainless steel, Mat. No. 1.4401 including Stainless steel union nut	
C74451A1789B3	Electrode holder for installation of 3 sensors, Pg 13.5; made of polyvinylidene fluoride (PVDF) including Stainless steel union nut	
C74451A1789B1	Electrode holder for installation of 3 sensors, Pg 13.5; made of Polypropylene (PP)	
LZH117	Electrodeholder for 1 x $\frac{3}{4}$ " pH/ORP sensors, model 8350 and 8351, ; made of Polypropylene (PP)	
LZH122	Electrodeholder for 1 x 372X convertible style Conductivity sensors; made of Polypropylene (PP)	
LZH116	Electrodeholder for 1 x 1" pH/ORP sensors; made of Polypropylene (PP)	
LZY041	Union nut, DN 50, made of Stainless steel, Mat. 1.4301	
LZY409	Electrodeholder for 1 x $\frac{3}{4}$ " Conductivity sensors, model 83XX and 34XX, made of SS316L for connection of sensors Z3831X=A=0000 to flow-thru fitting LZY032 and LZY034 incl. stainless steel adapter, DN 50 DIN flat sealing ring, sensor sealing (O-ring 30x2 mm), DN50 union nut	

<u>Mounting accessories</u>	
C74451A1789D1	Mounting set for mounting flow fitting mounting to wall or panel including mounting bracket, hose clamp for 50...65 mm Ø and small parts

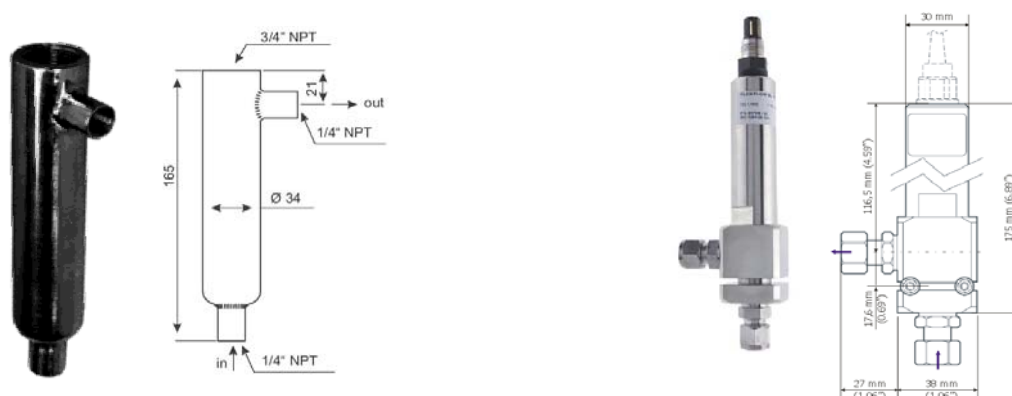


<u>Optional accessories</u>	
LZY252	Hook key spanner, made of Stainless steel, Mat. 1.4301, for union nut LZY041
LZY543	Solid end cap, DN50, made of Stainless steel, Mat. 1.4301, pk/1

<u>Replacements</u>	
LZY042	Standard gasket, made of Viton, pk/5 for flow through armatures and welding fittings with DN 50 conical flange process connection
C74451A1789D2	Set of small parts, pk/1 consisting of 3 screw connectors incl. Adjusting screws, blind plugs and o-rings

Mounting assemblies

Flow-through Mounting Assemblies for E-Chem sensors continued



Technical Data		
Subject to change without notice		
	Flow-through Mounting Assemblies	
	Z08318=A=0001	LZY080
Designation	Flow through fitting, made of Stainless Steel 316L, for bypass installations	
Sensor connection	3/4" FNPT	Pg13.5 thread
Material		
Wetted material	SS316L Mat 1.4404	SS 316L Mat. 1.4435
Gasket	EDPM	EDPM
Process connection	1/4" FNPT sample in and outlet	Swagelock 10 mm
T _{max} operation	150°C	130°C
Pressure p _{max} @ T _{max}	25 bar at 150°C	16 bar at 130°C
Recommended sensors	3/4" NPT, e.g. 3400, 831X sensors	Ø12 x 120 mm Electrodes
Dimension	please refer to technical drawings	
Weight	~ 0,3 kg	~ 1.2 kg

EDPM ethylene propylene diene M-class rubber
Please obtain electrode pressure limitations

Part No. Designation

Z08318=A=0001 Flow through fitting for bypass installation, 3/4" sensor connection, made of SS316L, Mat. No. 1.4401
Process connection 1/4" FNPT, max. 25bar @ 150°C

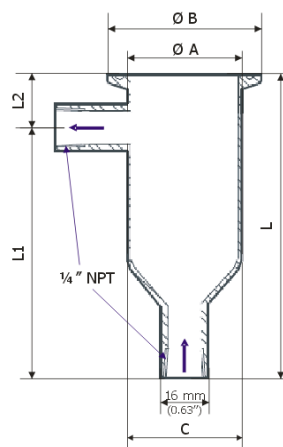
LZY080 Flow through fitting for bypass installation, for Ø12x120mm Electrodes with Pg13.5 sensor connection
made of SS316L Mat. 1.4435, suitable up to 16 bar, 130°C, process connection 10 mm swagelok

Optional Accessories

LZY109 Solid End Plug, SS 316, for sensor adapter connection 3/4" NPT thread
Total length 31 mm, max. Temp. 150°C, max. pressure 10 bar

Mounting assemblies

Flow-through Mounting Assemblies for "Sanitary style" E-Chem sensors



	Flange Design	A	B	C	Recommended sensors
Z08394=A=8150	1.5"	38 mm (1.5")	50,5 mm	38 mm	8394 / 3494 sc (1.5")
Z08394=A=8200	2.0"	51 mm (2.0")	64 mm	51 mm	8394 / 3494 sc (2.0")
Z08398=A=8200	2.0"	51 mm (2.0")	64 mm	70 mm	8398.2, 3700, 3700 sc, pHd

Technical Data

Subject to change without notice

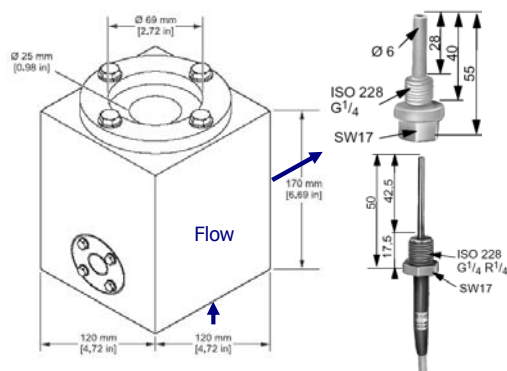
"Sanitary style" Flow-through Mounting Assemblies	
	Z08394=A=8150
	Z08394=A=8200
Designation	Flow through fitting for 1.5" or 2.0" "Sanitary style" sensors typically used in pharmaceutical industries, as well as in chemical, cosmetic and Food & Beverage industries
Sensor connection	sanitary design fitting according ISO 2852
	1.5" (38 mm)
	2.0" (51 mm)
Material	
Wetted material	Stainless steel Mat. 1.4404, Ra < 0.4 µm
Gasket	EDPM
Process connection	1/4" FNPT sample in and outlet
T _{max} operation	150°C
Pressure p _{max} @ T _{max}	25 bar at 150°C (362.5 psi) at 302°F)
minimum insertion depth	38.25 mm
Recommended sensors	sensors with 1.5" respectively 2" Sanitary flange design, e.g. 8394 sensors
Dimension	please refer to technical drawings
Weight	~ 0.5 kg
	~ 0.6 kg

EDPM ethylene propylene diene M-class rubber
VITON Viton is a fluoropolymer elastomer, a registered trademark of DuPont Performance Elastomers

Part No.	Designation
Z08394=A=8150	Flow-thru Kit, 1.5" Sanitary design, made of SS316L Includes Flow-through assembly, 1.5" Sanitary design, 1.5" heavy-duty clamp and EPDM compound gasket. suitable for 8394 / 3494 sc 1.5" flanged sensors
Z08394=A=8200	Flow-thru Kit, 2.0" Sanitary design, made of SS316L Includes Flow-through assembly, 2.0" Sanitary design, 2.0" heavy-duty clamp and EPDM compound gasket. suitable for 8394 / 3494 sc 2.0" flanged sensors
Z08398=A=8200	Flow-thru Kit, 2.0" Sanitary design, made of SS316L Includes Flow-through assembly, 2.0" Sanitary design, 2.0" heavy-duty clamp and EPDM compound gasket. suitable for 8398.2, 3700, 3700 sc, pHd sensors
Spare Parts	
Z429=500=380	Gasket, made of EDPM, for 1.5" clamp fastening
Z429=500=510	Gasket, made of EDPM, for 2.0" clamp fastening

Mounting assemblies

Flow-through Mounting Assembly for 2200 sensors (DataSheet DOC053.72.90100)



- ➔ Flow through fitting for aggressive media in bypass installations
 - ➔ typically used for concentration measurement of acids and lyes
 - ➔ compatible with 7MA22008BF & 7MA22008EB sensors
- ➔ high durability
 - ➔ solid material and design made of PTFE (Polytetrafluoroethylene) reinforced with 25% glass-fiber
 - ➔ resistant to high concentrated sulfuric acid and oleum
 - ➔ 4 bar @ 120°C, 6 bar @ 20°C

Technical Data	
Subject to change without notice	
	7MA85008AB
Designation	Flow through fitting for aggressive media in bypass installations
Material	
Wetted material	PTFE (Polytetrafluoroethylene) reinforced with 25% glass-fiber
Gasket	VITON
Process connection	DN25 4-hole flange
Installation style	Bypass
Flow rate	0.1 ... 0.5 l/min recommended (max. 10 l/min)
T _{max} operation	120°C
Pressure p _{max} @ T _{max}	4 bar @ 120°C, 6 bar @ 20°C
Recommended sensors	7MA22008BF / 7MA22008EB Inductive Conductivity sensors
Dimension	please refer to technical drawings
Weight	~ 5 kg

Part No. Designation

Mounting Assembly

7MA85008AB Flow-thru fitting for bypass applications, made of , PTFE/GF 25 for 2200 series Inductive Conductivity sensors with conical flange design

 **Note:** Protection tube C79451A3302B6 is essential for operation and must be ordered separately!!

Accessories

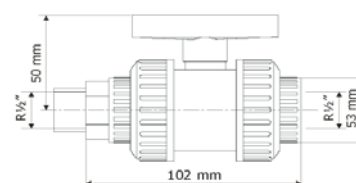
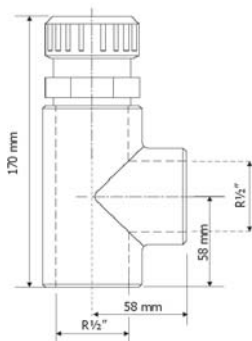
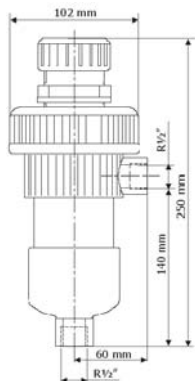
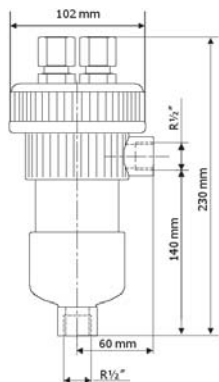
C79451A3302B6 Thermometer protective tube, PTFE (Teflon) for 7MA85008AA

Optional accessories

7MA85008AA Pt100 Temperature sensor, made of Stainless Steel, 5 m fixed cable

Mounting assemblies

Basic Flow-through Mounting Assemblies



Part No.

Designation

LZX497

DSD3 Flow-fitting for bypass installation; 1/2" process connection

transparent section for visual flow check; holds 1 Standard sensor with Ø12mm using adapter ADPH10
made of PVC, 5 bar max, 60°C max

LZY509

DSD2 Redesign Flow-fitting for bypass installation; 1/2" process connection

transparent section for visual flow check; holds up to 3 sensor with Pg13.5 thread; complete incl. 3 blind plugs
made of PVC, 5 bar max, 60°C max

LZX498

IN 10P - Inline armature for bypass installation; 1/2" process connection

holds 1 Standard sensor with Ø12 x 120 mm using adapter ADPH10

LZX499

AV10 Shut-off valve, R 1/2" process connection

Optional accessories

LZX484

ADPH12 Electrode adapter for Ø12 x 120 mm electrodes, made of PVC



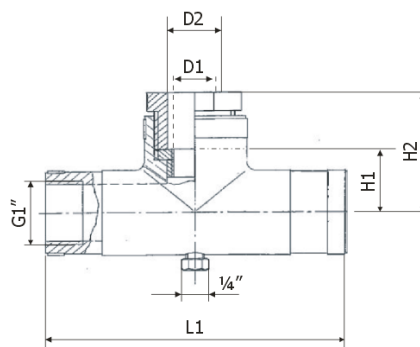
Example for AV10 and DSD3



Example for AV10 and IN10P

Mounting assemblies

Flow-through/inline Mounting Assemblies for E-Chem sensors



Technical Data			
Subject to change without notice			
Flow-Through / Inline threaded Fittings with rinsing connector			
	LZH 114	LZH115	LZH120
Designation			
Material			
Wetted material	PVC (Polyvinylenechloride)		
Electrodeholder	n.a.	SS 316 Ti, Mat. 14571	SS 316 Ti, Mat. 14571
Gasket	EPDM (ethylene propylene diene M-class rubber)		
Sensor connection	1" NPT	3/4" NPT	Pg13.5
Rinsing connection	1/4" NPT		
Process connection	G 1"		
T _{max} operation	50°C		
Pressure p _{max} @ T _{max}	5 bar at 40°C / 2 bar at 50°C		
Recommended sensors	pHD Differential sensors	8350 / 8351 sensor series	Ø12 x 120 mm electrodes
Dimension	see drawing		
L1	180 mm	160 mm	n.a.
H1 / H2	42 mm / 75 mm	33 mm / 63 mm	?? mm / 126 mm
D1 / D2	1" / 34 mm	3/4" / 28 mm	3/4" / 13 mm
Weight	0.5 kg	0.35 kg	0.5 kg

Part No. Designation

Flow-through G1" threaded assemblies

made of PVC, process connection G1",
with thread union, rinsing nozzle (4/6 mm ID/OD), hose not included

LZH120	Flow-thru tee, for Ø12 x 120 mm sensors with Pg13.5 thread
LZH115	Flow-thru tee for sensors with 3/4" thread, e.g. sensor 8350/8351 models
LZH114	Flow-thru tee for sensors with 1" thread, e.g. pH sensors

Optional accessories

Z151575,00006	Hose, made of PE (low density), ND 4/6 mm (ID/OD), per metre
Z08544=A=0001	8544.1 Electrovalve 220VAC, brass adapter G 3/8" - ND 4/6 mm (ID/OD), IP65
Z150453,06611	cable, 2 wires, shielded, per metre

Further Flow-Through tees, specially designated for 8350/8351 sensors

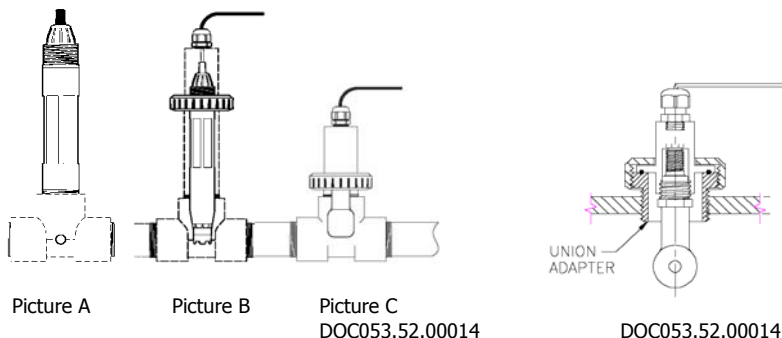
For 8350.0 sensor, please use LZH115

Z08350=A=9500	PVC DN40 tee for 8350/8351 probes with thread union, rinsing nozzle connection (1/8"), p _{max} = 10 bar
Z08350=A=9510	Kit with 2-hose connections (1" NPT), PVC



Mounting assemblies

Flow-through/inline Mounting Assemblies for pHD and 3700 sensors



Technical Data	
Subject to change without notice	
Flow-through / Inline Mounting Assemblies	
Designation	Mounting access units for pHD Differential or 3700 convertible style Conductivity sensors
Process connection	1", 1.5" or 2.0" threaded access units depending on used sensor and mounting style
Material	CPVC SS316 PVDF
T _{max} operation	100°C 150°C 130°C
Pressure p _{max} @ T _{max}	10 bar at 20°C 13.5 bar at 25°C 6 bar at 20°C 3.4 bar at 100°C 13.5 bar at 150°C 1 bar at 130°C
Recommended sensors	
1.0" access units	analog or digital convertible style pHD Differential pH or ORP sensors
1.5" access units	analog or digital convertible style pHD Differential pH or ORP sensors / Union Mounting style
2.0" access units	analog or digital convertible style 3700 inductive Conductivity sensors
Dimension	please refer to technical drawings
Weight	depending on model

EDPM ethylene propylene diene M-class rubber
Please obtain electrode pressure limitations

Note: Pressure rating is limited either by mounting assembly material or sensor material.

Mounting assemblies

Flow-through/inline Mounting Assemblies for pH/D and 3700 sensors

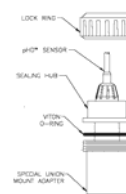
Part No.	Designation
<u>Basic flow through tee mounting assembly for pH/D sensors</u>	
MH334N4NZ	Inline Flow-Through Assembly, for pH/D/pH sc sensors "Convertible style" sensors Includes 1.0" FNPT threaded pipe tee, made of CPVC.
MH314N4MZ	Flow-thru tee 1" for pH/D/pH sc sensors "convertible style"; made of SS 316 Includes 1.0" FNPT threaded pipe tee, made of SS316.
<u>Union Mount Assembly for pH/D Differential pH/ORP and 3700 convertible style sensors</u>	
MH538N3NZ	Inline Flow-Through Assembly, Union Mount style, for 3700 Conductivity "Convertible style" sensors Includes 2" all ends FNPT threaded pipe tee, made of CPVC and union adapter.
MH518N3NZ	Inline Flow-Through Assembly, Union Mount style, for 3700 Conductivity "Convertible style" sensors Includes 2" all ends FNPT threaded pipe tee, made of SS316 and union adapter.
MH568N3NZ	Inline Flow-Through Assembly, Union Mount style, for 3700 Conductivity "Convertible style" sensors Includes 2" all ends FNPT threaded pipe tee, made of PVDF and union adapter.
6131300	Inline Flow-Through Assembly, Union Mount style, for pH/D/pH sc "Convertible style" sensors Includes 1.5" all ends FNPT threaded pipe tee, made of CPVC, Viton o-ring and union adapter.
6131400	Inline Flow-Through Assembly, Union Mount style, for pH/D/pH sc "Convertible style" sensors Includes 1.5" all ends FNPT threaded pipe tee, made of SS316, Viton o-ring and union adapter.
<u>Spare Parts</u>	
5H1233	Viton O-Ring (Replacement for 6131300 / 6131400 Inline Flow-through assemblies)
60F2021-001	CPVC Sealing Hub, Replacement for 6131300
60F2021-002	316 SS Sealing Hub, Replacement for 6131400



Union Mount adapters for 3700 convertible style sensor series

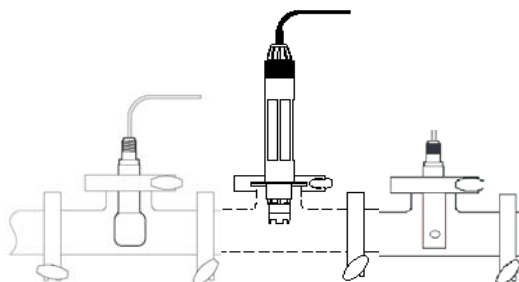
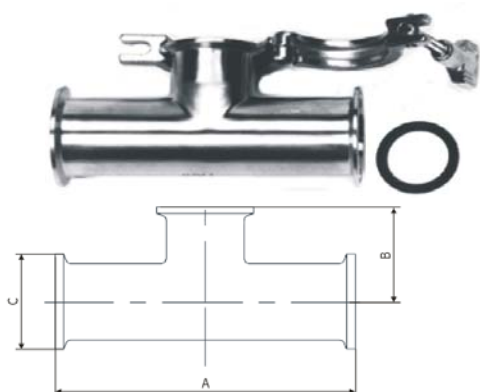
The 3700 convertible style sensor may be mounted in any standard 2" FNPT threaded pipe tee, weldolet or pipe saddle by using a special GLI union-mount adapter

MH538M3NZ	Union adapter (without tee), for 2" FNPT threaded access units, made of CPVC
MH568M3NZ	Union adapter (without tee), for 2" FNPT threaded access units, made of PVDF
MH518M3NZ	Union adapter (without tee), for 2" FNPT threaded access units, made of SS316



Mounting assemblies

"Sanitary style" Flow-through/inline Mounting Assemblies



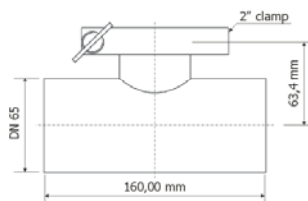
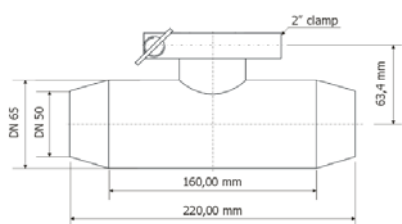
Picture 1
DOC053.52.00014

Picture 2

Picture 3

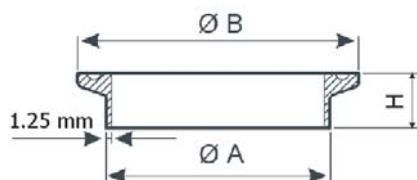
All Ends Tri-Clamp® "Sanitary style" inline Mounting Assemblies, made of SS316L

	Process connection C	A	B	Recommended sensor
MH018S8SZ	2.0"	189 mm (7.0")	57,2 mm (2.25")	e.g. for 3700, pHd and 3494 sensors
9H1310	2.0"	189 mm (7.0")	88,9 mm (3.50")	e.g. for 3455 and PC / RC sensors
9H1388	1.5"	140 mm (5.5")	69,9 mm (2.75")	e.g. for 3455 sensor k=0.05



Tri-Clamp® "Sanitary style" butt weld Tee, inline Mounting Assemblies, made of SS316L, according DIN 11851

	Process connection C	Mounting length	sensor connection	Recommended sensor
Z08398=A=7000	DN50	220 mm	2" flanged	e.g. 8398.2 sensors
Z08398=A=7500	DN65	160 mm	2" flanged	e.g. 8398.2 sensors



	Flange Design	A	B	H	Recommended sensor
Z08394=A=0380	1.5"	38 mm (1.5")	50.5 mm	13 mm	for 3494 and 3455 sensor k=0.05
Z08394=A=0510	2.0"	51 mm (2.0")	64.0 mm	13 mm	for 3400, 3494, 3700, pHd sensors
Z08398=A=0510	2.0"	51 mm (2.0")	64.0 mm	21.5 mm	typically for 8398.2 sensors

Mounting assemblies

"Sanitary style" Flow-through/inline Mounting Assemblies

Part No.	Designation
MH018S8SZ	2" <i>Sanitary style</i> inline Mounting Assembly Kit, All Ends Tri-Clamp®, made of Stainless steel 316L Includes 2" tee Sanitary tee, made SS316L, 2" heavy-duty clamp, special cap and EPDM compound gasket. for 370X Inductive conductivity sensors, pHd and 3494 sensors
Z08398=A=7000	2" <i>Sanitary style</i> inline Mounting Assembly Kit, DN50 Process connection, made of Stainless steel 316L Includes DN50 - 2" tee Sanitary tee, made SS316L, 2" heavy-duty clamp, EPDM compound gasket. Typically for sensors: 8398.2, or other suitable sensors
Z08398=A=7500	2" <i>Sanitary style</i> inline Mounting Assembly Kit, DN65 Process connection, made of Stainless steel 316L Includes DN65 - 2" tee Sanitary tee, made SS316L, 2" heavy-duty clamp, EPDM compound gasket. Typically for sensors: 8398.2, or other suitable sensors

Further Sanitary tees

9H1388	1.5" Sanitary tee, All Ends Tri-Clamp®, made of Stainless steel 316L (for 3455 and PC / RC sensors)
9H1310	2.0" Sanitary tee, All Ends Tri-Clamp®, made of Stainless steel 316L (for for 3455 sensor k=0.05)

 **Note:** Tee only; appropriate clamp, gasket and cap must be ordered seperately

Spare Parts

9H1132	Sanitary clamp, 2.0", heavy duty, made of SS304, pk/1
9H1382	Sanitary clamp, 1.5", heavy duty, made of SS304, pk/1
70F1037-003	Special Cap (for 3700 inductive conductivity sensor "Sanitary style")
70F1037-004	Special Cap (for pHd sensor "Sanitary style")
9H1327	Gasket, made of EDPM, for 2.0" clamp fastening
9H1384	Gasket, made of Viton, for 2.0" clamp fastening
9H1381	Gasket, made of EDPM, for 1.5" clamp fastening
9H1383	Gasket, made of Viton, for 1.5" clamp fastening

"Sanitary style" - Welding ferrule kits

Z08394=A=0380	Welding ferrule Kit, <i>Sanitary style</i> 1.5", incl. clamp and EPDM gasket, made of Stainless steel SS316L max. 10bar @ 150°C max. 25bar @ 100°C, made of SS 316L
Z08394=A=0510	Welding ferrule Kit, <i>Sanitary style</i> 2.0", incl. clamp and EPDM gasket, made of Stainless steel SS316L max. 10bar @ 150°C max. 25bar @ 100°C, made of SS 316L
Z08394=A=0510	Welding ferrule Kit, Sanitary style 2.0", incl. clamp and EPDM gasket, made of Stainless steel SS316L max. 10bar @ 150°C max. 25bar @ 100°C, made of SS 316L

Spare Parts

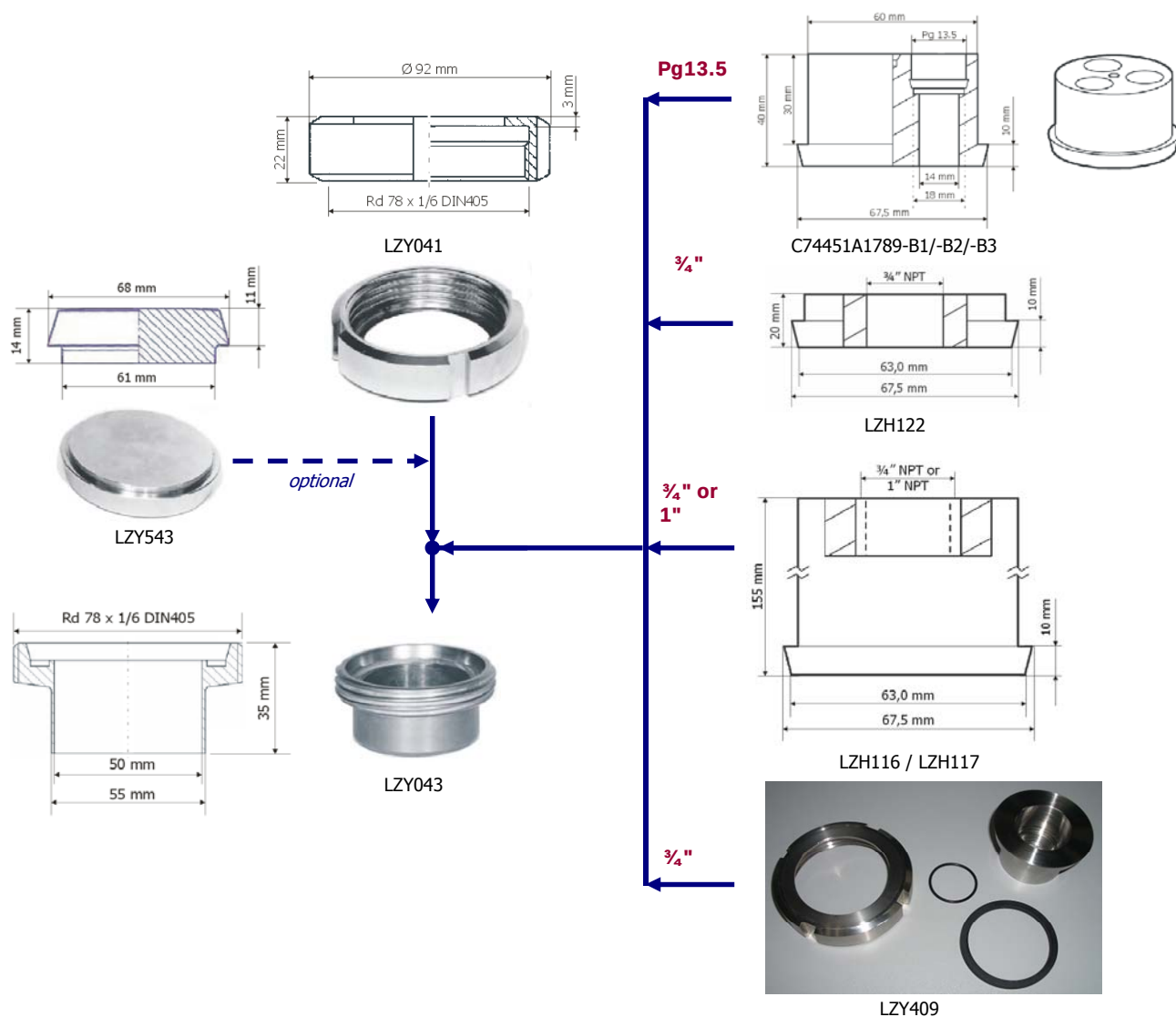
Z429=500=380	Gasket, made of EDPM, for 1.5" clamp fastening
Z429=500=510	Gasket, made of EDPM, for 2.0" clamp fastening
Z581=000=510	2" Triclamp, SS316L, replacement
Z581=100=510	Welding ferrule, SS316L, 2" Sanitary sensor connection

Mounting assemblies

Welding sockets for pipe or tank installation using DN50 conical flange sensors or adapters

Part No.

Designation



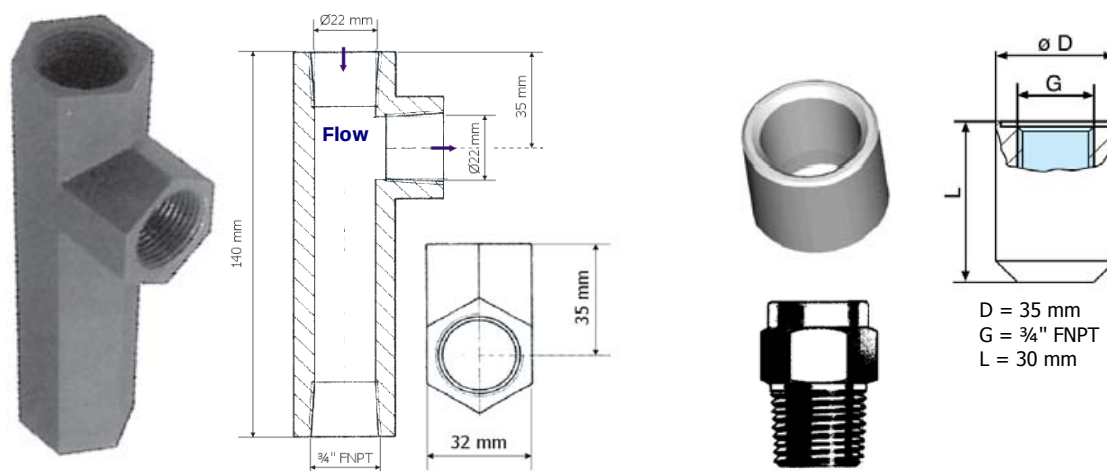
Mounting assemblies

Welding sockets for DN50 conical flange sensors or adapters

Part No.	Designation
LZY043	Welding connector, DN50, made of SS304 Mat. 1.4301, with 1 gasket (Viton) sensor mounting using union nut (union nut not included in delivery)
LZY041	Union nut, DN 50, made of SS304, Mat. 1.4301, pk/1
	<u>Optional adapters</u>
LZH117	Electrodeholder for 1 x ¾" pH/ORP sensors, model 8350 and 8351, ; made of Polypropylene (PP)
LZH122	Electrodeholder for 1 x 372X convertible style Conductivity sensors; made of Polypropylene (PP)
LZH116	Electrodeholder for 1 x 1" pH/ORP sensors; made of Polypropylene (PP)
LZY041	Union nut, DN 50, made of Stainless steel, Mat. 1.4301
LZY409	Electrodeholder for 1 x ¾" Conductivity sensors, model 83XX and 34XX, made of SS316L for connection of sensors Z3831X=A=0000 to flow-thru fitting LZY032 and LZY034 incl. stainless steel adapter, DN 50 DIN flat sealing ring, sensor sealing (O-ring 30x2 mm), DN50 union nut
C74451A1789B2	Electrode holder for installation of 3 sensors, Pg 13.5; made of Stainless steel, Mat. No. 1.4401 including Stainless steel union nut limitations for use in pipes: please obtain mounting length of sensor
	<u>Optional accessories</u>
LZY543	Solid end cap, DN50, made of SS304, Mat. 1.4301, pk/1
LZY252	Hook key spanner, made of Stainless steel, Mat. 1.4301, for union nut LZY041
	<u>Replacements</u>
LZY042	Standard gasket, made of Viton, pk/5 for flow through armatures and welding fittings with DN 50 conical flange process connection

Mounting assemblies

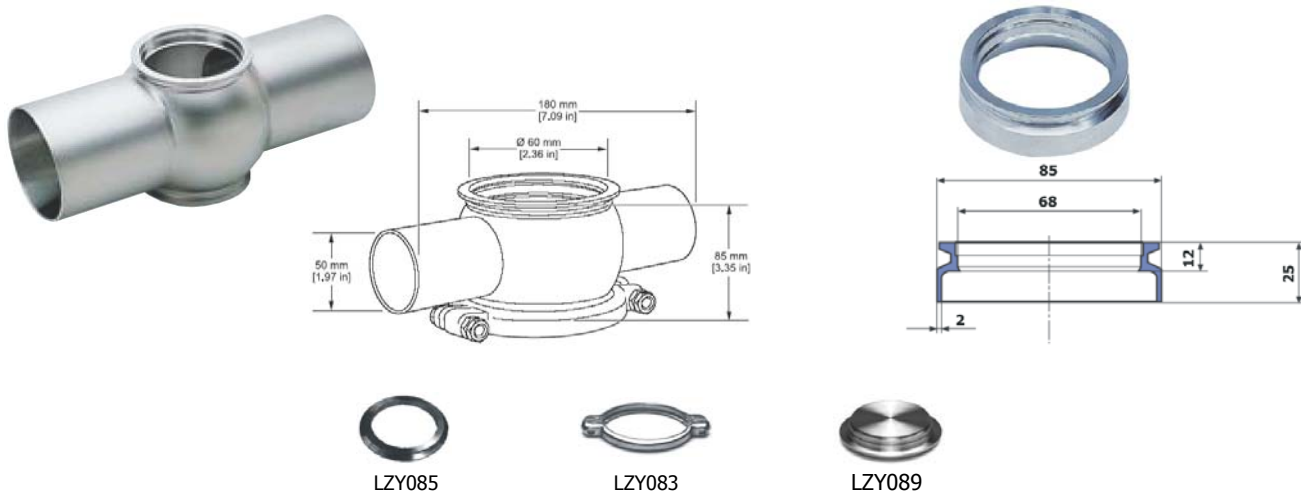
Flow-through/inline Mounting Assemblies for $\frac{3}{4}$ " threaded sensor models 3400 sc, 831X



Part No.	Designation
Z08313=A=0001	Flow-through chamber for 3400/831X probe series, made of PVC $\frac{3}{4}$ " sensor connection, Process connection ($\frac{3}{4}$ " NPT) max. 2bar @ 60°C, 10bar @ 25°C
LZY108	Welding ferrule for 3400/831X probe series, $\frac{3}{4}$ " NPT sensor thread, 35mm x 30 mm OD, made of SS 316L max. 10bar @ 150°C
	Optional accessories
LZY109	Solid end plug, $\frac{3}{4}$ " NPT, made of SS 316 Total length 31 mm, max. Temp. 150°C, max. pressure 10 bar

Mounting assemblies

Varivent® Inline Access units (DataSheet DOC053.53.90098)



Technical Data		
Subject to change without notice		
	Varivent Inline access units	
	LZY084 Varivent flow fitting	LZY086 Varivent welding connector
Designation	Varivent® Inline Access units, typically used for pocket-free installations in Food & Beverage industries, as well as in chemical, pharmaceutical and cosmetic industries	
Material		
Wetted material	Stainless steel Mat. 1.4404	
Gasket	VITON	
Process connection	Installation in DN50 pipes	weld on tank or pipes
Flow rate	0.1 ... 0.5 l/min recommended (max. 10 l/min)	
T _{max} operation	135°C with EPDM gaskets 200°C with Viton gaskets	
Pressure p _{max} @ T _{max}	16 bar	
Recommended sensors	7MA22008CB	
Recommended sensors	TSS Vari sc sensors will require ≥ DN65	
Dimension	please refer to technical drawings	
Weight	~ 2 kg	~ 0,85 kg

EDPM ethylene propylene diene M-class rubber
VITON Viton is a fluoropolymer elastomer, a registered trademark of DuPont Performance Elastomers

Part No. Designation

LZY084	VARIVENT flow-thru fitting, DN50, for connection to pipes, made of SS 316L Mat. 1.4404 Complete system consisting of: Varivent Inline flow fitting DN50, LZY089, LZY083, LZY087	
LZY086	VARIVENT welding connector, DN50, for connection to tanks or pipes, made of SS 316L Mat.1.4404 Complete system consisting of: Varivent welding connector DN50, and LZY089, LZY083, LZY087	

Spare Parts

LZY089	Solid end cap for DN50 Varivent access unit, made of SS 316L Mat. SS 1.4404	
LZY083	Varivent clamping ring, made of SS 316L Mat. SS 1.4404, incl. screws and nuts	
LZY085	Varivent Sealing ring, made of SS 316L Mat. SS 1.4404	
LZY087	EPDM gasket, for Varivent fittings, pk/5	for up to 135°C
LZY088	Viton gasket, for Varivent fittings, pk/25	for up to 200°C

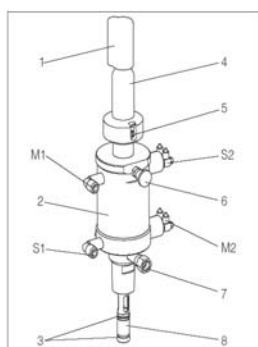
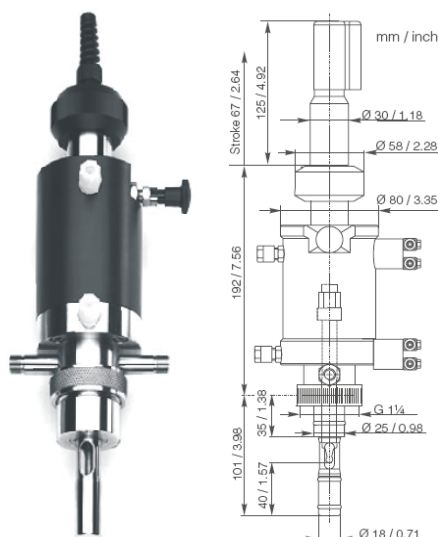
Mounting assemblies

Varivent® Inline Access units

VARIVENT flow-thru fitting															L Z U 3 0 0 . 9 9 . 0 0 0 x 0									
for connection to pipes, made of SS 316L Mat. 1.4404																								
size (metric)																								
DN 65															1									
DN80															2									
DN100															3									
DN125															4									

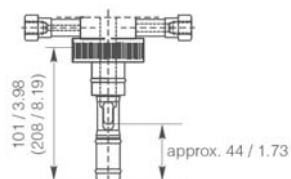
Mounting assemblies

Retractable Assembly for pH/ORP Pg 13.5 sensors (DataSheet DOC053.52.90094)



Splash protection cap
Assembly housing
Seals in contact with medium
Retractable pipe
Potential matching
Stop bold
Rinse connecting (optional)
Sensor guide
Pneumatics "Measuring position"
Limit position switch "Measuring position"
Pneumatics "Service position"
Limit position switch "Service position"

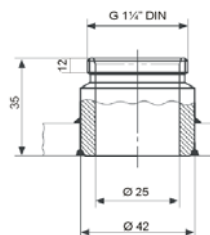
Process connection



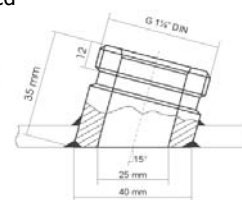
- for in-tank or in-pipe ($\geq$ DN80) installations
- retractable without stopping the process
- easy installation
- optional flushing connections or pneumatic drive for process automation
- for use with Gel filled pH/ORP sensors
 - Pg13.5, 12 mm Ø x 120 mm
- made of SS316L / DIN 1.4404 and Viton
 - up to 130°C, 6 bar max.
- available with or without inspection certificate 3.1 acc. to EN10204

→ Process connection option

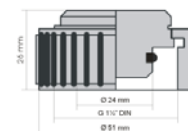
Welding connector, straight



Welding connector, 15° angled



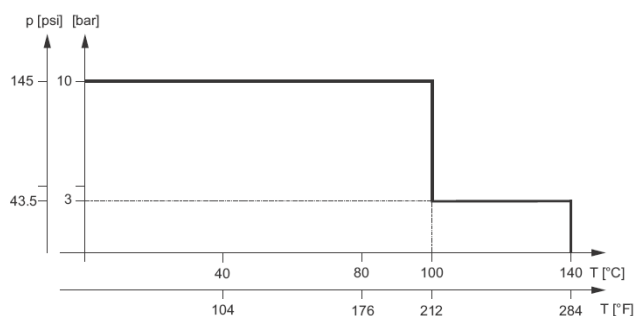
Solid End cap with union nut G 1 1/4"



Compressed air Requirements:

- air pressure of 4 to 8 bar (58 to 116 psi)
- air must be filtered (40µm) and be free of water and oil
- no continuous air consumption
- minimum nominal diameter of the air lines: 4mm (0.16")

Pressure / Temperature resistivity Diagram for SS316L / DIN1.4404 model



Mounting assemblies

Retractable Assembly for pH/ORP Pg 13.5 sensors (DataSheet DOC053.52.90094)

Part No.

