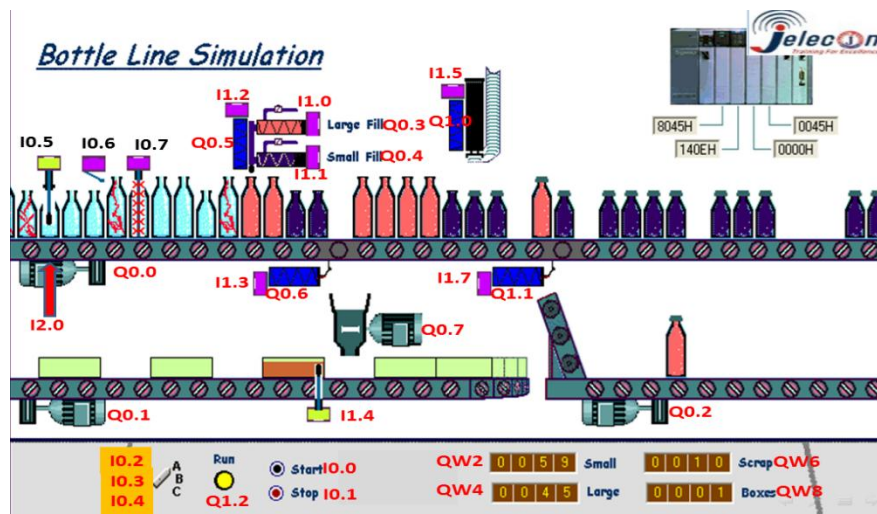


Programmable Logic Controller (PLC LEVEL 2)

Presented by: Eng./Mohammed Magdy



300

300

September 29, 2016
Ref. No.: OB-160929-E04

CERTIFICATION

We, LSIS Co., Ltd.,
as the manufacturer of Electric and Automation Equipment with our
main office located at LS Tower 1026-6, Hoge-Dong, Dongan-Gu,
Anyang-Si, Gyeonggi-Do, KOREA, do hereby appoint

MR. MOHAMMED MAGDY EBRAHIM MOHAMED

From JELECOM, EGYPT

has successfully passed the training courses for
LSIS Automation & Drive products
and got this certificate as

Certified on behalf of the Company



J. K. Koo / Chairman

LSIS Co., Ltd

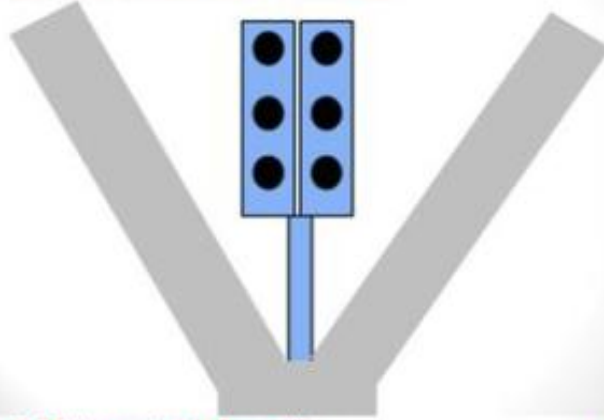
LSIS Training Center
68, Wolmyeong-ro 201beon-gil, Heungdeok-gu,
Cheongju-si, Choong-buk, 28437, Korea



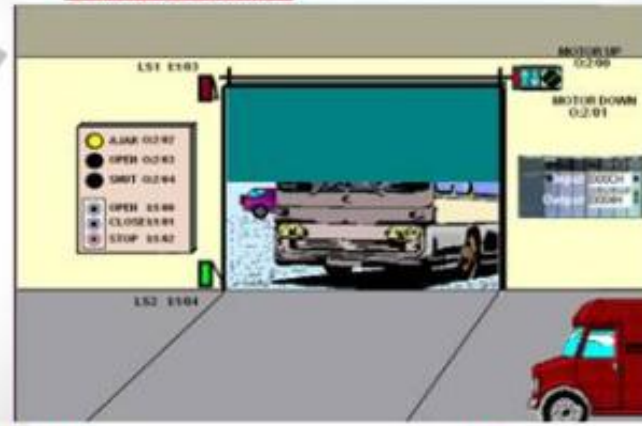
• Automatic control field:

- 1- classic control.
- 2- PLC level1.
- 3- PLC level2.
- 4- SCADA.

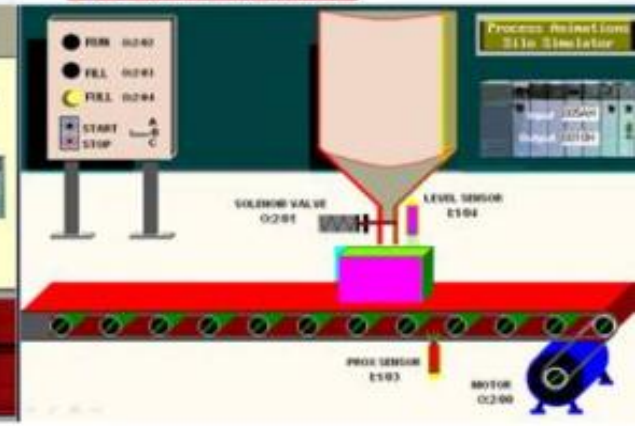
1- Traffic lights for two-direction way:



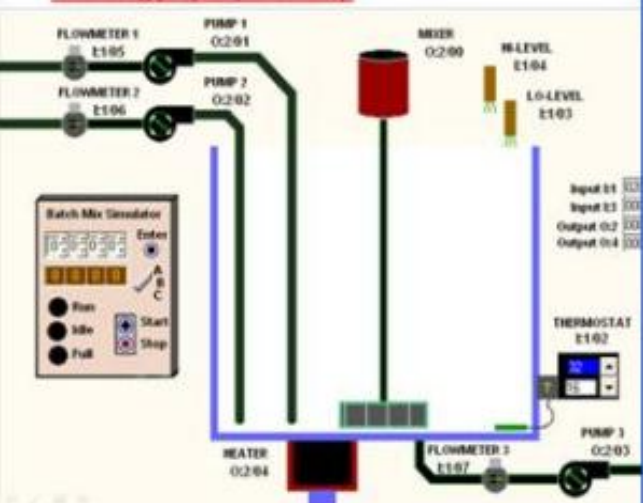
2- Garage Door control:



3- production line (advanced):



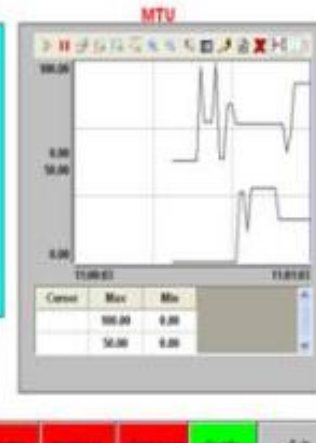
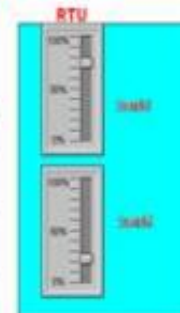
4- Mixing project (advanced):



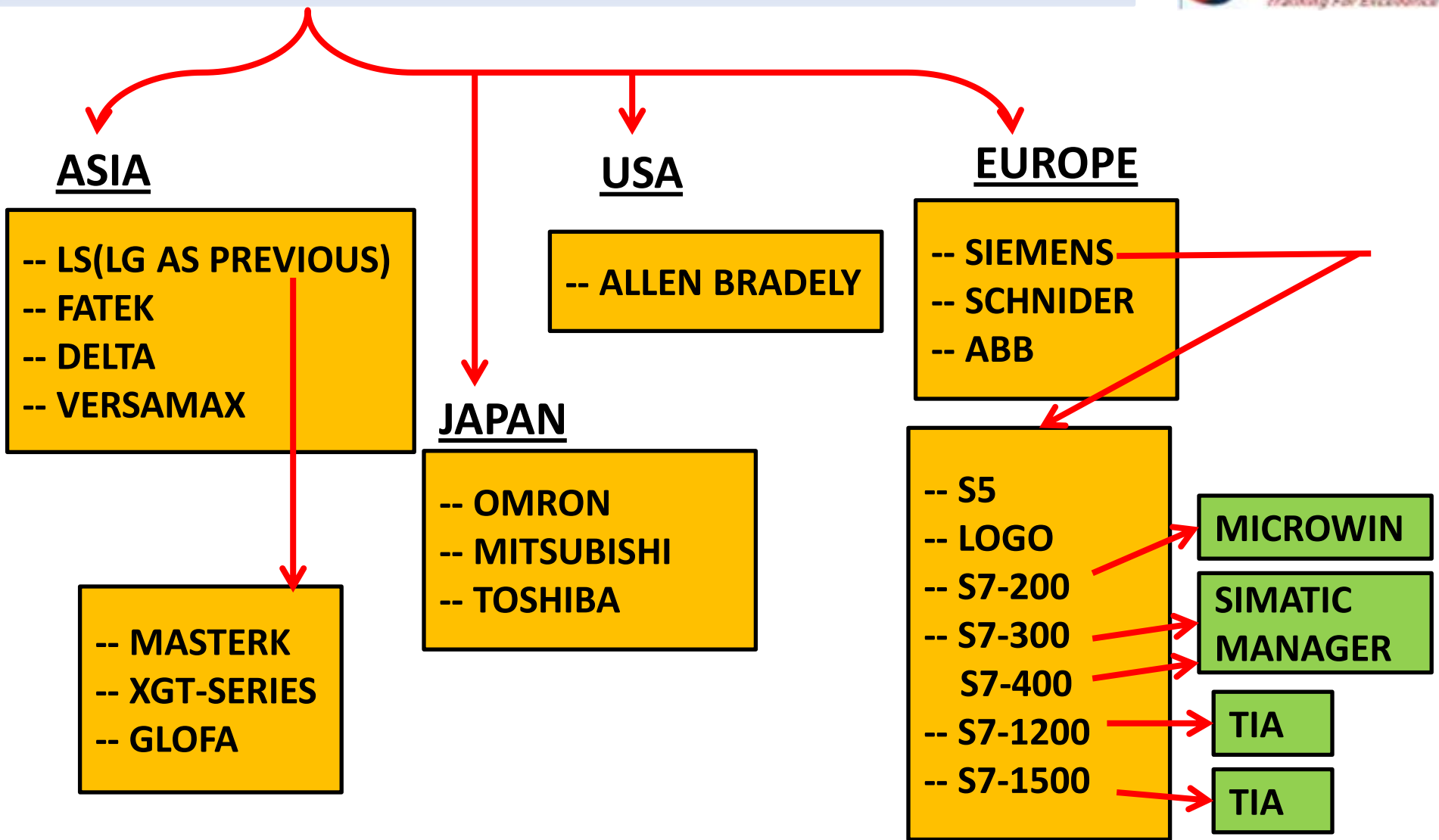
RTU



MTU



PLC COMPANIES:



١- التعرف على محتويات **PLC SIEMENS S7-300** كيفية توصيل المفاتيح

والحساسات والأحمال على الوحدة وتصميم البرامج المناسبة لها.

٢- التعرف على المساحات التخزينية الموجودة في **PLC**

٣- التعرف على أنواع التيمرات والعدادات والأوامر المختلفة .

٤- عمل نظام مغلق (**OB & FC & FB & DB**)

٥- التعرف على كيفية عمل العمليات الحسابية وأوامر (**MOVE & SHIFT & ROTATE**)

٦- مشروع مخزن إلى متعدد الوظائف (تخزين بالترتيب / تخزين عشوائي / الحصول على منتج).

٧- مشروع خط إنتاج متطور مكون من ٤ مراحل (تعبئة / تصنيف المكسور / تغطية / تصنيف الكبير والصغير) .

٨- التحكم في سرعة محرك ثلاثي الأطوار **PLC analog card**

٩- عمل لوائح عملية على وحدة **PLC SIEMENS S7-300 & S7-1200** :

— عكس حركة موتور باستخدام تيمر لمنع عكس الحركة المباشر للحفاظ على سلامة

محور الدوران .

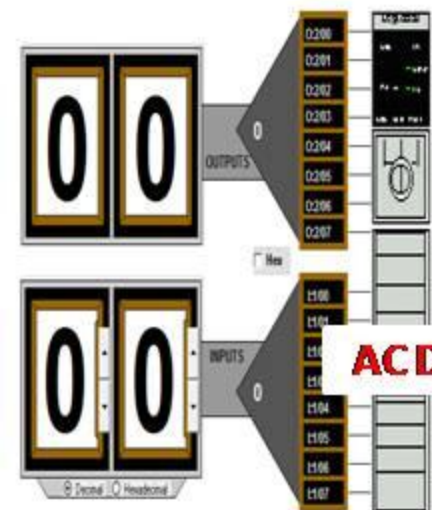
— إيقاف الموتور بعد عدد ساعات متقطعة / متواصلة من العمل لعمل الصيانة اللازمة.

— توصيل الوحدة مع محرك ثلاثي الأطوار و **AC DRIVE SIEMENS MICROMASTER 420**

— توصيل شاشة **HMI SIEMENS TD200**

١٠- عمل دائرة مصعدين مرتبطين معا وكل مصعد يتحرك خلال أربعة طوابق وكل مصعد به

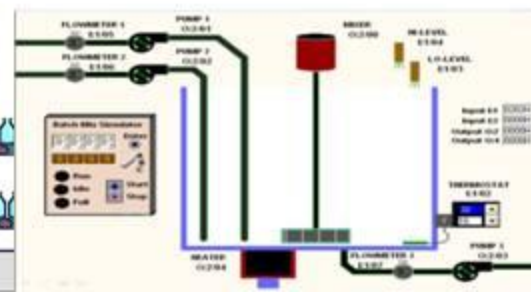
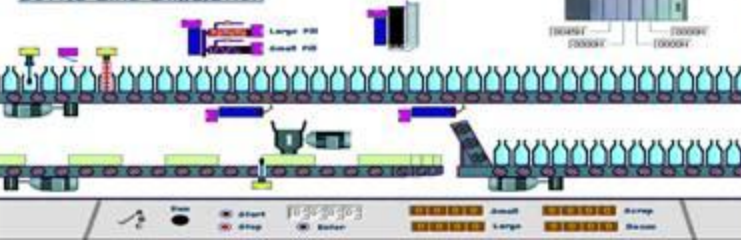
مفاتيح للطلبات الداخلية ويوجد مفتاح في كل طابق لطلب الكابينة الاقرب.



Automatic Store:



Bottle Line Simulation



DATA STORAGE:

Data type	Data storage area type
Bool	Bit
Byte	Byte
Integer	Word
Double integer	Double word
Real	Double word

MEMORY AREAS IN PLC SIEMENS S7-200:



M - AREA



Accessed by:	Memory Type	CPU 221	CPU 222	CPU 224	CPU 226
Bit (Byte.bit)	V	0.0 - 2047.7	0.0 - 2047.7	0.0 - 5119.7 V 1.22	0.0 - 5119.7 V 1.23
				0.0 - 8191.7 V 2.00	0.0 - 10239.7 V 2.00
				0.0 - 10239.7 XP	
	I	0.0 - 15.7	0.0 - 15.7	0.0 - 15.7	0.0 - 15.7
	Q	0.0 - 15.7	0.0 - 15.7	0.0 - 15.7	0.0 - 15.7
	M	0.0 - 31.7	0.0 - 31.7	0.0 - 31.7	0.0 - 31.7

PLC SIEMENS S7-200 MEMORY:



1- BIT:

[Memory Area] [Byte] .[Bit]

EX.: M0.0 / Q0.0 / I0.0 / V0.0

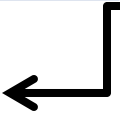
2-Byte: = 8 bits

[Memory Area] B [Byte order]

EX.: MB0 / QB0 / IB0 / VB0

MB0

7	6	5	4	3	2	1	0
0	0	0	0	0	1	0	1



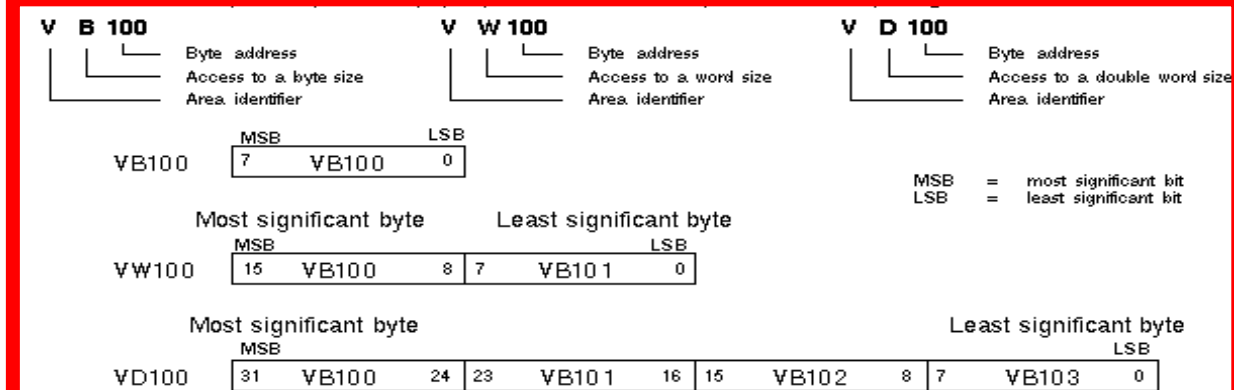
Range:

Unsigned	0 → 255
Signed	-128 → +127

EX.: MW0 / QW0 / IW0 / VW0
MW0



Unsigned	0 → 65535
Signed	- 32768 → +32767

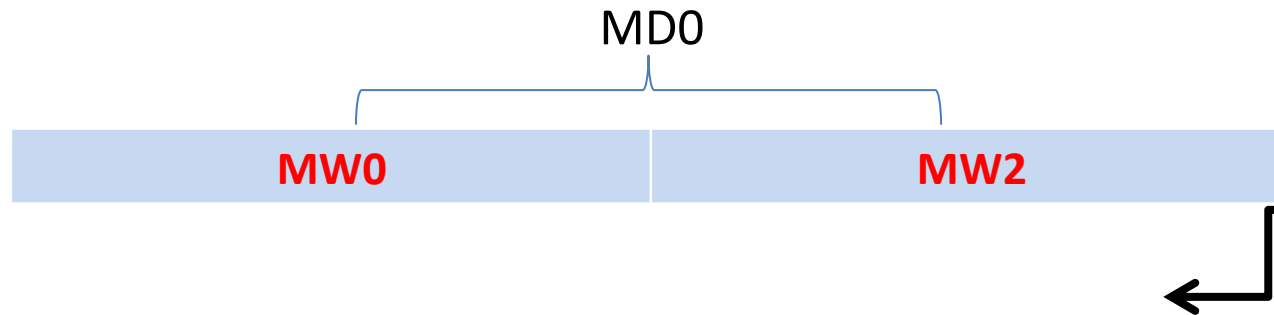
$$\text{MW0} \xrightarrow{+2} \text{MW2} \xrightarrow{+2} \text{MW4}$$
$$\text{MW1} \xrightarrow{+2} \text{MW3} \xrightarrow{+2} \text{MW5}$$


PLC SIEMENS S7-200 MEMORY:

4- Double Word: = 2 WORDS = 4 BYTES = 32 BITS

[Memory Area] D [Double Word order]

EX.: MD0 / QD0 / ID0 / VD0



Range:

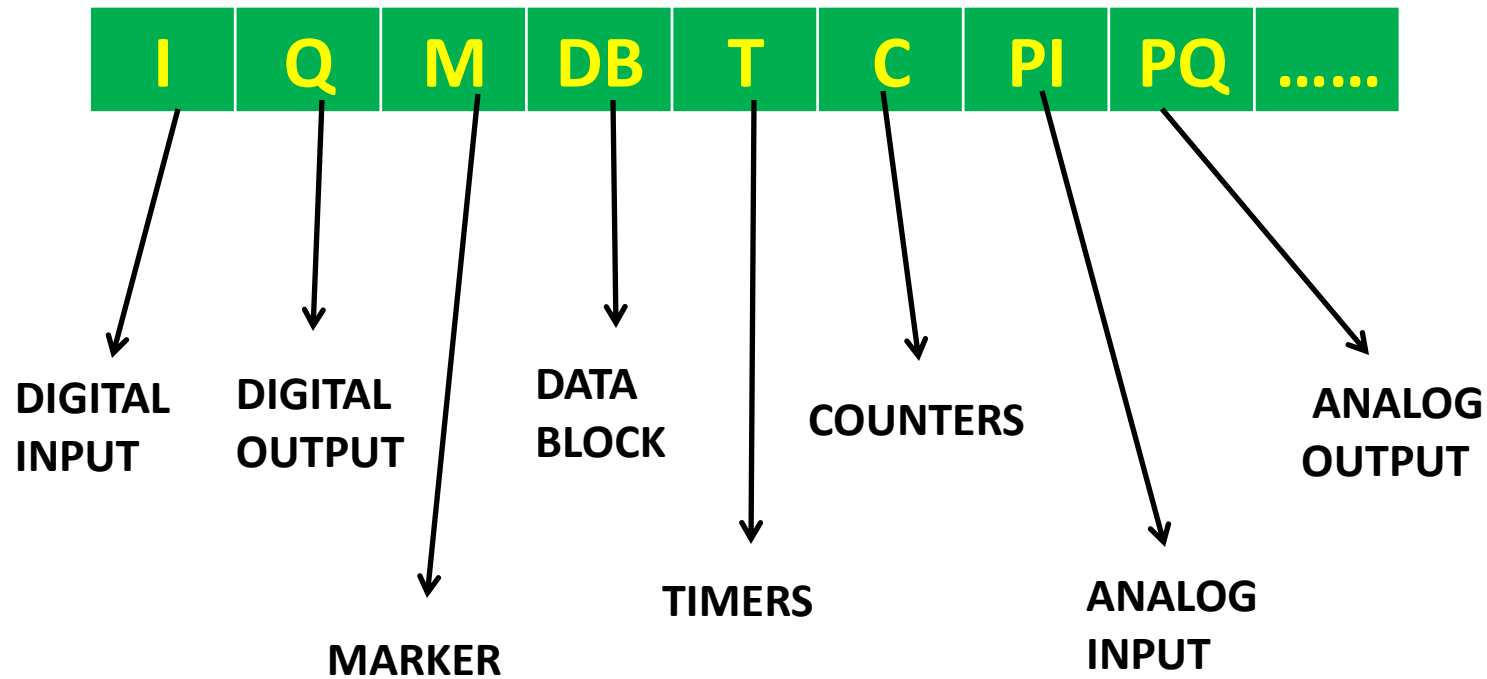
Unsigned	0 → 4294967295
Signed	- 2147483648 → +2147483647

MD0 $\xrightarrow{+4}$ MD4 $\xrightarrow{+4}$ MD8
 MD1 $\xrightarrow{+4}$ MD5 $\xrightarrow{+4}$ MD9

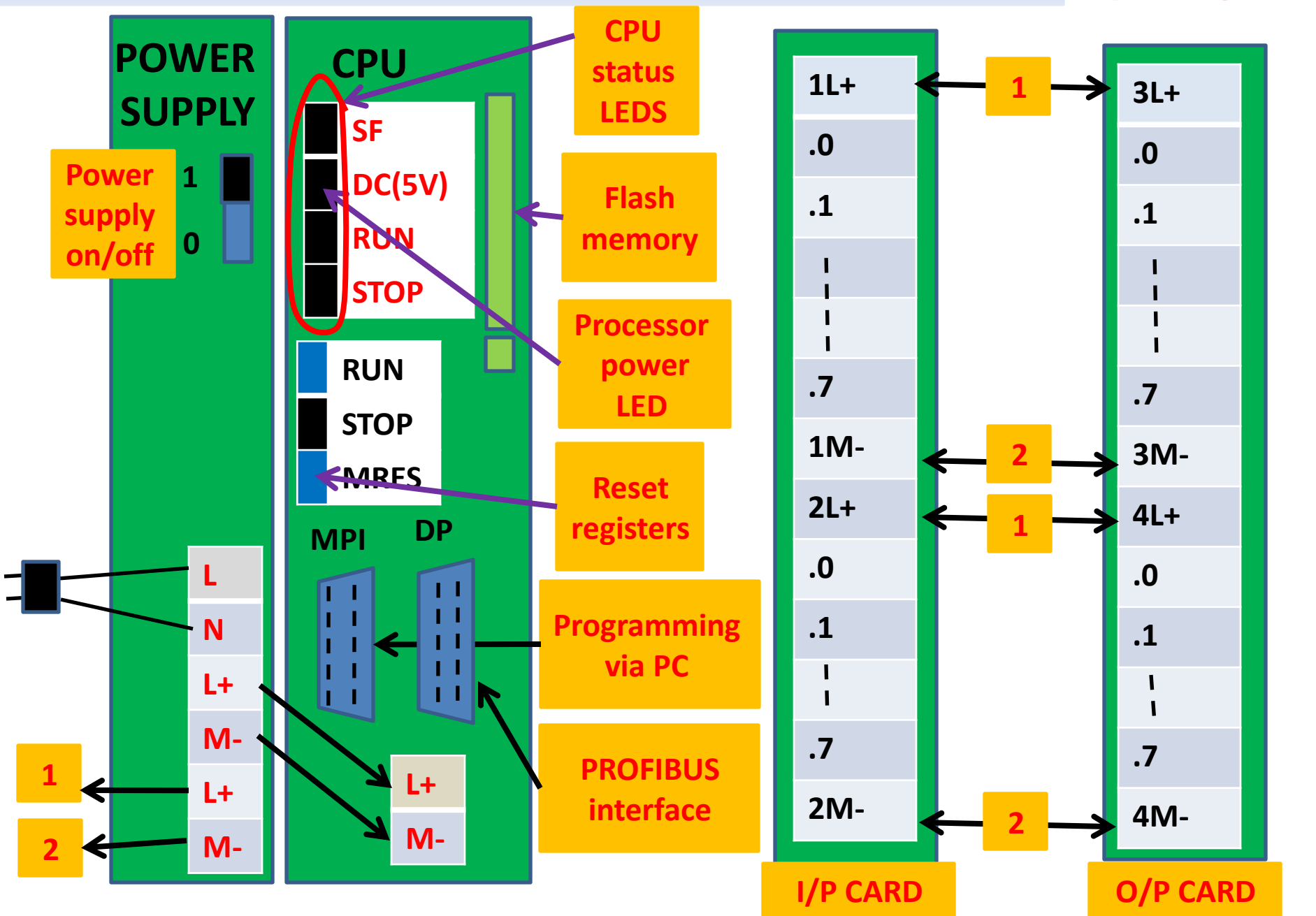
Ranges of Constant Number Values

Data Size:	Unsigned Integer Range		Signed Integer Range	
	Decimal:	Hexadecimal:	Decimal:	Hexadecimal:
B (Byte)	0 to 255	0 to FF	-128 to +127	80 to 7F
W (Word)	0 to 65535	0 to FFFF	-32768 to +32767	8000 to 7FFF
D (Double Word)	0 to 4294967295	0 to FFFF FFFF	-2147483648 to +2147483647	8000 0000 to 7FFF FFFF
Data Size:	Decimal Real (Positive Range)		Decimal Real (Negative Range)	
	+1.175495E-38 to +3.402823E+38		-1.175495E-38 to -3.402823E+38	

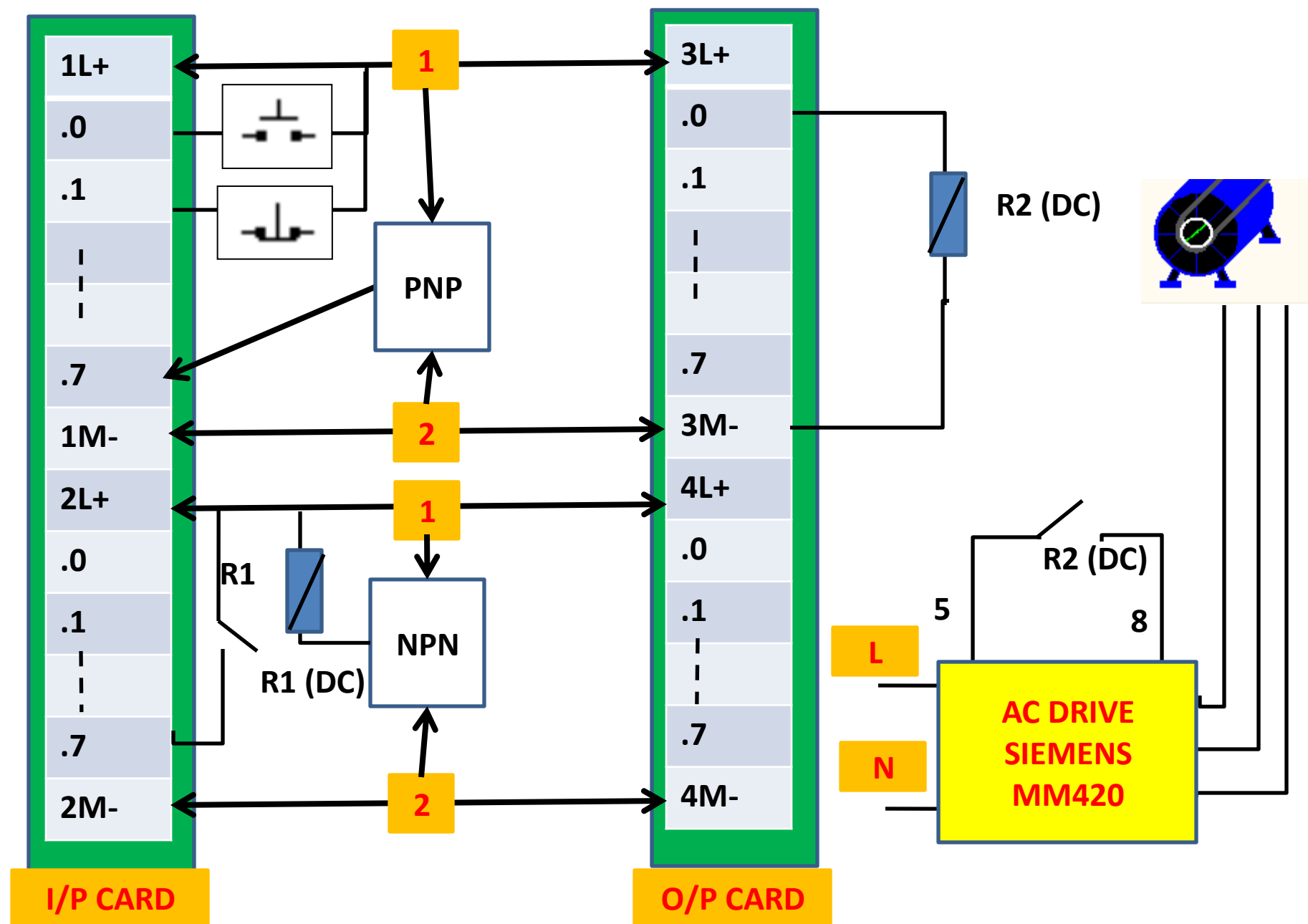
PLC S7-300 CPU 313C MEMORY AREAS:



PLC SIEMENS S7-300 CONNECTIONS:



PLC SIEMENS S7-300 CONNECTIONS:



PLC SIEMENS S7-300 CATALOGUE:

Terminal Assignment and Block Diagram of the SM 321; DI 16 × 24 VDC

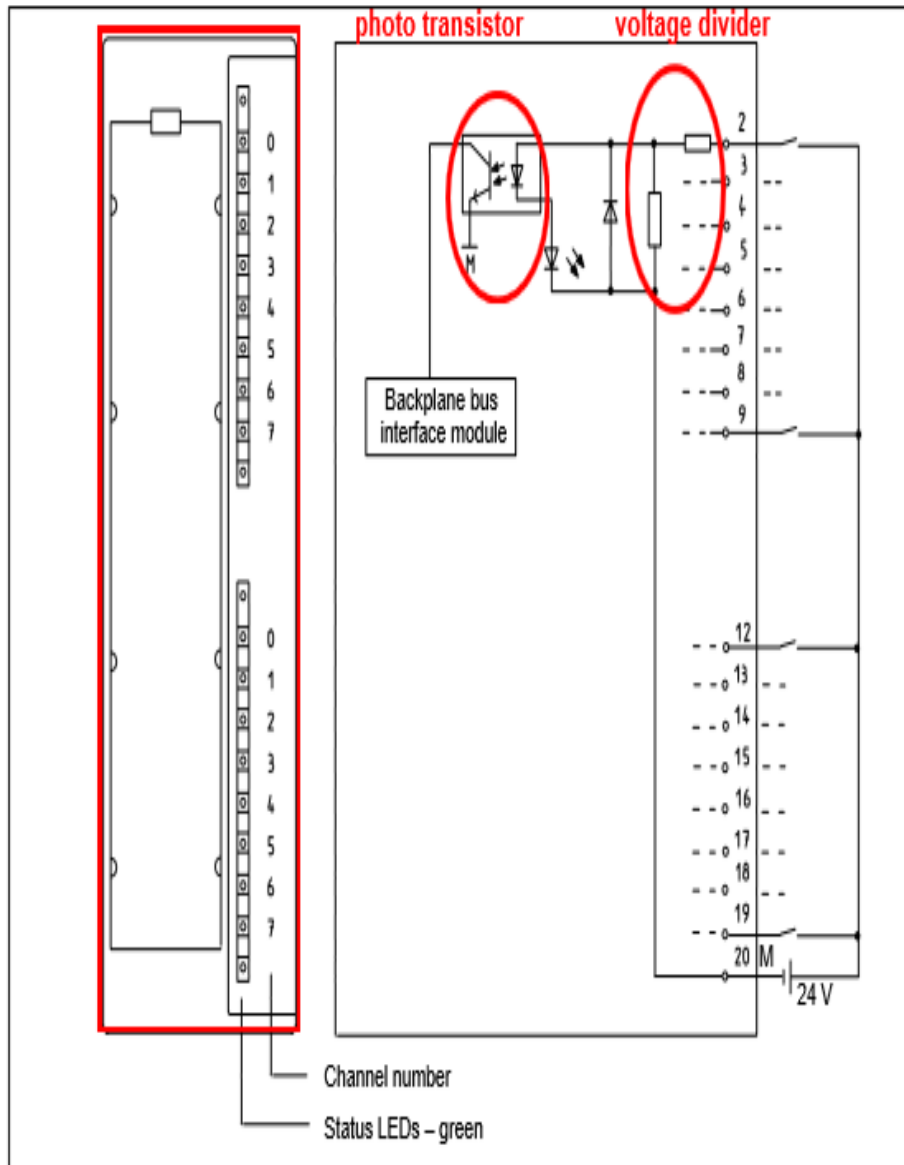


Figure 3-3 Module View and Block Diagram of Digital Input Module SM 321; DI 16 × 24 VDC

Terminal Assignment and Block Diagram of the SM 322; DO 16 × 24 VDC/0.5 A

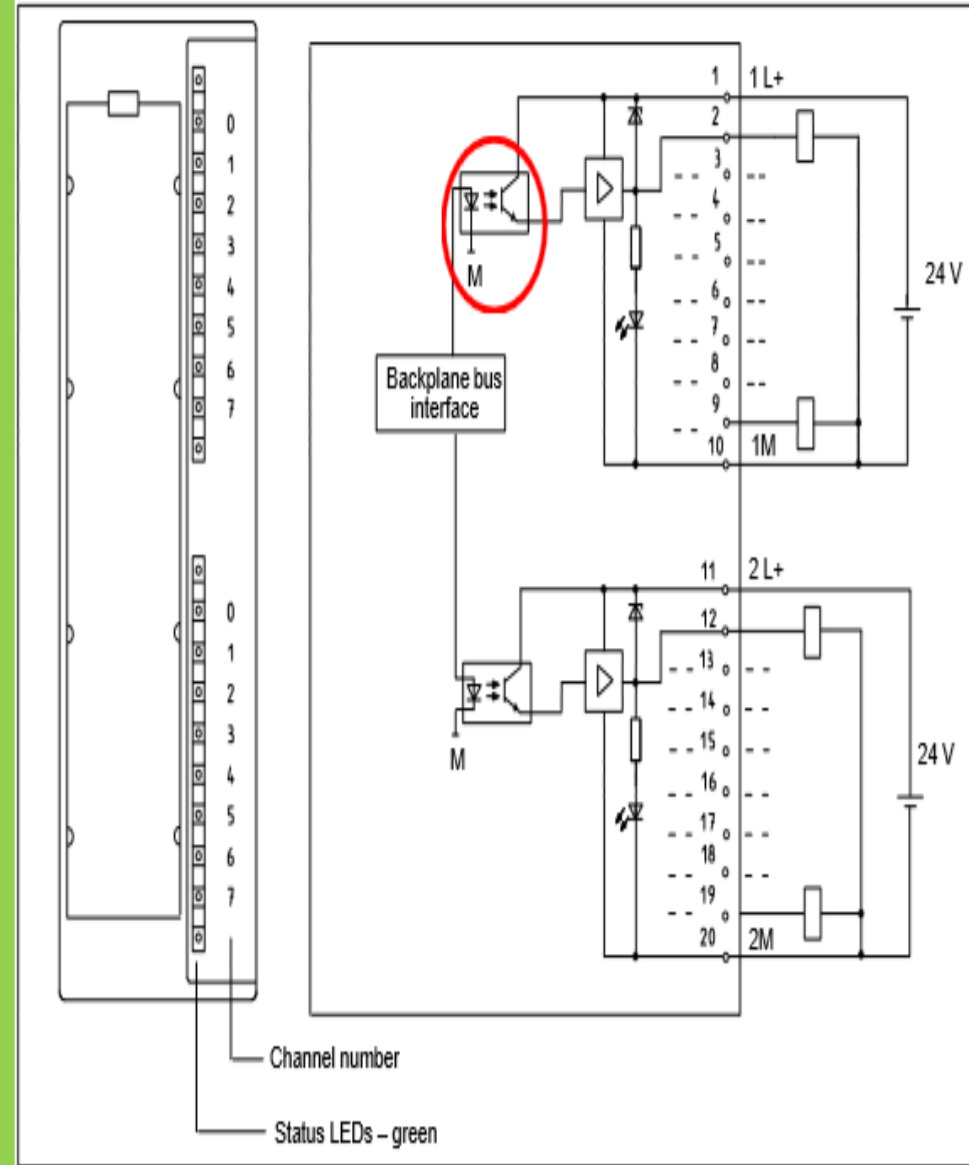


Figure 3-13 Module View and Block Diagram of the SM 322; DO 16 × 24 VDC/0.5 A

PLC SIEMENS S7-300 CATALOGUE:

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SIMATIC S7-300 Central processing units

Standard CPUs

Technical specifications (continued)

	6ES7 312-1AE14-0AB0	6ES7 314-1AG14-0AB0	6ES7 315-2AH14-0AB0	6ES7 315-2EH14-0AB0	6ES7 317-2EK14-0AB0
Product-type designation	CPU 312	CPU 314	CPU 315-2 DP	CPU 315-2 PN/DP	CPU 317-2 PN/DP
Work memory					
• Size of retentive memory for retentive data blocks	32 Kibyte	64 Kibyte	128 Kibyte	128 Kibyte	256 Kibyte
Load memory					
• pluggable (MMC)	Yes	Yes	Yes	Yes	Yes
• pluggable (MMC), max.	8 Mbyte	8 Mbyte	8 Mbyte	8 Mbyte	8 Mbyte
Backup					
• present	Yes; guaranteed by MMC (maintenance-free)	Yes; guaranteed by MMC (maintenance-free)	Yes; guaranteed by MMC (maintenance-free)	Yes; guaranteed by MMC (maintenance-free)	Yes; guaranteed by MMC (maintenance-free)
• without battery	Yes; Program and data	Yes; Program and data	Yes; Program and data	Yes; Program and data	Yes; Program and data
CPU/ blocks					
DB					
• Number, max.	1 024; Number range: 1 to 16000	1 024; Number range: 1 to 16000	1 024; Number range: 1 to 16000	1 024; Number range: 1 to 16000	2 048; Number range: 1 to 16000
• Size, max.	32 Kibyte	64 Kibyte	64 Kibyte	64 Kibyte	64 Kibyte
FB					
• Number, max.	1 024; Number range: 0 to 7999	1 024; Number range: 0 to 7999	1 024; Number range: 0 to 7999	1 024; Number range: 0 to 7999	2 048; Number range: 0 to 7999
• Size, max.	32 Kibyte	64 Kibyte	64 Kibyte	64 Kibyte	64 Kibyte
FC					
• Number, max.	1 024; Number range: 0 to 7999	1 024; Number range: 0 to 7999	1 024; Number range: 0 to 7999	1 024; Number range: 0 to 7999	2 048; Number range: 0 to 7999
• Size, max.	32 Kibyte	64 Kibyte	64 Kibyte	64 Kibyte	64 Kibyte

PLC SIEMENS S7-300 CATALOGUE:

Times/counters and their retentivity

S7 counter

• Number	256	256	256	256	512
• Retentivity					
- can be set	Yes	Yes	Yes	Yes	Yes
- lower limit	0	0	0	0	0
- upper limit	255	255	255	255	511
• Counting range					
- can be set	Yes	Yes	Yes	Yes	Yes
- lower limit	0	0	0	0	0
- upper limit	999	999	999	999	999

IEC counter

• present	Yes	Yes	Yes	Yes	Yes
• Type	SFB	SFB	SFB	SFB	SFB

PLC SIEMENS S7-300 CATALOGUE:

© Siemens AG 2010



SIMATIC S7-300 Central processing units

Standard CPUs

Technical specifications (continued)

	6ES7 312-1AE14-0AB0	6ES7 314-1AG14-0AB0	6ES7 315-2AH14-0AB0	6ES7 315-2EH14-0AB0	6ES7 317-2EK14-0AB0
Product-type designation	CPU 312	CPU 314	CPU 315-2 DP	CPU 315-2 PN/DP	CPU 317-2 PN/DP
S7 times					
• Number	256	256	256	256	512
• Retentivity					
- can be set	Yes	Yes	Yes	Yes	Yes
- lower limit	0	0	0	0	0
- upper limit	255	255	255	255	511
- preset	no retentivity	no retentivity	no retentivity	no retentivity	no retentivity
• Time range					
- lower limit	10 ms	10 ms	10 ms	10 ms	10 ms
- upper limit	9 990 s	9 990 s	9 990 s	9 990 s	9 990 s
IEC timer					
• present	Yes	Yes	Yes	Yes	Yes
• Type	SFB	SFB	SFB	SFB	SFB
Data areas and their retentivity					
Flag					
• Number, max.	256 byte	256 byte	2 048 byte	2 048 byte	4 096 byte
• Retentivity available	Yes; MB 0 to MB 255	Yes; MB 0 to MB 255	Yes; MB 0 to MB 2047	Yes; MB 0 to MB 2047	Yes; MB 0 to MB 4095
• Number of clock memories	8; 1 memory byte	8; 1 memory byte	8; 1 memory byte	8; 1 memory byte	8; 1 memory byte
Data blocks					
• Number, max.	1 024; Number range: 1 to 16000	1 024; Number range: 1 to 16000	1 024; Number range: 1 to 16000	1 024; Number range: 1 to 16000	2 048; Number range: 1 to 16000
• Size, max.	32 Kibyte	64 Kibyte	64 Kibyte	64 Kibyte	64 Kibyte
• Retentivity adjustable	Yes; via non-retain property on DB	Yes; via non-retain property on DB	Yes; via non-retain property on DB	Yes; via non-retain property on DB	Yes; via non-retain property on DB

PLC SIEMENS S7-300 CATALOGUE:

Digital channels

• Inputs	256	1 024	16 384	16 384	65 536
• Outputs	256	1 024	16 384	16 384	65 536
• Inputs, of which central	256	1 024	1 024	1 024	1 024
• Outputs, of which central	256	1 024	1 024	1 024	1 024

Siemens ST 70 N - 2010

5/5

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SIMATIC S7-300

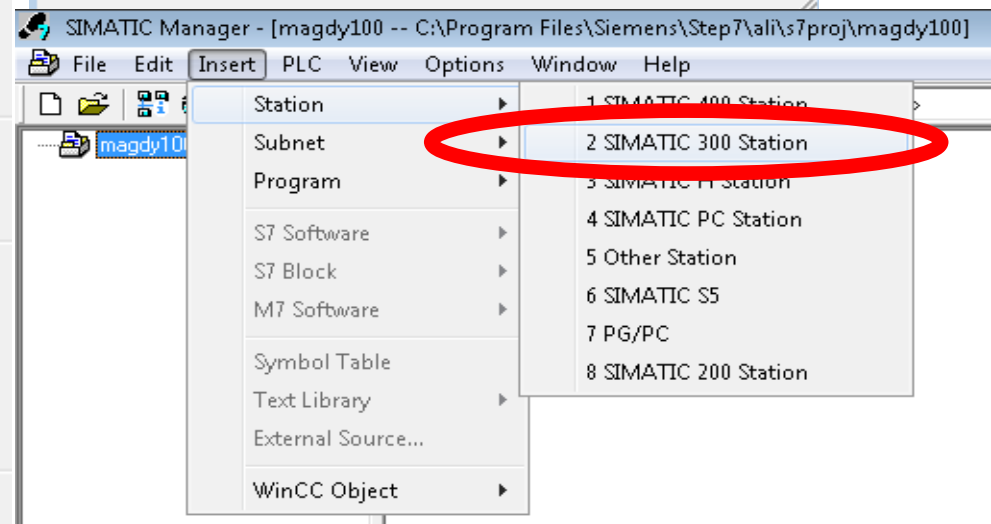
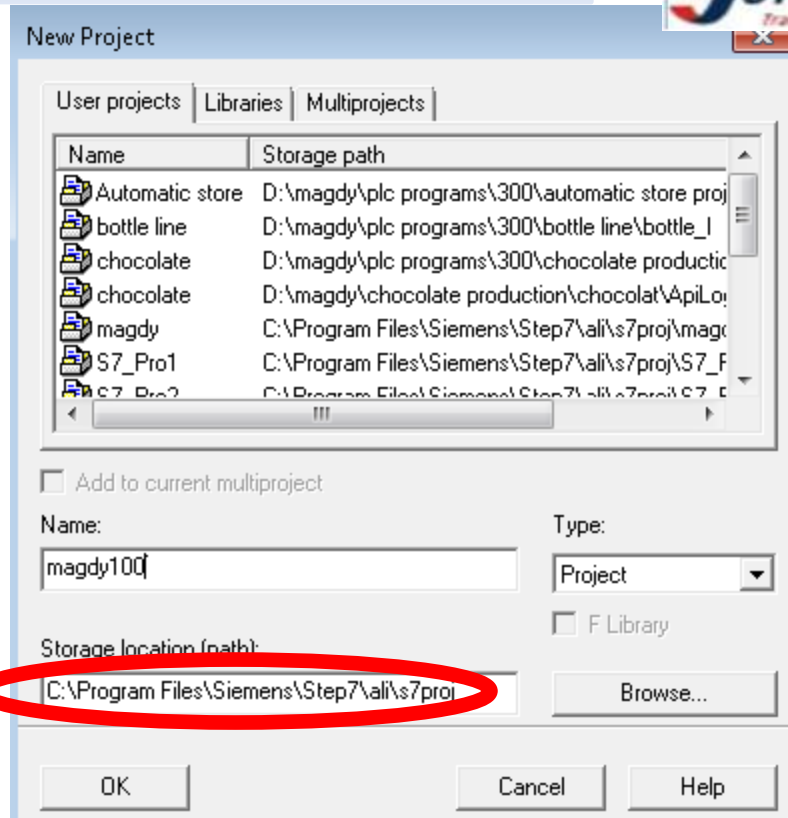
Central processing units

Standard CPUs

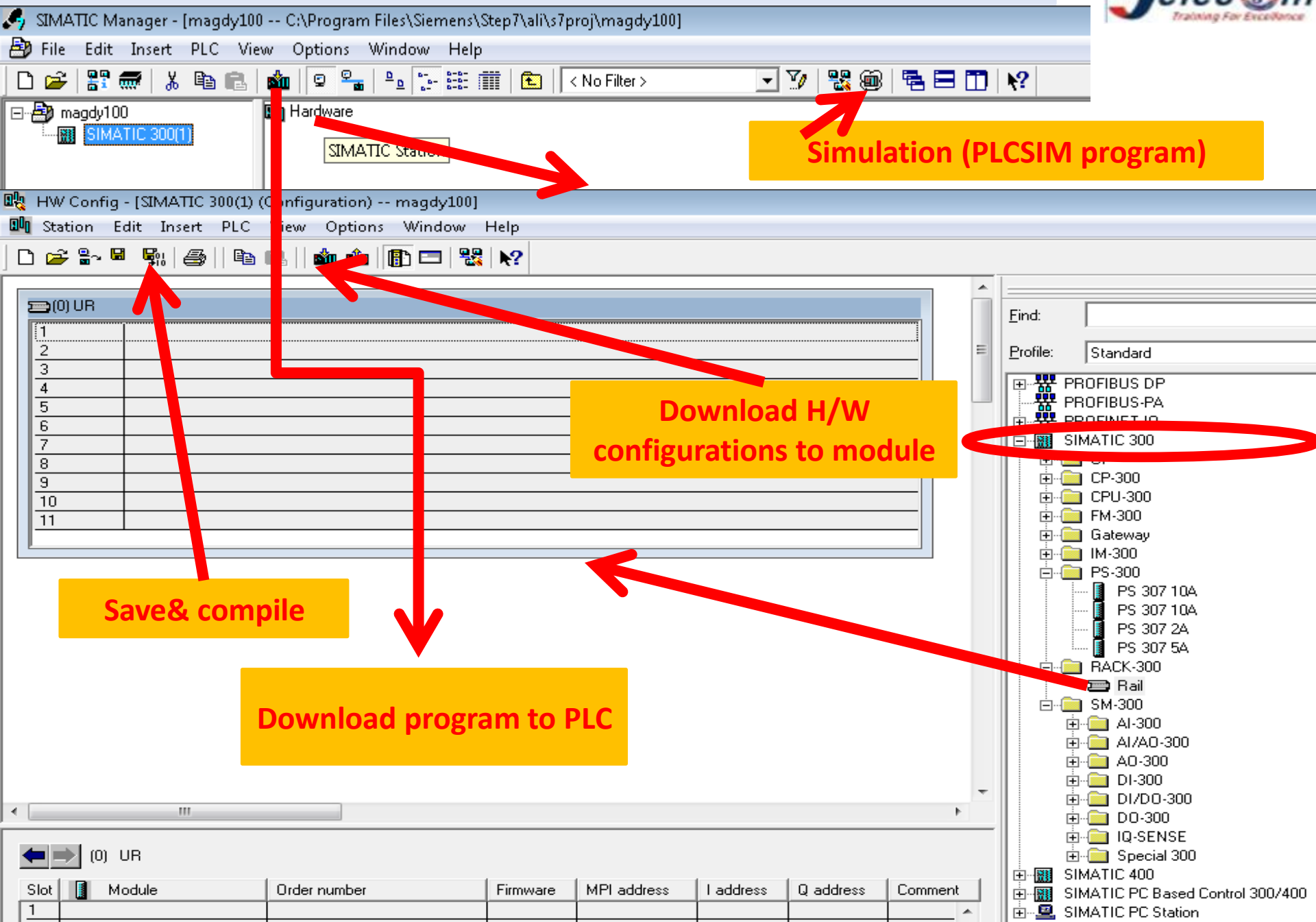
Technical specifications (continued)

	6ES7 312-1AE14-0AB0	6ES7 314-1AG14-0AB0	6ES7 315-2AH14-0AB0	6ES7 315-2EH14-0AB0	6ES7 317-2EK14-0AB0
Product-type designation	CPU 312	CPU 314	CPU 315-2 DP	CPU 315-2 PN/DP	CPU 317-2 PN/DP
Analog channels					
• Inputs	64	256	1 024	1 024	4 096
• Outputs	64	256	1 024	1 024	4 096
• Inputs, of which central	64	256	256	256	256
• Outputs, of which central	64	256	256	256	256

Create project:



Create project:



The screenshot shows the SIMATIC Manager interface with the following components and annotations:

- Top Window: SIMATIC Manager - [magdy100 -- C:\Program Files\Siemens\Step7\ali\s7proj\magdy100]**
 - Menu: File, Edit, Insert, PLC, View, Options, Window, Help
 - Toolbar: Includes icons for file operations, hardware configuration, and simulation. A red arrow points to the simulation icon with the label: **Simulation (PLCSIM program)**.
 - Project Tree: Shows 'magdy100' and 'SIMATIC 300(1)'.
- Second Window: HW Config - [SIMATIC 300(1) (Configuration) -- magdy100]**
 - Menu: Station, Edit, Insert, PLC, View, Options, Window, Help
 - Toolbar: Includes icons for hardware configuration and simulation.
 - Hardware Table: A table with 11 rows and 2 columns. A red arrow points to the 'Save & compile' button in the toolbar with the label: **Save & compile**.
 - Hardware Catalog: A tree view on the right showing various modules. The 'SIMATIC 300' folder is circled in red. A red arrow points from this folder to the hardware table with the label: **Download H/W configurations to module**.
- Bottom Window: (0) UR**
 - Table with 8 columns: Slot, Module, Order number, Firmware, MPI address, I address, Q address, Comment.
 - Row 1: Slot 1, Module (empty), Order number (empty), Firmware (empty), MPI address (empty), I address (empty), Q address (empty), Comment (empty).

Additional annotations include a red arrow pointing from the 'Simulation' icon in the top window to the 'Simulation (PLCSIM program)' label, and a red arrow pointing from the 'Download H/W configurations to module' label to the hardware table.

S7-300 Hardware configurations:

(0) UR

1	PS 307 2A
2	CPU 315-2 DP
X2	DP
3	
4	DI16xDC24V
5	DO16xDC24V/0.5A
6	
7	
8	
9	
10	
11	

Power supply card (Slot 1)

CPU card (Slot 2)

I/O cards (Slots 4-5)

Interfaces card (Slot 3)

RACK-300

Rail

SM-300

Serial of chosen cards

Slot	Module	Order number	Firmware	MPI address	I a...	Q...
1	PS 307 2A	6ES7 307-1BA00-0AA0				
2	CPU 315-2 DP	6ES7 315-2AG10-0AB0	V2.0	2		
X2	DP				2047*	
3						
4	DI16xDC24V	6ES7 321-1BH01-0AA0			0...1	
5	DO16xDC24V/0.5A	6ES7 322-1BH01-0AA0				4...5
6						
7						
8						

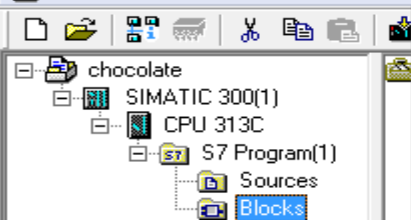
Input: IB0, IB1 (16 I/P)

Output: QB4, QB5 (16 O/P)

S7-300 CABLE CONNECTION AS MPI:

SIMATIC Manager - [chocolate -- D:\magdy\chocolate production\chocolat]

File Edit Insert PLC View Options Window Help



Customize... Ctrl+Alt+E

Access Protection

Change Log

Text Libraries

Language for Display Devices...

Manage Multilingual Texts

Rewire...

Run-Time Properties...

Compare Blocks...

Reference Data

Define Global Data

Configure Network

Simulate Modules

Configure Process Diagnostics

CAX Data

Set PG/PC Interface...

Set PG/PC Interface

Access Path

LLDP

Access Point of the Application:

S7ONLINE (STEP 7) -> PC Adapter(MPI)

(Standard for STEP 7)

Interface Parameter Assignment Used:

PC Adapter(MPI)

Properties...

ISO Ind. Ethernet -> Intel(R) 82566

ISO Ind. Ethernet -> Intel(R) 82566

PC Adapter(Auto)

PC Adapter(MPI)

Copy...

Delete

(Parameter assignment of your PC adapter for an MPI network)

Interfaces

Add/Remove...

Select...

OK

Cancel

Help

Properties - PC Adapter(MPI)

MPI

Local Connection

Connection to:

USB

☐ Apply settings for all modules

OK

Default

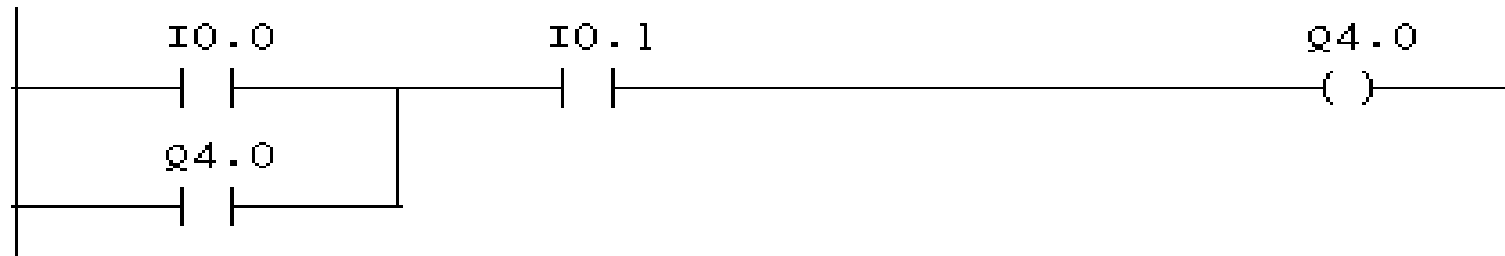
Cancel

Help

PLC SIEMENS S7-300 program:

Network 1 : Title:

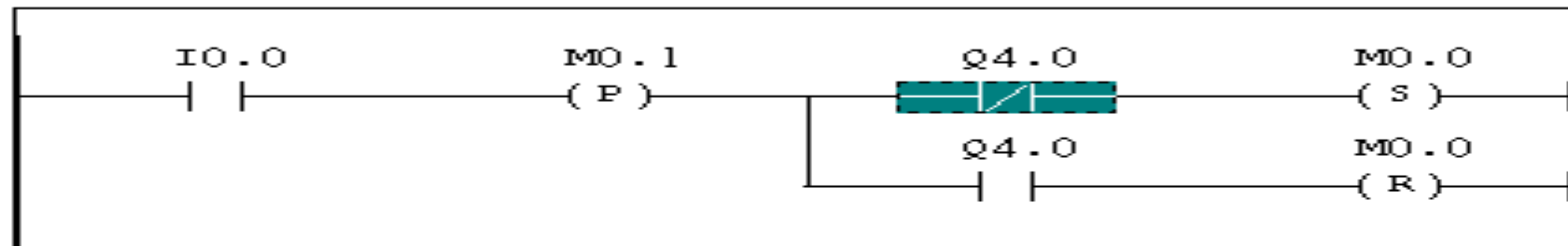
Comment:



PLC SIEMENS S7-300 old instructions:

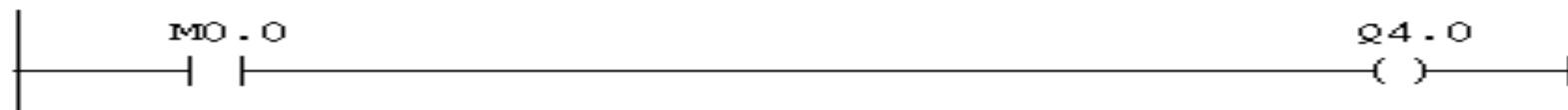
Network 2 : Title:

Comment:



Network 3 : Title:

Comment:



PLC SIEMENS S7-300 :

CPU General Properties

HW Config - [SIMATIC 300(3) (Configuration) -- kjkhhgf]

Station Edit Insert PLC View Options Window Help

File Edit View Options Window Help

(0) UR

1	
2	CPU 313C-2 DP
X2	DP
2.2	DI16/DO16
2.4	Count
3	
4	AI8x12Bit
5	AD2x12Bit
6	
7	
8	
9	
10	
11	

Properties - CPU 313C-2 DP - (R0/S2)

Time-of-Day Interrupts | Cyclic Interrupts | Diagnostics/Clock | Protection | Communication
General | Startup | Cycle/Clock Memory | Retentive Memory | Interrupts

Short Description: CPU 313C-2 DP

Work memory 64KB; 0.1ms/1000 instructions; DI16/DO16 integrated; 3 pulse outputs (2.5kHz); 3 channel counting and measuring with incremental encoders 24V (30kHz); MPI+ DP connector (DP-Master oder DP-Slave); multi-tier configuration up to 31 modules; Send and

Order No./ firmware: 6ES7 313-6CF03-0AB0 / V2.0

Name: CPU 313C-2 DP

Interface

Type: MPI

Address: 2

Networked: No

Properties...

