



THURSDAY, AUGUST 26, 2021

Electrification Digital Solutions

ABB Virtual Summer Internship 2021

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Agenda

- Introduction
- Basic concepts of communication
- Smart LV Switchgear Solutions
- ABB Ability Energy and Asset Manager
- System architecture
- Energy Manager vs. Asset Manager
- Main widgets and features
- Reference projects



Introduction

What is a digital/smart device

What is a smart device?

Think of a Smart TV

How do you classify this TV

- 1- Non-digital TV
- 2- Digital TV

Can this TV be upgraded to Digital/Smart TV?

- 1- Yes
- 2- No



What is a smart device?

Think of a Smart TV

How do you classify this TV

- 1- Non-digital TV
- 2- Digital TV

Can this TV be upgraded to Digital/Smart TV?

- 1- Yes
- 2- No



What is a smart device?

Think of a Smart TV

How do you classify this Digital TV

1- Non-digital upgradable TV

2- Digitally-enabled TV

The main two advantages

1- App (software) that can be installed
e.g. Games

2- The monthly subscriptions for apps
e.g. Netflix



The world has growing aspirations for



Urbanization

By the year 2050,
70% of the world's
population will live in cities
UN Study

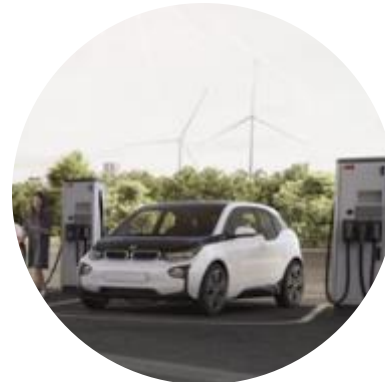


Sustainability

Carbon footprint
reduction

Circular economy

Greener environments



Cleaner energy

Electricity use is growing at
two times the rate of any
other form of energy

By 2040, EVs will account for
over 55% of new car sales
Bloomberg



Digitalization

By 2020,
more than 33 billion
devices with Internet
access will be used
worldwide
**Strategy Analytics
Studies**

Smart cities – the vision

With joined-up, fully connected services

A smart city is a city that uses information and communication technologies (ICT) to increase operational efficiency, share information with the public and improve both the quality of government services and citizen welfare.

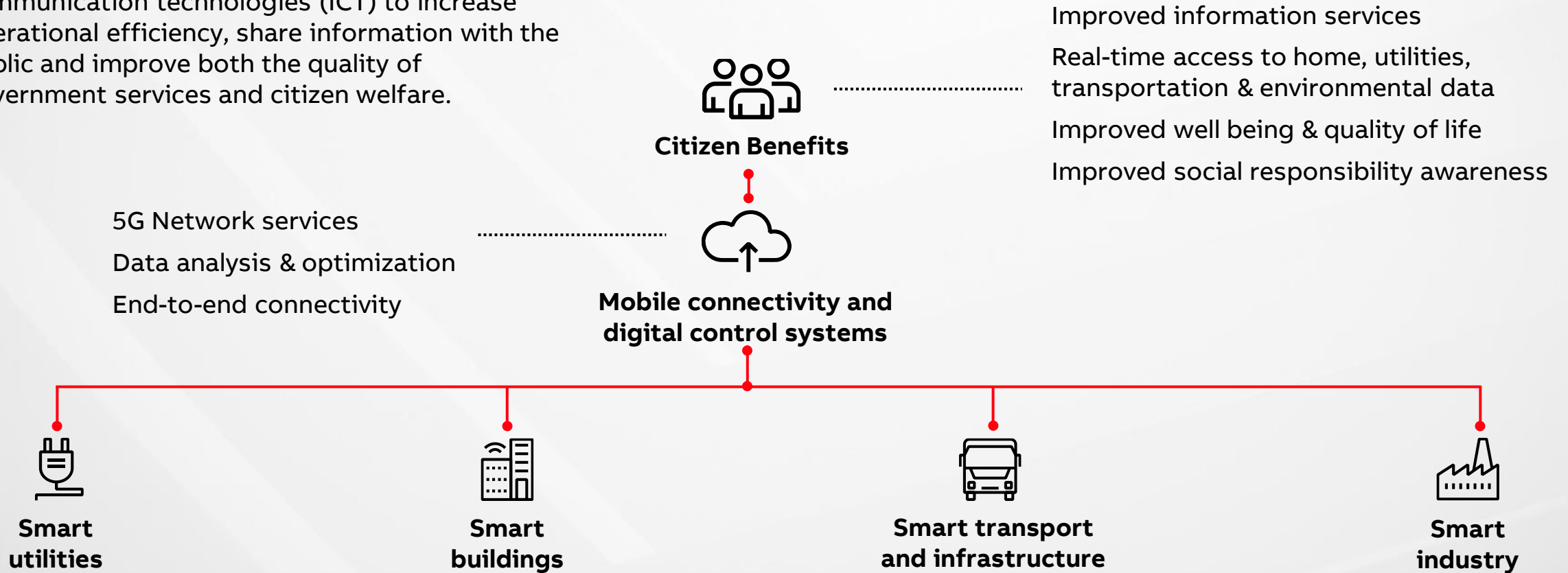


ABB Ability™

...powered by a common technology platform

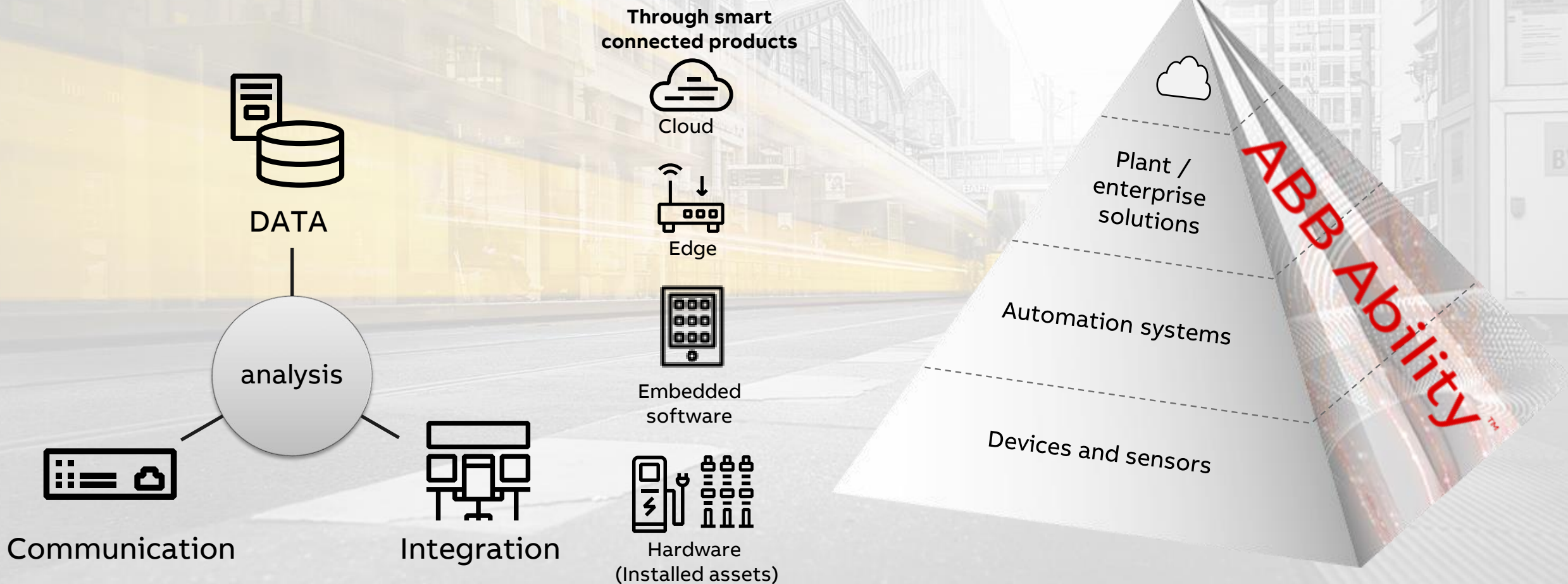
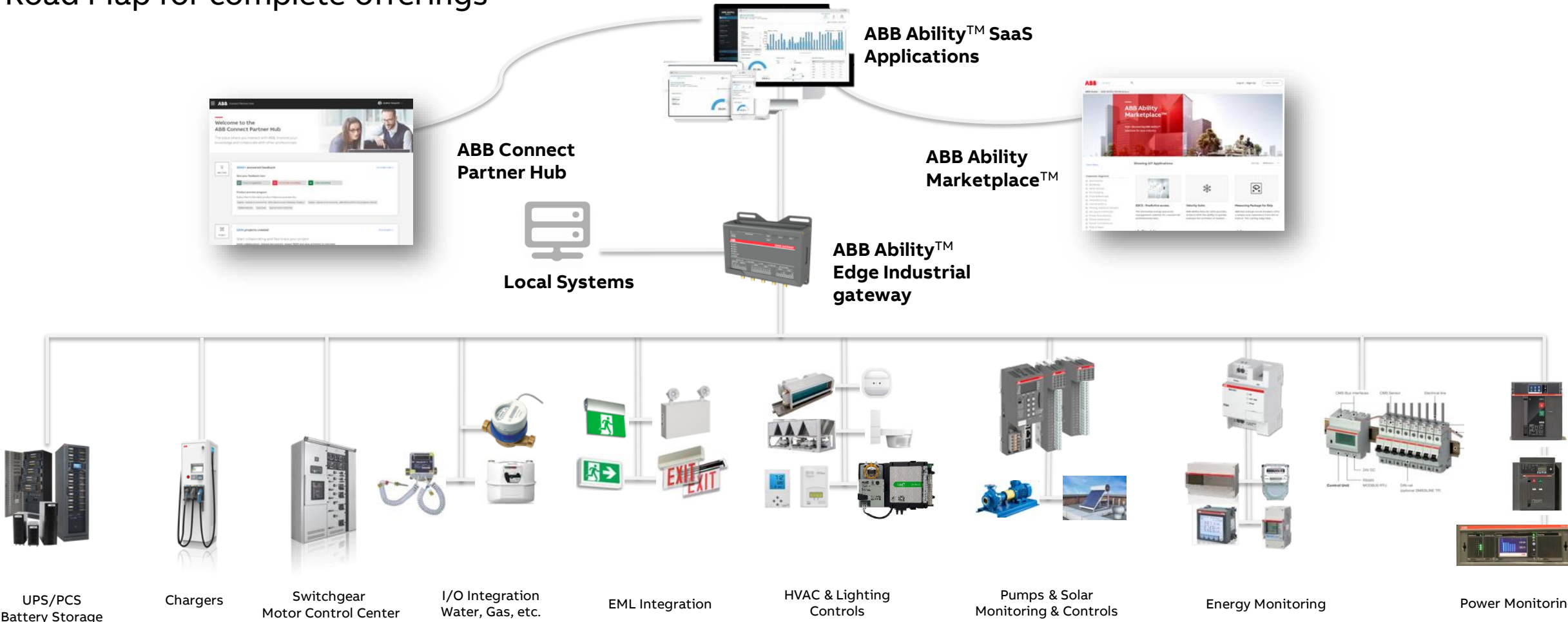


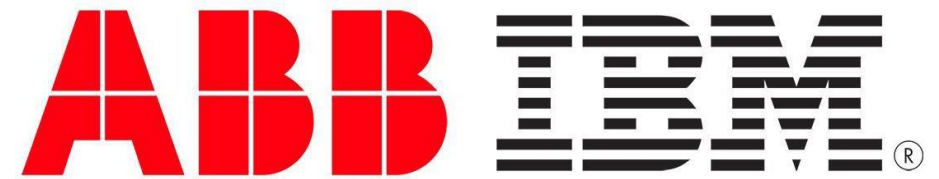
ABB Ability™ Electrification solution & customer touchpoints

Road Map for complete offerings



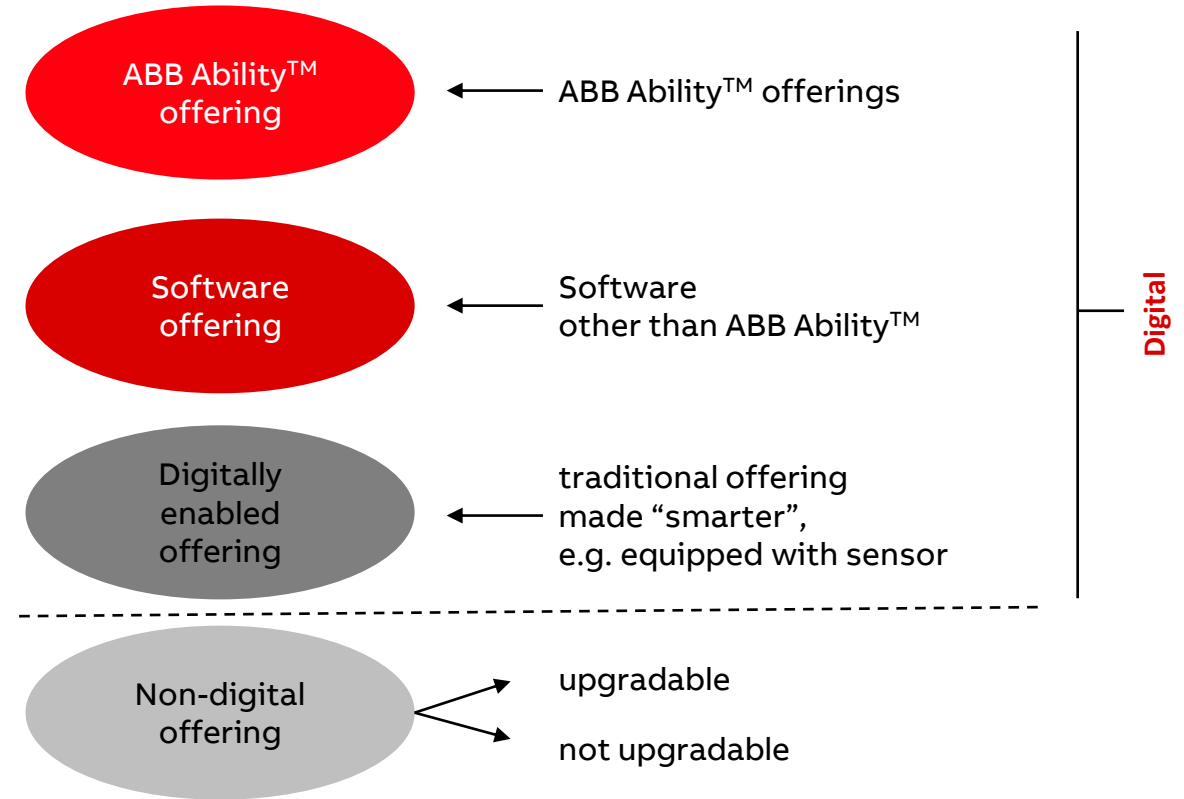
A digital transformation “Connecting people & Connecting equipment”

ABB Ability™



EL Digital

Digital Target : Realignment with ABB Group Digital Levels



EL Digital

Digital Target : Realignment with ABB Group Digital Levels



ABB Ability™
offering

← ABB Ability™ offerings

Software
offering

← Software
other than ABB Ability™

Digitally
enabled
offering

← traditional offering
made "smarter",
e.g. equipped with sensor

Non-digital
offering

↗ upgradable
↘ not upgradable

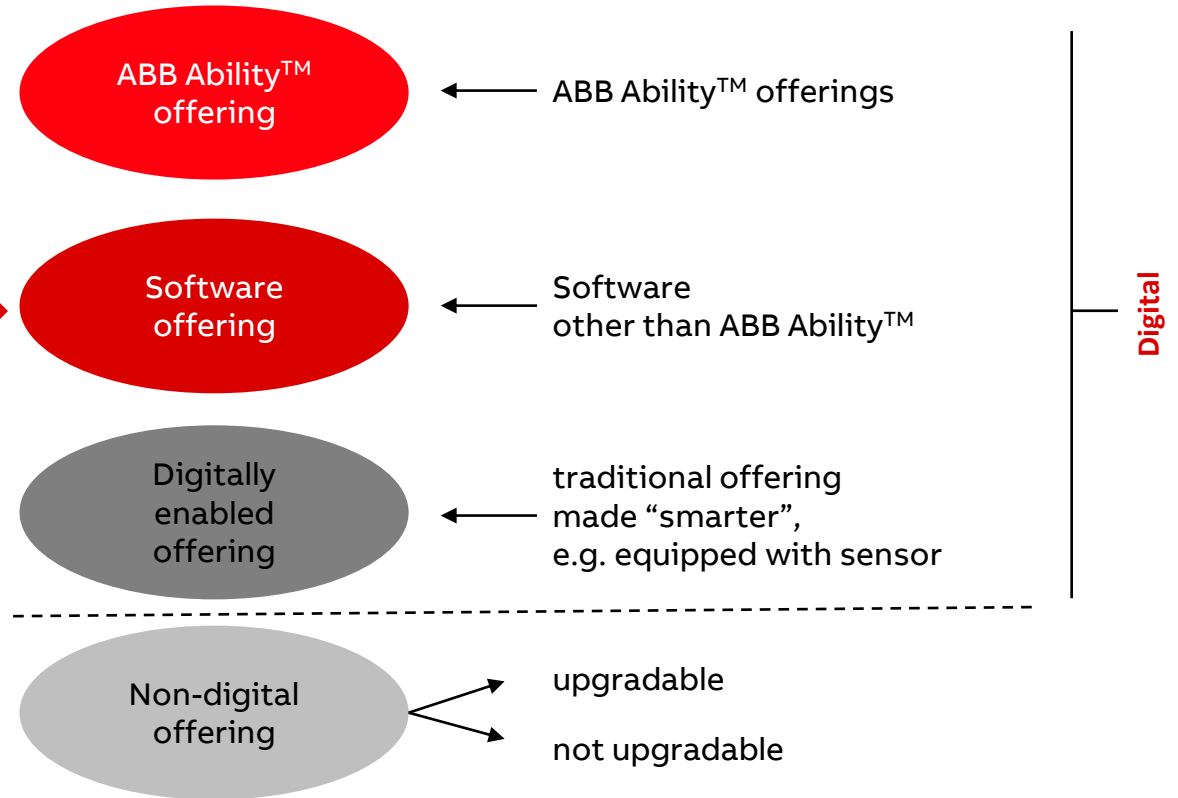
Digital

EL Digital

Digital Target : Realignment with ABB Group Digital Levels



+ 1SDA082886R1*



*ATS Main-Tie-Main Closed Transition Software

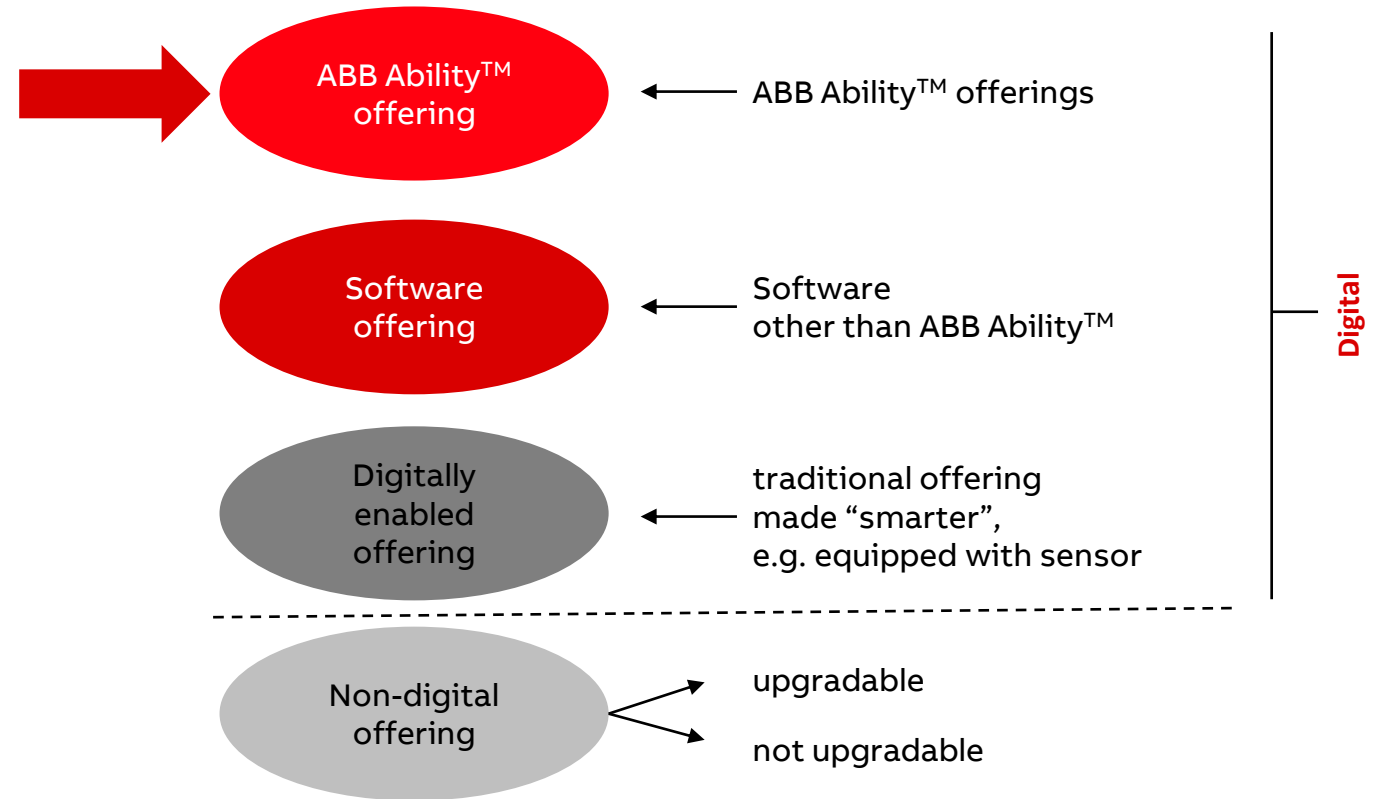
EL Digital

Digital Target : Realignment with ABB Group Digital Levels



+ EAM*

*Energy and Asset Manager



1- Communication

Basic concepts of communication

Basic concepts of communication

Hard-wired VS. Digital Communication Connections

Hard-wired signals

Pros:

- Simple Configuration
- Economic
- No additional Communication modules (Aux)

Cons:

- Complex Wiring for large installations
- Very hard to track issues
- Only provides basic monitoring and control functions (on/off)



Basic concepts of communication

Hard-wired VS. Digital Communication Connections

Digital Communication Connections

Pros:

- More simple wiring, suitable for large installations
- Easy to install and easy to track issues
- Provides all needed functions (advanced monitoring and control)

Cons:

- Higher cost
- Needs system communication devices and interfaces
- Some protocols have limitations on data transfer





2- Data

Smart LV Switchgear Solutions

Smart electrical distribution network

Identify your Smart Needs

– Device Status on/off/tripped



– Full energy measurement



– Operating temperatures



– Asset Supervision and cost allocation



– Command open-close*



– Current measurement & Protection



– Network analyzers



– Operation & Maintenance Data



– Data loggers



Smart LV Switchgear

Let's go digital

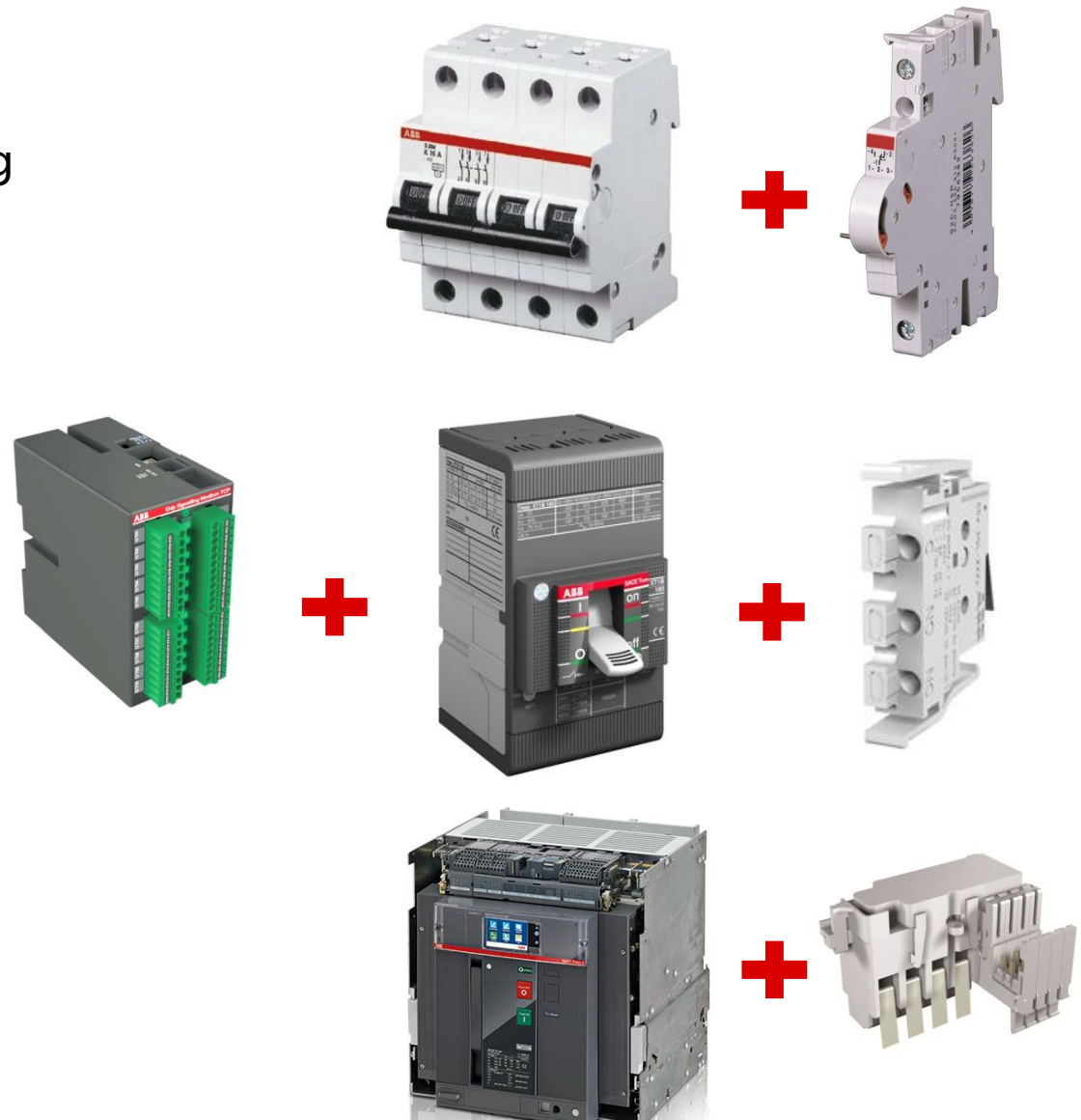


Low Voltage Circuit Breakers

Communication capabilities – Status monitoring

Circuit breaker status monitoring (ON/OFF/TRIP):

- Circuit Breakers to be provided with auxiliary contact to indicate CB positions (ON/OFF).
- Signaling Communication module must be used to convert the signals from digital into Modbus TCP Communication to communicate it with the management systems.

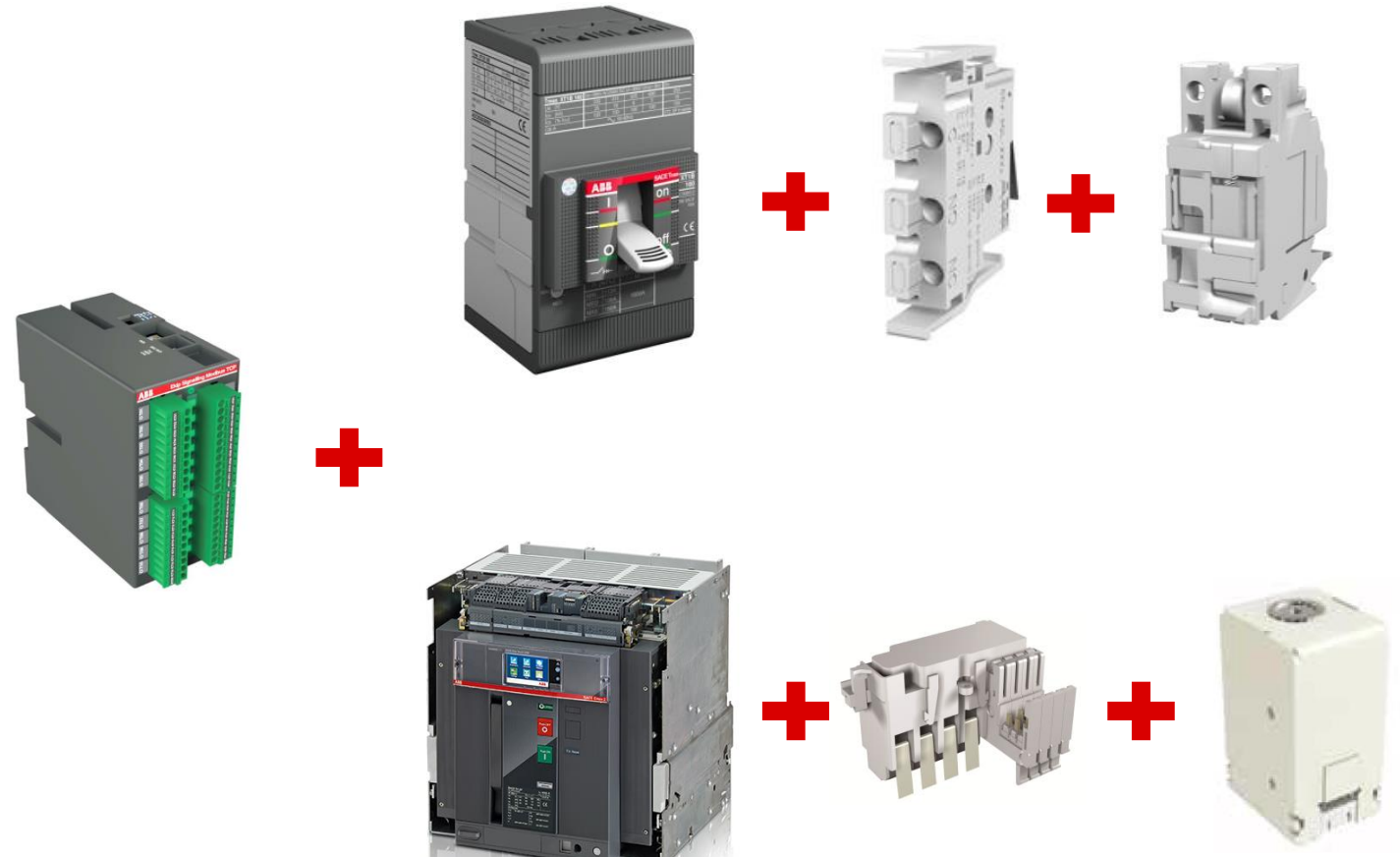


Low Voltage Circuit Breakers

Communication capabilities – Status monitoring with trip command

Circuit breaker status monitoring and tripping command:

- Circuit Breakers to be provided with auxiliary contact to indicate CB positions (ON/OFF).
- Signaling Communication module must be used to convert the signals from digital into Modbus TCP Communication to communicate it with the management systems.
- Circuit Breakers to be provided with Shunt trip coil to receive trip signal from the management system.