Designation

LZYxxx



Retractable fitting for inline installation and for mounting on vessels, made of SS316L / DIN 1.4404 / Viton (FPM), mounting with union nut thread G1¼", for 12 mm Ø x 120-mm gel-filled pH/ORP sensors with Pg 13.5 thread

L	Z	Y	x	x	x
---	---	---	---	---	---

model options

with material certificate 3.1 acc. EN10204

Standard model (without flushing connections or pneumatic drive)	4	2	5
with 2 flushing connections	4	2	6
with 2 flushing connections and pneumatic drive ²	4	2	7

without material certificate

Standard model (without flushing connections or pneumatic drive)	2	3	6
with 2 flushing connections	2	3	7
with 2 flushing connections and pneumatic drive ²	2	3	8

² Pneumatic drive recommended for process pressure > 3 bar.

LZYxxx



Welding connectors & seals, made of SS316 / DIN 1.4571

L	Z	Y	x	x	x
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options

with material certificate 3.1 acc. EN10204

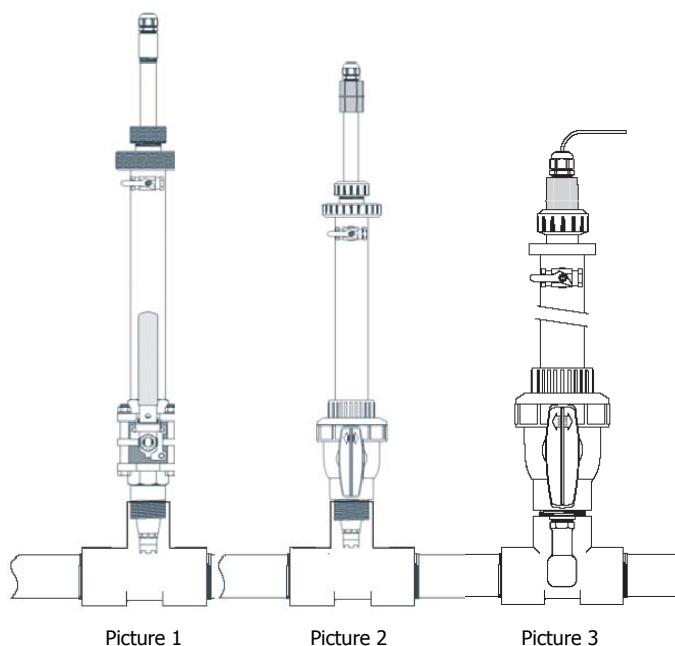
Welding type connector, straight, G1¼" thread	4	2	3
Welding type connector, 15° angled, G1¼" thread	4	2	4
Solid end cap with union nut G1¼"	4	2	2

without material certificate

Welding type connector, straight, G1¼" thread	2	3	4
Welding type connector, 15° angled, G1¼" thread	2	3	5
Solid end cap with union nut G1¼"	2	3	3

Mounting assemblies

Retractable Mounting Assemblies for pHD pH/ORP and 3700 Conductivity sensors



Technical Data	
Subject to change without notice	
Designation	Insertion retractable Mounting hardware with ball valve assembly for use with pHD differential pH / ORP sensors or 3700 Conductivity sensors
Material	
Wetted material	CPVC or Stainless Steel 316 depending on model
Gasket	Viton
Process connection	
for pHD sensors	1.5" NPT thread
for 3700 sensors	2.0" NPT thread
Installation style	Insertion retractable on pipe or vessels
sensor insertion depth	
pHD sensors	factory setting: 114 mm (4.5"); can be shortend to 25 mm (1")
3700 sensors	please contact HACH LANGE
Pressure p_{max} @ T_{max}	for pHD sensor series: up to 8 bar with air/water assist for pHD sensors for 3700 sensor series: $P_{max} = 3.5 \text{ bar @ } 90^{\circ}\text{C (CPVC); } 5.5 \text{ bar @ } 95^{\circ}\text{C (SS)}$
Support connections	1/4" NPT connector for air or water assist to remove the assembly from pressurized pipes
Recommended sensors	analog or differential pHD pH or ORP sensors, respectively 3700 Conductivity sensors
Dimension	please refer to technical drawings respectively contact HACH LANGE
for pHD sensors	
length in inserted pos.	746 mm (29.4")
length in removed pos.	1467 mm (57.75")
for 3700 sensors	
length in inserted pos.	686 mm (27")
length in removed pos.	1232 mm (48.5")
Weight	
CPVC assembly	~ 2.5 kg
SS316 assembly	~ 9.5 kg

Mounting assemblies

Retractable Mounting Assemblies for pHD pH/ORP and 3700 Conductivity sensors

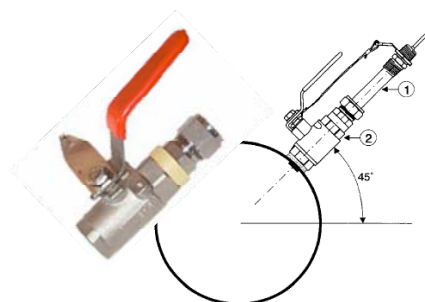
Part No.	Designation	
<u>Mounting assemblies for Digital pHD Differential pH/ORP sensors series</u>		
5646300	Retractable fitting for inline installation and for mounting on vessels, made of CPVC mounting on 1.5" threaded tee or welding flange (customer supplied) for 1" digital pHD Differential pH or ORP "convertible style" sensors	Picture 2
5646350	Retractable fitting for inline installation and for mounting on vessels, made of SS 316 mounting on 1.5" threaded tee or welding flange (customer supplied) for 1" digital pHD Differential pH or ORP "convertible style" sensors	Picture 1
2537600	SS 1.5" female weld in socket for retractable armature for pHD	
<u>Mounting assemblies for Analog pHD Differential pH/ORP sensors series</u>		
5646400	Retractable fitting for inline installation and for mounting on vessels, made of CPVC mounting on 1.5" threaded tee or welding flange (customer supplied) for 1" analog pHD Differential pH or ORP "convertible style" sensors	Picture 2
5646450	Retractable fitting for inline installation and for mounting on vessels, made of SS 316 mounting on 1.5" threaded tee or welding flange (customer supplied) for 1" analog pHD Differential pH or ORP "convertible style" sensors	Picture 1
2537600	SS 1.5" female weld in socket for retractable armature for pHD	
<u>Mounting assemblies for Analog / Digital 3700 convertible style sensors series</u>		
MH138M9NZ	Retractable fitting for inline installation and for mounting on vessels, made of CPVC mounting on 2.0" threaded tee or welding flange (customer supplied) for Analog / Differential 3700 convertible style sensors series	Picture 3
MH118M9NZ	Retractable fitting for inline installation and for mounting on vessels, made of SS 316 mounting on 2.0" threaded tee or welding flange (customer supplied) for Analog / Differential 3700 convertible style sensors series	Picture 3
2038500*	SS 2" female weld in socket for retractable armature for 3700	
* available Q2 2013		

Mounting assemblies

Retractable Mounting Assemblies for pHpulp and pHret pH sensors

These inline armatures are designed for tanks or pipes and permits easy electrode retraction and replacement (Ø 12 respectively 22 mm) without having to stop the process.

The electrodes must have a stainless steel shaft with least 200 mm shaft length.



Technical Data		
Subject to change without notice		
	Ø 12mm sensors	Ø 22mm sensors
Designation	Insertion retractable Mounting hardware with ball valve assembly for use with pHret or pHpulp pH sensors	
Material		
Wetted material	SS 316 Ti, Mat. 1.4571	
Gasket	Noryl	PVDF depending on model
Process connection	½"	1"
Installation style	Insertion retractable on pipe or vessels	
T _{max} operation	100°C	100°C
Pressure p _{max} @ T _{max}	10 bar at 100°C	10 bar at 100°C
Recommended sensors	LZX477 pHret pH sensor	LZX475 pHpulp pH sensor
Weight		
LZX465	0.50 kg	
LZX467	1.35 kg	

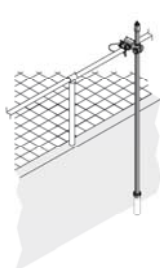
Part No.	Designation
LZX465	Retractable fitting for inline installation and for mounting on vessels, made of Stainless steel for electrodes with SS shaft, 12mmØ, e.g. PHRET (LZX477) made of SS/Noryl, up to 10 bar, 100°C, connection ½"
LZX467	Retractable fitting for inline installation and for mounting on vessels, made of Stainless steel for electrodes with SS shaft, 22mmØ, e.g. PHPULP (LZX475) made of SS/PVDF, up to 10 bar, 100°C, connection 1"

Mounting assemblies

Immersion assemblies for 1" NPT E-Chem & LDOsc (Data sheets DOC053.52.90441)



LZY714.20xx0



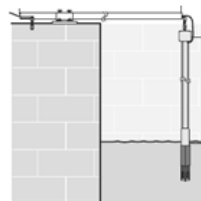
LZY714.99.21xx0



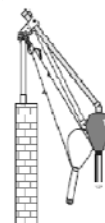
LZY714.99.22xx0



LZY714.99.23xx0



LZX914.99.1x200



LZX914.99.42200

Part No.

Designation

LZY714.99.2XXX0 Mounting Assemblies for Digital E-Chem & LDOsc sensors, Immersion style

L Z Y 7 1 4 . 9 9 . 2 x x x 0											
Language / Country Code Selection											
1" NPT straight adapter (PVC) for E-Chem and LDOsc											
Mounting Hardware Style											
No bracket / No swivel										0	
Swivel										1	
24cm SS 1.4301 Bracket										2	
10cm SS 1.4301 Bracket										3	
Pipe end cap per parameter											
Conductivity (Violet).....										4	
ORP (Orange)										7	
Oxygen (Red)										8	
pH (Brown)										9	
Immersion Sensor Style											
PVC pole 2m with flange.....										1	
SS 1.4301 pole 2m with flange										2	

Mounting assemblies

Immersion assemblies for 1" NPT E-Chem & LDOsc (Data sheets DOC053.52.90441)

Part No.

Designation

LZY714.99.20xx0

Single Immersion Pole, 2000mm length

L Z Y 7 1 4 . 9 9 . 2 0 x x 0



Language / Country Code Selection <i>please refer to Appendix E for further info</i>	
Material Parameter option	
Parameter	
Conductivity (Violet)	4
ORP (Orange)	7
Oxygen (Red)	8
pH (Brown)	9
Material pole	
Mounting assembly made of PVC	1
Mounting assembly made of SS 1.4301 (pole only)	2

LZY714.99.20XX0

The single pole kit consists of:

- 1" NPT straight adapter PVC for E-Chem and LDOsc sensor (LZY714.99.20000)
- +
- End cap (LZY714.99.00x00) (x = 4, 7, 8 or 9)
- +
- Immersion pole 2000mm and 40 mm Ø PVC (LZY714.99.0010)
- or
- Immersion pole 2000mm and 40 mm Ø SS 1.4301 (LZY714.99.0020)



Note:

The single pole solution does not include a mounting accessories.

Mounting assemblies

Immersion assemblies for 1" NPT E-Chem & LDOsc (Data sheets DOC053.52.90441)



LZY714.99.21xx0



LZY714.99.22xx0



LZY714.99.23xx0

Different pole mount kits for simply installation of E- Chem and LSOsc sensors on the basin rim (railing or concrete wall). Different mounting hardware solutions for different applications. Swivel, 24cm bracket or 10cm bracket.

- available in (C)PVC or Stainless Steel 1.4301
- pipe length 2000 mm, immersion depth adjustable
- adaptable for mounting on wall or to rails (max Ø 50mm when swivel is mounted to railing)
- for use in tanks or open cahnnels, typically for installations with high velocity

Part No.

Designation

LZY714.99.2xxx0

Pole Mounting Assembly Kit

L Z Y 7 1 4 . 9 9 . 2 x x x 0

Language / Country Code Selection

Bracket / Material option

Bracket type

Swivel made of CPVC	1
24cm SS 1.4301 Bracket	2
10cm SS 1.4301 Bracket	3

Parameter

Conductivity (Violet)	4
ORP (Orange)	7
Oxygen (Red)	8
pH (Brown)	9

Material pole

Mounting assembly made of PVC	1
Mounting assembly made of SS 1.4301 (pole only)	2

LZY714.99.2XXX0

The complete assembly kit consists of:

- 1" NPT straight adapter PVC for E-Chem and LDOsc sensor (LZY714.99.20000)
- +
- Unique swivel/pivot/pipe clamp for wall or rim mounting CPVC (LZY714.99.01000)
- or
- 24cm SS 1.4301 bracket with wall plate (LZY714.99.02000)
- or
- 10cm SS 1.4301 bracket with wall plate (LZY714.99.03000)
- +
- End cap (LZY714.99.00x00) (x = 4, 7, 8 or 9)
- +
- Immersion pole 2000mm E254PVC (LZY714.99.0010)
- or
- Immersion pole 2000mm and 40 mm Ø SS 1.4301 (LZY714.99.0020)

Optional accessories

LZY413*

Extension 1000mm pole SS 1.4301

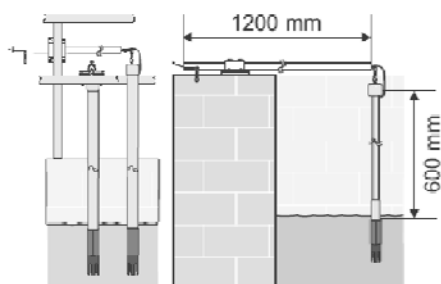
LZY414*

Extension 1800mm pole SS 1.4301

* Only suitable for solutions including SS pole (LZY714.99.00020)

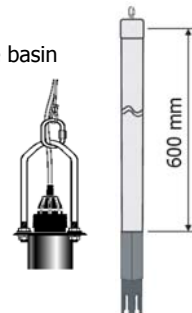
Mounting assemblies

Immersion assemblies for 1" NPT E-Chem & LDOsc (Data sheets DOC053.52.90441)



Chain mount kit for simply installation of E-Chem sensors on the basin rim (railing or concrete wall). Immersion depth adjustable.

- available in CPVC or Stainless Steel 316, Mat. 1.4571
- 5 m long chain
- adaptable for mounting on wall or to rails (max. 46mm)
- typically used in tanks or open channels with low velocity
- for 1200 S sc, pHd S sc, pHd sc, 3798 sc, 5740 sc, LDO



Part No. **Designation**

LZX914.99.1x200

Chain Mounting Assembly Kits

L Z X 9 1 4 . 9 9 . 1 x 2 0 0

Language / Country Code Selection

for 1" E-Chem & LDOsc sensor

Mounting assembly Kit, made of SS316, Mat. 1.4571 **1**
Mounting assembly Kit, made of PVC **2**

The complete assembly kit consists of:

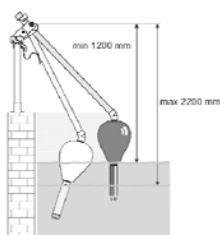
- Bracket for wall or rim mounting
- +
- 1200mm and 40 mm Ø SS 1.4571 pole and mounting accessories
- +
- 5m chain made of CPVC (LZX891)
- or
- 5m chain made of SS 1.4571 (LZY232)
- +
- 600mm immersion pole made of PVC incli. 1" adapter
- or
- 600mm immersion pole made of SS 1.4571 incli. 1" adapter

Optional accessories

LZX959

Bail, made of Stainless Steel

with nuts and washer (without chain) to be used with the sensors LXV426, LXV427 and LXV428 (1200S sc, pHd S sc & 3798 S sc) in combination with already existing chain mount hardware!



Ball float kit for simply installation of Lange E-Chem & LDOsc sensor on the basin rim (railing or concrete wall)

- available in CPVC
- pipe length 2300 mm, immersion depth adjustable
- adaptable for mounting on wall or to rails (max Ø 50mm)
- for use in tanks or open channels with variable water levels

Part No. **Designation**

LZX914.99.42200

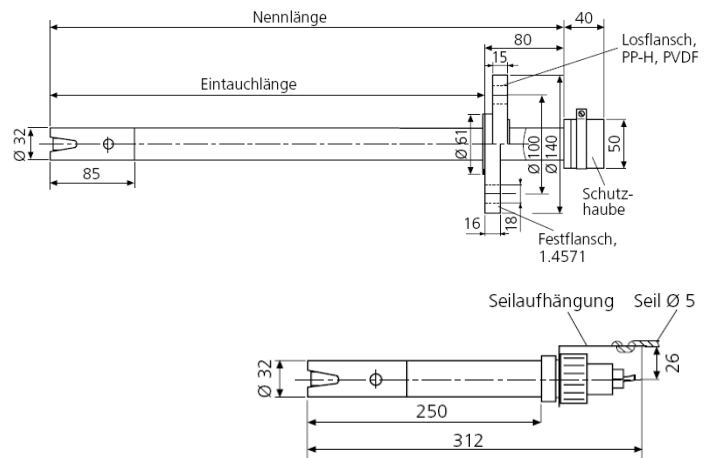
Ball float Mounting Assemblies

The complete assembly kit consists of:

- Unique swivel/pivot/pipe clamp for wall or rim mounting CPVC
- +
- 2300mm and 47 mm Ø PVC with ball float

Mounting assemblies, model LZU230

Immersion assembly for pH/ORP, Conductivity, DO (DataSheet DOC273.98.90081)



- ➔ easy installation
- ➔ reliable measurement
- ➔ for use with PG13.5, 120 mm Standard electrodes

- ➔ available in PP-H and Stainless steel
 - ➔ PP-H: 90°C max at atmospheric
max 1 bar @ 30°C
 - ➔ SS316, Mat. 1.4571
max 6 bar @ 135°C

Sensor adapter



Process connection option

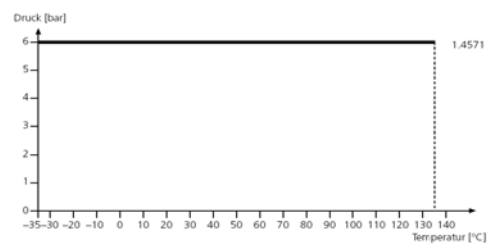
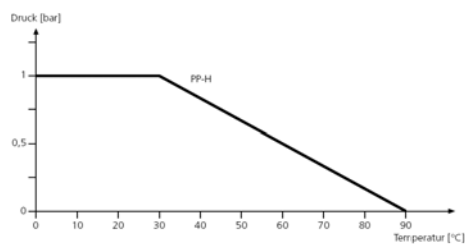
Flange DN65



Caternary suspension



Pressure / Temperature resistivity



Mounting assemblies, model LZU230

Immersion assembly for pH/ORP, Conductivity, DO (DataSheet DOC273.98.90081)

Part No.

Designation



Immersion Mounting Armature

available in different immersion lengths

Body material made of PP-H, Gasket made of Viton (FPM)

L	Z	U	2	3	0	.	9	9	.	1	1	x	x	x
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Material

PP-H pmax @ tmax: 90°C @ atmospheric, 1 bar @ 30°C 1

Sensor adapter option

1 x Pg 13.5 sensors 1

Process connection option

Flange (loose) DN 65 PN 16 7

Catenary suspension only in conjunction with cable gland and 250 mm nominal length 4

Nominal length

250 mm	only in conjunction with catenary suspension	.....	1
500 mm	only in conjunction with loose flange option	.....	2
1000 mm	only in conjunction with loose flange option	.....	3
1500 mm	only in conjunction with loose flange option	.....	4

Head assembly

3 cable glands 2

Note: LZU230.99.11412 and LZU230.99.11732 are standard items and have short delivery time.
Other item configurations have a delivery time of ~ 6 - 8 weeks.



Immersion Mounting Armature

Body material made of Stainless Steel, Gasket made of Viton (FPM)

L	Z	U	2	3	0	.	9	9	.	3	1	x	x	x
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Material

Stainless Steel, Mat 1.4571 pmax @ tmax: 135°C @ 6 bar 3

Sensor adapter option

1 x Pg 13.5 sensors 1

Process connection option

Flange fixed DN 65 PN 16 (Mat. 1.4571) 7

Catenary suspension only in conjunction with cable gland and 250 mm nominal length 4

Nominal length

250 mm	only in conjunction with catenary suspension	.....	1
500 mm	only in conjunction with loose flange option	.....	2
1000 mm	only in conjunction with loose flange option	.....	3
1500 mm	only in conjunction with loose flange option	.....	4

Head assembly

3 cable glands 2

Note: LZU230.99.31412 is standard item and has short delivery time.
Other item configurations have a delivery time of ~ 6 - 8 weeks.

Mounting assemblies, model LZU230

Immersion assembly for pH/ORP, Conductivity, DO (DataSheet DOC273.98.90081)

Part No.	Designation
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Optional Accessories

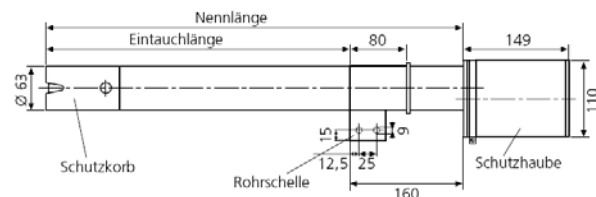
LZU230.99.41000	Sensor adapter for LZU230, 1 x Pg 13.5, made of PP
LZU230.99.42000	Sensor adapter for LZU230, 1 x Pg 13.5, made of Stainless steel, Mat. 1.4571

Replacements

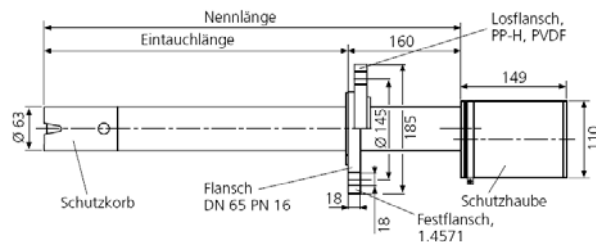
LZU230.99.50000	Sealing kit for LZU230, EPDM
LZU230.99.55000	Sealing kit for LZU230, VITON (FKM)
LZU230.99.31000	Electrode protector, for LZU230, made of PP-H
LZU230.99.32000	Electrode protector, for LZU230, made of Stainless steel, Mat. 1.4571

Immersion assembly for pH/ORP, Conductivity, DO (DataSheet DOC273.98.90080)

Immersion assembly for pH/ORP, Conductivity, DO (DataSheet DOC273.98.90080)



Flansch DN 65 PN 16



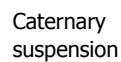
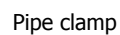
- ➔ **Sensor adapter**

3 x Pg 13.5

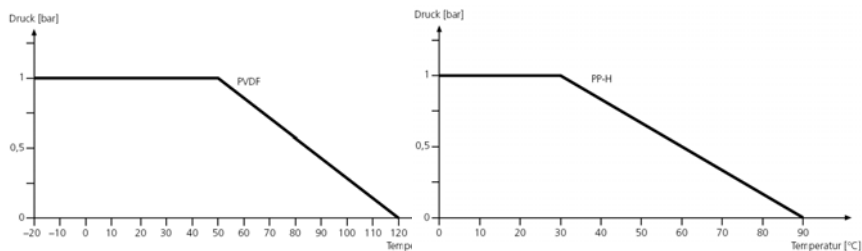


- ➔ **Process connection option**

Flange DN65



Pressure / Temperature resistivity



Mounting assemblies, model LZU220

Immersion assembly for pH/ORP, Conductivity, DO (DataSheet DOC273.98.90080)

Part No.

Designation



Immersion Mounting Armature

Body material made of PP-H, Gasket made of Viton (FPM)

L Z U 2 2 0 . 9 9 . x x x x x

Material

PP-H pmax @ tmax: (0 bar @ 90°C, 1 bar @ 30°C) 1

Sensor adapter option

1 x Pg 13.5 sensors 1
 ¾" internal thread for 8350 pH/ORP sensor series D
 ¾" internal thread for 37XX Inductive Conductivity sensor series E
 1" internal thread for pH sensors G

Process connection option

Pipe clamp 2
 Flange (loose) DN 65 PN 16 3
 Catenary suspension only in conjunction with cable gland and 250 mm nominal length ... 4

Nominal length

260 mm only in conjunction with catenary suspension & cable glands option 1
 500 mm only in conjunction with pipe clamp or flange in combination with protection cap option 2
 1000 mm only in conjunction with pipe clamp or flange in combination with protection cap option 3
 1500 mm only in conjunction with pipe clamp or flange in combination with protection cap option 4

Head assembly

Standard Protection Cap 1
 3 cable glands 3

Note: LZU220.99.1X331 and LZU220.99.11413 are standard items and have short delivery time.
 Other item configurations have a delivery time of ~ 6 - 8 weeks.



Immersion Mounting Armature

Body material made of PVDF, Gasket made of Viton (FPM)

L Z U 2 2 0 . 9 9 . x x x x x

Material

PVDF pmax @ tmax: (0 bar @ 120°C, 1 bar @ 50°C) 2

Sensor adapter option

1 x Pg 13.5 sensors 1
 ¾" internal thread for 8350 pH/ORP sensor series D
 ¾" internal thread for 37XX Inductive Conductivity sensor series E
 1" internal thread for pH sensors G

Process connection option

Pipe clamp 2
 Flange (loose) DN 65 PN 16 3
 Catenary suspension only in conjunction with cable gland and 260 mm nominal length 4

Nominal length

260 mm only in conjunction with catenary suspension & cable glands option 1
 500 mm only in conjunction with pipe clamp or flange in combination with protection cap option 2
 1000 mm only in conjunction with pipe clamp or flange in combination with protection cap option 3
 1500 mm only in conjunction with pipe clamp or flange in combination with protection cap option 4

Head assembly

Standard Protection Cap 1
 3 cable glands 3

Note: LZU220.99.21331 is standard item and has short delivery time.
 Other item configurations have a delivery time of ~ 6 - 8 weeks.

Mounting assemblies, model LZU220

Immersion assembly for pH/ORP, Conductivity, DO (DataSheet DOC273.98.90080)

Part No. Designation

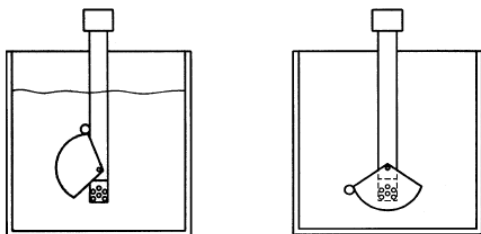
Optional Accessories

LZU220.99.50000	Sensor adapter 3 x Pg 13.5 with 3 cleaning nozzles, made of PP-H
LZU220.99.55000	Sensor adapter 3 x Pg 13.5 with 3 cleaning nozzles, made of PVDF
LZU220.99.60000	Wetting cup, made of PP-H
LZU220.99.65000	Wetting cup, made of PVDF
LZU220.99.41000	Sensor adapter 3 x Pg 13.5, made of PP-H
LZU220.99.45000	Sensor adapter 3 x Pg 13.5, made of PVDF
LZU220.99.42000	Sensor adapter 1 x ¾", for 8350 sensors, made of PP-H
LZU220.99.46000	Sensor adapter 1 x ¾", for 8350 sensors, made of PVDF
LZU220.99.43000	Sensor adapter 1 x ¾" for 37xx sensors, made of PP-H
LZU220.99.47000	Sensor adapter 1 x ¾" for 37xx sensors, made of PVDF
LZU220.99.44000	Sensor adapter 1 x 1" for pHD sc sensors, made of PP-H
LZU220.99.48000	Sensor adapter 1 x 1" for pHD sc sensors, made of PVDF

Replacements

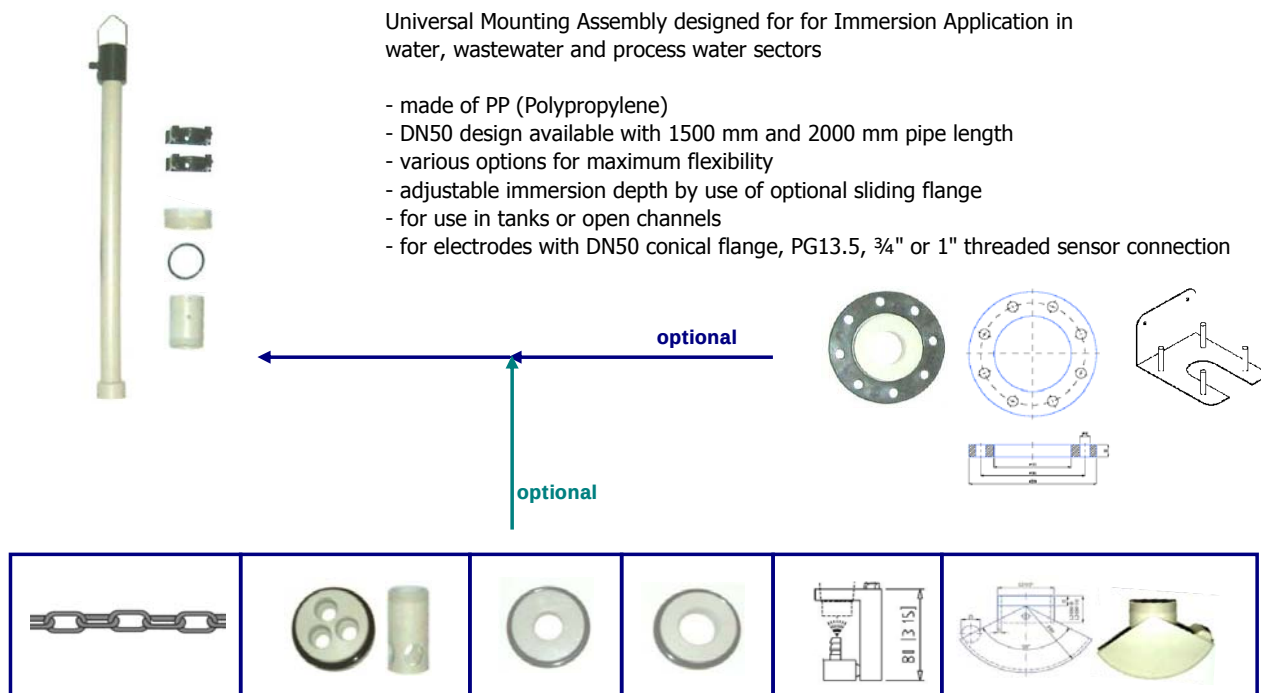
LZU220.99.70000	Sealing kit, EPDM
LZU220.99.75000	Sealing kit, VITON (FKM)
LZU215.99.30000	Protection cap, for LZU215/220
LZU220.99.31000	Electrode protector, for LZU220, made of PP-H
LZU220.99.32000	Electrode protector, for LZU220, made of PVDF
LZU220.99.33000	Electrode protector for 37xx sensors, made of PP-H
LZU220.99.34000	Electrode protector for 37xx sensors, made of PVDF

functional principle of wetting cup



Mounting assemblies

Immersion assembly for E-Chem sensors (DataSheet DOC053.52.00479)



Part No.	Designation
	Universal Immersion Mounting assembly DN50 x 1000/1500 mm, for open and closed vessels; made of PP including 2 ASV clips for wall mounting; union nut for DN50 conical flanged sensors and EPDM gasket
LZH066	Immersion assembly with 1000 mm pipe length
LZH082	Immersion assembly with 1500 mm pipe length
	<u>Optional accessories</u>
LZH065	Sliding flange with clamping cone DN100, for DN50 immersion assemblies, made of PP
LZH085	Bracket for wall mounting of LZH65
LZX891	Mounting Chain, made of PVC, length: 5m, Ø = 6mm
LZH067	Socket with 3 x Pg13.5 thread takes up to 3 electrode with appropriate connection, including 2 dummy plugs
LZH068	Socket with 3/4" thread, for 1 x 8350/8351 or 3700 "convertible style" sensor series
LZH083	Socket with 1" thread, for 1 x 1" pHD pH/ORP "convertible style" sensors
LZH084	Wetting Cup for LZH066/LZH82, for use with Pg 13.5 threaded probes
LZH089	Wetting Cup for LZH066/LZH82, for use with 3/4" and 1" threaded probes
Z08350=A=7000	Cleaning system for 3/4" threaded probes, for use with 8350 and 8351 pH/ORP probe series

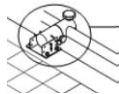
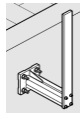
Accessoires

Basin rim mounting

Part No.	Designation
<u>sc controller mounting hardware</u>	
LZX957	Basin rim mounting with weatherguard for sc1000
LZX958	Roof incl. set of small parts for sc1000
LZY767	Mounting pole with wheatherguard for sc200
9220600	Weather/sun shield with UV protection screen for sc200
9221700	Replacement UV protection screen for sc200 wheather/sun shield
<u>Mounting hardware for sensors, measuring systems, etc.</u>	
LZX413	Mounting hardware for radio transmission
LZX676	Rim fixing for FILTRAX control unit
<u>Mounting hardware for AMTAX sc / PHOSPHAX sc</u>	
LZY286	Stand mounting (1.7m, tall) for sc-analyzer with controller (the roof for sc1000 must be separately ordered)
LZY287	Stand mounting for sc-analyzer w/o controller
LZY285	Rail mounting kit for sc-analyser with controller (the roof for sc1000 must be separately ordered)
LZY316	Rail mounting kit for sc-analyser w/o controller
<u>Mounting hardware for filtration probe sc</u>	
LZX414.00.50000	Rim fixing kit for filtration probe sc
LZX414.00.60000	Rail mounting kit for filtration probe sc
<u>Mounting hardware for sensors type: AN-ISE, A-ISE, N-ISE</u>	
6184900.99.0000	Rim mounting kit with probe holder (PVC)
LZX914.99.12400	Chain Mounting kit
LZX414.00.80000	Rim mounting kit (stainless steel)
<u>Single parts</u>	
LZY545	Adapter 1 1/2" NPT - 1" NPT
LZY546	Elbow mount 45° 2 x 1 1/2" NPT
LZY510	ISE-Adapter to 1 1/2 " for LZX414.00.80000 (stainless steel mounting)
<u>Mounting hardware for process sensors type:</u>	
<u>SIGMATAX</u>	
LZX414.00.00000	Basin rim fixing (stainless steel mounting)
<u>FILTRAX</u>	
LZX414.00.40000*	Basin rim fixing for FILTRATAX module carrier
<u>NITRATAX sc</u>	
LZY714.99.53220	Rim fixing for sensor mounting in basins or channels, stainless steel incl. extension pipe 2 m, sensor adapter 90°, wall fixing (10 cm) with socket, brackets
LZY714.99.52220	Rim fixing for sensor mounting in basins or channels, stainless steel incl. extension pipe 2 m, sensor adapter 90°, wall fixing (24 cm) with socket, brackets
<u>SOLITAX sc</u>	
LZY714.99.53120	Rim fixing for sensor mounting in basins or open channels, stainless steel incl. extension pipe 2 m, sensor adapter 90°, wall fixing (10 cm) with socket, brackets
LZY714.99.52120	Rim fixing for sensor mounting in basins or open channels, stainless steel incl. extension pipe 2 m, sensor adapter 90°, wall fixing (24 cm) with socket, brackets
<u>UVAS sc</u>	
LZY714.99.53520	Rim fixing for sensor mounting in basins or open channels, stainless steel incl. extension pipe 2 m, sensor adapter 90°, wall fastening (10 cm) with socket, brackets
LZY714.99.52520	Rim fixing for sensor mounting in basins or open channels, stainless steel incl. extension pipe 2 m, sensor adapter 90°, wall fastening (24 cm) with socket, brackets
<u>SONATAX SC</u>	
LZX414.00.70000	Basin rim fixing mounting, stainless steel inclusive: extension pipe 2 m, sensor adapter, wall fastening (10 cm) with socket, brackets, screws
LZX914.99.11300	Chain mounting kit for SONATAX, stainless steel inclusive: armature for rail or basin rim mounting, 5 m stainless steel chain, sensor adapter, screws

Accessoires

Basin rim mounting

Part no.	Designation	
	<u>Single components for mounting kit</u>	
LZY714.99.01000	Swivel kit incl. fix adapter for 40mm diameter pipe	
LZY714.99.02000	Wall fastening with bracket 24 cm, incl. Plate and 2 sets pole clamps	
LZY714.99.03000	Wall fastening with bracket 10 cm, incl. plate and 2 sets pole clamps	
LZX417	Small accessories, probe linkage	
LZY414	Extension pipe 1,8 m, stainless steel, incl. screws Note: not applicable for PVC pipe mounting	
LZY413	Extension pipe 1,0 m, stainless steel, incl. screws Note: not applicable for PVC pipe mounting	
LZY714.99.00020	Mounting pipe 2 m, stainless steel	
LZY714.99.00010	Mounting pipe 2m, PVC Note: applicable only for E-Chem sensors	
LZY714.99.20000	Sensor adaptor (PVC) for mounting 1" E-Chem & LDOsc sensor to pipe assembly	
LZY714.99.50000	Sensor adaptor 90°, stainless steel, incl. screws and seeling set Note: not applicable for PVC pipe mounting	
LZY714.99.00100	Black pipe cap (Suspended solids, turbidity, sludge level)	
LZY714.99.00200	Yellow pipe cap (nitrate-nitrogen)	
LZY714.99.00300	Blue pipe cap (ammonium and nitrate)	
LZY714.99.00400	Rose pipe cap (conductivity)	
LZY714.99.00500	Grey pipe cap (organic load)	
LZY714.99.00600	Green pipe cap (ammonium-nitrogen)	
LZY714.99.00700	Orange pipe cap (Redox)	
LZY714.99.00800	Red pipe cap (oxygen)	
LZY714.99.00900	Brown pipe cap (pH-value)	

Accessoires

Basin rim mounting- E-Chem immersion sensors

Part no.	Designation
<u>Basin rim mounting assembly for E-Chem sensors with 2 m immersion pipe</u>	
LZY714.99.21X10	Basin rim fixing assembly with PVC immersion pipe (2 m), incl. swivel kit
LZY714.99.21X20	Basin rim fixing assembly with stainless steel immersion pipe (2 m), incl. swivel kit
LZY714.99.22X10	Basin rim fixing assembly with PVC immersion pipe (2 m), incl. wall fastening 24cm
LZY714.99.22X20	Basin rim fixing assembly with stainless steel immersion pipe (2 m), incl. wall fastening 24cm
LZY714.99.23X10	Basin rim fixing assembly with PVC immersion pipe (2 m), incl. wall fastening 10cm
LZY714.99.23X20	Basin rim fixing assembly with stainless steel immersion pipe (2 m), incl. wall fastening 10cm

Configuration

L	Z	Y	7	1	4	.	2	x	x	x	0
---	---	---	---	---	---	---	---	---	---	---	---

Sensor adapter type

1" NPT straight adapter (PVC) for E-Chem and LDOsc

Mounting Hardware Style

No bracket / No swivel	0
Swivel	1
24cm SS 1.4301 Bracket	2
10cm SS 1.4301 Bracket	3

Pipe end cap per parameter

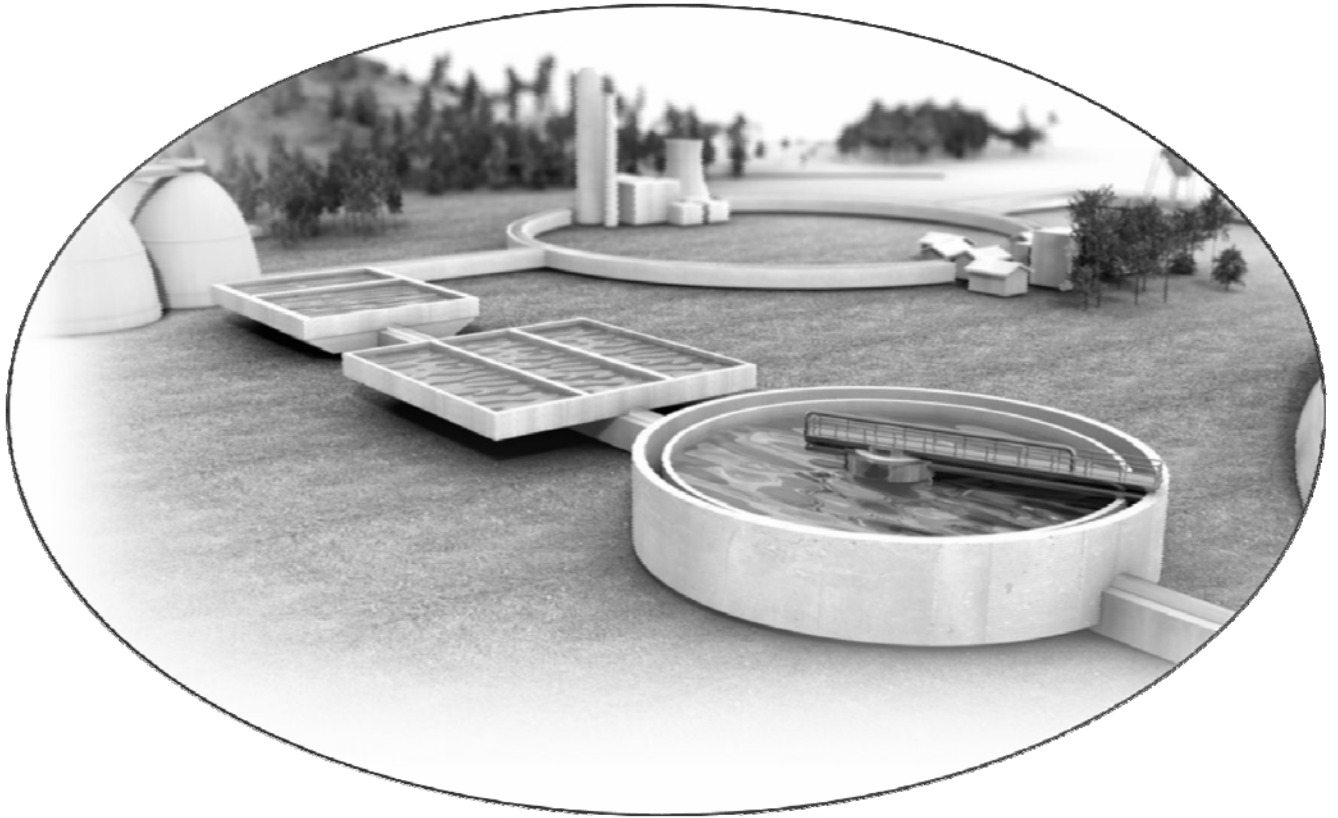
Conductivity (Violet).....	4
ORP (Orange)	7
Oxygen (Red)	8
pH (Brown)	9

Mounting pipe 2 m for sensor adapter

Material: PVC	1
Material: stainless steel	2

Drinking water panel solution

Multi-parameter measurement system



MULTI-PARAMETER MEASUREMENT SYSTEM

Model 75 / 120



The heart of the system is the sc1000 digital controller and the basic measurements are turbidity, pH / redox and temperature

Whether for downstream of filtration steps, or raw or drinking water, the panel can be upgraded for parameters such as chlorine, ozone, SAC254, oxygen or nitrate.