Comment:

OK Cancel Help

PLC SIEMENS S7-300 :

CPU Retentive Memory Properties

HW Config - [SIMATIC 300(3) (Configuration) -- kjkhhgf]

Station Edit Insert PLC View Options Window Help

(0) UR

1	
2	CPU 313C-2 DP
X2	DP
2.2	DI16/DO16
2.4	Count
3	
4	AI8x12Bit
5	AO2x12Bit
6	
7	
8	
9	
10	
11	

Properties - CPU 313C-2 DP - (R0/S2)

Time-of-Day Interrupts | Cyclic Interrupts | Diagnostics/Clock | Protection | Communication

General | Startup | Cycle/Clock Memory | **Retentive Memory** | Interrupts

Retentivity

Number of memory bytes starting with MB0:

Number of S7 timers starting with T0:

Number of S7 counters starting with C0:

Areas

	DB No.	Byte Address	Number of Bytes
Retentive Area 1:	1	0	0
Retentive Area 2:	1	0	0
Retentive Area 3:	1	0	0
Retentive Area 4:	1	0	0
Retentive Area 5:	1	0	0
Retentive Area 6:	1	0	0
Retentive Area 7:	1	0	0
Retentive Area 8:	1	0	0

OK Cancel Help

PLC SIEMENS S7-300 :

CPU Clock Memory Properties

HW Config - [SIMATIC 300(1) (Configuration) -- ITC Project]

Station Edit Insert PLC View Options Window Help

Frequency 0.5 0.62 1 1.25 2 2.5 5 10

Period 2 1.6 1 0.8 0.5 0.4 0.2 0.1

(0) UR

1	
2	CPU 313C-2 DP
X2	DP
2.2	DI16/DO16
2.4	Count
3	
4	AI8x13Bit
5	AO2x12Bit
6	
7	
8	
9	
10	
11	

Properties - CPU 313C-2 DP - (R0/S2)

Time-of-Day Interrupts | Cyclic Interrupts | Diagnostics/Clock | Protection | Communication

General | Startup | **Cycle/Clock Memory** | Retentive Memory | Interrupts

Cycle

☒ Update OB1 process image cyclically

Scan cycle monitoring time [ms]: 150

Minimum scan cycle time [ms]: 0

Scan cycle load from communication [%]: 20

Size of the process image: []

OB85 - call up at I/O access error: No OB85 call up

Clock Memory

☒ Clock memory

Memory Byte: 10

OK Cancel Help

Slot (0) UR

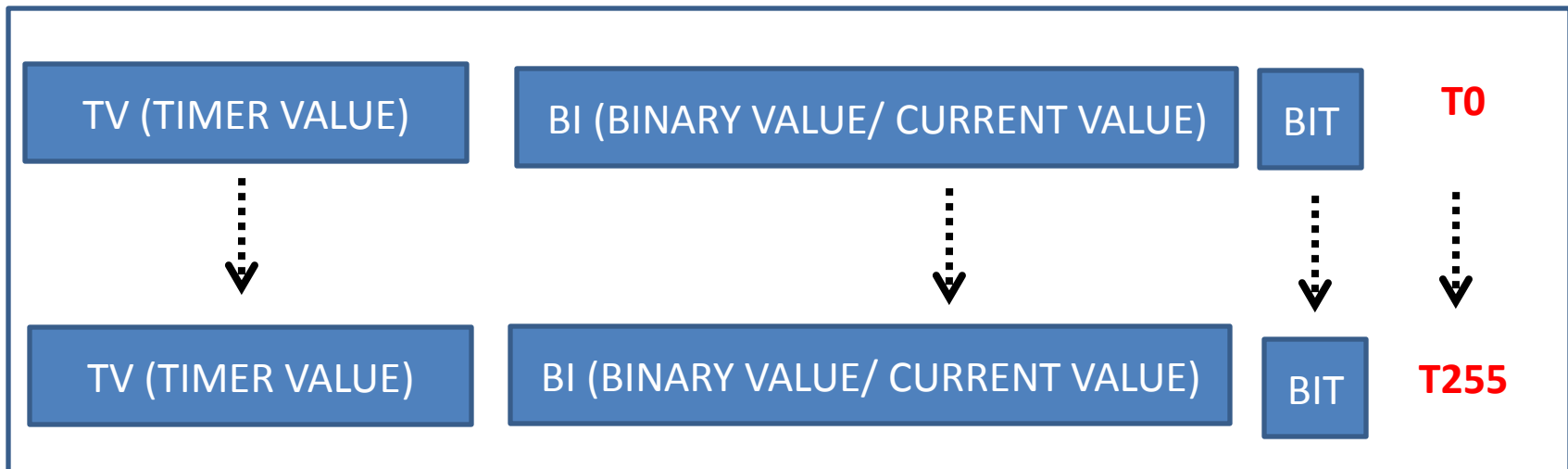
Slot	Module	Order number
1		

PLC SIEMENS S7-300 TIMERS:

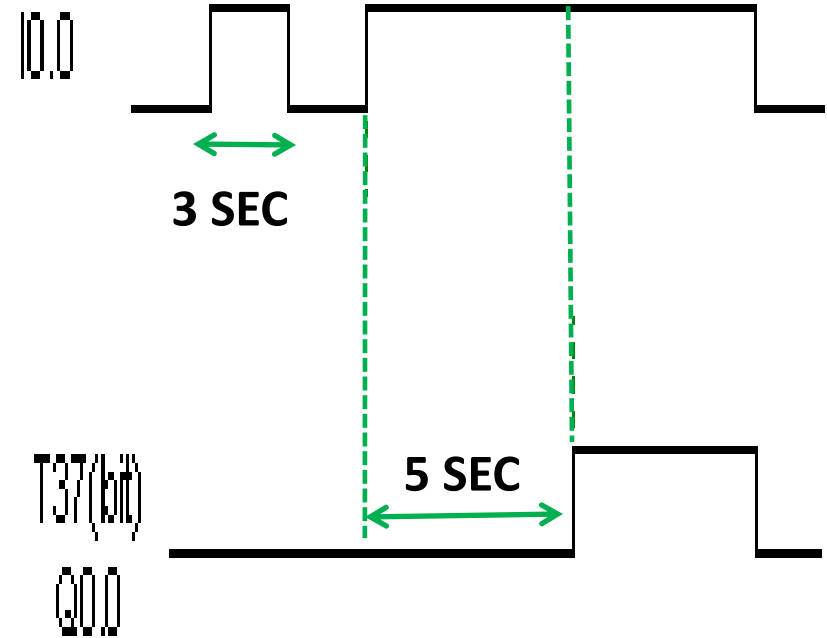
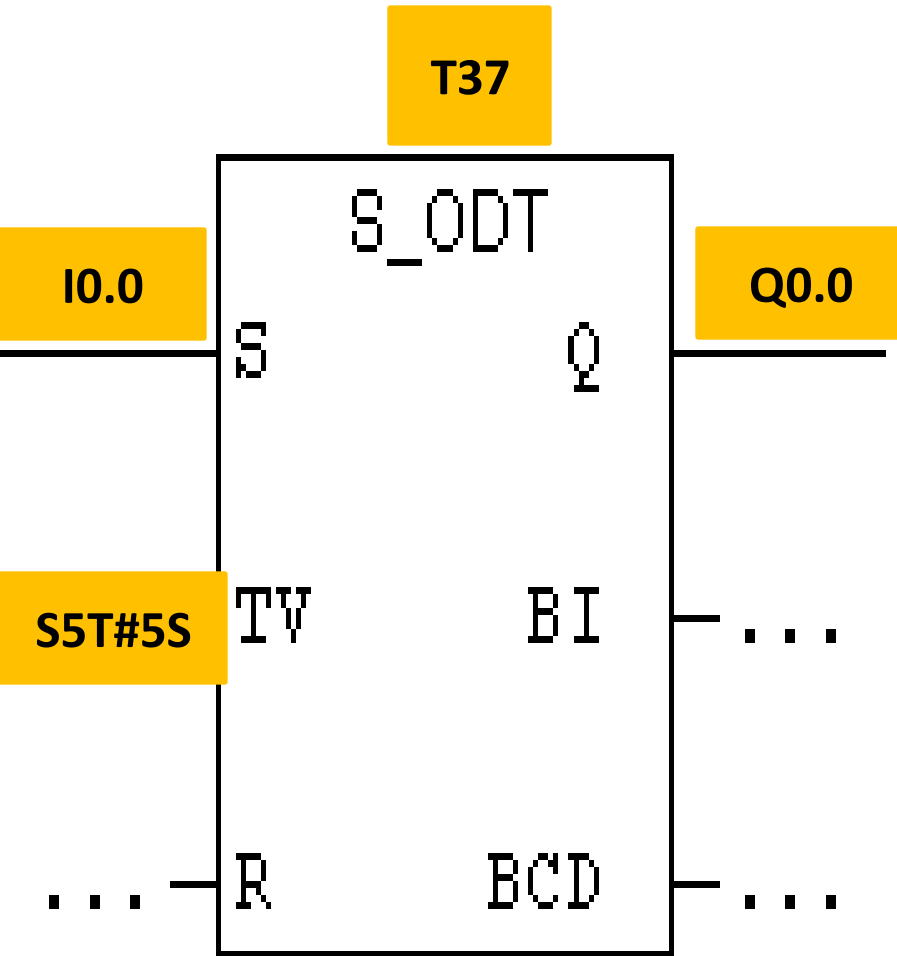
- 1- ON-DELAY TIMER (S_ODT).
- 2- OFF-DELAY(S_OFFDT).
- 3- RETENTIVE ON-DELAY TIMER (S_ODTS).
- 4- PULSE EXTENDED TIMER(S_PEXT).
- 5- PULSE TIMER(S_PULSE).

إدخال الزمن:

S5T#(VALUE) H (VALUE) M (VALUE) S (VALUE) MS MIN.: 10MS MAX.: 2H 46M 30S

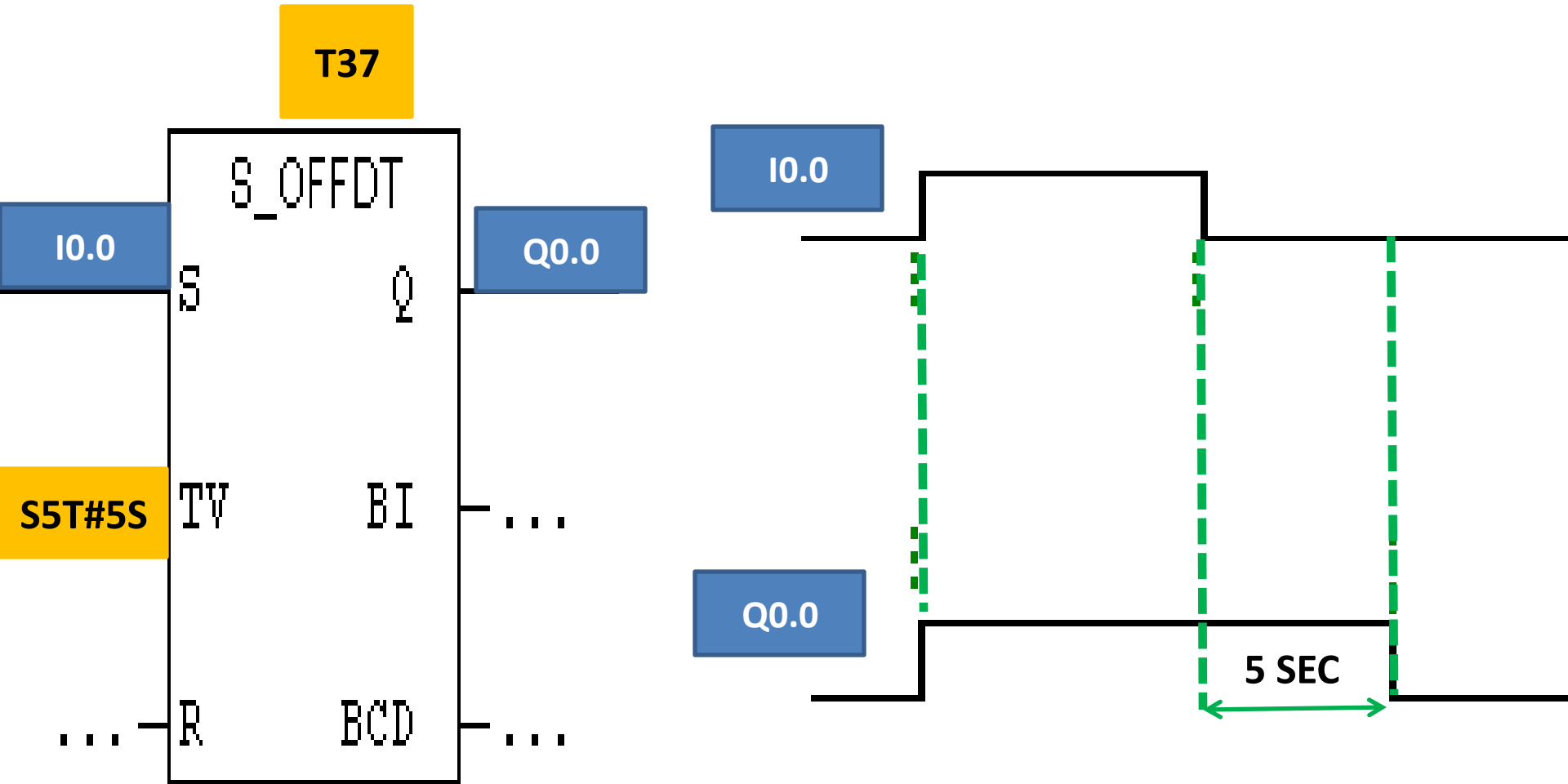


On –Delay TIMER (S_ODT):



تتبدل الريشة عندما ينتهي عد التيمر من العد المطلوب

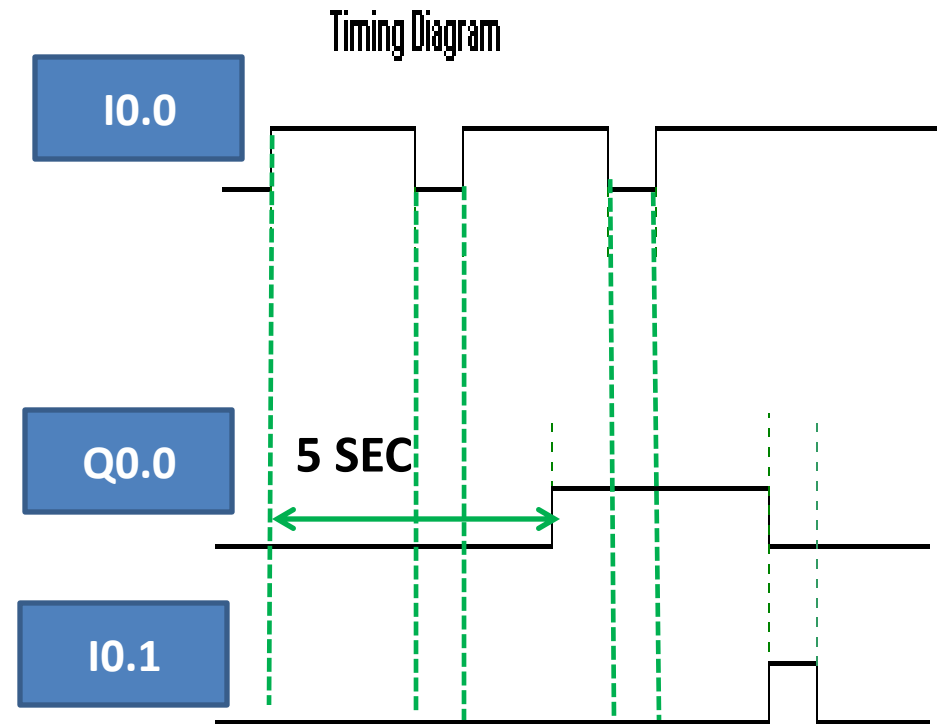
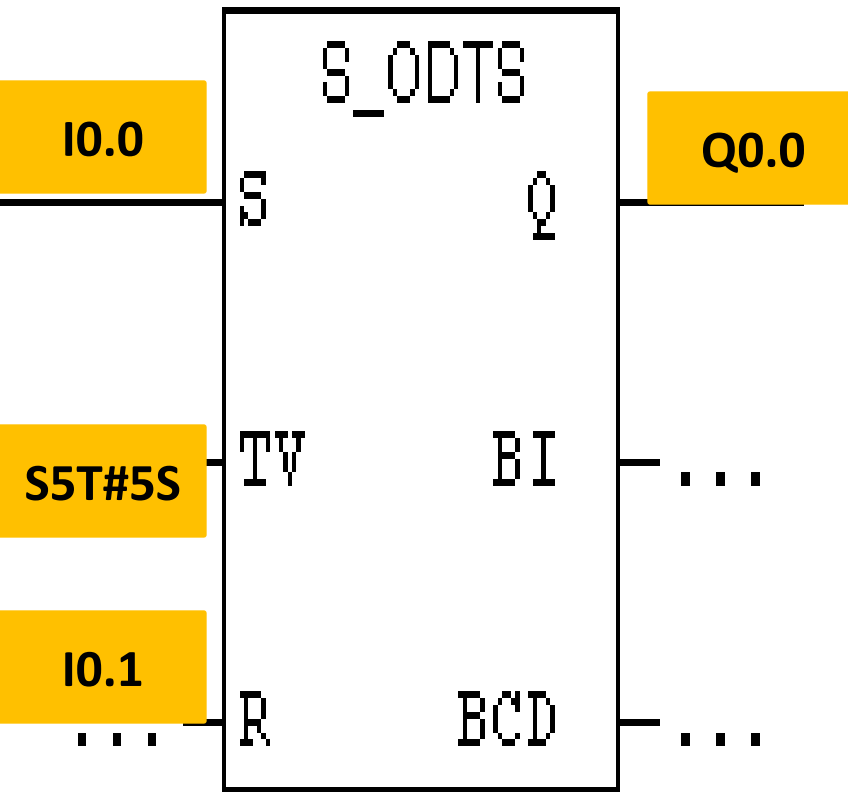
OFF –Delay TIMER (S_OFFDT):



تتبدل الريشة عند : وجود إشارة أو أن التيمر لم ينتهي بعد من العد المطلوب

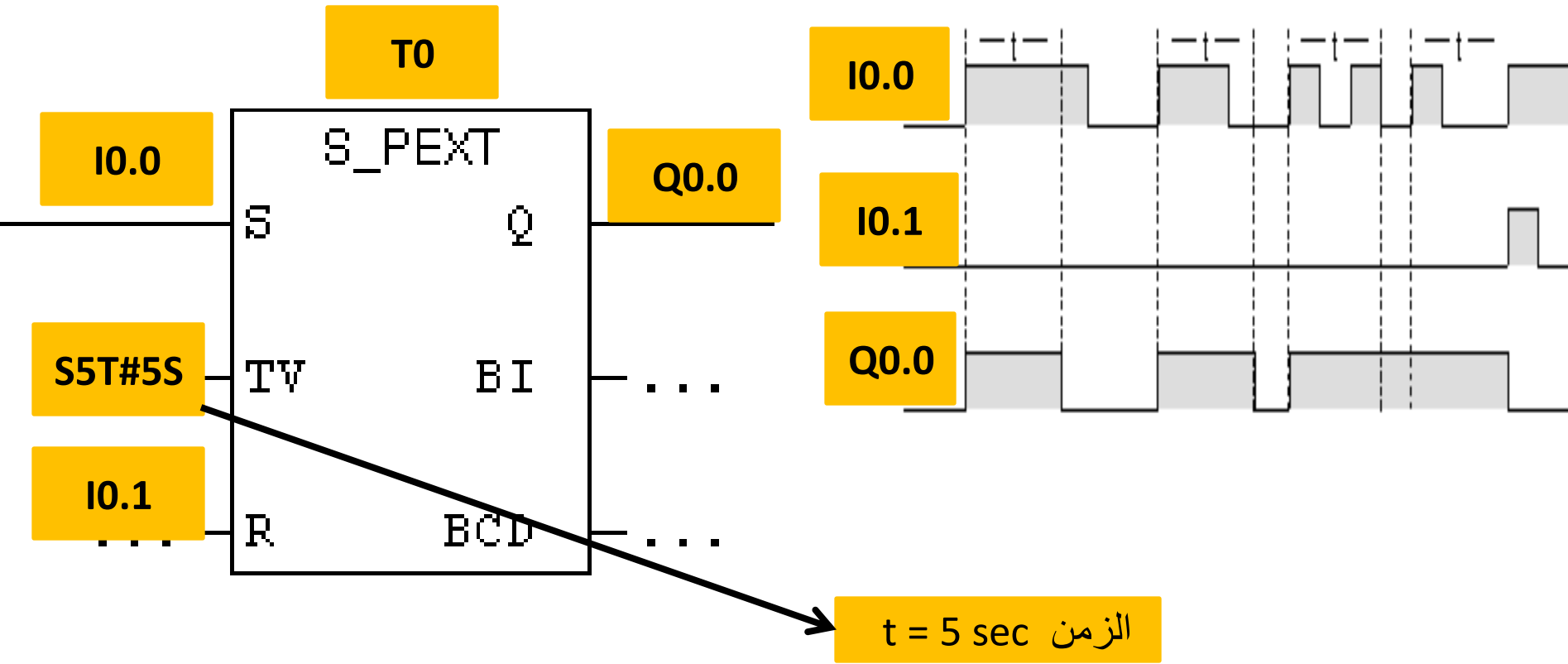
Retentive On –Delay TIMER (S_ODTS):

T37 عادی جدا



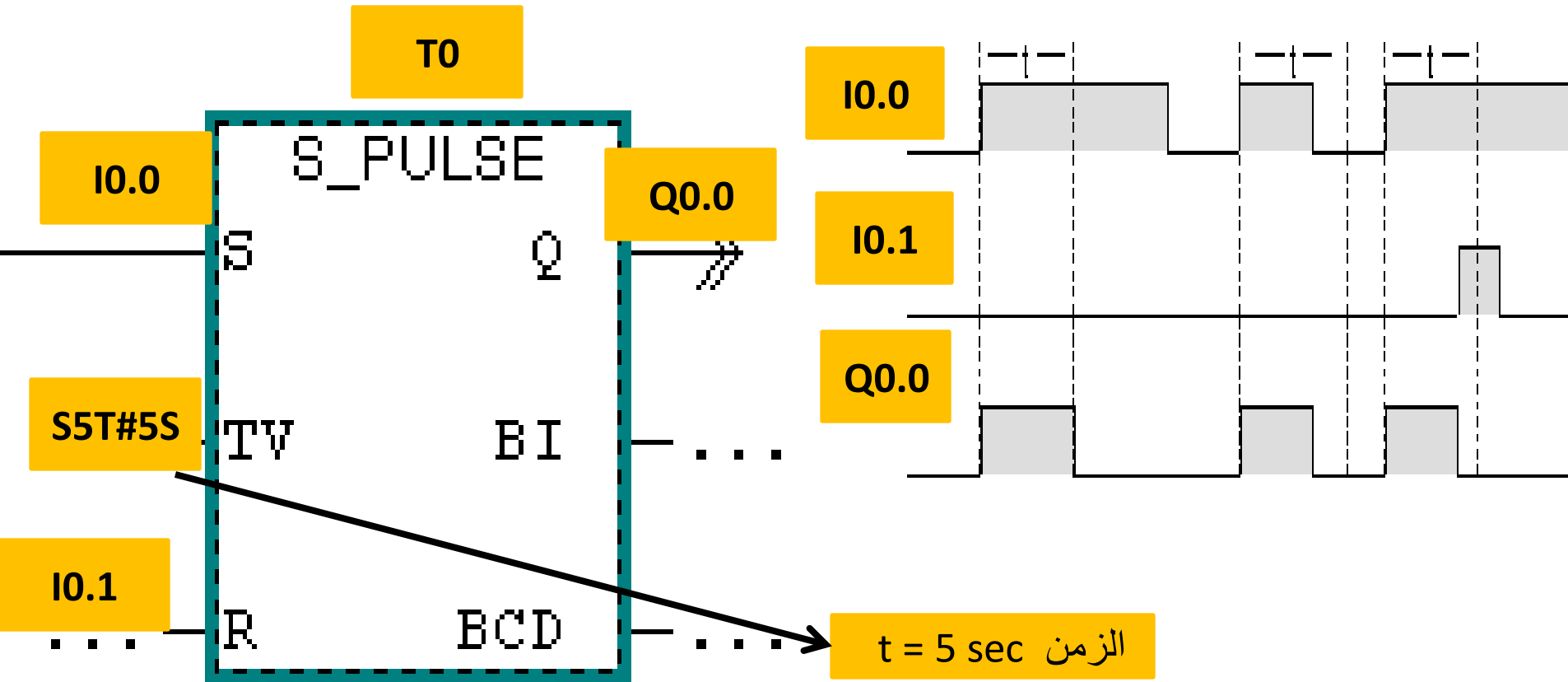
- تتبدل الريشة عندما ينتهي التيمر من العد المطلوب.
- هذا التيمر لا تعود ريشته للوضع الأصلي إلا بأمر RESET
- هذا التيمر هنا (S7-300) غير تراكمي أى يعد حتى لو انقطعت الإشارة عنه **وهذه مشكلة**

PULSE EXTENDED TIMER(S_PEXT):



-- تتبدل الريشة عند : وجود إشارة **أو** أن التيمر لم ينتهي بعد من العد المطلوب.
 -- هذا التيمر يبدل الريشة لفترة زمنية محددة (t) تتجدد مع كل إشارة جديدة للتيمر.

PULSE TIMER(S_PULSE):



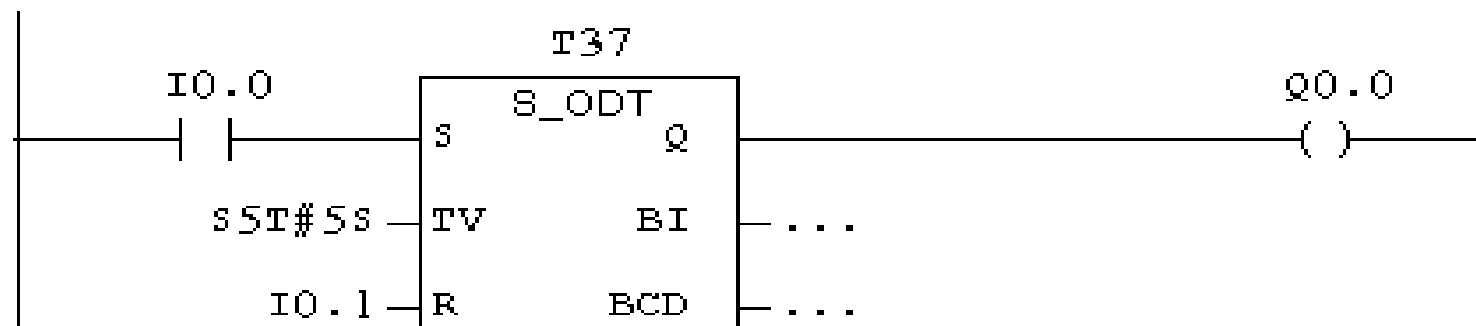
-- تتبدل الريشة عند : وجود إشارة **و** أن التيمر لم ينتهي بعد من العد المطلوب.
 -- هذا التيمر يبدل الريشة لفترة زمنية محددة (t) بشرط وجود الإشارة على التيمر.

إذا وجدت إشارة للعد على التيمر أو الكونتر
COUNTER وفي نفس الوقت وجدت إشارة لأمر ال
RESET للتيمر أو الكونتر فإن البرنامج يعطى الأولوية
 لأمر ال **RESET**

SIEMENS S7-300 PROGRAM (SIMATIC MANAGER)

Network 1 : Title:

Comment:

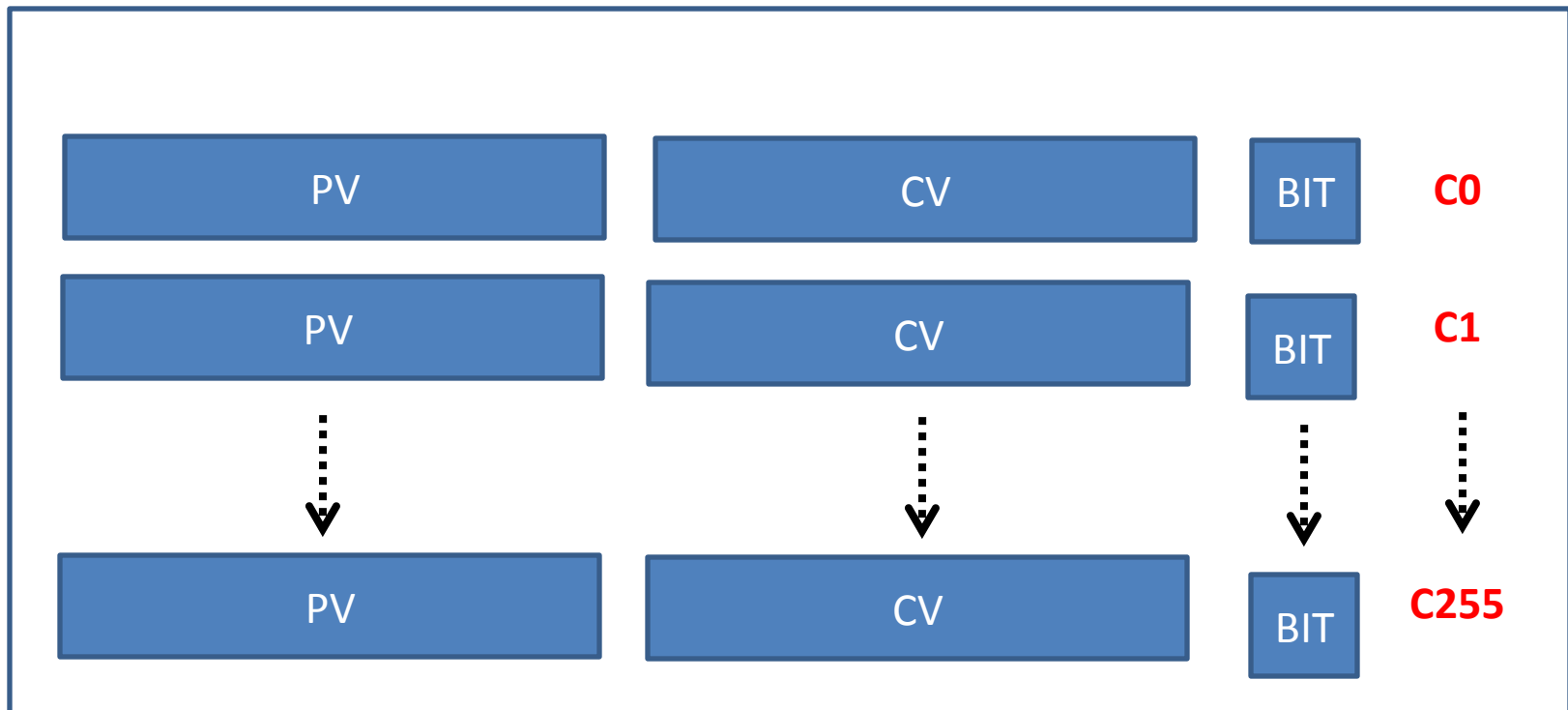


الدليل:

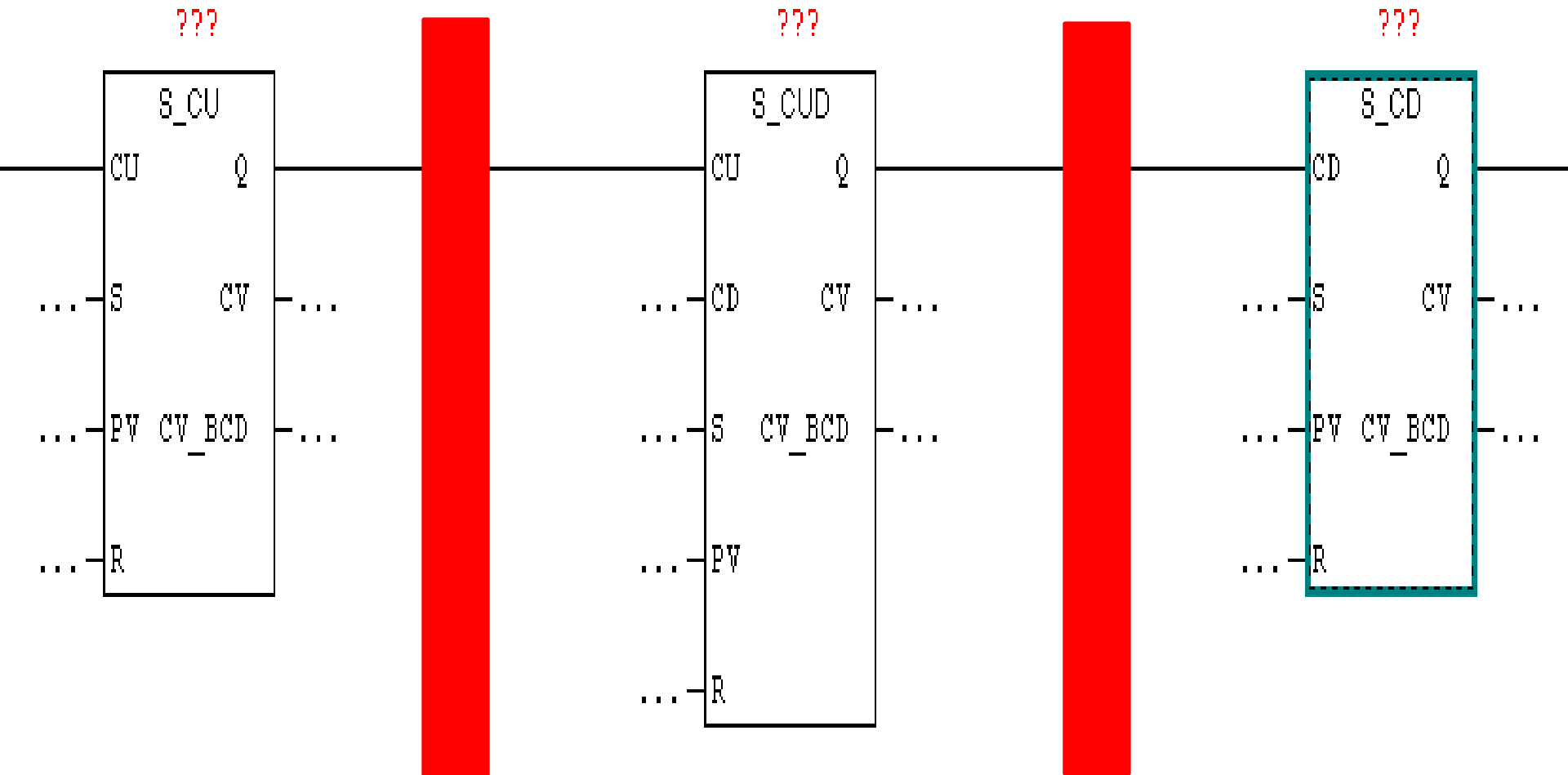
أمر إشارة العد و
 RESET في نفس
 ال BLOCK أي
 نفس النتورك
 وبالتالي ترتيب
 النتورك لا وجود
 له

- 1- UP COUNTER (CTU).
- 2- DOWN COUNTER (CTD).
- 3- UP/DOWN COUNTER (CTUD).