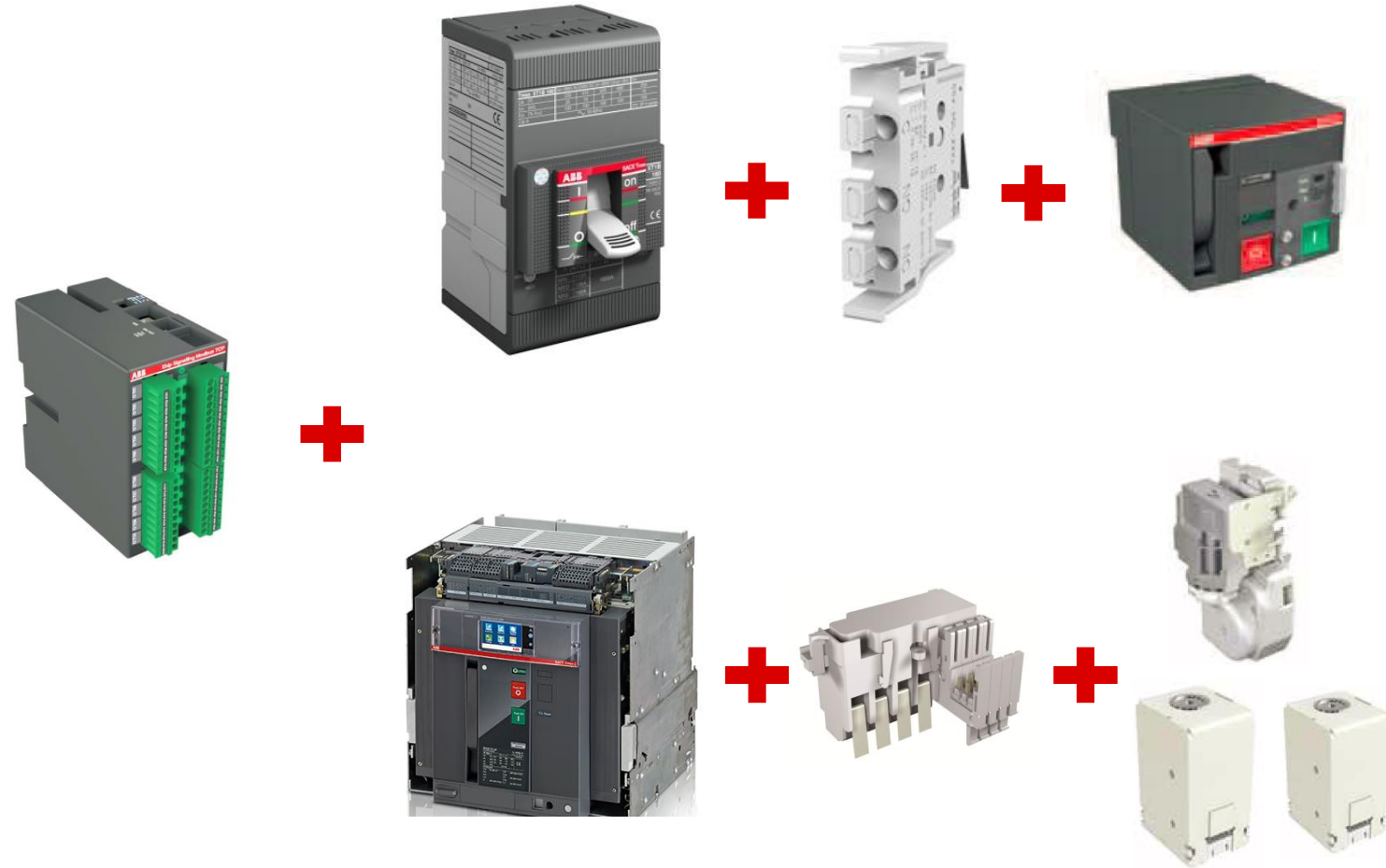


Low Voltage Circuit Breakers

Communication capabilities – Status monitoring and control

Circuit breaker status monitoring and control (ON/OFF):

- Circuit Breakers to be provided with auxiliary contact to indicate CB positions (ON/OFF).
- Signaling Communication module must be used to convert the signals from digital into Modbus TCP Communication to communicate it with the management systems.
- Circuit Breakers have to be provided with Motor operator to receive opening and closing Commands.



Low Voltage Circuit Breakers

Communication capabilities - Energy measurements

For MCBs:

It is possible to monitor the current drawn for each single load, MCBs must be provided with current sensors.

Current sensing communication module will communicate the current with Modbus Protocol.

It will be able to transfer data time stamped to the centralized management system.

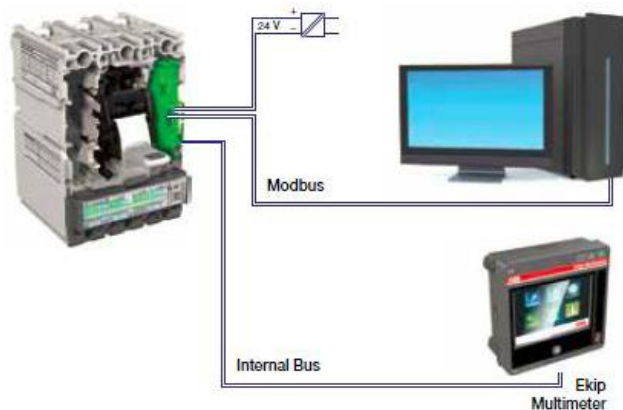


For MCCBs:

Trip units to be Electronic type that Supports Communication & Current / Energy Measuring.

Provided with addition communication modules that communicate the data with Modbus Protocol.

It will be able to transfer data (Current or Energy measuring, Status, trip history, events and protection thresholds) to the centralized management system.



For ACBs:

All standard trip units Supports Communication & Current Measurements.

For Energy Measurements, we need to select Trip Units with Energy Measurement Functionality.

Adding communication modules will communicate the data with Modbus.

It will be able to transfer data (Current or Energy measuring, Status, trip history, events and protection thresholds) to the management system.



Low Voltage Circuit Breakers

SACE Emax 2 - Ekip Com Modbus for E2.2...E6.2, withdrawable version



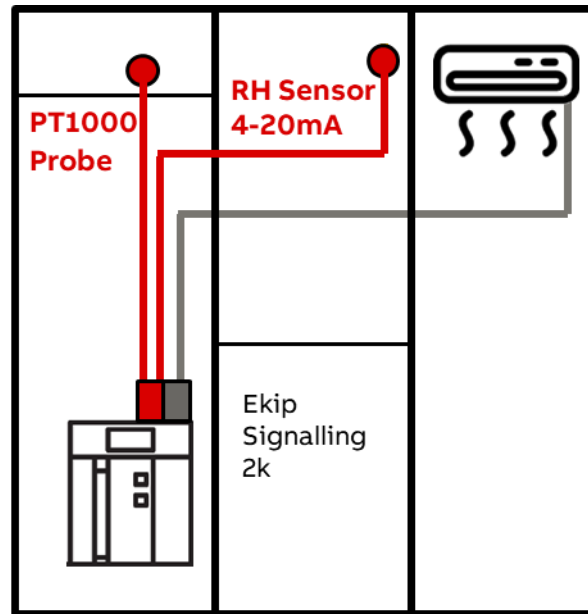
Temperature Monitoring

Emax 2 ACBs

Temperature sensor is used to Monitor (Ambient Temperature, Enclosure Internal Temperature, Busbar Temperature).

It is Possible to Send Alarm or output to turn-on AC for more ventilation.

Temperature could be communicated using Communication Module to BMS or SCADA.



Ekip 3T Signalling modules



ABB Ekip UP

Switchgear upgrade



- **UP- date** basic switchboards with the latest protection and monitoring innovations
 - Interfacing with all switching devices (**ABB or not ABB**)
 - 100% applicable for every low-voltage brownfield scenario
- **UP- grade** the efficiency of existing facilities
 - 40% operational cost saving via the energy management system and **predictive maintenance**
 - 70% more cost-effective solution compared with traditional retrofitting approach
- **UP - load** electrical system data to the cloud-connected ABB Ability platform
 - enabling full plant control
 - in less than 10 minutes, **no need of external gateway**
- **UP- time** with easy installation
 - **50% time saving** when retrofitting, with minimum downtime during commissioning and **affordable solution**
 - completely reduced impact on switchboard design

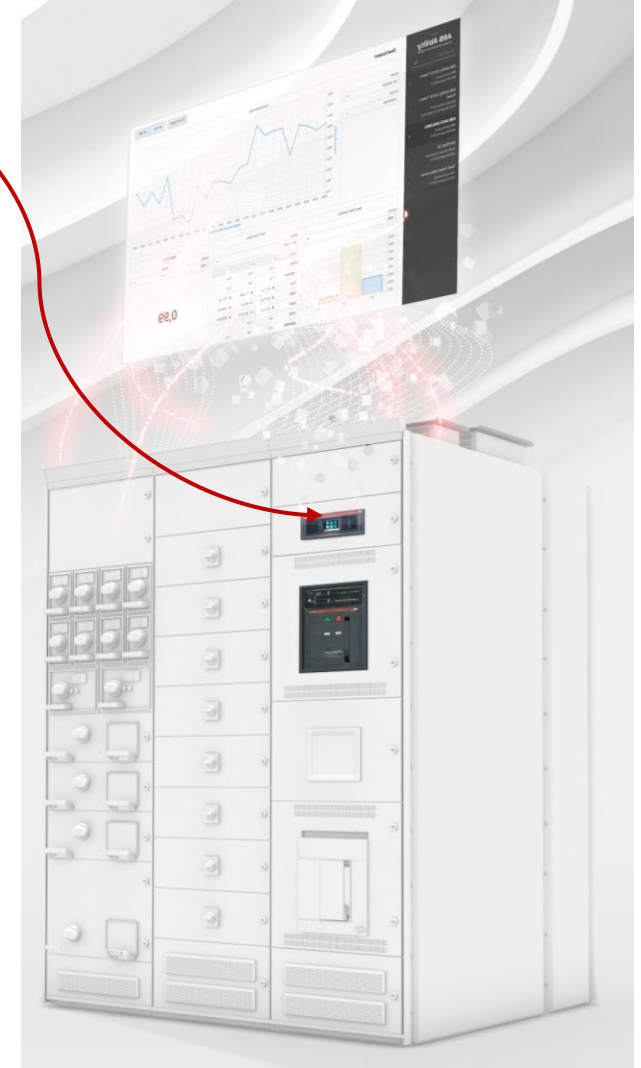
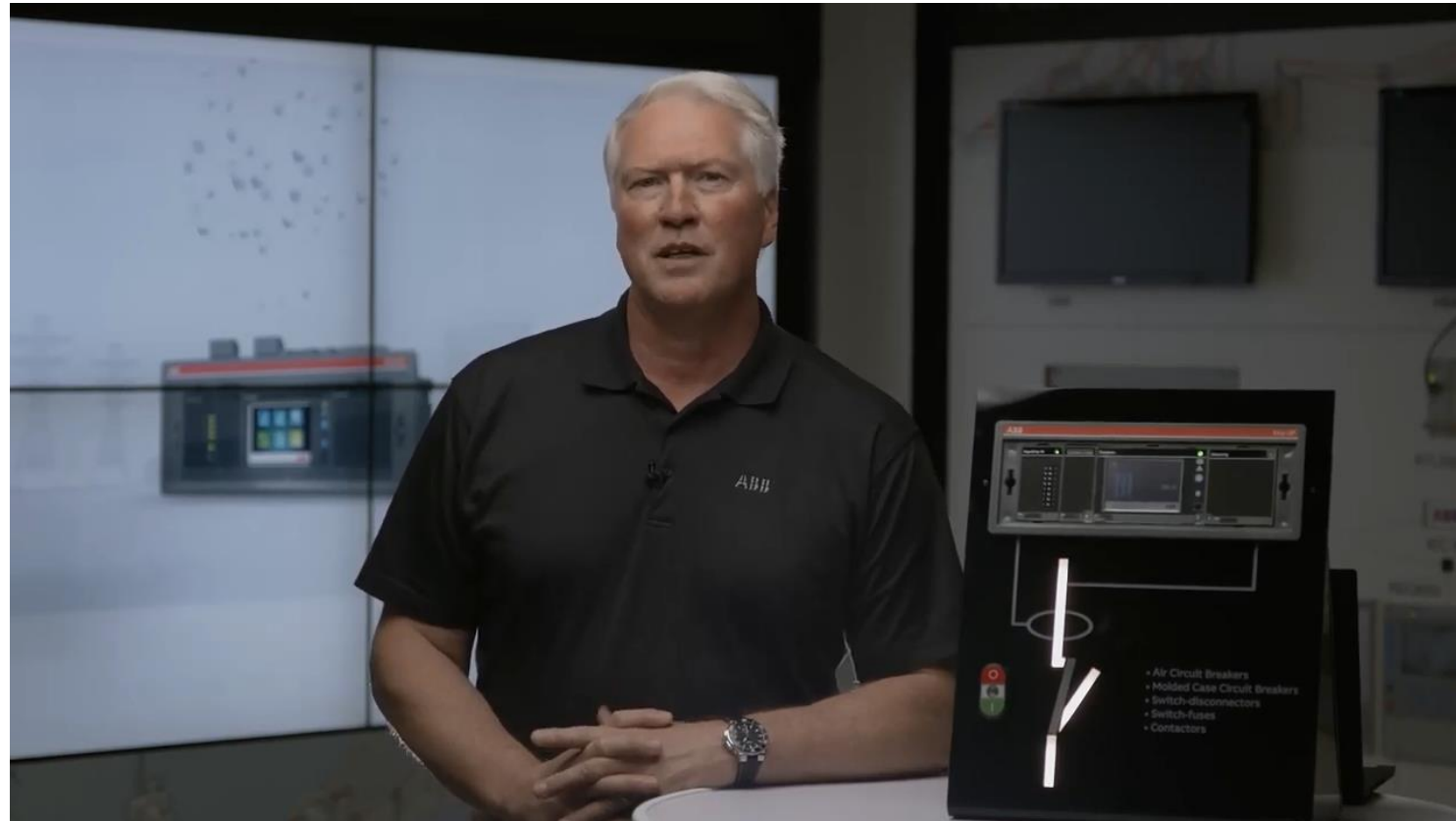


ABB Ekip UP



ABB Ekip UP

ABB Ekip UP – Temperature and Monitoring



TruONE® ATS

Automatic Transfer Switch

Status of ATS Unit & Sources Availability

Basically, provides Automatic Switching between two sources (Normal & Emergency) to secure the load reliability.

Using communication, it is possible to know:

- Number of transfers
- Failure reasons for each source
- Sources availability, current measuring, full power metering
- Temperature measurement, predictive maintenance, contact wear & remote control

Data could be available through different communication protocols (Modbus RTU, TCP,..).

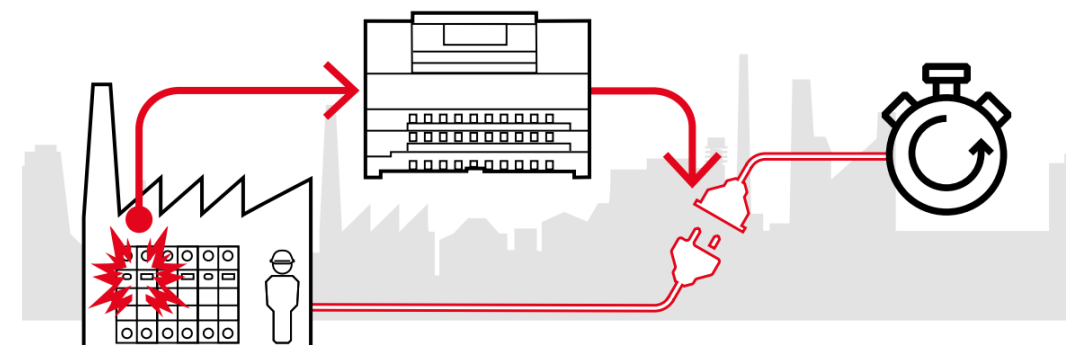


Arc guard system™ TVOC-2

Active arc flash mitigation solutions



- 1 Arc flash is detected by the fiber optic sensor
- 2 Signal is sent to the TVOC-2 arc monitor
- 3 TVOC-2 arc monitor sends a trip signal to shunt trip of circuit breaker
- 4 All this occurs in under **< 1 ms**



Arc guard system™ TVOC-2

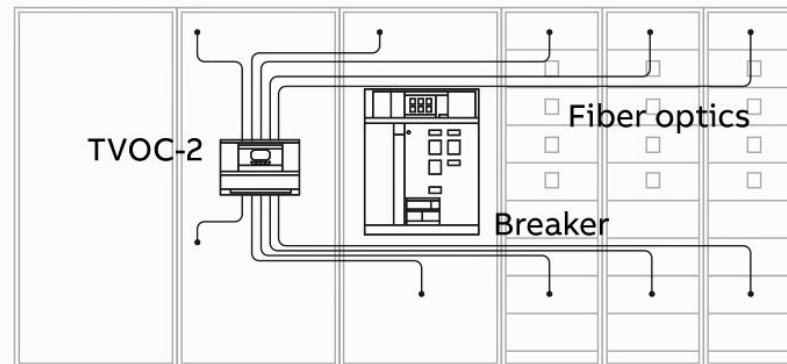
Active arc flash mitigation solutions



Safety and protection

Saving lives and minimizing damage to equipment

- Arc Guard TVOC-2 monitors electrical cabinet



Motor management system

Measurements & Operation Data for Motor Feeders

Basically, Provides comprehensive protection for motor feeders, Thermal Protection, Locked rotor, Phase failure, Over/Under Current, Earth Leakage, Thermistor.

Provides operating data such as Motor Status , Motor Current, Thermal Load, remaining time to cool down, Motor Temperature (PT100 Sensor).

For Energy Measurement (Voltage, Power, Energy, PF) we add additional voltage module.

For Monitoring we add communication interfaces modules.



Universal Motor Controllers

Digital Power Meters & Energy Analyzers

One supplier, to manage power



Scalable, complete offer

ABB is the global specialist for all measurement needs, covering wide range of projects and allowing to propose full metering solution and product packages



Common user experience

Common HMI menu structure and familiar installation and wiring processes all over the different ranges, helping to reduce the time needed to operate the power meters.



Reliable measurement

Complete set of high-accuracy data according to IEC 61557-12, both Class 0,5S and Class 1, improving the energy efficiency of the electrical system and troubleshooting power quality problems.



Digital, Connected

Several communication protocols, from Modbus RTU to Bluetooth, and I/O options available, fitting scalable solutions for energy and asset management, to protect assets and optimize costs and energy needs.



Digital Power Meters & Energy Analyzers

Application: Large building / industry

 Supervision system

POWER CENTER



M4M 30



M4M 30



Power Quality monitoring:

- Demand management
- Electrical monitoring of equipment
- PF management
- Power availability

MAIN DISTRIBUTION



M4M 30



M4M 30



M1M 30



M1M 30



M4M 20



M1M 20



Power Quality monitoring:

- Demand management
- Electrical monitoring of equipment
- PF management
- Power availability

SUB DISTRIBUTION



M4M 20



M4M 20



M1M 20



M1M 20



M4M 15



M4M 15



M1M 15



M1M 15

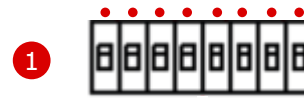
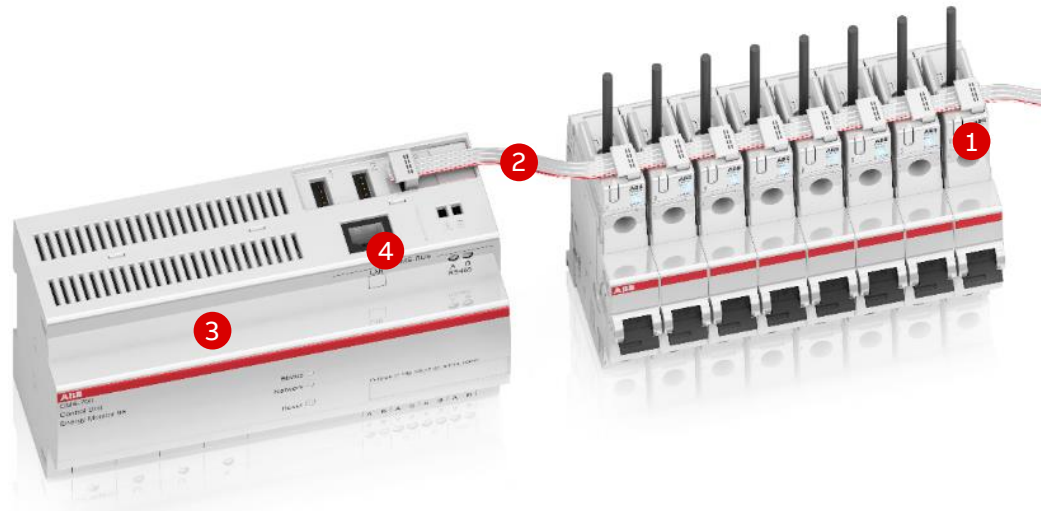


Submetering:

- Electrical parameter monitoring
- Energy monitoring
- Cost allocation

Circuit Monitoring System - CMS

How the CMS system works



CMS **sensors** allow both AC and DC branch monitoring, providing clear visibility of energy consumption for each single line.



Sensors are connected to the Control Unit by means of a **flexible flat cable**, with fully customizable positioning of sensors where needed.



The **Control Unit** evaluates the measurement data picked up by the sensors and makes it available via the built-in interfaces.



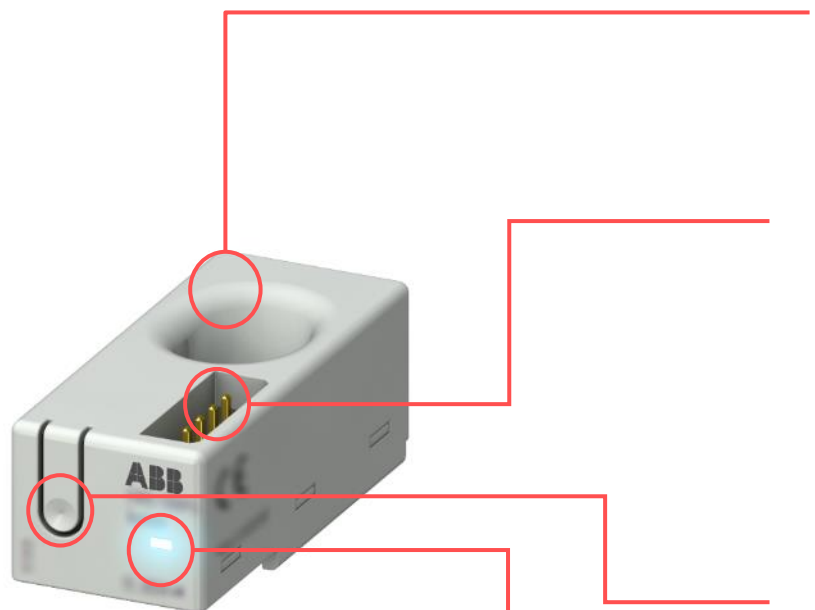
Depending on the unit, several embedded **communication protocols** are available for smooth network integration: Modbus RTU, Modbus TCP/IP, SNMP v1/v2 and encrypted v3.



The **built-in Web UI** of CMS-700 allows the complete commissioning of the system, as well as visualization and easy export of the measured data.

CMS-Sensors

Sensors Overview



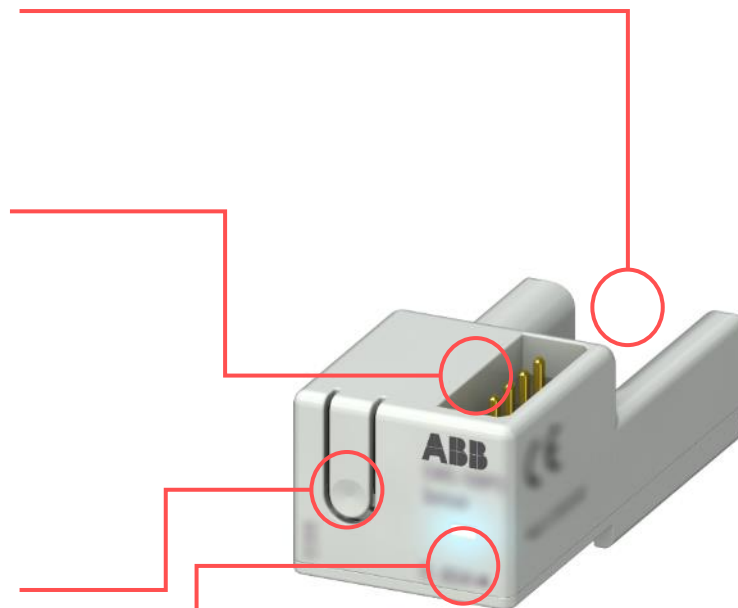
Solid-core sensor

Opening for the electrical conductor
Open-core insertion guarantees the retrofitting of existing installations and minimizes cabling time

CMS-BUS
Measurement data are transmitted digitally to the control unit via the bus interface, minimizing the amount of cabling required while maximizing reliability

Push button
Immediately connect sensors to the control unit

LED
Improving the local supervision of the communication status



Open-core sensor

CMS-700 Control Unit

What's new in FW 1.32

Web UI re-design

- **Completely renewed Web UI** layout, aligned with ABB UX common design and guidelines, as well as the rest of ABB digital portfolio (ABB Ability EDCS, EQmatic...)
- Optimization of the Web UI technical platform to allow **faster and more intuitive** navigation
- **User-friendly** menu structure, with clearer sections and sub-sections

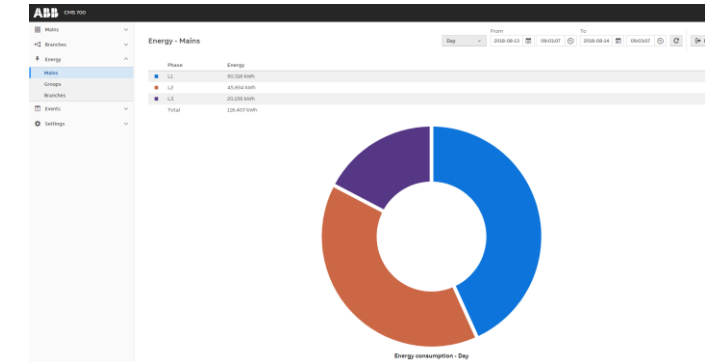
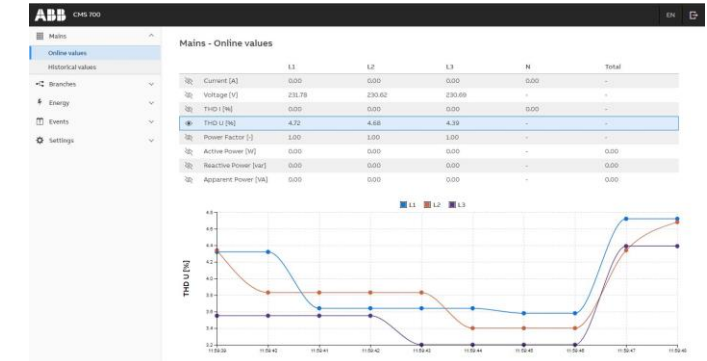
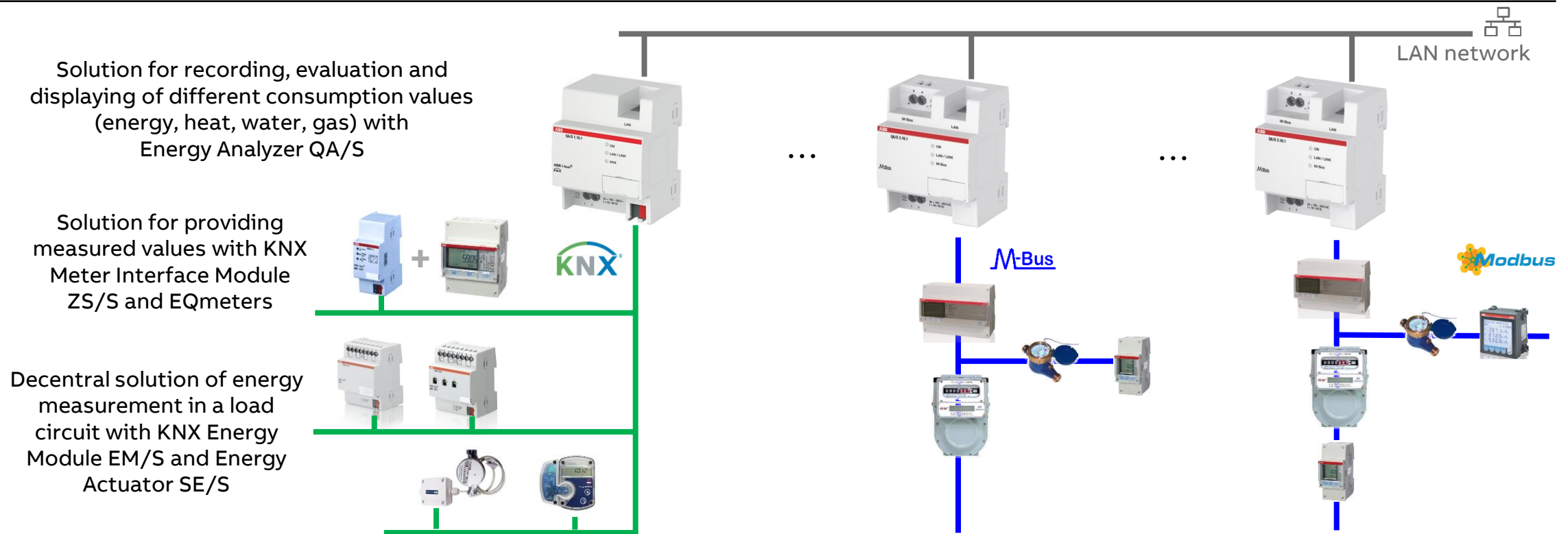