Compact dimensions, 75 or 120 cm wide

Configuration - multi-parameter measurement system model 75 -

L X Y 7 9 8 . 9 9 . x x x 0 1												
<u>1st Option: turbidity measurement</u>												
without	0											
ULTRATURB plus sc	1											
1720E	2											
FilterTrak 660sc	3											
<u>2nd Option: pH / temperature, redox (<i>not in connection with the 3rd option</i>)</u>												
<u>conductivity, oxygen measurement</u>												
without	0											
pH / Temperature	A											
Redox	B											
Conductivity	C											
Oxygen (LDO sensor)	D											
<i>Caution: CLO2 shows incompatibility with LDO sensor</i>												
pH / temperature, redox	E											
pH / temperature, redox, conductivity	F											
pH / temperature, redox, oxygen (LDO sensor)	G											
pH / temperature, redox, conductivity, oxygen (LDO sensor)	H											
pH / temperature, conductivity	I											
pH / temperature, conductivity, oxygen (LDO sensor)	J											
pH / temperature, oxygen (LDO sensor)	K											
Redox, conductivity	L											
Redox, oxygen (LDO)	M											
Redox, conductivity, oxygen (LDO sensor)	N											
Conductivity, oxygen (LDO sensor)	O											
<u>3rd Option: chlor, chlordioxid, ozone</u>												
without	0											
Free chlorine	1											
Total free chlorine	2											
<i>pH / temp. already enclosed, choose the 2.option without pH/temp.</i>												
Chlorine dioxide	3											
Ozone	4											

Note: The controller sc1000 must be separately configured and ordered.
It's possible that, for the space reasons, neither the flow-through armature for pH, temp. and redox nor the Chloromat (3.option) can be mounted.

MULTI-PARAMETER MEASUREMENT SYSTEM

Configuration examples for model 75

Part no.	Designation
LZH129	Drinking water panel 75, dimensions 750 x 1000x 260 mm (W x H x D), incl. LZY659
LZY659	Accessoires kit for drinking water panel 75
LZU6003.99	Flow chamber CR60 for max. 3 electrodes with PG13.5 thread
<u>Option 1</u>	
<i>Turbidity (1)</i>	
LPV415.99.00001	ULTRATURB plus sc without connection cable
6122400	Digital extension cable , 1 m
<i>Turbidity (2)</i>	
LPV417.99.00002	1720E
<i>Turbidity (3)</i>	
LPV421.99.00002	FilterTrak 660sc
<u>Option 2</u>	
<i>pH value / temperature</i>	
LZU5336T.97.002	pH electrode 5336T with PT1000, 3 diaphragmes, Tmax: 80°C, Pmax: 6 bar
LZU9300.99	Multiple cable with MP-4 connector, 3 m (pH + Temp.)
LZY328	Gateway (for pH /temp.) with cable fitting
6122400	Digital extension cable, 1 m
<i>Redox</i>	
LZY028	Redox electrode with PG 13,5 thread
Z359016,10110	3 m cable with plug connector for redox
LZY328	Gateway (for redox) with cable fitting
6122400	Digital extension cable 1 m
<i>Conductivity 1 (the application with pH and/or redox in flow-through chamber)</i>	
LZY082	2EL-sensors with two graphite-electrodes for conductivity measurement adaptor: PG13,5 thread, 5 m fixed cable
6120700	AD 3400 sc digital gateway to connect the analog contact conductivity sensors to sc200/1000
6122400	Digital extension cable, 1 m
<i>Conductivity 2 (application whitout pH and/or redox - own flow-through chamber)</i>	
D3412.99	Analog conductivity sensor incl. gateway and cable
Z08318=A=0001	Flow-through chamber
<i>Oxygen</i>	
LXV416.99.20001	LDO sc sensor
7300800	Flow-through cell transparent
<u>Option3</u>	
<i>Free active chlorine</i>	
LXV430.99.00001	9184sc HOCL Chlorine Sensor 0 - 20 mg/l HOCL
6122400	Digital extension cable
<i>Total free chlorine</i>	
LXV432.99.00001	9184sc TFC Chlorine Sensor pH compensation, 0 - 20 mg/l
6122400	Digital extension cable
<i>Chlorine Dioxide</i>	
LXV434.99.00001	9187sc Chlorine Dioxide Sensor, 0-2 mg/l chlorine dioxide
6122400	Digital extension cable
<i>Ozone</i>	
LXV433.99.00001	9185sc Amperometric sensor for ozone, 0 - 2 mg/l
6122400	Digital extension cable

MULTI-PARAMETER MEASUREMENT SYSTEM

Configuration model 120

Configuration - multi-parameter measurement system model 120 -

L X Y 7 9 7 . 9 9 . x x x x 1											
<u>1st Option: turbidity measurement</u>											
without	0										
ULTRATURB plus sc	1										
1720E	2										
FilterTrak 660sc	3										
<u>2nd Option: pH / temperature, redox, conductivity, oxygen measurement</u>											
without	0										
pH / Temperature	A										
Redox	B										
Conductivity	C										
Oxygen (LDO sensor) <i>Caution: CLO2 shows incompatibility with LDO sensor</i>	D										
pH / temperature, redox	E										
pH / temperature, redox, conductivity	F										
pH / temperature, redox, oxygen (LDO sensor)	G										
pH / temperature, redox, conductivity, oxygen (LDO sensor)	H										
pH / temperature, conductivity	I										
pH / temperature, conductivity, oxygen (LDO sensor)	J										
pH / temperature, oxygen (LDO sensor)	K										
Redox, conductivity	L										
Redox, oxygen (LDO)	M										
Redox, conductivity, oxygen (LDO sensor)	N										
Conductivity, oxygen (LDO sensor)	O										
<u>3rd Option: chlor, chlordioxid, ozone</u>											
without	0										
Free chlorine	1										
Total free chlorine	2										
<i>pH / temp. already enclosed, choose the 2.option without pH/temp.</i>											
Chlorine dioxide	3										
Ozone	4										
<u>4th Option: nitrate, SAC 254</u>											
without	0										
NITRATAX clear sc	1										
UVAS sc (SAC 254)	2										

 **Note:** The controller sc1000 must be separately configured and ordered.

MULTI-PARAMETER MEASUREMENT SYSTEM

Configuration examples for model 120

Part no.	Designation
LZH128	Drinking water panel 120, dimensions 1200 x 1000 x 260 mm (W x H x D), incl. LZY658
LZY658	Accessoires kit for drinking water panel 120
LZU6003.99	Flow chamber CR60 for max. 3 electrodes with PG13.5 thread
<u>Option 1</u>	
<i>Turbidity (1)</i>	
LPV415.99.00001	ULTRATURB plus sc without connection cable
6122400	Digital extension cable , 1 m
<i>Turbidity (2)</i>	
LPV417.99.00002	1720E
<i>Turbidity (3)</i>	
LPV421.99.00002	FilterTrak 660sc
<u>Option 2</u>	
<i>pH value / temperature</i>	
LZU5336T.97.002	pH electrode 5336T with PT1000, 3 diaphragmes, Tmax: 80°C, Pmax: 6 bar
LZU9300.99	Multiple cable with MP-4 connector, 3 m (pH + Temp.)
LZY328	Gateway (for pH /temp.) with cable fitting
6122400	Digital extension cable, 1 m
<i>Redox</i>	
LZY028	Redox electrode with PG 13,5 thread
Z359016,10110	3 m cable with plug connector for redox
LZY328	Gateway (for redox) with cable fitting
6122400	Digital extension cable 1 m
<i>Conductivity 1 (the application with pH and/or redox in flow-through chamber)</i>	
LZY082	2EL-sensors with two graphite-electrodes for conductivity measurement adaptor: PG13,5 thread, 5 m fixed cable
6120700	AD 3400 sc digital gateway to connect the analog contact conductivity sensors to sc200/1000
6122400	Digital extension cable, 1 m
<i>Conductivity 2 (application without pH and/or redox - own flow-through chamber)</i>	
D3412.99	Analog conductivity sensor incl. gateway and cable
Z08318=A=0001	Flow-through chamber
<i>Oxygen</i>	
LXV416.99.20001	LDO sc sensor
7300800	Flow-through cell transparent
<u>Option3</u>	
<i>Free active chlorine</i>	
LXV430.99.00001	9184sc HOCL Chlorine Sensor 0 - 20 mg/l HOCL
6122400	Digital extension cable
<i>Total free chlorine</i>	
LXV432.99.00001	9184sc TFC Chlorine Sensor pH compensation, 0 - 20 mg/l
6122400	Digital extension cable
<i>Chlorine Dioxide</i>	
LXV434.99.00001	9187sc Chlorine Dioxide Sensor, 0-2 mg/l chlorine dioxide
6122400	Digital extension cable
<i>Ozone</i>	
LXV433.99.00001	9185sc Amperometric sensor for ozone, 0 - 2 mg/l
6122400	Digital extension cable
<u>Option 4</u>	
<i>Nitrate</i>	
LXV420.99.50001	NITRATAX clear sc
LZX866	Flow through unit 5 mm, for NITRATAX clear sc
<i>SAC 254</i>	
LXV418.99.90001	UVAS plus sc
LZX868	Flow through unit 50 mm, for UVAS plus sc

Content

HACH LANGE BÜHLER Stationary & Portable SAMPLING SYSTEMS

CHAPTER

Content

Disclaimer

BÜHLER Samplers (Pressure/Vacuum technology)

Overview

BÜHLER Automated Water Sampling Systems

BÜHLER 1027	Series 5	
BÜHLER 2000	Series 5	
BÜHLER 3010	Series 5	
BÜHLER 4010	Series 5	
BÜHLER 4040EX	Series 4	only for special Countries
BÜHLER 4210	Series 5	
BÜHLER 4410	Series 5	



Content

Disclaimer

All informations have been collected and compiled to our best knowledge and conscience. Modifications are subject to change without notice.

All prices shown are not commital.

We are only obliged by our confirmation in writing. Differences in prices, business conditions and/or order confirmations are binding by our confirmation in writing, only.

We kindly ask you to take notice about the General Terms and Conditions of Delivery and Payment of HACH LANGE GmbH, Berlin. Information are included in the Appendix.

Sincerely

HACH LANGE GmbH, Düsseldorf (Germany)

Digit 8/9: Language Codes

00 - german for Germany (D)
43 - croatian for Croatia (HR)
44 - slovenian for Slovenia (SI)
45 - estonian for Estonia (EST)
47 - serbian for Serbia and Montenegro (SCG)
48 - greek for Greece (GR)
52 - english International (GB)
55 - french for France (F)
56 - netherlands for Netherland (NL)
57 - italian for Italy (I)
58 - danish for Denmark (DK)
59 - swedish for Sweden (S)
60 - polish for Poland (PL)
61 - spanish for Spain (E)
62 - russian for Russia (RUS)
79 - portuguese for Portugal (P)
84 - korean for South Korea (KR)
85 - czech for Czech Republic (CZ)
86 - hungarian for Hungary (HU)
87 - rumanian for Romania (RO)
88 - slowk for Slovakia (SK)
89 - bulgarian for Bulgaria (BG)
94 - turkish for Turkey (TR)

SAMPLER, composite wall-mount Sampler

BÜHLER 1027 - stationary & easy sampler (Datasheet DOC063.52.03813)

Technical Data	
Subject to change without notice	
BÜHLER 1027 Basic Stationary Sampler	
Designation	Wall-mounted stationary sampler for composite sampling, fulfilling ISO 5667-2/3-10 requirements; optionally combinable with external refrigerator
Sampling method	pressure / vacuum principle
Sampling technique	time proportional, flow proportional - CVVT (constant volume, variable time), external event sampling, manual grab sampling (at any time without interrupting the running program)
Dosing	
Standard	Vacuum 20 ... 350 ml selectable (choice of glass or PC vessel)
Dosing Accuracy	2.8% (at 95% confidence interval) at Standard-Vacuum-System
Hydraulic parameters	
Suction height	max. 6.5 m (at 1013hPa and static medium) max. 8m with optionally available Membrane pump
Suction velocity	>0.5 m/s suction height up to 5 m (7 m optionally) (at 1013hPa); membrane pump power electronically adjustable
Suction hose	5 m PVC hose (10 mm ID), max. allowed length of suction tube 30 m
Sample container	composite sampling only
PE bottles	1 x 10 l, 1 x 25 l offered as standard or any other container on request
Glass bottles	optionally / on request
Controller	microprocessor controlled, waterproof membrane keypad, real-time clock with battery back-up, full graphical display with 128 x 64 dots, backlit LCD
Data logger	multi-language User Interface, selectable (DE, FR, GB, NL, CZ, DK, IT, ES, SV) 3.000 log entries, non volatile data logger storing sample history, input signals, bottle changes, alarms in combination with time/date stamp
Programs	12 user defined programs (freely programmable) with possible program linking
Outputs	• 8x digital: 7x Internal, 1x collective malfunction • Optional: 8x digital, 5x free programable
Inputs	• 2x analogue: 0/4-20 mA (1x for Flow Input) • 8x digital: 5x Internal, Flow, Event, 1x free programabel
Programming options	various
Program-Start	immediately, at certain time, at certain week day, after finishing another program, at ext. Signal
Program-Stop	Stop sampling after program is passed; after several cycles, continuous run mode
Pause-Modus	Pause of sampling program at any time
Rinse/Purge mode	Purging of suction tube with air before / after taking sample, duration adjustable
Overfilling protection	1 – 999 samples / bottle; adjustable
Sampling Interval	1 min. to 99h 59min in minute-steps
Interface	Mini-USB
Housing	Styrosun / PC (GF10)
Refrigeration system	not applicable optionally available refrigerator BN1029F0125P recommended
Dimensions	
Sampler	475 x 362 x 222 mm (W x H x D)
Optional fridge P/N BN1029F0125P	500 x 850 x 620 mm (W x H x D)
Power requirements	230 VAC / 115 VAC depending on selected power supply option
Power consumption	25 VA
Overvoltage protection	all inputs are protected against overvoltage
Environmental	
Operation	0 ... +45°C
Sample Temperature	0 ... +40°C
Weight	7 kg (Wall mount sampler only)
Communications	
Modbus/PROFIBUS DP	on request
Wireless / GSM	on request
Certification & Approvals	CE
Wetted materials	PVC, Silicone, PS, PE, EPDM (optional: dosing vessel Glass Duran 50)
Warranty	24 month

SAMPLER, composite wall-mount Sampler

BÜHLER 1027 - stationary & easy sampler (Datasheet DOC063.52.03813)

Part No.

Designation

BU1027.xx.xxxxx

Stationary Sampler, BÜHLER



B	U	1	0	2	7	.	x	x	.	x	x	x	x	x	x	x	x
Sampler Model 1027 Wall Mount Sampler with 5 m suction hose 7																	
Enter Local Country Code here x x																	
Sampling System Option Vacuum, ASF Pump, 350 ml Plastic vessel 6 <u>Double head pump for greater suction velocity</u> Vacuum, Double head Pump, 350 ml Plastic vessel 9 Vacuum, Double head Pump, 350 ml Glass vessel 8																	
Refrigeration Option No Fridge (Standard) 0																	
Bottle / Container Option without bottle 0																	
Level Detector Option: (in sampling vessel) Conductive Level Detector Standard version 1 Conductive/Capacitive Level Detector Industry version (cap. Sensor & collective malfunction relay)) 2																	
Power / Plug type Option 230VAC, Bare leads - no plug 0 230VAC, Euro plug 1 230VAC, UK plug 2 115VAC, 50 Hz, Bare leads - no plug 3 230VAC, Swiss plug 4																	

Note: Please replace the .XX. placeholder by your Country / language code e.g. .52. .55. .00. etc.
 Please consider that sampler are delivered READY TO OPERATE - all for start-up needed parts like suction tube are part of the delivery



BÜHLER 1027

Options & Accessories

Part No.	Designation
<u>Optional accessories</u>	
BM200023	PC Software CONNECT to read out sampling data for communication via cable for WIN 98/NT/XP/Win 7
BM69793	USB Interface Cable to connect to Sampler mini USB socket
BM900037	Collective malfunction relay installed in Controller housing
BM60045	Plastic Bottle, 10 l
BM60046	Plastic Bottle, 25 l
BM50598	Stainless Steel Counterweight ID 10mm (180mm long)
BM69644	Flow Signal Cable - length 10m (mandatory for flow proportional sampling)
BM900012	Suction hose ID=10mm, length 5m, inc. screw connection
BM69331	PVC Hose, Ø10 ID, w/o counterweight, w/o clip, per meter (max. length 30m)
BM60497	Suction hose elbow connector for hose ID= 10
BM69304	Suction hose ID=12mm, length 30m
BM69403	Flat packaging 25 x 15 x 2 EPDM
BM60050	Suction hose elbow connector for hose ID= 13
BN1029F0125P	External Refrigerator for sample cooling of composite bottle (25 l max.) sidewalls covered with SS, interior material: plastic, Dimensions: 85 x 50 x 62 cm (H x W x D). for Indoor Temperatur control via high accurate digital temperature control board
BM900612	built-in Option for BN1029F0125P: front door hinged at left side
BM900820	Refrigerated Compartment for composite Sampling (25 l max.) Same as BN1029F0125P - but temperature control via bi-metal switch



Sample Chambers

Standard Glass Dosing System	
BM900674	Glass Dosing System (350ml) complete
BM30004	Glass Sample Chamber (350ml)
BM30005	Glass Sample Chamber (500ml)
BM50008	screwing ring, standard dosing vessel - black plastic ring
BM69401	Seal O-ring, level tube Ø16x4
BM69402	Seal chamber Quad ring 81, Ø92x5, 33 NBR (only for glass standard dosing vessel)
BM50009	red fixing screw for dosing inlet tube
BM900053	Pipe Assy-Inlet
Standard Plastic Dosing System	
BM900621	Plastic dosing system complete
BM80044	Plastic sample chamber
BM69452	Seal chamber Quad ring 81, Ø92x5, 33 NBR (only for plastic dosing vessel)
BM80070	Metering tube for plastic dosing vessel
BM900803	retrofit kit:capacitive sensor for Plastic dosing vessel, BÜHLER 2/3/4xxx

SAMPLER, portable with passive or compressor cooling

BÜHLER 2000 - portable Sampler (Datasheet DOC053.52.35005)

Technical Data	
Subject to change without notice	
BÜHLER 2000 Portable Sampler	
Designation	Compact portable water sampler with integrated distributor, fulfilling ISO ISO 5667-2/3-10 requirements, compressor cooling base or passive base available and interchangeable
Sampling method	pressure / vacuum principle
Sampling technique	time proportional, flow proportional - CVVT (constant volume, variable time), external event sampling, manual grab sampling (at any time without interrupting the running program), flow proportional - CTVV (constant time, variable volume) (optional)
Dosing	
Standard	Vacuum 20 ... 350 ml selectable (choice of glass or PC vessel)
Optionally	Variable Volume/Constant Time Version 5 ... 250 ml
Dosing Accuracy	2.8% (at 95% confidence interval) at Standard-Vacuum-System
Hydraulic parameters	
Suction height	max. 6.5 m (at 1013hPa and static medium) max. 8m with optionally available Membrane pump
Suction velocity	>0.5 m/s suction height up to 5 m (at 1013hPa); membrane pump power electronically adjustable
Suction hose	5 m PVC hose (10 mm ID), max. allowed length of suction tube 30 m
Sample container	
PE bottles	1 x 10 l, 1 x 25 l, 4 x 5 l 16 x 1 l <i>in combination with ice packs</i> 24 x 1 l
Glass bottles	1 x 20 l, 24 x 1 l
Controller	microprocessor controlled, waterproof membrane keypad, real-time clock with battery back-up, full graphical display with 128 x 64 dots, backlit LCD
Data logger	multi-language User Interface, selectable (DE, FR, GB, NL, CZ, DK, IT, ES, SV) 3.000 log entries, non volatile data logger storing sample history, input signals, bottle changes, alarms in combination with time/date stamp
Programs	12 user defined programs (freely programmable) with possible program linking
Outputs	• 8x digital: 7x Internal, 1x collective malfunction
Inputs	• 2x analogue: 0/4-20 mA (1x for Flow Input) • 8x digital: 5x Internal, Flow, Event, 1x free programabel
Programming options	various
Program-Start	immediately, at certain time, at certain week day, after finishing another program, at ext. Signal
Program-Stop	Stop sampling after program is passed; after several cycles, continuous run mode
Pause-Modus	Pause of sampling program at any time
Rinse/Purge mode	Purging of suction tube with air before / after taking sample, duration adjustable
Overfilling protection	1 – 999 samples / bottle; adjustable
Sampling Interval	1 min. to 99h 59min in minute-steps
Interface	Mini-USB
Housing	PE/PC (GF10)
Refrigeration system	passive isolated sampler base (bottle container (isolation layer 40mm) Option 1: 10 ice packs (200x10x8mm) in combination with bottle option 16 x 1l Option 2: autarkic controlled active cooling base
Dimensions	510 x 787 x 468 mm (W x H x D) 550 x 1028 x 468 mm (W x H x D) Sampler w/ passive cooling base Sampler w/ active cooling base
Power requirements Sampler	12 V/ 10 Ah rechargeable lead battery (maintanance free, closed, leak proof) ; 115VAC or 230VAC using charger and battery in buffer mode; Secondary Voltage 11-14VDC
Power requirements optional active cooling base	12 VDC optional rechargeable lead battery (maintanance free, closed, leak proof) ; optional secondary Voltage 115VAC or 230VAC
Power consumption	max. 30W Sampler max. 50W active cooling base
Environmental	
Operation	0 ... +43°C
Sample Temperature	0 ... +40°C
Weight	passive cooling version: approx 25 kg; active cooling version approx. 40kg (Unit incl. rechargeable battery for sampler, w/o base power supply, without suction tube, bottles empty)
Communications	
Modbus/PROFIBUS DP	on request
Wireless / GSM	on request
Certification & Approvals	CE
Wetted materials	PVC, Silicone, PS, PE, EPDM (optional dosing vessel Glass: Duran 50)
Warranty	24 month

SAMPLER, portable with passive or compressor cooling

BÜHLER 2000 - portable Sampler (Datasheet DOC053.52.35005)

Part No.

Designation

BU2000.xx.xxxxx

Portable Sampler, BÜHLER

B U 2 0 0 0 . x x . x x x x x x

Sampler Model

2000 (New model) 0
complete system with 5 m suction hose (9.6mm ID), counterweight

Enter Local Country Code here

x x

Sampling System Option

Vacuum, ASF Pump, 350 ml Plastic vessel (for suction heights < 5m) 6
Flow proportional (350mL plastic dosing vessel, Variable Volume, Constant time sampling mode) 7
Vacuum, ASF double head Pump, 350 ml Glas vessel (for suction heights < 8m) 8
Vacuum, ASF Pump, 350 ml Glas vessel (silicone tubing and stainless steel inlet instead of PVC) A
without sampler head 0

Base Option

without sampler base 0
passive cooling base (ice-cooling) 3
active cooling base (thermostatic controlled refrigeration) 5
active cooling base w/o sampler head (thermostatic controlled refrigeration) 6

Bottle/Container Option

Plastic, 1 x 10 L (Unit prepared for distributor) V
Plastic, 1 x 25 L (Unit prepared for distributor) 1
Plastic, 4 x 5 L W
Plastic, 16 x 1 L + 4 ice packs X
Plastic, 24 x 1 L 6
Glass, 1 x 19 L Y
Glass, 24 x 1 L 7
No bottles included 0

Refrigerated base/Power supply Option:

230/50Hz VAC with EU plug, plus 12V DC input, with 12V power cable 6
115V/60Hz VAC with bare leads, plus 12V DC input, with 12V power cable A
12VDC, with 12V power cable 7
no refrigerated base 9

Sampler Power / Plug type Option

Battery powered; Battery included 5
please order battery charger (BM900026 or BM900033) separately
no sampler head selected, no power supply 0



Note:

Please replace the .XX. placeholder by your Country / language code e.g. .52. .55. .00. etc.

Please consider that sampler are delivered READY TO OPERATE - all for start-up needed parts like suction tube are part of the delivery

BÜHLER 2000

Options & Accessories

Part No.	Designation
<u>Optional accessories</u>	
BM900802 BM900634	Trolley for BÜHLER 2000, adjustable for passive and active cooling version Insulated sample transportation box (passive box with roof (cover) - w/o bottles)
BM69644	Flow Signal Cable - length 10m (mandatory for flow proportional sampling)
BM200023	PC Software CONNECT to read out sampling data for communication via cable for WIN 98/NT/XP/Win 7
BM69793	USB Interface Cable to connect to Sampler mini USB socket
BM69742	Y- cable power cable for buffer mode to connect rechargeable battery and battery charger at the same time
BM900026	Battery Charger, IP20
BM900033	Battery Charger, IP65
BM900116	Replacement Battery BÜHLER 2000 (12V/10 Ah)
BM10211	Dry battery for BÜHLER 2000 refrigerated base, 90Ah (rechargeable battery type solar)
BM900782	Mouting angles for padlock use
BM900065	Strainer basket
<u>BÜHLER 2000 manhole installation</u>	
BM900045	Manhole bracket (use w. BM60350&BM900680)
BM900680	Braket
BM60350	1m chain 4mm, stainless steel (use w. BM900045&BM900680)
BM900782	Mounting angle to lock sampler with padlock
BM69692	External Battery Cable, with battery clip and connector - length 2.5m (10')
BM900493	Power cable with car plug for active cooling box
BM900780	ext. signal input: sampling, bottle change; build-in BL2000,BL1029
BM900869	Additional temperature logger for BÜHLER 2000 active cooling base
<u>Bottles, Containers and Accessories</u>	
BM60045	Plastic Bottle 13 l, including cap
BM60046	Plastic Bottle 25 l, including cap
BM60038	Plastic bottle 5 l, including cap
BM60486	Plastic bottle 1 l, w/o cap
BM60488	Cap for Plastic bottle 1 l
BM30030	Glass bottle 1 l, w/o cap
BM60553	Cap for Glass bottle 1 l
BM30045	Glass bottle 19 l, including cap
BM60251	Replacement Ice Pack for passive sample cooling (Cooling accu)
BM60251	Replacement Ice Packs for passive sample cooling
BM900623	PVC Hose, 5 m - Ø10 ID, complete with hose clip, w/o counterweight
BM69331	PVC Hose, Ø10 ID, w/o counterweight, w/o clip, per meter (max. length 30m)
BM60497	Suction hose elbow connector for hose ID= 10
BM50598	Counterweight for hose Ø10 ID (SS304, 180mm long)
BM50598V4A	Counterweight for hose Ø10 ID (SS316, 180mm long)
BM92663	PTFE suction hose;ID=13mm; length= 7,5m
BM92651	PTFE suction hose;ID=10mm; length= 30m

BÜHLER 2000

Options & Accessories

Sample Chambers

Standard Glass Dosing System

BM900674 Glass Dosing System (350ml) complete
BM30004 Glass Sample Chamber (350ml)

BM50008 screwing ring, standard dosing vessel - black plastic ring
BM69401 Seal O-ring, level tube Ø16x4
BM69402 Seal chamber Quad ring 81, Ø92x5, 33 NBR (only for glass standard dosing vessel)
BM50009 red fixing screw for dosing inlet tube
BM900053 Pipe Assy-Inlet

Standard Plastic Dosing System

BM900621 Plastic dosing system complete
BM80044 Plastic sample chamber
BM69452 Seal chamber Quad ring 81, Ø92x5, 33 NBR (only for plastic dosing vessel)
BM80070 Metering tube for plastic dosing vessel

BM900803 retrofit kit:capacitive sensor for Plastic dosing vessel, BÜHLER 2/3/4xxx



SAMPLER, stationary in Polyethylen enclosure

BÜHLER 3011 (DOC053.52.35002)

Technical Data	
Subject to change without notice	
	BÜHLER 3011 Stationary Sampler
Designation	Stationary sampler with plastic enclosure, ideally suited for industrial applications, fulfilling ISO 5667-2/3-10 requirements
Sampling method	pressure / vacuum principle
Sampling technique	time proportional, flow proportional - CVVT (constant volume, variable time), external event sampling, manual grab sampling (at any time without interrupting the running program)
Dosing	
Standard	Vacuum 20 ... 350 ml selectable (choice of glass or PC vessel)
Dosing Accuracy	1,5% (at 95% confidence interval) at Standard-Vacuum-System
Hydraulic parameters	
Suction height	max. 7.5 m (at 1013hPa, static medium, 20°C, sea level)
Suction velocity	>0.5 m/s suction height up to 6 m at 1013hPa; membrane pump power electronically adjustable
Suction hose	7.5 m PVC hose (10 mm ID), max. allowed length of suction tube 30 m
Sample container	
PE bottles	1 x 25 l, 1 x 50 l 4 x 6 l, 4 x 10 l, 4 x 14 l, 12 x 2,9 l
Glass bottles	2 x 10 l, 24 x 1 l 12 x 2 l 24 x 1 l
Controller	microprocessor controlled, waterproof membrane keypad, real-time clock with battery back-up, full graphical display with 128 x 64 dots, backlit LCD
	multi-language User Interface, selectable (DE, FR, GB, NL, CZ, DK, IT, ES, SV)
Data logger	3.000 log entries, non volatile data logger storing sample history, input signals, bottle changes, alarms in combination with time/date stamp
Programs	12 user defined programs (freely programmable) with possible program linking
Outputs	• 8x digital: 7x Internal, 1x collective malfunction • Optional: 8x digital, 5x free programmable
Inputs	• 2x analogue: 0/4-20 mA (1x for Flow Input) • 8x digital: 5x Internal, Flow, Event, 1x free programabel
Programming options	various
Program-Start	immediately, at certain time, at certain week day, after finishing another program, at ext. Signal
Program-Stop	Stop sampling after program is passed; after several cycles, continuous run mode
Pause-Modus	Pause of sampling program at any time
Rinse/Purge mode	Purging of suction tube with air before / after taking sample, duration adjustable
Overfilling protection	1 – 999 samples / bottle; adjustable
Sampling Interval	1 min. to 99h 59min in minute-steps
Interface	Mini-USB
Housing	PE / Styrosun PC (GF10) insulation layer thickness 50 mm
Refrigeration system	microprocessor controlled refrigeration/heating system with 4 settings, No Frost technique, +4°C factory temperature setting, adjustable from 0 to 9.9°C
Dimensions	760 x 1.100 x 725 (W x H x D)
Dimensions with roof up	760 x 1.640 x 725 (W x H x D)
Power requirements	230 VAC / 115 VAC depending on selected power supply option
Power consumption	350 VA (overall)
Overvoltage protection	all inputs are protected against overvoltage
Environmental	
Operation	-20 ... +43°C
Sample Temperature	0 ... +40°C
Weight	75 kg with composite bottle, higher depending on final instrument configuration
Certification & Approvals	CE
Wetted materials	PVC, Silicone, PS, PE, EPDM (optional: counterweight SS304)
Warranty	24 month

SAMPLER, stationary in Polyethylen enclosure

BÜHLER 3011 (DOC053.52.35002)

Part No.

BL301X.XX.XXXXX

Designation

Stationary Sampler, BÜHLER



		B	U	3	0	1	x	.	x	x	.	x	x	x	x	x	x
Sampler Model																	
3011	.....	1															
7.5 m suction hose (ID Ø9mm)																	
counterweight and 1 relay (collective malfunction)																	
3012	.....	2															
same as 3011, with 4 relays																	
(collective malfunction, program active, Program end,																	
taking sample, interior lighting																	
Enter Local Country Code here		x x															
Sampling System Option																	
Vacuum, ASF double head Pump, 350 ml Plastic vessel	.....	9															
Vacuum, ASF Pump, 350 ml Glas vessel	.....	1															
Refridgeration Option																	
No Fridge, No Heater	.....	0															
Fridge and Heater	.....	1															
Coated Fridge	.....	2															
Bottle/Container Option																	
Plastic, 1 x 25 L	.....	1															
Plastic, 1 x 50 L	.....	8															
Plastic, 2 x 10 L	.....	A															
Plastic, 4 x 6 L	(with 12 bottle distribution plate).....	9															
Plastic, 4 x 10 L	.....	2															
Plastic, 4 x 14 L	.....	3															
Plastic, 12 x 2.9 L	.....	5															
Plastic, 24 x 1 L	.....	6															
Glass, 12 x 2 L	.....	4															
Glass, 24 x 0.9 L	.....	7															
Housing Option																	
Housing, made of PE Plastic	.....	5															
Power / Plug type Option																	
230VAC, Bare leads - no plug	.....	0															
230VAC, Euro plug	.....	1															
230VAC, UK plug	.....	2															
115VAC, 50 Hz, Bare leads - no plug	.....	3															
230VAC, Swiss plug	.....	4															



Note:

Please replace the .XX. placeholder by your Country / language code e.g. .52. .55. .00. etc.

Please consider that sampler are delivered READY TO OPERATE - all for start-up needed parts like suction tube are part of the delivery

BÜHLER 3011

Options & Accessories

Part No.	Designation
<u>Optional accessories</u>	
BM200023	PC Software CONNECT to read out sampling data for communication via cable for WIN 98/NT/XP/Win 7
BM69793	USB Interface Cable to connect to Sampler mini USB socket
BM900910	Sampler I/O Expansion PCB for 2nd relay output- build-in option
BM900034	Signal output: Message relay (can be ordered 1x or 2x for Output #3 and #4) BM900910 is mandatory
BM900756	built-in option: Interior lightning for Sample compartment - LED version
BM900276	Non Return Valve (slanted valve) for max. 0.6 bar (only in comb. with Glass dosing SYSTEM) Inlet valve for suction tube - external 230V mains required - has to be installed by customer
BM92751	Weather protection housing for inlet valve BM900276
BM92752	Protection heater for inlet valve housing BM92751
BM900851	built-in Option: pull-out tray for 12 bottle option
BM900884	built-in Option: capacitive level sensor instead of conductive - GLASS Dosing vessel
BM900679	built-in Option: capacitive level sensor instead of conductive - Plastic Dosing vessel
BM10050	Overvoltage protection for Signal input
BM10049	Overvoltage protection for mains (2 pieces required!!!)
<u>Mounting, Inlet Hoses and Accessories</u>	
BM30044	Sampler base for BÜHLER 3011, made of SS304
BM900885	built-in Option: Suction tube ID 12mm replaces standard ID 10mm one
BM900623	PVC Hose, 5 m - Ø10 ID, complete with hose clip, w/o counterweight
BM69331	PVC Hose, Ø10 ID, w/o counterweight, w/o clip, per meter (max. length 30m)
BM60497	Suction hose elbow connector for hose ID= 10
BM50598	Counterweight for hose Ø10 ID (SS304, 180mm long)
BM50598V4A	Counterweight for hose Ø10 ID (SS316, 180mm long)
BM900290	PVC Hose, 7.5 m - Ø12 ID, complete with hose clip counterweight ¹
BM900300	PVC Hose, 7.5 m - Ø12 ID, complete with hose clip, w/o counterweight ¹
BM69304	PVC Hose. 30 m roll. Ø12 ID ¹
BM60259	inlet tube spout, 3/4", ID 13mm, 90° angled
BM50025	Counterweight for hose Ø12 ID (SS304. 180mm long) ¹
BM50025V4A	Counterweight for hose Ø12 ID (SS316. 180mm long) ¹
BM50598	Counterweight for hose Ø10 ID (SS304, 180mm long)
BM50598V4A	Counterweight for hose Ø10 ID (SS316, 180mm long)
BM900065	Inlet hose strainer basket (only in combination with Counterweight)
BM91127	Cart with castors for bottle discharge , cart for 4010 bottle tray
BM900017	Stationary Sampler Mounting Kit (4 screws, 4 dowels, 4 washer)
BM900774	built-in Option: Handles for BÜHLER 3010 to lift sampler (black PVC)
BM900105	suction hose protection heater band (length 5m)
<u>Bottles, Containers and trays</u>	
BM60036	Plastic Bottle, 1.0 L
BM60037	Cap for Plastic Bottle, 1 L
BM60034	Plastic, 2.9 Liter Bottle
BM60035	Cap for Plastic 2.9 Liter Bottle
BM60044	Plastic, 6.3 Liter Bottle, with cap
BM60045	Plastic, 10 Liter Bottle, with red cap (Bottle Option 2x10L PE)
BM60081	Plastic, 10 Liter Bottle, with white cap (Bottle Option 4x10L PE)
BM60334	Plastic, 14 Liter Bottle, with cap
BM60378	Plastic, 20 Liter Bottle/canister, with cap - round shape for big cabinet
BM60540	Plastic, 20 Liter Bottle/canister, with cap, square shape for BÜHLER 4010 series , bottle option "R" only
BM91327	Plastic, 22 Liter Bottle/canister, with cap
BM60342	Plastic, 50 Liter Bottle, with cap
BM30012	Glass, 1.0 Liter Bottle w/o cap
BM60144	Cap for Glass 1.0 Liter Bottle
BM30013	Glass, 2 Liter Bottle (DURAN 50 Glass)
BM60161	Cap for Glass 2 Liter Bottle

BÜHLER 3011

Options & Accessories

Sample Chambers

Standard Glass Dosing System

BM900674	Glass Dosing System (350ml) complete
BM30004	Glass Sample Chamber (350ml)
BM30005	Glass Sample Chamber (500ml)
BM50008	screwing ring, standard dosing vessel - black plastic ring
BM69401	Seal O-ring, level tube Ø16x4
BM69402	Seal chamber Quad ring 81, Ø92x5, 33 NBR (only for glass standard dosing vessel)
BM50009	red fixing screw for dosing inlet tube
BM900053	Pipe Assy-Inlet

Standard Plastic Dosing System

BM900621	Plastic dosing system complete
BM80044	Plastic sample chamber
BM69452	Seal chamber Quad ring 81, Ø92x5, 33 NBR (only for plastic dosing vessel)
BM80070	Metering tube for plastic dosing vessel
BM900803	retrofit kit:capacitive sensor for Plastic dosing vessel, BÜHLER 2/3/4xxx

SAMPLER, stationary in stainless steel enclosure

BÜHLER 4011 (Datasheet DOC063.72.03821)

Technical Data	
Subject to change without notice	
BÜHLER 4010 Stationary Sampler	
Designation	Stationary Standard Water Sampler in Stainless Steel Enclosure, fulfilling ISO 5667-2/3-10 and MCERTs requirements
Sampling method	pressure / vacuum principle
Sampling technique	time proportional, flow proportional - CVVT (constant volume, variable time), external event sampling, manual grab sampling (at any time without interrupting the running program), Optional: flow proportional - CTVV (constant time, variable volume)
Dosing	
Standard	Vacuum 20 ... 350 ml selectable (choice of glass or PC vessel)
Optionally	Vacuum 20 ... 500 ml, Bypass 20 ... 250 ml, Variable Volume/Constant Time Version 5 ... 250 ml
Dosing Accuracy	2.8% (at 95% confidence interval) at Standard-Vacuum-System
Hydraulic parameters	
Suction height	max. 8 m (at 1013 hPa, static medium, 20°C, sea level)
Suction velocity	>0.5 m/s suction height up to 7.8 m (at 1013hPa); membrane pump power electronically adjustable
Suction hose	7.5 m PVC hose (12 mm ID), max. allowed length of suction tube 30 m
Sample container	
PE bottles	1 x 25 l, 1 x 50 l, 2 x 10 l, 2 x 22 l, 4 x 6 l, 4 x 10 l, 4 x 14 l, 4 x 20 l, 4 x 25 l 12 x 2.9 l, 24 x 1.0 l, 24 x 2.9 l
Glass bottles	12 x 2 l 24 x 1 l, 24 x 2L
Controller	microprocessor controlled, waterproof membrane keypad, real-time clock with battery back-up, full graphical display with 128 x 64 dots, backlit LCD
	multi-language User Interface, selectable (DE, FR, GB, NL, CZ, DK, IT, ES, SV)
Data logger	3.000 log entries, non volatile data logger storing sample history, input signals, bottle changes, alarms in combination with time/date stamp
Programs	12 user defined programs (freely programmable) with possible program linking
Outputs	• 8x digital: 7x Internal, 1x collective malfunction • Optional: 8x digital, 5x free programmable
Inputs	• 2x analogue: 0/4-20 mA (1x for Flow Input) • 8x digital: 5x Internal, Flow, Event, 1x free programabel
Programming options	various
Program-Start	immediately, at certain time, at certain week day, after finishing another program, at ext. Signal
Program-Stop	Stop sampling after program is passed; after several cycles, continuous run mode
Pause-Modus	Pause of sampling program at any time
Rinse/Purge mode	Purging of suction tube with air before / after taking sample, duration adjustable
Overfilling protection	1 – 999 samples / bottle; adjustable
Sampling Interval	1 min. to 99h 59min in minute-steps
Interface	Mini-USB
Housing	Double-walled stainless steel with 40 mm insulation layer, Top door with viewing window equipped with separated control and sample compartment with lockable door
Standard model	Mat 1.4301/ SS304 / PS / PC (GF10)
Optional model	Mat 1.4571/ SS316Ti; SS304 EPOXY-coated; SS316Ti EPOXY-coated (optional)
Refrigeration system	microprocessor controlled refrigeration/heating system with 4 settings, No Frost technique, +4°C factory temperature setting, adjustable from 0 to 9.9°C
Dimensions	for bottle option 4x20l, 4x25l, 24x2.9l, 36x1l for any other configuration
Dimensions, roof closed	930 x 1400 x 850 mm (W x H x D) 690 x 1290 x 645 mm (W x H x D)
Dimensions with roof up	930 x 2015 x 850 mm (W x H x D) 690 x 1882 x 645 mm (W x H x D)
Power requirements	230 VAC / 115 VAC depending on selected power supply option
Power consumption	350 VA (overall)
Overvoltage protection	all inputs are protected against overvoltage
Environmental	
Operation	-20 ... +43°C
Sample Temperature	0 ... +40°C
Weight	~ 100 kg with composite container, higher weight when using several bottles and/or glass bottles
Communications	
Modbus/PROFIBUS DP	on request
Wireless / GSM	on request
Certification & Approvals	CE, mCERT
Wetted materials	PVC, Silicone, PS, PE, EPDM (optional: dosing vessel Glass Duran 50, counterweight SS304)
Warranty	24 month

SAMPLER, stationary in stainless steel enclosure BÜHLER 4011 (Datasheet DOC063.72.03821)

Part No.