C - Area



PLC SIEMENS S7-300 COUNTERS:



-- شرط الثلاث عدادات هو: عد العداد لا يساوى الصفر ---- **وهذه مشكلة.**

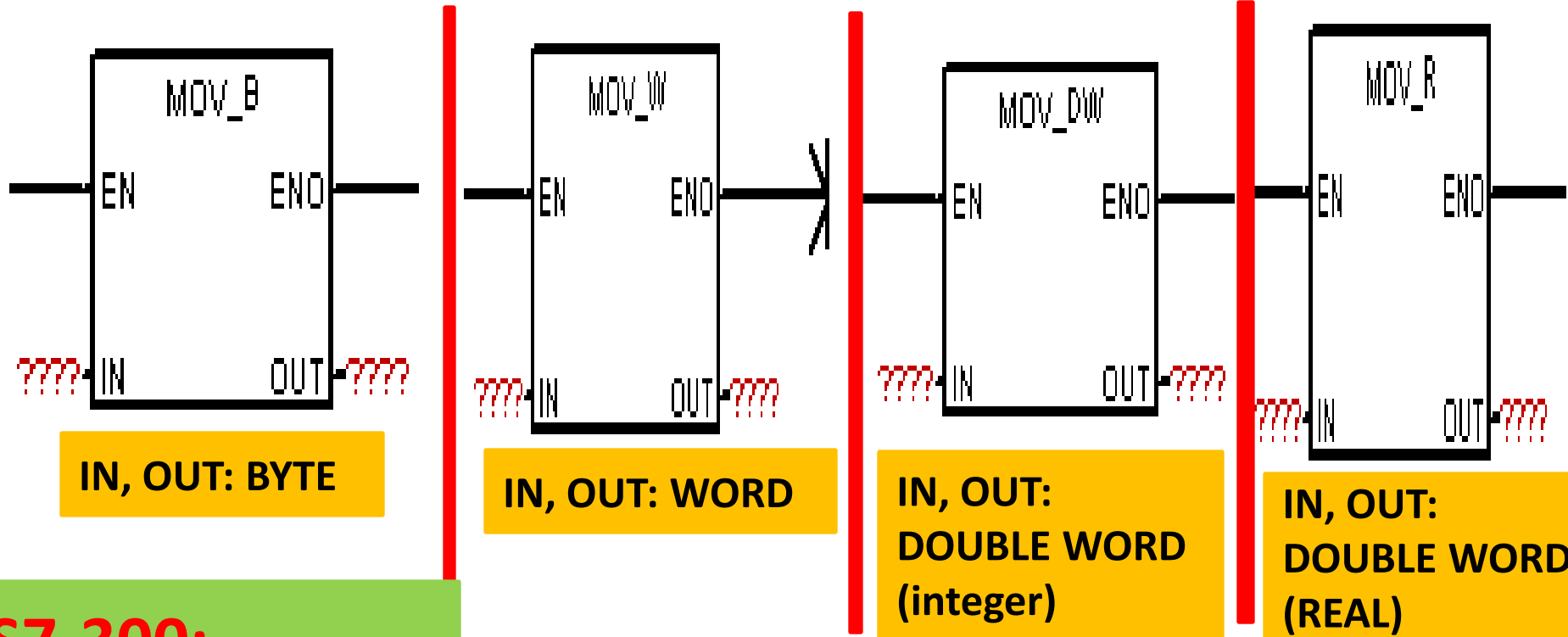
-- S : تضع PV داخل CV (SET) .

-- إدخال القيمة للعداد: إما عن طريق WORD مثل: MW0 / MW2 / أو C# (VALUE) مثال: C#5

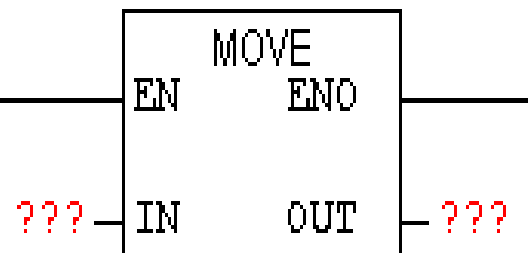
-- حل المشكلة يتم إما عن طريق: COMPARE أو SFB (SYSTEM FUNCTION BLOCK)

MOVE:

S7-200:



S7-300:

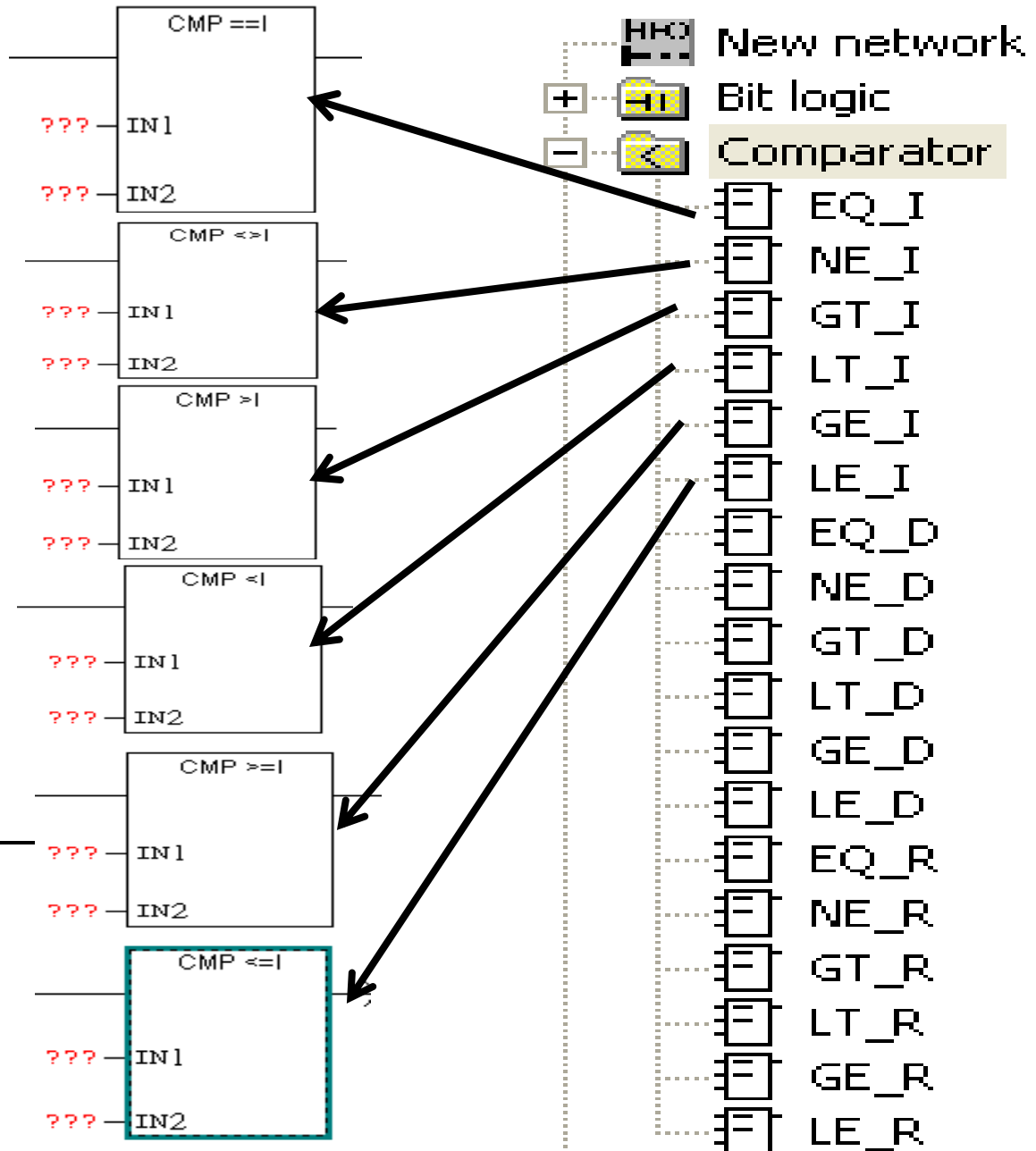
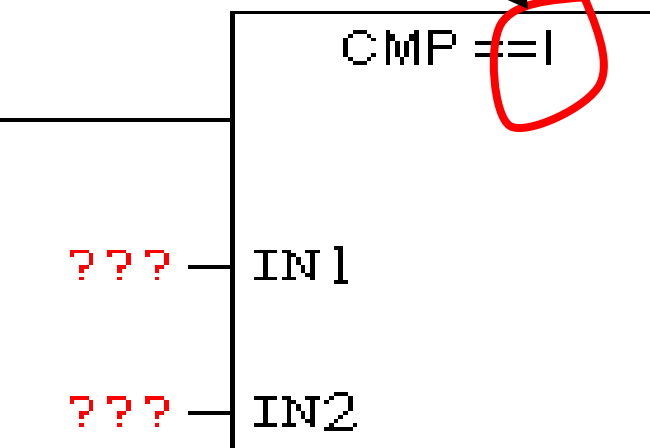


Byte → word , word → byte , word → double word , double word → word

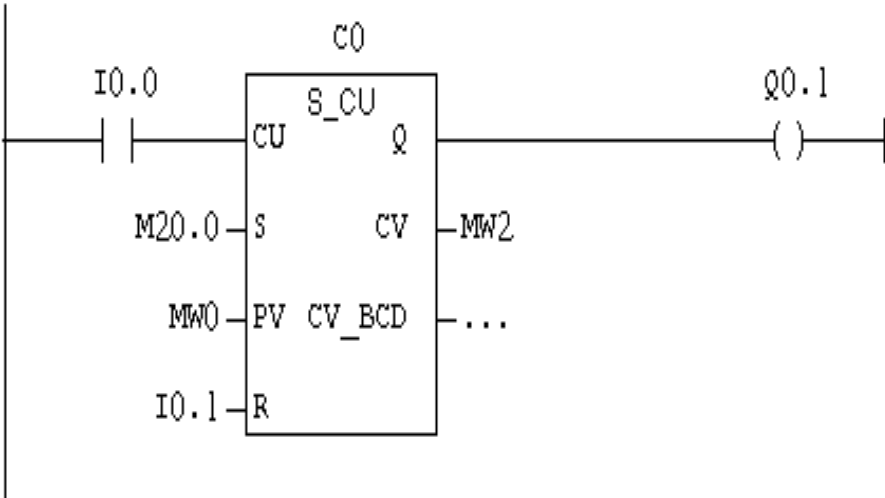
- IN: address / value ----- OUT: address
- Blocks in s7-200 must have enable signal to EN (it is not main condition in s7-300)

Compare :

IN1: OPERAND 1
IN2: OPERAND2
IN1, IN2:
Must be suitable to
DATA TYPE (I,D,R)

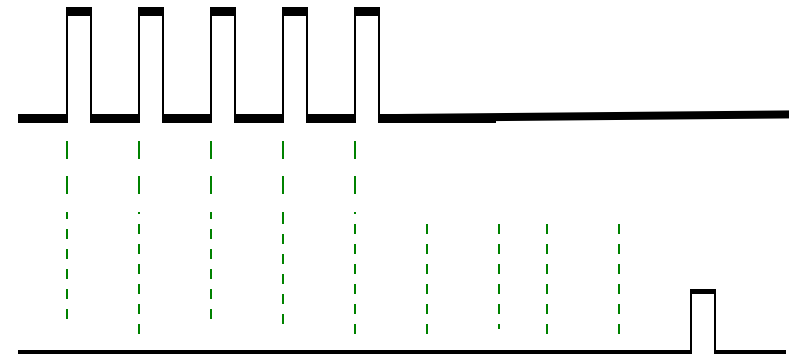


Using Compare in Counters:



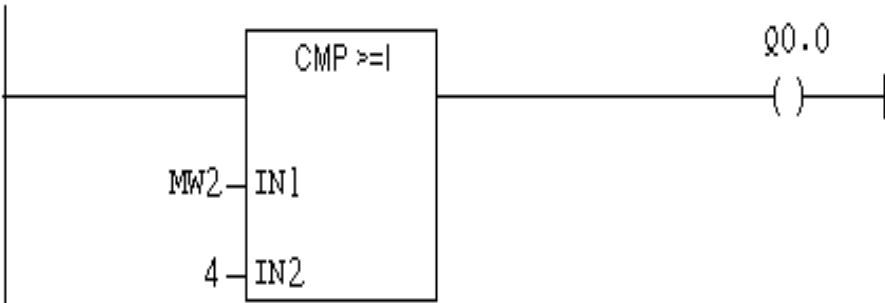
I0.0

I0.1



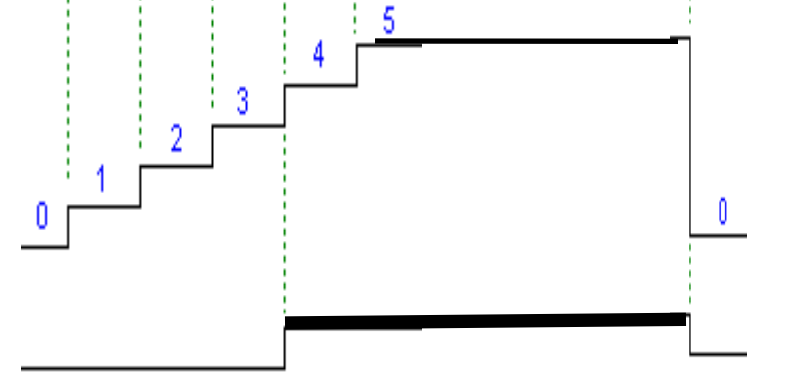
Network 2: Title:

Comment:



MW2

Q0.0



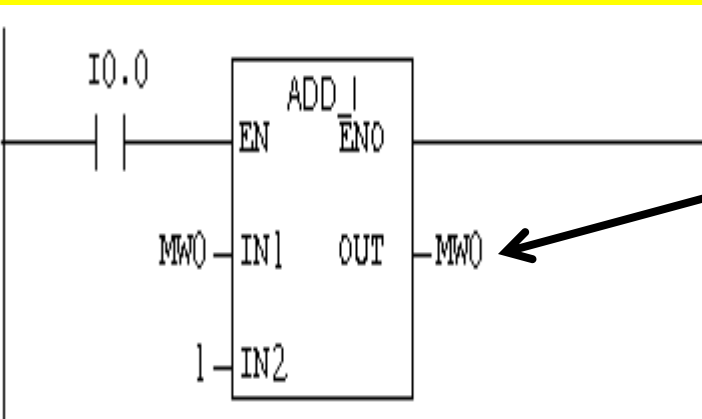
-- تتبدل الريشة عند : عد العداد $\leq$ العد المطلوب
 -- Q0.1 تعمل مع أول عدة وبالتالي الخرج الفعلي هو Q0.0
 -- وضعنا M20.0 على S في الكونتر لأننا لا نحتاج هذه الخاصية وتركها يعتبر SYNTAX ERROR

INTEGER FUNCTION:

ADDITION:

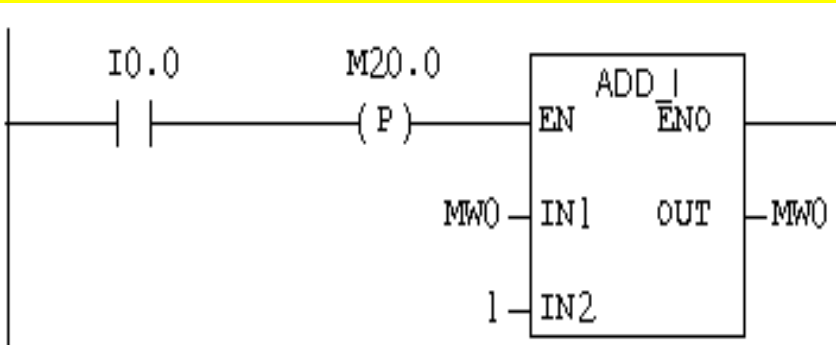
Critical cases:

1- source = destination:



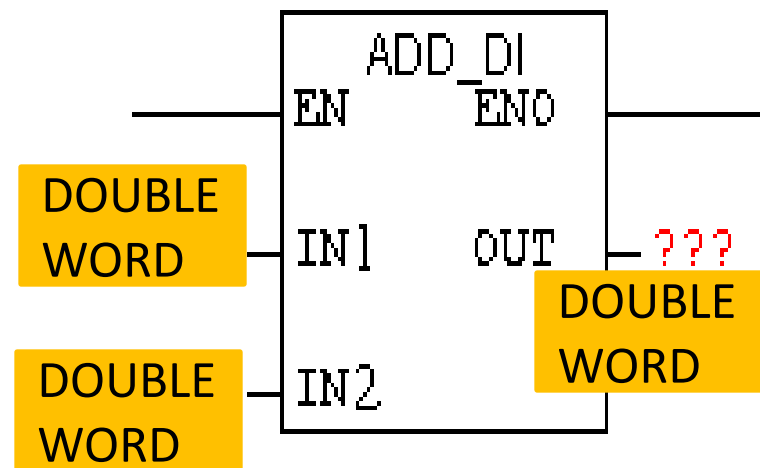
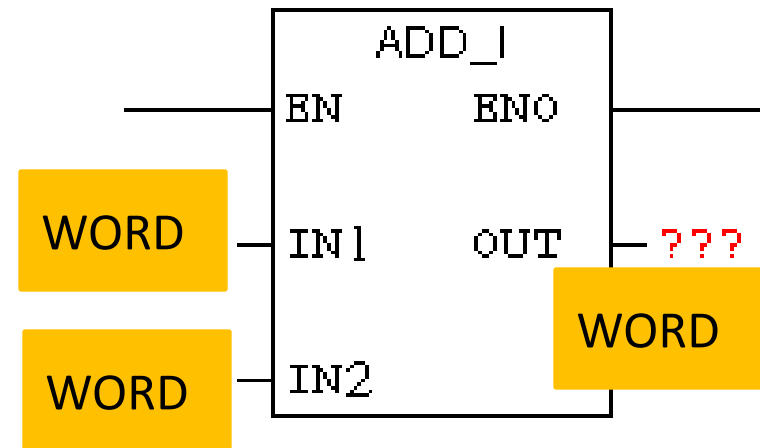
مع كل scan
بيجمع في
نفس المخزن
الجديد + 1
Unpredicted
value for
MW0

Solution:



Put

M20.0
(P)
or
M20.0
(N)

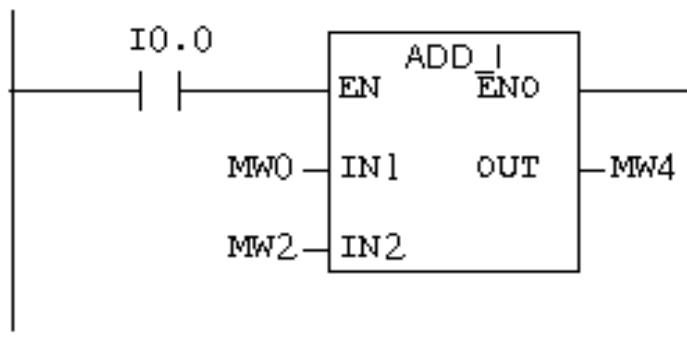


INTEGER FUNCTION:

ADDITION:

Critical cases:

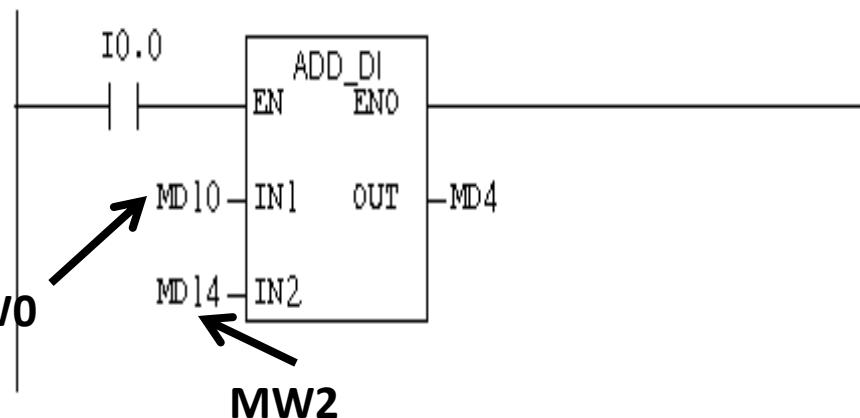
2- Out of range:



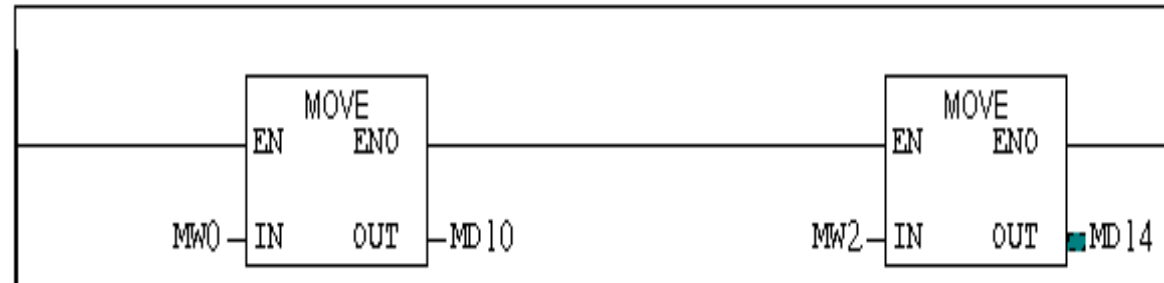
$MW0 + MW2 > MW4$

Solution:

Network 2: Title:



Network 3: Title:

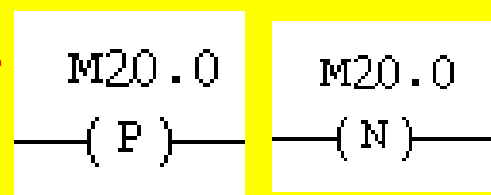


INTEGER FUNCTION:

SUBTRACTION:

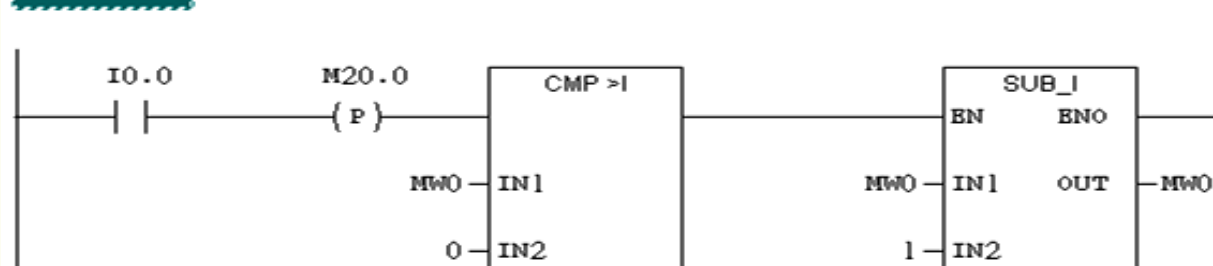
Critical cases:

1- SOURCE = DESTINATION:

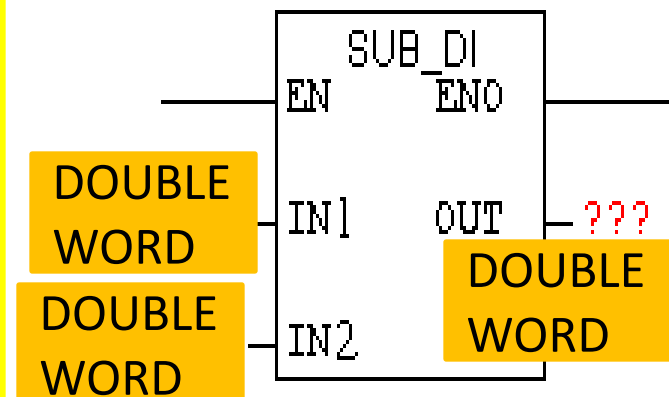
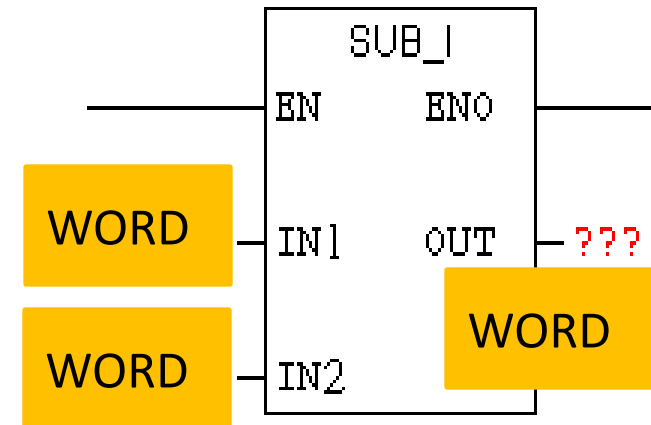
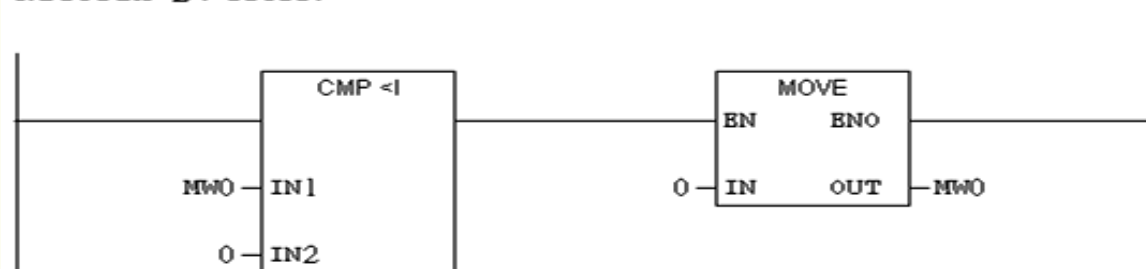


2- Value is not required to be -VE:

Network 1: Title:



Network 2: Title:

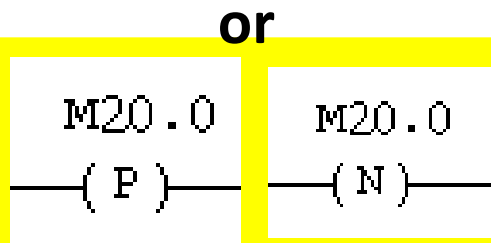


INTEGER FUNCTION:

MULTIPLICATION:

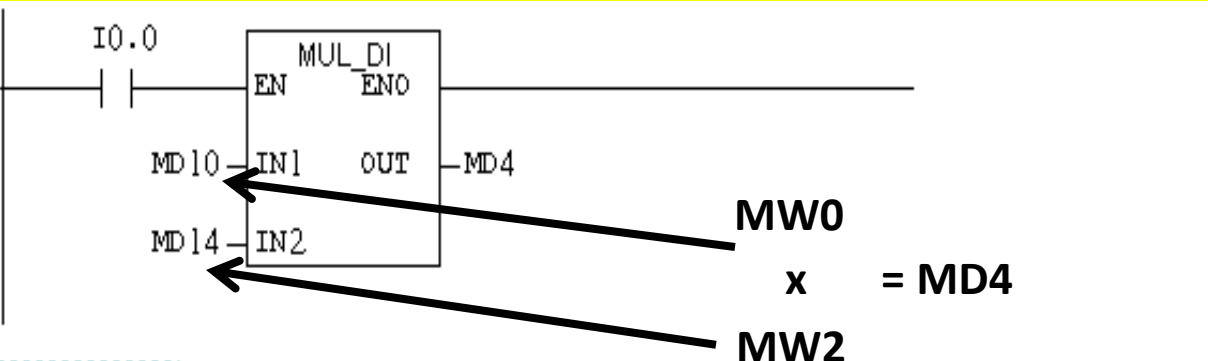
Critical cases:

1- SOURCE = DESTINATION:

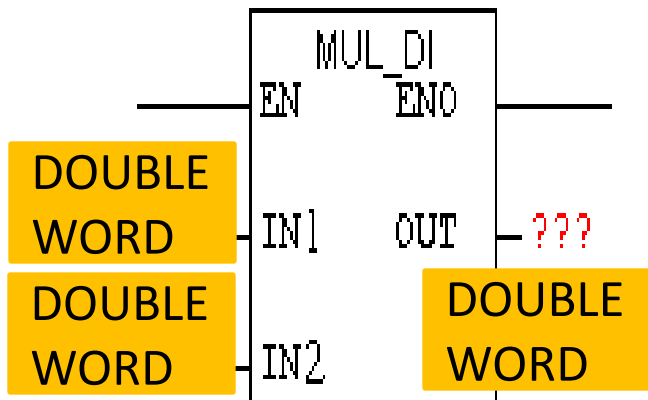
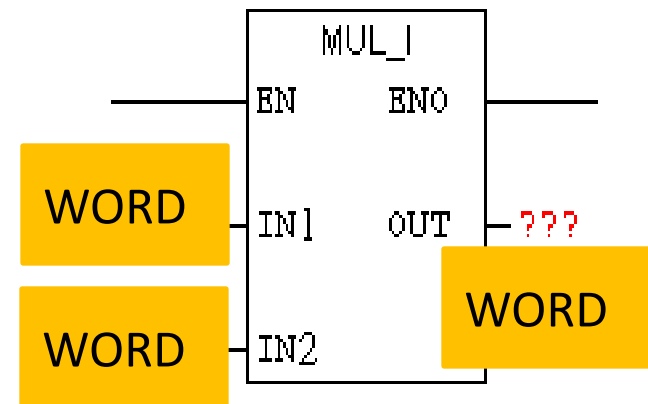
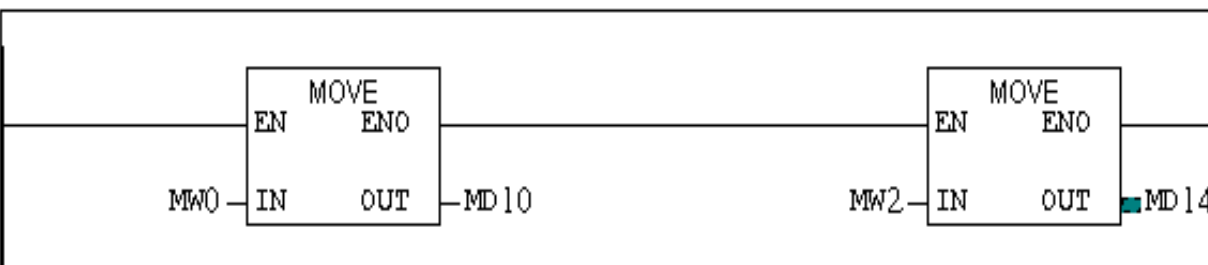