ABB EQmatic Energy Analyzer QA/S x.yy.1

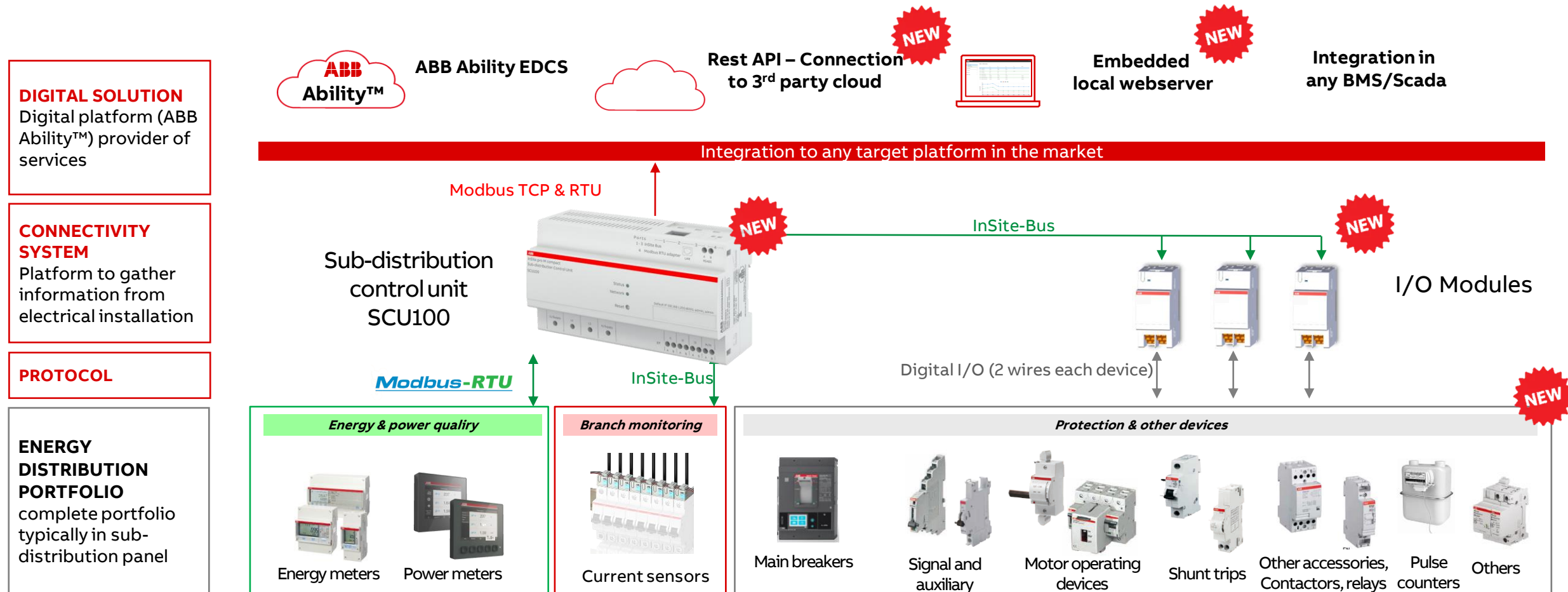
Overview

ABB EQmatic – ABB offers various solutions



System pro M compact® InSite

Solution architecture



System pro M compact® InSite

Make your sub distribution board smart



System pro M compact® InSite

Insights

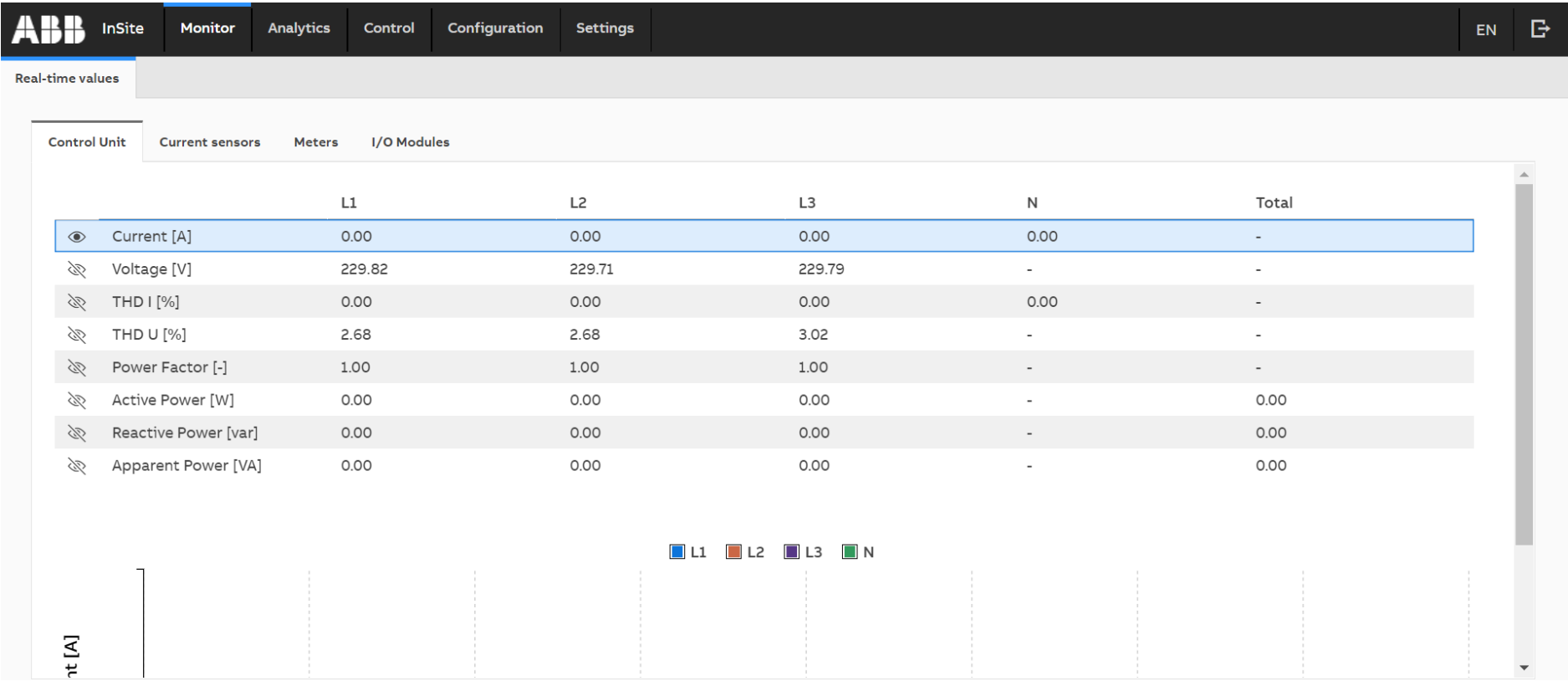
Embedded webserver
accessed via intranet
as single User
Interface

Branch monitoring of
up to 96 lines

Real-time monitor of
energy, power, power
quality, instantaneous
values

Real-time monitor of
MCBs, MCCB status

NEW functionality

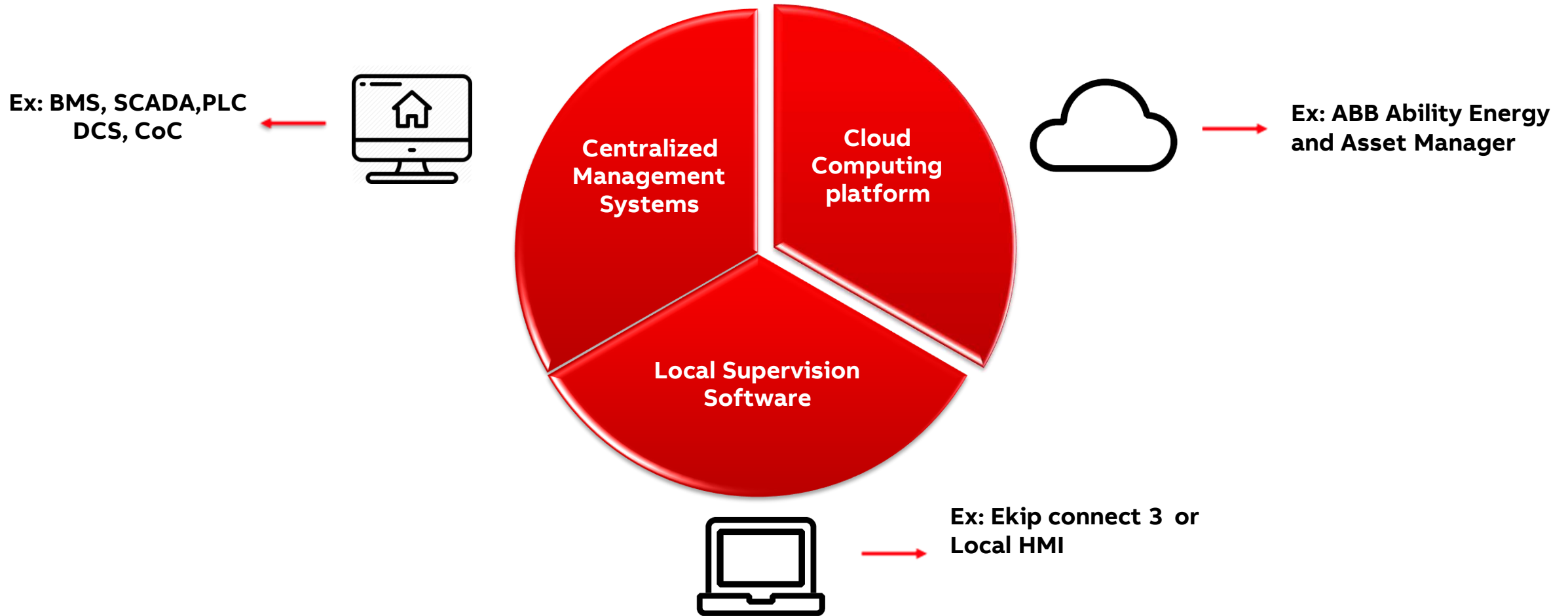


3- Integration

ABB Ability™ Energy and Asset Manager

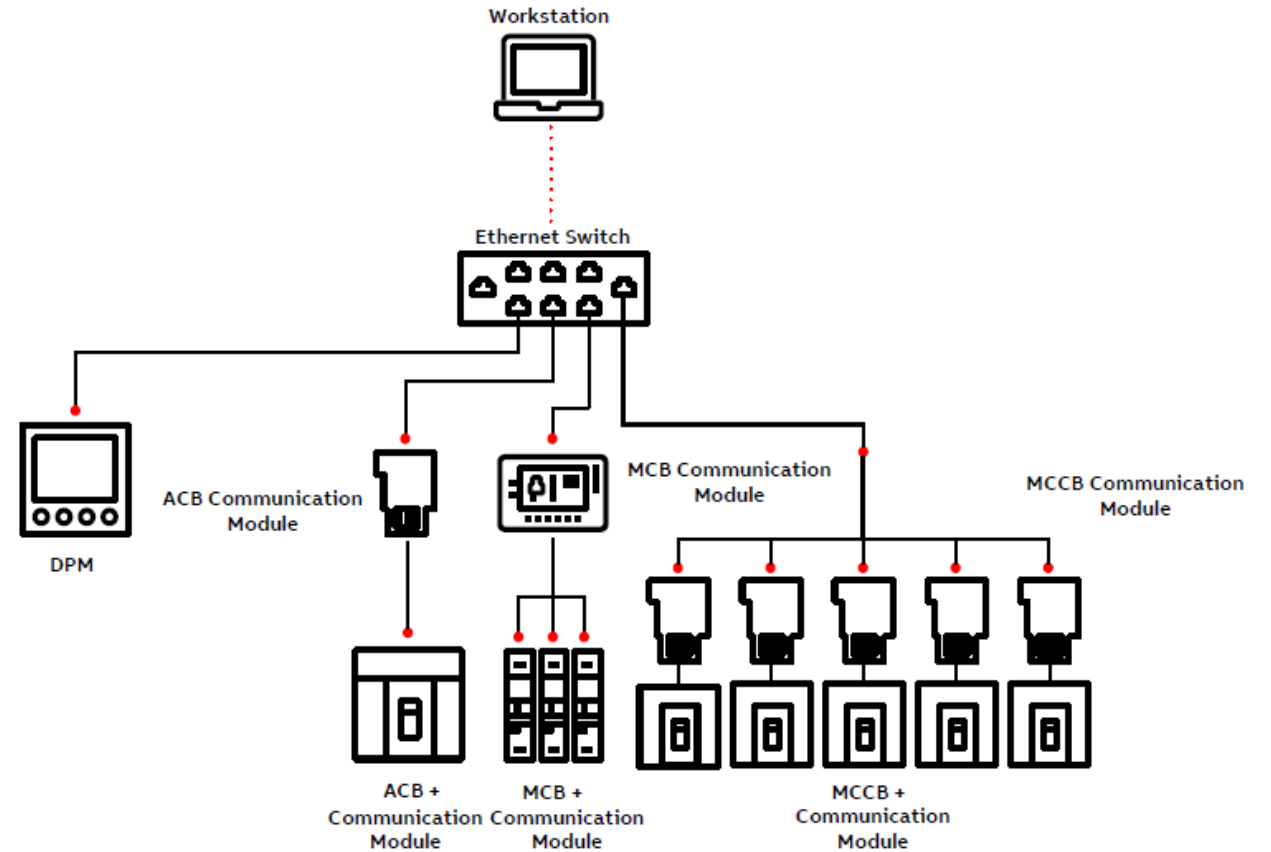
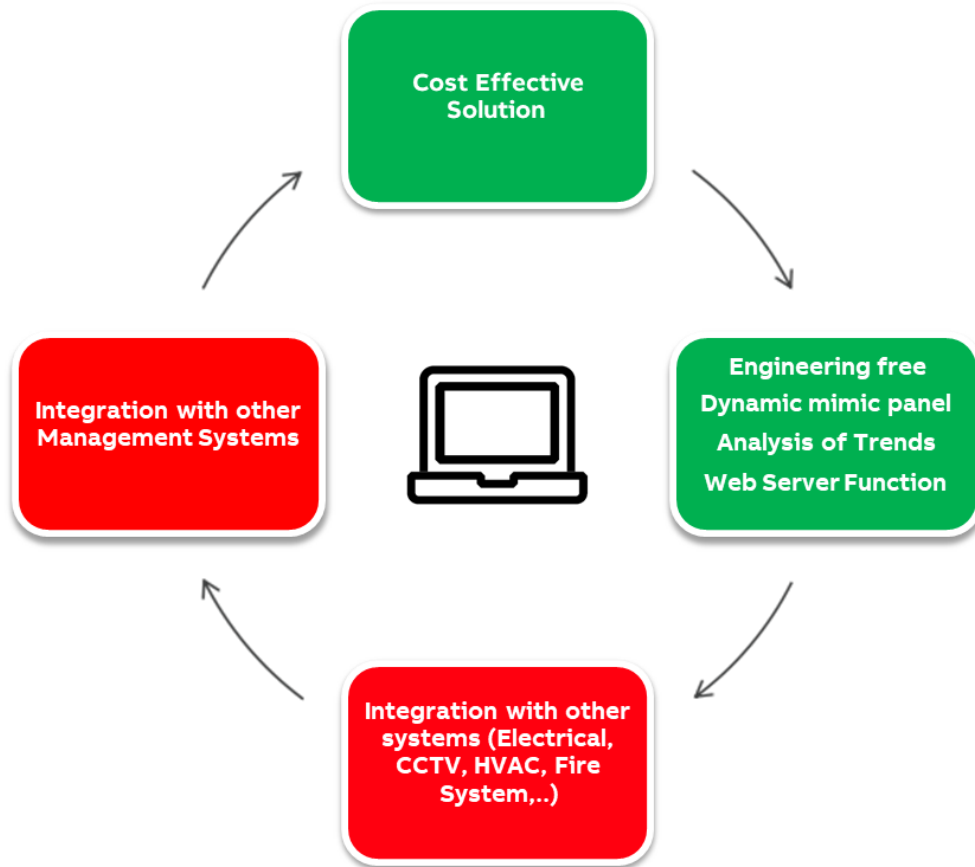
Different supervision systems

Low voltage switchboard integration in different Hierarchies



Local Supervision Software

Low voltage switchboard integration in different Hierarchies

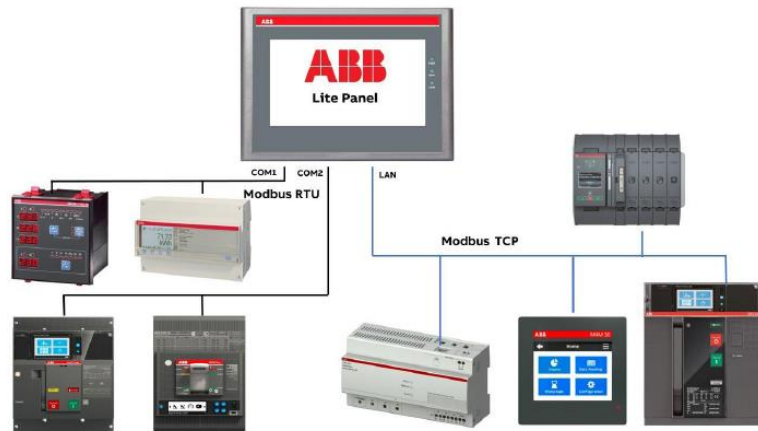


Local monitoring and control of the installation

Flexible solution to fit all installation requirements

Lite Panel

It is a local control panel of 7 inches that can monitor and control max 20 devices connected via Modbus TCP/IP or Modbus RTU



Ekip Connect 3

Ekip Connect is the ABB programming and commissioning software tool that allows the user to unlock the full potential of ABB devices



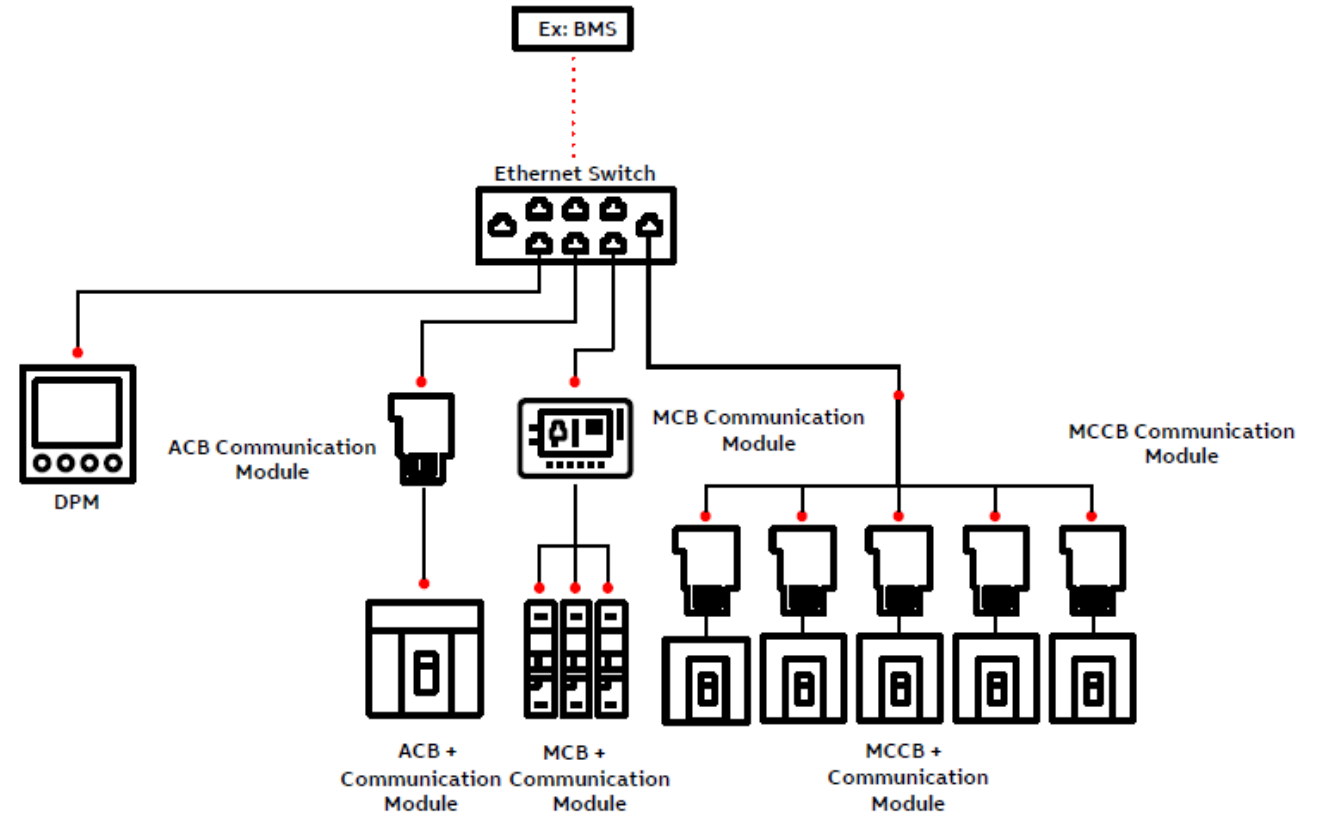
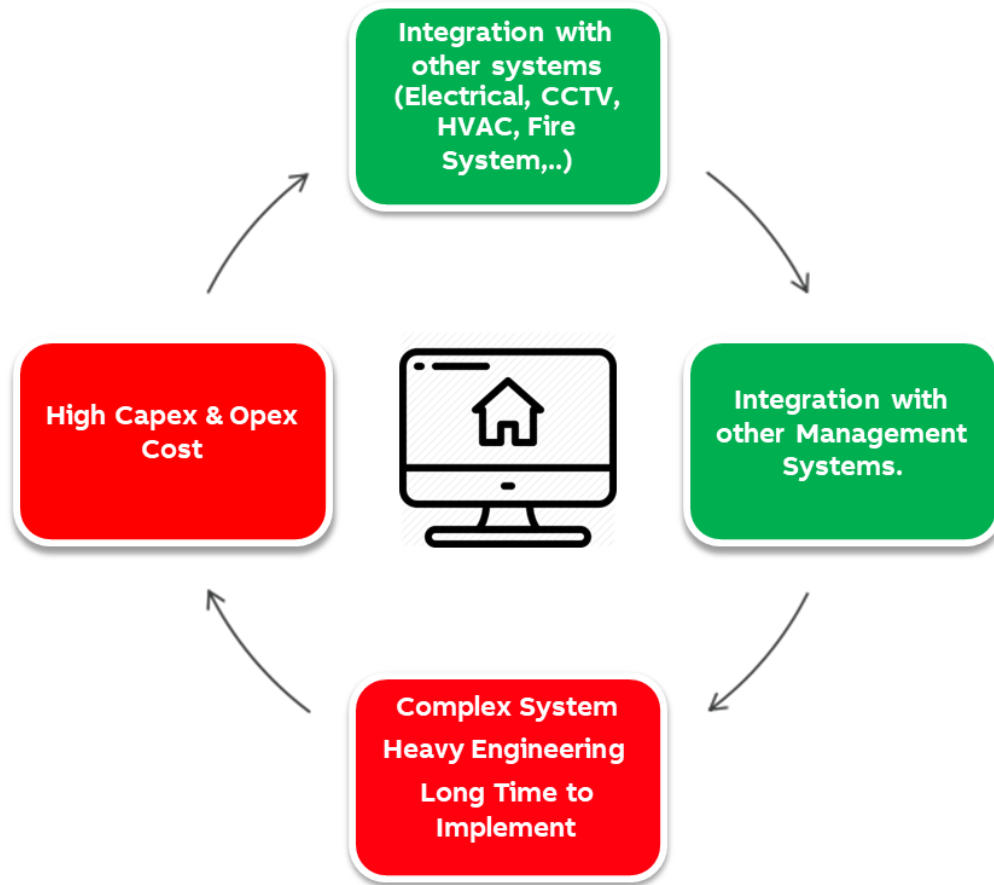
EPiC commissioning tool

ABB devices with **Bluetooth module** for complete compatibility with unique EPiC commissioning tool



Centralized Management Systems (BMS, SCADA,..)

Low voltage switchboard integration in different Hierarchies



Cloud computing platform ABB Ability™ Energy and Asset Manager



ABB Ability™ Energy and Asset Manager is the state-of-the-art cloud solution for monitoring and analyzing site equipment, as well as the ability to control a site's electrical distribution system and other utilities, resulting in improved performance, efficiency and safety.

Through its scalable and flexible design, ABB Ability™ Energy and Asset Manager ensures comprehensive plug and play accessibility of low- and medium-voltage electrical distribution as well as of water, gas or heating equipment.



ABB Ability™ Energy and Asset Manager



ABB Ability™ Energy and Asset Manager

Widgets available (just a short selection)

20%

savings on energy bills

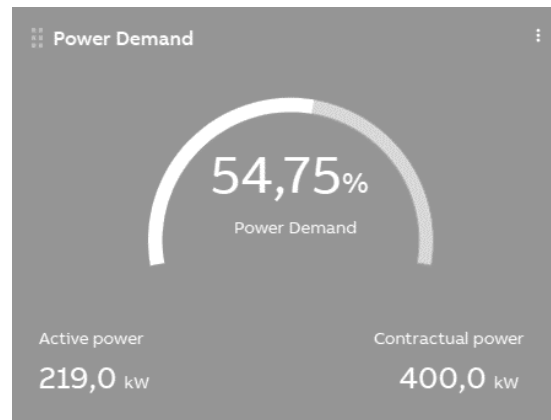
Energy monitoring



30%

savings on operational costs

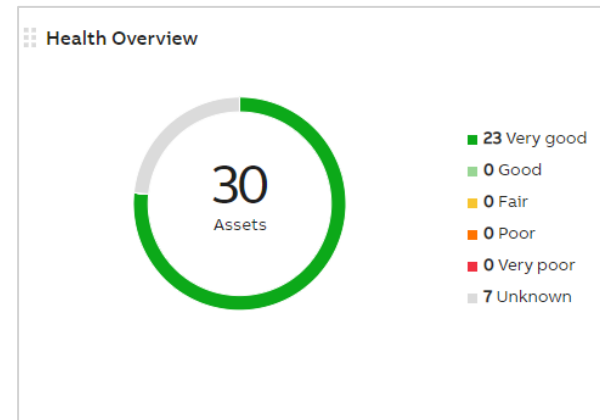
Power demand



40%

savings on maintenance costs

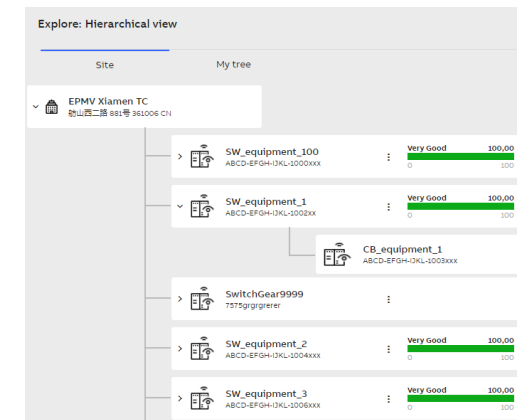
Health overview



100%

avoid unplanned labor

Hierarchical view



Applications

ABB Ability™ Energy and Asset Manager can be used in different kinds of segments

Buildings



- Commercial buildings
- Offices
- Shopping malls
- Hotels
- Retail or chain stores

Public facilities



- Schools
- Sport centers
- Healthcare facilities

Industrial sector



- Small to mid-size production plants
- Infrastructure
- Process plants
- Utilities and power generation

Data centers



- Micro and Small
- Colocation
- Enterprise and Hyperscale

Architecture - Truly plug & play

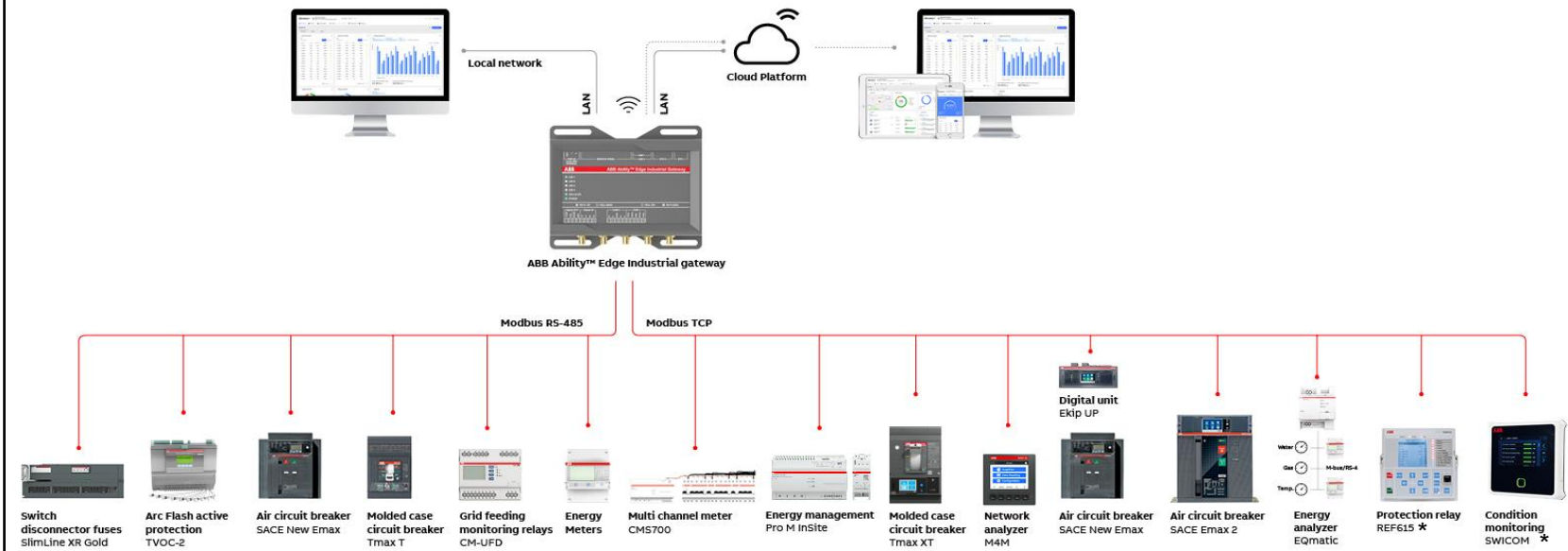
Option A - ABB Ability™ Edge Industrial gateway

External solution with ABB Ability™ Edge Industrial gateway

The ABB Ability™ Edge Industrial gateway

- can be mounted on DIN rail to collect data throughout the system
- can also connect sensors to measure environmental Parameters (temperature, water, gas) via both analog and digital I/O.