Designation

BU401x.xx.xxxxx

Stationary Sampler, BÜHLER

B U 4 0 1 x . x x . x x x x x



Sampler Model

- | | |
|---|----------|
| 4011 | 1 |
| Window in upper door, 7.5 m suction hose (ID Ø12mm)
counterweight and 1 relay (collective malfunction) | |
| 4012 | 2 |
| same as 4011, with main switch, interior lighting and I/O expansion (4 relays:
collective malfunction, program active, Program end, taking sample) | |

Enter Local Country Code here

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Sampling System Option

- | | |
|---|----------|
| Vacuum, ASF Pump, 350 ml Plastic vessel (not for pressurized pipe sampling) | 2 |
| Vacuum, ASF Pump, 350 ml Glass vessel | 1 |
| Vacuum, ASF Pump, 500 ml Glass vessel | 5 |
| Flow proportional (Variable Volume, Constant time sampling mode) | 3 |
| Bypass dosing vessel (Flow through for pressurized pipes) | 4 |

Refrigeration Option

- | | |
|----------------------------|----------|
| No Fridge, No Heater | 0 |
| Fridge and Heater | 1 |
| Coated Fridge | 2 |

Bottle/Container Option

- | | |
|---|----------|
| Plastic, 1 x 25 L | 1 |
| Plastic, 1 x 50 L | 8 |
| Plastic, 2 x 10 L | A |
| Plastic, 2 x 22 L | B |
| Plastic, 4 x 6 L (with 12 bottle distribution plate)..... | 9 |
| Plastic, 4 x 10 L | 2 |
| Plastic, 4 x 14 L | 3 |
| Plastic, 4 x 20 L | G |
| Plastic, 4 x 25 L | H |
| Plastic, 12 x 2.9 L | 5 |
| Plastic, 24 x 1 L | 6 |
| Plastic, 24 x 2.9 L | E |
| Glass, 12 x 2 L | 4 |
| Glass, 24 x 0.9 L | 7 |
| Glass, 24 x 2 L | F |

Housing Option

- | | |
|----------------------------------|----------|
| made of SS304 (V2A) | 1 |
| made of SS304 Epoxy Coated | 3 |
| made of SS316 (V4A) | 2 |
| made of SS316 Epoxy Coated | 4 |

Power / Plug type Option

- | | |
|---|----------|
| 230VAC, Bare leads - no plug | 0 |
| 230VAC, Euro plug | 1 |
| 230VAC, UK plug | 2 |
| 115VAC, 50 Hz, Bare leads - no plug | 3 |
| 230VAC, Swiss plug | 4 |



Note:

Please replace the .XX. placeholder by your Country / language code e.g. .52. .55. .00. etc.

Bypass dosing vessel designed for pressurized pipe sampling; min required flow 4 ... 20 L/min; max. pipe pressure 2 bar.

Possibility to drain mandatory

For further options, accessories and major spare parts, please refer to the chapter BÜHLER accessories.

KNF pump for suction heights greater > 5m (former dosing option 2) must be ordered separately under BM900687

Please consider that sampler are delivered READY TO OPERATE - all for start-up needed parts like suction tube are part of the delivery

BÜHLER 4011

Options & Accessories

Part No.	Designation
	<u>Optional accessories</u>
BM900687	KNF-pump instead of ASF-pump
BM200023	PC Software CONNECT to read out sampling data for communication via cable for WIN 98/NT/XP/Win 7
BM69793	USB Interface Cable to connect to Sampler mini USB socket
BM900711	built-in option: MODBUS Communication Interface - build-in option
BM900704	built-in option: PROFIBUS DP Communication Interface - build-in option
BM900910	Sampler I/O Expansion PCB for 2nd relay output- build-in option
BM900034	Signal output: Message relay (can be ordered 1x or 2x for Output #3 and #4) BM900910 is mandatory
BM900756	built-in option: Interior lightning for Sample compartment - LED version
BM900843	built-in option: Inlet Valve for max. 0.6 bars, replaces BM900276 - only in combination with glass dosing vessel
BM900276	! Preferred solution is BM900843 ! Non Return Valve (slanted valve) for max. 0.6 bar (only in comb. with SAMPLING SYSTEM Options: 1, 5) Inlet valve for suction tube - external 230V mains required
BM92751	weather protection housing for inlet valve BM900276
BM92752	protection heater for inlet valve housing BM92751
BM900765	built-in option: Sampler in silicon free version
BM900884	built-in Option: capacitive level sensor instead of conductive - GLASS Dosing vessel
BM900679	built-in Option: capacitive level sensor instead of conductive - Plastic Dosing vessel
BM900471	Backup battery with charger for stationary Bühler samplers
BM90141	built-in option: Main switch built-in sidewall of sampler housing mounted externally at top compartment
BM10050	Overvoltage protection for Signal input
BM10049	Overvoltage protection for mains (2 pieces required!!!)
BM900736	built-in option: Upper compartment door without window
BM91908	built-in option: Both doors open to the left side (Door latches mounted on left side)
BM900873	built-in option: Sampler doors without locks
BM900589	built-in option: Handles for BÜHLER 4010...4410 to lift sampler
BM900312	built-in option: door bracket for wind safety
BM900781	Suction booster, max. suction height expanded to 12m; build-in BÜHLER 4xxx * replaces Cascade sampling system (BM90682) * possible but requires HACH LANGE's prior approval; please contact HACH LANGE
	<u>Bottle Tray Accessories</u>
BM900681	Tray for 12x bottles (without bottles)
BM40035	Tray for 24 x bottles (without bottles)
BM40042	Bottle centering Base Plate for 2 x 10 l, 4 x 10 l, 4 x 6.3 l
BM900485	built-in option: 2 trays with 6 x 2.9L bottles instead of one tray 12x2.9L (factory installed option only)
BM91761	built-in option: Special dosing vessel 1000mL
BM92598	built-in option: Additional adj time relay to force program end, build-in option 3010/4010
	<u>Distributors and Assemblies</u>
BM900790	Mounting kit to change distributor options (contains screws, mountings bars for all distributor versions)
BM91127	cart with castors for bottle discharge , cart for 4010 bottle tray
BM900818	built-in option: roll pull out tray, composite bottle
BM900588	built-in option: roll pull out tray, 24x 1L bottles
BM900378	built-in option: roll pull out tray, 12x 2L or 2,9L bottles
BM900109	built-in option - parallel daily mixed sample bottle 5L PE only in comb. With bottle option 12x2,9L PE, only with permission of Joerg Kellner, only available for BL4011
	<u>sampler prepared for additional padlock protection</u>
BM90486	housing latch for stat sampler, in comb. w. BM90487
BM90487	Mouting plate door for stat sampler, in comb. w. BM90486

BÜHLER 4011

Options & Accessories

Part No.	Designation <u>Mounting, Inlet Hoses and Accessories</u>
BM30009	Sampler base for BÜHLER 4X1X, made of SS304, 400x700x410 (H x W x D) please check sampler dimensions based on selected bottle option
BM30009V4A	Sampler base for BÜHLER 4X1X, made of SS316, 400x700x410 (H x W x D) please check sampler dimensions based on selected bottle option
BM91111	Sampler base made of SS304, for BÜHLER 4410: 24 bottles & BÜHLER 4210 23x1 / 4x20 please check sampler dimensions based on selected bottle option
BM900017	Stationary Sampler Mounting Kit (4 screws, 4 dowels, 4 washer)
BM900016	Castors to get mobile stationary sampler - (2x SS castors, 2x SS lock type castors, 4x SS screws, 4x SS nuts, washer, caps)
BM900276	Non Return Valve (slanted valve) for max. 0.6 bar Inlet valve for suction tube - external 230V mains required
BM900290	PVC Hose, 7.5 m - Ø12 ID, complete with hose clip counterweight ¹
BM900300	PVC Hose, 7.5 m - Ø12 ID, complete with hose clip, w/o counterweight ¹
BM69304	PVC Hose, 30 m roll, Ø12 ID ¹
BM50025	Counterweight for hose Ø12 ID (SS304, 180mm long) ¹
BM50025V4A	Counterweight for hose Ø12 ID (SS316, 180mm long) ¹
BM900065	Inlet hose strainer basket (only in combination with Counterweight)
BM900014	Mounting kit for inlet hose in open channels (Extraction unit) Extraction unit to mount the suction hose,
BM60259	inlet tube spout, 3/4", ID 13mm, 90° angled <i>(for all plastic dosing vessels)</i>
BM900105	suction hose protection heater band (length 5m) connection to external 230V mains required
<u>Bottles, Containers and trays</u>	
BM60036	Plastic Bottle, 1.0 L
BM60037	Cap for Plastic Bottle, 1 L
BM60034	Plastic, 2.9 Liter Bottle
BM60035	Cap for Plastic 2.9 Liter Bottle
BM60044	Plastic, 6.3 Liter Bottle, with cap
BM60045	Plastic, 10 Liter Bottle, with red cap (Bottle Option 2x10L PE)
BM60081	Plastic, 10 Liter Bottle, with white cap (Bottle Option 4x10L PE)
BM60334	Plastic, 14 Liter Bottle, with cap
BM60378	Plastic, 20 Liter Bottle/canister, with cap - round shape for big cabinet
BM60540	Plastic, 20 Liter Bottle/canister, with cap, square shape for BÜHLER 4010 series , bottle option "R" only
BM91327	Plastic, 22 Liter Bottle/canister, with cap
BM60046	Plastic, 25 Liter Bottle, with cap
BM60342	Plastic, 50 Liter Bottle, with cap
BM30012	Glass, 1.0 Liter Bottle w/o cap
BM60144	Cap for Glass 1.0 Liter Bottle
BM30013	Glass, 2 Liter Bottle (DURAN 50 Glass)
BM60161	Cap for Glass 2 Liter Bottle

BÜHLER 4011

Options & Accessories

Sample Chambers

Standard Glass Dosing System

BM900674	Glass Dosing System (350ml) complete
BM30004	Glass Sample Chamber (350ml)
BM30005	Glass Sample Chamber (500ml)
BM50008	screwing ring, standard dosing vessel - black plastic ring
BM69401	Seal O-ring, level tube Ø16x4
BM69402	Seal chamber Quad ring 81, Ø92x5, 33 NBR (only for glass standard dosing vessel)
BM50009	red fixing screw for dosing inlet tube
BM900053	Pipe Assy-Inlet

Standard Plastic Dosing System

BM900621	Plastic dosing system complete
BM80044	Plastic sample chamber
BM69452	Seal chamber Quad ring 81, Ø92x5, 33 NBR (only for plastic dosing vessel)
BM80070	Metering tube for plastic dosing vessel

BM900803	retrofit kit:capacitive sensor for Plastic dosing vessel, BÜHLER 2/3/4xxx
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Special Bypass Dosing System

BM900924	Glass Sample Chamber - bypass dosing vessel
BM50255	Snap ring for bypass dosing vessel
BM50251	Screwing ring for bypass dosing vessel
BM69312	discharge - hose DN25

Special CTVV Dosing System

BM900879	Inlet Dosing tube for variable dosing unit, 350 ml (VAR-2)
BM10104	aeration valve
BM69302	silicon hose 12 x 2, per meter - to aeration valve and distributor
BM69402	quad-ring 81, 92 x 5, 33, NBR - at vessel

SAMPLER, stationary with ATEX zone 2 certification

BÜHLER 4041Ex - standard sampler explosion proof (Datasheet DOC063.72.03821)



Sales only to FRA, DE, NL - otherwise contact HLE SEC Compliance



Technical Data	
Subject to change without notice	
BÜHLER 4041Ex Stationary Sampler - ATEX Zone 2 compliant	
Designation	Stationary Water Sampler in Stainless Steel Enclosure, ATEX II 3G EEX nC/R/L IIB T3, fulfilling ISO 5667 requirements
Sampling method	pressure / vacuum principle
Sampling technique	time proportional, flow proportional - CVVT (constant volume, variable time), external event sampling, manual grab sampling (at any time without interrupting the running program)
Dosing	
Standard	Vacuum 20 ... 350 ml selectable
Dosing Accuracy	2.8% (at 95% confidence interval) at Standard-Vacuum-System
Hydraulic parameters	
Suction height	max. 4.5 m (at 1013hPa and static medium)
Suction velocity	>0.5 m/s suction height up to 3 m (at 1013hPa); membrane pump power electronically adjustable
Suction hose	5 m PVC hose (10 mm ID), max. allowed length of suction tube 15 m
Sample container	
PE bottles	1 x 25 l, 1 x 50 l, 4 x 10 l, 4 x 14 l, 12 x 2.9 l,
Glass bottles	12 x 2 l
Controller	microprocessor controlled, waterproof membrane keypad, real-time clock with battery back-up, 4 line x 20 characters backlit LCD
Data logger	multi-language User Interface, selectable (DE, FR, GB, NL, CZ, PL, DK, IT) non volatile data logger storing sample history, input signals, bottle changes, alarms in combination with time/date stamp
Programs	6 user defined programs (freely programmable)
Outputs	max. 4x digital (depending on sampler configuration); 1x free to define / programmable
Inputs	• 1x analogue: 4-20 mA, cut-off voltage 3,3 V (Optical Coupler) • 1x digital: (Flow, event, 3x free to define / programmable), depending on sampler configuration while obtaining ATEX requirements
Programming options	various
Program-Start	immediately, at a certain time, at external Signal
Program-Stop	Stop sampling after program is passed; continuous run mode
Pause-Modus	Pause of sampling program at any time
Rinse/Purge mode	Purging of suction tube with air before / after taking sample, duration adjustable
Overfilling protection	1 – 999 samples / bottle; adjustable
Sampling Interval	1 min. to 99h 59min in minute-steps
Interface	none
Housing	Double-walled stainless steel with 40 mm insulation layer, Top door with viewing window equipped with separated control and sample compartment with lockable door
Standard model	Mat 1.4301/ SS304 / PS / PC (GF10)
Optional model	Mat 1.4571/ SS316Ti; SS304 EPOXY-coated; SS316Ti EPOXY-coated (optional)
Refrigeration system	microprocessor controlled refrigeration/heating system with 4 settings, No Frost technique, +4°C factory temperature setting, adjustable from 0 to 9.9°C
Dimensions	690 x 1490 x 645 mm (W x H x D)
Dimensions with roof up	690 x 2090 x 645 mm (W x H x D)
Power requirements	230 VAC / 115 VAC depending on selected power supply option
Power consumption	350 VA (overall)
Overvoltage protection	all inputs are protected against overvoltage
Environmental	
Operation	-20 ... +40°C
Sample Temperature	0 – 40°C
Weight	~ 100 kg with composite container, higher weight when using several bottles and/or glass bottles
Communications	on request
Certification & Approvals	CE, ATEX II 3G EEX nC/R/L IIB T3
Wetted materials	PVC, Silicone, PS, PE, EPDM, Duran 50, SS304
Warranty	24 month

SAMPLER, stationary with ATEX zone 2 certification
 BÜHLER 4041Ex - standard sampler explosion proof (Datasheet DOC063.72.03821)

Part No.

Designation

BL404x.xx.xxxxx

Stationary Sampler, BÜHLER

B L 4 0 4 x . x x . x x x x x x



Sampler Model

4041Ex ATEX II 3G EEX nC/R/L IIB T3 **1**
 Window in upper door, 7.5 m suction hose (ID Ø12mm)
 counterweight and 1 relay (collective malfunction)

Enter Local Country Code here

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Sampling System Option

Vacuum, ASF Pump, 350 ml Glass vessel **1**

Refrigeration Option

No Fridge, No Heater **0**
 Fridge and Heater **1**

Bottle/Container Option

Plastic, 1 x 25 L **1**
 Plastic, 1 x 50 L **8**
 Plastic, 4 x 10 L **2**
 Plastic, 4 x 14 L **3**
 Plastic, 12 x 2.9 L **5**
 Glass, 12 x 2 L **4**

Housing Option

made of SS304 (V2A) **1**
 made of SS304 Epoxy Coated **3**
 made of SS316 (V4A) **2**
 made of SS316 Epoxy Coated **4**

Power / Plug type Option

230VAC, Bare leads - no plug **0**
 115VAC, 50Hz, Bare leads - no plug **3**



Note:

Please replace the .XX. placeholder by your Country / language code e.g. .52. .55. .00. etc.

Instrument can only be sold with manual in official local language and in combination with a service technician training.
 Manuals actually available in german, english, dutch and french language.

Please consider that sampler are delivered READY TO OPERATE - all for start-up needed parts like suction tube are part of the delivery

BÜHLER 4041Ex

Options & Accessories

Part No.	Designation
	<u>Optional accessories</u>
	<u>Mounting, Inlet Hoses and Accessories</u>
BM30009	Sampler base for BÜHLER 4X1X, made of SS304, 400x700x410 (H x W x D) please check sampler dimensions based on selected bottle option
BM30009V4A	Sampler base for BÜHLER 4X1X, made of SS316, 400x700x410 (H x W x D) please check sampler dimensions based on selected bottle option
BM900623	PVC Hose, 5 m - Ø10 ID, complete with hose clip, w/o counterweight
BM69331	PVC Hose, Ø10 ID, w/o counterweight, w/o clip, per meter (max. length 30m)
BM60497	Suction hose elbow connector for hose ID= 10
BM50598	Counterweight for hose Ø10 ID (SS304, 180mm long)
BM50598V4A	Counterweight for hose Ø10 ID (SS316, 180mm long)
BM900290	PVC Hose, 7.5 m - Ø12 ID, complete with hose clip counterweight ¹
BM900300	PVC Hose, 7.5 m - Ø12 ID, complete with hose clip, w/o counterweight ¹
BM69304	PVC Hose, 30 m roll, Ø12 ID ¹
BM60259	inlet tube spout, 3/4", ID 13mm, 90° angled
BM50025	Counterweight for hose Ø12 ID (SS304, 180mm long) ¹
BM50025V4A	Counterweight for hose Ø12 ID (SS316, 180mm long) ¹
BM50598	Counterweight for hose Ø10 ID (SS304, 180mm long)
BM50598V4A	Counterweight for hose Ø10 ID (SS316, 180mm long)
BM900065	Inlet hose strainer basket (only in combination with Counterweight)
BM900017	Stationary Sampler Mounting Kit (4 screws, 4 dowels, 4 washer)
	<u>Bottles, Containers and trays</u>
BM60034	Plastic, 2.9 Liter Bottle
BM60035	Cap for Plastic 2.9 Liter Bottle
BM60081	Plastic, 10 Liter Bottle, with white cap (Bottle Option 4x10L PE)
BM60334	Plastic, 14 Liter Bottle, with cap
BM60046	Plastic, 25 Liter Bottle, with cap
BM60342	Plastic, 50 Liter Bottle, with cap
BM30013	Glass, 2 Liter Bottle (DURAN 50 Glass)
BM60161	Cap for Glass 2 Liter Bottle
	<u>Sample Chambers</u>
	<u>Standard Glass Dosing System</u>
BM900674	Glass Dosing System (350ml) complete
BM30004	Glass Sample Chamber (350ml)
BM50008	screwing ring, standard dosing vessel - black plastic ring
BM69401	Seal O-ring, level tube Ø16x4
BM69402	Seal chamber Quad ring 81, Ø92x5, 33 NBR (only for glass standard dosing vessel)
BM50009	red fixing screw for dosing inlet tube
BM900053	Pipe Assy-Inlet

SAMPLER, stationary sampling with rinsing option

BÜHLER 4211 - sampler for faeces applications (Datasheet DOC063.72.03814)

Technical Data	
Subject to change without notice	
BÜHLER 4211 Stationary Sampler	
Designation	Stationary Water Sampler in Stainless Steel Enclosure, fulfilling ISO 5667-2/3-10 and MCERTs requirements, particularly suitable for faeces applications
Sampling method	pressure / vacuum principle
Sampling technique	time proportional, flow proportional - CVVT (constant volume, variable time), external event sampling, manual grab sampling (at any time without interrupting the running program)
Dosing	
Standard	Vacuum 20 ... 500 ml selectable
Dosing Accuracy	2.8% (at 95% confidence interval) at Standard-Vacuum-System
Hydraulic parameters	
Suction height	max. 8 m (at 1013 hPa, static medium, 20°C, sea level)
Suction velocity	>0.5 m/s suction height up to 7.8 m (at 1013hPa); membrane pump power electronically adjustable
Suction hose	7.5 m PVC hose (12 mm ID), max. allowed length of suction tube 30 m
Sample container	
PE bottles	1 x 25 l, 1 x 50 l, 4 x 14 l, 4 x 20 l, 12 x 1 l, 23 x 1 l
Glass bottles	12 x 1 l 23 x 1 l
Controller	microprocessor controlled, waterproof membrane keypad, real-time clock with battery back-up, full graphical display with 128 x 64 dots, backlit LCD
	multi-language User Interface, selectable (DE, FR, GB, NL, CZ, DK, IT, ES, SV)
Data logger	3.000 log entries, non volatile data logger storing sample history, input signals, bottle changes, alarms in combination with time/date stamp
Programs	12 user defined programs (freely programmable) with possible program linking
Outputs	• 8x digital: 7x Internal, 1x collective malfunction • Optional: 8x digital, 5x free programable
Inputs	• 2x analogue: 0/4-20 mA (1x for Flow Input) • 8x digital: 5x Internal, Flow, Event, 1x free programabel
Programming options	various
Program-Start	immediately, at certain time, at certain week day, after finishing another program, at ext. Signal
Program-Stop	Stop sampling after program is passed; after sewerall cycles, continuous run mode
Pause-Modus	Pause of sampling program at any time
Rinse/Purge mode	Purging of suction tube with air before / after taking sample, duration adjustable
Overfilling protection	1 – 999 samples / bottle; adjustable
Sampling Interval	1 min. to 99h 59min in minute-steps
Interface	Mini-USB
Housing	Double-walled stainless steel with 40 mm insulation layer, Top door with viewing window equipped with separated control and sample compartment with lockable door
Standard model	Mat 1.4301/ SS304 / PS / PC (GF10)
Optional model	Mat 1.4571/ SS316Ti; SS304 EPOXY-coated; SS316Ti EPOXY-coated (optional)
Refrigeration system	microprocessor controlled refrigeration/heating system with 4 settings, No Frost technique, +4°C factory temperature setting, adjustable from 0 to 9.9°C
	for bottle option 4x20l, 23x1l for any other configuration
Dimensions	715 x 1415 x 810 mm (W x H x D) 605 x 1325 x 645 mm (W x H x D)
Dimensions with roof up	715 x 2120 x 810 mm (W x H x D) 605 x 1895 x 645 mm (W x H x D)
Power requirements	230 VAC / 115 VAC depending on selected power supply option
Power consumption	350 VA (overall)
Overvoltage protection	all inputs are protected against overvoltage
Environmental	
Operation	-20 ... +40°C
Sample Temperature	0 ... +40°C
Weight	~ 105 kg with composite container, higher weight when using several bottles and/or glass bottles
Communications	
Modbus/PROFIBUS DP	on request
Wireless / GSM	on request
Certification & Approvals	CE, mCERT
Wetted materials	PVC, Silicone, PS, PE, EPDM (optional: dosing vessel Glass Duran 50, counterweight SS304)
Warranty	24 month

SAMPLER, stationary sampling with rinsing option
 BÜHLER 4211 - sampler for faeces applications (Datasheet DOC063.72.03814)

Part No.

Designation

BU421x.xx.xxxxx

Stationary Sampler, BÜHLER



		B	U	4	2	1	x	.	x	x	.	x	x	x	x	x	
<u>Sampler Model</u>																	
4211	Window in upper door, 7.5 m suction hose (ID Ø12mm) counterweight and 1 relay (collective malfunction)															1	
4212	same as 4211, with main switch, interior lighting and I/O expansion (4 relays: collective malfunction, program active, Program end, taking sample)															2	
<u>Enter Local Country Code here</u>																x	x
<u>Sampling System Option</u>																	
Vacuum, ASF Pump, 500 ml Glass vessel																5	
<u>Refrigeration Option</u>																	
No Fridge, No Heater																0	
Fridge and Heater																1	
Coated Fridge																2	
<u>Bottle/Container Option</u>																	
Plastic, 1 x 25 L																1	
Plastic, 4 x 14 L																3	
Plastic, 4 x 20 L																G	
Plastic, 12 x 1 L																K	
Plastic, 23 x 1 L																L	
Glass, 12 x 0.9 L																J	
Glass, 23 x 0.9 L																M	
<u>Housing Option</u>																	
made of SS304 (V2A)																1	
made of SS304 Epoxy Coated																3	
made of SS316 (V4A)																2	
made of SS316 Epoxy Coated																4	
<u>Power / Plug type Option</u>																	
230VAC, Bare leads - no plug																0	
230VAC, Euro plug																1	
230VAC, UK plug																2	
115VAC, 50 Hz, Bare leads - no plug																3	
230VAC, Swiss plug																4	



Note: Please replace the .XX. placeholder by your Country / language code e.g. .52. .55. .00. etc.

BÜHLER 4210 Sampler requires possibility to drain because of rinsing the water distribution line.

Please consider that sampler are delivered READY TO OPERATE - all for start-up needed parts like suction tube are part of the delivery

BÜHLER 4211

Options & Accessories

Part No.	Designation
	<u>Optional accessories</u>
BM900687	KNF-pump instead of ASF-pump
BM200023	PC Software CONNECT to read out sampling data for communication via cable for WIN 98/NT/XP/Win 7
BM69793	USB Interface Cable to connect to Sampler mini USB socket
BM900711	built-in option: MODBUS Communication Interface - build-in option
BM900704	built-in option: PROFIBUS DP Communication Interface - build-in option
BM900910	Sampler I/O Expansion PCB for 2nd relay output- build-in option
BM900034	Signal output: Message relay (can be ordered 1x or 2x for Output #3 and #4) BM900910 is mandatory
BM900843	built-in option: Integrated Inlet valve (slanted valve) for pressurized line sampling max. pressure 0.6 bar (only in comb. with SAMPLING SYSTEM Options: 1, 5)
BM900756	built-in option: Interior lightning for Sample compartment - LED version
BM900276	Non Return Valve (slanted valve) for max. 0.6 bar (only in comb. with SAMPLING SYSTEM Options: 1, 5) Inlet valve for suction tube - external 230V mains required
BM92751	weather protection housing for inlet valve BM900276
BM92752	protection heater for inlet valve housing BM92751
BM900471	Backup battery with charger for stationary Bühler samplers
BM90141	built-in option: Main switch built-in sidewall of sampler housing mounted externally at top compartment
BM10050	Overvoltage protection for Signal input
BM10049	Overvoltage protection for mains (2 pieces required!!!!)
BM900736	built-in option: Upper compartment door without window
BM91908	built-in option: Both doors open to the left side (Door latches mounted on left side)
BM900873	built-in option: Sampler doors without locks
BM900589	built-in option: Handles for BÜHLER 4010...4410 to lift sampler

Mounting, Inlet Hoses and Accessories

BM30009	Sampler base for BÜHLER 4X1X, made of SS304, 400x700x410 (H x W x D) please check sampler dimensions based on selected bottle option
BM30009V4A	Sampler base for BÜHLER 4X1X, made of SS316, 400x700x410 (H x W x D) please check sampler dimensions based on selected bottle option
BM91111	Sampler base made of SS304, for BÜHLER 4410: 24 bottles & BÜHLER 4210 23x1 / 4x20 please check sampler dimensions based on selected bottle option
BM900017	Stationary Sampler Mounting Kit (4 screws, 4 dowels, 4 washer)
BM900016	Castors to get mobile stationary sampler - (2x SS castors, 2x SS lock type castors, 4x SS screws, 4x SS nuts, washer, caps)
BM900276	Non Return Valve (slanted valve) for max. 0.6 bar Inlet valve for suction tube - external 230V mains required
BM900290	PVC Hose, 7.5 m - Ø12 ID, complete with hose clip counterweight ¹
BM900300	PVC Hose, 7.5 m - Ø12 ID, complete with hose clip, w/o counterweight ¹
BM69304	PVC Hose, 30 m roll, Ø12 ID ¹
BM50025	Counterweight for hose Ø12 ID (SS304, 180mm long) ¹
BM50025V4A	Counterweight for hose Ø12 ID (SS316, 180mm long) ¹
BM900065	Inlet hose strainer basket (only in combination with Counterweight)
BM900014	Mounting kit for inlet hose in open channels (Extraction unit) Extraction unit to mount the suction hose,
BM60259	inlet tube spout, 3/4", ID 13mm, 90° angled
BM900105	suction hose protection heater band (length 5m) connection to external 230V mains required
	<u>sampler prepared for additional padlock protection</u>
BM90486	housing latch for stat sampler, in comb. w. BM90487
BM90487	Mounting plate door for stat sampler, in comb. w. BM90486

BÜHLER 4211

Options & Accessories

Part No.	Designation
<u>Bottles, Containers and trays</u>	
BM60036	Plastic Bottle, 1.0 L
BM60037	Cap for Plastic Bottle, 1 L
BM60034	Plastic, 2.9 Liter Bottle
BM60035	Cap for Plastic 2.9 Liter Bottle
BM60334	Plastic, 14 Liter Bottle, with cap
BM60378	Plastic, 20 Liter Bottle/canister, with cap - round shape for big cabinet
BM60046	Plastic, 25 Liter Bottle, with cap
BM30012	Glass, 1.0 Liter Bottle w/o cap
BM60144	Cap for Glass 1.0 Liter Bottle
<u>Sample Chambers</u>	
Standard Glass Dosing System	
BM30005	Glass Sample Chamber (500ml)
BM50008	screwing ring, standard dosing vessel - black plastic ring
BM69401	Seal O-ring, level tube Ø16x4
BM69402	Seal chamber Quad ring 81, Ø92x5, 33 NBR (only for glass standard dosing vessel)
BM50009	red fixing screw for dosing inlet tube
BM900053	Pipe Assy-Inlet

SAMPLER, stationary for clean water monitoring

BÜHLER 4411 Self-emptying Sampler (Datasheet DOC063.72.03824)

Technical Data Subject to change without notice	
BÜHLER 4411 Stationary Sampler	
Designation	Stationary Water Sampler in Stainless Steel Enclosure, ISO 5667-2/3-10 and MCERTs requirements; automatic sampling in conjunction with pre-rinsing and self-emptying
Sampling method	pressure / vacuum principle
Sampling technique	time proportional, flow proportional - CVVT (constant volume, variable time), external event sampling, manual grab sampling (at any time without interrupting the running program), Optional: flow proportional - CTVV (constant time, variable volume)
Dosing	
Standard	Vacuum 20 ... 350 ml selectable (choice of glass or PC vessel)
Optionally	Vacuum 20 ... 500 ml, Bypass 20 ... 250 ml, Variable Volume/Constant Time Version 5 ... 250 ml
Dosing Accuracy	2.8% (at 95% confidence interval) at Standard-Vacuum-System
Hydraulic parameters	
Suction height	max. 8 m (at 1013 hPa, static medium, 20°C, sea level)
Suction velocity	>0.5 m/s suction height up to 7.8 m (at 1013hPa); membrane pump power electronically adjustable
Suction hose	7.5 m PVC hose (12 mm ID), max. allowed length of suction tube 30 m
Sample container	
PE bottles	2 x 10 l 24 x 2 l 4 x 5 l, 4 x 10 l,
Glass bottles	12 x 1.6 l 24 x 1 l, 24 x 2L
Controller	microprocessor controlled, waterproof membrane keypad, real-time clock with battery back-up, full graphical display with 128 x 64 dots, backlit LCD
	multi-language User Interface, selectable (DE, FR, GB, NL, CZ, DK, IT, ES, SV)
Data logger	3.000 log entries, non volatile data logger storing sample history, input signals, bottle changes, alarms in combination with time/date stamp
Programs	12 user defined programs (freely programmable) with possible program linking
Outputs	• 8x digital: 7x Internal, 1x collective malfunction • Optional: 8x digital, 5x free programmable
Inputs	• 2x analogue: 0/4-20 mA (1x for Flow Input) • 8x digital: 5x Internal, Flow, Event, 1x free programabel
Programming options	various
Program-Start	immediately, at certain time, at certain week day, after finishing another program, at ext. Signal
Program-Stop	Stop sampling after program is passed; after several cycles, continuous run mode
Pause-Modus	Pause of sampling program at any time
Rinse/Purge mode	Purging of suction tube with air before / after taking sample, duration adjustable
Overfilling protection	1 – 999 samples / bottle; adjustable
Sampling Interval	1 min. to 99h 59min in minute-steps
Interface	Mini-USB
Housing	Double-walled stainless steel with 40 mm insulation layer, Top door with viewing window equipped with separated control and sample compartment with lockable door
Standard model	Mat 1.4301/ SS304 / PS / PC (GF10)
Optional model	Mat 1.4571/ SS316Ti; SS304 EPOXY-coated; SS316Ti EPOXY-coated (optional)
Refrigeration system	microprocessor controlled refrigeration/heating system with 4 settings, No Frost technique, +4°C factory temperature setting, adjustable from 0 to 9.9°C
	for bottle option 4x10l, 24x1l, 24x2l
Dimensions	715 x 1415 x 810 mm (W x H x D)
Dimensions with roof up	715 x 2120 x 810 mm (W x H x D)
Power requirements	230 VAC / 115 VAC depending on selected power supply option
Power consumption	350 VA (overall)
Overvoltage protection	all inputs are protected against overvoltage
Environmental	
Operation	-20 ... +40°C
Sample Temperature	0 – 40°C
Weight	~ 115 kg with 2x10l PE bottles, higher weight when using several bottles and/or glass bottles
Communications	
Modbus/PROFIBUS DP	on request
Wireless / GSM	on request
Certification & Approvals	CE, mCERT
Wetted materials	PVC, Silicone, PS, PE, EPDM (optional: dosing vessel Glass Duran 50, counterweight SS304)
Warranty	24 month

SAMPLER, stationary for clean water monitoring
 BÜHLER 4411 Self-emptying Sampler (Datasheet DOC063.72.03824)

Part No.

Designation

BU441x.xx.xxxxx

Stationary Sampler, BÜHLER

B U 4 4 1 x . x x . x x x x x



Sampler Model

- | | |
|---|---|
| 4411 | 1 |
| Window in upper door, 7.5 m suction hose (ID Ø12mm)
counterweight and 1 relay (collective malfunction) | |
| 4412 | 2 |
| same as 4411, with main switch, interior lighting and I/O expansion (4 relays:
collective malfunction, program active, Program end, taking sample) | |

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Sampling System Option

- | | |
|---|---|
| Vacuum, ASF Pump, 350 ml Plastic vessel (not for pressurized pipe sampling) | 2 |
| Vacuum, ASF Pump, 350 ml Glass vessel | 1 |
| Vacuum, ASF Pump, 500 ml Glass vessel | 5 |
| Flow proportional (Variable Volume, Constant time sampling mode) | 3 |
| Bypass dosing vessel (Flow through for pressurized pipes) | 4 |

Refrigeration Option

- | | |
|----------------------------|---|
| No Fridge, No Heater | 0 |
| Fridge and Heater | 1 |
| Coated Fridge | 2 |

Bottle/Container Option

- | | |
|--------------------------------------|---|
| Plastic, 2 x 10 L | A |
| Plastic, 4 x 5 L | O |
| Plastic, 4 x 10 L | 2 |
| Plastic, 24 x 2.0 L PP-H | P |
| Glass, 2 x 5 L | Z |
| Glass, 12 x 1.6 L | N |
| Glass, 24 x 1.0 L | 7 |
| Glass, 24 x 2 L | F |

Housing Option

- | | |
|----------------------------------|---|
| made of SS304 (V2A) | 1 |
| made of SS304 Epoxy Coated | 3 |
| made of SS316 (V4A) | 2 |
| made of SS316 Epoxy Coated | 4 |

Power / Plug type Option

- | | |
|---|---|
| 230VAC, Bare leads - no plug | 0 |
| 230VAC, Euro plug | 1 |
| 230VAC, UK plug | 2 |
| 115VAC, 50 Hz, Bare leads - no plug | 3 |
| 230VAC, Swiss plug | 4 |



Note:

Please consider that sampler are delivered READY TO OPERATE - all for start-up needed parts like suction tube are part of the delivery

Please replace the .XX. placeholder by your Country / language code e.g. .52. .55. .00. etc.

Bypass dosing vessel designed for pressurized pipe sampling; min required flow 4 ... 20 L/min; max. pipe pressure 2 bar.

Possibility to drain mandatory

For further options, accessories and major spare parts, please refer to the chapter BÜHLER accessories.

KNF pump for suction heights greater > 5m (former dosing option 2) must be ordered separately under BM900687

BÜHLER 4410 Sampler requires possibility to drain to discharge selfemptying bottles.