2- Out of range:

$$[MW0 \times MW2] > MW4$$



Network 2: Title:



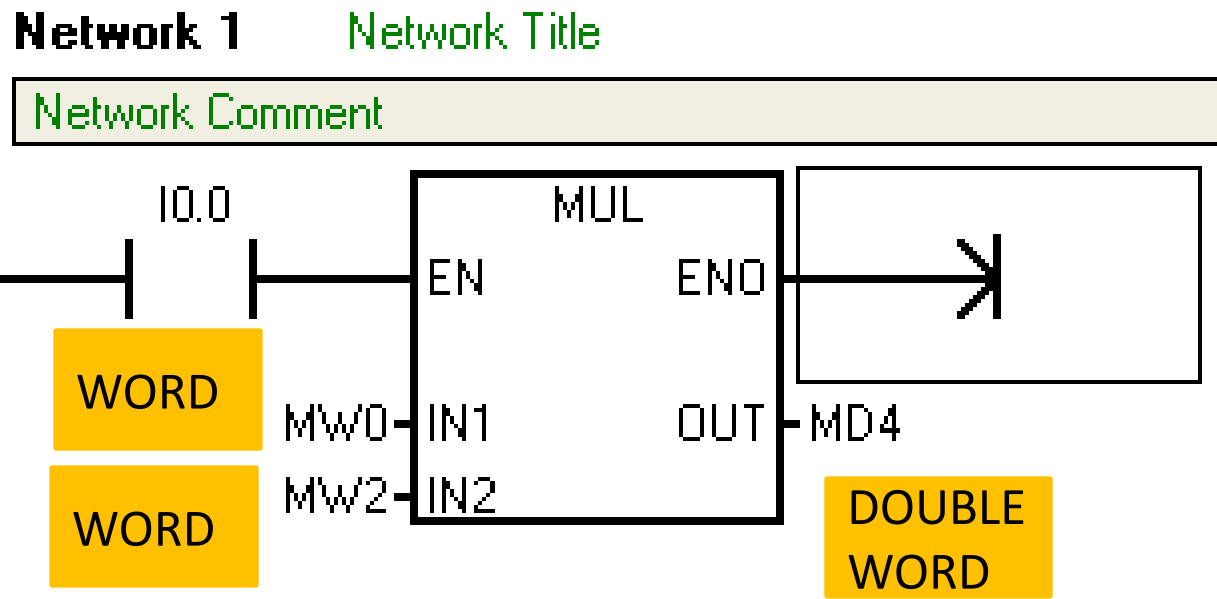
INTEGER FUNCTION:

MULTIPLICATION:

Critical cases:

2- Out of range:

يوجد block خاص لحل هذه المشكلة في plc s7-200 وهو غير موجود في قائمة العمليات integer function في s7-300

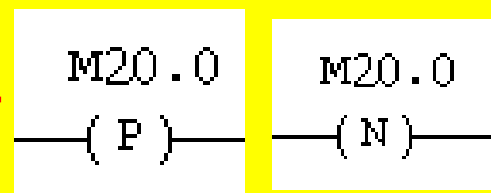


INTEGER FUNCTION:

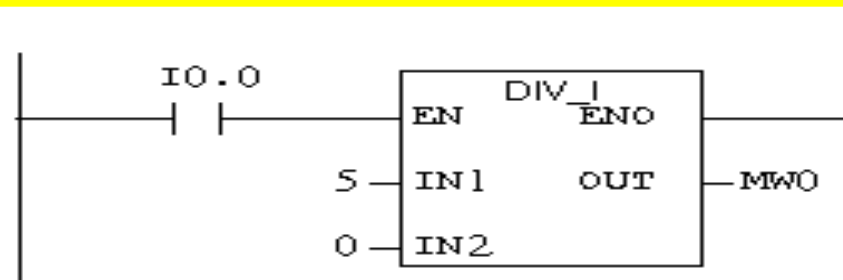
DIVISION:

Critical cases:

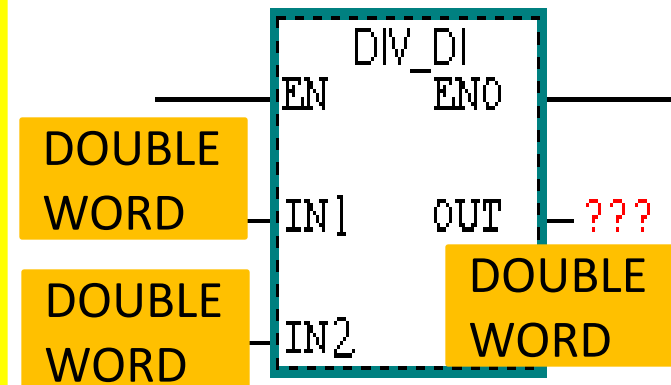
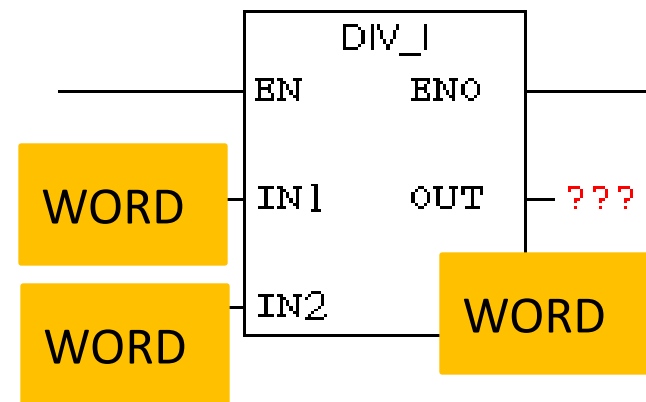
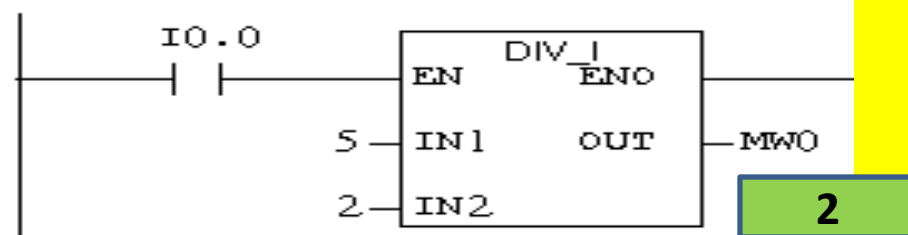
1- SOURCE = DESTINATION:



2- RUN TIME ERROR:



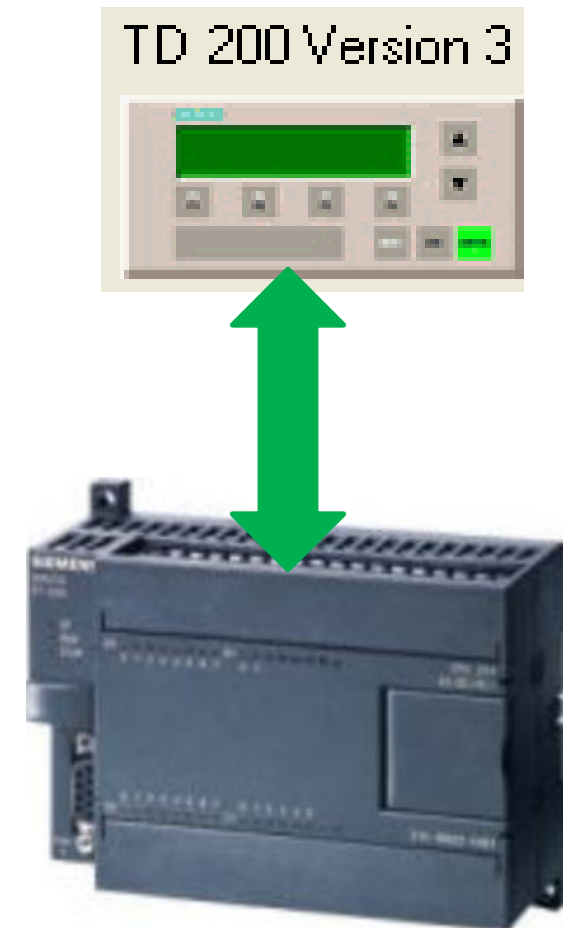
3- OUTPUT IS INTEGER:



Enter Data to PLC:

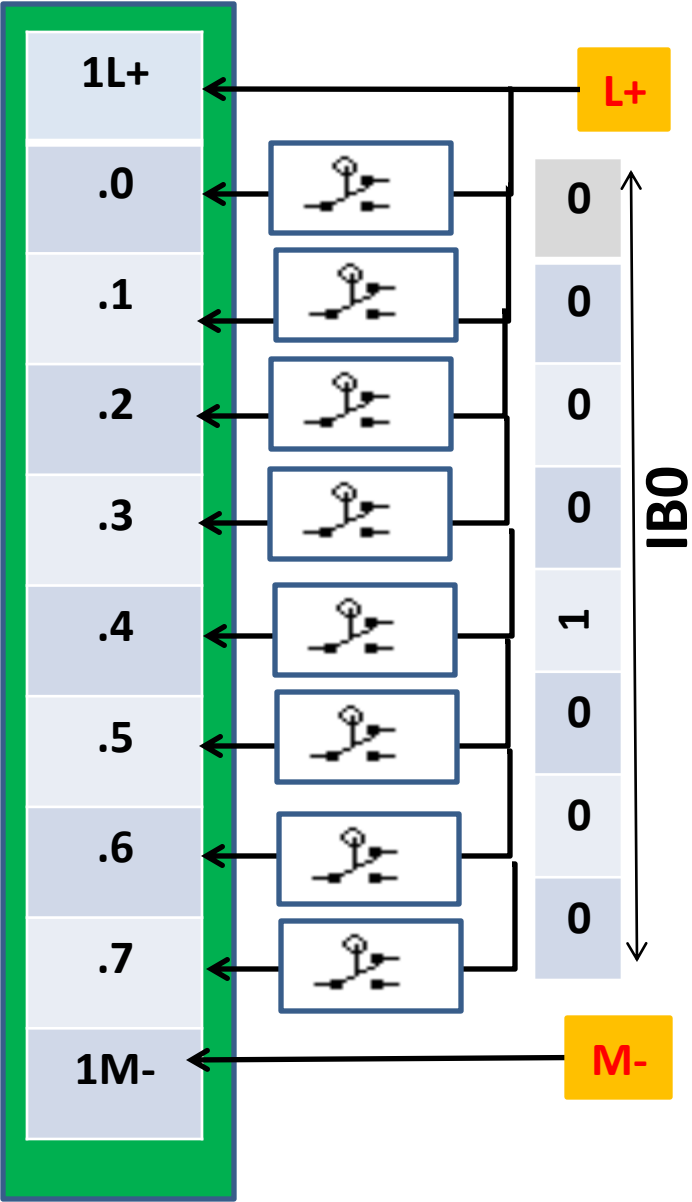
1- USING HMI:

Momentary	= PUSHBUTTON = SET BIT WHILE KEY PRESSED = Set Tag Bit(TAG NAME,'1'); Set Tag Bit(TAG NAME,'0'); = ON On touch
Maintained	= Toggle = Reverse = Invert bit
Latched	= set bit = Set Tag Bit(TAG NAME,'1');
Unlatched	= Reset bit = Set Tag Bit(TAG NAME,'0');

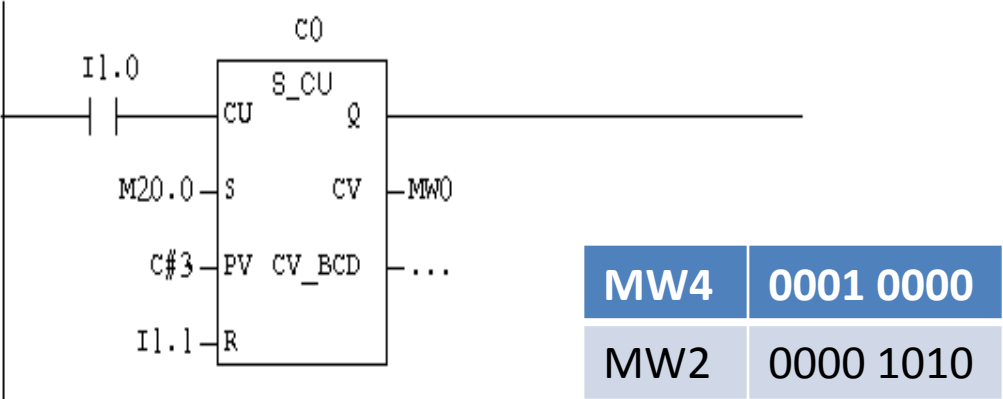


2- USING I/P CARD AND A GROUP OF SWITCHES:

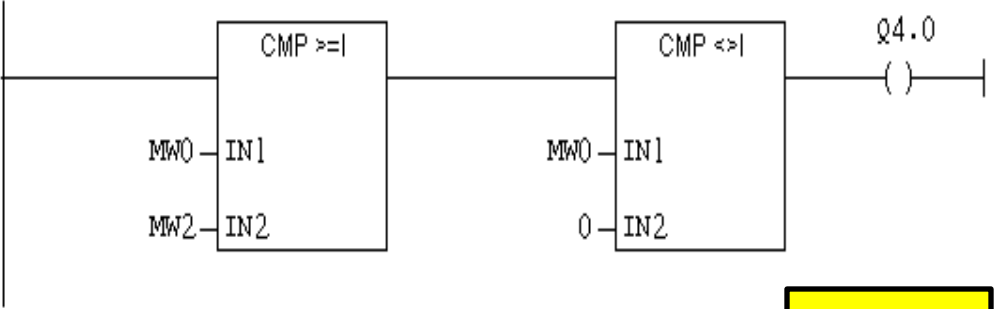
Enter Data to PLC:



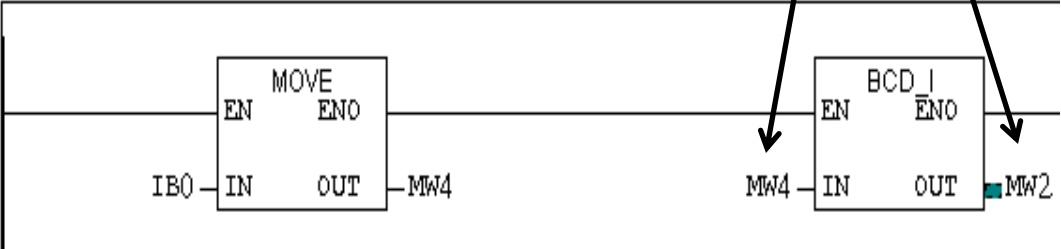
Network 1: Title:



Network 2: Title:

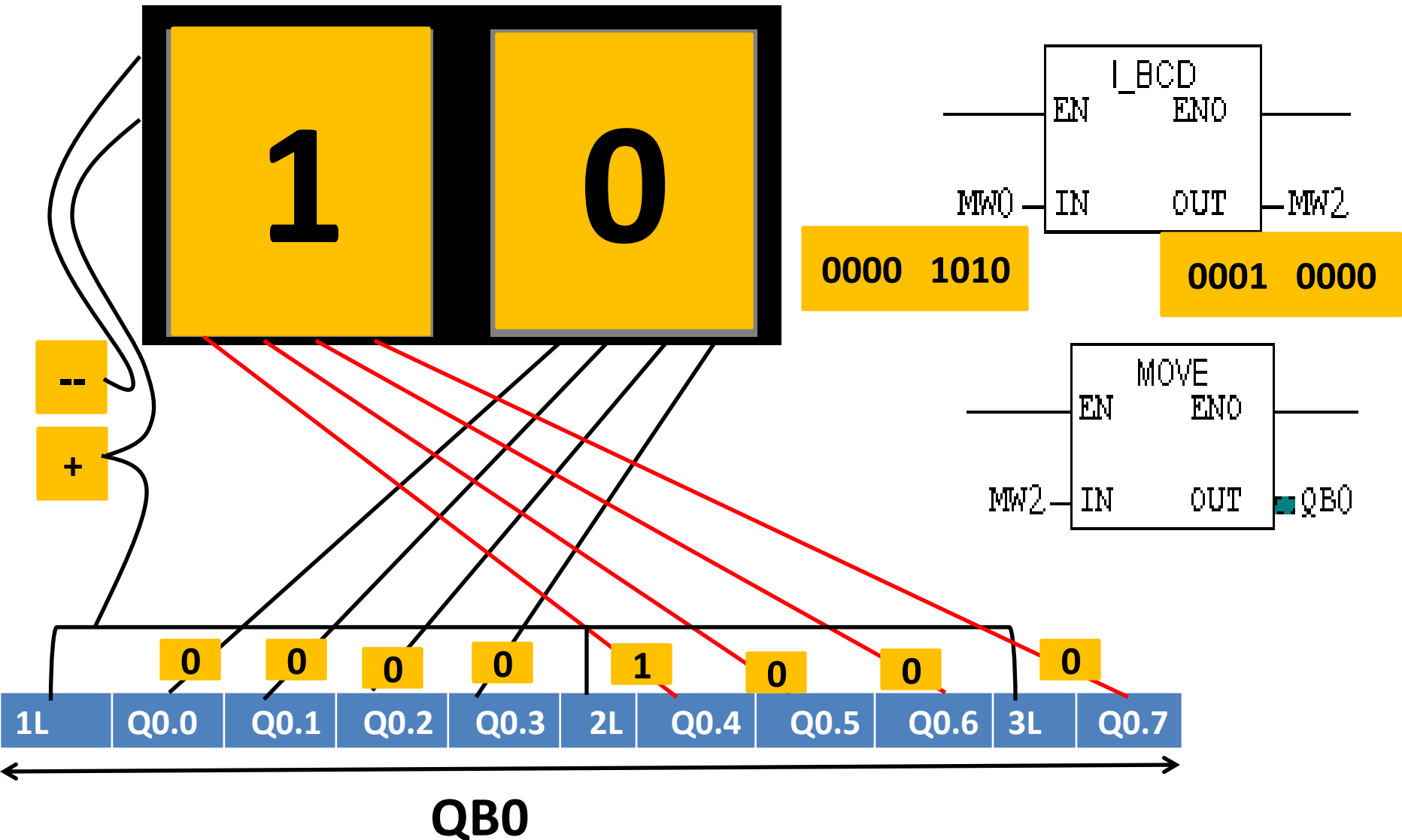


Network 3: Title:

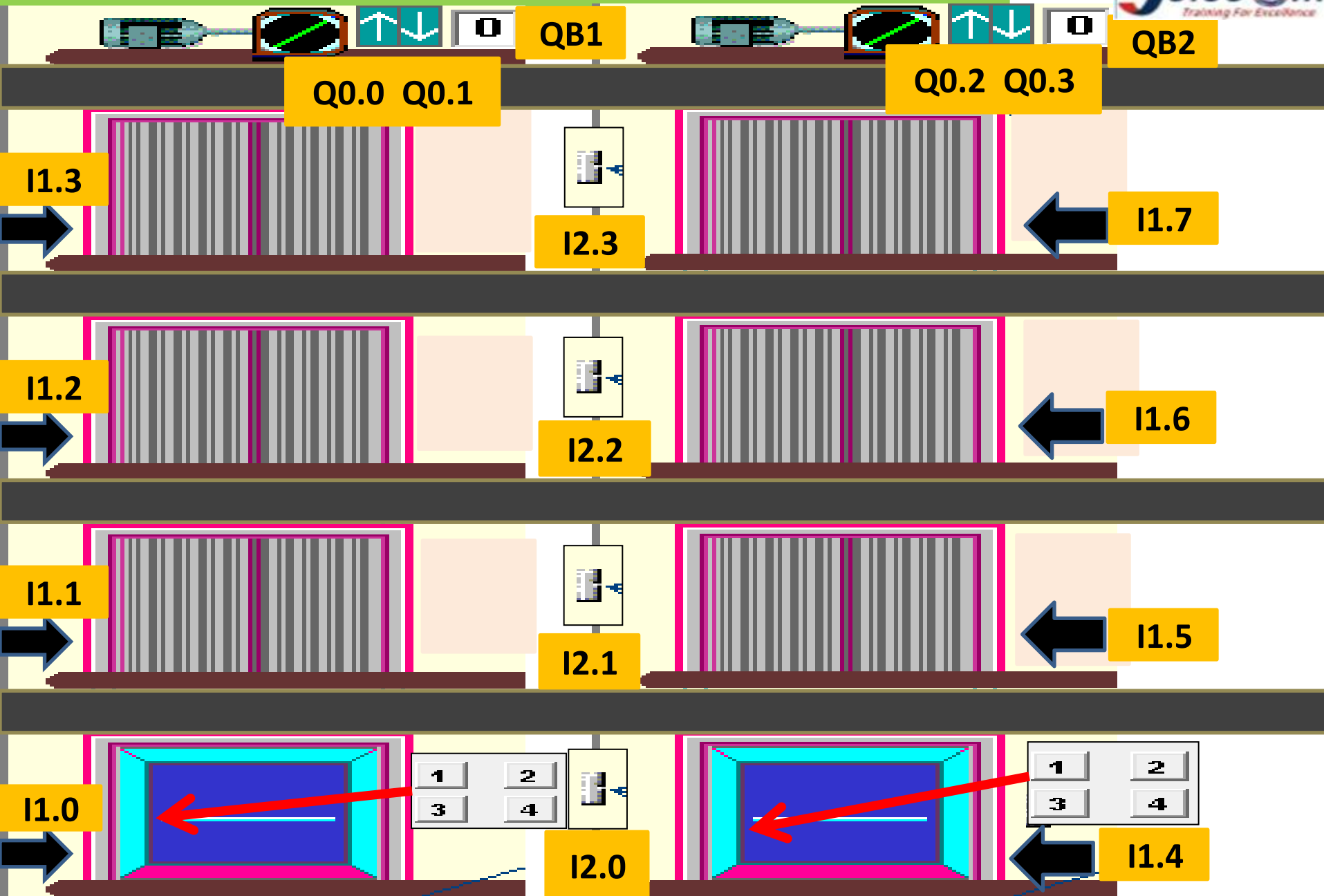


How to display value?

SEVEN SEGMENT



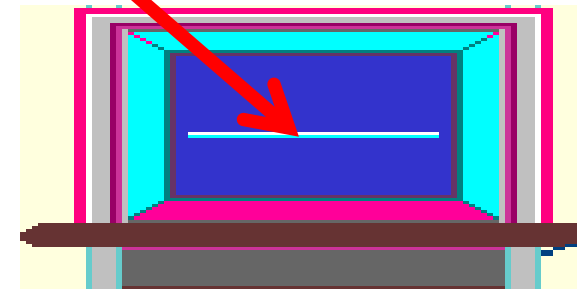
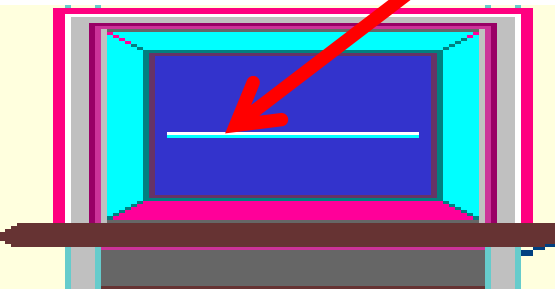
TWO RELATED ELEVATORS:



TWO RELATED ELEVATORS:

مصعدين مترابطين كل مصعد مكون من أربعة أدوار يوجد لكل مصعد أربعة مفاتيح داخلية لحركة الكابينة ولابد من مراعاة الآتي:

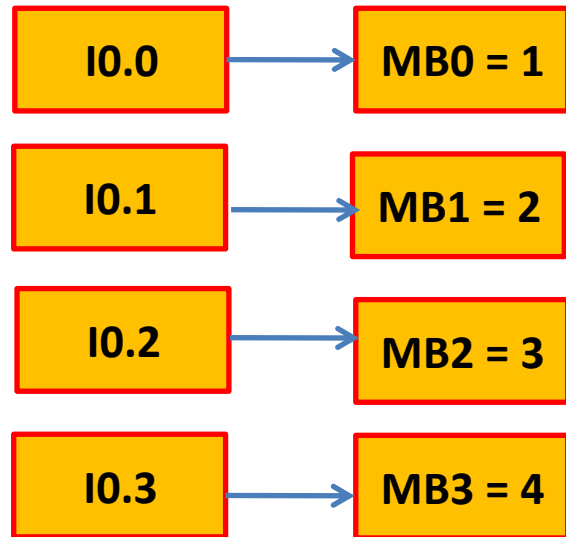
- لا بد من اعطاء فترة كافية للمستخدم لكي يخرج من الكابينة عند التوقف.
- يمكن ان يطلب اثنان من المستخدمين أو أكثر الكابينة في نفس الوقت (في هذه الحالة اذا كانت الكابينة متجهة للصعود قبل التوقف فانها تكمل صعود ثم النزول فيما بعد واذا كانت الكابينة متجهة للنزول قبل التوقف فانها تكمل نزول ثم الصعود فيما بعد) والكابينة الأقرب للطابق تتوجه للطابق.



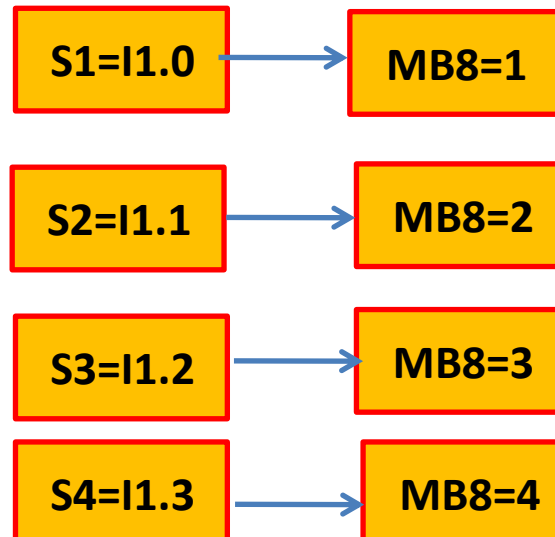
TWO RELATED ELEVATORS:

Idea of work:

INTERNAL CALL

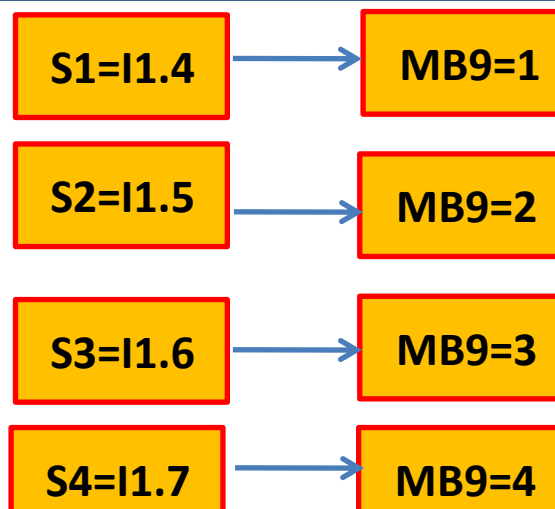
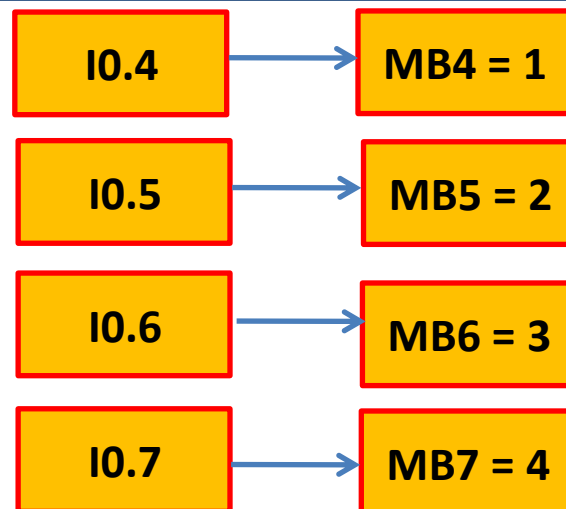


CABINET PLACE



ELEVATOR_1

VW20=MB8



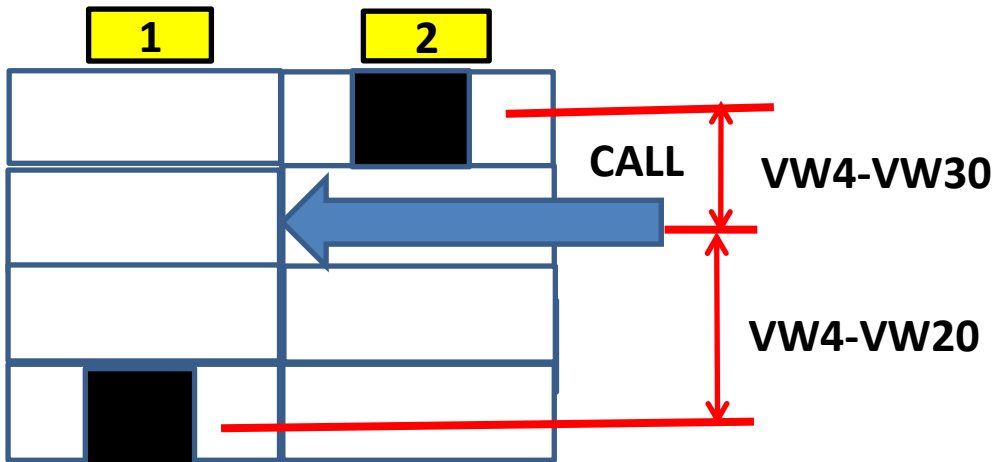
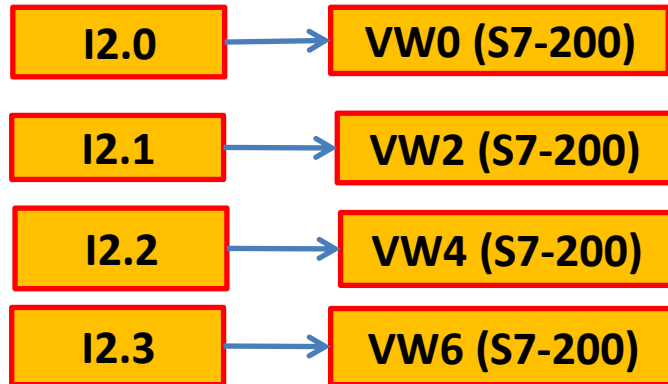
ELEVATOR_2