ABB Ability™ Edge Industrial gateway has enhanced connectivity functionalities, providing Wi-Fi or 3G/4G connectivity.



Architecture - Truly plug & play

Option B - Embedded and upgraded solution

Embedded and upgraded solution with Ekip Com Hub

Emax 2, Ekip Up, Tmax XT and TruONE equipped with the new Ekip Com Hub establishes the cloud connection for the whole switchboard.

This dedicated cartridge-type communication module just needs to be inserted into the terminal box and connected to the internet.

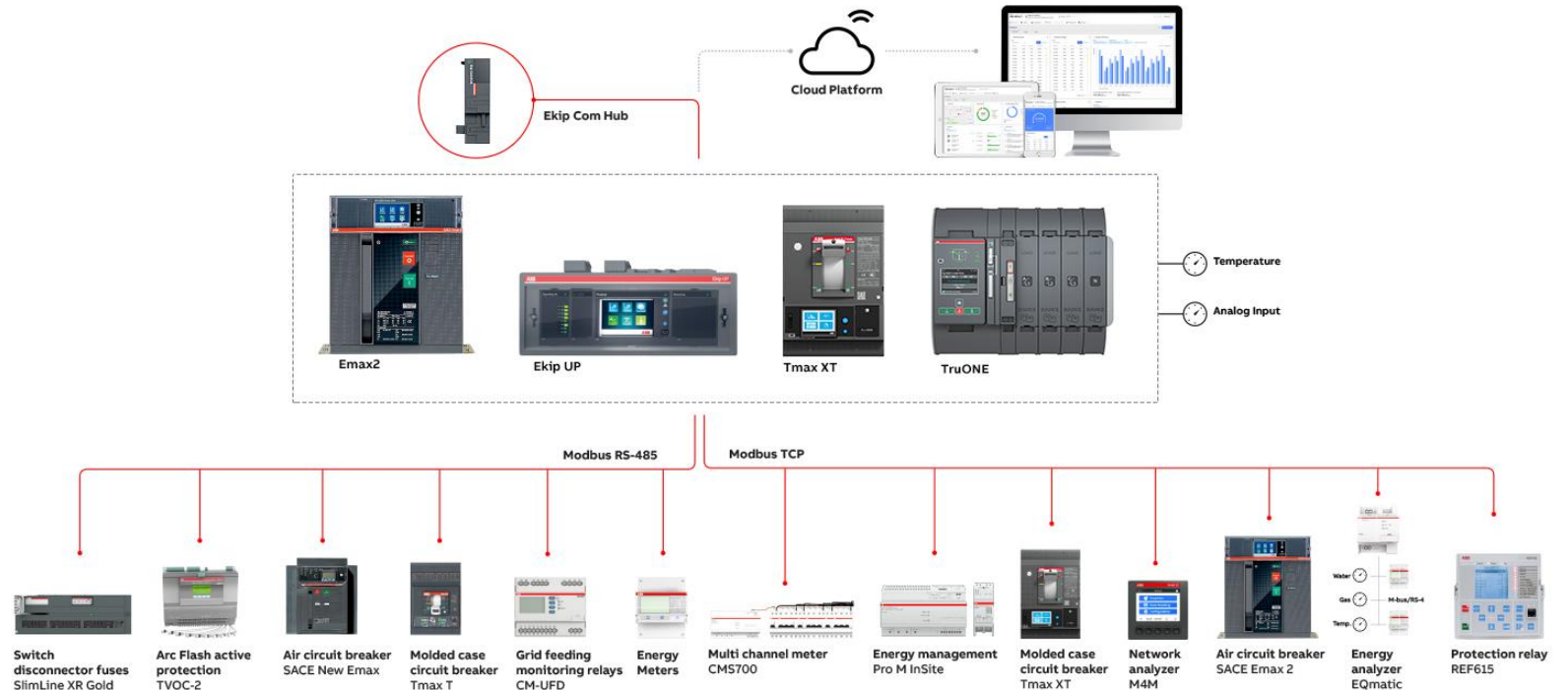


ABB Ability™ Energy and Asset Manager

Features

ABB Ability™ Energy Manager

Energy Monitoring



Energy Reporting



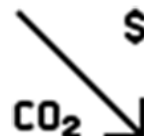
Alerting



Cost management



Energy audit



Multi-utility



ABB Ability™ Asset Manager

Asset health



Predictive maintenance



Health Events and notifications



Service activities



Asset management



Site Health and Maintenance Reporting



You can get all features with ABB Ability™ Energy and Asset Manager Bundle

Index of widgets and main features

Dashboard

Analog Data Monitoring

ATS Parameters

Energy Cost

Energy Monitoring

Group Real Time Currents

Input Data Calculation

Power Demand

Real Time Power

Total Historic Data

Arc Guard

ATS Transfer Time

Energy Cost Comparison

EnPI Monitoring

Group Real Time Power

Latest Events

Power Factor

Real Time Voltage

Meter Data Monitoring

Asset Current Trend

Connectivity Overview

Group Real Time Metering

Environmental Data

Group Real Time Voltage

Local Time

Power Generation

Service Activities

PUE monitor and trend

Asset List

Connectivity Trend

Energy Data

Events Overview

Health by Age

Multi-site Locator

Power Quality - THD

Service Activities Overview

Asset Power Trend

Digital Data Monitoring

Energy Data Comparison

Events Trend

Health Overview

Peak Monitoring

Power Quality - Voltage

Site Locator

Asset Voltage Trend

Energy Audit Summary

Energy Mix Group

Group Peak Monitoring

Historic Data Metering

Performance Indicator

Real Time Currents

States and Counters

Explore

Hierarchical view

2D/3D view

Asset details

Connectivity

All equipment

Maintenance

Maintenance activities

Data analytics

Data Groups

Reports

Events

All events

Alert condition

Settings

Site

Documents

Users

Utility

Service and environment

Notification

Subscription

Energy Manager

Dashboard – Real Time Current

Back

User interface

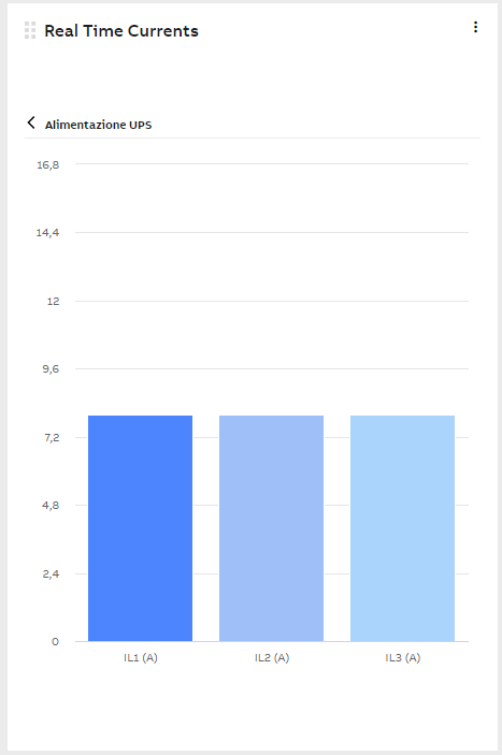
Real Time Currents

All

Favourites

ASSET	IL1 (A)	IL2 (A)	IL3 (A)	
Alimentazione Ascensore 1 S	1,00	0,00	0,00	★
Alimentazione Ascensore 2 S	1,00	0,00	0,00	★
Alimentazione Ascensore N	0,00	1,00	1,00	★
Alimentazione Montacarichi N	0,00	0,00	1,00	★
Alimentazione UPS	9,00	9,00	9,00	★
Bridge	0,00	0,00	0,00	★
Centrale Termica - NORD	5,00	1,00	2,00	★
Centrale Termica - Sud	2,00	0,00	5,00	★
Charger A - fast	0,00	0,00	0,00	★
Charger B	0,00	0,00	0,00	★
Charger C	0,00	0,00	0,00	★
Charger D	0,00	0,00	0,00	★
Charger E	0,00	0,00	0,00	★
EV Charger Bridge	0,00	0,00	0,00	★

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Personals

Energy manager, operation manager, facility manager who wish to monitor real time current data of main consumption or generation points.

Description

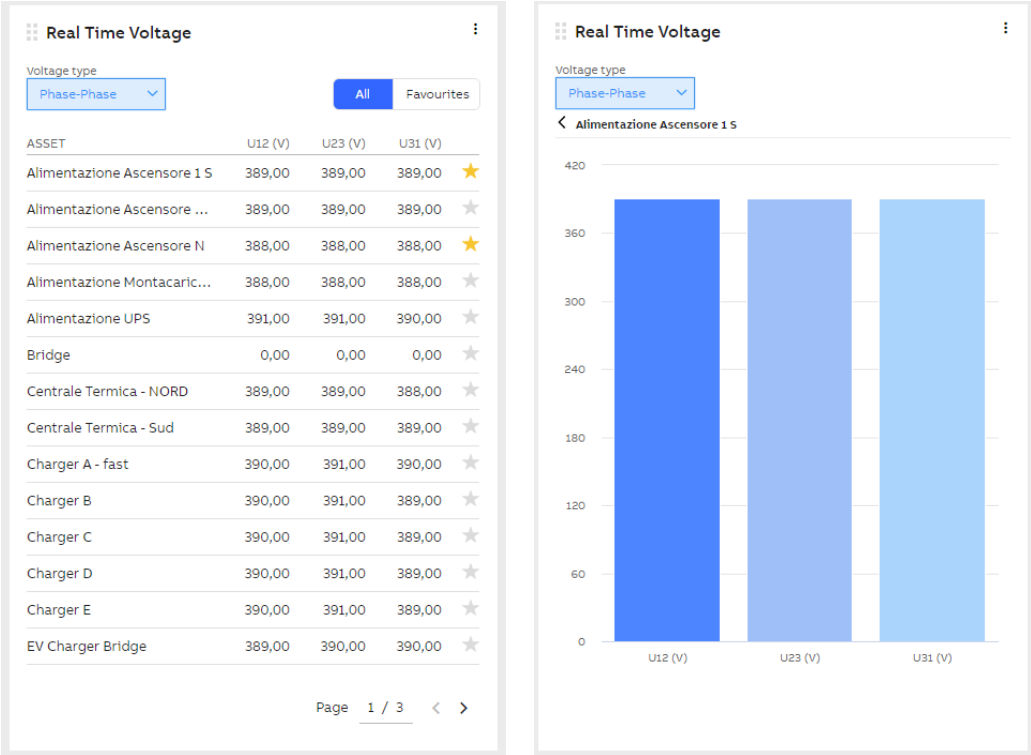
- Provides the current data of the devices every 30 seconds
- User can select favorite devices

Energy Manager

Dashboard – Real Time Voltage

Back

User interface



Personals

Energy manager, operation manager, facility manager who wish to monitor real time voltage data of main consumption or generation points.

Description

- Provides the voltage data of the devices every 30 seconds
- User can select favorite devices

Energy Manager

Dashboard – Real Time Power

Back

User interface

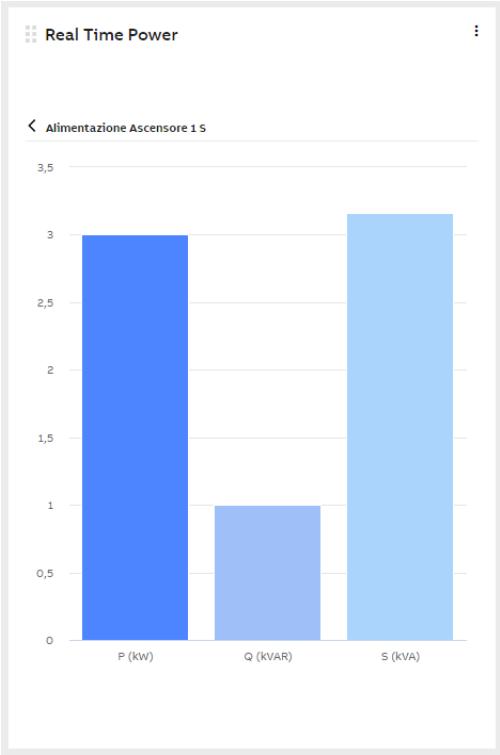
Real Time Power

All

Favourites

ASSET	P (kW)	Q (kVAR)	S (kVA)	
Alimentazione Ascensore 1 S	0,00	0,00	0,00	★
Alimentazione Ascensore ...	0,00	0,00	0,00	★
Alimentazione Ascensore N	0,00	0,00	0,00	★
Alimentazione Montacaric...	0,00	0,00	0,00	★
Alimentazione UPS	5,00	-3,00	5,83	★
Bridge	-	-	-	★
Centrale Termica - NORD	2,00	0,00	2,00	★
Centrale Termica - Sud	1,00	0,00	1,00	★
Charger A - fast	-	-	-	★
Charger B	0,01	-0,01	0,01	★
Charger C	0,00	-0,01	0,01	★
Charger D	0,00	-0,01	0,01	★
Charger E	0,00	-0,01	0,01	★
EV Charger Bridge	-	-	-	★

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Personals

Energy manager, operation manager, facility manager who wish to monitor real time power data of main consumption or generation points.

Description

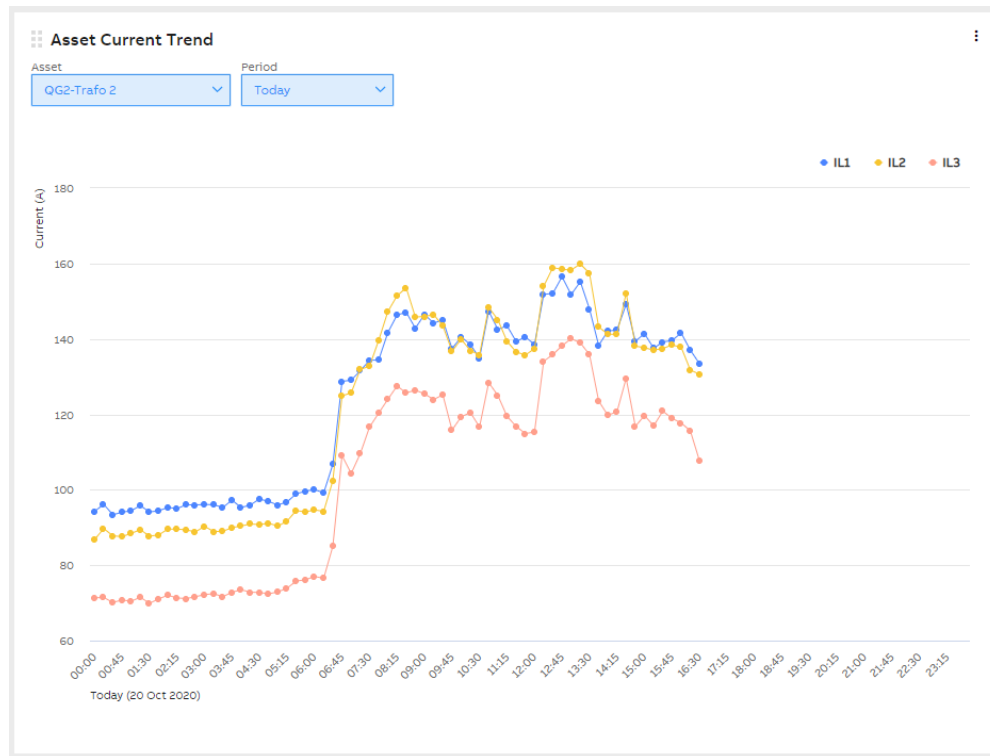
- Provides the power data of the devices every 30 seconds
- User can select favorite devices

Energy Manager

Dashboard – Asset Current Trend

[Back](#)

User interface



Personals

Energy manager, operation manager, facility manager who wish to monitor current data in a certain period of main consumption or generation points.

Description

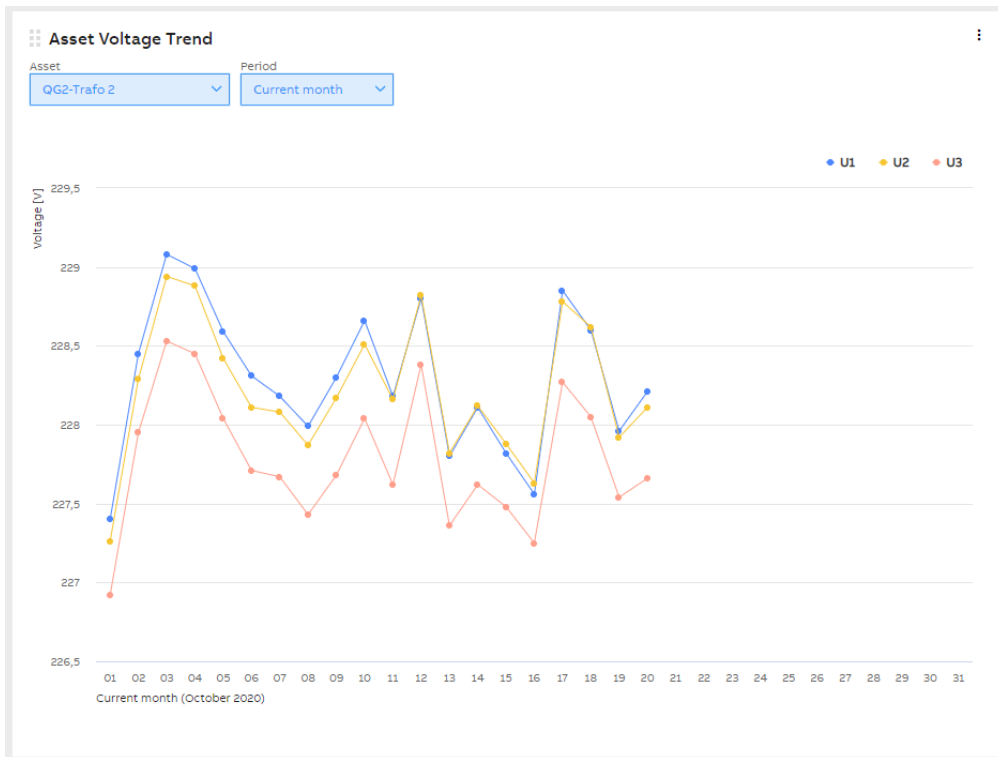
- It provides the current trend of an asset vs a selected period
- It allows to compare the phases

Energy Manager

Dashboard – Asset Voltage Trend

[Back](#)

User interface



Personals

Energy manager, operation manager, facility manager who wish to monitor voltage data in a certain period of main consumption or generation points.

Description

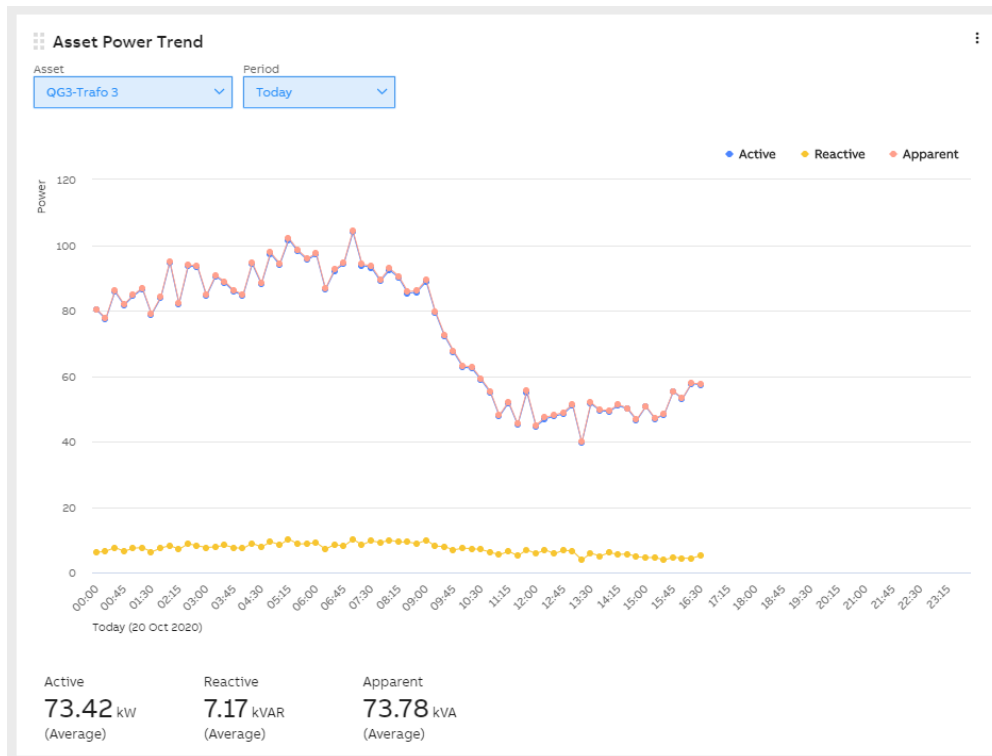
- It provides the voltage trend of an asset vs a selected period
- It allows to compare the phases

Energy Manager

Dashboard – Asset Power Trend

[Back](#)

User interface



Personals

Energy manager, operation manager, facility manager who wish to monitor power data in a certain period of main consumption or generation points.

Description

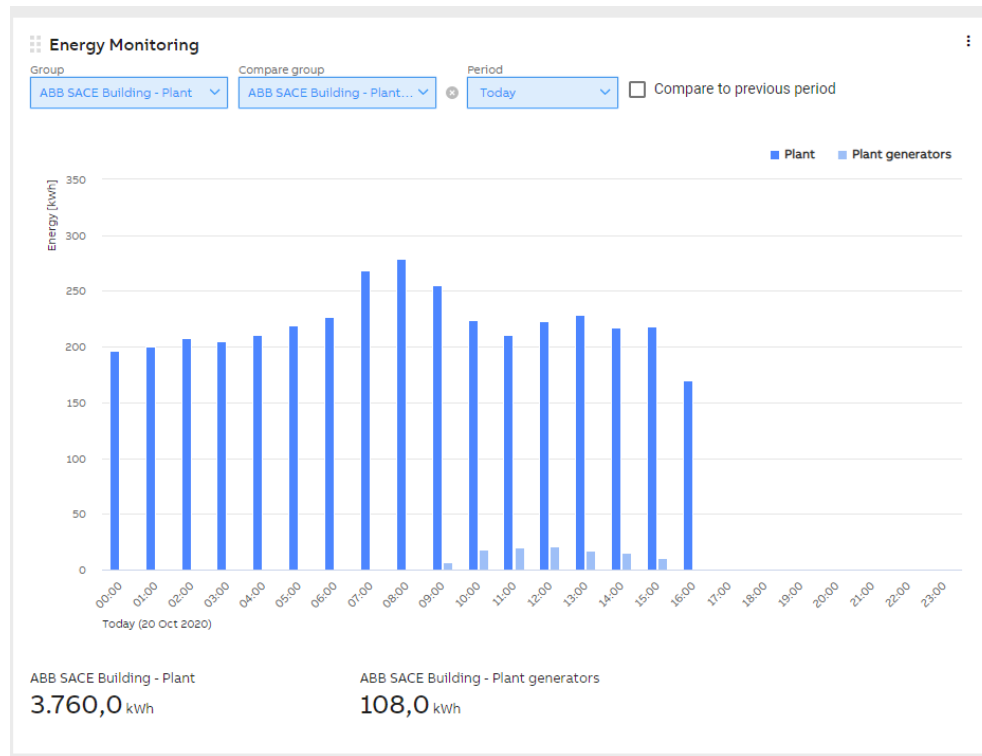
- It provides the power trend of an asset vs a selected period
- It allows to compare the phases

Energy Manager

Dashboard – Energy Monitoring

[Back](#)

User interface



Personals

Energy manager, operation manager, facility manager who wish to monitor Energy data in a certain period of the Site or group of devices available in the Site, including generators

Description

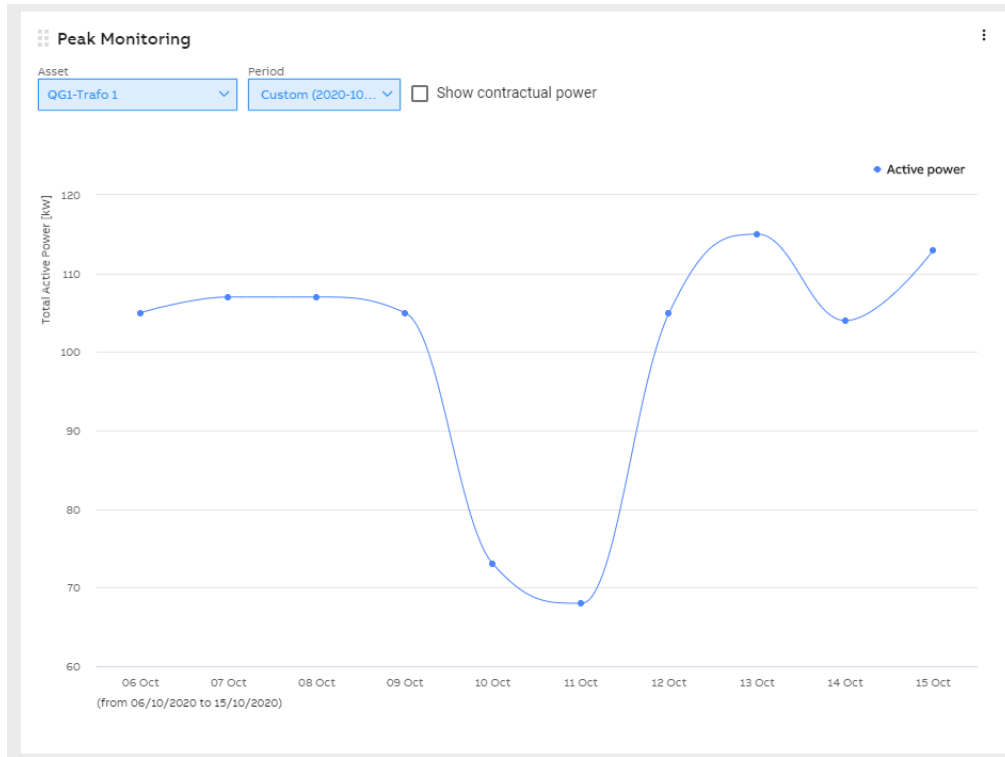
- Provides the energy consumption of a group vs a selected period
- Allows to compare the energy consumption vs another group of the same site or of a different site

Energy Manager

Dashboard – Peak Monitoring

[Back](#)

User interface



Personals

Energy manager, operation manager, facility manager who wish to monitor the Total Active Power in a certain period of main loads or generation points.