BÜHLER 4411

Options & Accessories

Part No.	Designation
	<u>Optional accessories</u>
BM900687	KNF-pump instead of ASF-pump
BM200023	PC Software CONNECT to read out sampling data for communication via cable for WIN 98/NT/XP/Win 7
BM69793	USB Interface Cable to connect to Sampler mini USB socket
BM900711	built-in option: MODBUS Communication Interface - build-in option
BM900704	built-in option: PROFIBUS DP Communication Interface - build-in option
BM900910	Sampler I/O Expansion PCB for 2nd relay output- build-in option
BM900034	Signal output: Message relay (can be ordered 1x or 2x for Output #3 and #4) BM900910 is mandatory
BM900756	built-in option: Interior lightning for Sample compartment - LED version
BM900843	built-in option: Integrated Inlet valve (slanted valve) for pressurized line sampling max. pressure 0.6 bar (only in comb. with SAMPLING SYSTEM Options: 1, 5)
BM900276	Non Return Valve (slanted valve) for max. 0.6 bar (only in comb. with SAMPLING SYSTEM Options: 1, 5) Inlet valve for suction tube - external 230V mains required
BM92751	weather protection housing for inlet valve BM900276
BM92752	protection heater for inlet valve housing BM92751
BM900471	Backup battery with charger for stationary Bühler samplers
BM90141	built-in option: Main switch built-in sidewall of sampler housing mounted externally at top compartment
BM10050	Overvoltage protection for Signal input
BM10049	Overvoltage protection for mains (2 pieces required!!!)
BM900736	built-in option: Upper compartment door without window
BM91908	built-in option: Both doors open to the left side (Door latches mounted on left side)
BM900873	built-in option: Sampler doors without locks
BM900589	built-in option: Handles for BÜHLER 4010...4410 to lift sampler
BM900781	Suction booster, max. suction height expanded to 12m; build-in BÜHLER 4xxx * replaces Cascade sampling system (BM90682) * possible but requires HACH LANGE's prior approval; please contact HACH LANGE
	<u>Mounting, Inlet Hoses and Accessories</u>
BM30009	Sampler base for BÜHLER 4X1X, made of SS304, 400x700x410 (H x W x D) please check sampler dimensions based on selected bottle option
BM30009V4A	Sampler base for BÜHLER 4X1X, made of SS316, 400x700x410 (H x W x D) please check sampler dimensions based on selected bottle option
BM91111	Sampler base made of SS304, for BÜHLER 4410: 24 bottles & BÜHLER 4210 23x1 / 4x20 please check sampler dimensions based on selected bottle option
BM900017	Stationary Sampler Mounting Kit (4 screws, 4 dowels, 4 washer)
BM900016	Castors to get mobile stationary sampler - (2x SS castors, 2x SS lock type castors, 4x SS screws, 4x SS nuts, washer)
BM900276	Non Return Valve (slanted valve) for max. 0.6 bar Inlet valve for suction tube - external 230V mains required
BM900290	PVC Hose, 7.5 m - Ø12 ID, complete with hose clip counterweight ¹
BM900300	PVC Hose, 7.5 m - Ø12 ID, complete with hose clip, w/o counterweight ¹
BM69304	PVC Hose, 30 m roll, Ø12 ID ¹
BM50025	Counterweight for hose Ø12 ID (SS304, 180mm long) ¹
BM50025V4A	Counterweight for hose Ø12 ID (SS316, 180mm long) ¹
BM900065	Inlet hose strainer basket (only in combination with Counterweight)
BM900014	Mounting kit for inlet hose in open channels (Extraction unit) Extraction unit to mount the suction hose,
BM60259	inlet tube spout, 3/4", ID 13mm, 90° angled (<i>for all plastic dosing vessels</i>)
BM900105	suction hose protection heater band (length 5m) connection to external 230V mains required
	<u>sampler prepared for additional padlock protection</u>
BM90486	housing latch for stat sampler, in comb. w. BM90487
BM90487	Mouting plate door for stat sampler, in comb. w. BM90486

BÜHLER 4411

Options & Accessories

Part No.	Designation
<u>Bottles, Containers and trays</u>	
BM30032	Glass, 1.0 l bottle (DURAN 50 Glass)
BM300016	Glass, 1.6 l bottle (DURAN 50 Glass)
BM30028	Glass, 2.0 l bottle (DURAN 50 Glass)
BM60081	Plastic, 10L bottle
<u>USER Spare Kit</u> (fuses, silicone tubing for valve system and pinch valve, dosing vessel sealing, suction tube sealing)	
BM900794	User spare part kit (incl. Fuses, silicone tubing, sealings)
<u>Sample Chambers</u>	
Standard Glass Dosing System	
BM900674	Glass Dosing System (350ml) complete
BM30004	Glass Sample Chamber (350ml)
BM30005	Glass Sample Chamber (500ml)
BM50008	screwing ring, standard dosing vessel - black plastic ring
BM69401	Seal O-ring, level tube Ø16x4
BM69402	Seal chamber Quad ring 81, Ø92x5, 33 NBR (only for glass standard dosing vessel)
BM50009	red fixing screw for dosing inlet tube
BM900053	Pipe Assy-Inlet
Standard Plastic Dosing System	
BM900621	Plastic dosing system complete
BM80044	Plastic sample chamber
BM69452	Seal chamber Quad ring 81, Ø92x5, 33 NBR (only for plastic dosing vessel)
BM80070	Metering tube for plastic dosing vessel
BM900803	retrofit kit:capacitive sensor for Plastic dosing vessel, BÜHLER 2/3/4xxx
Special Bypass Dosing System	
BM900924	Glass Sample Chamber - bypass dosing vessel
BM50255	Snap ring for bypass dosing vessel
BM50251	Screwing ring for bypass dosing vessel
BM69312	discharge - hose DN25
Special CTVV Dosing System	
BM900879	Inlet Dosing tube for variable dosing unit, 350 ml (VAR-2)
BM10104	aeration valve
BM69302	silicon hose 12 x 2, per meter - to aeration valve and distributor
BM69402	quad-ring 81, 92 x 5, 33, NBR - at vessel
BM60050	inlet tube spout, 3/4", for 16mm suctiontube

Sampler, Portable & Stationary

HACH SIGMA - Peristaltic technique

Hach is proud to welcome Sigma products and services to the Hach Company family. In the tradition of Sigma, Hach will continue in the design and manufacture of innovative flow, sampling, and rain quality instruments, communication products and data management software. This alliance will strengthen our ability to provide the most convenient, comprehensive water and wastewater monitoring solutions in the market.

With more than 75 years of combined experience and cutting-edge technology, Hach will continue to bring the same customer-focused approach to Sigma products and services. Hach is known for products and services that consistently deliver accurate data with a minimum of operator field time. Our integrated manufacturing and technical experience ensures that customers will receive world-class products and support.



SAMPLER, portable

SIGMA SD900 (HACH LIT2591)



The Hach **SIGMA SD900** Portable Sampler sets up easily and quickly in the field. Reduced maintenance and reliable results are assured. The SD900 sampler uses a strong pump draw and spring-loaded rollers to ensure that large particulates will not interfere with sample collection. A positive displacement peristaltic pump induces flow by squeezing a flexible 3/8-inch tube. The spring loaded rollers reduce pump tubing wear and help prevent pump jams. The typical life time of the pump tubing is 20,000 cycles — compared to only 1,000 cycles on other samplers.

Technical Data	
Subject to change without notice	
	HACH Sigma SD900 Portable Sampler
Sampling principle	Peristaltic principle
Suction height	8 m maximum Remote pump option recommended for lifts from 6.7 ... 10.7 m
Sample Pump	High speed peristaltic 4 rollers with spring tension 0.95 ID x 0.16 OD cm (3/8 ID x 5/8 in. OD) pump tube
Pump Enclosure	Rugged, corrosion-resistant polycarbonate door, high impactresistant, rated IP37, polyphenylene sulfide track
Vertical Lift	Minimum 8.5 m (28 ft.) suction head using 29 ft. of 3/8-in. vinyl intake tube at sea level at 20 to 25°C
Sample Transport Velocity	0.9 m/s (2.9 ft./s) at 4.6 m (15 ft.) vertical lift (16 ft. of 3/8-in. vinyl intake tubing at 70°F, at 5000 ft. elevation)
Pump Flow Rate	80 mL/s at 0.91 m (3 ft.) vertical lift in 0.95-cm (3/8-in.) ID intake line
Liquid Sensor	Ultrasonic
Intake Purge	Air purged automatically before and after each sample Duration automatically compensates for varying intake line lengths
Intake Rinse	Intake line optionally rinsed with source liquid prior to each sample; from 1 to 3 rinses
Intake Retries or Fault	Sample collection cycle optionally repeated from 1 to 3 times if sample not obtained on initial attempt
Intake Tubing	9.5 mm (3/8 in.) ID vinyl Teflon® lined polyethylene
Intake Strainers	Choice of Teflon and 316 stainless steel construction or all 316 stainless steel in standard size, high velocity, or low profile for shallow depth applications
Temperature Range	
General use	0 to 50°C (32 to 122°F)
Storage	-30 to 60°C (-22 to 140°F)
Pump/Controller Housing	High impact injection-molded, ABS/PC plastic Submersible, watertight, dust-tight, corrosion- and ice-resistant NEMA 4X, 6, IP67
Sampler Housing	Impact resistant ABS plastic, water-proof, 3-section construction - double-walled base with 2.54 cm (1 in.) insulation - direct ice contact with bottles
Sample container	
Standard Base	Dimension: 50.5 cm x 69.4 cm (Ø x H) PE: 24 x 1 l, 8 x 2.3 l, 4 x 3.8 l, 2 x 3.8 l, 1 x 21 l, 1 x 15 l, 1 x 20 l, 1 x 10 l Glass: 24 x 350 ml, 8 x 1.9 l, 4 x 3.8 l, 2 x 3.8 l, 1 x 9.5 l
Compact Base	Dimension: 44.1 cm x 61 cm (Ø x H) PE: 24 x 575 ml, 1 x 11.4 l, Glass: 8 x 950 ml, 1 x 9.5 l
Composite Base	Dimension: 50.3 cm x 79.8 cm (Ø x H) PE: 1 x 22.7 l
Certification & Approvals	
Controller:	CE
Optional □AC Power Supply:	UL/CSA/CE
Optional Battery:	CE

to be continued

SAMPLER, portable

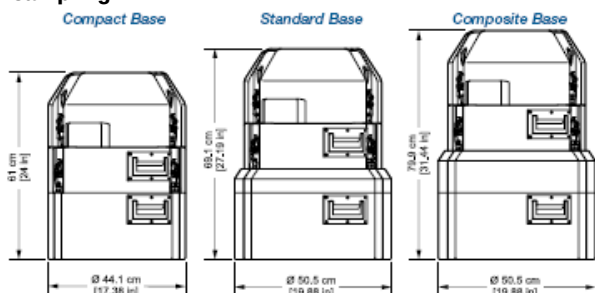
SIGMA SD900 (LIT2591)

Technical Data	
Subject to change without notice	
Sigma SD900 Portable Sampler continued	
Power requirement	12 Vdc supplied by optional A/C power supply or battery Average current with pump running: 2 Vdc
Internal Battery	Lithium ion battery (maintains real time clock for five years minimum)
Graphics Display	128 x 64 dot matrix backlit LCD, visible in direct sunlight
User Interface	Self prompting/menu driven program 13-key embossed keypad including power key, 4 function keys, 8 navigation keys, and LED indication
Data Logging	Store up to 255 entries in Sample History log including sample time stamp, bottle number, and status of sample (success, bottle full, rinse error, user abort, distributor error, pump fault, purge fail, sample timeout, power fail and low main battery)
Event Log	Includes power on, power fail, firmware updated, pump fault, distributor arm error, low memory battery, low main battery, user on, user off, program started, program resumed, program halted, program completed, grab sample, pump tube change required
Sampling Pacing Modes	Composite and discrete multiple bottle time, multiple bottle flow, single bottle time, single bottle flow, flow with time over ride, variable interval, user start/stop, and external setpoint
Program Lock	Access code protection prevents tampering of program and system settings
Program Delay	Programmable sampler start time/date or programmable number of counts to expire before program can start
Sampling Features	Multiple Programs: stores up to 3 sampling programs Cascade: for two samplers in combination—the first sampler, at the completion of the program, initiates the second Program Status Display: alerts operator to low main battery, low memory battery, plugged intake, jammed distributor arm, sample collected, and purge failure
Automatic Shutdown	Multiple Bottle Mode: After complete revolution of distributor arm (unless continuous mode is selected) Composite Mode: After preset number of samples have been delivered to composite container, from 1 to 999 samples, or upon full container
Sample Volume Repeatability	± 5% of 200 mL sample volume using uncalibrated liquid detect under defined sampling conditions at 15-ft. vertical lift (16 ft. of 3/8-in. vinyl intake tube configured for single bottle using full bottle shut off at 70°F at 5000 ft. elevation)
Overload protection	Internal software-protected 6 amp fuse
Diagnostics	Tests pump, distributor, keypad, LCD, and liquid detect calibration
Enclosure	NEMA 4X, 6
Weight	Item weight in kg
Standard Base Configurations:	
	with (24) 1-L polyethylene bottles 15
	with (1) 2.5-gal. polyethylene container 14.8
Compact Base Configurations:	
	with (24) 575-mL polyethylene bottles 12.2
	with (1) 2.5-gal. polyethylene container 12.9
Composite Base Configurations:	
	with (1) 5.5-gal polyethylene container 15
	Top cover 1.29
	Center section with controller 8.71
	Distributor 0.75
	Compact base 2.47
	Standard base 3.88
	20-L (5.5-gal.) polyethylene bottle without liquid 1.77
	15-L (4-gal.) polyethylene bottle 1.45
	10-L (2.5-gal.) polyethylene bottle 1.32
	(24) 1-L polyethylene bottles with retainer 2.49
	(24) 575-mL (1.2 pint) polyethylene bottles with retainer 1.45
	(12) 950-mL (2 pint) glass bottles with retainer 4.58
Program Languages	English, French, German, Italian, Spanish, Czech, Turkish, Portuguese
Warranty	24 month



Notes: flow proportional sampling

The SD900 supports analog and digital signal c



meter with

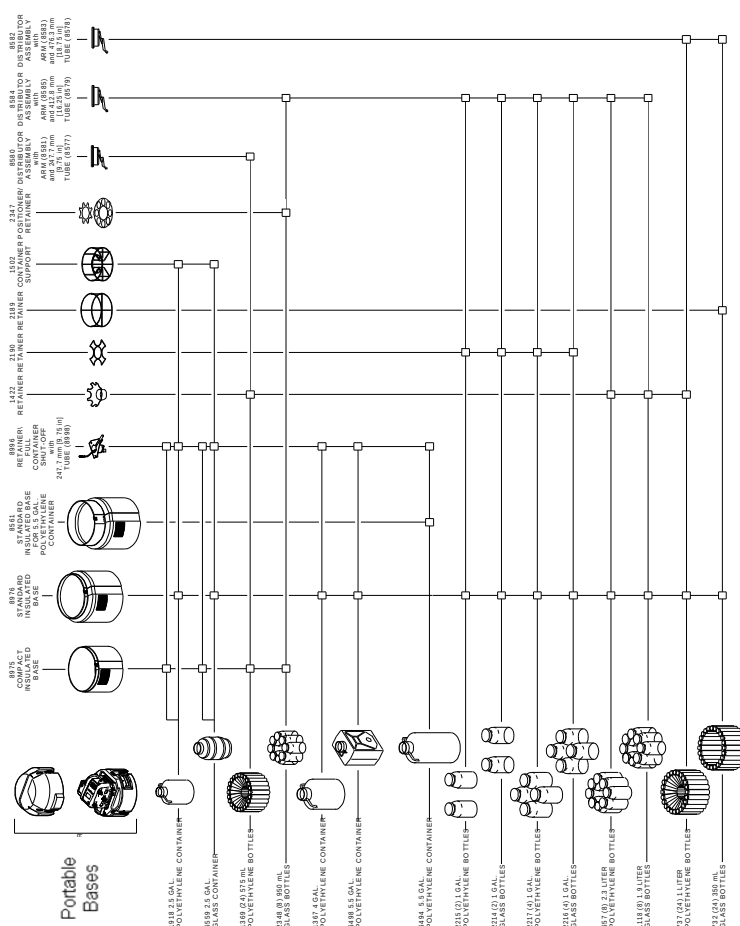
SAMPLER, portable

SIGMA SD900 - Compatibility Chart

Configurator:

Necessary part numbers to change existing bottle/base configuration

Sampler	Bottle Type (1 Gal ≈ 3,8 l)	Base type	Part Number					
			Bottle	Base	Full Bottle Shut-off	Support	Retainer	Distributor
Composite	2.5 Gal Glass	Compact	6559	8975	8996	N/A	N/A	N/A
Composite	2.5 Gal Glass	Standard	6559	8976	8996	1502	N/A	N/A
Composite	3.0 Gal PE	Compact	1918	8975	8996	N/A	N/A	N/A
Composite	3.0 Gal PE	Standard	1918	8976	8996	1502	N/A	N/A
Composite	4.0 Gal PE	Standard	1367	8976	8996	N/A	N/A	N/A
Composite	5.5 Gal PE	Standard	6498	8976	8996	N/A	N/A	N/A
Composite	6.0 Gal PE	Composite	6494	8561	8996	N/A	N/A	N/A
Multiple bottle	24 x 1 l PE	Standard	737	8976	N/A	N/A	1422	8582
Multiple bottle	24 x 350 ml Glass	Standard	732	8976	N/A	N/A	2189	8582
Multiple bottle	24 x 575 ml PE	Compact	1369	8975	N/A	N/A	1422	8580
Multiple bottle	8 x 2.3 l PE	Standard	657	8976	N/A	N/A	1422	8584
Multiple bottle	8 x 1.9 l Glass	Standard	1118	8976	N/A	N/A	1422	8584
Multiple bottle	8 x 950 ml Glass	Compact	2438	8975	N/A	N/A	2347	8584
Multiple bottle	4 x 1 gal PE	Standard	2217	8976	N/A	N/A	2190	8584
Multiple bottle	4 x 1 gal Glass	Standard	2216	8976	N/A	N/A	2190	8584
Multiple bottle	2 x 1 gal PE	Standard	2215	8976	N/A	N/A	2190	8584
Multiple bottle	2 x 1 gal Glass	Standard	2214	8976	N/A	N/A	2190	8584



SAMPLER, portable

SIGMA SD900 - Setup Configurator

Part No.

Designation

A variety of configurations are possible depending on the needed Sampler system.
Please refer to the instrument manual for further details.
Alternatively contact your HACH LANGE agency or its local representative.

For new setup's, the SD900 Configurator can help you to configure your sampler model.
Please select needed accessories afterwards.

SD900P.99.1xxxx

Portable Sampler, SIGMA

S D 9 0 0 P . 9 9 . 1 x x x x

Sampler Model	
HACH SD900 Portable sampler P incl. Controller 900SD (8970SD), Center Section (8922), Lid (8890)	
Country Code Selection ¹	
9 9	
Sampling System Option	
Peristaltic pump system 1	
Intake tube length option	
PVC tubing, 9.5mm ID X 15.9 mm O.D. (3/8" x 5/8") in respective length plus Teflon/stainless steel strainer Counterweight (P/N 926)	
w/o suction tube 0	
7.5 metre (P/N 920) 1	
30 metre (P/N 923) 2	
Bottle/Container Option	
Plastic, 1 x 10 litre composite in Compact base 1 (Includes Compact Base 8975, Full Bottle Shut Off 8996, 1 x 11L PE bottle 1918)	
Plastic, 1 x 15 litre composite in Standard base 2 (Includes Standard Base 8976, Full Bottle Shut Off 8996, 1 x 4.0 gal PE bottle 1367)	
Plastic, 1 x 20 litre composite in Standard base 3 (Includes Standard Base 8976, Full Bottle Shut Off 8996, 1 x 5.5 gal poly bottle 6498)	
Plastic, 2 x 3,8L in Standard base 4 (Includes Standard Base 8976, Distributor Arm 8584, Retainer 2190, 2 x 3.8L PE bottles 2215)	
Plastic, 4 x 3,8 L in Standard base B (Includes Standard Base 8976, Distributor Arm 8584, Retainer 2190, 4 x 3.8L PE bottles 2217)	
Plastic, 8 x 2,3 litre in multi bottle D (Includes 8 X 2,3L PE bottles 657, Bottle Tray 1511, Retainer 1322, Distributor Assembly 8842)	
Plastic, 24 x 1 litre in Standard base 5 (Includes Standard Base 8976, Distributor Arm 8582, Retainer 1422, 24 x 1L PE bottles 737)	
Plastic, 24 x 575mL in Compact base 6 (Includes Compact Base 8975, Distributor Arm 8580, Retainer 1422, 24 - 575mL poly bottles 1369)	
Glas, 24 x 0.35 litre multi bottle A (Includes 24X0,35L Glass bottles 732, Bottle Tray 1511, Retainer 1056, Distributor Assembly 8562)	
Plastic, 1 X 25 L in Active Cooling Base Y (Includes 1X 25L PE Bottle BM 60046, Hold down latch 1593, Strain relief 8756400)	
Glas, 1 X 20 L in Active Cooling Base X (Includes 1X20 L Glass Bottle BM30045, Hold down latch 1593, Strain relief 8756400)	
Bottle Base Option	
Passive Cooled Base, ABS/PC Plastic (NEMA 4X, 6, IP 67) 1	
Active Cooling Base including 230V AC (EU plug) & 12V dc connection 2	
Active Cooling Base including 230V AC (GB plug) & 12V dc connection 3	
Power / Plug type Option	
without Power Supply 0	
Battery powered, w/o charger modul 1 (incl. 1 x Battery, Gel Electrolyte, 12 VDC, 6 Ah - Lead Acid, with 3 pin connector P/N 8754400)	
230VAC, EU Plug (incl. P/N 8754500EU) 2	
230VAC, UK Plug (incl. P/N 8754500UK) 3	

SAMPLER, portable

SIGMA SD900 - Components I

Section 1.0 Replacement Sampler Controller model (coming with english manual)

8970SD	SIGMA SD900 Portable Sampler Controller SD900 Portable controller only
8759400	SD900 Portable Sampler Retro Fit Kit Includes Controller 8970SD, 3 pin adaptor cable 8739400, adaptor plate and hardware for mounting to old SIGMA 900/900 max bases
8925SD	SD900 Portable Sampler with Center Section and Lid Includes Controller 8970SD, Center Section 8922, and Lid 8890

Section 1.1 Bottle Option

Composite Bottles and Accessories

6559	2.5 Gallon (9,46 l) Glass Container, with Teflon Lined Cap ^{1,2,5}
1918	3.0 Gallon (11,36 l) PE Container with Cap ^{1,2,5}
1367	4.0 Gallon (15,14 l) PE Container with Cap ²
6498	5.5 Gallon (20,82 l) PE Container with Cap ²
6494	6.0 Gallon (22,71 l) PE Container with Cap ⁴
1502	Required accessories for 2.5 and 3 Gallon Containers Container Support
8996	Retainer/Full Container Shut-off
👉 Notes:	¹ = suitable for compact base ² = suitable for standard base ⁴ = suitable for composite base ⁵ = requires Conatiner Support 1502 & Retainer/Full Container Shut-off (8996)

Multiple Bottle Sets and Accessories

PE bottles

737	24 x 1 l PE bottles with Caps
1369	24 x 575 ml PE bottles with Caps
657	8 x 2.3 l PE bottles with Caps
2217	4 x 1 Gallon PE bottles with Caps
2215	2 x 1 Gallon PE bottles with Caps

Glass bottles

732	24 x 350 ml Glass bottles with Teflon Lined Caps
2348	8 x 950 ml Glass bottles with Teflon Lined Caps
1118	8 x 1.9 l Glass bottles with Teflon Lined Caps
2216	4 x 1 Gallon Glass bottle with Teflon Lined Caps
2214	2 x 1 Gallon Glass bottles with Teflon Lined Caps

Replacement bottles

Please contact HACH LANGE

Bottle Retainers (for multiple bottle sets)

2189	Retainer for 24 x 350 ml glass bottles
1422	Retainer for 8 x glass, 8 x PE, 24 x 575 ml PE and 24 x 1 l PE bottles
2347	Retainer/Positioner for 8 x 950 ml glass bottles
2190	Retainer for 1 gallon glass and 1 gallon PE bottles

Distributors for Multiple Bottle configurations

8582	Distributor with Arm for 24 bottle, standard base and 12 bottle base
8580	Distributor with Arm for 24 bottle compact base
8584	Distributor with Arm for 2, 4 and 8 bottle standard base and 8 bottle compact base
8583	Distributor <u>Arm only</u> , for 24 bottle standard and 12 bottle bases
8581	Distributor <u>Arm only</u> , for 24 bottle compact base
8585	Distributor <u>Arm only</u> , for 2, 4 and 8 bottle standard base

SAMPLER, portable

SIGMA SD900 - Components Part II

Part No.	Designation
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Section 1.2	Insulated Base/Bottle Tray
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8975	Compact Insulated Base
8976	Standard Insulated Base ¹
8561	Composite Insulated Base for 5 Gallon Glass and 6 Gallon PE Containers

¹ Container Support P/N 1502 is required if using 2.5 or 3 gallon container in standard base.

Section 1.3	Power Supply / Battery Chargers (Not compatible with former Sigma 900 series)
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Choose between AC power and Battery Power. Battery Power requires a battery charger.

AC Power Converters

8754500EU	3 Pin, Power Supply, 230VAC, with EU Plug
8754500IL	3 Pin, Power Supply, 230VAC, with Italy Plug
8754500UK	3 Pin, Power Supply, 230VAC, with UK Plug

8739400	SD900 Power adaptor cable, 2 to 3 pin
8762100	External battery cable, 10ft.; for use external 12VDC battery

Batteries

8754400	Battery, Gel Electrolyte, 12 VDC, 6 Ah - Lead Acid, with 3 pin connector
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Battery Charger

8753500EU	3 Pin, EU/EEC Universal Smart Charger for use with Lead Acid Battery 8754400
8753500UK	3 Pin, UK Universal Smart Charger for use with Lead Acid Battery 8754400

Section 1.4	Intake Tubing and Strainers
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Select tubing and strainer based on your application needs!

Intaking tubing, made of Vinyl

920	25 ft. Intake Tubing, 3/8" ID, made of Vinyl
923	100 ft. Intake Tubing, 3/8" ID, made of Vinyl
924	500 ft. Intake Tubing, 3/8" ID, made of Vinyl
6633500	25' Black Vinyl Intake Tubing; 10mm ID x 15mm OD
66272	Black Vinyl Intake Tubing; 10mm ID x 15mm OD; per feet

Teflon Lined (Requires Connection Kit P/N 2186)

921	10' Teflon Lined Polyethylene Tubing, 3/8" ID
922	25' Teflon Lined Polyethylene Tubing, 3/8" ID
925	100' Teflon Lined Polyethylene Tubing, 3/8" ID
2186	Connector Kit, for Teflon lined PE tubing

Strainer, made of Teflon/Stainless Steel

926	Strainer, Teflon/SS316, 5.5" long x 0.875" OD
903	Strainer, Teflon/SS316, 11.0" long x 0.875" OD



Strainer, made of Stainless Steel

2070	Strainer, all 316 Stainless Steel
2071	Strainer, for shallow depth applications, all 316 Stainless Steel
4652	Strainer, for high velocity and shallow depth applications, 3.9" long x 0.406" outer Ø

Section 1.5	Pump Tubing
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8753800	Pump tube insert, Portable/Refrigerated (Pre cut length; ready to use)	
4600-15	Pump Tubing, 15 ft - For 900 and SD900 Series peristaltic samplers	order per 15 ft, each
4600-50	Pump Tubing, 50 ft - For 900 and SD900 Series peristaltic samplers	order per 50 ft, each

SAMPLER, portable

SIGMA SD900 - Components Part III

Part No.	Designation
<u>Support Software and Accessories</u>	
8757500	Kit DB9/7 pin cable, 3 m, + Sample View software (CD-Rom), connects Sampler to PC
8758200	DB9/7pin cable only, 3 m, connects Sampler to PC, for use with Sample View software "Sample View" Software Package (requires RS232 serial cable)
6249200	USB-to-Serial Adaptor
8755900	SampleView™ CD only
Section 1.7	Cable and Interfaces
	<u>Half Cable to connect a Sigma sampler/flow meter to a non-Sigma sampler/flow meter</u>
8756800	7 Pin, Multi Purpose Half Cable, 25 ft. - 7 Pin Aux connector one end, open leads other end. Connects a Sigma SD900 sampler/flow meter to a non-Sigma sampler/flow meter.
8756900	7 Pin, Multi Purpose Half Cable, 10 ft. - 7 Pin Aux connector one end, open leads other end. Connects a Sigma SD900 sampler/flow meter to a non-Sigma sampler/flow meter.
	<u>Full Cable to connect a Sigma sampler to a Sigma flow meter</u>
8757000	7 Pin, Multi Purpose Full Cable, 25 ft. - 7 Pin to 6 pin Aux connector. Connects a Sigma SD900 sampler to a Sigma 920/930/940/950 flow meter.
8757100	7 Pin, Multi Purpose Full Cable, 10 ft. - 7 Pin to 6 pin Aux connector. Connects a Sigma SD900 sampler to a Sigma 920/930/940/950 flow meter.
	¹ Note: If cable longer than 10 ft. is needed, please order in addition SE813 cable.
8760600	Universal junction box for 4-20mA input For Flow proportional based sampling driven by analogue flow meter signal
8757300	Cascade Sampling for 25-ft. cable ² Leading sampler wakes up second sampler upon program completion
87390SD	SDI-12 Receptacle Factory-Installed Option
8762400	Cable to connect SD900 Sampler to Hydrolab™ sonde using SDI-12, 50 ft Requires SDI-12 receptacle; use with SD900 and Hydrolab™ DS5 or MS5 Sonde
OTHER PORTABLE SAMPLER ACCESSORIES	
1355	Sampler Suspension Harness For use with the manhole support bracket
9542	Manhole Support Bracket/Spanner 18" to 28" Bracket to suspend the sampler. Use with the suspension harness.
5713000	Manhole Support Bracket 18" to 27" Bracket to suspend the sampler. Use with the suspension harness.
1354	Sampler Lock Assembly Cable with pad lock
8798200	Wallmount kit for SD900 controller Includes bracket and mounting hardware
Section 2.0	Accessories/Replacements
	<u>SD 900 Controller Desiccant Replacement Parts</u>
8755600	Desiccant Cartridge -Desiccant Tube Assy with Grease
8755500	Desiccant, Bulk, SD900, 1.5 pounds, bulk desiccant
1334	Handle assembly Replacement handles for portable bases
8781100	SD900 KIT, ADAPTER PLATE & HARDWARE, PORT. to mount SD900 controller on existing portable base
	<u>Manuals</u>
DOC026.53.00742	SD900 Portable Sampler Controller User Manual GB
DOC026.77.00742	SD900 Portable Sampler Controller User Manual FRA
DOC026.57.00742	SD900 Portable Sampler Controller User Manual ITA
DOC026.72.00742	SD900 Portable Sampler Controller User Manual GER
DOC026.85.00742	SD900 Portable Sampler Controller User Manual CZ
DOC026.90.00742	SD900 Portable Sampler Controller User Manual POR
DOC026.92.00742	SD900 Portable Sampler Controller User Manual ES
DOC026.94.00742	SD900 Portable Sampler Controller User Manual TRK

SAMPLER, refrigerated

SIGMA SD900 (HACH LIT2590)



Durable, Heavy Duty Construction tolerating Harsh Environments

The molded ABS/PC exterior of the SD900 controller enclosure is tough. The controller is tightly sealed for maximum protection from the elements and corrosive environments.

The NEMA 4X, 6, IP67 housing isolates all electro-mechanical components. The keypad, switches, and display are covered by a waterproof, corrosion-resistant polyester membrane. Sealed connectors and pump shaft further guarantee environmental integrity.

Collected samples are protected and preserved inside the refrigerated base — choose from either vinyl or stainless steel.

Technical Data	
Subject to change without notice	
Sigma SD900 Refrigerated	
Dimensions	112 cm x 61 cm x 61 cm (44" x 24" x 24") (W x H x D)
Weight:	63.3 kg (140 lb)
Refrigerator power requirements	230 VAC, 50 Hz, 1.7 A (9 locked rotor amps)
Controller power requirements	230 VAC, 50 Hz, 42 W
Refrigeration system	450 BTU/hr., 120 CFM condenser fan, 3 sided wrap-around plate type evaporator, rigid foam insulation, air sensing thermostat capable of maintaining sample liquid at 4°C (39 °F) in ambient temperatures up to 50°C (120 °F); accurate to 0.8°C (±1.5 °F); magnetic door seal; standard refrigerator cabinet is 22 gauge steel with beige vinyl laminate over-coating (SS304 cabinet optional); refrigeration components and copper plumbing are corrosion protected with phenolic resin conformal coating.
Operating environment	Operating temperature 0–50 °C (32–122 °F). Humidity 0–95% RH installation and pollution degree (II, 2). Altitude 2000 m maximum.
Recovery time	Sampler temperature recovers to 4°C within 5 minutes after the door has been held open for one minute in 24°C (75 °F) ambient environment while in an active cooling cycle.
Cool down time	Air temperature drops from 24°C (75 °F) to 4°C (39 °F) within 20 minutes (typical).
Certifications & Approvals	
Europe	CE - EN / IEC 61010-1 and EN / IEC 60335-2-89 (safety), EN / IEC 61326 (EMC) & CISPR 11 (RF emissions)
North America	cETLus listed -Conforms to UL 61010-1, Certified to CSA C22.2 No. 61010-1 and UL 471 and CSA C22.2 No. 120.
Sample bottle capacity	
Single bottle (Composite)	1 x 21 L (5.5 gal) Polyethylene or 1 x 10 L (2.5 gal) Polyethylene or 1 x 10 L (2.5 gal) Glass bottle
Multiple bottle	2 x 10 L (2.5 gal) polyethylene and/or 2 x 10 L (2.5 gal) glass bottles 4 x 10 L (2.5 gal) Polyethylene bottles and/or 4 x 10 L (2.5 gal) Glass bottles 8 x 2.3 L (0.6 gal) Polyethylene and/or 8 x 1.9 L (0.5 gal) Glass bottles 24 x 1 L Polyethylene and/or 24 x 350 mL Glass bottles
Intake accessories	
Strainers	SS316 in standard size, high velocity or low profile for shallow depth applications and Teflon®/316 stainless steel in standard size
Sample intake tubing	9.5 mm (3/8") I.D. Vinyl or Teflon®-lined polyethylene

to be continued

SAMPLER, refrigerated

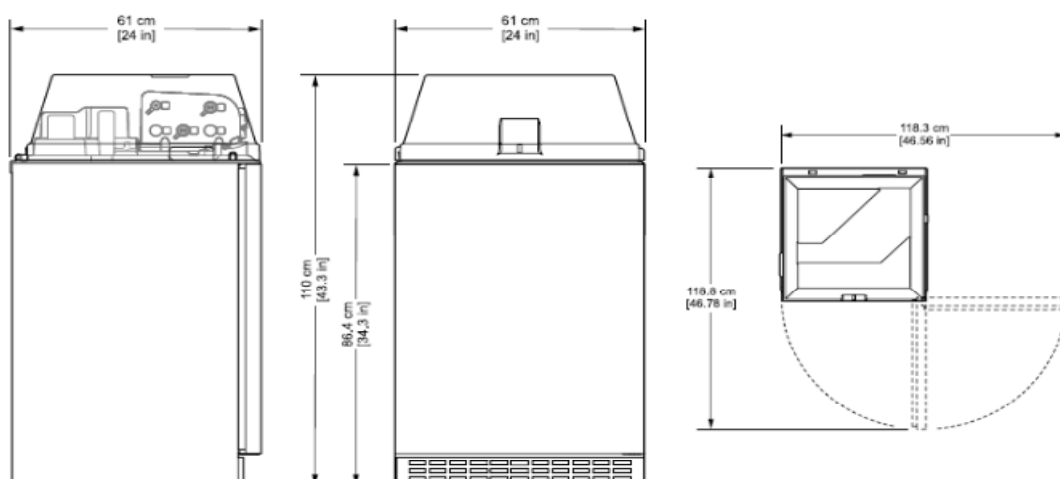
SIGMA SD900 (HACH LIT2590)

Technical Data continued	
Subject to change without notice	
Sigma SD900 Refrigerator	
Enclosure	High-Impact, injection-molded PC/ABS blend; submersible, watertight, dust-tight, □corrosion, and ice resistant; NEMA 4X, 6
Power requirements	
SD900 Refrigerated	15 VDC provided by 8754500 power supply
AWRS sampler	15 VDC provided by integral power supply
Overload protection	7 amp DC line fuse for pump
Pump	Peristaltic high speed, with spring-mounted rollers
Pump rollers	Nylatron, impact/corrosion resistant
Pump enclosure	Track is injection-molded polyphenylene sulfide. Cover is polycarbonate, high impact resistant. Pump enclosure rated IP37.
Pump tubing	9.5 mm I.D. x 15.9 O.D. mm (3/8 in. x 5/8 in.) silicone
Pump tubing life	20,000 sample cycles under the following conditions: • 1 L sample volume • 1 rinse • 6 minute pacing interval • 16 ft of 3/8 in. intake tube • 15 ft of vertical lift • 70 °F sample temperature
Tubing replacement time	< 1 minute using pre-cut pump tube
Maximum vertical lift to draw sample	Minimum of 28 ft, using 29 ft of 3/8-in. vinyl intake tube at sea level at 20–25 °C (68–77 °F)
Pump flow rate	1.25 gpm (4.8 L/min) at 3 ft (1 m) vertical lift using 3/8-in. intake tube
Typical sample volume repeatability	±5% of 200 mL sample volume using uncalibrated liquid detect with 15 feet vertical lift, 16 feet of 3/8-in. vinyl intake tube configured for a single bottle using full bottle shut-off at room temperature and 5000 ft elevation
Typical sample volume accuracy	±10% of 200 mL sample volume using uncalibrated liquid detect with 15 feet vertical lift, 16 feet of 3/8-in. vinyl intake tube configured for a single bottle using full bottle shut-off at room temperature and 5000 ft elevation
Typical transfer velocity	2.9 ft/s (0.9 m/s) with 15 ft (4.6 m) vertical lift, 16 ft of 3/8-in. vinyl intake tubing, 70 °F (21 °C) and 5000 ft elevation
Liquid sensor	Ultrasonic
Liquid sensor body	Ultem® NSF ANSI standard 51 approved, USP Class VI compliant
Internal battery	Lithium
Internal clock	Indicates real time and date
Storage temperature	–30 to 60°C (–22 to 140 °F)
Operating temperature	0 to 50 °C (32 to 122 °F)
Storage/operating humidity	100% condensing
Graphics display	Graphic dot matrix, 128x64 pixel with LED backlight. Self prompting, menu-driven program.
Status display	Indicates the number of samples collected, the number of missed samples, inhibit mode, bottle position, time or counts to next sample and battery voltage. In addition, when an SDI-12 sonde is detected, the user has the option to display the current measurement values.
Sample history	Stores up to 510 entries for sample time stamp, bottle number and sample status (success, bottle full, rinse error, user abort, distributor error, pump fault, purge fail, sample timeout, power fail and low main battery)
Automatic shutdown	
Multiple bottle mode	after complete revolution of distributor arm (unless Continuous Mode is selected)
Composite mode	after preset number of samples have been delivered to composite container, from 1 to 999 samples, or upon full container.
User interface	Embossed keypad with one power key, four function keys, and eight navigation keys; LED indicator
Event log	Ability to store up to 510 entries in Sample History logging. Records Power On, Power Fail, Firmware Updated, Pump Fault, Distributor Arm Error, Low Memory Battery, Low Main Battery, User On, User Off, Program Started, Program Resumed, Program Halted, Program Completed, Grab Sample, Tube Change Required, SDI-12 communication errors, Setpoint High On/Off, and Setpoint Low On/Off.
Connections	Power, auxiliary, serial communications, distributor, SDI-12, thermal (on AWRS)
Fittings	Barbed fittings for 3/8-in. I.D. flexible tubing
Wetted materials	Typical materials in contact with sample: stainless steel, PE, Teflon, Ultem, Silicon or approved materials that can be tested for leaching properties
Weight	4.2 kg (9 lb, 5 oz)
Dimensions	10-3/8 in. (26.4 cm) L x 11-1/2 in. (29.2 cm) W x 6-3/4 in. (17.1 cm) H

SAMPLER, refrigerated

SIGMA SD900 (HACH LIT2590)

Technical Data continued	
Subject to change without notice	
Programming features	
Password protection	6-character; protect changes to program and system settings
Multiple programs	Stores up to three sampling programs
Cascade programs	Two samplers used in combination. The second sampler is initiated after the first sampler completes the program.
Synchronized sampling	Ability to simultaneously take two samples with input from a single flow meter
Sample volume	Programmed in 10-mL increments from 100 to 10,000 mL
Air purge	Air purged automatically before and after each sample; duration automatically compensates for varying intake line lengths.
Intake rinse option	Option to rinse intake line with source liquid prior to each sample, 1 to 3 rinses.
Sample distribution	Composite, samples per bottle or bottles per sample.
Setpoint sampling	Ability to start and/or stop a sample program based on an external trigger or user-defined high/low setpoints based on SDI-12 measurements.
User start/stop times	Up to 12 user-defined start/stop times/dates, with option to restart at position 1.
Storm water program	Ability to run time-based, first flush program in parallel with main sample program.
Current status	Display parameters relevant to main and/or storm water programs and SDI-12 measurements.
Units of measure	Volume: gallons or mL; length: feet (ft) or cm
Sample retries	Option to repeat sample collection cycle from 1 to 3 times if sample not obtained on initial attempt.
Manual grab sample	Ability to manually deliver a grab sample to a specific bottle location
Run modes	Continuous or non-continuous with user-entered number of samples.
Time pacing	Uniform or variable time intervals.
Flow pacing	Uniform or variable flow intervals.
Auxiliary connector	Power to Sigma 9XX, SD900, flow pulse input, external inhibit, special output, bottle number output and program complete output.
Program delay	Two formats: 1) 1–9,999 flow pulses (in one unit increments); 2) Programmable start time/date
Timed Bottle Sets	Enables a single sampler to function like multiple samplers.
Communication	
Firmware updates	Ability to perform field upgrades using Sample View software
Serial interface	RS232 compatible; allows on-site collection of stored data including event log and sample history. Ability to configure remotely. Supports Modbus for SCADA connectivity.
SDI-12	Plug & Play interface to Hydrolab DS5 and MS5 sondes to provide measurement data in setpoint sampling applications. Note: Hydrolab plug and play capability requires firmware v5.43 or greater to be installed in the sonde.