Description

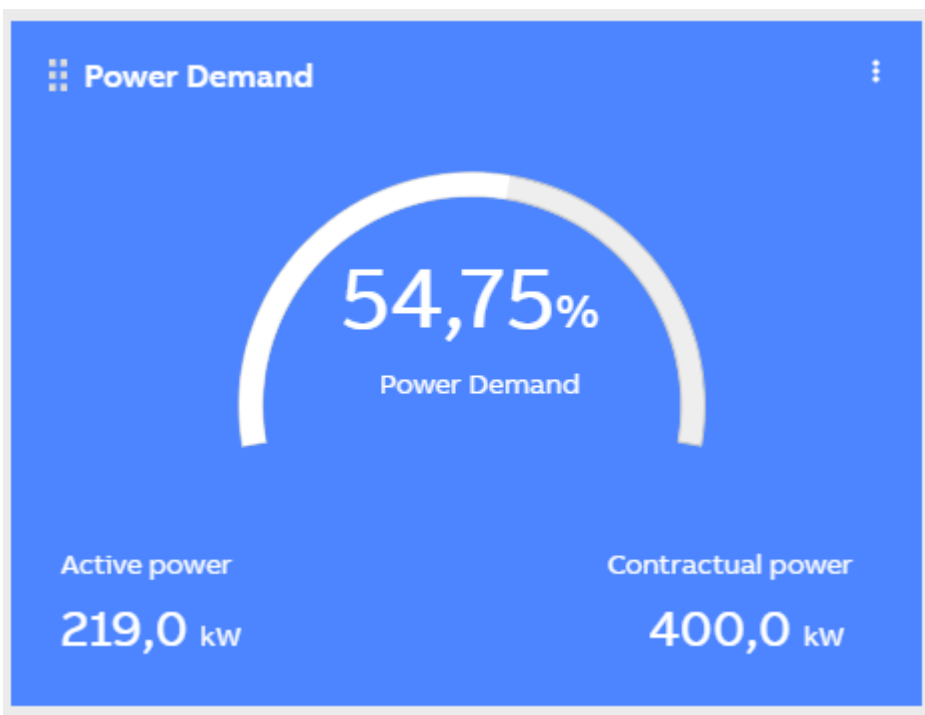
- It provides the active power trend of an asset vs a selected period
- It allows to compare the power absorbed vs the contractual power

Energy Manager

Dashboard – Power Demand

[Back](#)

User interface



Personals

Energy manager, operation manager, facility manager who wish to visualize the real time power demand of the Site, compared in percentage respect the contractual power available

Description

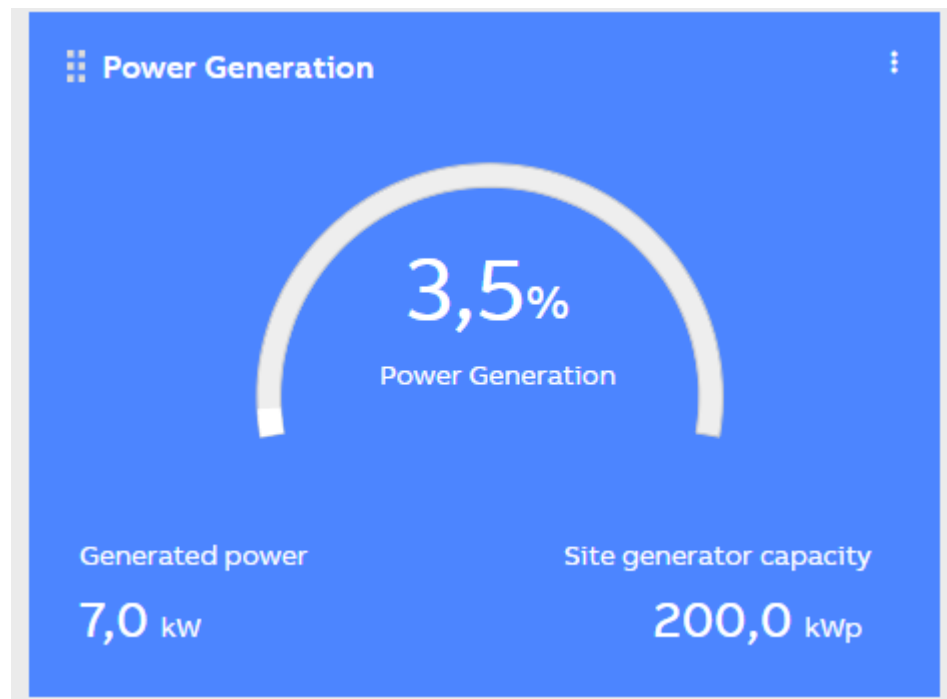
- It provides the active power demanded by the site calculated as a percentage of the contractual power indicated in the settings of the site
- The data is refreshed every 30 seconds and includes the total active power calculated for all the assets indicated as «main» in the equipment settings

Energy Manager

Dashboard – Power Generation

[Back](#)

User interface



Personals

Energy manager, operation manager, facility manager who wish to visualize the real time power generation of the Site, compared in percentage respect the generation capacity available

Description

- It provides the active power demanded by the site calculated as a percentage of the contractual power indicated in the settings of the Site
- The data is refreshed every 30 seconds and includes the total active power calculated for all the assets indicated as «generators» in the equipment settings

Energy Manager

Dashboard – Energy Audit Summary

[Back](#)

User interface

GROUP	ACTIVE ENERGY (kWh)
Auxiliary Conditioning	411,00
General Services Conditioning	316,00
Process Services	727,00

Personals

Energy manager, operation manager, facility manager who wish to visualize the total active energy consumed in the Site according to the predefined groups as defined by the ISO50001 certification

Description

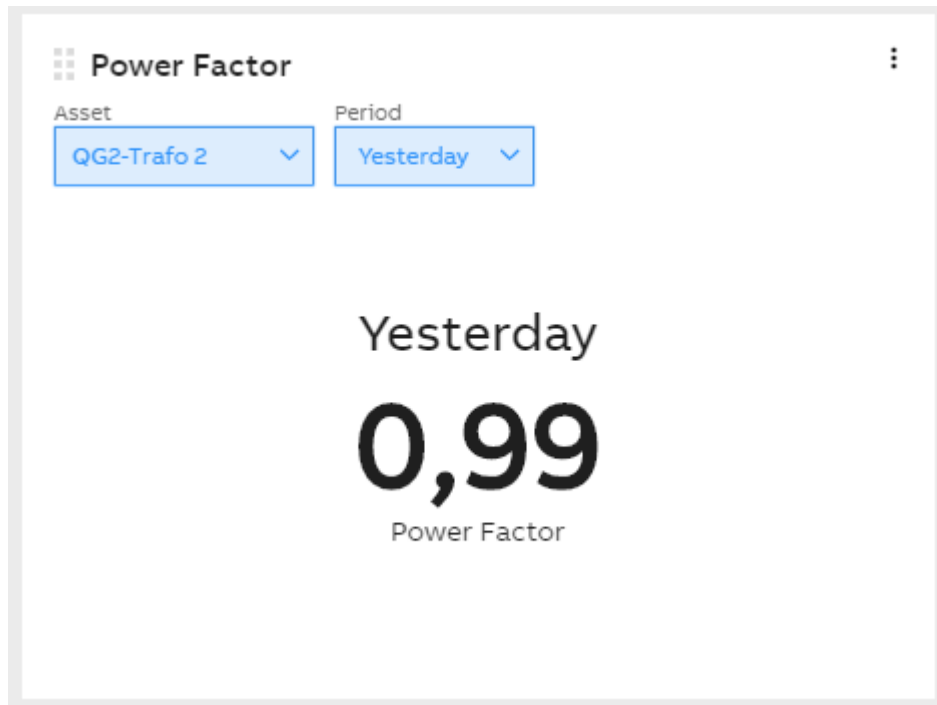
- Provides the summary of the active energy according to the Energy Audit and ISO50001 certification for predefined groups:
 - Process
 - General Services
 - Auxiliary Services

Energy Manager

Dashboard – Power Factor

[Back](#)

User interface



Personals

Energy manager, operation manager, facility manager who wish to visualize the power factor as calculated by the asset and verify how good is the quality of the electrical distribution system of the site

Description

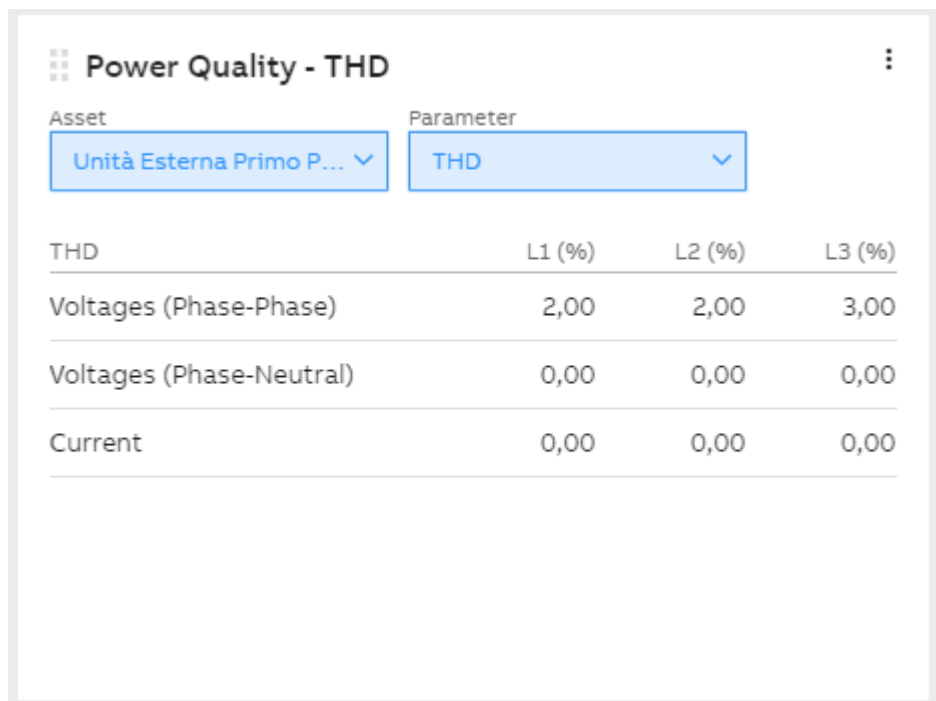
- Provides the power factor of each device within a certain period
- It is available for all the assets that provides such value

Energy Manager

Dashboard – Power Quality THD

[Back](#)

User interface



Power Quality - THD			
Asset	Parameter		
Unità Esterna Primo P...	THD		
THD	L1 (%)	L2 (%)	L3 (%)
Voltages (Phase-Phase)	2,00	2,00	3,00
Voltages (Phase-Neutral)	0,00	0,00	0,00
Current	0,00	0,00	0,00

Personals

Energy manager, operation manager, facility manager who wish to monitor the Total Harmonic Distortion for each asset

Description

- Provides the value calculated for each phase in percentage for both Voltage and Current.
- It is available for Ekip UP, Emax2, T Max XT if the related software for value package is enabled (network analyzer)

Energy Manager

Dashboard – Power Quality Voltage

[Back](#)

User interface

The screenshot shows a web interface for 'Power Quality - Voltage'. At the top, there's a title bar with a grid icon, the title 'Power Quality - Voltage', and a vertical ellipsis menu icon. Below the title bar, there are two dropdown menus: 'Asset' with the selected value 'Unità Esterna Piano T...' and 'Parameter' with the selected value 'Voltage Short Sag'. Below these, there are four rows of data, each with a label on the left and a numerical value on the right:

Asset	Parameter
Unità Esterna Piano T...	Voltage Short Sag
Threshold (% Vn)	10
Latest value (V)	0
Today's events	0
Cumulative events	0

Personals

Energy manager, operation manager, facility manager who wish to visualize some advance features related to the power quality, in particular sags, swells, unbalances, micro-interruptions

Description

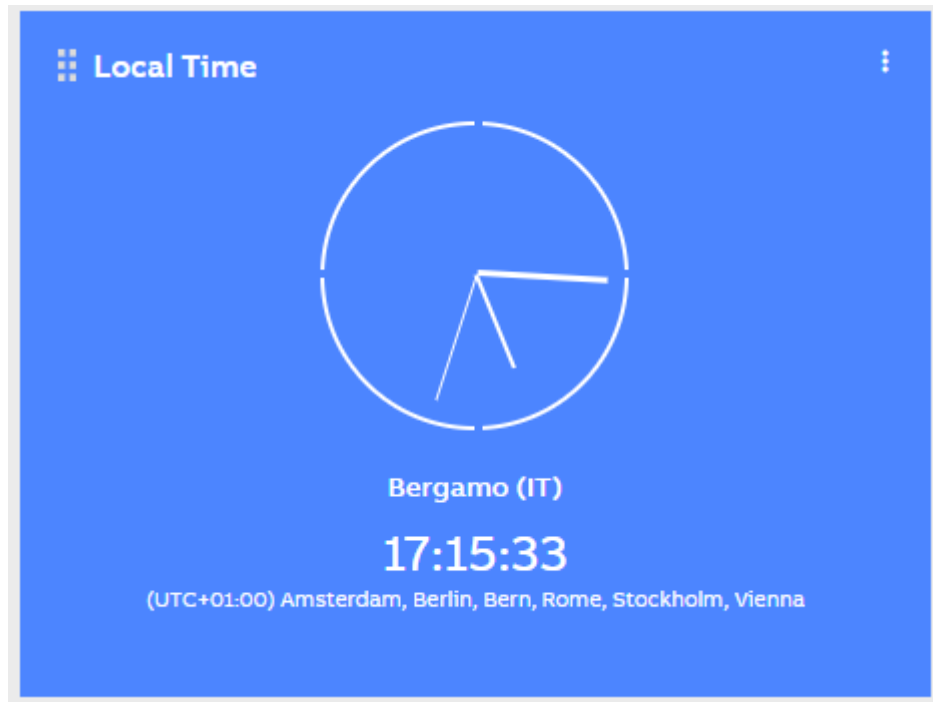
- Provides real time data on power quality parameters associated with each asset
- It is available for Ekip UP, Emax2, Tmax XT if the related software for value package is enabled (network analyzer)

Energy and Asset Manager

Dashboard – Local Time

[Back](#)

User interface



Personals

Energy manager, operation manager, facility manager who wish to visualize for remote monitoring the time where is localized the Site

Description

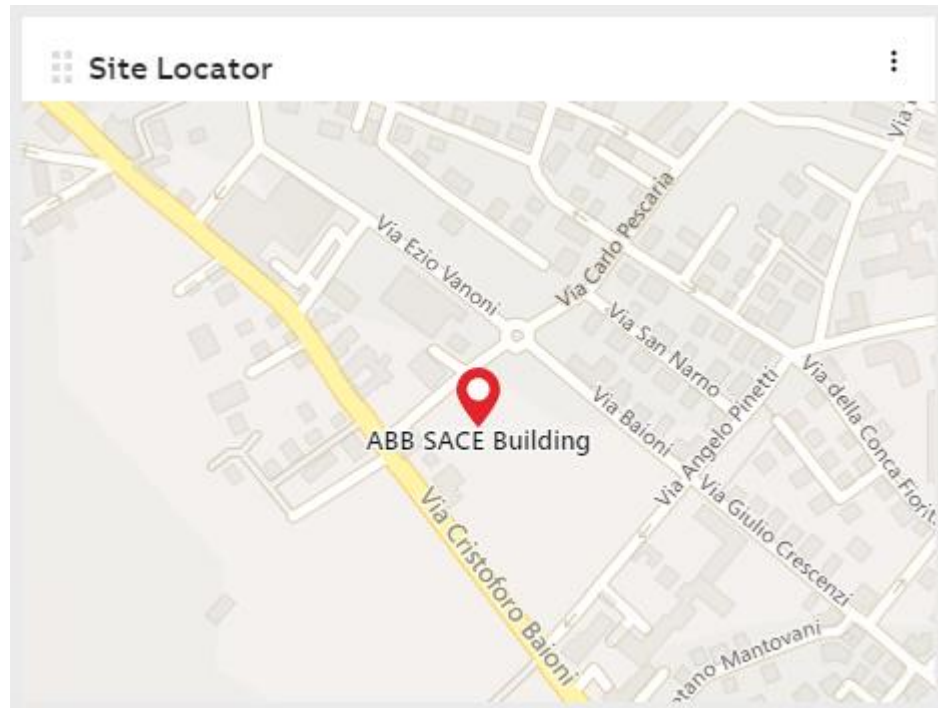
- Provides real time of the Site

Energy and Asset Manager

Dashboard – Site Locator

[Back](#)

User interface



Personals

Energy manager, operation manager, facility manager who wish to visualize the position of its Site respect a geographical maps

Description

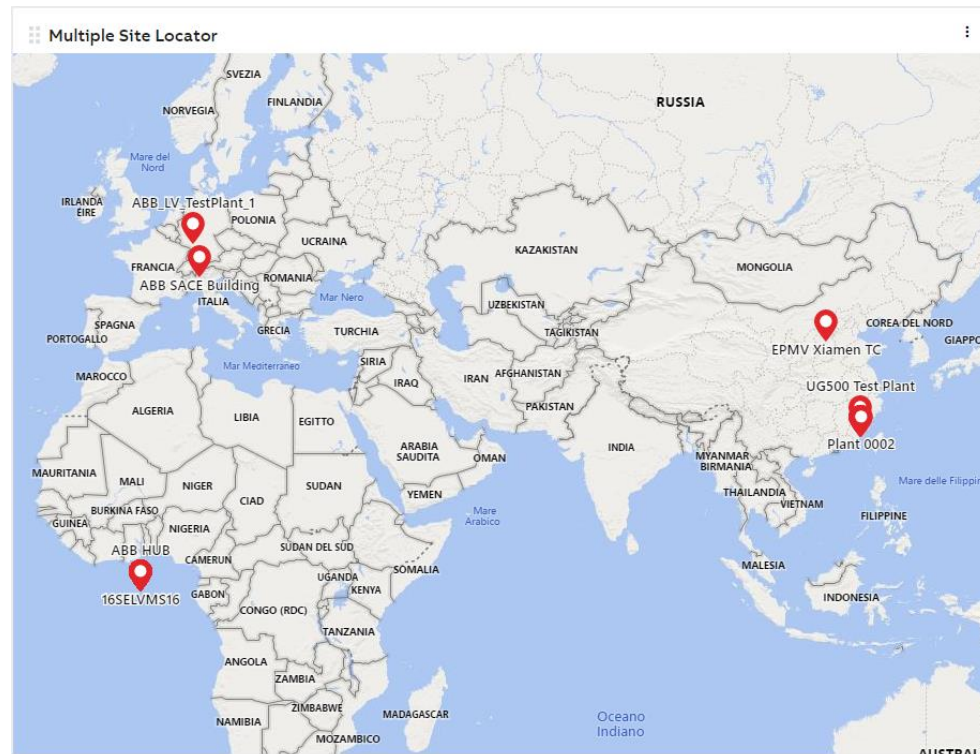
- Provides the site address

Energy and Asset Manager

Dashboard – Multi Site Locator

[Back](#)

User interface



Personals

Energy manager, operation manager, facility manager who wish to visualize the location of all accessible sites and quickly jump to.

Description

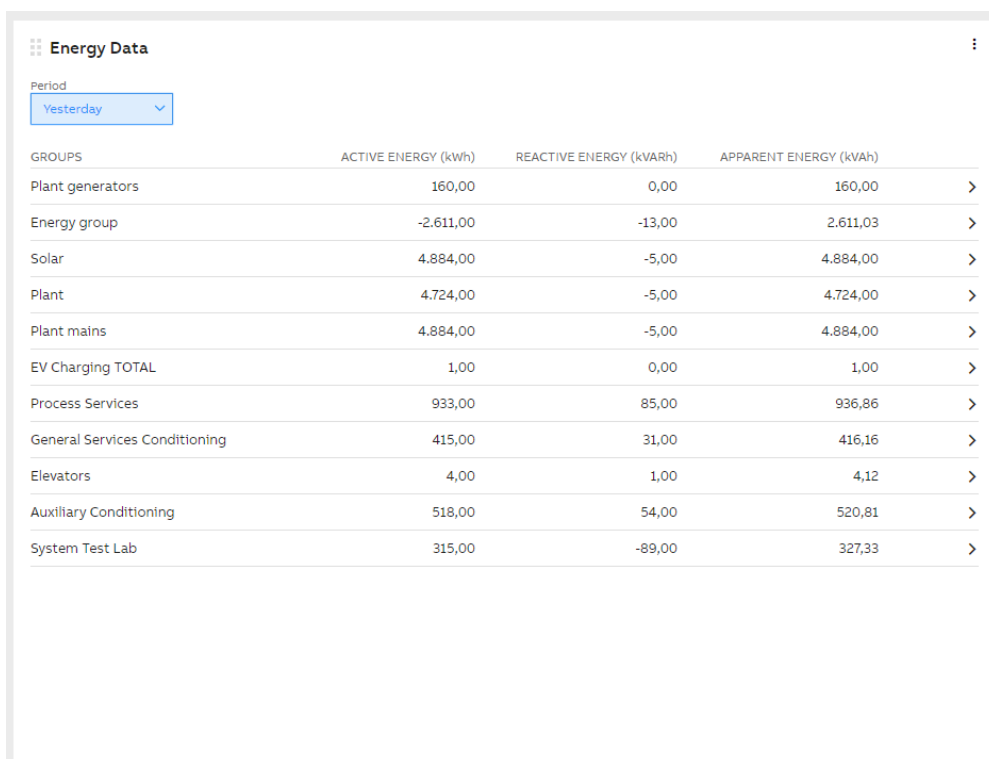
- User can see all the accessible site location
- User can click and open the site

Energy Manager

Dashboard – Energy Data

[Back](#)

User interface



The screenshot displays the 'Energy Data' dashboard. At the top, there is a 'Period' dropdown menu set to 'Yesterday'. Below this is a table with four columns: 'GROUPS', 'ACTIVE ENERGY (kWh)', 'REACTIVE ENERGY (kVARh)', and 'APPARENT ENERGY (kVAh)'. The table lists various energy-consuming groups and their corresponding energy values for the selected period. Each row has a right-pointing arrow icon for further details.

GROUPS	ACTIVE ENERGY (kWh)	REACTIVE ENERGY (kVARh)	APPARENT ENERGY (kVAh)
Plant generators	160,00	0,00	160,00
Energy group	-2.611,00	-13,00	2.611,03
Solar	4.884,00	-5,00	4.884,00
Plant	4.724,00	-5,00	4.724,00
Plant mains	4.884,00	-5,00	4.884,00
EV Charging TOTAL	1,00	0,00	1,00
Process Services	933,00	85,00	936,86
General Services Conditioning	415,00	31,00	416,16
Elevators	4,00	1,00	4,12
Auxiliary Conditioning	518,00	54,00	520,81
System Test Lab	315,00	-89,00	327,33

Personals

Energy manager, operation manager, facility manager who wish to aggregate for a certain period the energy data through the grouping function and eventually deep dive into the single asset

Description

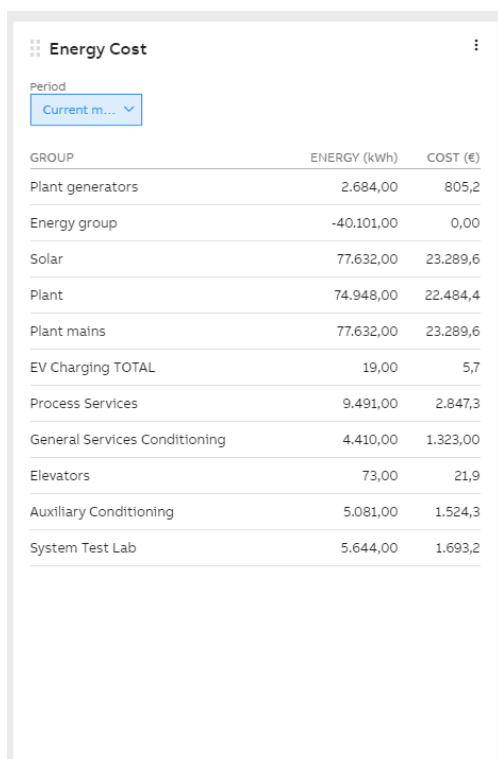
- Provides the active, reactive and apparent Energy aggregated for each group in the selected time period
- By deep diving into each group, it provides the energy values of each asset

Energy Manager

Dashboard – Energy Cost

[Back](#)

User interface



The screenshot shows the 'Energy Cost' dashboard. At the top, there is a 'Period' dropdown menu set to 'Current m...'. Below this is a table with three columns: 'GROUP', 'ENERGY (kWh)', and 'COST (€)'. The table lists various energy-consuming groups and their associated costs.

GROUP	ENERGY (kWh)	COST (€)
Plant generators	2.684,00	805,2
Energy group	-40.101,00	0,00
Solar	77.632,00	23.289,6
Plant	74.948,00	22.484,4
Plant mains	77.632,00	23.289,6
EV Charging TOTAL	19,00	5,7
Process Services	9.491,00	2.847,3
General Services Conditioning	4.410,00	1.323,00
Elevators	73,00	21,9
Auxiliary Conditioning	5.081,00	1.524,3
System Test Lab	5.644,00	1.693,2

Personals

Energy manager, operation manager, facility manager who wish to visualize and have an understanding of the energy consumption and cost associated by each group and each asset

Description

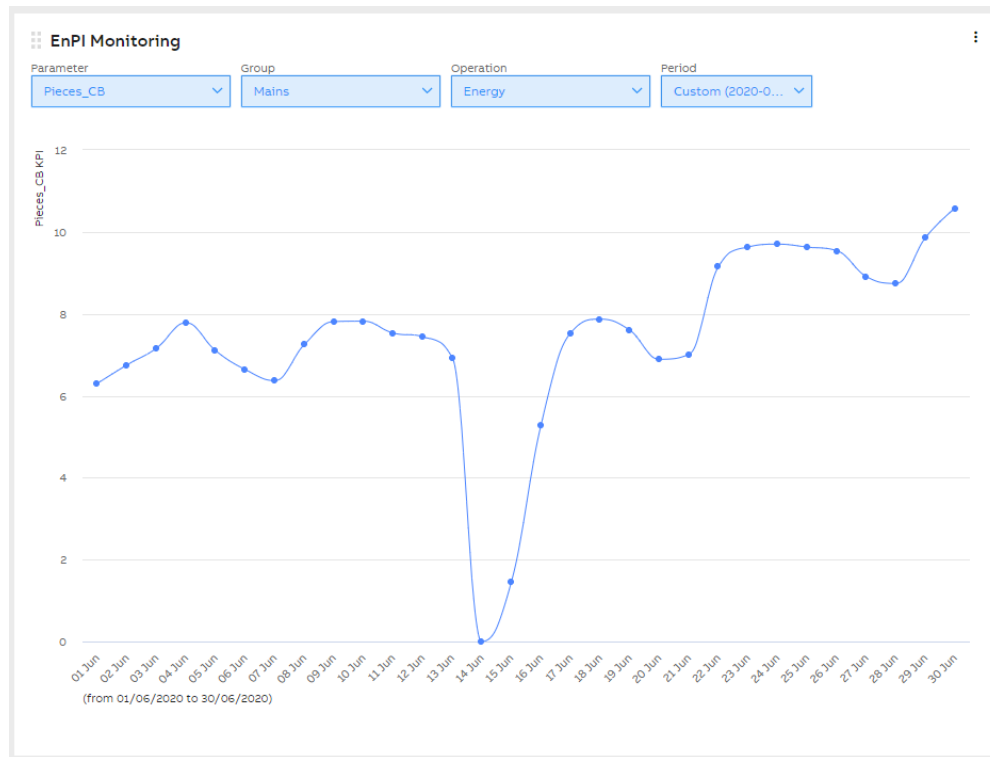
- Provides the calculation of the cost associated with each group or asset in respect to a selected period.
- The cost is calculated based on the values inserted in the «Cost Plan» function available under «Settings» menu

Energy Manager

Dashboard – Energy Performance Indicators

[Back](#)

User interface



Personals

Energy manager, operation manager, facility manager who wish to monitor the trend of the energy performance indicators of the Site based on the input parameters

Description

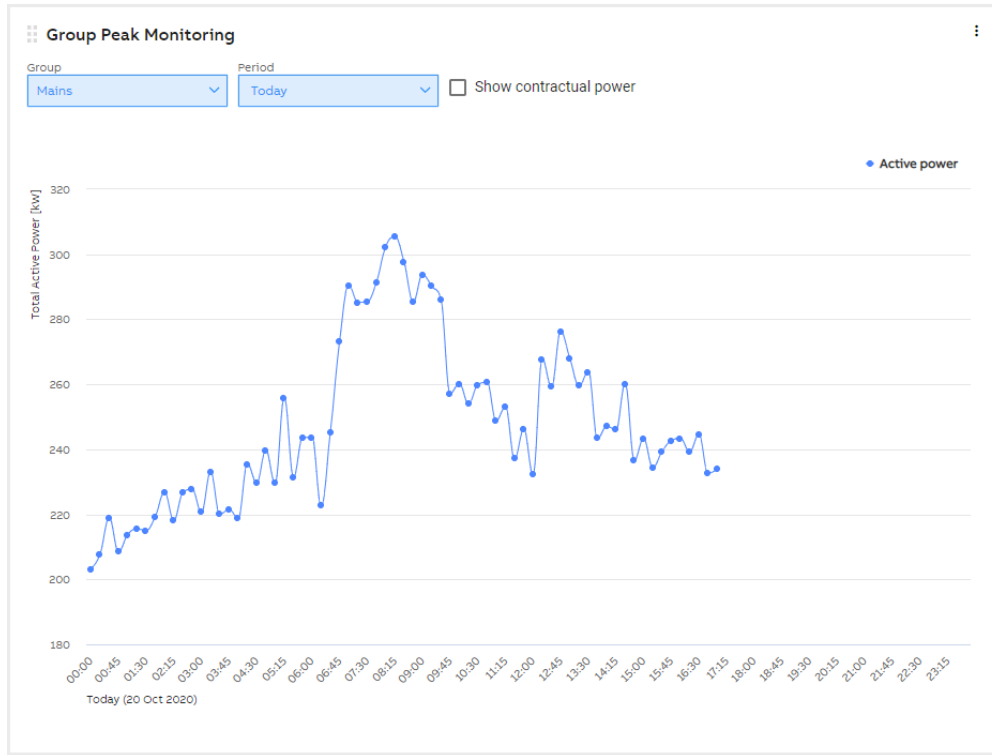
- Shows the trend of the Energy Performance Index (EnPI), calculated based on the data inserted using Performance Parameter API
- The user can select the Parameter, the Group, the Operation (Energy or Cost) and the Period.
- Guideline available in the library

Energy Manager

Dashboard – Group Peak Monitoring

[Back](#)

User interface



Personals

Energy manager, operation manager, facility manager who wish to monitor the trend of the Total Active Power absorbed by a group defined for the Site

Description

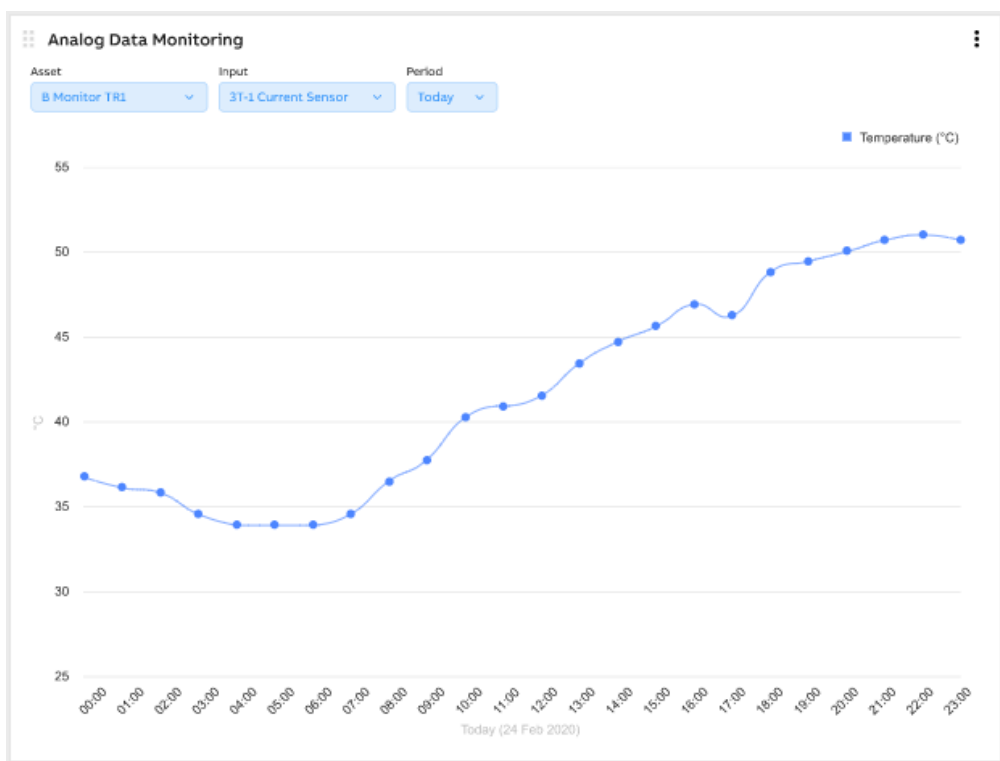
- Provides the aggregation of the Total Active power for the selected group and allows to compare the values in respect to the contractual power associated to the site

Energy Manager

Dashboard – Analog Data Monitoring

[Back](#)

User interface



Personals

Energy manager, operation manager, facility manager who wish to visualize the trend of the parameters monitored through analog input

Description

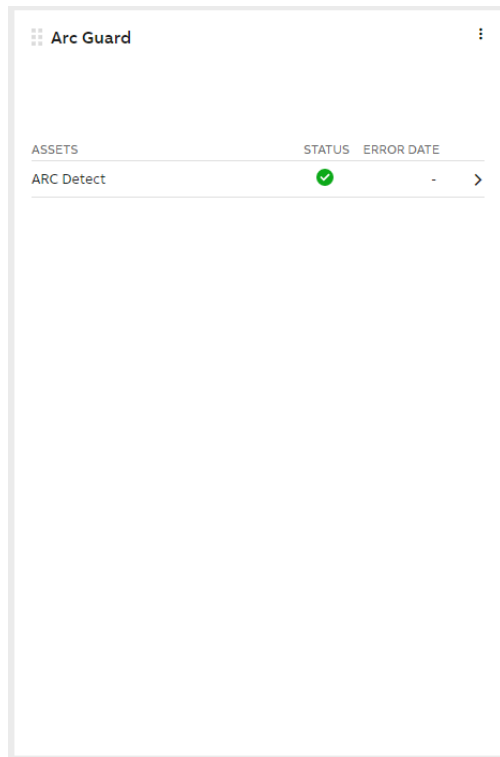
- This widget shows the analog input trend available from the device as temperature and or other gauges.
- Input from: Signaling 3T (PT1000 or 4-20mA analog input), Analog input (4-20mA) available on E-HUB 2.0 or ABB Ability™ Edge Industrial Gateway, Analog input available from EQ-Matic connected meters
- Data can be visualized for Asset, Input and Period

Energy and Asset Manager

Dashboard – Arc Guard

[Back](#)

User interface



The screenshot shows the Arc Guard dashboard interface. At the top, there's a header with the Arc Guard logo and a menu icon. Below the header, there's a table with three columns: ASSETS, STATUS, and ERROR DATE. The table contains one row for 'ARC Detect' with a green checkmark in the STATUS column and a dash in the ERROR DATE column. A right arrow is visible at the end of the row.

ASSETS	STATUS	ERROR DATE
ARC Detect	✓	-

Personals

Operators and service personnel who is willing to monitor the status of arc detection systems, like Arc Guard devices.

Description

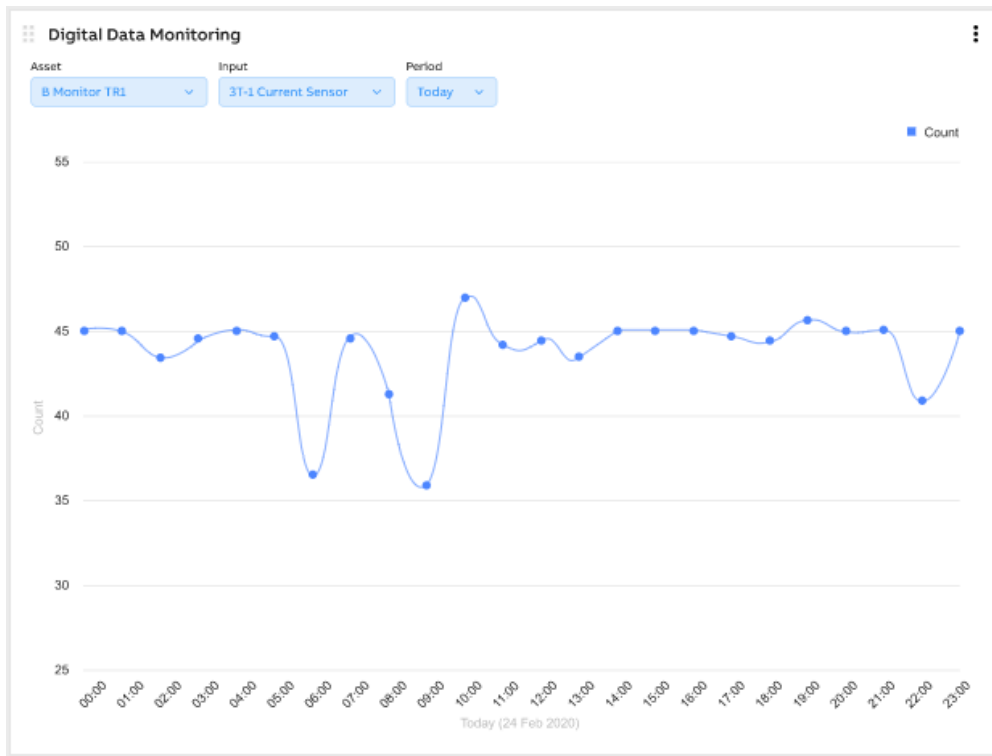
- The user can see the available arc detection systems, with the indication of the status (arc detected or not) and last error.
- Diving the equipment, user can see details of arc detection sensors

Energy Manager

Dashboard – Digital Data Monitoring

[Back](#)

User interface



Personals

Energy manager, operation manager, facility manager who wish to visualize the trend of the parameters monitored through digital input

Description

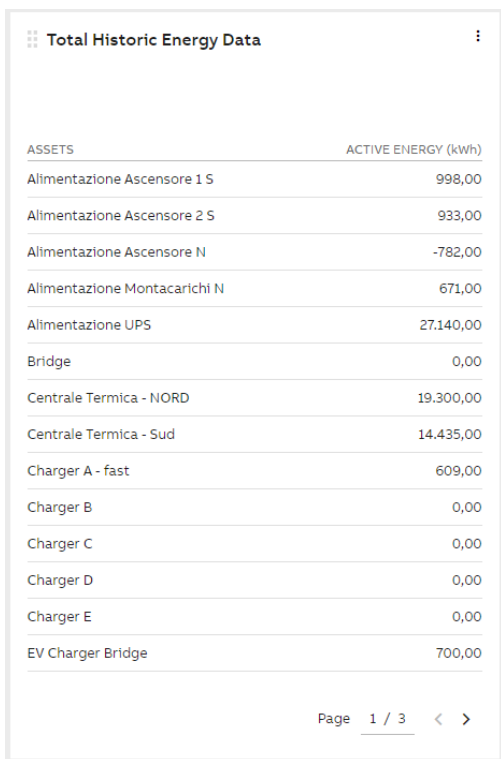
- It shows the trend of a parameters as water or gas or any other information provided from digital input.
- Data can be selected per Asset, Input and Period.
- This data collects also input from pulse meters, via E-HUB 2.0 or ABB Ability™ Edge Industrial Gateway

Energy Manager

Dashboard – Total Historic Energy data

[Back](#)

User interface



The screenshot shows a web interface titled "Total Historic Energy Data". It contains a table with two columns: "ASSETS" and "ACTIVE ENERGY (kWh)". The table lists various assets and their corresponding energy values. At the bottom of the table, there is a pagination bar indicating "Page 1 / 3" with navigation arrows.

ASSETS	ACTIVE ENERGY (kWh)
Alimentazione Ascensore 1 S	998,00
Alimentazione Ascensore 2 S	933,00
Alimentazione Ascensore N	-782,00
Alimentazione Montacarichi N	671,00
Alimentazione UPS	27.140,00
Bridge	0,00
Centrale Termica - NORD	19.300,00
Centrale Termica - Sud	14.435,00
Charger A - fast	609,00
Charger B	0,00
Charger C	0,00
Charger D	0,00
Charger E	0,00
EV Charger Bridge	700,00

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Personals

Energy manager, operation manager, facility manager who wish to visualize the total active energy registered by each asset from first installation

Description

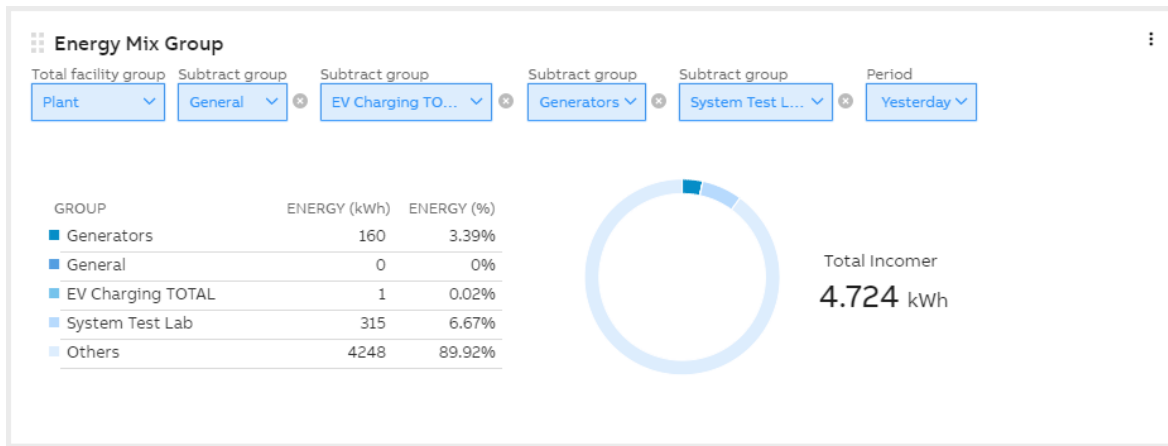
- It shows the active energy registered by each asset and visualized, if available, from the front panel
- The energy data is the total registered by the asset even if the asset has been recommissioned in the same or another Site

Energy Manager

Dashboard – Energy Mix Group

[Back](#)

User interface



Personals

Energy manager, operation manager, facility manager who wish to visualize the total active energy and related percentage contribution of each selected group within the Site and for a certain selected period

Description

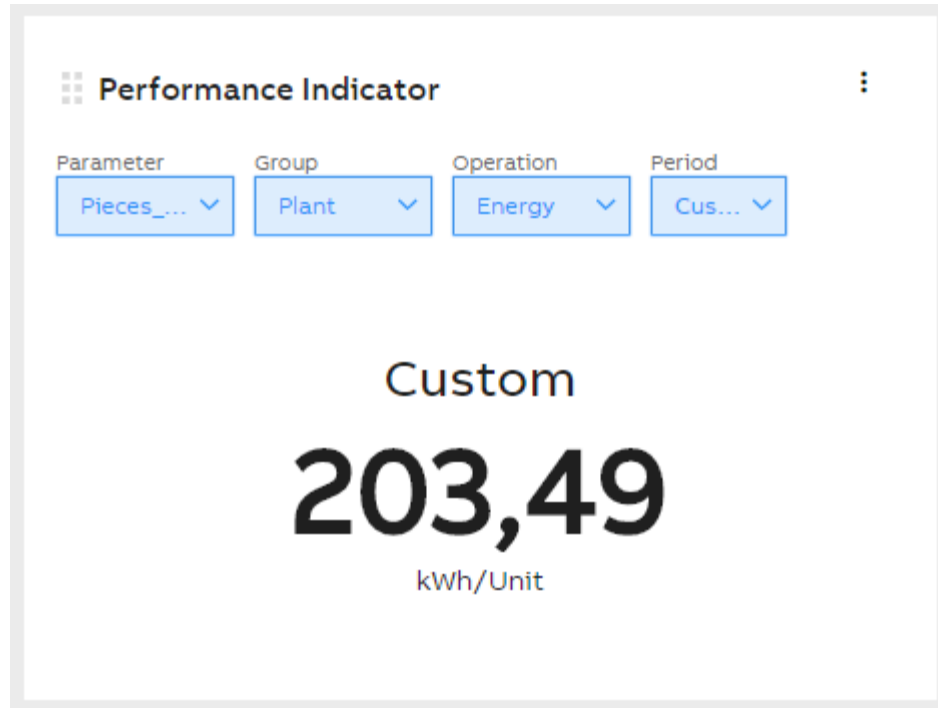
- It shows in a pie chart the energy contribution from different groups in terms of total Energy and percentage
- The user can select up to maximum four groups to subtract from the total facility energy consumption, which needs to be selected.
- Data can be visualized by Period

Energy Manager

Dashboard – Performance Indicator

[Back](#)

User interface



Personals

Energy manager, operation manager, facility manager who wish to monitor the aggregated value of the energy performance indicators of the Site based on the input parameters inserted

Description

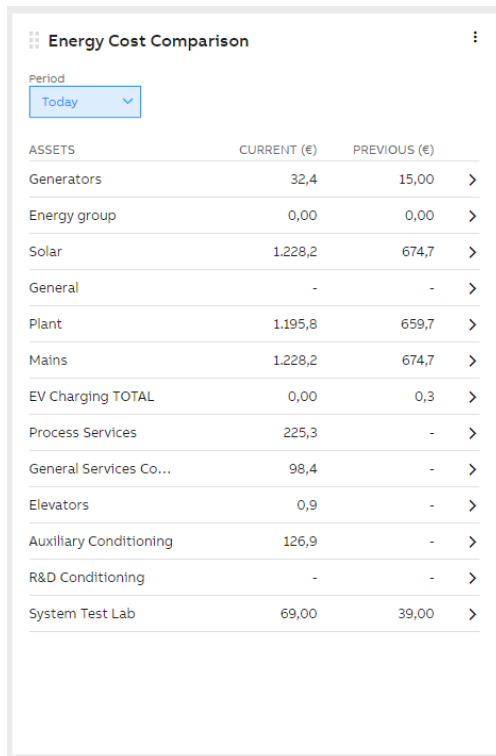
- It shows the aggregated value of the Energy Performance Index (EnPI), calculated based on the data inserted using Performance Parameter API
- The user can select the Parameter, the Group, the Operation (Energy or Cost) and the Period.
- Guideline available in the library

Energy Manager

Dashboard – Energy Cost Comparison

[Back](#)

User interface



The screenshot shows a web interface titled "Energy Cost Comparison". It features a "Period" dropdown menu set to "Today". Below this is a table with three columns: "ASSETS", "CURRENT (€)", and "PREVIOUS (€)". The table lists various assets and their corresponding costs for the current and previous periods. Each row has a right-pointing arrow icon.

ASSETS	CURRENT (€)	PREVIOUS (€)
Generators	32,4	15,00
Energy group	0,00	0,00
Solar	1.228,2	674,7
General	-	-
Plant	1.195,8	659,7
Mains	1.228,2	674,7
EV Charging TOTAL	0,00	0,3
Process Services	225,3	-
General Services Co...	98,4	-
Elevators	0,9	-
Auxiliary Conditioning	126,9	-
R&D Conditioning	-	-
System Test Lab	69,00	39,00

Personals

Energy manager, operation manager, facility manager who wish to compare their actual costs in respect to the previous period

Description

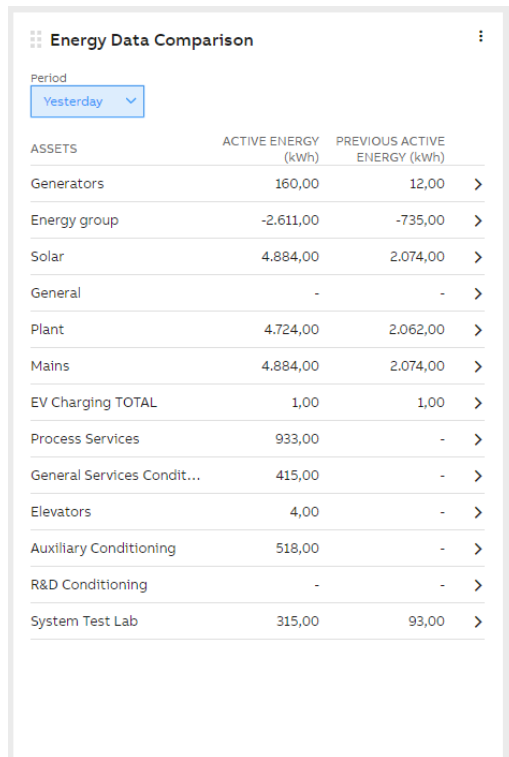
- It shows the aggregated cost value according to the period selected and the comparison versus the same period of the previous year
- Example: Today Current 20/10/2020, Previous 20/10/2019
- Energy cost are calculated in accordance to billing profiles created in the settings as Energy Cost widget.

Energy Manager

Dashboard – Energy Data Comparison

[Back](#)

User interface



The screenshot displays the 'Energy Data Comparison' interface. At the top, there is a 'Period' dropdown menu set to 'Yesterday'. Below this is a table with three columns: 'ASSETS', 'ACTIVE ENERGY (kWh)', and 'PREVIOUS ACTIVE ENERGY (kWh)'. The table lists various assets and their corresponding energy values for the selected period and the previous period. Each row has a right-pointing arrow icon.

ASSETS	ACTIVE ENERGY (kWh)	PREVIOUS ACTIVE ENERGY (kWh)
Generators	160,00	12,00
Energy group	-2.611,00	-735,00
Solar	4.884,00	2.074,00
General	-	-
Plant	4.724,00	2.062,00
Mains	4.884,00	2.074,00
EV Charging TOTAL	1,00	1,00
Process Services	933,00	-
General Services Condit...	415,00	-
Elevators	4,00	-
Auxiliary Conditioning	518,00	-
R&D Conditioning	-	-
System Test Lab	315,00	93,00

Personals

Energy manager, operation manager, facility manager who wish to compare their actual active energy data in respect to the previous period

Description

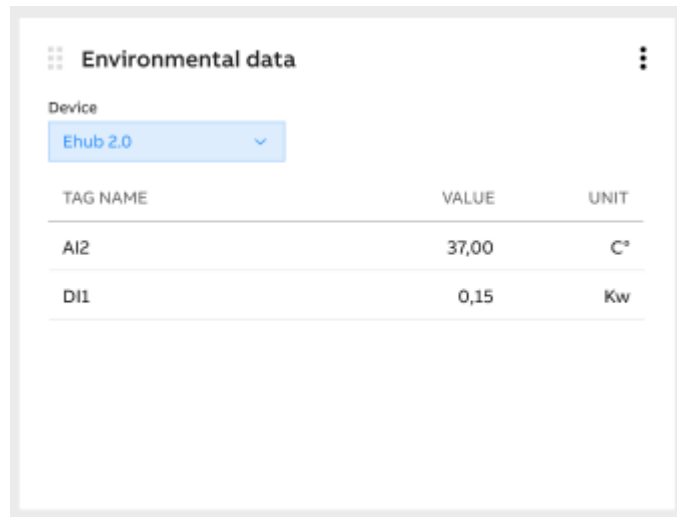
- It shows the aggregated active energy data value according to the period selected and the comparison versus the same period of the previous year
- Example: Today Current 20/10/2020, Previous 20/10/2019

Energy Manager

Dashboard – Environmental Data

[Back](#)

User interface



The screenshot displays the 'Environmental data' section of the Energy Manager interface. It features a 'Device' dropdown menu set to 'Ehub 2.0'. Below this is a table with three columns: TAG NAME, VALUE, and UNIT. The table contains two rows of data: AI2 with a value of 37,00 and unit C°, and DI1 with a value of 0,15 and unit Kw.

TAG NAME	VALUE	UNIT
AI2	37,00	C°
DI1	0,15	Kw

Personals

Energy manager, operation manager, facility manager who wish to visualize the environmental data collected from digital input and provide energy monitoring for counter meters as well as other parameters such as utility parameters (water flow, temperature)

Description

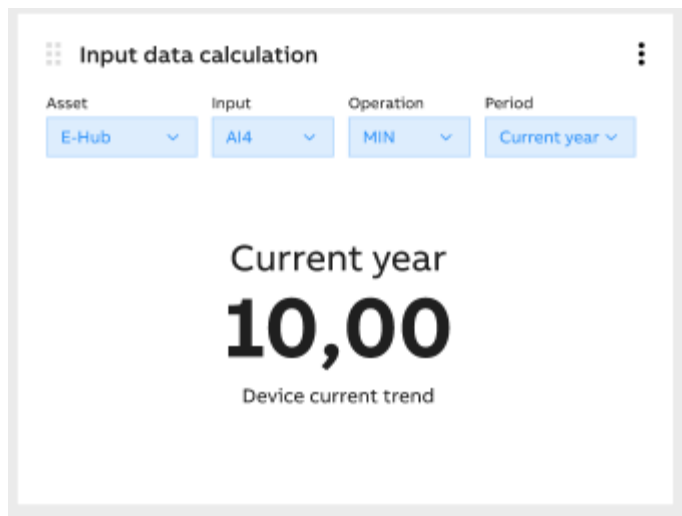
- It shows digital input (pulse meters) available on E-HUB 2.0 and ABB Ability™ Edge Industrial Gateway
- Input can be collected from: Signaling 3T (PT1000 or 4-20mA analog input) Analog input (4-20mA) available on E-HUB or E-HUB 2.0
- Data are shown in tabular format and are related to the real-time values.

Energy Manager

Dashboard – Environmental Data

[Back](#)

User interface



Personals

Energy manager, operation manager, facility manager who wish to visualize the environmental data collected from digital input and provide energy monitoring for counter meters as well as other parameters such as utility parameters (water flow, temperature)

Description

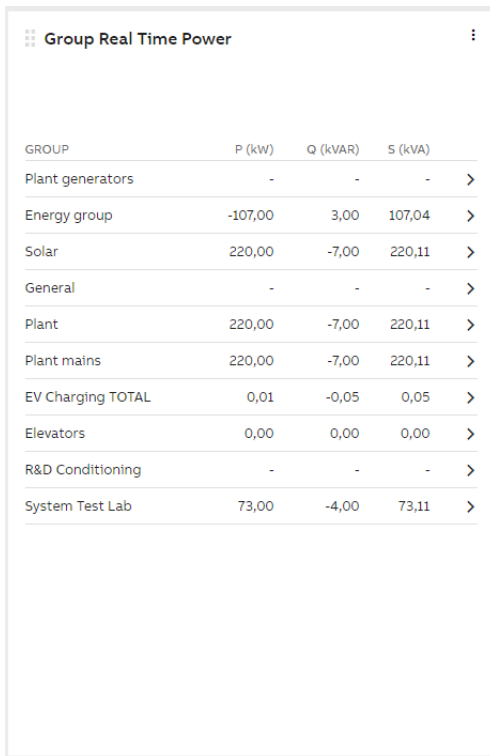
- It shows the information about analogue input or digital input and provide the possibility to view data as MIN-MAX-AVG value.
- Input can be collected from: Signaling 3T (PT1000 or 4-20mA analog input) Analog input (4-20mA) available on E-HUB 2.0 or ABB Ability™ Edge Industrial Gateway
- Data can be visualized for Device, Input and Period.

Energy Manager

Dashboard – Group Real Time Power

[Back](#)

User interface



GROUP	P (kW)	Q (kVAR)	S (kVA)	
Plant generators	-	-	-	>
Energy group	-107,00	3,00	107,04	>
Solar	220,00	-7,00	220,11	>
General	-	-	-	>
Plant	220,00	-7,00	220,11	>
Plant mains	220,00	-7,00	220,11	>
EV Charging TOTAL	0,01	-0,05	0,05	>
Elevators	0,00	0,00	0,00	>
R&D Conditioning	-	-	-	>
System Test Lab	73,00	-4,00	73,11	>

Personals

Energy manager, operation manager, facility manager who wish to monitor real time power data of main consumption or generation groups.

Description

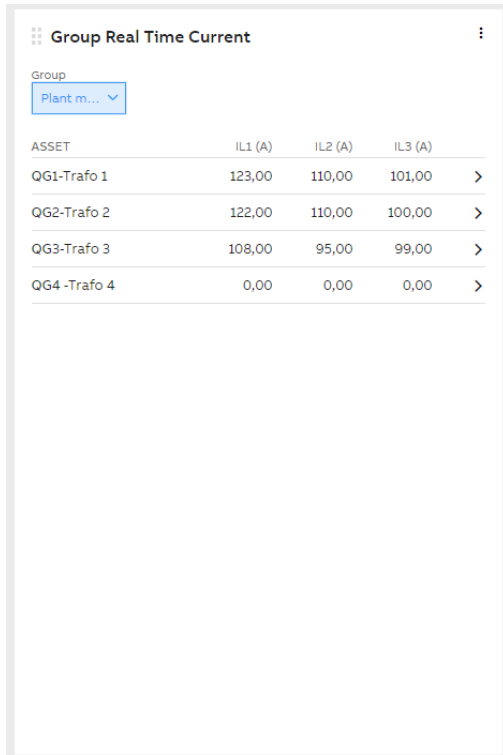
- Provides the power data of the assets every 30 seconds
- User can select the groups and deep dive to visualize more information

Energy Manager

Dashboard – Group Real Time Current

[Back](#)

User interface



ASSET	IL1 (A)	IL2 (A)	IL3 (A)	
QG1-Trafo 1	123,00	110,00	101,00	>
QG2-Trafo 2	122,00	110,00	100,00	>
QG3-Trafo 3	108,00	95,00	99,00	>
QG4 -Trafo 4	0,00	0,00	0,00	>

Personals

Energy manager, operation manager, facility manager who wish to monitor real time current data of main consumption or generation groups.

Description

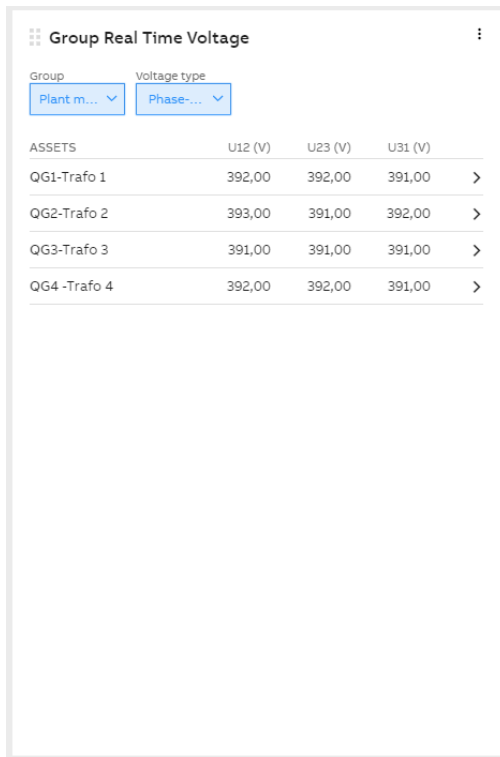
- Provides the current data of the assets every 30 seconds
- User can select the groups where the assets are associated

Energy Manager

Dashboard – Group Real Time Voltage

[Back](#)

User interface



The screenshot shows the 'Group Real Time Voltage' interface. It features two dropdown menus at the top: 'Group' (set to 'Plant m...') and 'Voltage type' (set to 'Phase-...'). Below these is a table with the following data:

ASSETS	U12 (V)	U23 (V)	U31 (V)	
QG1-Trafo 1	392,00	392,00	391,00	>
QG2-Trafo 2	393,00	391,00	392,00	>
QG3-Trafo 3	391,00	391,00	391,00	>
QG4 -Trafo 4	392,00	392,00	391,00	>

Personals

Energy manager, operation manager, facility manager who wish to monitor real time voltage data of main consumption or generation groups.

Description

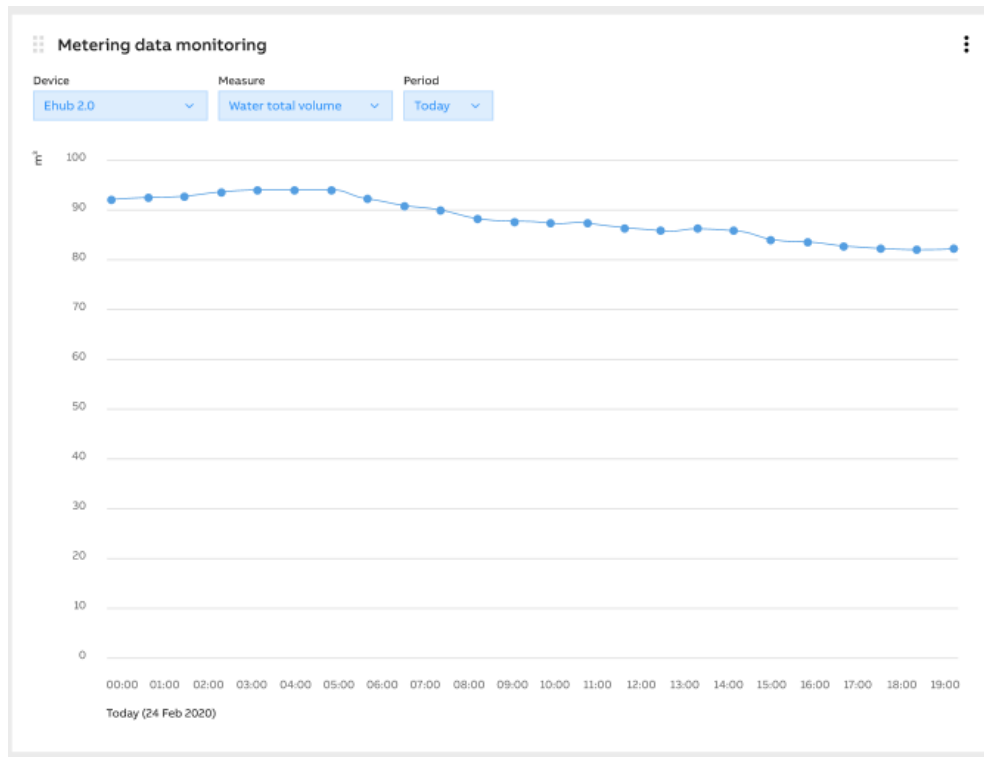
- Provides the voltage data of the assets every 30 seconds
- User can select the groups where the assets are associated

Energy Manager

Dashboard – Metering Data Monitoring

[Back](#)

User interface



Personals

Energy manager, operation manager, facility manager who wish to monitor trend data of water, gas or heat meters connected within the Site.