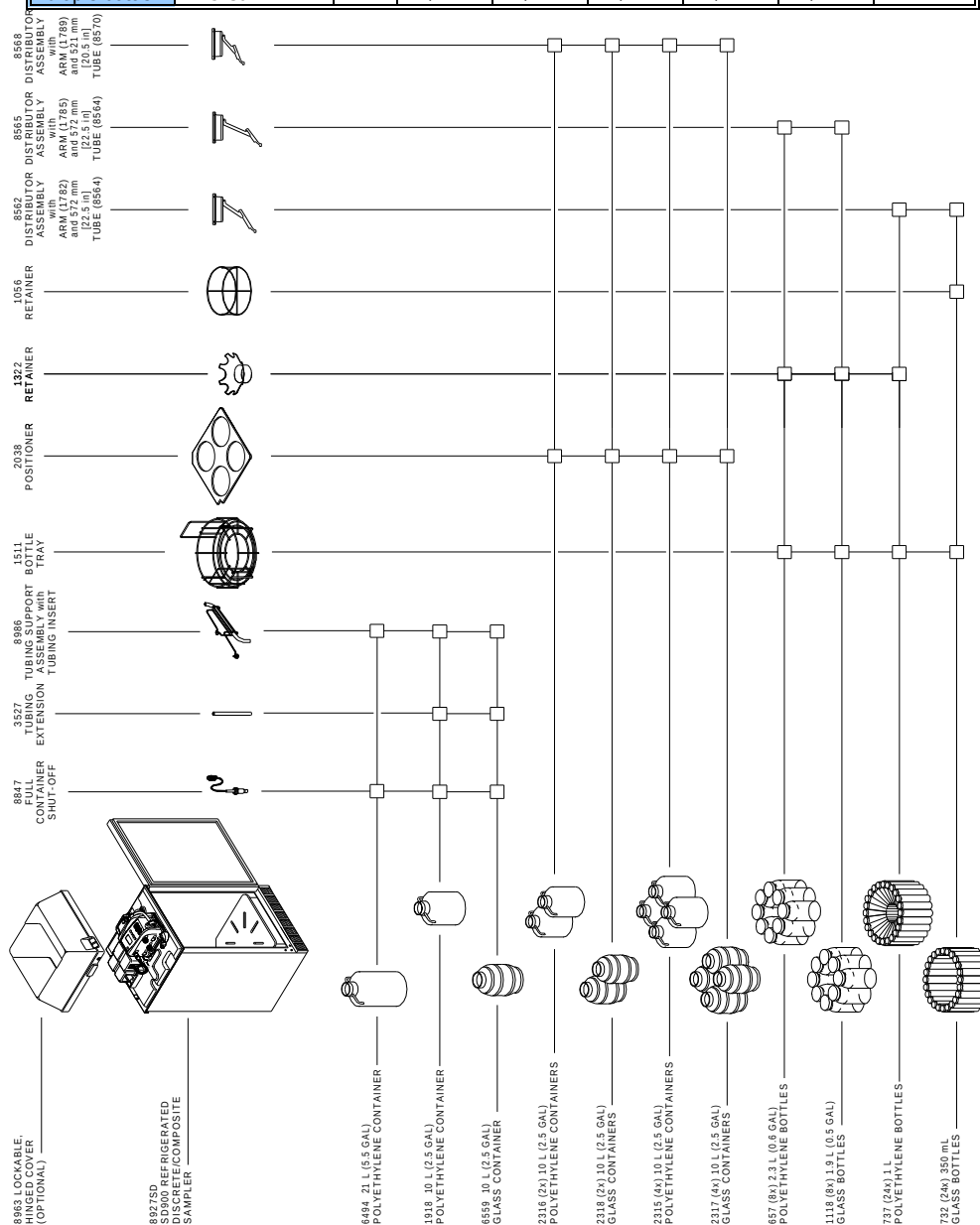
SAMPLER, refrigerated

SIGMA SD900 (HACH LIT2590)

Configurator:

Necessary part numbers to change existing bottle/base configuration

Sampler	Bottle Type (1 Gal ≈ 3,8 l)	Base type	Part Number					
			Bottle	Base	Full Bottle Shut-off	Support	Retainer	Distributor
Composite	2.5 Gal Glass	6559	8847	8838	3527	N/A	N/A	N/A
Composite	2,5 Gal PE	1918	8847	8838	3527	N/A	N/A	N/A
Composite	6.0 Gal PE	6494	8847	8838	N/A	N/A	N/A	N/A
Multiple bottle	24 x 1 l PE	737	N/A	N/A	N/A	1511	1322	8841
Multiple bottle	24 x350 ml Glass	732	N/A	N/A	N/A	1511	1056	8841
Multiple bottle	8 x 2.3 l PE	657	N/A	N/A	N/A	1511	1322	8842
Multiple bottle	8 x 1.9 l Glass	1118	N/A	N/A	N/A	1511	1322	8842
Multiple bottle	4 x 2,5 Gal PE	2315	N/A	N/A	N/A	N/A	N/A	8843
Multiple bottle	4 x 2.5 Gal Glass	2317	N/A	N/A	N/A	N/A	N/A	8843
Multiple bottle	2 x 2.5 Gal Glass	2318	N/A	N/A	N/A	N/A	N/A	8843
Multiple bottle	2 x 3 Gal PE	2316	N/A	N/A	N/A	N/A	N/A	8843



SIGMA SD900 (HACH LIT2590)

Part No.

Designation

A variety of configurations are possible depending on the needed Sampler system. Please refer to the instrument manual for further details. Alternatively contact your HACH LANGE agency or its local representative.

For new setup's, the SD900 Configurator can help you to configure your sampler model. Please select needed accessories afterwards.

SD900R.99.1xxx

Stationary Sampler, HACH SIGMA

S	D	9	0	0	R	.	9	9	.	1	x	x	x	x
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<u>Sampler Model</u>									
HACH SD900 refrigerated stationary sampler includes Controller 900SD									
<u>Country Code Selection</u>¹									
<u>Sampling System Option</u>									
Peristaltic pump system									
<u>Intake tube length option</u>									
PVC tubing, 9.5mm ID X 15.9 mm O.D. (3/8" x 5/8") in respective length + Teflon/stainless steel strainer Counterweight (P/N 926)									
w/o suction tube									
7.5 metre (P/N 920)									
30 metre (P/N 923)									
<u>Bottle/Container Option</u>									
Plastic, 1 x 10 litre composite bottle (Includes 1X10L bottle 1918, Full bottle shutoff 8847, Tubing extension 3527, Tubing Support 8986)									
Plastic, 1 x 20 litre composite in Standard base (Includes 1X20L bottle 6494, Tubing Support 8986)									
Plastic, 24 x 1 litre in multi bottle (Includes 24 X1L Polyethylene bottles 737, Bottle Tray 1511, Retainer 1322 and Distributor Assembly 8562)									
Plastic, 4 x 10 litre multi bottle (Includes 4 X 10L PE bottles 2315, Positioner 2038 and Distributor Assembly 8568)									
Glas, 1 x 10 litre composite bottle (Includes 1X10L bottle 6559, Full bottle shutoff 8847, Tubing extension 3527, Tubing Support 8986)									
Glas, 4 x 10 litre multi bottle (Includes 4 X 10L Glass bottles 2317, Positioner 2038 and Distributor Assembly 8568)									
Glas, 24 x 0.35 litre multi bottle (Includes 24X0.35L Glass bottles 732, Bottle Tray 1511, Retainer 1056, Distributor Assembly 8562)									
<u>Housing Option</u>									
ABS/PC Plastic (NEMA 4X, 6, IP 67)									
ABS/PC Plastic with lockable, hinged Cover									
<u>Power / Plug type Option</u>									
230VAC, EU Plug									

SAMPLER, refrigerated

SIGMA SD900 - Components Part I

Part No.	Designation
Section 1.0	
Replacement Sampler Controller model (coming with english manual)	
8950SD	SIGMA SD900 Indoor refrigerated Sampler, 230VAC, EU plug SD900 Controller on Vinyl cabinet, EU Power Supply
98950SD	SIGMA SD900 Indoor refrigerated Sampler, 230VAC, EU plug SD900 Controller on stainless steel cabinet, EU Power Supply
8971SD	SD900 Refrigerated Controller only
Section 1.1	
Bottle Type	
<u>Composite Bottles and Accessories</u>	
6559	2.5 Gallon (9,46 l) Glass Container, with Teflon Lined Cap
1918	3.0 Gallon (11,36 l) PE Container with Cap
6494	6.0 Gallon (22,71 l) PE Container with Cap
Required accessories for 2.5 and 3 Gallon Containers	
3527	Extension Tube
8838	Composite Tube Support with Tube
8847	Full Container Shutoff, for all containers
<u>Multiple Bottle Sets and Accessories</u>	
<u>PE bottles</u>	
737	24 x 1 l PE bottles with Caps ¹
657	8 x 2.3 l PE bottles with Caps ¹
2315	4 x 3 Gallon PE bottles with Caps ²
2316	2 x 3 Gallon PE bottles with Caps ²
<u>Glass bottles</u>	
732	24 x 350 ml Glass bottles with Teflon Lined Caps ¹
1118	8 x 1.9 l Glass bottles with Teflon Lined Caps ¹
2317	4 x 2.5 Gallon Glass bottle with Teflon Lined Caps ²
2318	2 x 2.5 Gallon Glass bottles with Teflon Lined Caps ²
¹ Also requires 1511 - Bottle Tray, 1322 - Retainer and 8841 - Distributor	
² Also requires 8843 Distributor	
<u>Replacement bottles</u>	
929	1 l PE bottles without caps - Case of 96
931	Caps, for 1 l PE bottles - Case of 96
930	350 ml Glass bottles without caps - Case of 96
932	Caps, Teflon Lined, for 350 ml glass bottles - Case of 96
Please contact HACH LANGE	
Bottle Retainers (for multiple bottle sets)	
1511	Bottle Tray (required for 8 and 24 bottle sampling)
1322	Retainer (required for 24 x 1 l PE bottle and 8 bottle sampling)
1056	Retainer (required for 350 ml glass bottles)
2038	Retainer (required for 2 x and 4 x bottle sampling)
Distributors for Multiple Bottle configurations	
8562	Distributor with Arm (for 24 bottle sampling)
8565	Distributor with Arm (for 8 bottle sampling)
8568	Distributor with Arm (for 2 and 4 bottle sampling)
8563	Distributor Arm only (with tube), for 24 bottle sampling
8566	Distributor Arm only (with tube), for 8 bottle sampling
8569	Distributor Arm only (with tube), for 2 and 4 bottle sampling

SAMPLER, refrigerated

SIGMA SD900 - Components Part II

Part No.	Designation
Section 1.2 Intake Tubing and Strainers	
Select tubing and strainer based on your application needs!	
<u>Intaking tubing, made of Vinyl</u>	
920	25 ft. Intake Tubing, 3/8" ID, made of Vinyl
923	100 ft. Intake Tubing, 3/8" ID, made of Vinyl
924	500 ft. Intake Tubing, 3/8" ID, made of Vinyl
6633500	25' Black Vinyl Intake Tubing; 10mm ID x 15mm OD
66272	Black Vinyl Intake Tubing; 10mm ID x 15mm OD; per feet
<u>Teflon Lined</u> (Requires Connection Kit P/N 2186)	
921	10' Teflon Lined Polyethylene Tubing, 3/8" ID
922	25' Teflon Lined Polyethylene Tubing, 3/8" ID
925	100' Teflon Lined Polyethylene Tubing, 3/8" ID
2186	Connector Kit, for Teflon lined PE tubing
<u>Strainer, made of Teflon/Stainless Steel</u>	
926	Strainer, Teflon/SS316, 5.5" long x 0.875" OD
903	Strainer, Teflon/SS316, 11.0" long x 0.875" OD
<u>Strainer, made of Stainless Steel</u>	
2070	Strainer, all 316 Stainless Steel
2071	Strainer, for shallow depth applications, all 316 Stainless Steel
4652	Strainer, for high velocity and shallow depth applications, 3.9" long x 0.406" outer Ø
Section 1.3 Pump Tubing	
8753800	SD900 Refrigerated Pump Tube Insert
4600-15	SIGMA 900 Standard and 900 MAX Pump Tubing, 15 ft. length
4600-50	SIGMA 900 Standard and 900 MAX Pump Tubing, 50 ft. length
Section 1.4 Distributor tubing	
3866-15	Distributor Tubing, 15 ft. length
3866-50	Distributor Tubing, 50 ft. length
Section 1.5	
<u>AC Power Backup</u>	
5698200	AC Power Back-Up, Battery Included



SAMPLER, refrigerated

SIGMA SD900 - Components Part III

Part No.	Designation
<u>Support Software and Accessories</u>	
8757500	Kit DB9/7 pin cable, 3 m, + Sample View software (CD-Rom), connects Sampler to PC
8758200	DB9/7pin cable only, 3 m, connects Sampler to PC, for use with Sample View software "Sample View" Software Package (requires RS232 serial cable)
6249200	USB-to-Serial Adaptor
8755900	SampleView™ CD only
Section 1.7	<u>Cable and Interfaces</u>
	<u>Half Cable to connect a Sigma sampler/flow meter to a non-Sigma sampler/flow meter</u>
8756800	7 Pin, Multi Purpose Half Cable, 25 ft. - 7 Pin Aux connector one end, open leads other end. Connects a Sigma SD900 sampler/flow meter to a non-Sigma sampler/flow meter.
8756900	7 Pin, Multi Purpose Half Cable, 10 ft. - 7 Pin Aux connector one end, open leads other end. Connects a Sigma SD900 sampler/flow meter to a non-Sigma sampler/flow meter.
	<u>Full Cable to connect a Sigma sampler to a Sigma flow meter</u>
8757000	7 Pin, Multi Purpose Full Cable, 25 ft. - 7 Pin to 6 pin Aux connector. Connects a Sigma SD900 sampler to a Sigma 920/930/940/950 flow meter.
8757100	7 Pin, Multi Purpose Full Cable, 10 ft. - 7 Pin to 6 pin Aux connector. Connects a Sigma SD900 sampler to a Sigma 920/930/940/950 flow meter.
	¹ Note: If cable longer than 10 ft. is needed, please order in addition SE813 cable.
8760600	Universal junction box for 4-20mA input For Flow proportional based sampling driven by analogue flow meter signal
8757300	Cascade Sampling for 25-ft. cable ² Leading sampler wakes up second sampler upon program completion
87390SD	SDI-12 Receptacle Factory-Installed Option
8762400	Cable to connect SD900 Sampler to Hydrolab™ sonde using SDI-12, 50 ft Requires SDI-12 receptacle; use with SD900 and Hydrolab™ DS5 or MS5 Sonde
Section 2.0	<u>Spares</u>
8755600	Desiccant Cartridge -Desiccant Tube Assy with Grease
6262000	Pump replacement assembly
7685	Refrigerator vinyl door
2143S	Lockable Hasp
6692000	Controller Cover
98960	Refrigerator Assy without Controller, 230V, stainless steel
98959	Refrigerator Assy without Controller, 115V, stainless steel
5697700	Controller Compartment Lock
6611500	Gasket replacement kit-door
6611600	Gasket replacement kit-lid (fits for Controller lid and fridge lid)
6613100	Anchor kit (2 anchors)
	<u>Manuals</u>
DOC026.53.00799	SD900 AWRS & Refr stationary Sampler User Manual GB
DOC026.77.00799	SD900 AWRS & Refr stationary Sampler User Manual FRA
DOC026.57.00799	SD900 AWRS & Refr stationary Sampler User Manual ITA
DOC026.72.00799	SD900 AWRS & Refr stationary Sampler User Manual GER
DOC026.85.00799	SD900 AWRS & Refr stationary Sampler User Manual CZ
DOC026.90.00799	SD900 AWRS & Refr stationary Sampler User Manual POR
DOC026.92.00799	SD900 AWRS & Refr stationary Sampler User Manual ES
DOC026.94.00799	SD900 AWRS & Refr stationary Sampler User Manual TRK

SAMPLER, SD900 All Weather Refrigerated Sampler

SIGMA SD900 AWRS (HACH LIT2569)



NEW - Hach Sigma SD900 All Weather Refrigerated Sampler

Built Better from the Top Down with a Top-mounted Compressor

This sampler is designed specifically to endure humid and highly corrosive environments by placing the compressor at the top of the cabinet—away from corrosive gases, rodents, and standing water that may occur at floor level. The molded ABS/PC exterior of the SD900 controller enclosure is tough. The controller is tightly sealed for maximum protection from the elements and corrosive environments. The NEMA 4X, 6, IP67 housing isolates all electromechanical components. The keypad, switches, and display are covered by a waterproof, corrosion-resistant polyester membrane. Sealed connectors and pump shaft further guarantee environmental integrity. Collected samples are protected and preserved inside the refrigerated base.

Easy to Use

The simplified keypad with intuitive icons and scrolling menu on the Hach Sigma SD900 All Weather Refrigerated Sampler assures easy setup. Color coded power/stop buttons are easy to identify. The large, 5-line, transfective LED backlit display stays readable in bright or subdued lighting.

Technical Data	
Subject to change without	
HACH SIGMA AWRS (All Weather Refrigerated Sampler)	
Dimensions	76 cm x 130 cm x 81 cm (30" x 51" x 32") (W x H x D with H = closed lid) 76 cm x 180 cm x 81 cm (30" x 71" x 32") (W x H x D with H = open lid)
Weight:	86 kg (190 lb)
Power requirements (incl. 1/5 HP compressor)	230VAC, 50Hz, 2.7A or 4.1A with optional controller compartment heater.
Overload protection	230 VAC models: 5.0A circuit breaker
Compressor characteristics	
230 VAC models	120°C thermal overload protector, 7.6A peak start current. Top mounted compressor/condenser with fan forced air cooled condenser; 3 sided wrap-around evaporator plate; rigid foam insulation; microprocessor
Thermal system	controlled thermostat maintains sample liquid at 4 °C (±1 °C)*; frost free; compression gasket door seal; air cooled condenser is protected against corrosion with a food grade epoxy; all exposed copper tubing is insulated to avoid sweating and condensation.
Cabinet	Low density polyethylene with UV inhibitor. Cabinet enclosure rated IP24.
Operating environment	- With controller compartment heater: -40 to 50 °C (-40 to 122 °F) - With controller compartment heater and AC battery backup: -15 °C to 40 °C (5 °F to 104 °F) Humidity 0 to 95%. RH installation and pollution degree (II, 2). Altitude 2000 m maximum.
Recovery time	Sampler temperature recovers to 4°C within 5 minutes after the door has been held open for one minute in 24°C (75 °F) ambient environment while in an active cooling cycle.
Cool down time	Air temperature drops from 24°C (75 °F) to 4°C (39 °F) within 20 minutes (typical).
Certifications	
Europe	IEC: CE - EN / IEC 61010-1 and EN / IEC 60335-2-89 (safety), EN / IEC 61326 (EMC) & CISPR 11 (RF emissions)
North America	cETLus listed -Conforms to UL 61010-1, Certified to CSA C22.2 No. 61010-1 and UL 471 and CSA C22.2 No. 120.
Sample bottle capacity	
Single bottle (Composite)	1 x 21 L (5.5 gal) Polyethylene or 1 x 10 L (2.5 gal) Polyethylene or 1 x 10 L (2.5 gal) Glass bottle
Multiple bottle	2 x 10 L (2.5 gal) polyethylene and/or 2 x 10 L (2.5 gal) glass bottles 4 x 10 L (2.5 gal) Polyethylene bottles and/or 4 x 10 L (2.5 gal) Glass bottles 8 x 2.3 L (0.6 gal) Polyethylene and/or 8 x 1.9 L (0.5 gal) Glass bottles 24 x 1 L Polyethylene and/or 24 x 350 mL Glass bottles
Strainers	316 stainless steel in standard size, high velocity or low profile for shallow depth applications and Teflon®/316 stainless steel in standard size
Sample intake tubing	9.5 mm (3/8 in.) I.D. Vinyl or Teflon®-lined polyethylene

to be continued

SAMPLER, SD900 All Weather Refrigerated Sampler

SIGMA SD900 AWRS (HACH LIT2569)

Technical Data continued	
Subject to change without	
	SD900 controller
Enclosure	High-Impact, injection-molded PC/ABS blend; submersible, watertight, dust-tight, ☐ corrosion, and ice resistant; NEMA 4X, 6
Power requirements	
SD900 Refrigerated	15 VDC provided by 8754500 power supply
AWRS sampler	15 VDC provided by integral power supply
Overload protection	7 amp DC line fuse for pump
Pump	Peristaltic high speed, with spring-mounted rollers
Pump rollers	Nylatron, impact/corrosion resistant
Pump enclosure	Track is injection-molded polyphenylene sulfide. Cover is polycarbonate, high impact resistant. Pump enclosure rated IP37.
Pump tubing	9.5 mm I.D. x 15.9 O.D. mm (3/8 in. x 5/8 in.) silicone
Pump tubing life	20,000 sample cycles under the following conditions: • 1 L sample volume • 1 rinse • 6 minute pacing interval • 16 ft of 3/8 in. intake tube • 15 ft of vertical lift • 70 °F sample temperature
Tubing replacement time	< 1 minute using pre-cut pump tube
Maximum vertical lift to draw sample	Minimum of 28 ft, using 29 ft of 3/8-in. vinyl intake tube at sea level at 20–25 °C (68–77 °F)
Pump flow rate	1.25 gpm (4.8 L/min) at 3 ft (1 m) vertical lift using 3/8-in. intake tube
Typical sample volume repeatability	±5% of 200 mL sample volume using uncalibrated liquid detect with 15 feet vertical lift, 16 feet of 3/8-in. vinyl intake tube configured for a single bottle using full bottle shut-off at room temperature and 5000 ft elevation
Typical sample volume accuracy	±10% of 200 mL sample volume using uncalibrated liquid detect with 15 feet vertical lift, 16 feet of 3/8-in. vinyl intake tube configured for a single bottle using full bottle shut-off at room temperature and 5000 ft elevation
Typical transfer velocity	2.9 ft/s (0.9 m/s) with 15 ft (4.6 m) vertical lift, 16 ft of 3/8-in. vinyl intake tubing, 70 °F (21 °C) and 5000 ft elevation
Liquid sensor	Ultrasonic
Liquid sensor body	Ultem® NSF ANSI standard 51 approved, USP Class VI compliant
Internal battery	Lithium
Internal clock	Indicates real time and date
Storage temperature	–30 to 60°C (–22 to 140 °F)
Operating temperature	0 to 50 °C (32 to 122 °F)
Storage/operating humidity	100% condensing
Graphics display	Graphic dot matrix, 128x64 pixel with LED backlight. Self prompting, menu-driven program.
Status display	Indicates the number of samples collected, the number of missed samples, inhibit mode, bottle position, time or counts to next sample and battery voltage. In addition, when an SDI-12 sonde is detected, the user has the option to display the current measurement values.
Sample history	Stores up to 510 entries for sample time stamp, bottle number and sample status (success, bottle full, rinse error, user abort, distributor error, pump fault, purge fail, sample timeout, power fail and low main battery)
Automatic shutdown	
Multiple bottle mode	after complete revolution of distributor arm (unless Continuous Mode is selected)
Composite mode	after preset number of samples have been delivered to composite container, from 1 to 999 samples, or upon full container.
User interface	Embossed keypad with one power key, four function keys, and eight navigation keys; LED indicator
Event log	Ability to store up to 510 entries in Sample History logging. Records Power On, Power Fail, Firmware Updated, Pump Fault, Distributor Arm Error, Low Memory Battery, Low Main Battery, User On, User Off, Program Started, Program Resumed, Program Halted, Program Completed, Grab Sample, Tube Change Required, SDI-12 communication errors, Setpoint High On/Off, and Setpoint Low On/Off.
Connections	Power, auxiliary, serial communications, distributor, SDI-12, thermal (on AWRS)
Fittings	Barbed fittings for 3/8-in. I.D. flexible tubing
Wetted materials	Typical materials in contact with sample: stainless steel, PE, Teflon, Ultem, Silicon or approved materials that can be tested for leaching properties
Weight	4.2 kg (9 lb, 5 oz)
Dimensions	10-3/8 in. (26.4 cm) L x 11-1/2 in. (29.2 cm) W x 6-3/4 in. (17.1 cm) H

to be continued

SAMPLER, SD900 All Weather Refrigerated Sampler

SIGMA SD900 AWRS (HACH LIT2569)

Technical Data	
continued	
Subject to change without	
Programming features	
Password protection	6-character; protect changes to program and system settings
Multiple programs	Stores up to three sampling programs
Cascade programs	Two samplers used in combination. The second sampler is initiated after the first sampler completes the program.
Synchronized sampling	Ability to simultaneously take two samples with input from a single flow meter
Sample volume	Programmed in 10-mL increments from 100 to 10,000 mL
Air purge	Air purged automatically before and after each sample; duration automatically compensates for varying intake line lengths.
Intake rinse option	Option to rinse intake line with source liquid prior to each sample, 1 to 3 rinses.
Sample distribution	Composite, samples per bottle or bottles per sample.
Setpoint sampling	Ability to start and/or stop a sample program based on an external trigger or user-defined high/low setpoints based on SDI-12 measurements.
User start/stop times	Up to 12 user-defined start/stop times/dates, with option to restart at position 1.
Storm water program	Ability to run time-based, first flush program in parallel with main sample program.
Current status	Display parameters relevant to main and/or storm water programs and SDI-12 measurements.
Units of measure	Volume: gallons or mL; length: feet (ft) or cm
Sample retries	Option to repeat sample collection cycle from 1 to 3 times if sample not obtained on initial attempt.
Manual grab sample	Ability to manually deliver a grab sample to a specific bottle location
Run modes	Continuous or non-continuous with user-entered number of samples.
Time pacing	Uniform or variable time intervals.
Flow pacing	Uniform or variable flow intervals.
Auxiliary connector	Power to Sigma 9XX, SD900, flow pulse input, external inhibit, special output, bottle number output and program complete output.
Program delay	Two formats: 1) 1–9,999 flow pulses (in one unit increments); 2) Programmable start time/date
Timed Bottle Sets	Enables a single sampler to function like multiple samplers.
Communication	
Firmware updates	Ability to perform field upgrades using Sample View software
Serial interface	RS232 compatible; allows on-site collection of stored data including event log and sample history. Ability to configure remotely. Supports Modbus for SCADA connectivity.
SDI-12	Plug & Play interface to Hydrolab DS5 and MS5 sondes to provide measurement data in setpoint sampling applications. Note: Hydrolab plug and play capability requires firmware v5.43 or greater to be installed in the sonde.

Specifications subject to be change without notice

Implemented Program Languages: English, Spanish, French, German, Italian, Portuguese, Turkish, Chinese, and Czech

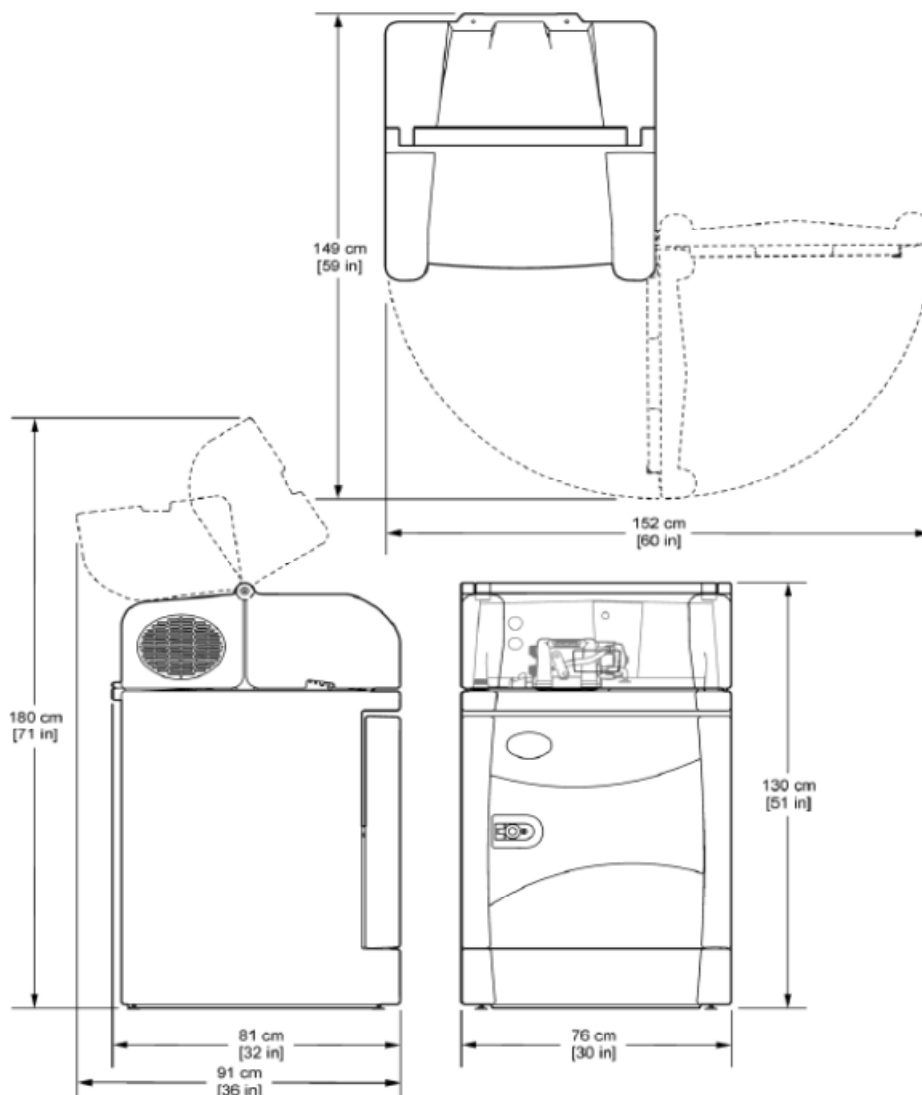


Notes:

flow proportional sampling
The SD900 supports digital impulse for flow paced sampling - connectivity to flow meter with analogue signal output use option 8760600

SAMPLER, SD900 All Weather Refrigerated Sampler

SIGMA SD900 AWRS (HACH LIT2569)



To configure a complete system, the following components are required:

- ➔ Sampler SIGMA 900 or 900 Max All Weather Refrigerated Sampler
- ➔ Composite/Multiple Bottle Sampling
- ➔ Intake Tubing and Strainers

Optional Components:

- ➔ Pump Tubing
- ➔ Factory Installed Options
- ➔ Cables and Interfaces
- ➔ Accessories

SAMPLER, SD900 All Weather Refrigerated Sampler

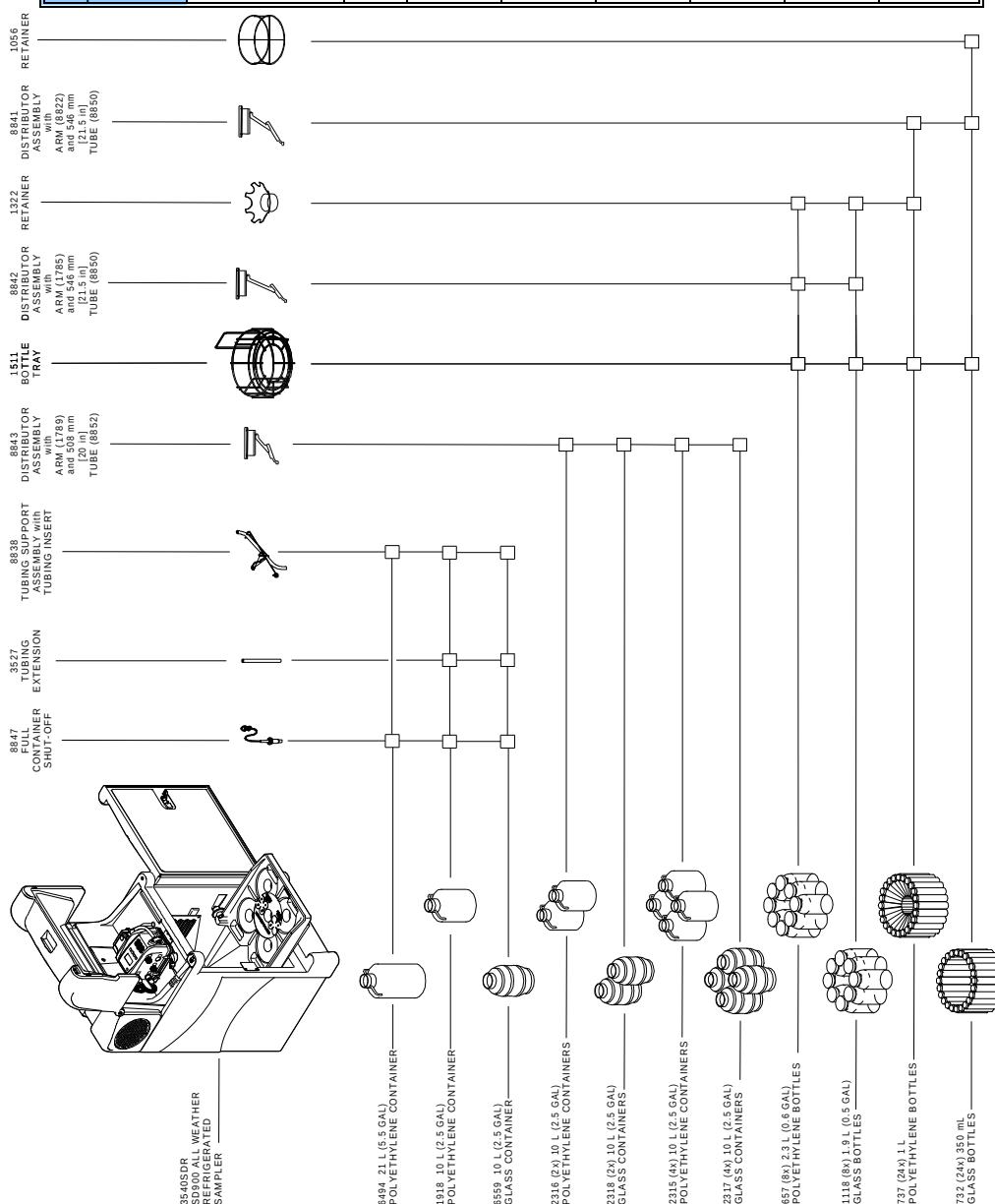
SIGMA SD900 AWRS (HACH LIT2569)

Configurator:

Necessary part numbers to change existing bottle/base configuration

Note: Full Bottle Shut-off and distributor assembly includes pump tube insert (P/N 8964)

Sampler	Bottle Type (1 Gal ≈ 3,8 l)	Part Number						
		Bottle	Full Bottle Shut-off	Tube Support	Extension Tube	Bottle tray positioner	Retainer	Distributor
Composite	2.5 Gal Glass	6559	8847	8838	3527	N/A	N/A	N/A
Composite	2,5 Gal PE	1918	8847	8838	3527	N/A	N/A	N/A
Composite	6.0 Gal PE	6494	8847	8838	N/A	N/A	N/A	N/A
Multiple bottle	24 x 1 l PE	737	N/A	N/A	N/A	1511	1322	8841
Multiple bottle	24 x350 ml Glass	732	N/A	N/A	N/A	1511	1056	8841
Multiple bottle	8 x 2.3 l PE	657	N/A	N/A	N/A	1511	1322	8842
Multiple bottle	8 x 1.9 l Glass	1118	N/A	N/A	N/A	1511	1322	8842
Multiple bottle	4 x 2,5 Gal PE	2315	N/A	N/A	N/A	N/A	N/A	8843
Multiple bottle	4 x 2.5 Gal Glass	2317	N/A	N/A	N/A	N/A	N/A	8843
Multiple bottle	2 x 2.5 Gal Glass	2318	N/A	N/A	N/A	N/A	N/A	8843
Multiple bottle	2 x 3 Gal PE	2316	N/A	N/A	N/A	N/A	N/A	8843



SAMPLER, All Weather Refrigerated Sampler

SIGMA SD900 (HACH LIT2590)

Part No.

Designation

A variety of configurations are possible depending on the needed Sampler system.
Please refer to the instrument manual for further details.
Alternatively contact your HACH LANGE agency or its local representative.

For new setup's, the SD900 Configurator can help you to configure your sampler model.
Please select needed accessories afterwards.

All Weather Refrigerated Sampler HACH SIGMA SD900

SD900A.99.1xx1x

Stationary Sampler, HACH SIGMA

S D 9 0 0 A . 9 9 . 1 x x 1 x

Sampler Model

HACH SD900 AWRS Stationary Sampler
includes Controller 900SD

A

Country Code Selection¹

9 9

Sampling System Option

Peristaltic pump system

1

Intake tube length option

PVC tubing, 9.5mm ID X 15.9 mm O.D. (3/8" x 5/8") in respective length
+ Teflon/stainless steel strainer Counterweight (P/N 926)

w/o suction tube

0

7.5 metre (P/N 920)

1

30 metre (P/N 923)

2

Bottle/Container Option

Plastic, 1 x 10 litre composite bottle

1

(Includes 1X10L PE bottle 1918, Bottle shut off 8847, Extension Tube 3527, Composite Tube support 8838)

Plastic, 1 x 20 litre composite

3

(Includes 1X20L PE bottle 6494, Bottle shut off 8847, Composite Tube support 8838)

Plastic, 4 x 10 litre multi bottle

7

(Includes 4 X 10L PE bottles 2315 and Distributor Assembly 8843)

Plastic, 8 x 2,3 litre in multi bottle

D

(Includes 8 X 2,3L PE bottles 657, Bottle Tray 1511, Retainer 1322, Distributor Assembly 8842)

Plastic, 24 x 1 litre in multi bottle

5

(Includes 24 X1L Polyethylene bottles 737, Bottle Tray 1511, Retainer 1322 and Distributor Assembly 8841)

Glas, 1 x 10 litre composite bottle

9

(Includes 1X10L Glass bottle 6559, Bottle shut off 8847, Ext. Tube 3527, Composite Tube support 8838)

Glas, 4 x 10 litre multi bottle

8

(Includes 4 X 10L Glass bottles 2317 and Distributor Assembly 8843)

Glas, 24 x 0.35 litre multi bottle

A

(Includes 24X0,35L Glass bottles 732, Bottle Tray 1511, Retainer 1056, Distributor Assembly 8841)

Glas, 8 x 1,9 L multi bottle

C

(Includes Standard Base 8976, Distributor Arm 8584, Retainer 2190, 4 X 3,8L poly bottles 2217)

Housing Option

ABS/PC Plastic

(NEMA 4X, 6, IP 67)

1

Power / Plug type Option

230VAC, EU Plug

2

SAMPLER, SD900 All Weather Refrigerated Sampler

SIGMA SD900 - Components Part I

Part No.	Designation
Section 1.0	
Replacement Sampler Controller model - US order numbers - coming with english manual	
3542SDRH	SIGMA SD900 AWRS stationary All Weather Sampler, 230VAC, EU plug SD900 Controller, new rotomold cabinet with protection heater
8900SD	SD900 AWRS Controller only
Section 1.1	
Bottle Type	
<u>Composite Bottles and Accessories</u>	
6559	2.5 Gallon (10 l) Glass Container, with Teflon Lined Cap
1918	2.5 Gallon (10 l) PE Container with Cap
6494	5.5 Gallon (20 l) PE Container with Cap
Required accessories for 2.5 and 3 Gallon Containers	
3527	Extension Tube
8838	Composite Tube Support with Tube
8847	Full Container Shutoff, for all composite containers
<u>Multiple Bottle Sets and Accessories</u>	
<u>PE bottles</u>	
737	Set of 24 x 1 l PE bottles with Caps ¹
657	Set of 8 x 2.3 l PE bottles with Caps ¹
2315	Set of 4 x 10 l PE bottles with Caps ²
2316	Set of 2 x 3 Gallon PE bottles with Caps ²
<u>Glass bottles</u>	
732	Set of 24 x 350 ml Glass bottles with Teflon Lined Caps ¹
1118	Set of 8 x 1.9 l Glass bottles with Teflon Lined Caps ¹
2317	Set of 4 x 2.5 Gallon Glass bottle with Teflon Lined Caps ²
2318	Set of 2 x 2.5 Gallon Glass bottles with Teflon Lined Caps ²
¹ Also requires 1511 - Bottle Tray, 1322 - Retainer and 8841 - Distributor	
² Also requires 8843 Distributor	
<u>Replacement bottles</u>	
929	1 l PE bottles without caps - Case of 96
931	Caps, for 1 l PE bottles - Case of 96
930	350 ml Glass bottles without caps - Case of 96
932	Caps, Teflon Lined, for 350 ml glass bottles - Case of 96
<u>Bottle Retainers (for multiple bottle sets)</u>	
1511	Bottle Tray (required for 8 and 24 bottle sampling)
1322	Retainer (required for 24 x 1 l PE bottle and 8 bottle sampling)
1056	Retainer (required for 350 ml glass bottles)
<u>Distributors for Multiple Bottle configurations</u>	
8841	Distributor with Arm (for 24 bottle sampling)
8842	Distributor with Arm (for 8 bottle sampling)
8843	Distributor with Arm (for 2 and 4 bottle sampling)
8844	Distributor Arm only (with tube), for 24 bottle sampling
8845	Distributor Arm only (with tube), for 8 bottle sampling
8846	Distributor Arm only (with tube), for 2 and 4 bottle sampling

SAMPLER, SD900 All Weather Refrigerated Sampler

SIGMA SD900 - Components Part II

Part No.	Designation
Section 1.2	Intake Tubing and Strainers
	Select tubing and strainer based on your application needs!
	<u>Intaking tubing, made of Vinyl</u>
920	25 ft. Intake Tubing, 3/8" ID, made of Vinyl
923	100 ft. Intake Tubing, 3/8" ID, made of Vinyl
924	500 ft. Intake Tubing, 3/8" ID, made of Vinyl
6633500	25' Black Vinyl Intake Tubing; 10mm ID x 15mm OD
66272	Black Vinyl Intake Tubing; 10mm ID x 15mm OD; per feet
	<u>Teflon Lined</u> (Requires Connection Kit P/N 2186)
921	10' Teflon Lined Polyethylene Tubing, 3/8" ID
922	25' Teflon Lined Polyethylene Tubing, 3/8" ID
925	100' Teflon Lined Polyethylene Tubing, 3/8" ID
2186	Connector Kit, for Teflon lined PE tubing
	<u>Strainer, made of Teflon/Stainless Steel</u>
926	Strainer, Teflon/SS316, 5.5" long x 0.875" OD
903	Strainer, Teflon/SS316, 11.0" long x 0.875" OD
	<u>Strainer, made of Stainless Steel</u>
2070	Strainer, all 316 Stainless Steel
2071	Strainer, for shallow depth applications, all 316 Stainless Steel
4652	Strainer, for high velocity and shallow depth applications, 3.9" long x 0.406" outer Ø
Section 1.3	Pump Tubing
8753900	SD900 AWRS Pump Tube Insert
4600-15	SIGMA 900 Standard and 900 MAX Pump Tubing, 15 ft. length
4600-50	SIGMA 900 Standard and 900 MAX Pump Tubing, 50 ft. length
Section 1.4	Distributor tubing
3866-15	Distributor Tubing, 15 ft. length
3866-50	Distributor Tubing, 50 ft. length
Section 1.5	AC Power Backup
5698200	AC Power Back-Up, 28"



SAMPLER, SD900 All Weather Refrigerated Sampler

SIGMA SD900 - Components Part III

Part No.	Designation
Section 1.6	Cable and Interfaces
	<u>Support Software and Accessories</u>
8757500	Kit DB9/7 pin cable, 3 m, + Sample View software (CD-Rom), connects Sampler to PC
8758200	DB9/7pin cable only, 3 m, connects Sampler to PC, for use with Sample View software "Sample View" Software Package (requires RS232 serial cable)
6249200	USB-to-Serial Adaptor
8755900	SampleView™ CD only
Section 1.7	Cable and Interfaces
	<u>Half Cable to connect a Sigma sampler/flow meter to a non-Sigma sampler/flow meter</u>
8756800	7 Pin, Multi Purpose Half Cable, 25 ft. - 7 Pin Aux connector one end, open leads other end. Connects a Sigma SD900 sampler/flow meter to a non-Sigma sampler/flow meter.
8756900	7 Pin, Multi Purpose Half Cable, 10 ft. - 7 Pin Aux connector one end, open leads other end. Connects a Sigma SD900 sampler/flow meter to a non-Sigma sampler/flow meter.
	<u>Full Cable to connect a Sigma sampler to a Sigma flow meter</u>
8757000	7 Pin, Multi Purpose Full Cable, 25 ft. - 7 Pin to 6 pin Aux connector. Connects a Sigma SD900 sampler to a Sigma 920/930/940/950 flow meter.
8757100	7 Pin, Multi Purpose Full Cable, 10 ft. - 7 Pin to 6 pin Aux connector. Connects a Sigma SD900 sampler to a Sigma 920/930/940/950 flow meter.
	¹ Note: If cable longer than 10 ft. is needed, please order in addition SE813 cable.
8760600	Universal junction box for 4-20mA input For Flow proportional based sampling driven by analogue flow meter signal
8757300	Cascade Sampling for 25-ft. cable ² Leading sampler wakes up second sampler upon program completion
87390SD	SDI-12 Receptacle Factory-Installed Option
8762400	Cable to connect SD900 Sampler to Hydrolab™ sonde using SDI-12, 50 ft Requires SDI-12 receptacle; use with SD900 and Hydrolab™ DS5 or MS5 Sonde
Section 2.0	Spares
	<u>SD900 Controller Desiccant Replacement Parts</u>
8755600	Desiccant Cartridge -Desiccant Tube Assy with Grease
6262000	Pump replacement assembly
5695900	SD900 Controller Compartment Heater, 230 VAC
6607500	Front Lid Assembly
6607600	Rear Lid Assembly
6607700	Door Assembly - All Weather door assembly with lock.
5697600	Pull-out bottle tray
5697700	Controller Compartment Lock
6611500	Gasket replacement kit-door
6611600	Gasket replacement kit-lid (fits for Controller lid and fridge lid)
6613100	Anchor kit (2 anchors)
8900SD	SD900 AWRS Controller only
	<u>Manuals</u>
DOC026.53.00799	SD900 AWRS stationary Sampler User Manual GB
DOC026.77.00799	SD900 AWRS stationary Sampler User Manual FRA
DOC026.57.00799	SD900 AWRS stationary Sampler User Manual ITA
DOC026.72.00799	SD900 AWRS stationary Sampler User Manual GER
DOC026.85.00799	SD900 AWRS stationary Sampler User Manual CZ
DOC026.90.00799	SD900 AWRS stationary Sampler User Manual POR
DOC026.92.00799	SD900 AWRS stationary Sampler User Manual ES
DOC026.94.00799	SD900 AWRS stationary Sampler User Manual TRK

Hach FH950 Portable

Velocity Flow Meter with Electromagnetic Sensor



The Hach FH950 Portable Flow Meter with electromagnetic sensor that measures both velocity and depth. The new Hach FH950 simplifies set up with its menu driven user interface.