Description

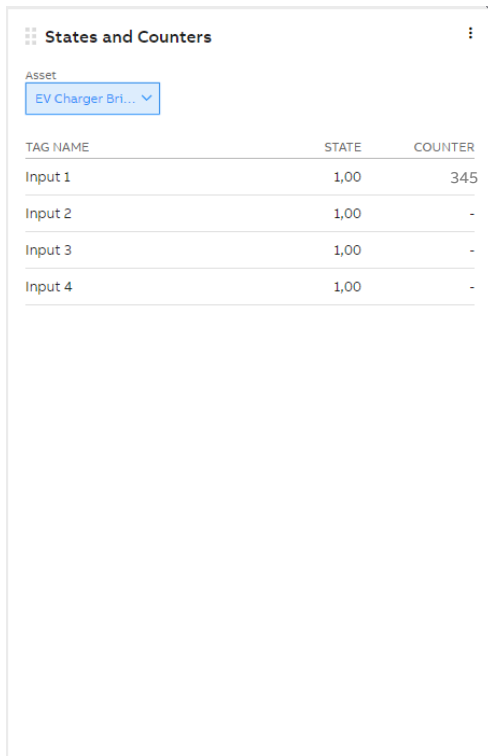
- Provides the trend of consumption of water, gas and heat meters during a selected period
- Aggregation is every 15 minutes to 1 month according to the period selected

Energy and Asset Manager

Dashboard – States and Counters

[Back](#)

User interface



TAG NAME	STATE	COUNTER
Input 1	1,00	345
Input 2	1,00	-
Input 3	1,00	-
Input 4	1,00	-

Personals

Energy manager, operation manager, facility manager who wish to visualize the statuses of connected digital inputs (e.g. meters, open/close status, etc)

Description

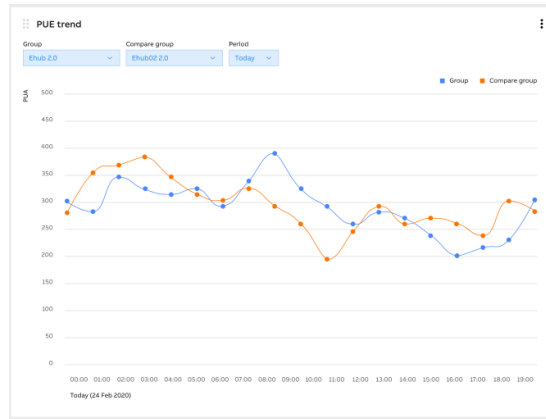
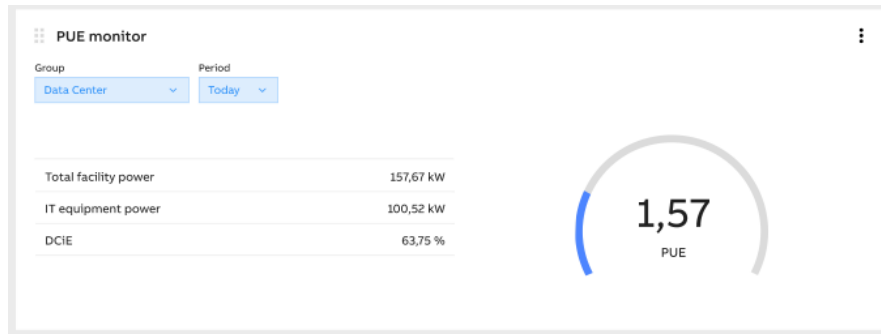
- Shows the status and the counter of the signaling devices present in the site
- It collects the information from dry digital contacts of compatible devices such as Signaling 4k, Signaling TCP.

Energy Manager

Dashboard – Datacenter Package

[Back](#)

User interface



Personals

Energy manager, operation manager, facility manager who wish to monitor both real time value and trend related to the Power Usage Effectiveness (PuE) and Data center infrastructure efficiency (DCiE)

Description

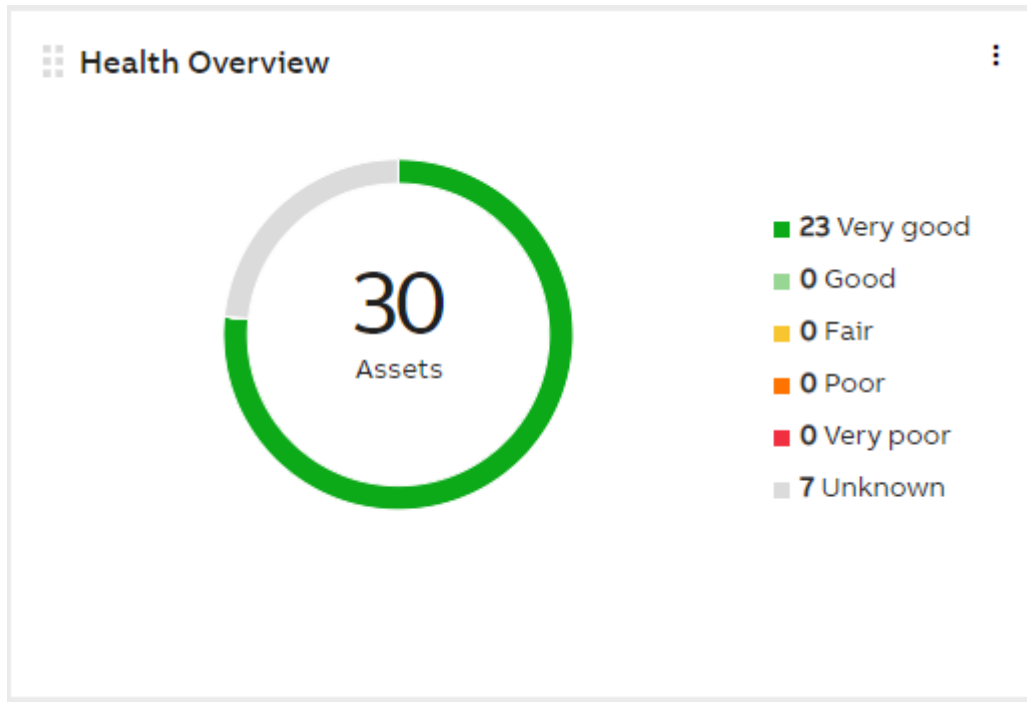
- Provides the real time value of the PuE calculated as a total facility incoming and outgoing
- Provides the real time value of the DCiE calculated as the multiplicative inverse of the PuE ($1/\text{PuE}$)

Asset Manager

Dashboard – Health Overview

[Back](#)

User interface



Personals

Maintenance manager, asset manager, facility manager who is looking for the overall view of health condition of the monitored installed base.

Description

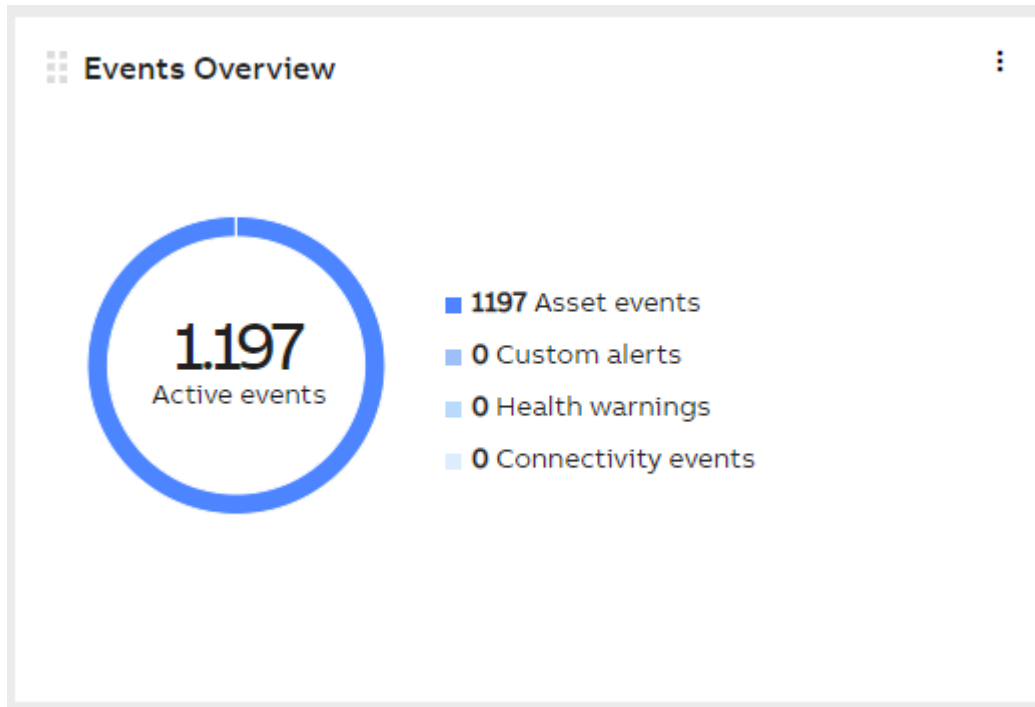
- Number of asset refers to the number of monitored ones.
- Asset health index can be: Very poor (mostly failed, urgent action required), Poor (possible failure, plan action), Fair (abnormal condition, need attention), Good (no problems, no action) Very good (as new, no action).
- Disconnected or not evaluated equipment are Unknown

Energy and Asset Manager

Dashboard – Events overview

[Back](#)

User interface



Personals

Maintenance manager, facility manager, maintenance engineer who is looking for the overall view of active events in the site.

Description

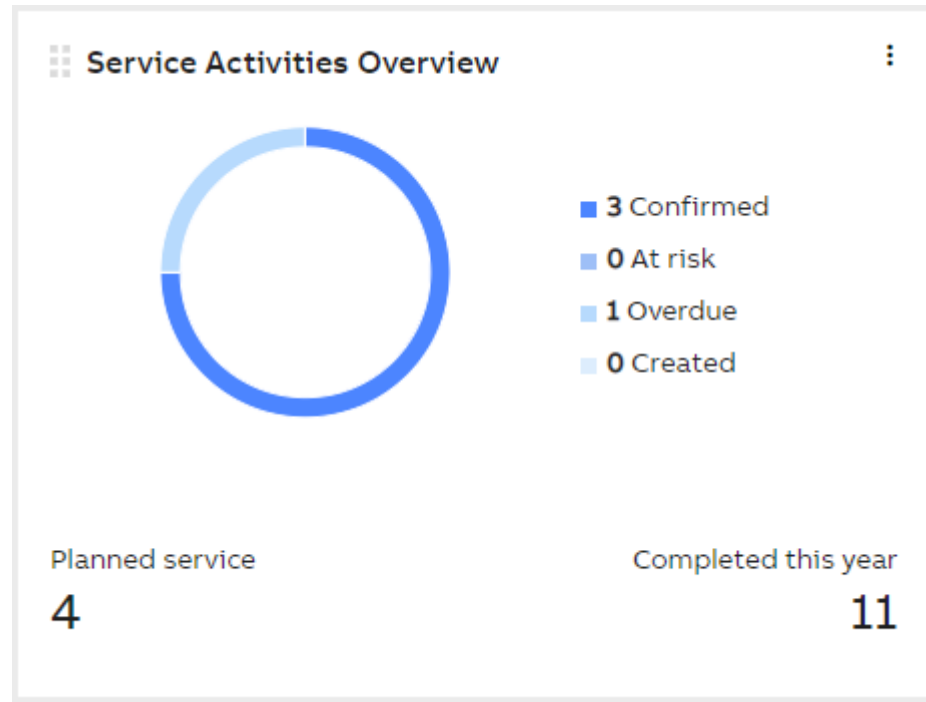
- The active events refers to the number of events still not returned or not acknowledged in the site
- Event are grouped in: events generated by the equipment or field devices, events generated by user's created alerts, events related to changed asset health condition and connectivity problems events

Asset Manager

Dashboard – Service activities overview

[Back](#)

User interface



Personals

Maintenance manager, facility manager who is looking for the overall view of service activities in the site.

Description

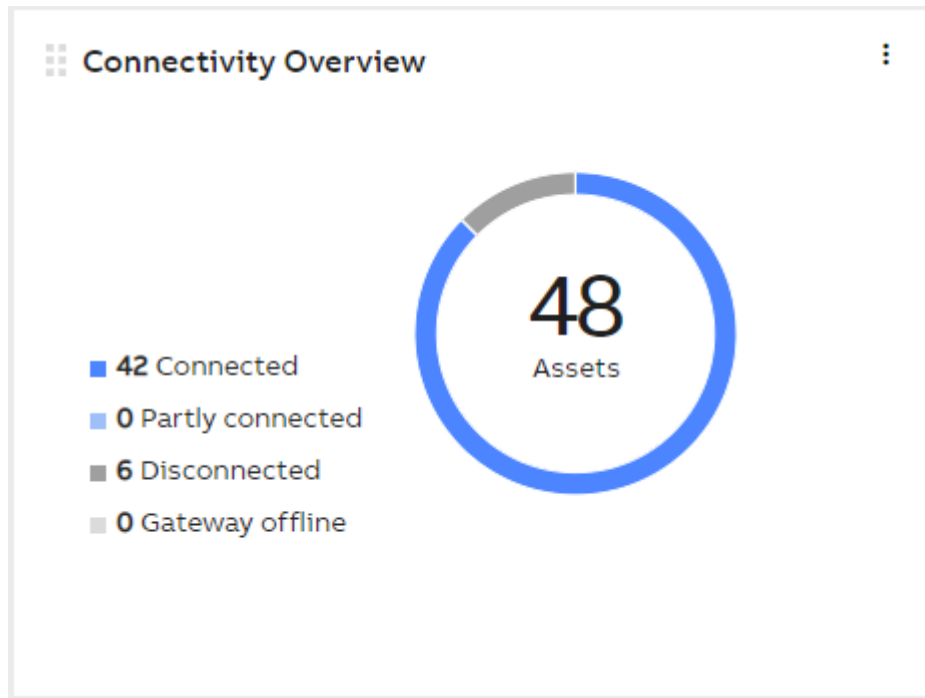
- Service activity statuses are: created for an asset and scheduled, confirmed when assigned to a field service engineer, at risk when in the week of the deadline, Overdue when deadline is passed.
- Planned services are activities scheduled but not yet completed.

Energy and Asset Manager

Dashboard – Connectivity overview

[Back](#)

User interface



Personals

Maintenance manager, facility manager, maintenance engineer, field service who is looking for the overall view of the equipment connectivity to the platform.

Description

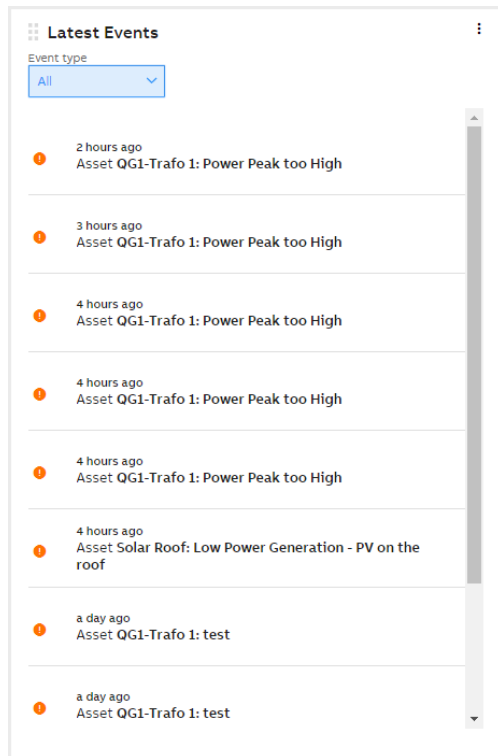
- Monitored equipment can be: connected, partly connected when one of its subcomponents is not properly transferring data (e.g. a sensor), disconnected, and disconnected due to the gateway
- The counter refers to commissioned equipment.

Energy and Asset Manager

Dashboard – Latest events

[Back](#)

User interface



Personals

Maintenance manager, facility manager, maintenance engineer, field service who is looking for the latest events happened in the site

Description

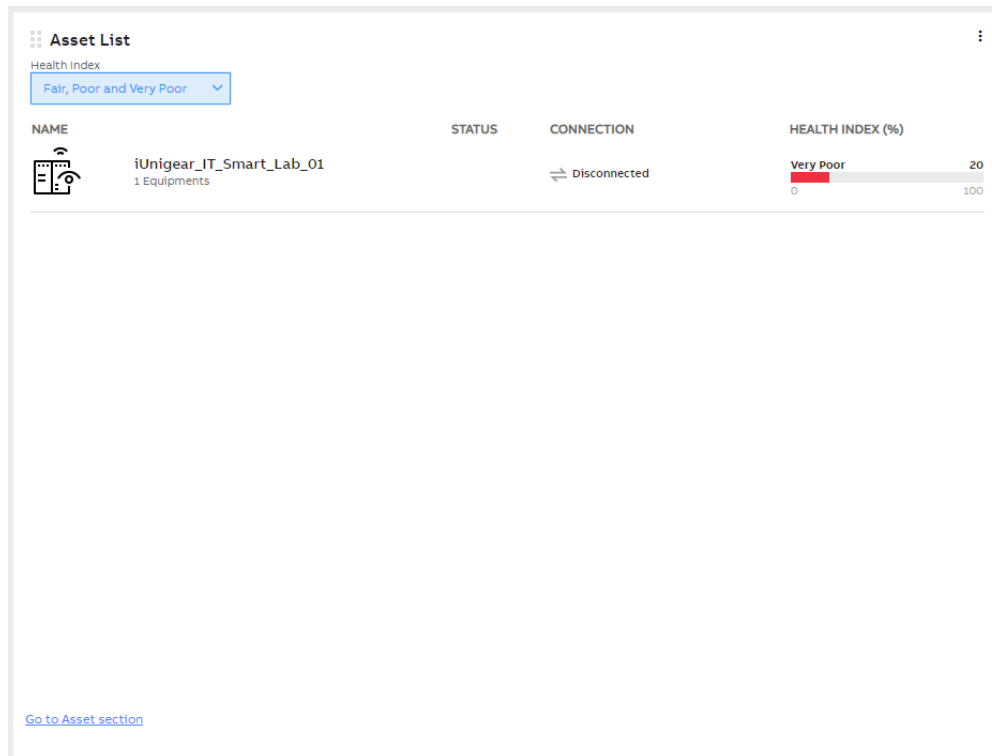
- Every event is defined by its time, asset, and description
- Events can be filtered by: events generated by the equipment or field devices, events generated by user's created alerts, events related to changed asset health condition and connectivity problems events

Asset Manager

Dashboard – Asset list

[Back](#)

User interface



Personals

Maintenance manager, facility manager, maintenance engineer, field service who is looking quickly for the list of assets, typically with a Fair, Poor or Very poor condition

Description

- Every asset is identified by its name, status (alarms), connection status, health index (when available)
- User can filter assets by: Fair, Poor and Very Poor conditions; Poor and very poor conditions; Good and very Good; and All conditions.

Asset Manager

Dashboard – Health by Age

[Back](#)

User interface



Personals

Maintenance manager, facility manager, maintenance engineer, field service who is looking for overall assets health view grouped by age classes, manufacturer and asset classes.

Description

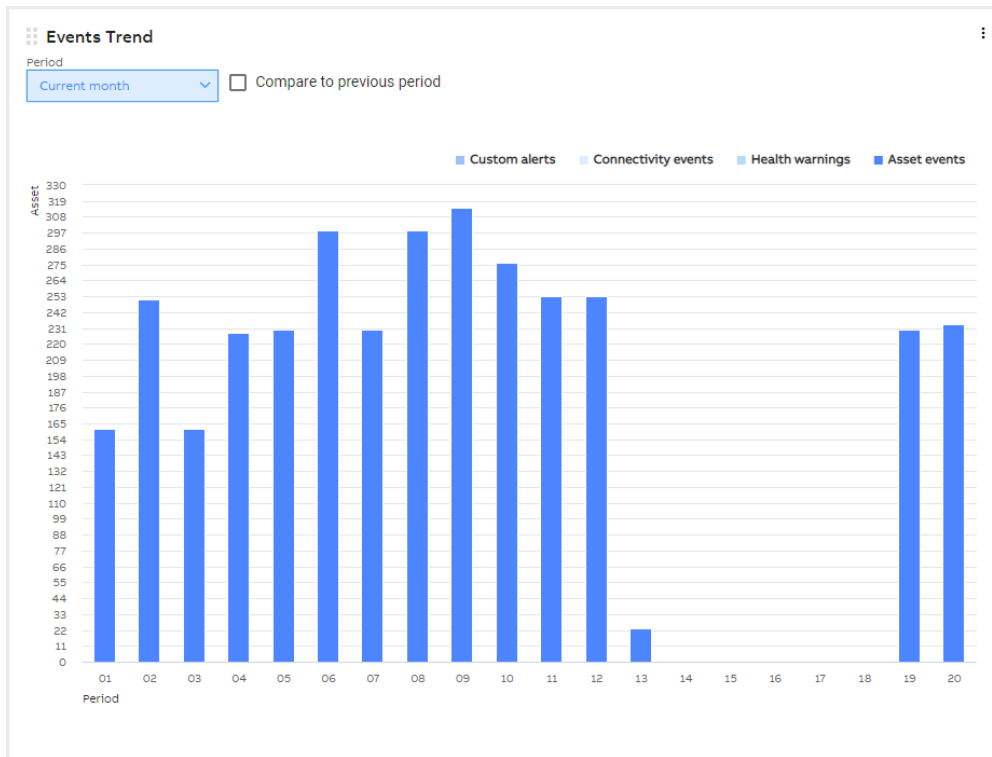
- Assets are grouped by age (from manufacturing date). If age is not available then they are grouped in Unknown age group
- Manufacturer filter can be for instance “ABB”
- Asset class filter depends on the asset class definitions (ACB, UPS, etc)

Energy and Asset Manager

Dashboard – Events Trend

[Back](#)

User interface



Personals

Maintenance manager, facility manager, maintenance engineer, field service who is looking for the site events trend.

Description

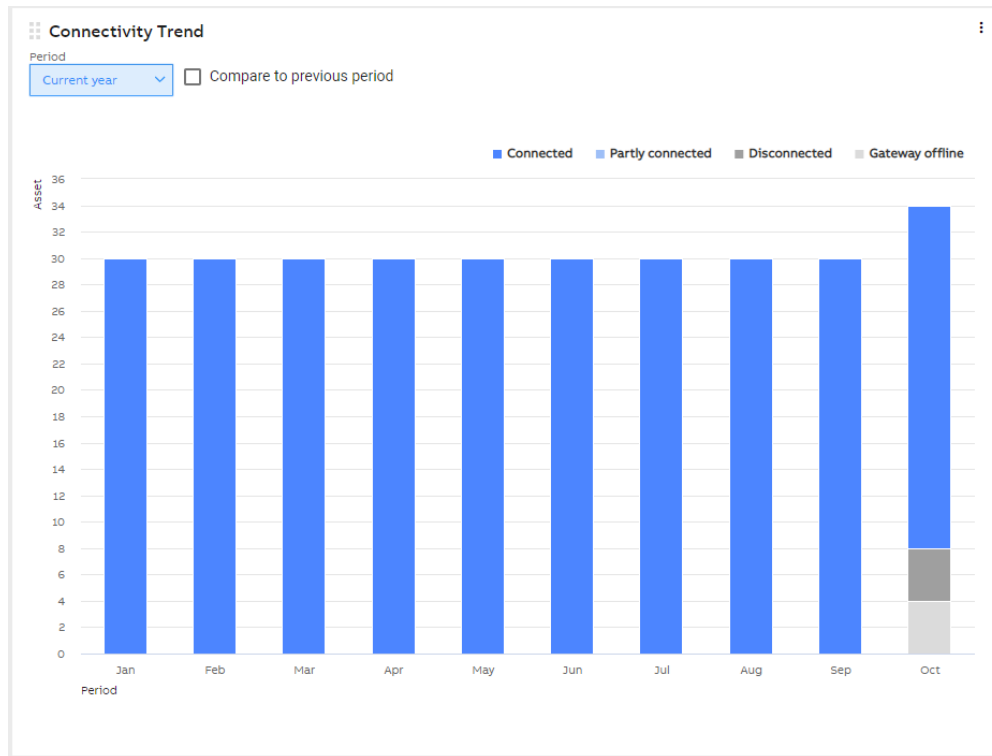
- User can select a period and see the number of events.
- Event are grouped in: events generated by the equipment or field devices, events generated by user's created alerts, events related to changed asset health condition and connectivity problems events

Energy and Asset Manager

Dashboard – Connectivity Trend

[Back](#)

User interface



Personals

Maintenance manager, facility manager, maintenance engineer, field service who is looking for the equipment connection status trend.

Description

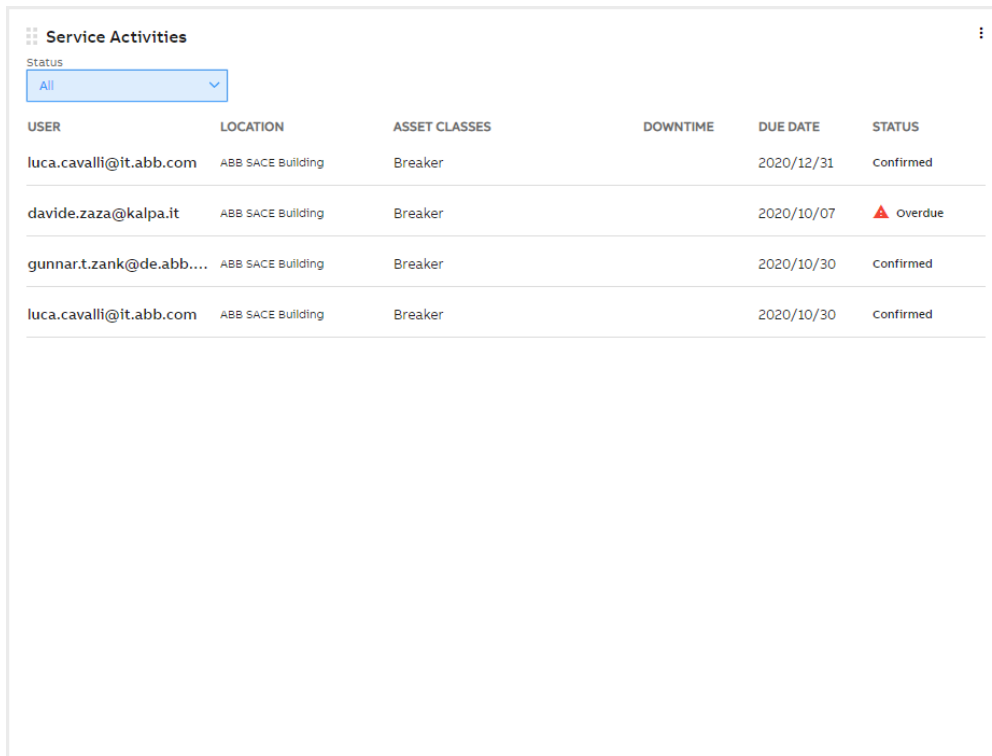
- User can select a Period, and see the connectivity (worst case) status of the equipment. Total value should stay constant, except in case of commissioning/decommissioning of assets
- Monitored equipment can be: connected, partly connected when one of its subcomponents is not properly transferring data (e.g. a sensor), disconnected, and disconnected due to the gateway

Asset Manager

Dashboard – Service activities

[Back](#)

User interface



USER	LOCATION	ASSET CLASSES	DOWNTIME	DUE DATE	STATUS
luca.cavalli@it.abb.com	ABB SACE Building	Breaker		2020/12/31	Confirmed
davide.zaza@kalpa.it	ABB SACE Building	Breaker		2020/10/07	Overdue
gunnar.t.zank@de.abb.com	ABB SACE Building	Breaker		2020/10/30	Confirmed
luca.cavalli@it.abb.com	ABB SACE Building	Breaker		2020/10/30	Confirmed

Personals

Maintenance manager, facility manager, maintenance engineer, who is looking for a quick overview on the scheduled service activities

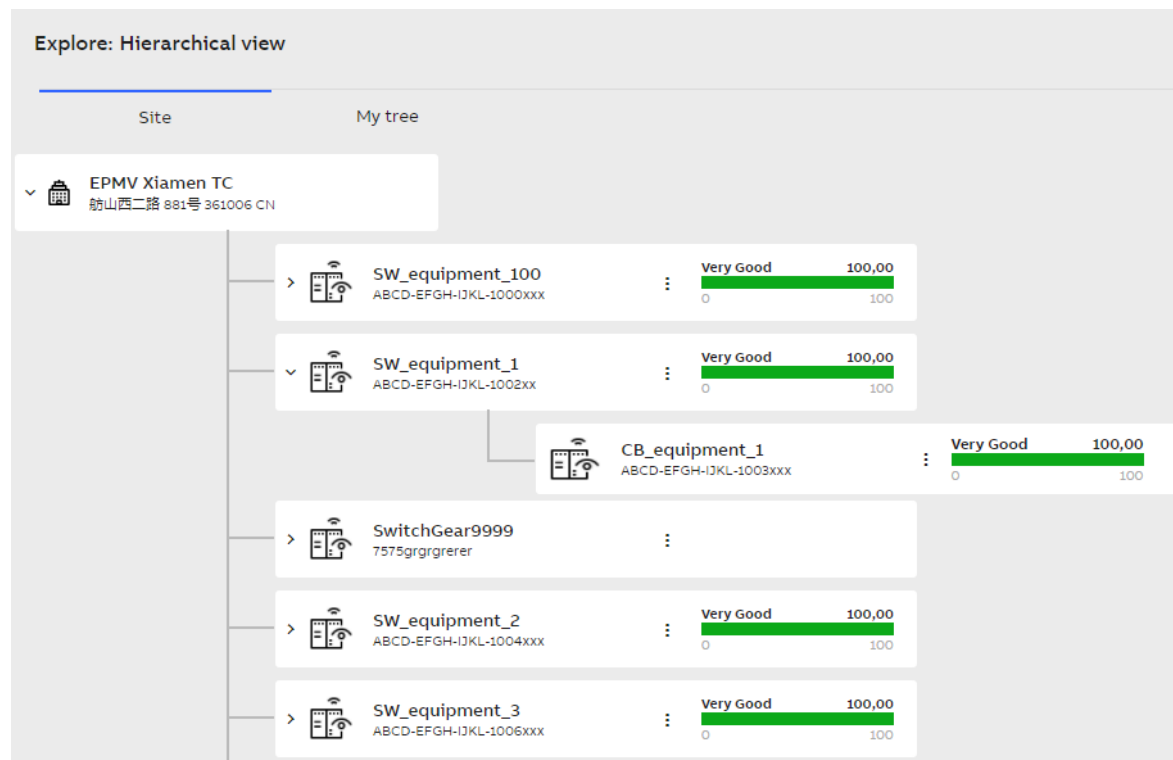
Description

- List of service activities identified by: assigned user (field service), location and asset class, required downtime, due date and status.
- User can filter by status: Created for an asset and scheduled, Confirmed when assigned to a field service engineer, At risk when in the week of the deadline, Overdue when deadline is passed.

Asset Manager

Explore – Hierarchical view

User interface



Personals

Maintenance manager, facility manager, maintenance engineer, operation manager, who wants to browse the installed base by an electrical hierarchical view

Description

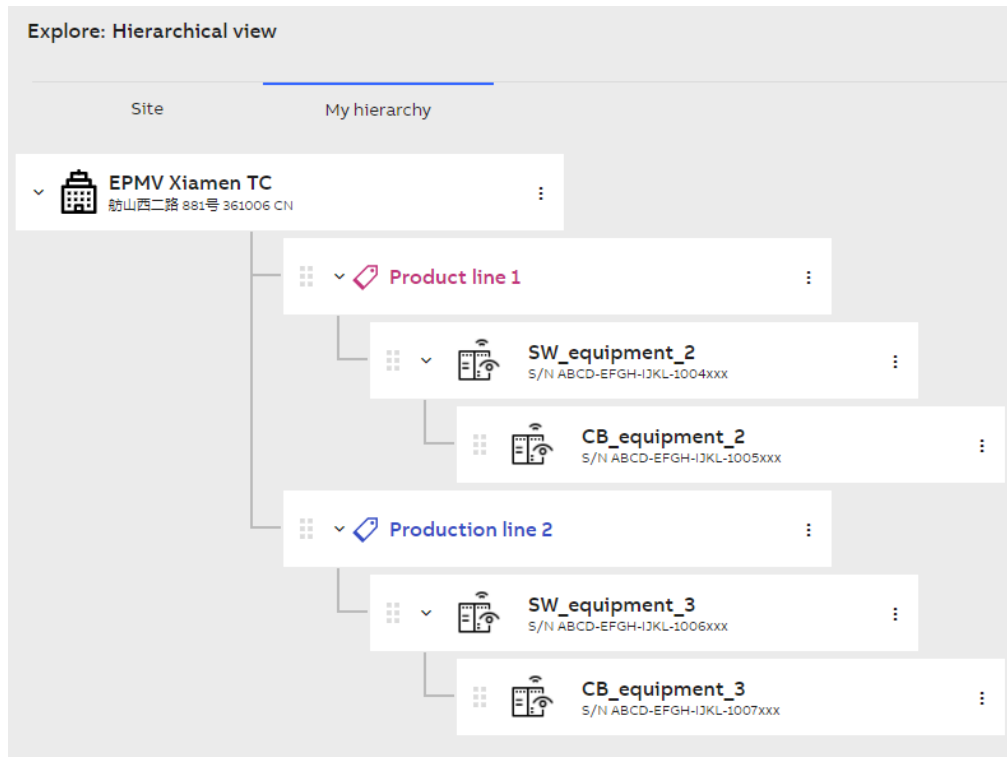
- Tree structure of the installed base of the site, based on the digital twin of the equipment
- Tree structure is defined during commissioning by the information model of the connected and configured equipment

Asset Manager

Explore – Hierarchical view – Custom structure

Back

User interface



Personals

Maintenance manager, facility manager, maintenance engineer, operation manager, who wants to browse the installed base using a customized hierarchical view (e.g. production view or facility view)

Description

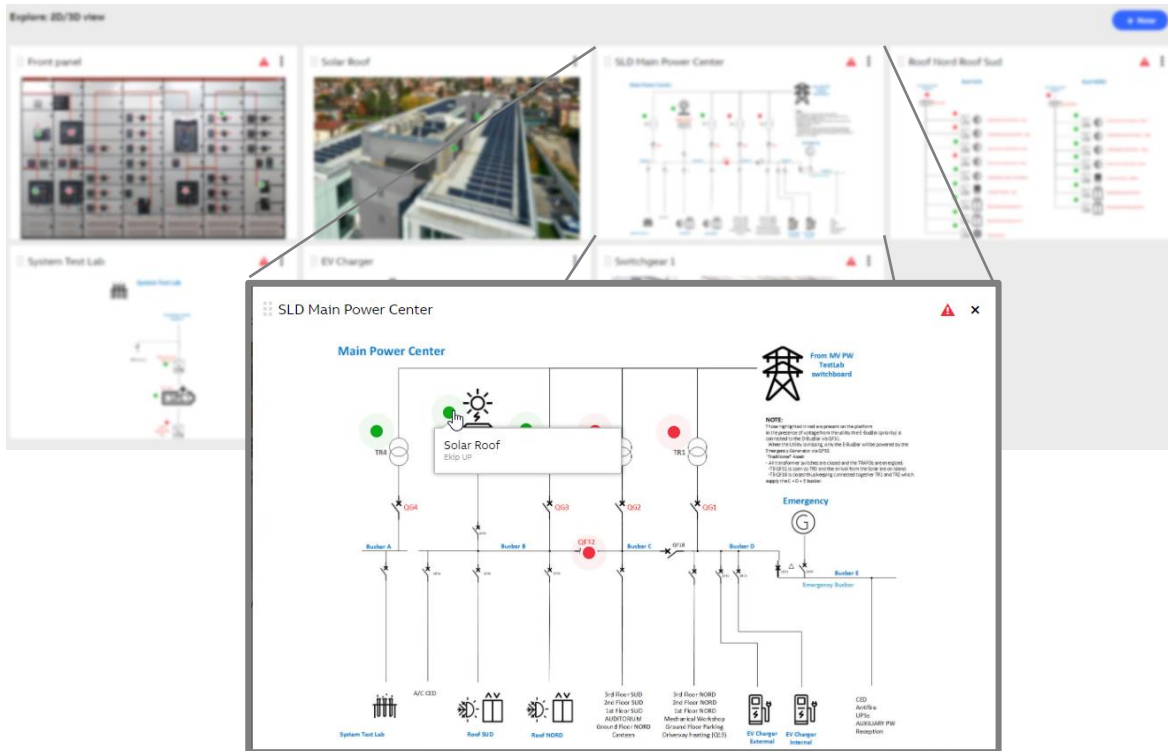
- Tree structure of the installed base of the site, manually configured by the user, adding label nodes and commissioned asset nodes.
- Structure can be updated by user any time.

Energy and Asset Manager

Explore – 2D/3D view

Back

User interface



Personals

Maintenance manager, facility manager, maintenance engineer, operation manager, who wants to browse the installed base with a graphical representation of the site or electrical installation, e.g. 3D of the facility, single line diagram, pictures, etc.

Description

- User can upload one or more graphical representation (images) and can set marker to actively identify assets
- The color of the pin-point of an asset identifies its health condition

Energy and Asset Manager

Explore – Connectivity

[Back](#)

User interface

Explore: Connectivity

+	-	NAME ▲	CONDITION	CONNECTION	PROTOCOL	ADDRESS	MODEL	FIRMWARE	SERIAL NUMBER	LINKED ASSET
>		1E-HUB2_6	⋮	Disconnected			Ekip Com E-Hu...		946004270361...	
Y		Ekip Com Hub	⋮	Connected				1.19	616004540520...	
		Bridge	⋮	Connected			E2.2-B800		5PG569817440...	Bridge
		QF32 -TB	⋮	Connected			E1.2B-1250		3LR336617440...	-QF32
		QG1-Trafo 1	⋮	Connected			E1.2B-1250		3D1025017440...	-QG1
		QG3-Trafo 3	⋮	Connected			E1.2B-1250		3D125017441X010	-QG3
		QG4 -Trafo 4	⋮	Connected			E1.2B-1250		3D1045117440X...	-QG4

Personals

Maintenance manager, facility manager, maintenance engineer, operation manager, who wants to browse the installed base using a system connectivity hierarchical structure of the equipment.

Description

- Typically the parent nodes are the commissioned gateways.
- Every equipment/device is identified by its condition and status, communication protocol if known, address, model, firmware version if available, serial number and linked (monitored) asset.

Energy and Asset Manager

Explore – All equipment

Back

User interface

Explore: All equipment							
NAME ▲	CONDITION	CONNECTION	CLASS	MANUFACTURER	MODEL	SERIAL NUMBER	HEALTH INDEX (%)
 Ekip COM Hub - EV-CHG-PKR	⋮	 Connected		ABB		843000542121W000	You cannot enable monitoring on this asset because it's not supported.
 Ekip Com Hub Solar Roof	⋮	 Connected		ABB		639000740520W000	You cannot enable monitoring on this asset because it's not supported.
 QG1-Trafo 1	⋮	 Connected		ABB	E1.2B-1250	3D1025017440X010	Very Good 78,79 0100
 QG3-Trafo 3	⋮	 Connected		ABB	E1.2B-1250	3D125017441X010	Very Good 90,64 0100
 QG2-Trafo 2	⋮	 Connected		ABB	E1.2B-1250	3D125017442X010	Very Good 90,52 0100
 QF32-TB	⋮	 Connected		ABB	E1.2B-1250	3LR336617440X011	Very Good 78,87 0100
 Ekip Com Hub	⋮	 Connected		ABB		616004540520W000	You cannot enable monitoring on this asset because it's not supported.

Personals

Maintenance manager, facility manager, maintenance engineer, operation manager, who wants to browse the installed base scrolling the flat list of equipment.

Description

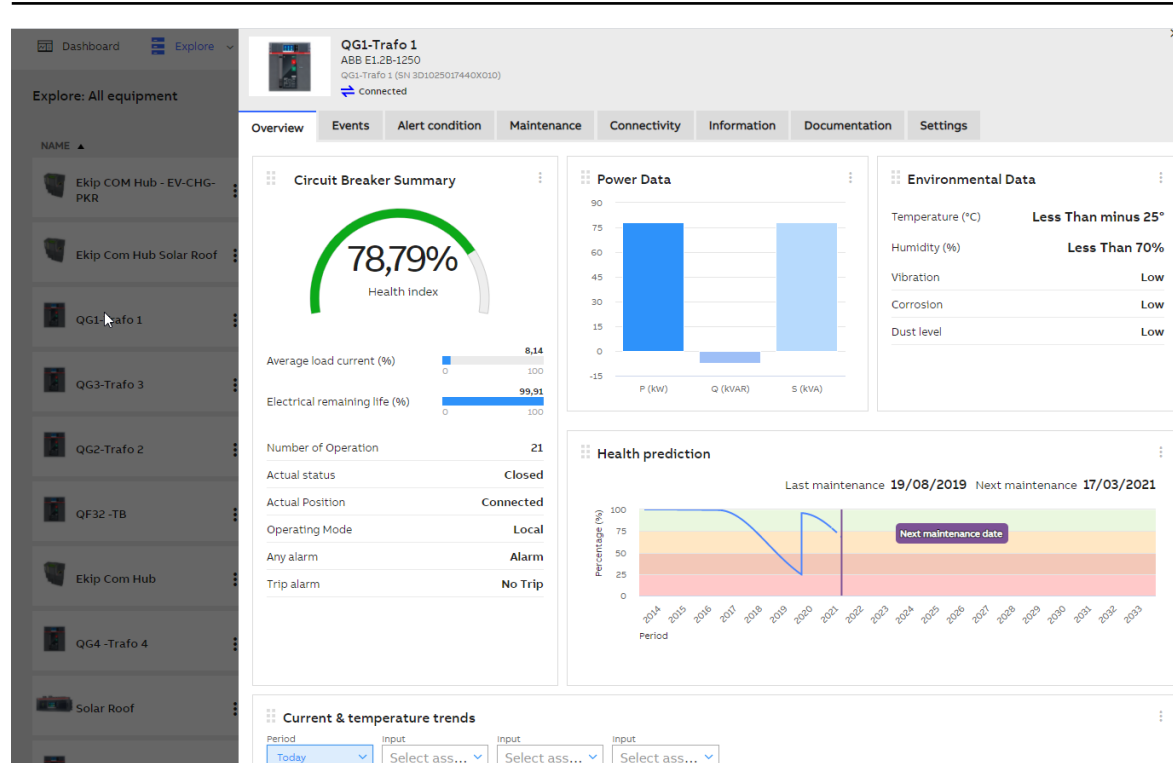
- Every equipment/device is identified by its condition and status, asset class/type, manufacturer, serial number and health index if available.

Asset Manager

Explore – Asset page

[Back](#)

User interface



Personals

Maintenance engineer, operators, and field services who wants to get the detailed asset view with latest and historical data, e.g. before taking any action.

Description

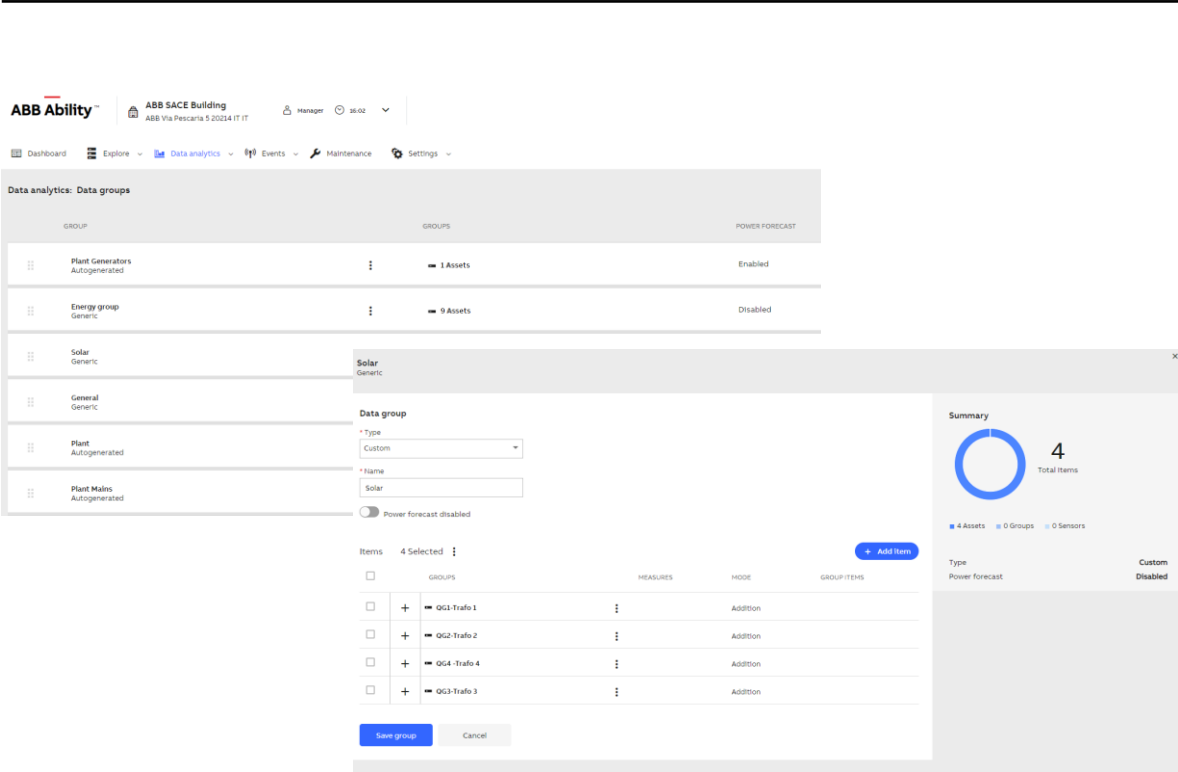
- The asset page is available for Every equipment/device with the following information: overview (health condition and prediction if available), events, alerts conditions, maintenance activities, connectivity status, asset data, documentation and settings.
- Typically the Overview tab offers most relevant data to analyze the condition of the equipment and get actionable insights.

Energy and Asset Manager

Data Analytics – Grouping

Back

User interface



Personals

Maintenance engineer, operators, field services, Energy manager, operation manager, facility manager who wants to create virtual aggregation of data that are monitored on the dashboards and eventually compared with one another.

Description

- There are 3 autogenerated groups that include all the assets defined as man/virtual main, generator/virtual generator, Plant/Site. These groups are automatically created and available in all the grouping widgets
- Custom groups can be composed by asset, groups or sensors, and they can be provided as positive or negative value in the data aggregations

Energy and Asset Manager

Data Analytics – Reporting

[Back](#)

User interface

The screenshot shows the ABB Ability user interface for Data Analytics Reporting. The top navigation bar includes the ABB Ability logo, the location 'ABB SACE Building, ABB Via Pescaria 5 20214 IT IT', the user role 'Manager', and the time '16:07'. Below the navigation bar, there are tabs for Dashboard, Explore, Data analytics (selected), Events, Maintenance, and Settings. The main content area is titled 'Data analytics: Reports / Generate report'. It contains a 'Data report' section with the following options:

- Report type:** A dropdown menu set to 'All measurements'.
- Period:** Two date pickers, both set to '21/10/2020'.
- Data range:** Three radio buttons: '15 minutes' (selected), 'Hour', and 'Raw'.
- Items:** A table with columns for selection, ASSETS, and DETAIL. It lists three assets: 'E1.2B-1250 QG1-Trafo 1', 'E1.2B-1250 QG4-Trafo 4', and 'E1.2B-1250 QG3-Trafo 3'. Each asset has a checkbox in the selection column and a 'Main' detail link. A '+ Add item' button is located to the right of the table.

Personals

Maintenance engineer, operators, field services, Energy manager, operation manager, facility manager who wants to create scheduled reports or download the data for proper usage

Description

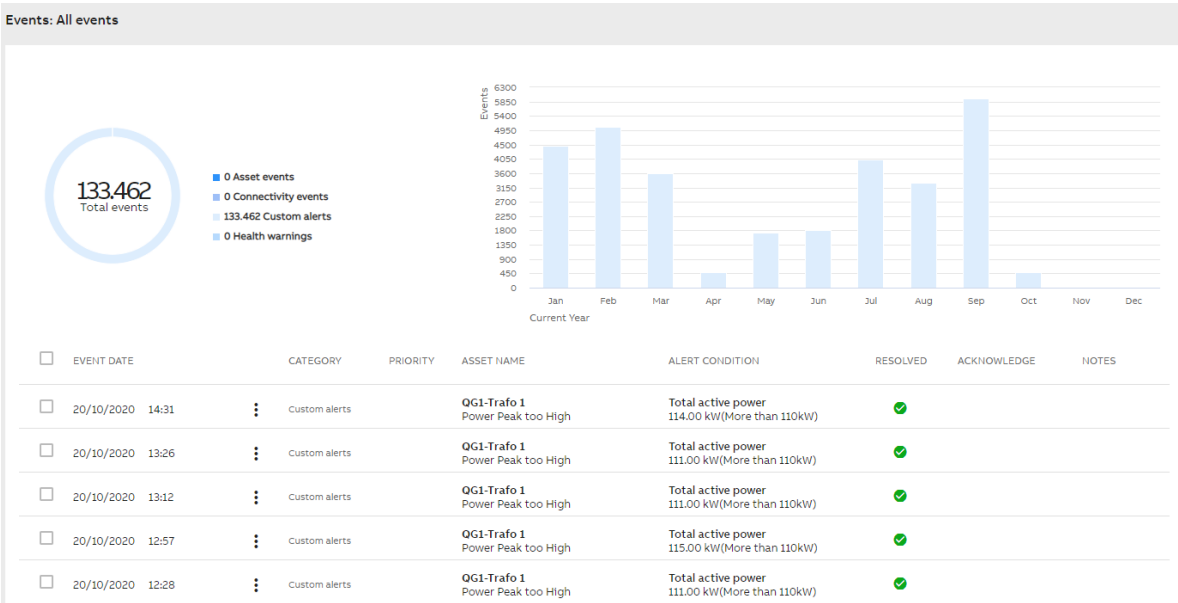
- The function allows to select the type of data to be downloaded as well as the period and aggregation time (raw, 15 min, 1 hour)
- Raw data can be downloaded only for 24hours range
- It is possible to extract the report by asset and by group as well as create a comparison between multiple assets/groups

Energy and Asset Manager

Events – All events

Back

User interface



Personals

Maintenance engineer, operators, and field services who wants to get the detailed asset view with latest and historical data, e.g. before taking any action.

Description

- The asset page is available for every equipment/device with the following information: overview (health condition and prediction if available), events, alerts conditions, maintenance activities, connectivity status, asset data, documentation and settings.
- Typically the overview tab offers most relevant data to analyze the condition of the equipment and get actionable insights.

Energy and Asset Manager

Events – Alert conditions

Back

User interface

Events: Alert condition

NAME	TYPE
Number of operations	⋮
any alarm	⋮
Connectivity Status Building 1	⋮
test current private	⋮
Phase2 Current Too high	⋮
lost connection	⋮

Number of operations

Events

Alert condition

*Asset

QG1-Trafo 1

*Type

Number of operations

More than

1009

(0:65535)

*Name

Number of operations

Alert condition visible to site users

Active intervals

DAY	INTERVAL	PERIOD
Monday	⋮ Active	From: 00:00 to: 23:59
Tuesday	⋮ Active	From: 00:00 to: 23:59
Wednesday	⋮ Active	From: 00:00 to: 23:59

Personals

Energy managers, maintenance engineer, operators, and field services who wants to be notified whenever a certain event happens, e.g. a value above a threshold, a change in a status, etc.

Description

- User can set condition on equipment data, and configure the notification (mail or SMS)
- It is possible to specify if the notification shall be enabled/disabled in certain periods of time
- It is possible to specify which user shall be notified, or if the alert is just private (only for the creator)

Asset Manager

Maintenance

[Back](#)

User interface

Maintenance + New								
DUE DATE	ASSET		PRIORITY	DESCRIPTION	USER	STATUS	EXECUTION DATE	NOTES
25/08/2020	Ekip Com Hub	⋮	▲	Inspect the contacts. Run calibration upd. Backup the configuration	davide.volta@it.abb.com	✓	28/08/2020	
19/08/2020	QG4 -Trafo 4	⋮	▲	Run mechanical tests on ACB	luca.cavalli@it.abb.com	✓	22/09/2020	Test performed. All parameters are within ranges
26/08/2020	QG4 -Trafo 4	⋮	▲	Change the coil	anu.agarwal@in.abb.com	✓	17/08/2020	done
25/08/2020	Ekip Com Hub	⋮	▲	Maintenance planned and executed	davide.zaza@kalpa.it	✓	24/08/2020	
17/09/2020	Ekip Com Hub	⋮	▲	Maintenance planned and executed	lei.hu@cn.abb.com	✓	15/09/2020	done
25/08/2020	Ekip Com Hub	⋮	▲	Maintenance planned and executed	davide.zaza@kalpa.it	✓	15/09/2020	

Personals

Maintenance engineer, operators, and field services who wants to get the detailed asset view with latest and historical data, e.g. before taking any action.

Description

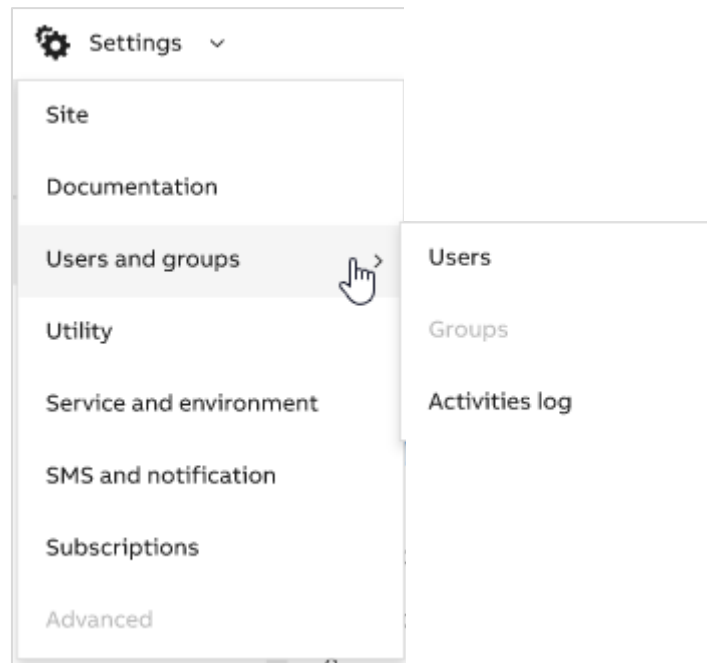
- The asset page is available for Every equipment/device with the following information: overview (health condition and prediction if available), events, alerts conditions, maintenance activities, connectivity status, asset data, documentation and settings.
- Typically the Overview tab offers most relevant data to analyze the condition of the equipment and get actionable insights.

Energy and Asset Manager

Settings

[Back](#)

User interface



Personals

Energy Manager, Plant Manager, operators, and field services who need to set up all the parameters of the Site.

In particular, inviting new users, controlling the basic set up of the plant (including power demand and site generation capacity), the billing information (including the cost plan), the performance parameters.

The user will be able to verify its own subscriptions and add-ons

Description

- The settings page is divided into: Site, Documentation, Users, utilities, service and environment, notification, subscriptions.
- Site provides the address and time-zone, documentation allows to add documents into the platform, users allows to invite other personnel into the Site visualization, utilities ensures the configuration of billing and performance parameters, notification allows to enable SMS delivery.

ABB Ability™ Energy and Asset Manager

Reference projects

ABB helps power the Burj Khalifa

APPLICATION

Buildings

COUNTRY / CUSTOMER / SITE

UAE / Burj Khalifa

CUSTOMER NEEDS

Considering the dimension of Burj Khalifa building, to manage key assets it's a big challenge: 163 floors, 400 electrical loads, including 57 elevators and a 24MW air condition system, just to mention few

SOLUTION

- Real-time sensor data
- Condition monitoring
- Upgrade of existing devices
- Predictive maintenance functions



[Link to online story](#)



Largest Swiss rice mill monitors energy distribution digitally

la riseria

APPLICATION

Food processing plant

COUNTRY / CUSTOMER / SITE

Switzerland / La Riseria / Ticino

CUSTOMER NEEDS

M-Industrie has set sustainability targets that require significant advances in energy efficiency. More precise monitoring of the power consumed in every part of its operations is key. ABB Ability EDCS enables plant operators to access this data anytime, anywhere

SOLUTION

- ABB's EDCS
- Two low-voltage distribution boards
- Emax 2 circuit breakers, Tmax T4 and T5 molded case circuit breakers
- CMS-700 circuit monitoring sensors



[Link to online story](#)



ABB optimizes operations at Batisoke Cimento plant

BATISÖKE

APPLICATION

Cement manufacturing

COUNTRY / CUSTOMER / SITE

Turkey / Batisoke Cimento

CUSTOMER NEEDS

Optimize operations at their cement manufacturing, safeguard process uptime. Ensure a modern solution: highly flexible and configurable

SOLUTION

Condition Monitoring for Electrical System (CMES) on ABB MNS Digital, main motor control centers. Ready for ABB Ability™ MyRemoteCare

BENEFIT

Up to

30%

operating cost savings



[Link to online story](#)



Virtual assistant helps to improve quality of life for elderly people

HOCHSCHULE
LUZERN

APPLICATION

Smart Home technology

COUNTRY / CUSTOMER / SITE

Switzerland / Lucerne University of Applied Sciences and Arts / iHomeLab

CUSTOMER NEEDS

Searching for a Smart Home solution that is connectable to the Avatar “Anne”, a virtual assistant, to control all Smart Home functionalities. This should work via voice control or tablet

SOLUTION

Through the API of ABB-free@home®, residents can ask the virtual assistant to access the Smart Home menu and easily control up to 15 functions in their apartment: from controlling lights, heating to door communication

FEEDBACK

70%

Of the test users said
Anne improved their quality of life



[Link to online story](#)



Calendar



News



Video call



Radio



Games



Medicine



Smart Home



Service

Thursday
August 22nd

4pm

User1 Ihomelab



Electrified Harley Dealership Switzerland, Harley Davidson Zurich



APPLICATION

Electric Motor Bike Charging

COUNTRY / CUSTOMER / SITE

Switzerland, Harley Davidson, Zurich

CUSTOMER NEEDS

Easy and understandable way of doing business in a “new field”, customized color for DC and AC chargers, Load Management, Outdoor Pedestal for DC and AC Charger, Backend for 1x DC and 3x AC Wallbox.

SOLUTION

“One-Stop-Shop” ABB and Partner bundled Products, Civil Work and Software and sold through our partner. ABB Service Supported at Commissioning.



Thank you for your attendance

Mohamed Hesham

Technical and Design Promotion Specialist
Electrification Business

ABB for Electrical Industries (ABB Arab) S.A.E

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ABB