Real time velocity is graphed on the large color display, giving a quick visual reading of velocity trends. The color bar indicator on the display guides the user to position the sensor at the ideal depth. The HACH FH950 auto-calculates discharge volumes based on USGS and ISO methods.

Measurements are easily downloaded to a computer via USB connection - allowing for a single person data collection.

Technical Data	
Subject to change without notice	
	Hach FH950 portable
Designation	Portable Flow Meter with electromagnetic sensor measuring both velocity and depth
Application	Streams, rivers, Weir/flume/flow meter calibration, sewers, mining channels, irrigation channels
Sensor	
Velocity measurement	
Measuring method	Electromagnetic
Measurement accuracy	±2% of reading ±0,015 m/s (±0,05 ft/s) through the range 0 to 3,04 m/s (0 to 10 ft/s); ±4% of reading from 3,04 to 4,87 m/s (10 to 16 ft/s.)
Zero Stability	± 0,015 m/s (±0,05 ft/s)
Resolution	0.01 value < 100; 0.1 value < 1000; 1.0 value ≥ 1000
Measuring range	0 to +6,09 m/s (0 to +20 ft/s)
Depth measurement	
Measuring method	Diaphragm type: Absolute pressure with single point calibration
Measurement accuracy	The larger of ±2% of reading or 0,015 m (±0,504 in). Steady state temperature and static non-flowing water.
Measuring range	0 to 3,05 m (0 to 10 ft)
Resolution	0.01 value < 100; 0.1 value < 1000; 1.0 value ≥ 1000
Minimum Water Depth	3,18 cm (1,25 in)
Material	ABS, glass-filled
Environmental rating	IP68
Sensor dimensions	11,9 cm x 4,3 cm x 6,3cm (4,7" x 1,7" x 2,5") (L x W x H)
Cable material	Polyurethane jacketed
Cable lengths	1,5, 6,1,12,2 and 30,5 m (5, 20, 40, and 100 ft.)
Portable Meter	
Material	Polycarbonate with a thermoplastic elastomer (TPE) overmold
Environmental rating	IP67
Dimensions (L x W x H)	21,8 x 9,3 x 5,3 cm (8,6" x 3,7" x 2,1")
Storage temperature	-20 to 60°C (-4 to 140°F)
Operating temperature	-20 to 55°C (-4 to 131°F)
Battery type	Lithium-Ion, rechargeable
Battery life	18 hours heavy typical day use†; 20°C (68°F)
Battery Charger	AC wall outlet charger
User interface	
Graphics Display	Color, LCD; 3,5" QVGA, transfective (readable in direct sunlight)
Measurement resolution	0.01 value < 100; 0.1 value < 1000; 1.0 value ≥ 1000
	Velocity: m/s, cm/s, mm/s, ft/s
	Flow: m3/sec, m3/min, m3/hour, m3/day, liters/s, liters/min, ft3/sec, million gal/day, gal/day, gal/min
Measure units	Depth: m, cm, mm, in, ft
Language support	en, bg, cn, cz, dk, nl, fi, fr, ger, gr, hu, it, ja, ko, pl, pt, ro, ru, si, sl, es, sw, tr

Hach FH950 Portable

Velocity Flow Meter with Electromagnetic Sensor

Part No.

Designation

FH950 Portable Flow Meter and sensor system

System includes portable flow meter, electromagnetic sensor with specified cable length, universal sensor mount, USB cable, wading rod mount, power supply/charger, neck strap, thumb screw kit, soft case, and disposable cloth for cleaning.

F H 9 5 0 . 1 x x x x				
Portable Meter (Hach FH950, with User Manual)	1			
Velocity only sensor	0			
Velocity and Depth Sensor	1			
<u>Cabel length</u>				
Sensor with 1,5 m (5 ft) Cablk		0	0	5
Sensor with 6 m (20 ft) Cable		0	2	0
Sensor with 12 m (40 ft) Cabl		0	4	0
Sensor with 30 m (100 ft) Cal		1	0	0

Replacement Parts and Accessoires

Eletromagnetic Sensors

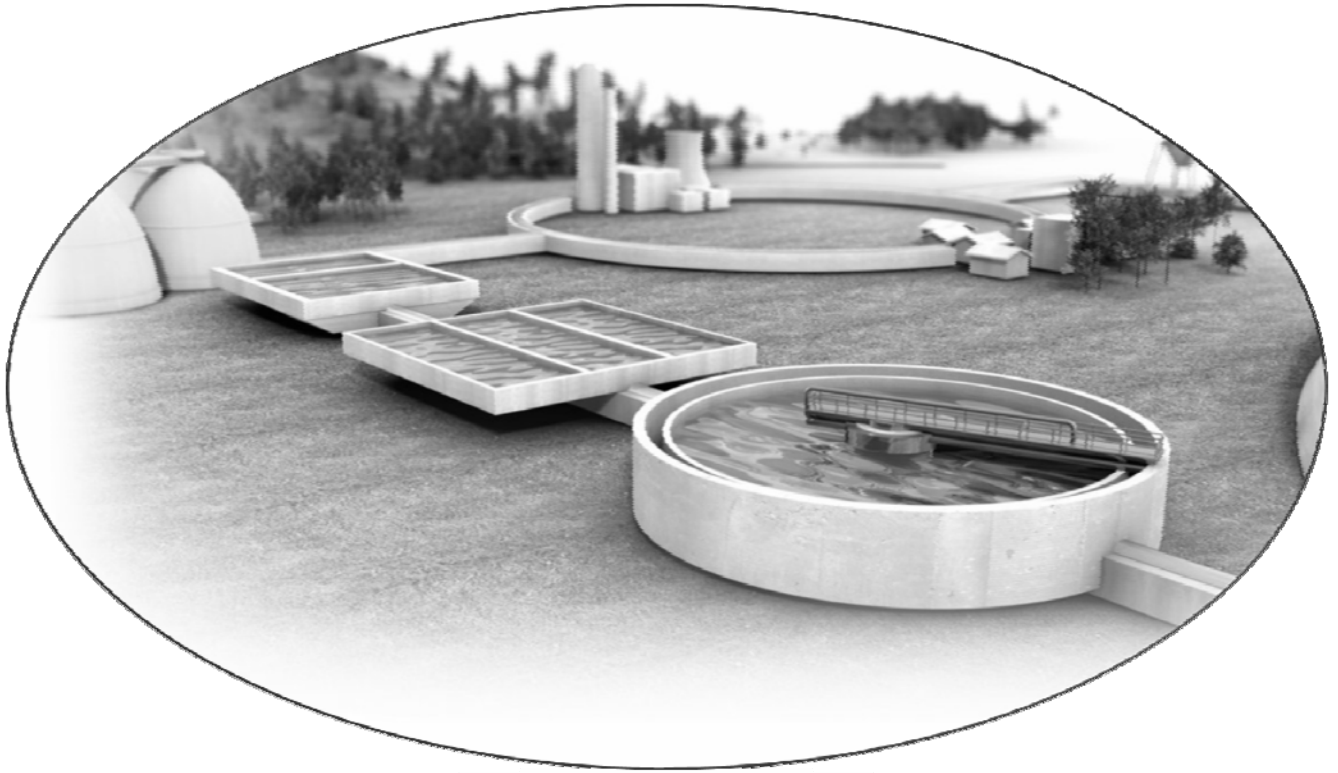
E M 9 5 0 . 1 x x x x				
<u>Sensors</u>				
Velocity only	0			
Velocity and depth	1			
<u>Cable length</u>				
Sensor with 1,5 m (5 ft) Cable		0	0	5
Sensor with 6 m (20 ft) Cable		0	2	0
Sensor with 12 m (40 ft) Cabl		0	4	0
Sensor with 30 m (100 ft) Cal		1	0	0

☞ Note: The system Includes portable meter, sensor with specified cable, universal sensor mount, USB cable, camera mount, power supply/charger, neck strap, thumb screw kit, soft case, and disposable cloth.

75002M	Standard Wading Rod Kit, metric
43001M	Bottom Section for standard wading rod, metric
43011M	Intermediate Section for standard wading rod, metric
43015M	Base plate for standard wading rod, metric
43020M	Double end hanger for standing wading rod, metric
75013M	Top Set Wading Rod Kit, metric
75003	Suspension Cable Kit
42033	Sensor mount for suspension cable kit
43025	Link connector for suspension cable kit
43030XX01	Weight hanger for suspension cable kit
43035M	Weight hanger for suspension cable kit
43040	6.8 kg (15 lb) lead weight for suspension cable kit
9073400	Fabric Carrying Case
9113100	Lithium Ion Battery
9072600	Battery Charger
9070800	USB Cable, 1 m (3 ft)
75015	Universal Sensor Mount
9071700	Adjustable Meter Mount
9073500	Wipe Cloth, used for cleaning
9073200	Sensor Thumb Screw Kit
9072700	Lanyard

Process analysers for dissolved gas measurement

Orbisphere



Orbisphere 410

Controller



This high accuracy ORBISPHERE instrument is designed for the measurement of oxygen, ozone or carbon dioxide, for process and laboratory analysis in applications such as beverage, life sciences, power generation and the electronics industry.

All functions of ORBISPHERE 410 instruments are accessed through the monochrome, touch screen. This screen acts as display and keyboard.

Technical Data	
Subject to change without notice	
Orbisphere 410	
Designation	Controller
Parameter	O2 (EC), O2 (LDO), O3, CO2
Sensor types	311xx, A1100-Sxx, M1100, K1100, C1100-xxx, 314xx
Operating conditions	
Operating temperature	5°C to +50°C
Storage temperature	-20°C to +70°C
Operating humidity	0 to 95% non condensing relative humidity
Operating altitude	From 0 to 2,000 m above sea level
EMC requirements	EN61326-1:2006 Directive 2004/108/EEC
CE compliance	EN61010-1: 2001 Directive 2006/95/EEC
Safety rating	ETL, conforming to UL 61010-1 and CSA 22.2 No. 61010-1
Enclosure ratings	IP 65, NEMA 4X Totally protected against dust. Protected against low pressure jets of water from all directions.
Power supply	Universal 100 VAC to 240 VAC @ 50/60Hz - 40VA 10 to 30 VDC - 30W
Analog outputs	
Analog current output version on the measurement board	4-20 mA (default) or 0-20 mA (configuration with software) 3 configurable outputs Maximum load: 500 ohm Sensitivity: 20µA Accuracy: ± 0.5% (between operating temperature limits)
Analog voltage output version on the measurement board	0- 5 V output (hardware option) 3 configurable outputs Minimum load: 10 KOhm Sensitivity: 5 mV Accuracy: ± 0.5% (between operating temperature limits)
Digital outputs	
Measurement alarm relays	Three alarm relays 1A-30 VAC or 0.5A-50 VDC on a resistance load
System alarm relay	One "instrument system alarm" relay per instrument 1A-30 VAC or 0.5A-50 VDC on a resistance load
Communication	RS-485 or PROFIBUS-DP (optional) USB client, USB host Ethernet 10/100 Base-T
Size and weight	
Wall and pipe mount (HxDxW)	236.5 x 160 x 250 mm - weight 3.8 kg
Panel mount:Face (HxDxW)	156 (123) x 250 x 220 (214) mm - weight 2.9 kg

Orbisphere 410

Controller

Configuration

4 1 0 x / x x C x 0 0 0 x											
Measured parameter											
Oxygen EC sensor 311xx						A					
Ozone EC sensor C1100-xxx						C					
Carbon dioxide TC sensor 314xx						D					
Oxygen LDO (G1100)						G					
Oxygen LDO (K1100)						K					
Oxygen LDO (M1100)						M					
Mounting											
Wall						W					
Panel						P					
Power supply											
100-240 VAC						1					
10-30 VDC						2					
Communication											
RS-485						0					
PROFIBUS-DP / RS-485						1					
Language											
German, English, French, Spanish, Italian						0					
Chinese						C					
Japanese						J					
Korean						K					

Orbisphere 510

Controller



High accuracy ORBISPHERE instrument designed for gas measurement using electrochemical (EC) or thermal conductivity (TC) sensors. The instrument can be used for process and laboratory analysis, in applications such as beverage, life sciences, power generation, and the electronics industry.

ORBISPHERE 51x analyzers are available as portable, wall or pipe mount, and rack mount versions. According to the configuration, the ORBISPHERE 51x has provision for up to three patented gas phase (or dissolved gas) ORBISPHERE electrochemical and/or thermal conductivity sensors.

Technical Data	
Subject to change without notice	
Orbisphere 510	
Designation	Controller
Parameter	EC: O ₂ , O ₃ , H ₂ and/or TCD: CO ₂
Sensor type	each combination of 2xTC & 1xEC or 2xEC & 1xTC
Operating conditions	
Operating temperature	-5°C to +50°C - 1 channel instrument -5°C to +45°C - 2 channel instrument -5°C to +40°C - 3 channel instrument
Storage temperature	-20°C to +70°C
Operating altitude	From 0 to 2,000 m above sea level
EMC requirements	EN61326-1:2006 Directive 2004/108/EEC
CE compliance	EN61010-1: 2001 Directive 2006/95/EEC
Safety rating	ETL, conforming to UL 61010-1 and CSA 22.2 No. 61010-1
Enclosure ratings	IP 65, NEMA 4X Totally protected against dust. Protected against low pressure jets of water from all directions.
Power supply	
Wall and panel mount	Universal 100 VAC to 240 VAC @ 50/60Hz - 40VA, 10 to 30 VDC - 30W
Portable	5V supplied through an external power supply, 100-240VAC @ 50/60Hz - 1A Optional: Battery pack with 4 hour autonomy (charges in about 6 hours)
Analog outputs	
Analog current output version on the measurement board(s)	4-20 mA (default) or 0-20 mA (configuration with software) 3 configurable outputs Maximum load: 500 ohm Sensitivity: 20µA Accuracy: ± 0.5% (between operating temperature limits)
Analog voltage output version on the measurement board(s)	0- 5 V output (hardware option) 3 configurable outputs Minimum load: 10 KOhm Sensitivity: 5 mV Accuracy: ± 0.5% (between operating temperature limits)
Digital outputs	
Measurement alarm relays on the measurement board(s)	Three alarm relays per measurement board 1A-30 VAC or 0.5A-50 VDC on a resistance load
System alarm relay on the main board	One "instrument system alarm" relay per instrument 1A-30 VAC or 0.5A-50 VDC on a resistance load
One system board with one system relay /instrument	
Communication	
Options	RS-485 or PROFIBUS-DP (optional) USB client, USB host Ethernet 10/100 Base-T
Size and weight	
Wall and pipe mount (H x D x W)	236.5 x 160 x 250 mm - weight 3.8 kg
Panel mount: Face (H x D x W)	156 (123) x 250 x 220 (214) mm - weight 2.9 kg
Portable (H x D x W)	225 x 250 x 219 mm - weight 3.8 kg

Controller

	5	1	0	x	x	x	/	x	x	x	x	x	x	0	0	x
1 channel parameter																
O2 EC				A												
H2 EC				B												
O3 EC				C												
CO2 TCD (only when no O3 channel)				D												
2 channel parameter																
O2 EC				A												
H2 EC				B												
O3 EC				C												
CO2 TCD (only when no O3 channel)				D												
3 channel parameter																
O2 EC				A												
H2 EC				B												
O3 EC				C												
CO2 TCD (3 channel CO2 not possible)				D												
Mounting																
Wall							W									
Panel							P									
Portable							T									
Power supply																
100-240 VAC (for W, P and T)										1						
10-30 VDC (for W and P)										2						
100-240 VAC & battery (for T only)										3						
Analog output																
0/4-20 mA													C			
Communication																
PROFIBUS-DP / RS-485													1			
External pressure sensor																
with external pressure sensor													P			
Language																
German, English, French, Spanish, Italian													0			
Chinese													C			
Japanese													J			
Korean																

379

Orbisphere 511

Controller



This high accuracy ORBISPHERE instrument is designed for gas measurement using electrochemical (EC) or thermal conductivity (TC) sensors. The instrument can be used for process and laboratory analysis, in applications such as beverage, life sciences, power generation, and the electronics industry.

ORBISPHERE 51x analyzers are available as portable, wall or pipe mount, and rack mount versions. According to the configuration, the ORBISPHERE 51x has provision for up to three patented gas phase (or dissolved gas) ORBISPHERE electrochemical and/or thermal conductivity sensors.

Technical Data	
Subject to change without notice	
Orbisphere 511	
Designation	Controller
Parameter	EC: O ₂ , H ₂ and /or TCD: CO ₂ , H ₂ , N ₂
Sensor type	each combination of 2xTC & 1xEC or 2xEC & 1xTC
Operating conditions	
Operating temperature	-5°C to +50°C - 1 channel instrument -5°C to +45°C - 2 channel instrument -5°C to +40°C - 3 channel instrument
Storage temperature	-20°C to +70°C
Operating altitude	From 0 to 2,000 m above sea level
EMC requirements	EN61326-1:2006 Directive 2004/108/EEC
CE compliance	EN61010-1: 2001 Directive 2006/95/EEC
Safety rating	ETL, conforming to UL 61010-1 and CSA 22.2 No. 61010-1
Enclosure ratings	IP 65, NEMA 4X Totally protected against dust. Protected against low pressure jets of water from all directions.
Power supply	
Wall and panel mount	Universal 100 VAC to 240 VAC @ 50/60Hz - 40VA, 10 to 30 VDC - 30W
Portable	5V supplied through an external power supply, 100-240VAC @ 50/60Hz - 1A
	Optional: Battery pack with 4 hour autonomy (charges in about 6 hours)
Analog outputs	
Analog current output version on the measurement board(s)	4-20 mA (default) or 0-20 mA (configuration with software) 3 configurable outputs Maximum load: 500 ohm Sensitivity: 20µA Accuracy: ± 0.5% (between operating temperature limits)
Analog voltage output version on the measurement board(s)	0- 5 V output (hardware option) 3 configurable outputs Minimum load: 10 KOhm Sensitivity: 5 mV Accuracy: ± 0.5% (between operating temperature limits)
Digital outputs	
Measurement alarm relays on the measurement board(s)	Three alarm relays per measurement board 1A-30 VAC or 0.5A-50 VDC on a resistance load
System alarm relay on the measurement board	One "instrument system alarm" relay per instrument 1A-30 VAC or 0.5A-50 VDC on a resistance load
One system board with one system relay /instrument	
Communication	
Options	RS-485 or PROFIBUS-DP (optional) USB client, USB host Ethernet 10/100 Base-T
Size and weight	
Wall and pipe mount (H x D x W)	236.5 x 160 x 250 mm - weight 3.8 kg
Panel mount: Face (H x D x W)	156 (123) x 250 x 220 (214) mm - weight 2.9 kg
Portable (H x D x W)	225 x 250 x 219 mm - weight 3.8 kg

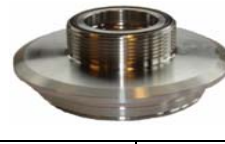
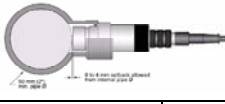
Orbisphere 511

Controller

Configuration

	5	1	1	x	x	x	/	x	x	x	x	x	0	0	x
1 channel parameter															
O2 EC				A											
H2 EC				B											
CO2 TCD				D											
N2 TCD				E											
H2 TCD				F											
2 channel parameter															
O2 EC				A											
H2 EC				B											
CO2 TCD				D											
N2 TCD				E											
H2 TCD				F											
3 channel parameter															
O2 EC				A											
H2 EC				B											
CO2 TCD				D											
N2 TCD				E											
H2 TCD				F											
Mounting															
Wall								W							
Panel								P							
Portable								T							
Power supply															
100-240 VAC (for W, P and T)									1						
10-30 VDC (for W and P)									2						
100-240 VAC & battery (for T only)									3						
Analog output															
0/4-20 mA										C					
Communication															
PROFIBUS-DP / RS-485											1				
External pressure sensor															
with external pressure sensor												P			
Language															
German, English, French, Spanish, Italian														0	
Chinese														C	
Japanese														J	
Korean														K	

O2 measuring for breweries

											
410M/W1C00000	Orbisphere 410 Oxygen (optical) Controller, wall mounting, 85-264 V AC, 3 x 0/4-20mA analog output, 3 x relay, RS485		410M/P1C00000	Orbisphere 410 Oxygen (optical) Controller, panel-mounting, 85-264 V AC, 3 x 0/4-20mA analog output, 3x relay, RS485		410A/W1C00000	Orbisphere 410 Oxygen Controller, wall mounting, 85-264 V AC, 3x 0/4-20mA analog output, 3 x relay, RS485		410A/P1C00000	Orbisphere 410 Oxygen Controller, panel-mounting, 85-264 V AC, 3 x 0/4-20mA analog output, 3x relay, RS485	
33031			Power supply cable (EU Plug)								
											
M1100-S10	LDO Sensor for inline measuring, 0-2000 ppb, for 12 mm Standard		M1100-S00	LDO Sensor for inline measuring, 0-2000 ppb, with 28mm ORBISPHERE fitting		A1100-S0S	E-Chem Oxygen Sensor (EC) for inline measuring, 28mm ORBISPHERE fitting, 1ppb - 80 ppm, 100 bar		31120.01	E-Chem Oxygen Sensor (EC) for inline measuring, 28mm ORBISPHERE fitting	
32510.03		Cable (3m) to connect M1100 sensor with ORBISPHERE 410 / 510			32501.03		10 wire cable to connect 31xxx sensors to Orbisphere 410/510 wall and panel instrument Length 3m				
Optional: 33088		Calibration tool									
Optional (spare parts): M1100-L		Replacement spot (luminescence cap) for M1100			for IBN is required: 2952A-A		Renewal kit with 4 pre-filled cartridges with pre-installed membranes for the A1100 Oxygenf Sensor		for IBN is required: 32702A	Renewal case consisting of: membranes Elektrolyt, set of tools...etc	
Applicable for: A 			Applicable for: B,C,D 			Applicable for: B,C,D 			Applicable for: B,C,D 		
33096	Varivent adaptor (12mm) for sensor		33095	Varivent adaptor (28 mm) for sensor		32003	Varivent replacement armature		29501.0	Weld-on nozzle	
		Tuchenhausen Varivent inline armature or comparable Varivent armature with 68 mm diameter flange. This Varivent inline armature is applicable for: 32003, 33095 and 33096				DN40 Art.Nr.: DF29040 DN50 Art.Nr.: DF29002 DN65 Art.Nr.: DF29003 DN80 Art.Nr.: DF29005 DN100 Art.Nr.: DF29004 DN125 Art.Nr.: DF29006					
32305		Calibration Certificate The calibration certificate has to be requested in advance of a complete system (410 + sensor) order. Afterwards, it can be obtained only through the service department.									

O2 online measurement for Power Plants

											
410K/W1C00000	Orbisphere 410 Oxygen (optical) Controller, wall mounting, 85-264 VAC, 0/4-20mA analog output, 3x relay, RS485		510K00/P1C10000	Orbisphere 510 Oxygen (optical) Controller, panel-mounting, 85-264 VAC, 3x 0/4-20mA analog output, 3x relay, RS485		410A/W1C00000	Orbisphere 410 Oxygen (optical) Controller, wall mounting, 85-264 VAC, 3x 0/4-20mA analog output, 3x relay RS485		410A/P1C00000	Orbisphere 410 Oxygen (optical) Controller, panel-mounting, 85-264 VAC, 3x 0/4-20mA analog output, 3x relay, RS485	
33031		Power supply cable (EU Plug)									
											
K1100-S00	LDO Sensor for inline measurement, 2000 ppb, with 28mm ORBISPHERE fitting		K1200-S00	Nuclear LDO Sensor for inline measurement, 2000 ppb, with 28mm ORBISPHERE fitting		A1100-S0S	E-Chem Oxygen Sensor (EC) for inline measurement, 28mm ORBISPHERE fitting, 1ppb - 80ppm, 40bar		31120.01	E-Chem Oxygen Sensor (EC) for inline measurement, 28mm ORBISPHERE fitting	
Optional (spare parts) K1100-L	Replacement optical spot for K1100 sensors		Optional (spare parts) K1200-L	Replacement optical spot for K1200 sensors		32501.03		10 wire cable to connect 31xxx sensors to Orbisphere 410/510 wall and panel instrument Length 3m			
32510.03		Cable (3m) to connect M1100 sensors with ORBISPHERE 410/510									
Optional: 33088		Calibration tool									
32001.010	 Swagelok Flow-through chamber, "SS", with connector (6mm), O-Ring (EPDM)		32001.030	 Flow-through chamber "Delrin", connector (6mm), O-Ring (EPDM)		32001.010	 Swagelok Flow-through chamber, "SS", with connector (6mm), O-Ring (EPDM)		32001.030	 "Delrin" Flow-through chamber, connector (6mm), O-Ring (EPDM)	
32305		Calibration Certificate The calibration certificate has to be requested in advance of a complete system (410 + sensor) order. Afterwards, it can be obtained only through the service department.									

Orbisphere_ ppb_LDO
configuration

Part no. Designation



Configuration portable ppb LDO 3100

D	G	K	3	1	0	0	M	-	x	x	0	x	(x)
<u>Application</u>													
Brewery										B			
Industry / Power Plant										I			
<u>Power supply cable</u>													
EU plug										1			
US plug										2			
<u>Tube connection</u>													
4 mm											0		
1/4"											4		
6 mm											6		
<u>Language</u>													
En, fr, es, ru, de, pt, nl, it												0	
Chinese												C	
Japanese												J	
Korean												K	

 **Note:** (x) last position: when not used is the same like value "0"

- DGK3100-Mxx0x(x) contains:
1. Portable LDO O2 instrument
 2. External power supply
 3. 3 m inlet tube (polyamid)
 4. maintenance kit for 3100
 5. inlet filter for 3100
 6. meshes for particle filter (10x)

Configuration M1100 with controller 410M for beverage

One number for controller 410, sensor and cable



Example

- DGKM1100-W1125 contains:
1. 410 wall mount controller, 110-230 V AC, Profibus DP / RS485
 2. M1100 sensor 28 mm (M1100-S00)
 3. 5 m cable (32510.05)

Orbisphere_ppb_LDO

configuration

Part no.

Designation

Configuration M1100 with controller 410M for beverage (continued)

D G K M 1 1 0 0 - x x x x x												
<u>Controller mounting option</u>												
Wall	W											
Panel	P											
<u>Power supply option</u>												
110-230 V AC	1											
10-30 V DC	2											
<u>Interface option</u>												
RS485	0											
Profibus DP / RS485	1											
<u>Sensor option</u>												
12 mm sensor (M1100-S10)	1											
28 mm sensor (M1100-S00)	2											
<u>Cable length option</u>												
3 m cable	3											
5 m cable	5											
10 m cable	5											

Choose sample connection additional

29501.0

sensor socket



or

33095

Varivent adaptor (28 mm)



or

33096

Varivent Adapter (12 mm)



or

32003

Varivent extractable insertion device (28 mm)



or

32001.xxx

Flow chamber (xxx depending on material)



Configuration K1100 with controller 410K for power plants

One number for controller 410, sensor K1100 and cable



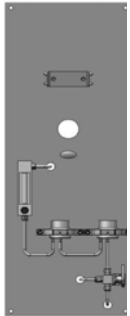
D G K K 1 1 0 0 - x x x x x														
<u>Controller mounting option</u>														
Wall												W		
Panel												P		
<u>Power supply option</u>														
110-230 V AC												1		
10-30 V DC												2		
<u>Interface connection</u>														
RS485												0		
Profibus DP / RS485												1		
<u>Sensor option</u>														
28 mm sensor (K1100-S00)													2	
<u>Cable option</u>														
3 m cable														3
5 m cable														5
10 m cable														1

Choose sample connection additional

- 32001.xxx
- Flow chamber (xxx-depending on material and connection)
- or
- DG33301
- Prebuilt panel



- DG33302
- Prebuilt panel



Orbisphere_ ppb_LDO

configuration

Part no. Designation

Configuration K1200 with controller 510K for nuclear power plants

One number for controller 510, sensor K1200 and cable



D G K K 1 2 0 0 - x x x x x											
<u>Controller mounting option</u>											
Wall										W	
Panel										P	
<u>Power supply</u>											
110-230 V AC										1	
<u>Interface connection</u>											
Profibus DP / RS485										1	
<u>Sensor</u>											
28 mm sensor (K1200-S00)										2	
<u>Cable option</u>											
3 m cable										3	
5 m cable										5	
10 m cable										1	

Choose sample connection additional

- 32001.xxx

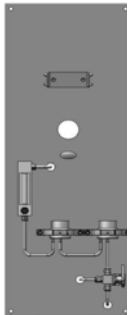
Flow chamber (xxx-depending on material and connection)
- or
- DG33301

Prebuilt panel



- DG33302

Prebuilt panel



Orbisphere_ ppb_LDO

Accessoires

Part no.	Designation
33088	Calibration device for all optical ppb LDO sensors with nitrogen gas 5.0 (99.999 %) <i>Gas has to be ordered locally at Calgaz</i>
DG33310	Validation kit for 3100 with potassium bisulphite to validate the zero point calibration of the ppb LDO sensor
DG33389	Validation kit for K/M1100 with potassium bisulphite to validate the zero point calibration of the ppb LDO sensor



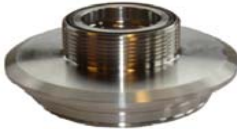
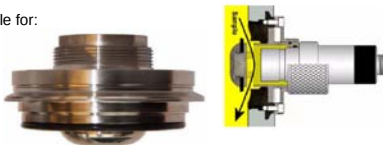
29971	Piercing device for wine
29972	Piercing device for beer



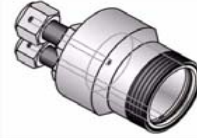
CO2 inline measurement for Breweries

			
410D/W1C00000	Orbisphere 410 Controller for CO2, wall mounting, 85-264 VAC, 3x 0/4-20mA analog output, 3x relay, RS485 The 510 Controller is available for multiple channel version	410D/P1C00000	Orbisphere 410 Controller for CO2, panel version , 85-264 VAC, 3x 0/4-20mA analog output, 3x relay, RS485 The 510 Controller is available for multiple channel version
33031	Power supply cable (EU Plug)		
A			
31460	CO2 Sensor with adaptor for external T-Sensor Caution: the annual maintenance or renewal kit "32749" is required		
32501.03	Cable (3m) to connect the sensor to Orbisphere 510 Attention: by the operation with Purge Backup Unit will be used other cables (32517.00 & 32505.03)		
optional 32605	Purge Backup Unit supplies the sensor with purging gas also in case of a power supply outfall (by 1min cycle. -> are warranted 4 days supply) 		
optional 29089S6	Pressure regulator (6mm), for Purge Backup Unit 		
B		C	
32557	external Temperature Sensor with 28mm adaptor	32560	Varivent external Temperature Sensor
applicable for: A,B 		applicable: A 	
applicable: A,B 			
33095	Varivent adaptor	32003	Varivent repl. armature
C 	Tuchenhausen Varivent inline armature or with a comparable Varivent armature with 68mm diameter flange. This Varivent inline armature is applicable for: 32003, 33095 and 33096.		29501.0 Weld-on nuzzle
32305	Calibration Certificate The calibration certificate can be required only by the ordering of a complete system (410 + sensor).		
DN40 Art.Nr.: DF29040 DN50 Art.Nr.: DF29002 DN65 Art.Nr.: DF29003 DN80 Art.Nr.: DF29005 DN100 Art.Nr.: DF29004 DN125 Art.Nr.: DF29006			

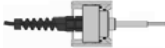
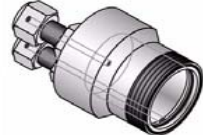
N2 Measurement

					
511E00/W1C0P000	511 Controller, wall mounting, N2-measurement system, display 0.01 ppb resol., 90-240 V AC, 3 x 0/4-20mA output		511E00/P1C00000	511 Controller, panel mounting, N2-measurement system, display 0.01 ppb resol., 90-240 V AC, 3 x 0/4-20mA output	on request
33031	Power supply cable(EU Plug)				
A 					
31560	N2 sensor with adaptor for external T-Sensor Caution: the annual maintenance or renewal kit "32746" is required				
32501.03	Cable (3m) for connection the sensor to Orbisphere 510 Caution: when operating with Purge Backup Unit are other cables (32517.00 & 32505.03) required.				
optional 32605	Purge Backup Unit supplies the sensor with purging gas also in case of a power supply outfall (by 1min. cycle are warranted 4 days supply) 				
optional 29089S6	Pressure regulator (6mm), for Purge Backup Unit 				
B 			C 		
32557	external Temperature Sensor with 28 mm adaptor		32560	Varivent external Temperature Sensor	
applicable for: A,B  applicable for: A  applicable A,B 					
33095	Varivent adaptor		32003	Varivent replacement armature	
C 		Tuchenhagen Varivent inline armature or a comparable Varivent armature with 68 mm diameter flange. This Varivent inline armature is applicable for: 32003, 33095 and 33096		29501.0 DN40 Art.Nr.: DF29040 DN50 Art.Nr.: DF29002 DN65 Art.Nr.: DF29003 DN80 Art.Nr.: DF29005 DN100 Art.Nr.: DF29004 DN125 Art.Nr.: DF29006	Weld-on nozzle
32305	Calibration Certificate The calibration certificate has to be requested in advance of a complete system (510 + sensor) order. Afterwards, it can be obtained only through the service department.				

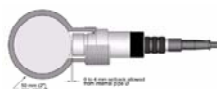
H2(EC) measurement

					
510B00/W1C0P000	510 Controller, wall mounting, H2-measurement system, display 0.01 ppb resolution, 90-240 V AC, 3 x 0/4-20mA output		510B00/P1C0P000	510 Controller, panel mounting, H2-measurement system, display 0.01 ppb resolution, 90-240 V AC, 3 x 0/4-20mA output	on request
33031	Power supply cable (EU Plug)				
					
31230.01 (also available in other variants of material, pressure, O-Ring)		EC sensor for H2 inline measurement, stainless steel sensing head, 28 mm ORBISPHERE fitting, 200bar, O-Ring (EPDM), MB 0,03ppb - 30ppm			
32501.03		Cable (3m) to connect A1100-S0S or 31xxx sensors to Orbisphere 410/510			
32723		Renewal kit for H2 sensors: 2995A+29010+29011 and accessoires for approx. 2 years			
32301.B		EC sensor cleaning and regeneration unit for the sensors series 31xxx, 230VAC, incl. regeneration head 29037			
					
29501.0	Weld-on nozzle		32001.010	Swagelok Flow-through chamber , "SS" , with adaptor (6mm), O-Ring (EPDM)	
32305	Calibration Certificate The calibration certificate has to be requested in advance of a complete system (510 + sensor) order. Afterwards, it can be obtained only through the service department.				

H2(TCD) Measurement

					
511F00/W1C0P000	511 Controller, wall mounting, H2-measurement system, display 0.01 ppb resol. 90-240 V AC, 3 x 0/4-20 mA output		511F00/P1C0P000	511 Controller, panel mounting, H2-measurement system, display 0.01 ppb resolution, 90-240 V AC, 3 x 0/4-20mA output	
33031	Power supply cable (EU Plug)				
A					
31260H	H2 Sensor with adaptor to external T-Sensor Caution: annual maintenance or renewal kit "32739" are required				
32501.03	Cable (3m) for sensor connection to 51x Controller Caution: when operating with Purge Backup Unit are other cables (32517.00 and 32505.03) required				
optional 32605	Purge Backup Unit supplies the sensor with purging gas also in case of a power supply outfall (by 1min. cycle are warranted 4 days supply)				
optional 29089S6	Pressure regulator (6mm) for Purge Backup Unit				
B					
32557	External Temperature Sensor with adaptor (28mm)		32559.0	External Temperature Sensor for off-line use, incl. Swagelok-T-piece and Lemo-plug 4 pin, O-Ring (EPDM) Caution: only in connection with the flow-through chamber	
applicable for: A,B 			applicable for: A 		
29501.0	Weld-on nozzle		32001.010	Swagelok flow-through chamber, "SS", with adaptor (6mm), O-Ring (EPDM)	
32305	Calibration Certificate The calibration certificate has to be requested in advance of a complete system (510 + sensor) order. Afterwards, it can be obtained only through the service department.				

O3 Measurement

												
510C00/W1C0P000	510 Controller, wall mounting, measurement system, display 0.01 ppb resolution, 90-240 V AC, 3 x 0/4-20 mA output	O3-	510C00/P1C0P000	510 Controller, panel mounting, measurement system, display 0.01 ppb resolution 90-240 VAC, 3 x 0/4-20mA output	O3-	on request	410C/W1C00000	410 Controller, wall mounting, 264 V AC, 3 x 0/4-20 mA analog output, 3x Relay, RS485	85-	410C/P1C00000	410 Controller, panel mounting, 264 V AC, 3 x 0/4-20 mA analog output, 3 x Relay, RS485	85-
33031		Power supply cable (EU Plug)										
												
C1100-T00				Electrochemical ozone sensor (EC) for inline and offline measurement: Titanium protection cap, ORBISPHERE fitting (28mm), max. pressure 100 bar, O-Ring, MB 0ppb - 50ppm					V			
32501.03				Cable (3m) for connecting the sensors A1100-S0S or 31120.01 to 410/510 Controller								
for IBN is required: 2956A-C				Renewal kit for ozone sensors: membrane 2956A + 29027A and accessoires for approx. 2 years								
												
32003	Varivent replacement armature		33095	Varivent adaptor (28mm)		29501.0	Weld-on nozzle		32001.151	Flow-through chamber (titanium) with fittings (6 mm fittings not available in titanium). Supplied with Viton O-rings.	1/2"	
optional by inline measuring 29046.1			Kit for protection cap 29106.1. Includes 29060, 29049, 28003, and 29039.1. Supplied with Viton-O-Ring									
		Tuchenhausen Varivent inline armature or other comparable Varivent armature with mm diameter flange. This Varivent inline armature is applicable for: 32003, 33095			48	DN40 Art.Nr.: DF29040 DN50 Art.Nr.: DF29002 DN65 Art.Nr.: DF29003 DN80 Art.Nr.: DF29005 DN100 Art.Nr.: DF29004 DN125 Art.Nr.: DF29006						
32305		The calibration certificate has to be requested in advance of a complete system (410/510 controller + sensor) order. Afterwards, it can be obtained only through the service department.										

O2 logger

3100 Portable Analyser



The ORBISPHERE 3100 instrument is a self-contained portable analyzer, configured to make oxygen concentration measurements in gaseous or liquid samples

With Luminescent Dissolved Oxygen (LDO) technology integrated into the ORBISPHERE 3100, this analyser is guaranteed to improve process efficiency and provide accurate dissolved oxygen measurements.

Ideally used in the beverage, industrial and power industries for both laboratory and process environments, it measures dissolved oxygen at ppb level.

Technical Data	
Subject to change without notice	
Orbisphere 3100	
Designation	Analyser with LDO technology for accurate DO measurements in gaseous or liquid samples.
Field of application	Beverage, industrial and power industries for both laboratory and process environments
Analysis	
Sample	Non-flammable gaseous or liquid samples
Sample temperature	Sample temperature: -5 to 45°C (23 to 113°F)
Sample pressure	0 to 10 bar (0 to 140 psi)
Measurement range	0 to 2000 ppb
Accuracy	± 0.8 ppb or ± 2% of reading whichever is the greater Note: measurements above 400 ppb will require a high level adjustment to guarantee accuracy
Repeatability R95	± 0.4 ppb or ± 1% of reading whichever is the greater
Detection limits	0.6 ppb
Response time T90	Usually less than 15 seconds but will vary depending on the sampling method
Measurements	Holds up to 5,760 measurements
	8 hours of data at a sampling frequency of 5 seconds
	96 hours of data at a sampling frequency of 1 minute
Display units	O2 concentration: ppb, ppm, µg/L, mg/L, mL/L, %O2, %air, %Vbar, ppmVbar
	Pressure: mbar, bar, Pa, hPa, kPa, MPa, psia, psig, atm, kgf/cm2
	Temperature: °C, °F, K
Operating conditions	Ambient temperature: -5 to 45°C (23 to 113°F)
	Relative humidity: 0 to 95% non-condensing for temperatures less than 30°C (86°F)
	0 to 70% non-condensing for temperatures from 30 to 45°C (86 to 113°F)
Enclosure	
Weight	3.4 kg
Dimensions (L x W x H)	200 x 170 x 190 mm
Waterproof protection	Stainless steel IP66 with polycarbonate sides
Power supply	Internal rechargeable battery pack: Li-Ion 46Wh
	External power supply input: 100-240 VAC ±10% @ 47-63 Hz
	External power supply output: 12 VDC, 3.75 A
Certifications	
European directives	Low voltage 2006/95/EC, EMC 2004/108/EC
EMC standards	EN61326:2006
Safety standard	IEC/UL/CSA 61010-1
Overvoltage category	Cat II
Interface	
Digital display	TFT color display 72 x 54mm
Digital connections	1 x USB (5 VDC), Input/Output mass storage device
	1 x RS232 (0-5 V) serial output (Baud rate:9600 adjustable; stop bits:1; Start bits:0; Parity:none)

O2 logger

3100 Portable Analyser

Configuration

	D	G	K	3	1	0	0	M	x	x	x	x
Application field												
Beverage										B		
Power Plants (industrial)										I		
Power supply												
EU power plug											1	
US power supply											2	
Sample / tube connection												
4mm											0	
6mm											6	
1/4 inch											4	
Language												
German, English, French, Spanish, Italian											0	
Chinese											C	
Japanese											J	
Korean											K	

Part no.

Designation

Beverage:

DGK3100-MB100	Beverage kit includes: 3100 instrument (4 mm), EU power plug, and accessories
DGK3100-MB200	Beverage kit includes: 3100 instrument (4 mm), US power plug, and accessories
DGK3100-MB2040	Beverage kit includes: 3100 instrument (1/4 inch), US power plug, and accessories
DGK3100-MB1040	Beverage kit includes: 3100 instrument (1/4 inch), EU power plug, and accessories
DGK3100-MB1060	Beverage kit includes: 3100 instrument (6 mm), EU power plug, and accessories

Power Plant/ Industry

DGK3100-MI100	Industrial kit includes: 3100 instrument (4 mm), EU power plug, and accessories
DGK3100-MI200	Industrial kit includes: 3100 instrument (4 mm), US power plug, and accessories
DGK3100-MI2040	Industrial kit includes: 3100 instrument (1/4 inch), US power plug, and accessories
DGK3100-MI1040	Industrial kit includes: 3100 instrument (1/4 inch), EU power plug, and accessories
DGK3100-MI1060	Industrial kit includes: 3100 instrument (6 mm), EU power plug, and accessories



Note: Standard delivery comprises:

Quantity	Description
1	3100 instrument
1	External power supply adapter with plug
1	3 meters of plastic tubing (1/4inch, 4mm or 6mm)
1	Tool kit
1	Instrument carrying strap
1	Operator manual

O2 logger

3100 Portable Analyser

Part no.	Designation
<u>Spare parts and accessoires</u>	
DG33216	Inlet filter for 3100 (4mm)
DG33317	Inlet filter for 3100 (6mm)
DG33318	Inlet filter for 3100 (1/4 inch)

Orbisphere 3650 / 55

Portable analyser



The ORBISPHERE 3650 / 55 portable analysers are a robust portable system solution for oxygen measurement.

O₂

Designed for use with the ORBISPHERE A1100 high quality oxygen sensor, these instruments provide accurate and quick measurements in both the dissolved and gaseous phase.

Technical Data				
Subject to change without notice				
Orbisphere 3650 / 55				
Designation	Portable analyser for O2 measurement in both the dissolved and gaseous phase			
Field of application	Process and laboratory analysis in beverage, power generation, electronics and life sciences industries.			
Sample				
Temperature	-5 °C to 60 °C			
Maximum pressure	10 bars			
Measurement				
Membrane	2952A-A	2956A-A	2958A-A	29552A-A
Response time	38 sec	7.2 sec	9.5 sec	90 sec
Range (dissolved O2)	0 ppb – 80 ppm	0 ppb – 20 ppm	0 ppb – 40 ppm	0 ppb – 80 ppm
Range (gaseous O2)	0 Pa – 200 kPa	0 Pa – 50 kPa	0 Pa – 100 kPa	0 Pa – 200 kPa
Min liquid flow rate	50 ml/min	180 ml/min	120 ml/min	50 ml/min
Min gaseous flow rate	0.1–3 l/min	0.1–3 l/min	0.1–3 l/min	0.1–3 l/min
Accuracy (greater of)	±1% of reading	±1% of reading	±1% of reading	±1% of reading
	or ±2 ppb	or ±0.1 ppb (3655)	or ±1 ppb	or ±1 ppb
	or ±5 Pa	or ±1 ppb (3650)	or ±2 Pa	or ±1 ppb
Instrument				
Power requirements	Batteries: two C-type, NiMH or alkaline, each 26 × 50 mm, 2.4–3 volts total			
Battery life time	40 hours continuous use			
Digital interface	RS-232C: Baud rate=9600; Parity=None; Stop bit=1; Start bit=0			
Data storage	500 data			
CE certification	EN 61326-1:1997 / A1:1998 / A2:2001 / A3:2003			
Enclosure	IP 67, stainless steel			
Temperature of use	-5 °C to 100 °C			
Temperature compensation	-5 °C to 60 °C			
Dimensions (W × H × D)	115 mm × 150 mm × 220 mm			
Weight	2.5 kg			

Portable analyser

3	6	5	x	/	1	1	x
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Model	Display units	Display resolution
ORBISPHERE 3650/111 Dissolved O2	ppm/ppb or ppm only	1 ppb or 0.001 ppm
ORBISPHERE 3650/112 Gas phase O2	% or ppm	1 ppm
ORBISPHERE 3650/113 Dual-use (gas/liquid) O2	% (gaseous) or ppm (liquid)	0.001 ppm or 0.001%
ORBISPHERE 3655/111 Dissolved O2 high resolution	ppm/ppb or ppm only	0.1 ppb or 0.001 ppm

For a complete system are needed:

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Orbisphere 3650EX

Portable analyser



The ORBISPHERE 3650 EX portable analyser measures oxygen (O₂) or hydrogen (H₂) in areas where hazardous and flammable conditions are possible.

It displays continuous line sample measurements and logs the results internally for review later.

Measure aqueous or non-aqueous samples such as organics, olefins, fuels, monomers, aromatics, specialty chemicals, water and other liquids and gases.

When coupled with a choice of membrane covered, electrochemical sensors, the ORBISPHERE 3650 EX is suitable for sampling and measuring dissolved concentrations from trace ppb to super saturation and gaseous concentrations from vppm to percent (%) levels.

Technical Data	
Subject to change without notice	
Orbisphere 3650EX	
Designation	self-contained instrument configured to make O ₂ or H ₂ gas concentration measurements with EC sensors in a hazardous area, in either liquid or gaseous samples.
3650EX Instrument	
Power Supply	Model 32960 non-rechargeable lithium battery
Battery Autonomy	60 hours continuous use
Signal Drift	< 0.5% of reading between service
Serial Output (RS232)	Baud rate: 9600; Stop Bits: 1; Start Bits: 0; Parity: None;
Temperature Compensation	-5 to 60°C
Instrument Operating Limits	0 to 45°C
Dimensions (HxWxD)	150 mm x 115 mm x 220 mm
Weight	2.4 kg
Enclosure	IP 65/NEMA 4
EMC Requirements	EN 61326 (2006)
EXPROOF Requirements	EN 60079-0 (2006); EN 60079-11 (2007)
LCIE 03 ATEX 6003 X	Ex II 1 G, Ex ia IIC T4
IECEx Certificate	IEC 60079-0 Ed. 4 (2004); IEC 60079-11 Ed. 5 (2006)
ISO Certification	ISO9001/EN29001
29122 Interface Box	
Power Supply	120Vac 50/60Hz (Model 29122.A) 230Vac 50/60Hz (Model 29122.B)
Power Consumption	11VA (Model 29122.A) 7VA (Model 29122.B)
Fuse	Max current 250mA (Model 29122.A) Max current 100mA (Model 29122.B)
Operating Limits	0 to 45°C
Dimensions (HxWxD)	70 mm x 140 mm x 190 mm
Weight	0.65 kg
Enclosure	IP 20
Enclosure material	ABS FR (V0)
EMC Directive 2004/108/EC	EN 61326-1 (2006)
LVD Directive 2006/95/EC	EN 61010-1 (2001)

Orbisphere 3650EX

Portable analyser

Configuration

3 6 5 0 EX						x	1	x
<u>Gas measured</u>								
Oxygen (O2)	.....	.....	.....	.....	.....	1		
Hydrogen (H2)	.....	.....	.....	.....	.....	2		
<u>Maximum Display Resolution</u>								
0.01 ppb (ppm/ppb)-liquid, O2 or H2	.....	.....	.....	.....	.....		1	
0.01 ppm - (%/ppm)-gaseous, O2 or H2	.....	.....	.....	.....	.....		2	
0.001 ppm liquid or 0.001% gaseous, O2 only	.....	.....	.....	.....	.....		3	
0.01 Pa - (kPa/Pa) - gaseous, O2 only	.....	.....	.....	.....	.....		4	
0.001 mbar - gaseous, O2 only	.....	.....	.....	.....	.....		5	

Part no.

Designation

Sensors and accessoires

311xxE.xx	Oxygen sensor
312xxE.xx	Hydrogen sensor
29122.x	PC interface box with 32511 and 32538 cables (X: A=95–130 V AC; B=207–253 V AC)
32007E.xx	Flow chamber, stainless steel (available with 6 mm and 1/4 inch fittings)
32051A	Sample tube adapter
32301	Electrochemical sensor cleaning and regeneration center
32511.03	Instrument-to-interface box cable for 3650 EX
32513E.04	4 meter sensor cable
32538.02	Interface box-to-computer cable (RS 232)
32689	WinLog08 Windows programe software
32813	Rubber gasket for 6 mm or 1/4 inch tubing, used with 32051A
32814	Rubber gasket for 8 mm tubing, used with 32051A
32960	3.6 V primary Li battery for 3650 EX

 **Note:** Instruments are user-configured for a particular membrane, depending on application. This determines display resolution and measurement limits.

Orbisphere 3658

CO₂ logger



CO₂

ORBISPHERE 3658 portable analyser for CO₂ measurement is specifically designed for the beverage market and for use in breweries, wineries, bottled water and soft drink plants.

Calibration and validation of the instrument can be carried out quickly and easily using the ORBISPHERE High Precision Calibration Kit. This ensures that each measurement of dissolved CO₂ gives a true reading which is critical to taste, foam and final product quality.

Technical Data	
Subject to change without notice	
ORBISPHERE 3658	
Designation	Analyser that accurately measures CO ₂ in dissolved phase, using a thermal conductivity sensor
Sample	
Temperature	-5 to 35°C (23 to 95°F)
Maximum pressure	10 bar
Recommended flow rate	150 mL/minute
Measurement	
Range	0–10 g/kg, 0–4 V/V, 0–6 bar
Accuracy within ± 5°C of calibration temperature	The greater of: ± 1% of reading; ± 0.025 g/kg or ± 0.012 V/V or ± 16 mbar
Calibration	With High Precision Calibration Kit or CO ₂ gas
Response time (90%)	1 minute
Cycle time	20 seconds
Instrument	
Power requirement	Batteries: two C-type, NiMH or alkaline, each 26 x 50 mm, 2.4–3 volts total
Batteries life time	15 hours continuous use, 3 weeks in "standby", mode (power OFF, standby purge ON)
Digital interface	RS-232C: Baud rate=4800; Parity=None; Stop bit=1; Start bit=0; Flow control=None
Data storage	500 measurements
CE certification	EN 61326-1:1997 /A1:1998 /A2:2001 /A3:2003, Directive 89/336/CE
Mechanical connectors	Swagelock ¼ inch
Enclosure	IP 65, stainless steel
Temperature of use	0 to 40°C (32 to 104°F)
Humidity (maximum)	95% for temperature < 30°C (86°F) 70% for temperature 30 to 40°C (86 to 104°F)
Dimensions (W x H x D)	130 mm x 210 mm x 220 mm
Weight	3.5 kg (including flow chamber and sensor)
Sensor	
Membrane	29561A
Thickness	25 µm
Radiation limits	105 rad

Orbisphere 3658

CO2 logger

Part no.	Designation
<u>Instrument configuration</u>	
3658/418	Portable Orbisphere analyser, battery powered, Membrane: 29561A, RS232 (serial) output For use with sensor 31478.
<u>Sensor and parts on configured system</u>	
31478	Thermal Conductivity Sensor (TC) for CO2 measuring
32058	Flow chamber with spiral flow path for reduced flow demand
32658	PC software and communications cable for CO2 logger
32746	Maintenance Kit for carbon dioxide thermal conductivity sensors with protection cap 29142. Includes membranes 29561A, membrane holding ring 29228.01, O-rings 29039.0 and 28613.0 and tools for sensor maintenance.
<u>Accessoires (Optional)</u>	
32311	Flow meter equipped with metal exit tube. Graduation from 10 to 100%
32939	Off-mode external power supply
32313	CO2 calibration starter kit, high level. Includes calibration bottle, adapter and reagents from part number 32314.
32314	Refill kit for 32313. Reagents to prepare a reference solution to calibrate CO2 analyzers. High carbonation 3 to 8 g/kg.
32315	CO2 calibration starter kit, low level. Includes calibration bottle, adapter and reagents from part number 32316
32316	Refill kit for 32315. Reagents to prepare a reference solution to calibrate CO2 analyzers. Low carbonation 0 to 3 g/kg.
29972.A	Tapping device for measuring in the bottle
29979	Piercer knife for PET bottles or plastic caps, for use with 29972.
LZH152	CO2 pressure reducer
LZH153	N2 pressure reducer
32818.01	1 meter exit tube in Tygothane TM
32818.02	2 meter exit tube in Tygothane TM
W_4158_361_X	"STAUBLI" connector with 1/8" external thread (e.g. tapping device) - RBE 03.6150 IC



Orbisphere 6110

Total Package Analyser



The ORBISPHERE 6110 total package analyser is the latest technology in final package analysis for gas measurements. It has been designed to meet the practical needs of the lab and at-line environments.

The ORBISPHERE 6110 analyser provides both oxygen (O₂) and carbon dioxide (CO₂) measurement on all types and size of can or bottle resulting in a fast, clean, final package analysis.

Technical Data	
Subject to change without notice	
	Orbisphere 6110
Designation	Total package analyser for O ₂ and CO ₂ measurement
Application	Beverage industry
Analysis	
Measurement range	O ₂ measurement: 1 ppb - 12 ppm CO ₂ measurement: 0.75 - 5 V/V or 1.5 - 10 g/kg
Repeatability r95	CO ₂ on equilibrated packages at T = 10 to 25°C (50 to 77°F) ± 0.05 V/V or 0.10 g/kg ± 2% whichever is the greater
Typical analysis time	About 4 minutes
Display units	O ₂ concentration: ppb or ppm CO ₂ concentration: V/V, g/kg, g/L or %W Pressure: bar, mbar, psia Temperature: °C, °F or K
Operating range	Package temperature: -2 to 30°C (28 to 86°F) Package pressure: 1.4 to 6.8 bar absolute (20 - 99 psia) Ambient temperature: 0 to 40°C (32 to 104°F) Relative humidity: Up to 80%
Package setup	Maximum package height: 340 mm Minimum package height: 90 mm Minimum volume: 150 ml Material: Glass, PET or aluminum
Enclosure	
Dimensions (L x W x H)	537 x 540 x 942 mm
Weight	55 kg
Enclosure protection	IP20
Power requirements	100-240 VAC ±10% @ 50-60 Hz
Power consumption	Max. 250 VA
Purge gas	CO ₂ with purity > 99.9% at 6 to 7 bar absolute
Purge gas consumption	0.4 mL/second (1.5 L/hour)
Forcing gas	Air or N ₂ at 5.5 to 6 bar absolute
Forcing gas consumption	0.25 mL/minute in standby mode
Compliance	
European directives	Low voltage 2006/95/EC; EMC 2004/108/EC
Safety standard	IEC/UL/CSA, 61010-1
Laser product safety	IEC/UL/CSA; 60825-1
Electromagnetic compatibility	EN 61326: 2006
Interface	
Digital display	TFT VGA (640 x 480) color display touch screen with backlight
Operating system	Windows CE 4.2
Digital connections	1 x USB client, 1 x USB host, 1 x Ethernet
Languages	English, German, Spanish, Chinese, Japanese

Orbisphere 6110

Total Package Analyser

Factory supplied

Part no.	Designation
DG6110-SYS	6110 package analyser including: 6110-AD2 instrument, ORBISPHERE TPA oxygen sensor, 1 year consumables kit

Installation kit

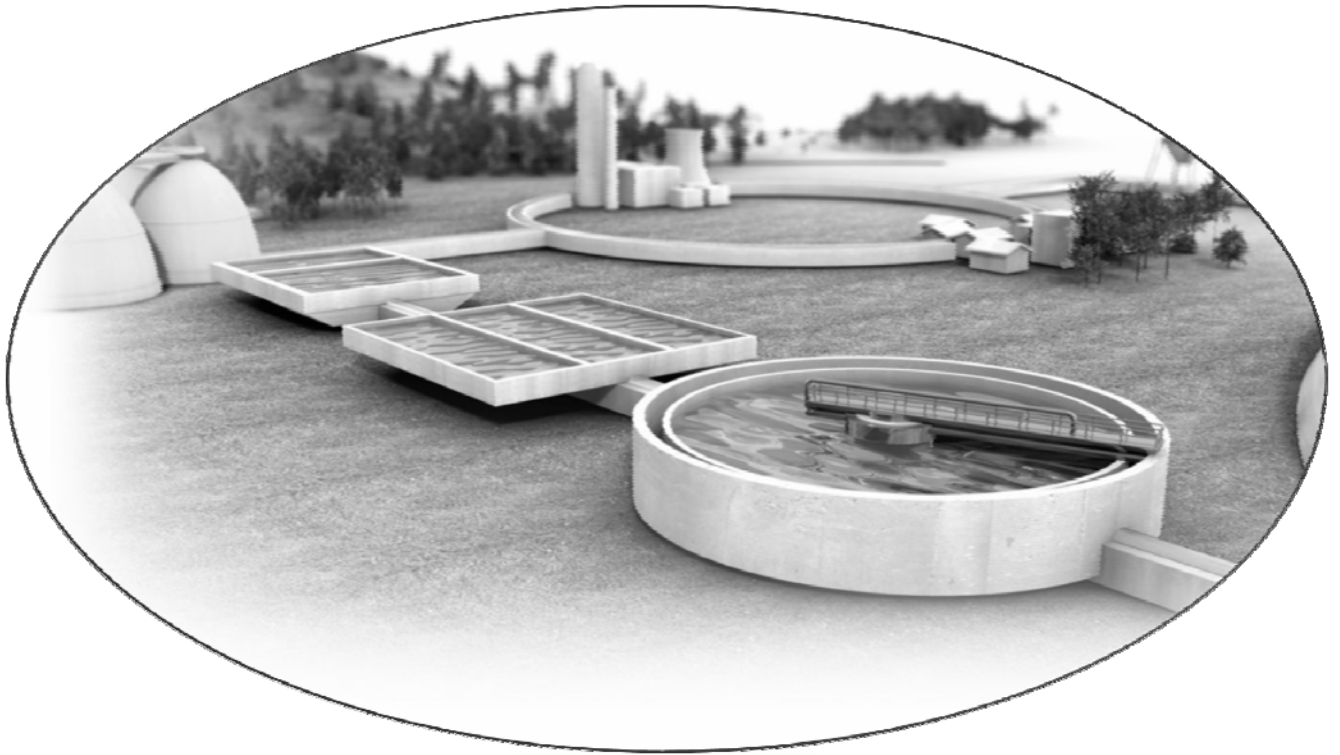
33001	European power cable (2.5 m)
33117	Seal to package (6 items)
33122	Solenoid valve 2/2 NC with O-ring
33124	Filter with Goretex membrane (52 items)
DG33308	Piercing tip x1 (for PET)
33127	Piercing tip x2 (for metal)
33159	Piercing tip mounting tool
33154	Pneumatic tubing kit
33156	Antifoam recharge bottle 1L
33157	Antifoam cartridge (empty)
33161	Antifoam priming beaker
33162	Syringe for antifoam cartridge
2956A-A	Sensor recharge kit
DG33267	Outlet sample tube assembly
28302	2.5 mm Allen key

Part No. **Designation**

 **Note:** The fabric certificates have to be requested together with the order for a complete system (410 /510 controller + sensor). Afterwards, the certificates are no more procurable.

Fabric certificates (according EN 10204) + FDA Certificate

Certificate no.	Orbisphere Product	Product description
33181	C1100	Ozon EC Sensor
CERT3.1/C1100	C1100	Ozon EC Sensor
33195	A1100	Oxygen EC sensor
CERT3.1/A1100	A1100	Oxygen EC sensor
33197	313XX	Ozon EC Sensor
CERT3.1/313XX	313XX	Ozon EC Sensor
33181	C1100	C1100 ozon EN 10204 2.2
CERT3.1/C1100	C1100	C1100 ozon EN 10204 3.1
33199	311XX	Oxygen EC sensor
CERT3.1/311XX	311XX	Oxygen EC sensor
33204	M1100	Oxygen LDO sensor
CERT3.1/M1100	M1100	Oxygen LDO sensor
33206	32001.XXX	Flow-through chamber
CERT3.1/32001X	32001.XXX	Flow-through chamber
33208	33095 + 33096	Tuchenhagen Varivent Adapter
33209	33095 + 33096	Tuchenhagen Varivent Adapter
33210	32003	Varivent replacement armature
33211	32003	Varivent replacement armature
33212	29501.XX	Set-in nozzle
CERT3.1/29501XX	29501.XX	Set-in nozzle



W.T.O.S.

Water Treatment Optimisation Solutions



Water Treatment Optimisation Solutions (W.T.O.S.) provides a complete new solution for optimising plant processes in order to save operational expenditures and to meet regulatory requirements for consent values.

W.T.O.S. combines three components: HACH LANGE instruments, the unique PROGNOSYS monitor diagnostic tool for signal validation and Real Time Control Modules for phosphate and nitrogen removal and sludge management.

Technical Data	
Subject to change without notice	
W.T.O.S.	
Designation	
W.T.O.S. P-RTC	Phosphate Removal Module: Reduced precipitation sludge and precipitant costs
W.T.O.S. N/DN -RTC	Nitrification / Denitrification Module: Reduced aeration costs and ensured consent performance
W.T.O.S. SRT-RTC	Sludge Retention Time Module: Reduced energy costs for aeration
W.T.O.S. ST-RTC	Sludge Thickening Module: Reduced polymers and stable sludge discharge quality
W.T.O.S. SD-RTC	Sludge Dewatering Module: Reduced polymers and stable sludge discharge quality
Industrial Personal Computer (IPC), (Embedded PC)	
Processor	Pentium®1, MMX compatible, 500 MHz clock rate
Flash memory	2 GB compact flash card
Internal working memory	256 MB DDR-RAM (not expandable)
Interface	RJ 45 (Ethernet), 10/100 MBit/s
Diagnostic LEDs	Power, LAN speed, LAN activity, TC status, flash access
Expansion slot	Compact flash type II slot with ejection mechanism
Clock	Internal, battery-buffered clock for time and date
Operating system	Microsoft Windows®2 CE or Microsoft Windows Embedded Standard
Control software	TwinCAT PLC Runtime or TwinCAT NC PTP Runtime
System bus	16 Bit ISA (PC/104 standard)
Power supply	Via system bus (through power supply module CX1100-0002)
Max. power loss	6 W (including the system interfaces CX1010-N0xx)
Analog input	
	4–20 mA for flow rate measurement
Internal resistance	80 Ohm × diode voltage 0.7 V
Signal current	0–20 mA
Common mode voltage	35 V max.
Measurement error	< ± 0.3 % (from measurement range end value)
Electrical surge resistance	35 VDC
Electrical isolation	500 Veff (K-bus/signal voltage)
Analog output	
	4–20 mA for dosing pump
Number of outputs	1
Power supply	24 V DC via power contacts (alternatively 15 V DC with bus terminal KL9515)
Signal current	0–20 mA
Working resistance	< 500 Ω
Measurement error	± 0.5 LSB linearity error; ± 0.5 LSB offset error; ± 0.1, % (relative to the measuring range end value)
Resolution	12 bit
Conversion time	~ 1.5 ms
Electrical isolation	500 Veff (K-bus/signal voltage)
Digital outputs	
	1-channel: 1 × for dosing pump and 1 × alarm
	2-channel: 2 × for dosing pump and 1 × alarm
Nominal load voltage	24 VDC (–15 %/+20 %) valid only for P-RTC module
Load type (P-RTC)	Ohmic, inductive, lamp load, valid only for P-RTC module
Max. output current	0.5 A (short-circuit proof) per channel

Technical Data	
Subject to change without notice	
W.T.O.S.	
Short-circuit current	0.7 to 1.7 A
Reverse polarity protection	Yes
Electrical isolation	500 Veff (K-bus/field voltage)
Current consumption	20 mA typ. (for typ. 30 mA 2-channel device)
Environmental conditions	
Working temperature	0 to 50 °C (32 to 122 °F)
Storage temperature	-25 to +85 °C (-13 to 185 °F)
Relative humidity	95 %, non-condensing
Equipment properties	
Dimensions (L × W × H)	165 mm × 120 mm × 96 mm
Weight	approx. 0.9 kg
Miscellaneous	
Vibration/shock resistance	EN 60068-2-6/EN 60068-2-27/29
EMC interference @ radiation	EN 61000-6-2/EN 61000-6-4
Rating enclosure	IP20
Installation	DIN rail EN 50022 35 × 7.5



Note:

- 1 Pentium is a registered trademark of the Intel Corporation
- 2 Microsoft Windows is a brand name for operating systems of the Microsoft Corporation

Phosphate removal module - W.T.O.S. P-RTC

Description: Open and closed loop control unit for load dependent, chemical phosphate elimination based on the flow volume and the ortho-phosphate concentration

Benefit: Reliable compliance with phosphate effluent values with sparing use of precipitants via precise load dependent dosage.

The W.T.O.S. P-RTC real time controller is used for both open and closed loop control of precipitant dosage. Depending on situation, it observes current measurement values or retrieves stored hydrographs.

Configuration of P-RTC module

L X V 4 0 7 . 9 9 . 0 1 0 x x													
<u>Power supply</u>													
24 V DC	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0	
100-240 V AC	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	
<u>Nr. of channels</u>													
1 channel	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0	
2 channels	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	

Part no.

Designation

Quotation example for W.T.O.S. P-RTC 1 channel

LXV407.99.01010	P-RTC (1-Kanal, 100-240 VAC)
	<u>Instrumentation</u>
LXV402.99.01001	sc1000 display module with GSM card (SIM card on request)
LXV400.99.2K021	sc1000 probe module with W.T.O.S. communication card (YAB117)
LXV422.99.13001	PHOSPHAX sc (0,05-15 mg/l ortho-PO4-P)
LZY285	Rail Mnting for sc-analyser with controller
LZX958	Roof sc1000 incl. Set of small parts
LXV294.00.02000	FILTRAX with 10m tube with heater
LZX414.00.40000	Rim fixing without adapter for FILTRAX (with extra hole)
LZX676	Rim fixing for FILTRAX control unit

Quotation example for W.T.O.S. P-RTC 2-channel

LXV407.99.01011	P-RTC 2-channel 90-240V
	<u>Instrumentation</u>
LXV400.99.20021	sc1000 probe module
YAB117	W.T.O.S. communication card
LXV402.99.01001	sc1000 display with GSM module
LZY489	sc1000 bus cable (2-wire cable) - depending on distance between sc1000 probe module and P-RTC
LXV422.99.14001	Phosphax sc 0.05-15mg/l, 2-channel
LZY285	Rail mounting for sc controller and Phosphax
LXV294.00.02000	2 x Filtrax 10 m with heating
LZX414.00.40000	2 x Mounting for Filtrax module carrier
LZX676	2 x Carrier for Filtrax control module

Service contracts for W.T.O.S. P-RTC

TSE-COM-WTOS-P	Commissioning and introduction of W.T.O.S. P- RTC parametrisation and optimisation of the settings enable remote connection option, including SIM-card and costs for SIM-card for term of 1 year (hardware sc1000 with modem required); without installation
TSE-CC-RTC	Service-Package 2.2: Comfort contract for W.T.O.S.-RTC; on-site, price per vistic (2 visits/year); Travel costs, consumables and wear parts will be invoiced separately
TSE-DIAG-Y1	Service-Package Remote Diagnosis: continuous proactive remote control: for up to 5 sensors, monthly reporting; yearly term and pricing ; only in combination with service package 2

Nitrification / Denitrification Module - W.T.O.S. N/DN-RTC

Description: Open and closed loop control unit for the load depending setting of nitrification and denitrification times

Benefits: Reliable compliance with nitrogen effluent values with optimal energy use due to exact, load dependent aeration.

The W.T.O.S. N/DN-RTC can optionally be equipped with an closed loop controller for setting the dissolved oxygen concentration in the aeration tank.

Configuration of N/DN-RTC for intermittent denitrification

L X V 4 0 8 . 9 9 . x x x x 1													
Parameter measured													
NH4-N and NO3-N											2		
NH4-N and NO3-N for SBR control											3		
DO (Oxygen) control													
without DO control											0		
with 6 steps DO dosing											1		
Power supply													
24 V DC											0		
100-240											1		
Nr. of channels													
1 channel											0		
2 channels											1		

Part no.

Designation

Quotation example for W.T.O.S. N/DN-RTC O2 1 channel

LXV408.99.21101 N/DN-RTC O2 (1-channel, 100-240 VAC)

Instrumentation

LXV402.99.01001 sc1000 display module with GSM card (SIM card on request)
 LXV400.99.2K021 sc1000 probe module with W.T.O.S. communication card (YAB117)
 LXV421.99.13001 AMTAX sc (0,05-20 mg/l NH4-N)
 LZY285 Rail Mnting for AMTAX sc-analyser with sc1000 controller
 LXV958 Roof sc1000 incl. Set of small parts
 LXV294.00.02000 FILTRAX with 10m tube with heater
 LXV414.00.40000 Rim fixing without adapter for FILTRAX (with extra hole)
 LXV676 Rim fixing for FILTRAX control unit
 LXV439.99.10001 NITRATAX sc (0,1-20 mg/l NO2+3-N)
 LXV414.00.10000 Stainless Steel Rim fixing for NITRATAX sc
 LXV440.99.00001 alternative: AN-ISE sc for Ammonium und Nitrate
 LXV914.99.12400 alternative: Chain Mounting for NH4D sc
 LXV416.99.20001 LDO II sc DO probe (0.1-20 mg/l O2)
 LXV914.99.11100 Chain Mount Kit Stainless Steel for LDO sc

Service Contracts for N/DN-RTC 1-channel and N/DN-RTC 2-channels

TSE-COM-WTOS-ND Commissioning and introduction of W.T.O.S. N/DN -RTC, parametrisation and optimisation of the settings enable remote connection option, including SIM-card and costs for SIM-card for 1 year (hardware sc1000 with modem required); without installation.

TSE-CC-RTC Service-Package 2.2: Comfort contract for W.T.O.S.-RTC; on-site, price per vistic (2 visits/year); Consumables and wear parts will be invoiced separately.

TSE-DIAG-Y1 Service-Package Remote Diagnosis: continuous proactive remote control: for up to 5 sensors, monthly reporting; yearly term and pricing ; only in combination with service package 2

Nitrification Module W.T.O.S. N-RTC

Description: Open and closed loop control unit for the ammonium load dependent setting of oxygen concentration
Benefits: Reliable compliance with nitrogen effluent values with optimal energy use due to exact, load dependent aeration

The W.T.O.S. N-RTC can be optionally equipped with an additional closed loop controller for setting the dissolved oxygen concentration in the aeration tank.

N-RTC module configuration for continuously aerated reactors

L X V 4 1 1 . 9 9 . x x x x 1														
<u>1st Option: measured parameter</u>														
1- NH4-N control (Flow, NH4-N, MLSS)												1		
<u>2nd Option: DO control</u>														
without DO control												0		
with DO control (up to 6 digital outputs)												1		
2- with DO control (analogue 0/4 ... 20mA)												2		
<u>3rd Option: Power supply</u>														
with 24 VDC												0		
with 24 VDC / 90-240 VAC power supply with EU-plug												1		
<u>4th Option: Number of channels</u>														
with 1 channel												0		
with 2 channels												1		

Part no.	Designation
LXV411.99.10001	N-RTC- module for NH4-N- load dependend DO adjustment, 1-channel, 24V DC, DINrail.
LXV411.99.10101	N-RTC- module for NH4-N- load dependend DO adjustment, 1-channel, 240V AC, DINrail.
LXV411.99.11001	N-RTC- module for NH4-N- load dependend DO adjustment with DO step controller, 1-channel, 24V AC, DINrail.
LXV411.99.11101	N-RTC- module for NH4-N- load dependend DO adjustment with DO step controller, 1-channel, 240V DC, DINrail.
LXV411.99.12001	N-RTC- module for NH4-N- load dependend DO adjustment with analogue DO controller to adjust two VSD blowers, 1-channel, 24V AC, DINrail.
LXV411.99.12101	N-RTC- module for NH4-N- load dependend DO adjustment with analogue DO controller to adjust two VSD blowers, 1-channel, 240V DC, DINrail.
LXV411.99.10011	N-RTC- module for NH4-N- load dependend DO adjustment . 2-channel, 24V DC, DINrail.
LXV411.99.10111	N-RTC- module for NH4-N- load dependend DO adjustment . 2-channel, 240V AC, DINrail.
LXV411.99.11011	N-RTC- module for NH4-N- load dependend DO adjustment with DO step controller. 2-channel, 24V AC, DINrail.
LXV411.99.11111	N-RTC- module for NH4-N- load dependend DO adjustment with DO step controller. 2-channel, 240V DC, DINrail.
LXV411.99.12011	N-RTC- module for NH4-N- load dependend DO adjustment with analogue DO controller to adjust two VSD blowers, 2-channel, 24V AC, DINrail.
LXV411.99.12111	N-RTC- module for NH4-N- load dependend DO adjustment with analogue DO controller to adjust two VSD blowers, 2-channel, 240V AC, DINrail.

Service Contracts for W.T.O.S. N-RTC module

TSE-CC-RTC	Service-Package 2.2: Comfort contract for W.T.O.S.-RTC; on-site, price per vistic (2 visits/year); Travel costs, consumables and wear parts will be invoiced separately
TSE-DIAG-Y1	Service-Package Remote Diagnosis: continuous proactive remote control: for up to 5 sensors, monthly reporting; yearly term and pricing ; only in combination with service package 2

Sludge Retention Time Module - W.T.O.S. SRT-RTC

Description: Open and closed loop control unit for setting the sludge age depending on temperature and wastewater load

Benefits: Reliable compliance with required sludge age based on verified measurement values
Automatic setting of the optimal sludge age dependent on the load and the temperature.

Sludge Dewatering Module - W.T.O.S. SD-RTC

Description: Open and closed loop control unit for the optimisation of polymer dosage in mechanical sludge dewatering

Benefits: Reliable compliance with required dry matter content in the dewatered sludge due to load dependent polymer dosage and adjustment of influent volume.

Sludge Thickening Module W.T.O.S. ST-RTC

Description: Open and closed loop control unit for the optimisation of polymer dosage in mechanical sludge thickening

Benefits: Reliable compliance with required dry matter content in the thickened sludge due to load dependent polymer dosage and adjustment of influent volume.

SRT-RTC module configuration

L	X	V	4	0	9	.	9	9	.	0	0	x	0	1
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Power supply

with 24 V DC	0
with 90-240 V AC, EU-plug	1

SD-RTC module configuration

L	X	V	4	1	0	.	9	9	.	0	0	x	x	1
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Power supply

with 24 V DC	0
with 90-240 V AC, EU-plug	1

Nr. of channels

with 1 channel	0
with 2 channels	1

ST-RTC module configuration

L	X	V	4	1	2	.	9	9	.	0	0	x	x	1
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Power supply

with 24 V DC	0
with 90-240 V AC, EU-plug	1

Nr. of channels

with 1 channel	0
with 2 channels	1

W.T.O.S.

Spare Parts

Part no.	Designation
<u>Spare Parts:</u>	
LZH165	NS 35/15 DIN rail, punched according to DIN EN 60715 TH35, made from galvanized steel Length: 35 cm
LZH166	90-240 V AC/24 V DC 0.75 A transformer, module for DIN rail assembly
LZH167	Terminal for 24 V connection without power supply
LZH168	Grounding terminal
LZH169	SUB-D connector
LZH170	C2 circuit breaker
LZH171	CPU base module with Ethernet port, passive venting element (CX1010-0021) and RS422/485 interface module
LZH172	Power supply module, consists of a bus coupler and a 24 V terminal module (CX1100-0002)
LZH173	Digital output module 24 V DC (2 outputs) (KL2032)
LZH174	Digital output module 24 V DC (4 outputs) (KL2134)
LZH175	Analog output module (1 output) (KL4011)
LZH176	Analog output module (2 outputs) (KL4012)
LZH177	Analog input module (1 input) (KL3011)
LZH178	Bus termination module (KL9010)
YAB117	W.T.O.S. communication card
LZY748-00	CF card type W.T.O.S.
Battery type CR2033	Available on request

Scope of delivery:

Each W.T.O.S. module is delivered with:

- SUB-D connector (9 pin)
- User Manual

Part no	Designation
	<u>sc1000 probe module with W.T.O.S. communication card</u>
LXV402.99. 01001	sc1000 Display module for W.T.O.S. Display module with GSM

Configuration - sc1000 probe module for WTOS -

L	X	V	4	0	0	.	x	x	x	x	1
---	---	---	---	---	---	---	---	---	---	---	---

Power supply

100-240 V AC and EU plug connector	2
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Relays and communication module

with W.T.O.S. communication card, YAB117	K
with W.T.O.S. communication card + MODBUS RS485 network card, YAB021	L
with W.T.O.S. communication card + PROFIBUS-DP, YAB020	M
with W.T.O.S. communication card + 1 relay card,YAB076	N
with W.T.O.S. communication card + MODBUS RS485 network card + 1 relay card ...	O
with W.T.O.S. communication card + PROFIBUS-DP network card + 1 relay card ...	P

I/O Output and Input module option

without I / O module	0
with 1 analog output card 4x0/4-20 mA, YAB019	1
with analog / digital input card with 4 inputs, YAB018	2
with 1 analog output card 4 x 0/4-20 mA and 1 analog /digital input card with 4 inputs (only with K or L options)	5

Sensor connection

up to 4 sc sensors	2
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