VW30=MB9

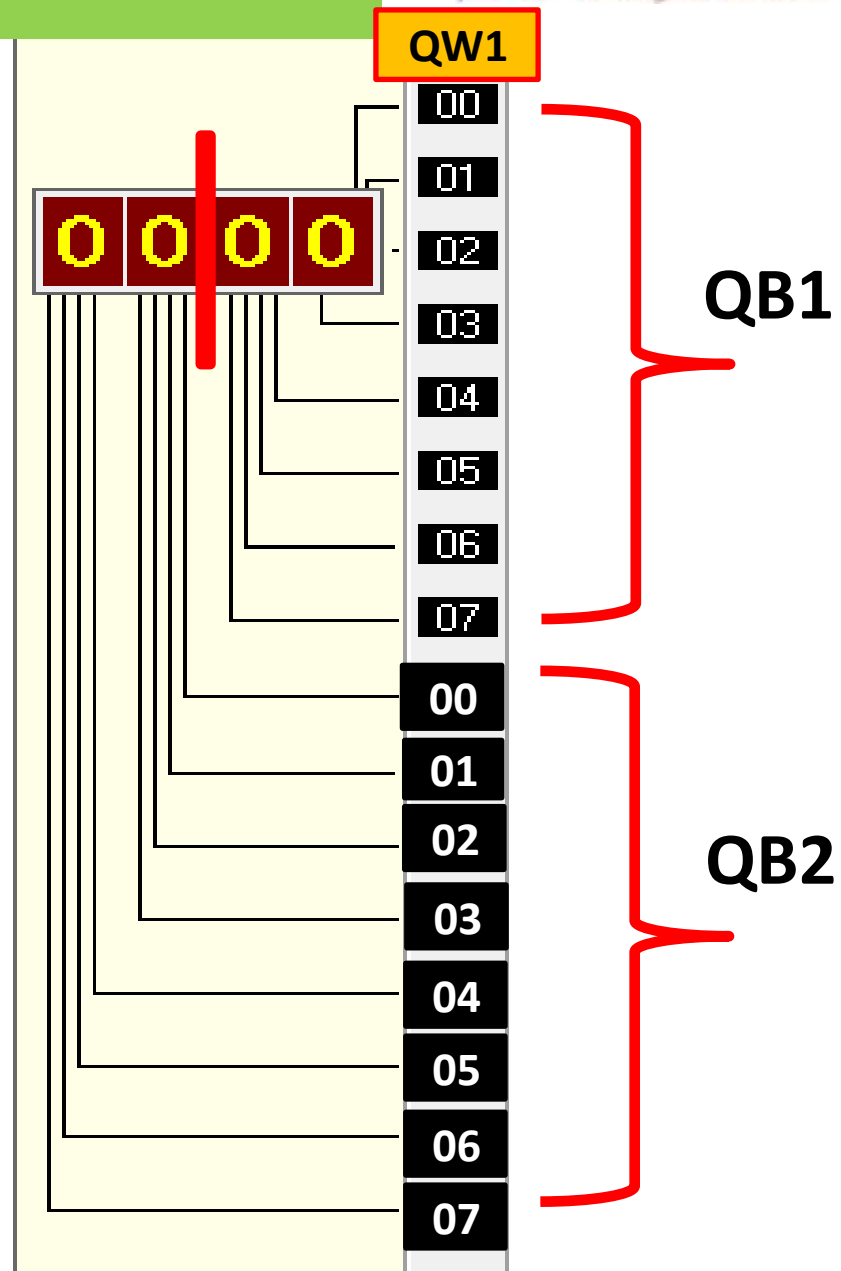
TWO RELATED ELEVATORS:

Idea of work:

EXTERNAL CALL



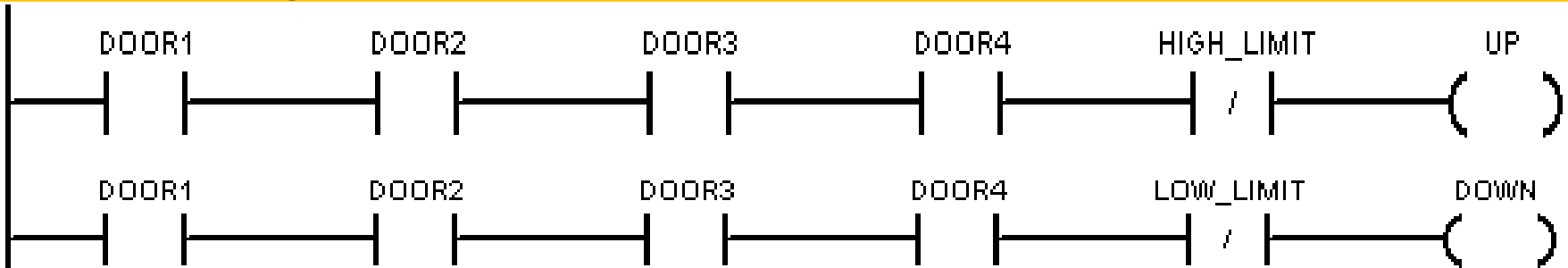
$|VW4-VW20| \geq |VW4-VW30|$
 $\rightarrow \text{CANCEL1}$



TWO RELATED ELEVATORS:

NOTE:

لاحظ انه توجد بعض الملحقات لهذا المشروع مثل وجود لمبتين فى كل طابق لتوضيح اتجاه المصعد (صاعد ام هابط) ولا بد من أخذ ليميت سويتش كل باب فى كل طابق فى الاعتبار فلا بد أن تكون كل الأبواب مغلقة لكى تتحرك الكابينة ولا بد من وضع مفتاحين ليميت سويتش أحدهما فى أعلى الطوابق والآخر أسفل الطوابق للطوارئ لكى يفصلا الكابينة اذا تجاوزت أعلى الطوابق أو تجاوزت أسفل الطوابق ولكن كل هذه الأشياء يمكن اضافتها بسهولة على البرنامج أساسيات ال PLC (PLC LEVEL1) فالغرض من هذا المشروع هو تطبيق الأوامر الجديدة وهو ما يمكن أن يشكل صعوبة فى البداية.

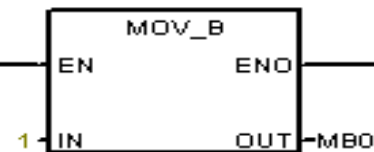


TWO RELATED ELEVATORS:

Network 1 Network Title

Network Comment

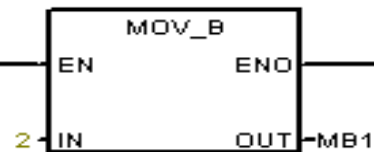
v1_ask1:I0.0



Network 2 Network Title

Network Comment

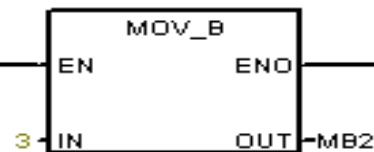
v1_ask2:I0.1



Network 3 Network Title

Network Comment

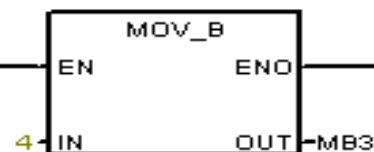
v1_ask3:I0.2



Network 4 Network Title

Network Comment

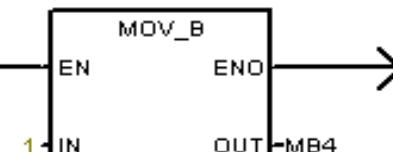
v1_ask4:I0.3



Network 5 Network Title

Network Comment

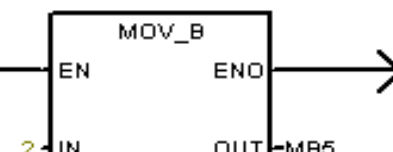
v2_ask1:I0.4



Network 6 Network Title

Network Comment

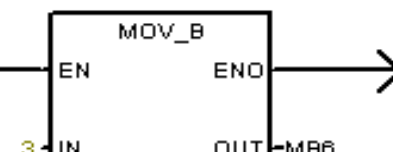
v2_ask2:I0.5



Network 7 Network Title

Network Comment

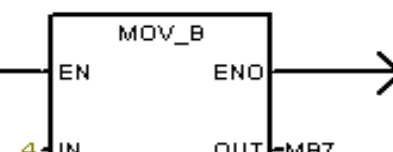
v2_ask3:I0.6



Network 8 Network Title

Network Comment

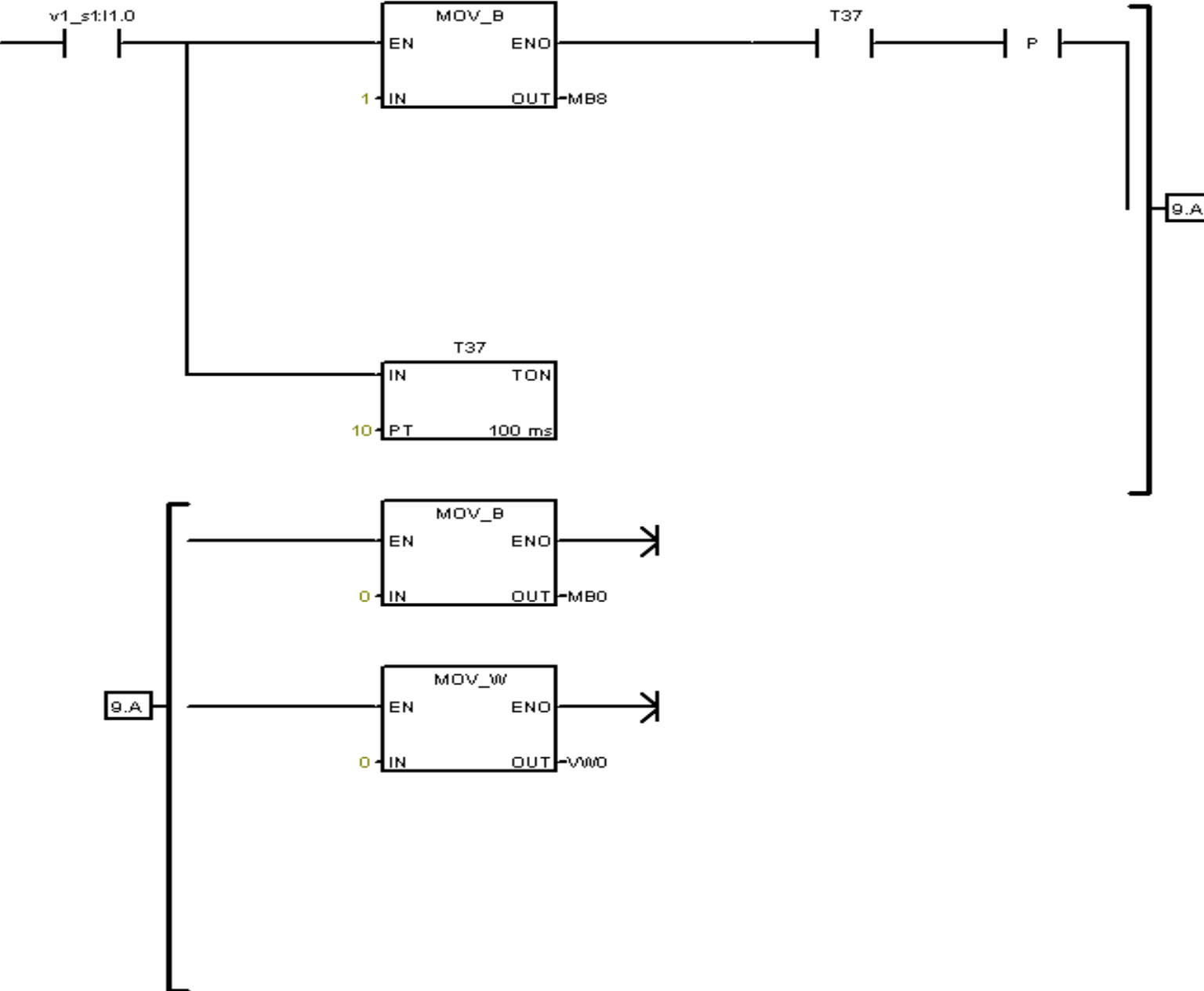
v2_ask4:I0.7



TWO RELATED ELEVATORS:

Network 9 Network Title

Network Comment

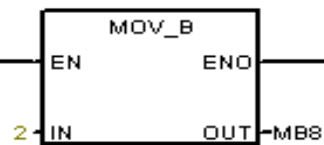


TWO RELATED ELEVATORS:

Network 10 Network Title

Network Comment

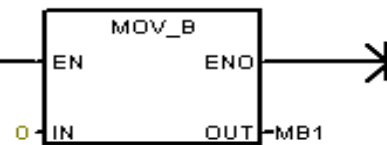
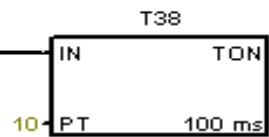
v1_s211.1



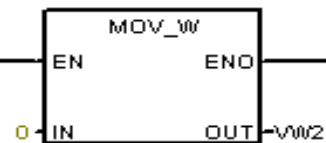
T38

P

10.A



10.A

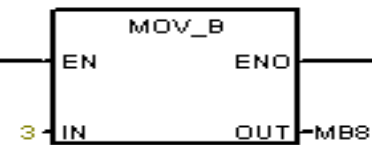


TWO RELATED ELEVATORS:

Network 11 Network Title

Network Comment

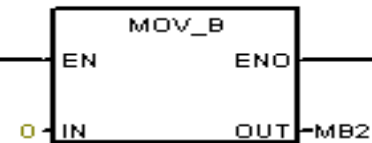
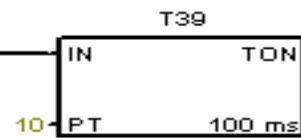
v1_s311.2



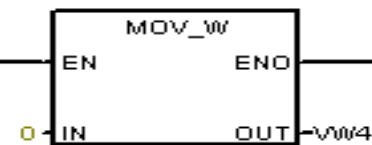
T39

P

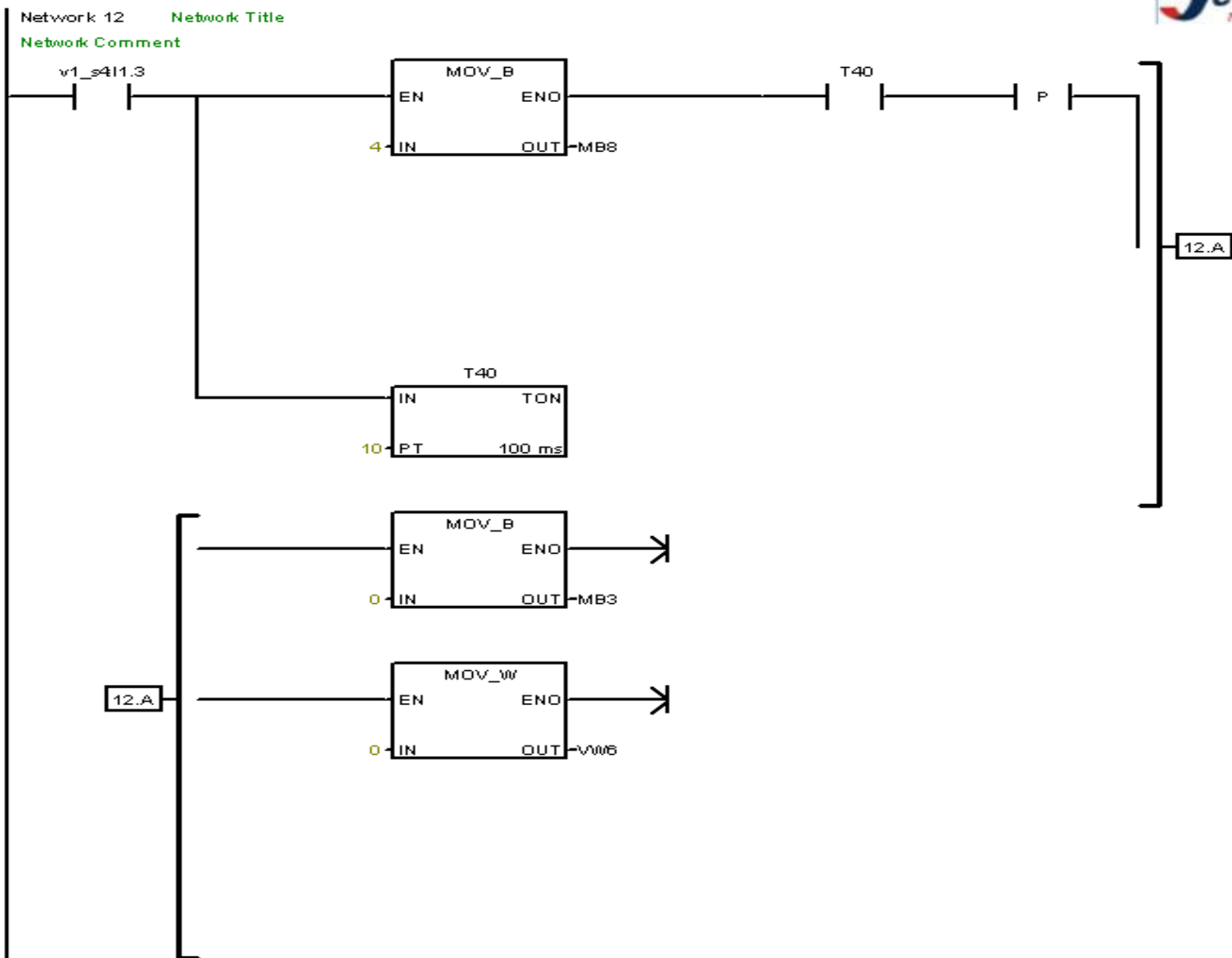
11.A



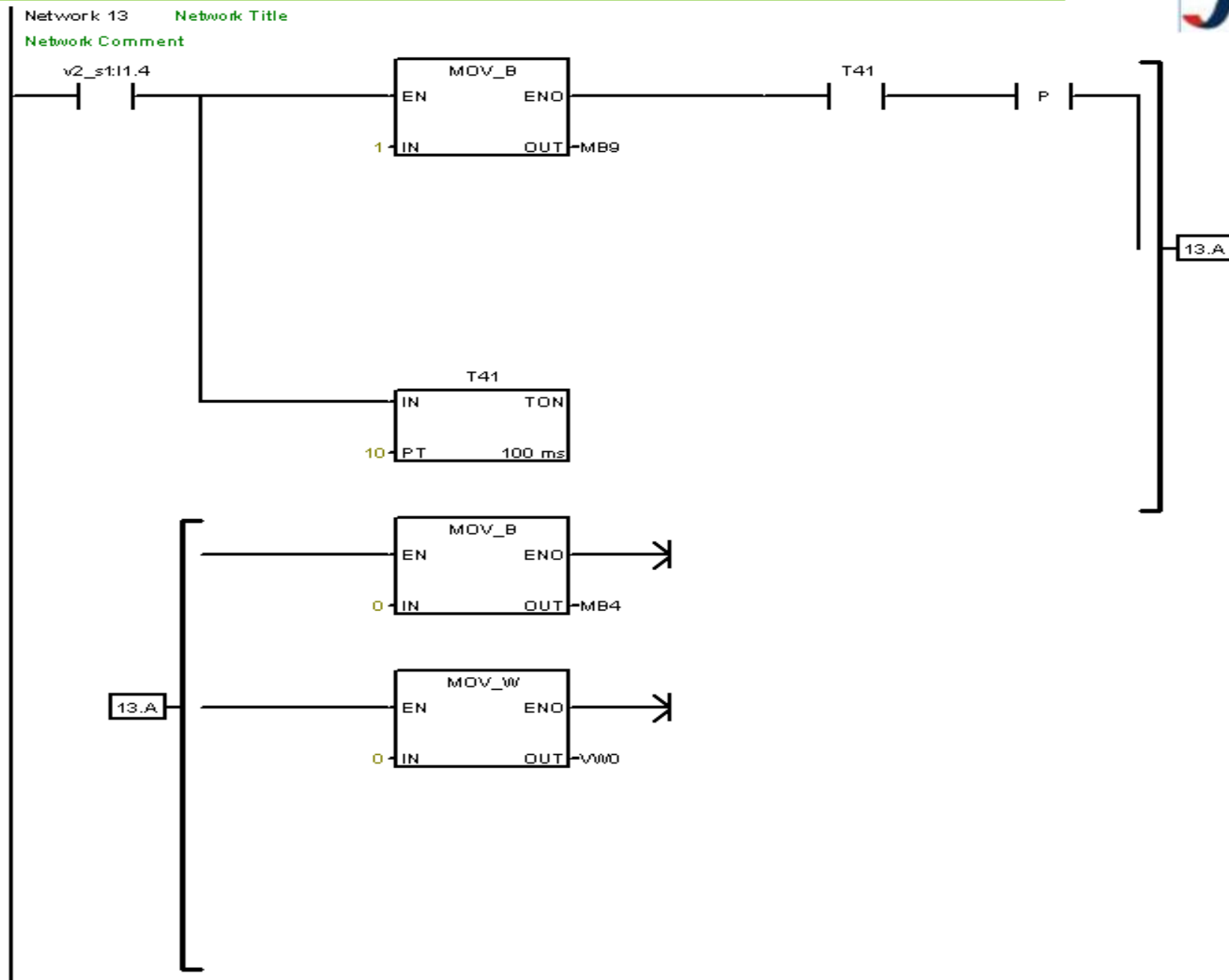
11.A



TWO RELATED ELEVATORS:



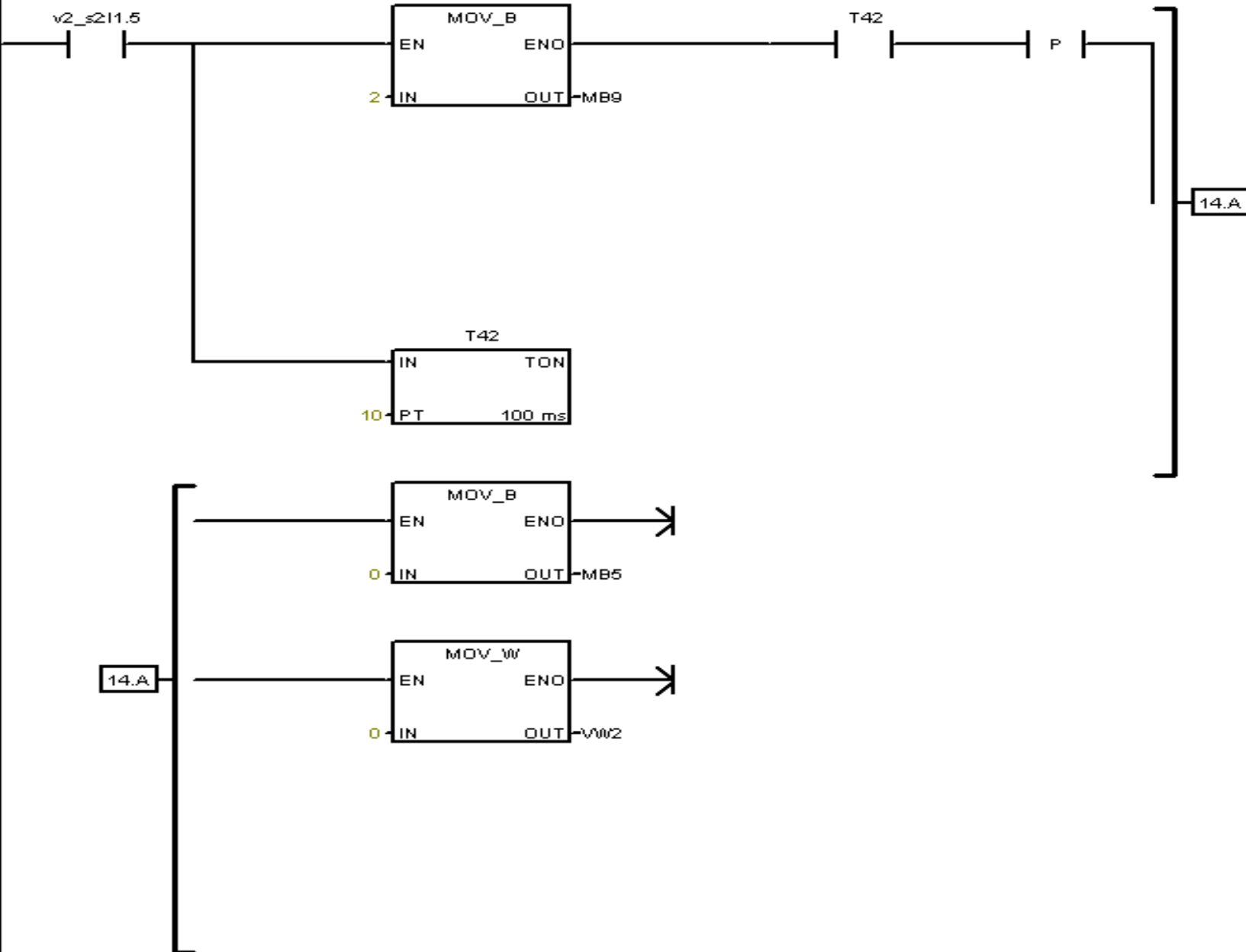
TWO RELATED ELEVATORS:



TWO RELATED ELEVATORS:

Network 14 Network Title

Network Comment



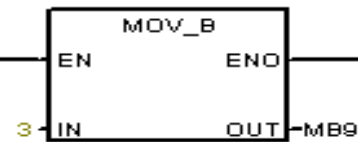
TWO RELATED ELEVATORS:

Network 15

Network Title

Network Comment

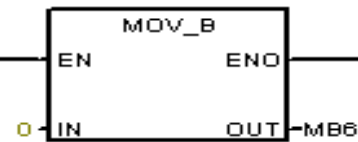
v2_s3i1.6



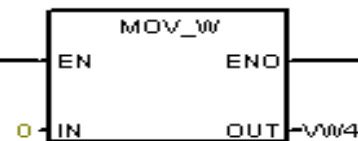
T43

P

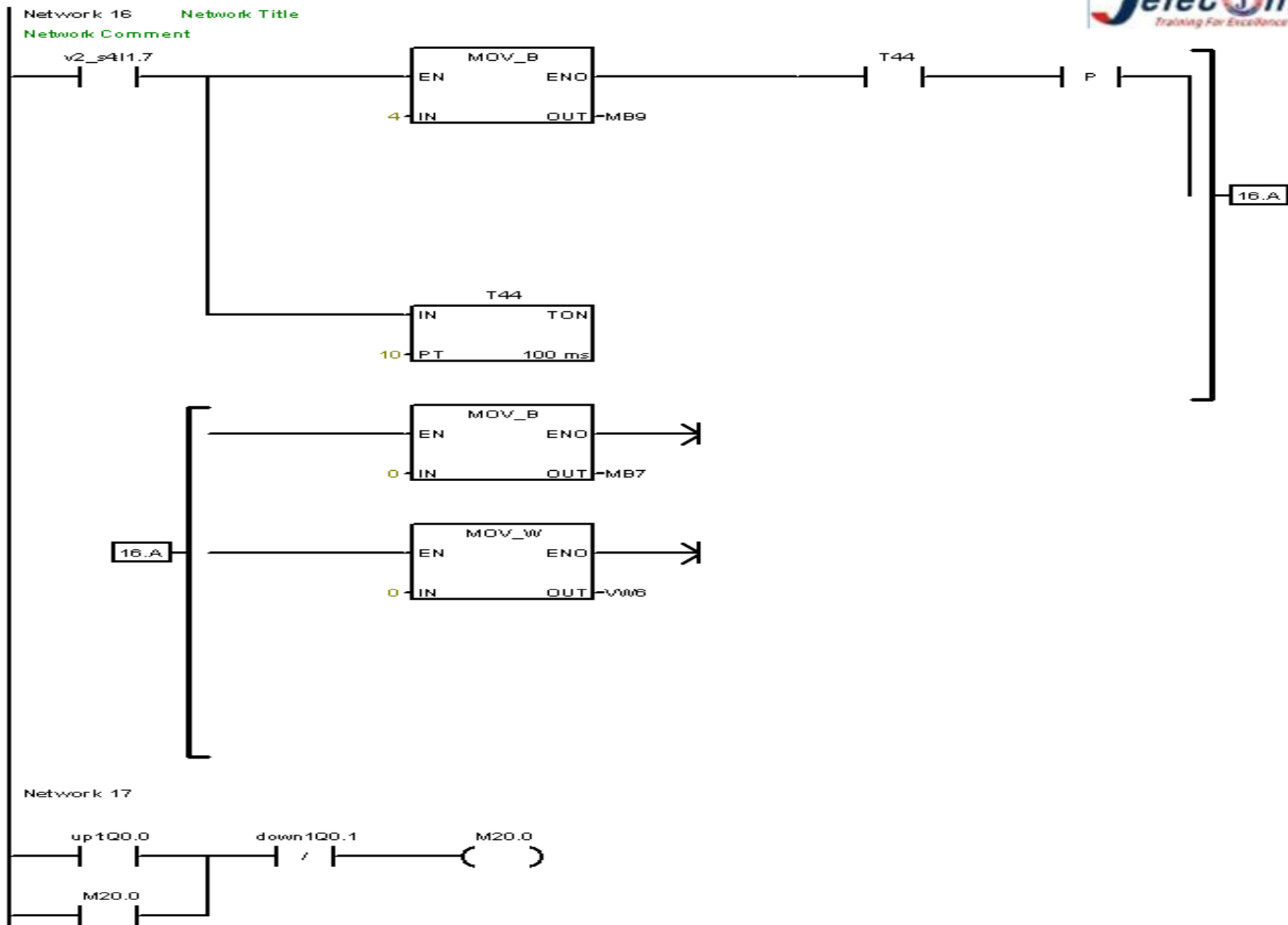
15.A



15.A

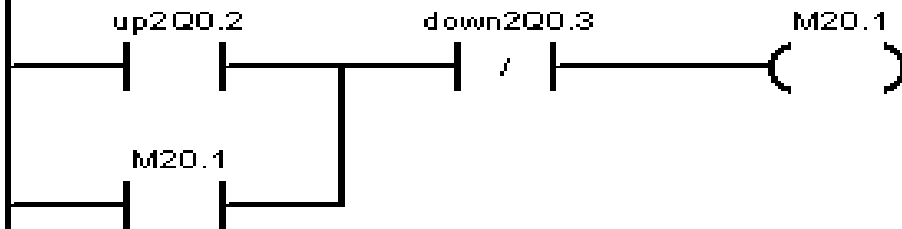


TWO RELATED ELEVATORS:

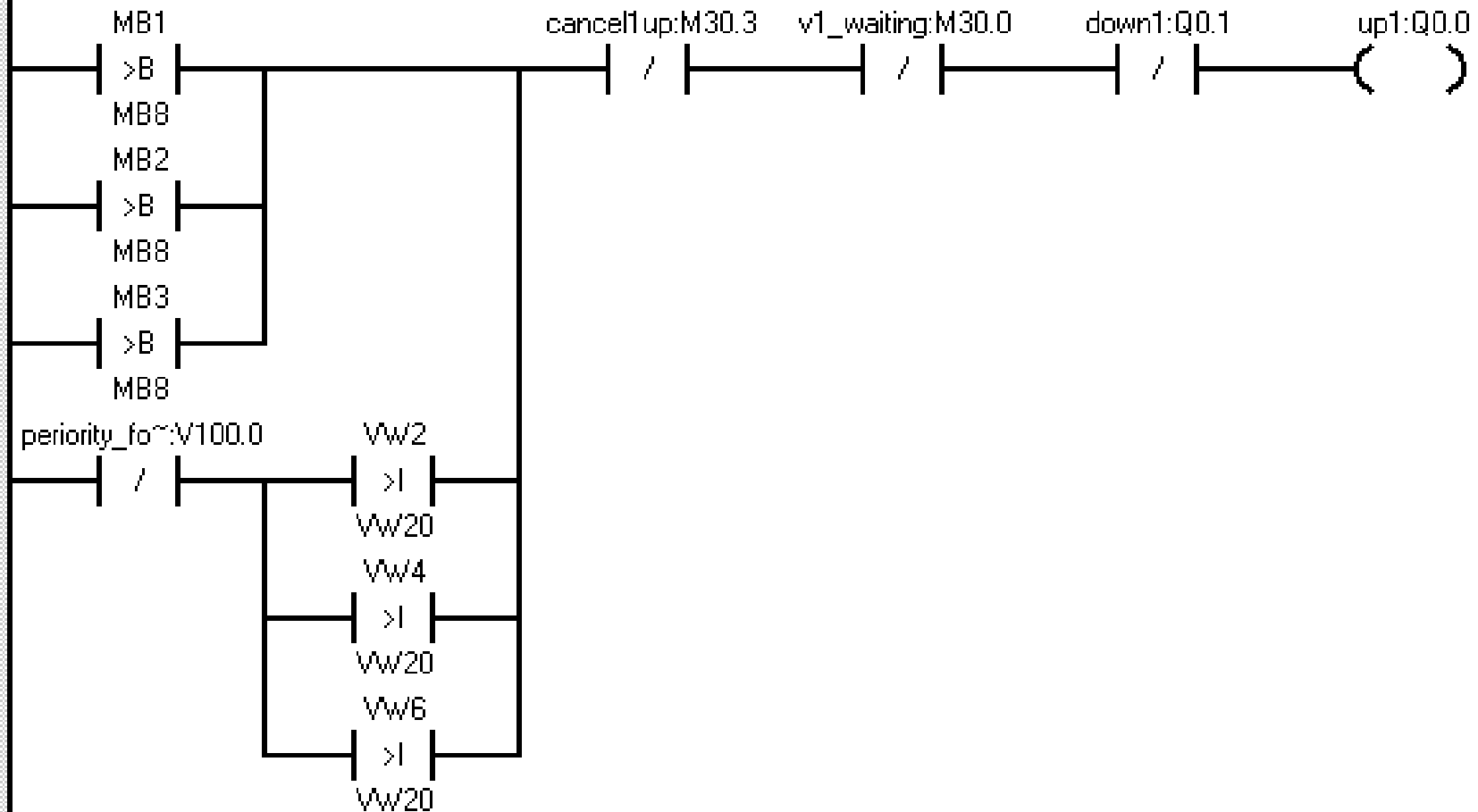


TWO RELATED ELEVATORS:

Network 18

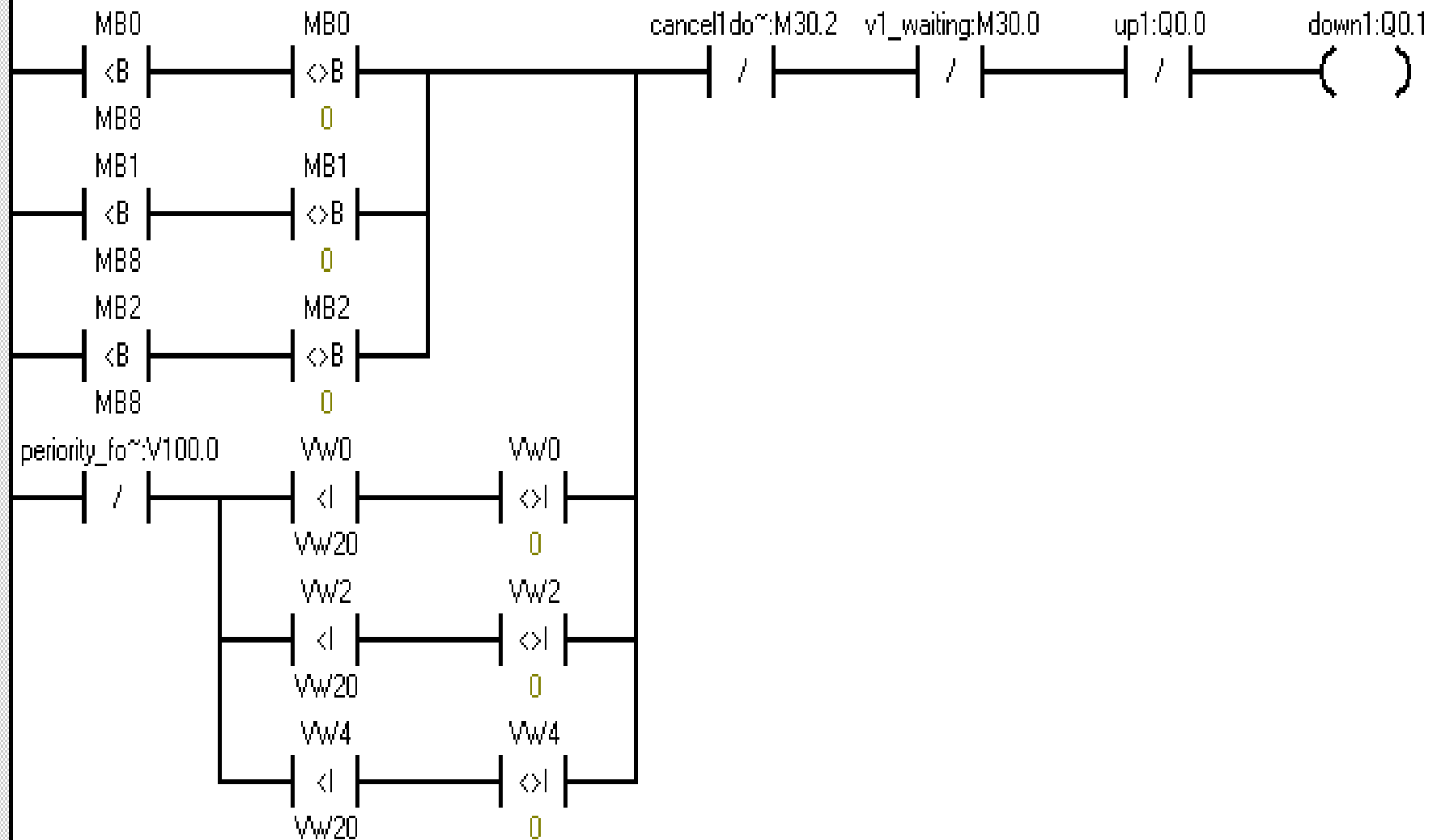


Network 19



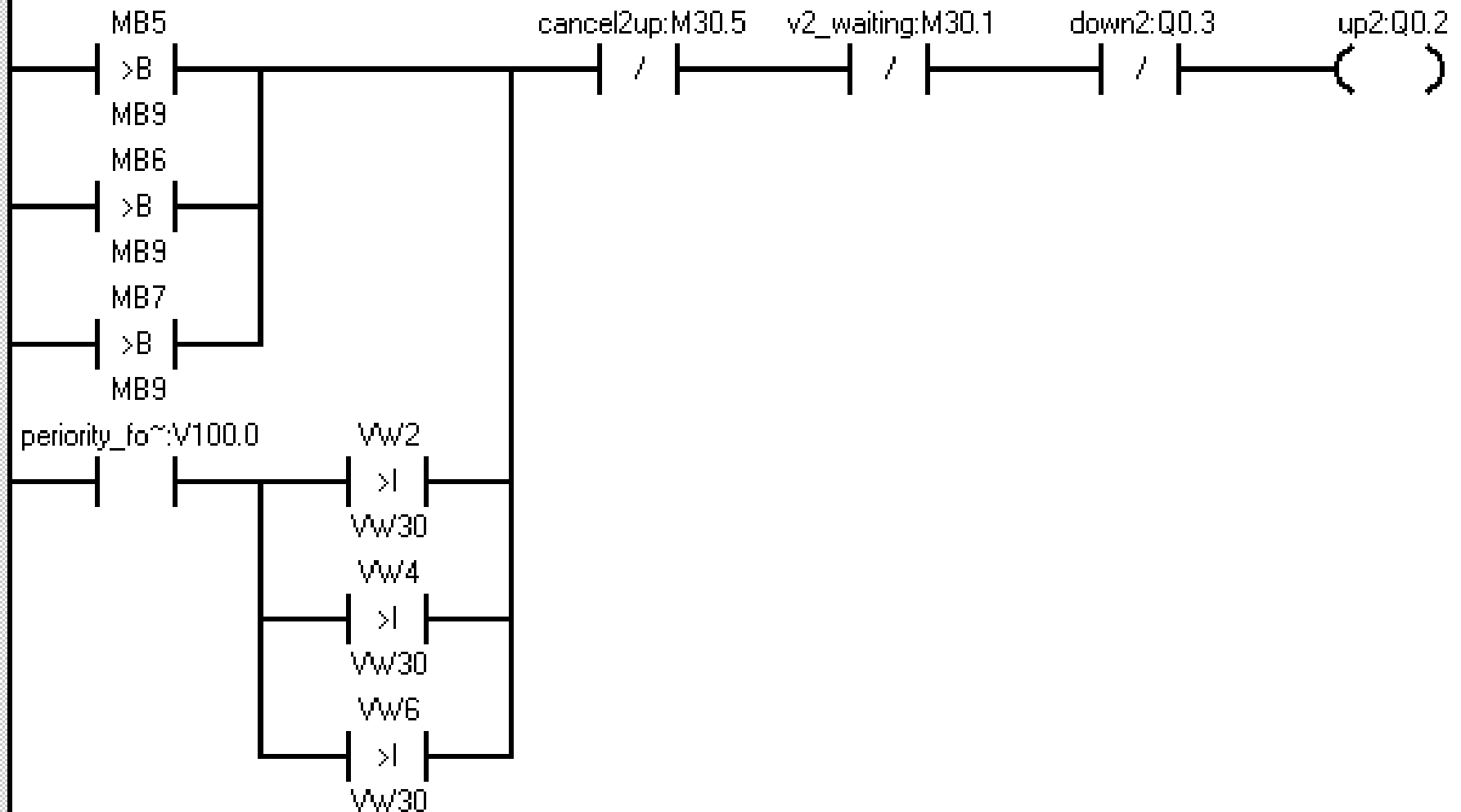
TWO RELATED ELEVATORS:

Network 20



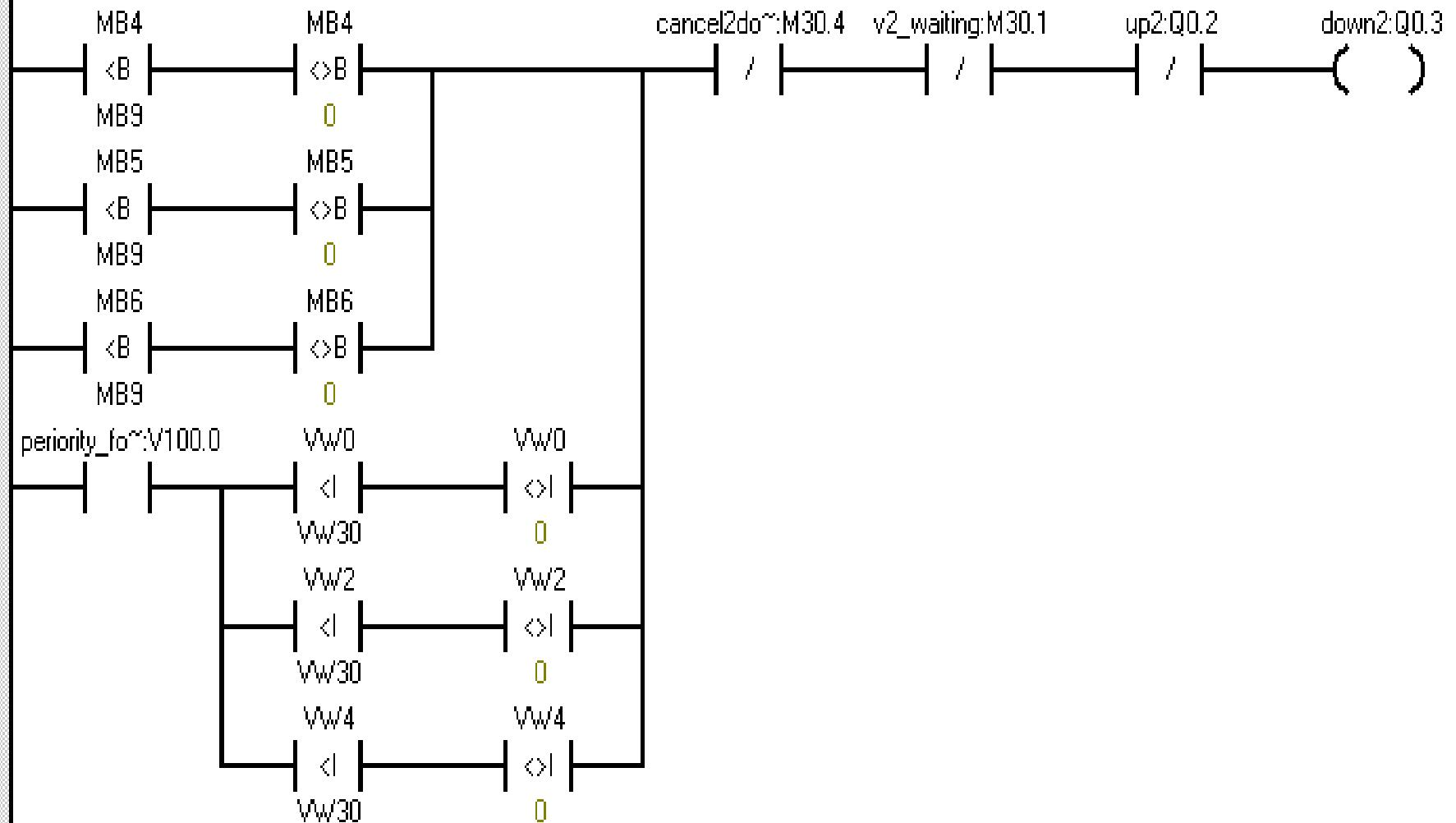
TWO RELATED ELEVATORS:

Network 21



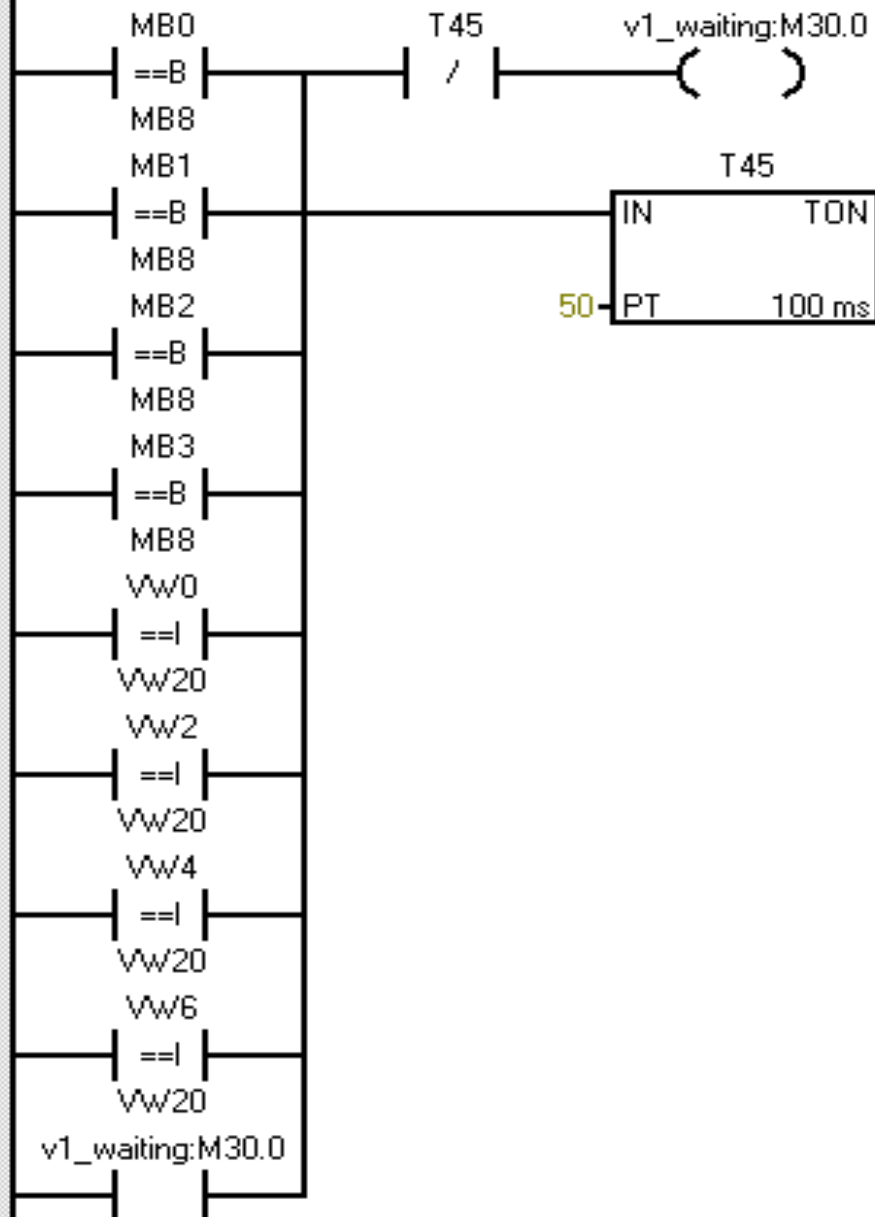
TWO RELATED ELEVATORS:

Network 22

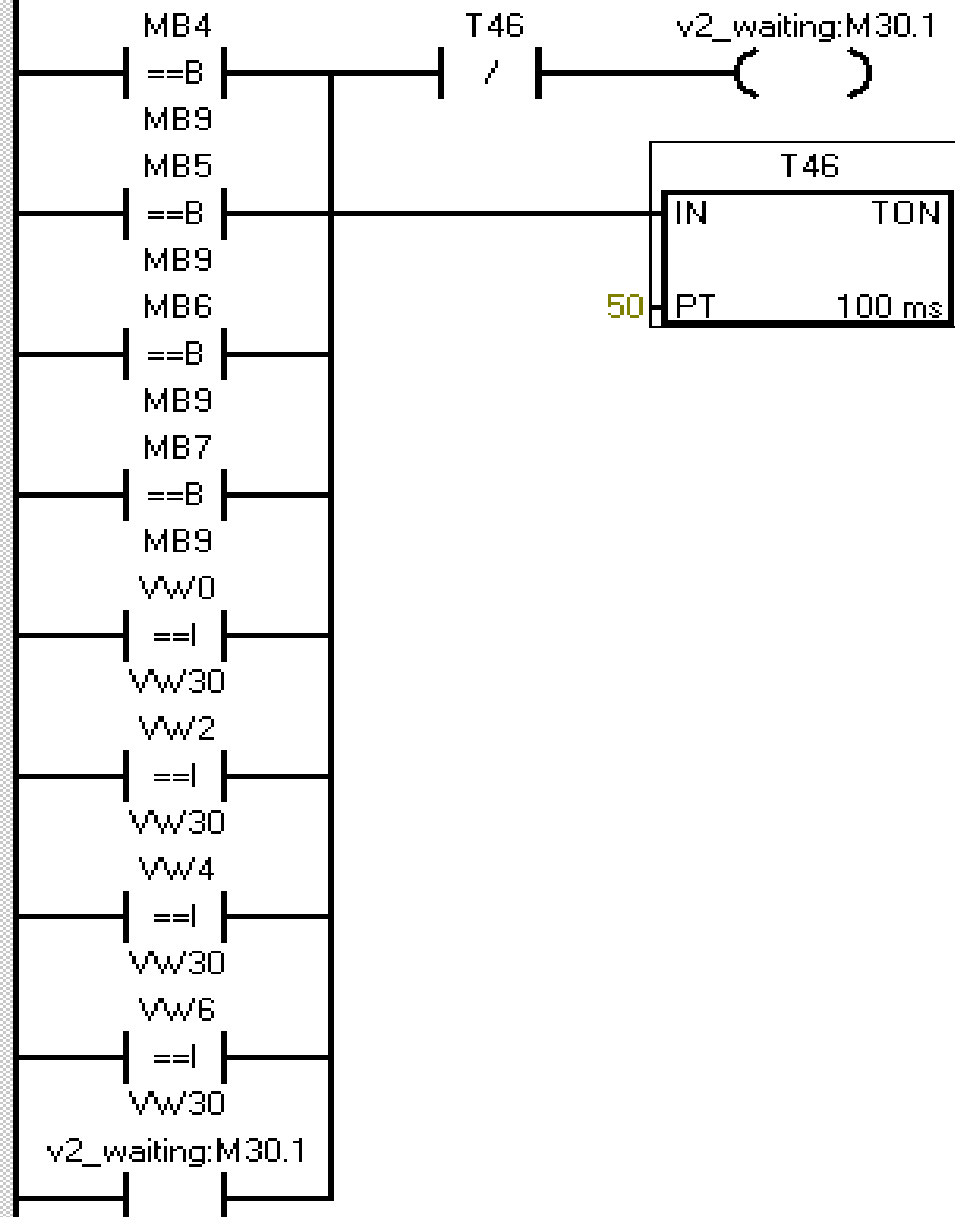


TWO RELATED ELEVATORS:

Network 23

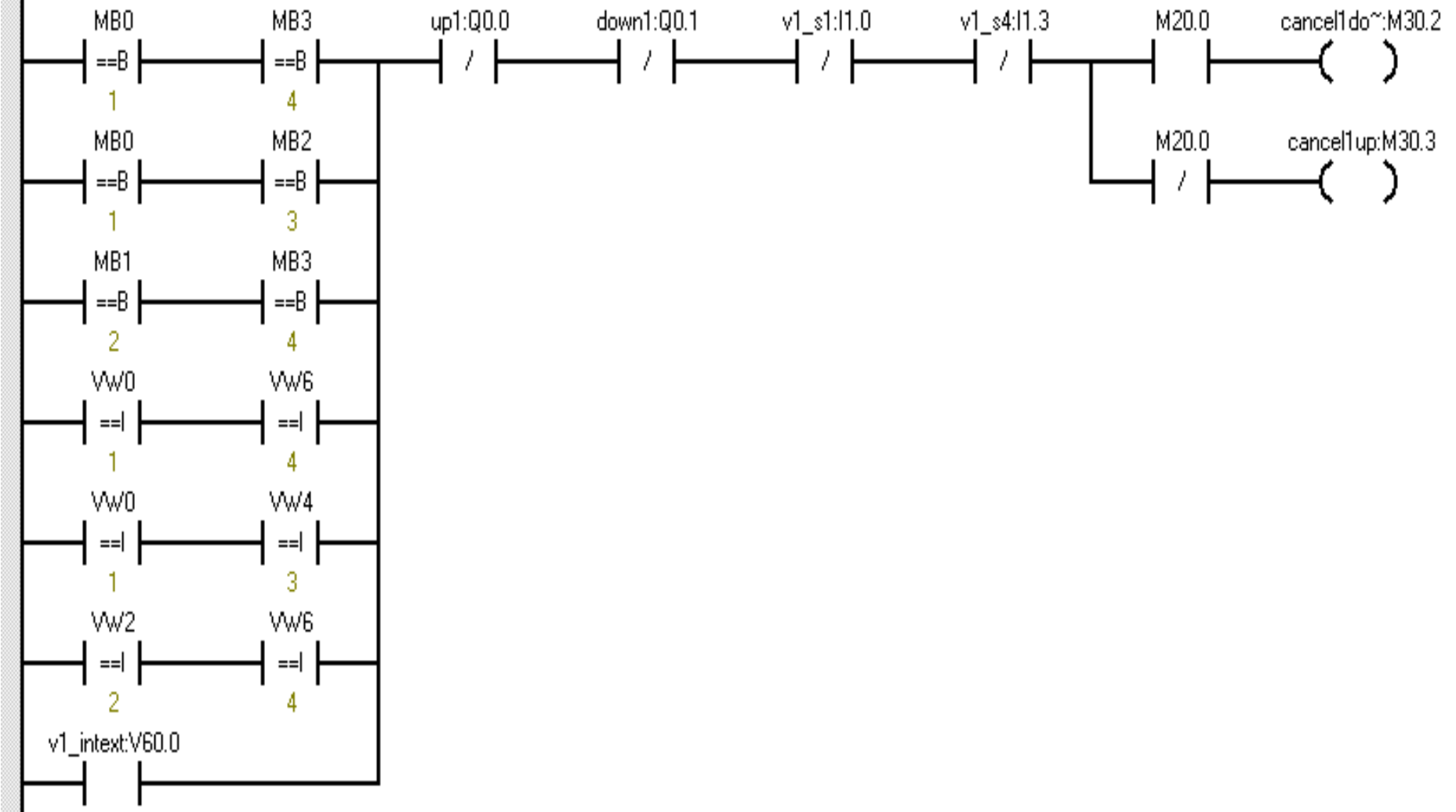


Network 24



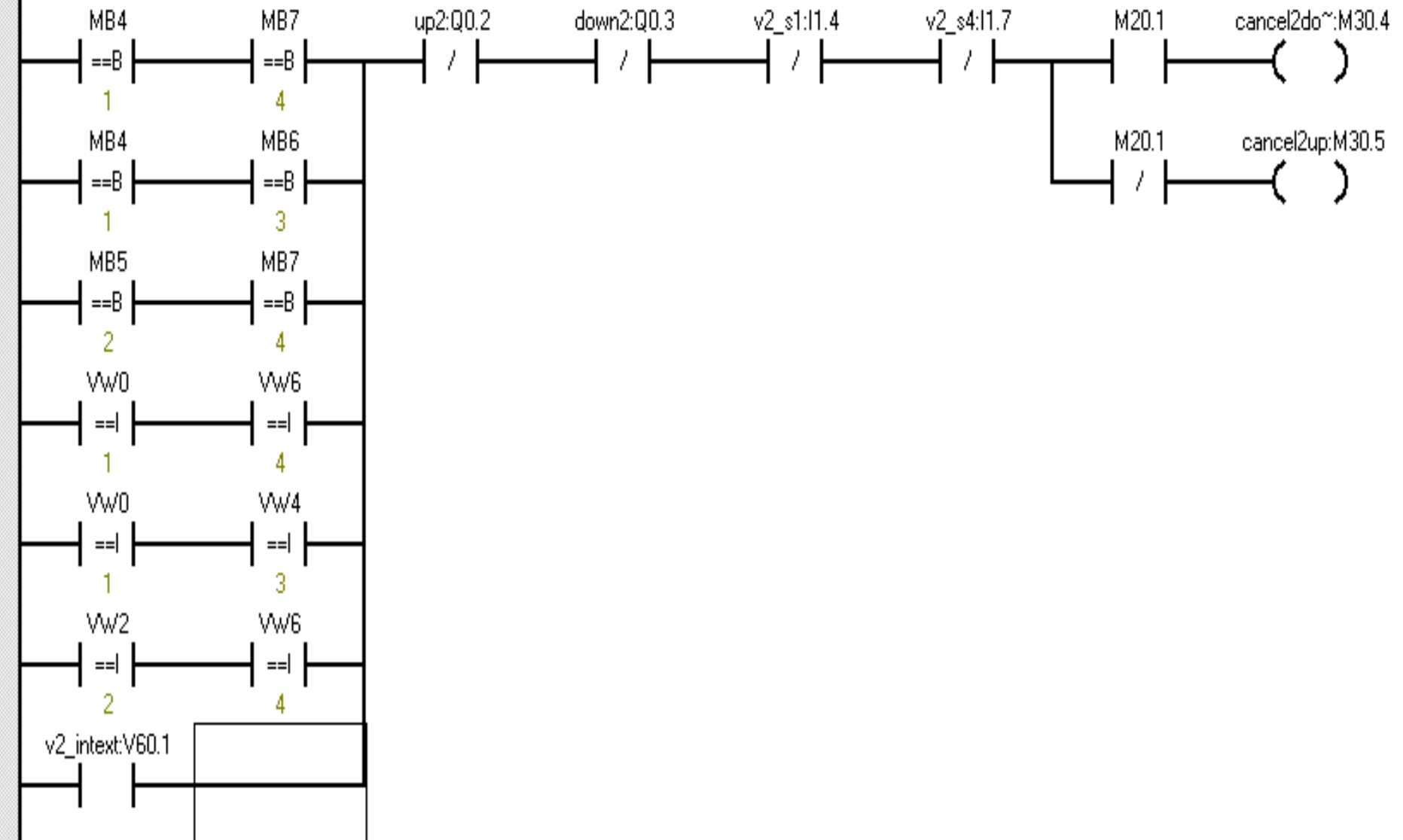
TWO RELATED ELEVATORS:

Network 25



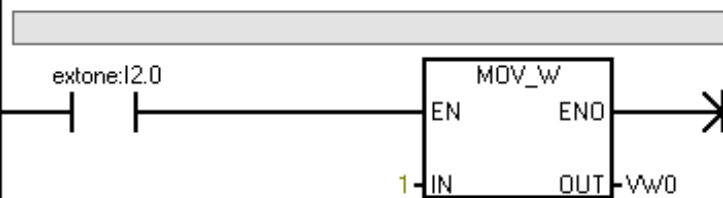
TWO RELATED ELEVATORS:

Network 26

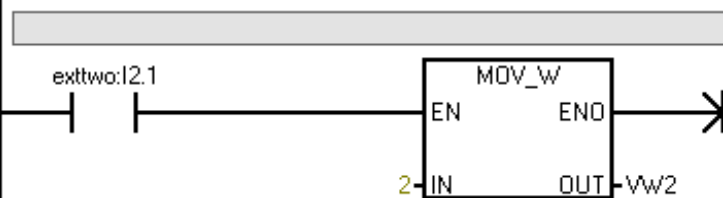


TWO RELATED ELEVATORS:

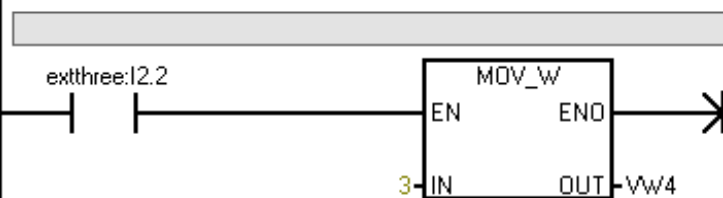
Network 27



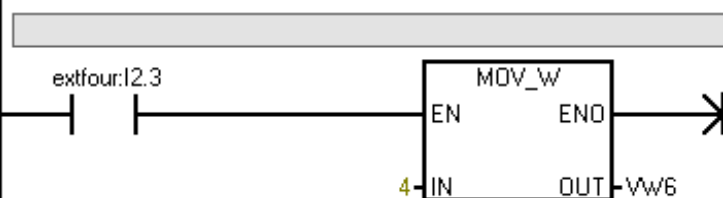
Network 28



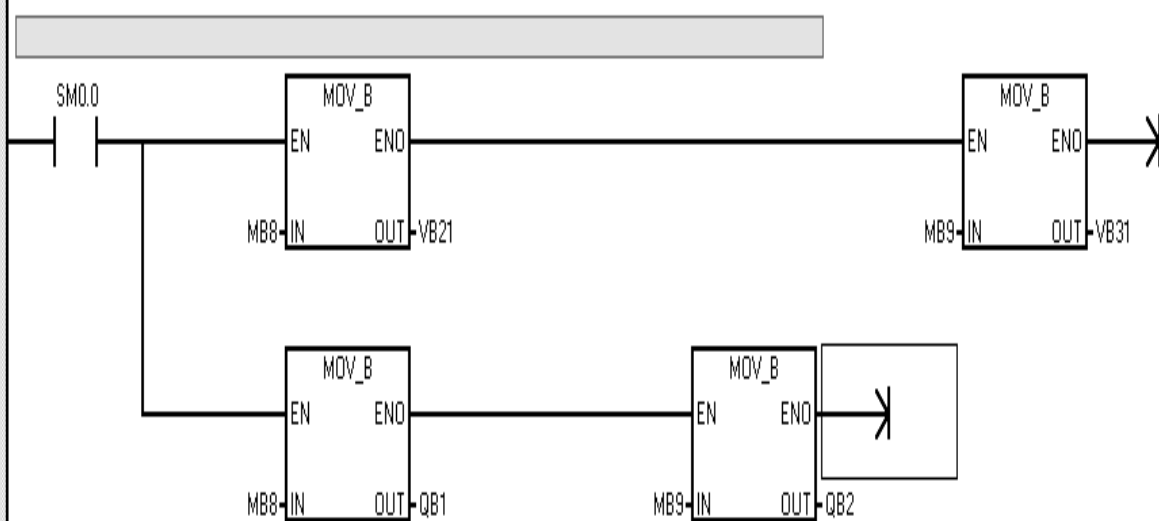
Network 29



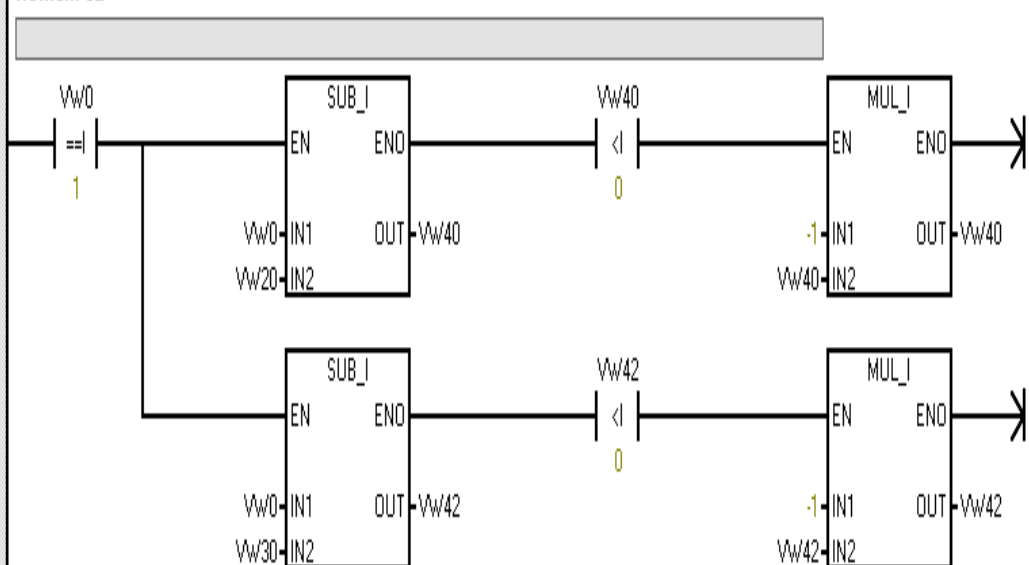
Network 30



Network 31

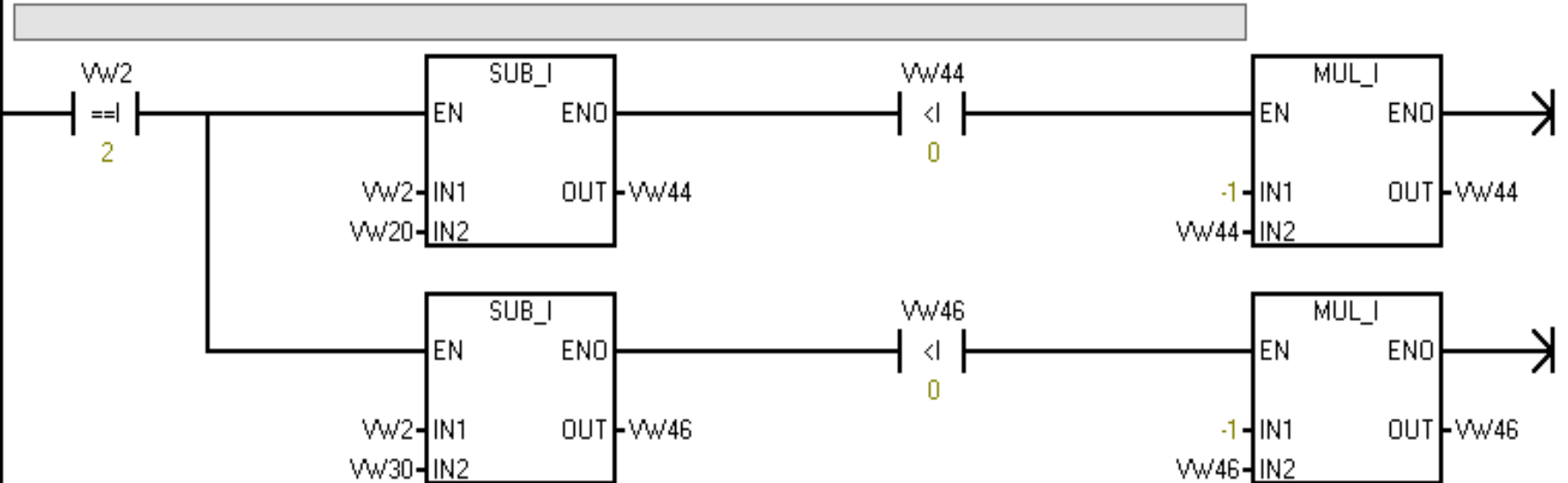


Network 32

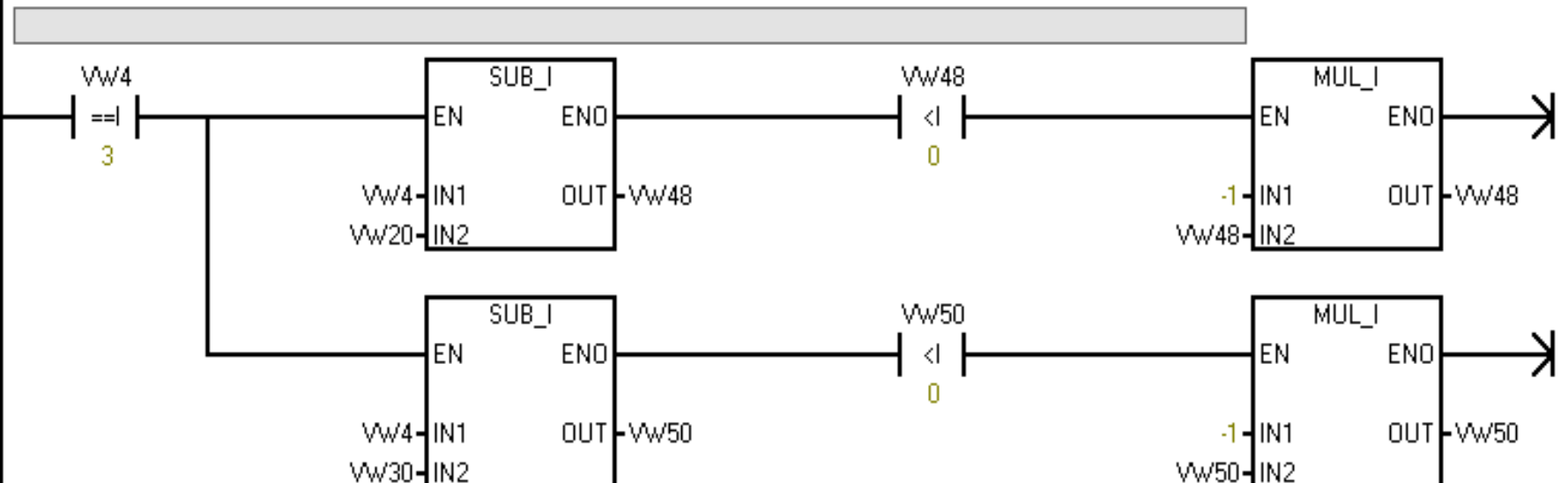


TWO RELATED ELEVATORS:

Network 33

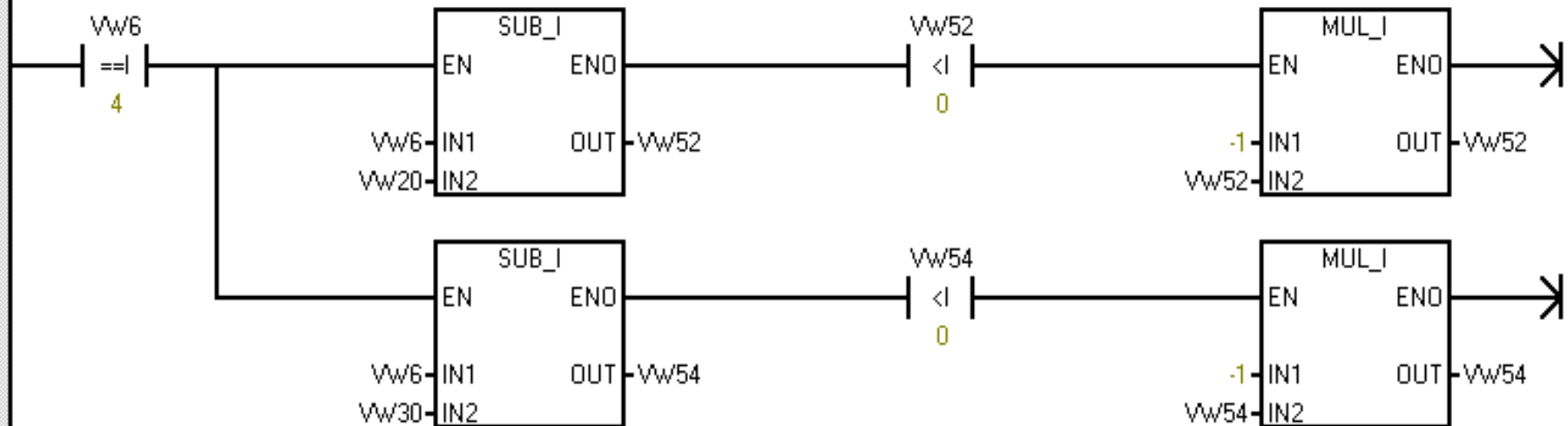


Network 34

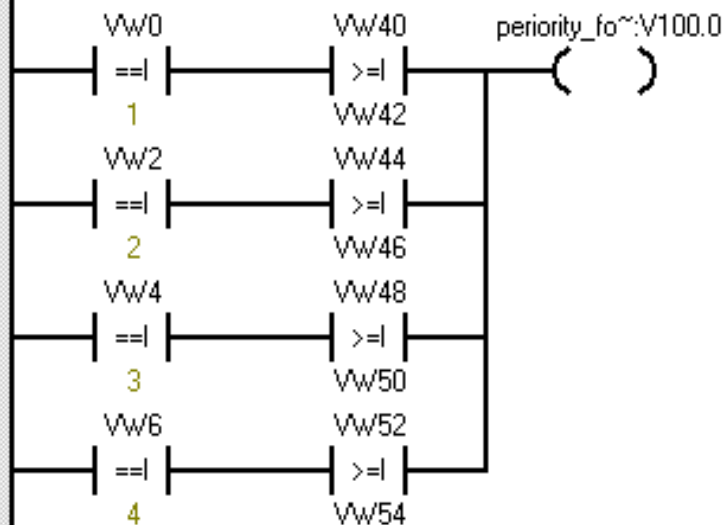


TWO RELATED ELEVATORS:

Network 35

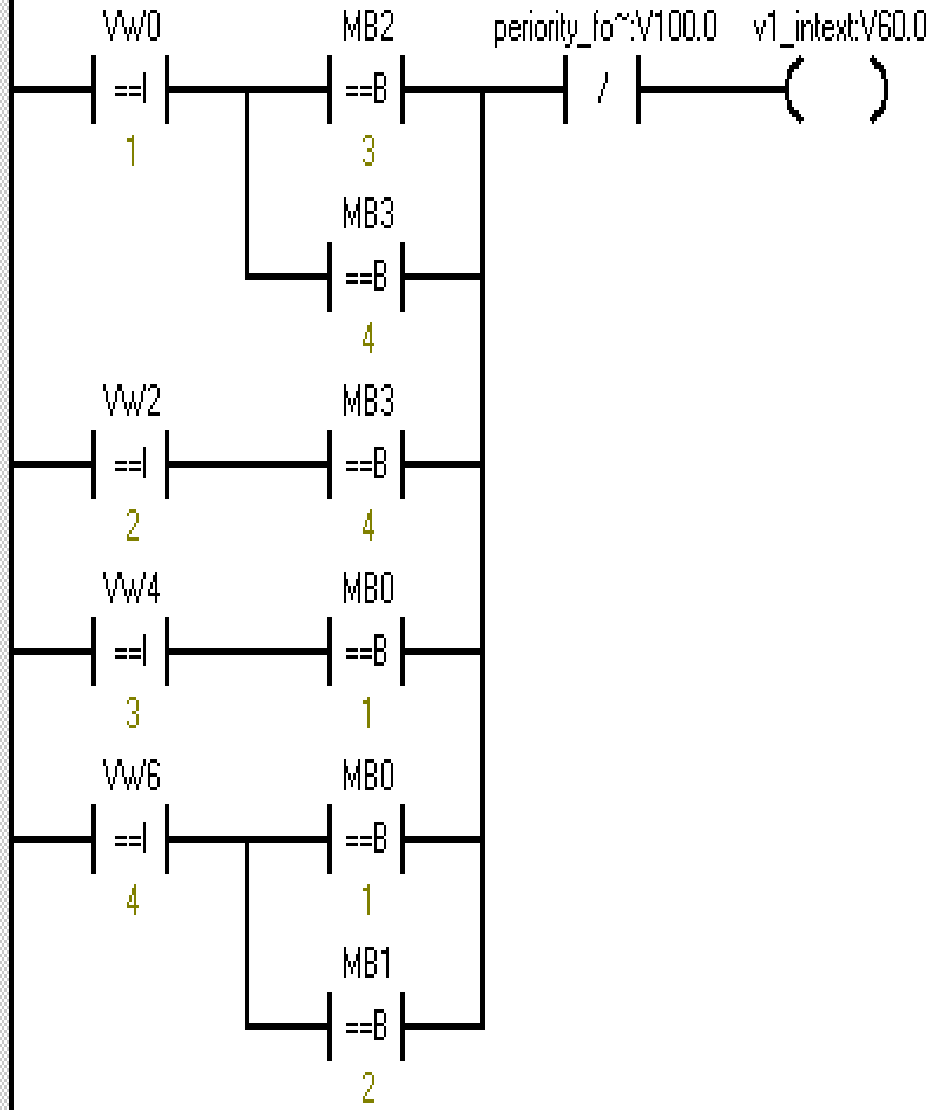


Network 36

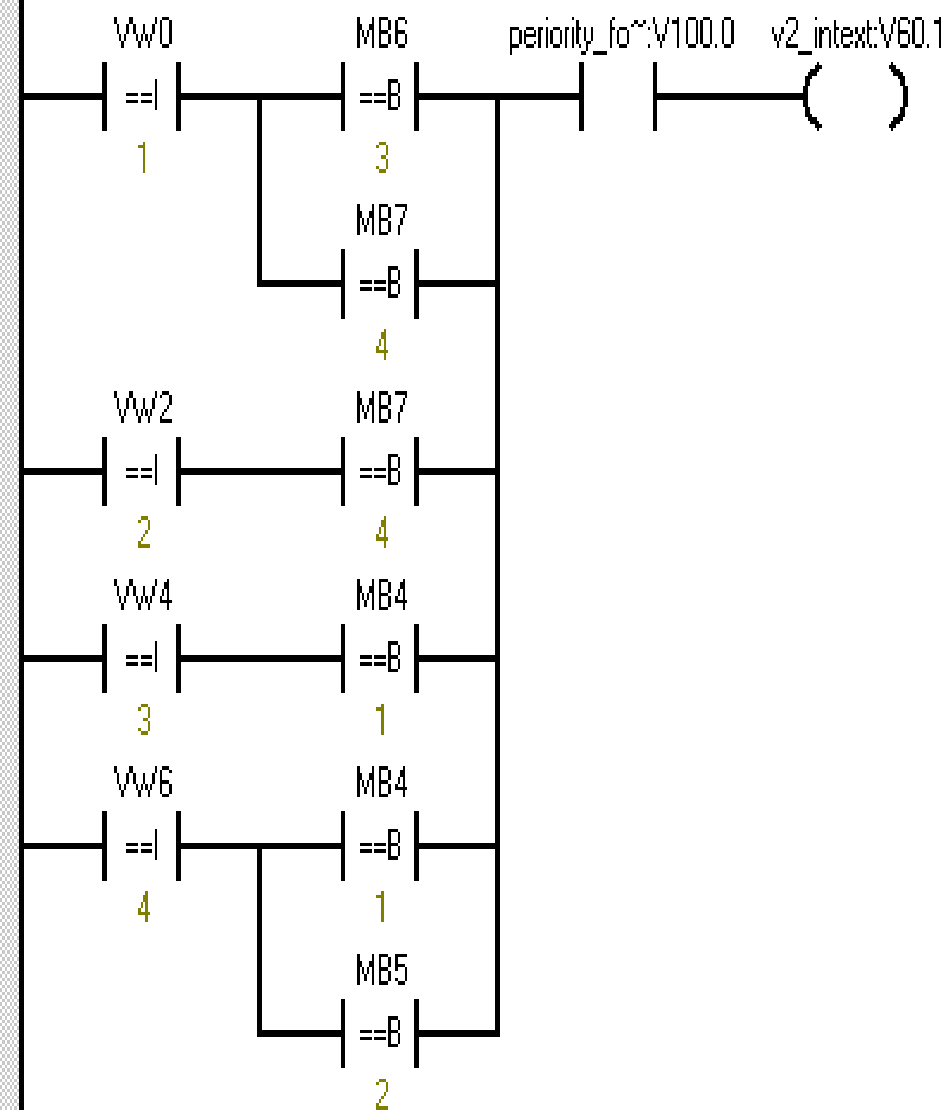


TWO RELATED ELEVATORS:

Network 37



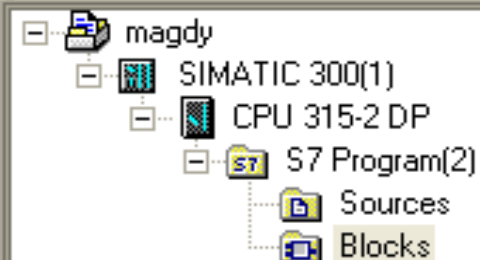
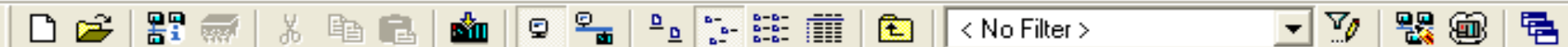
Network 38



Create Functions(FC):

SIMATIC Manager - [magdy -- C:\Program Files\Step7\proj\magdy]

File Edit Insert PLC View Options Window Help



OB1

Cut	Ctrl+X
Copy	Ctrl+C
Paste	Ctrl+V
Delete	Del

Insert New Object

PLC

Rewire...

Compare Blocks...

Reference Data

Check Block Consistency...

Print

Object Properties... Alt+Return

Special Object Properties

Organization Block

Function Block

Function

Data Block

Data Type

Variable Table

Create Functions(FC):

magdy\SIMATIC 300(1)\CPU 315-2 DP]

bug View Options Window Help

Contents Of: 'Environment\Interface\IN'

Name	Data Type	Comment
start	Bool	
stop	Bool	

Interface

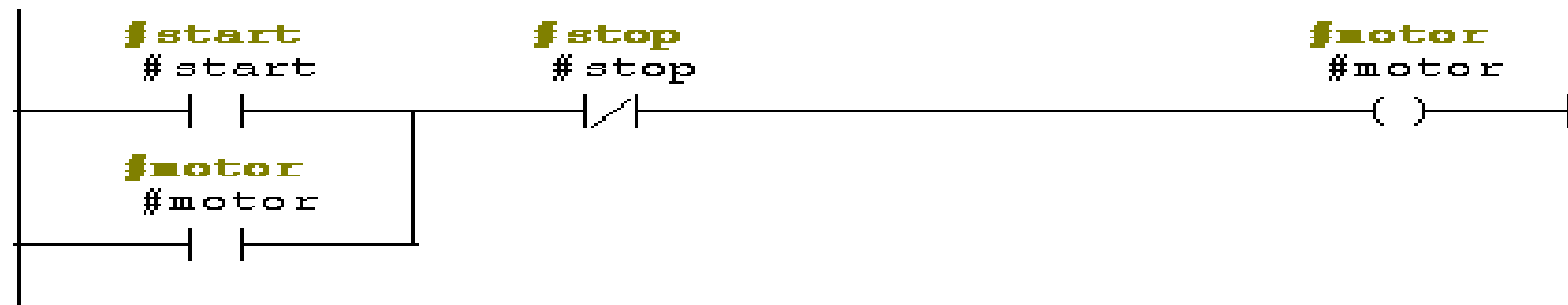
- IN
 - start
 - stop
- OUT
 - motor
- IN_OUT

FC1 : Title:

Comment:

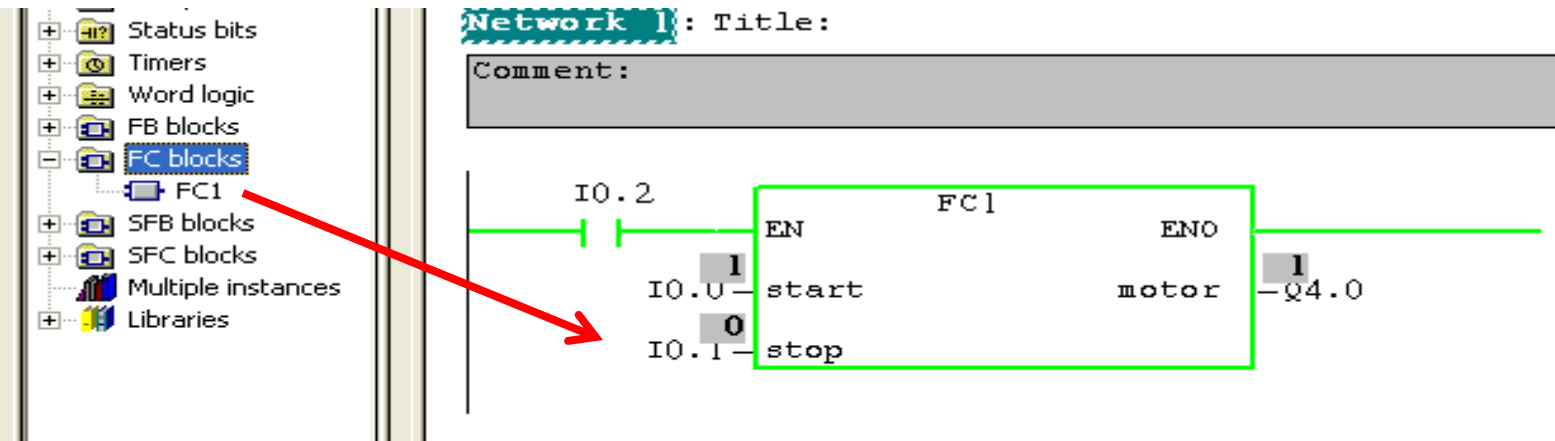
Network 1: Title:

Comment:



Create Functions(FC):

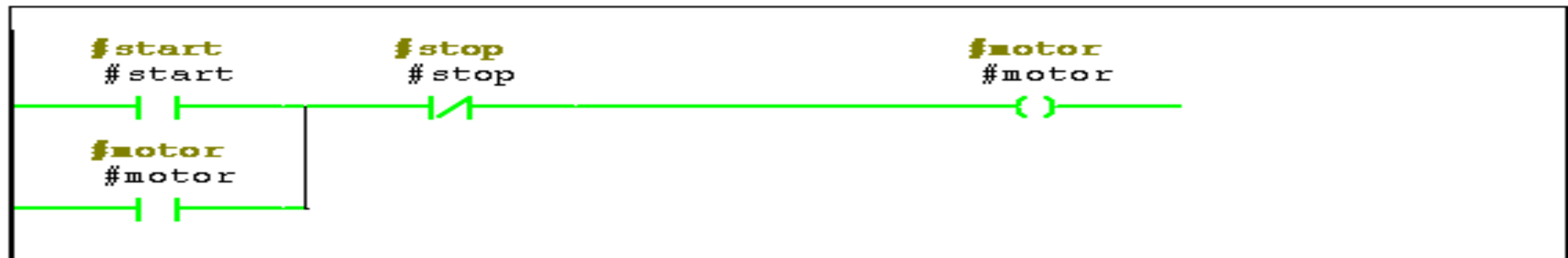
OB1 :



FC1:

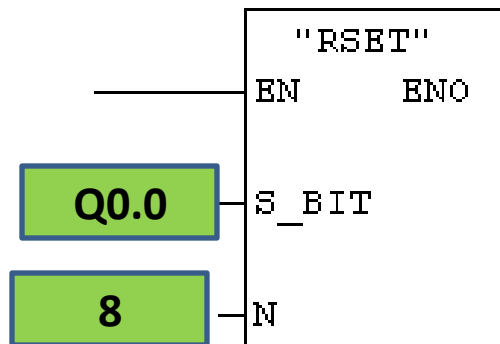
Network 1: Title:

Comment:

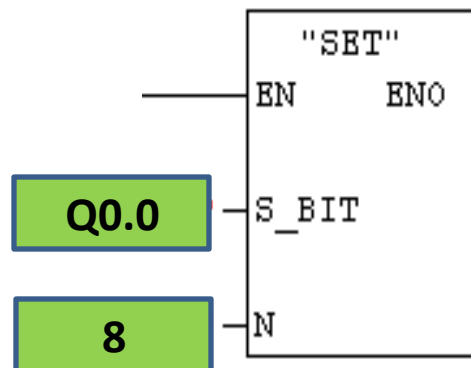


Functions(FC):

Q0.0	0
Q0.1	0
Q0.2	0
Q0.3	0
Q0.4	0
Q0.5	0
Q0.6	0
Q0.7	0



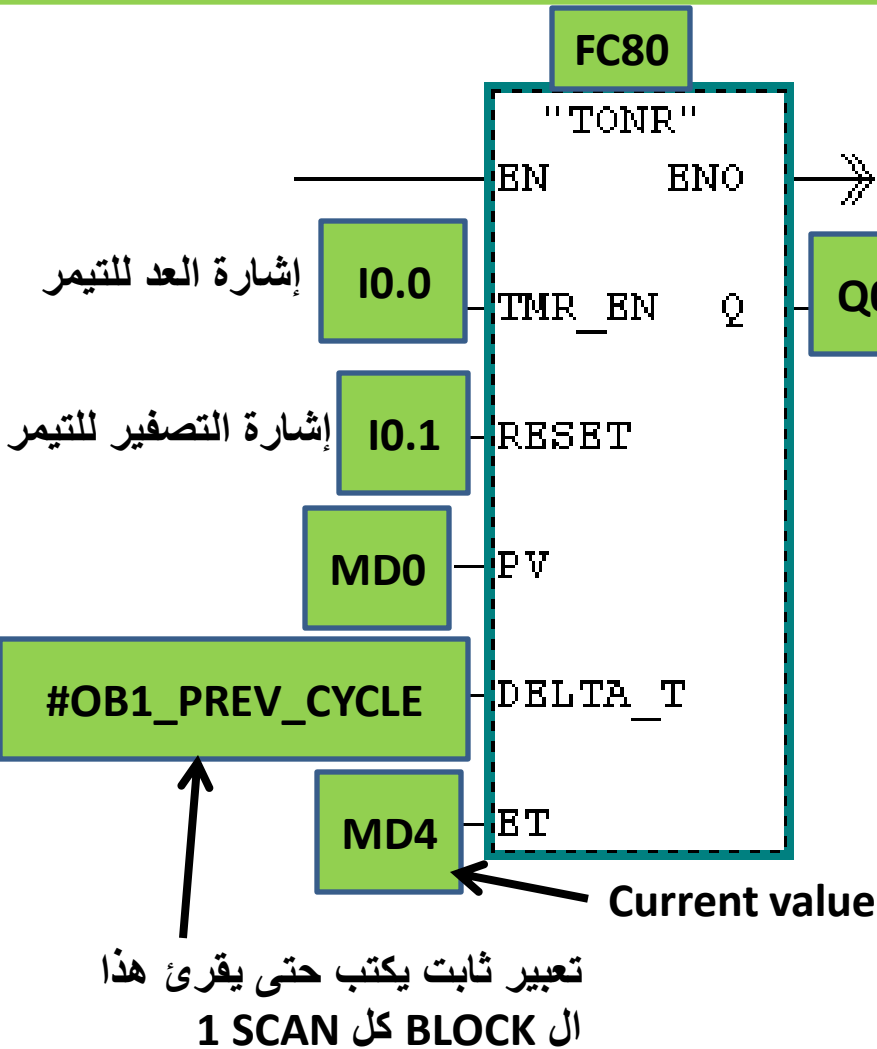
Q0.0	1
Q0.1	1
Q0.2	1
Q0.3	1
Q0.4	1
Q0.5	1
Q0.6	1
Q0.7	1



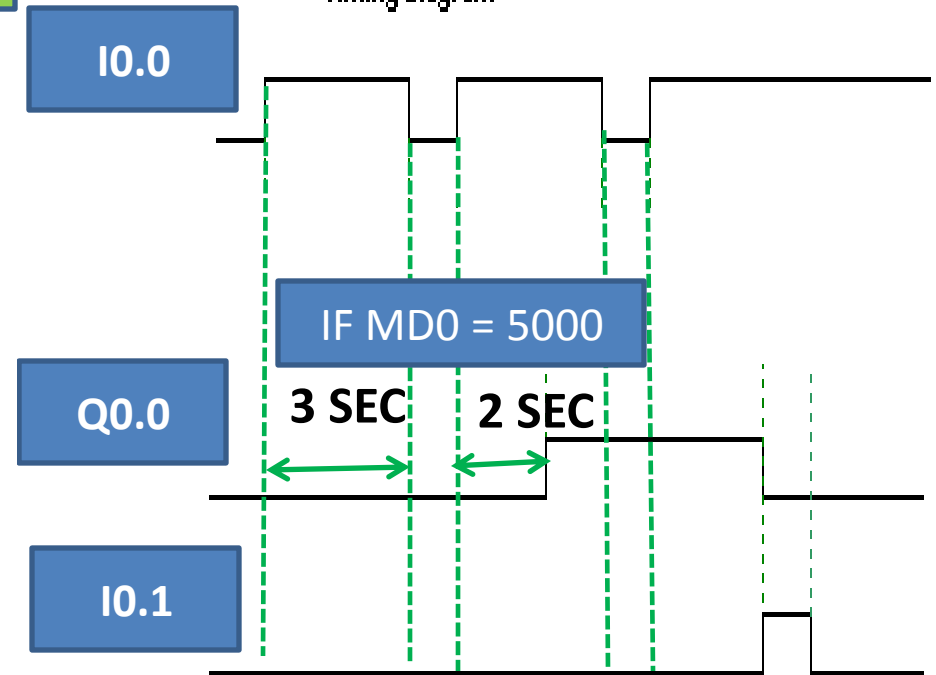
Libraries

- stdlibs
- Standard Library
 - Miscellaneous Blocks
 - TI-S7 Converting Blocks
 - FB80 LEAD_LAG CONVERT
 - FB81 DCAT TIMERS
 - FB82 MCAT TIMERS
 - FB83 IMC COMPARE
 - FB84 SMC COMPARE
 - FB85 DRUM TIMERS
 - FB86 PACK MOVE
 - FC80 TONR TIMERS
 - FC81 IBLKMOV MOVE
 - FC82 RSET BIT_LOGC**
 - FC83 SET BIT_LOGC
 - FC84 ATT TABLE
 - FC85 FIFO TABLE
 - FC86 TBL_FIND TABLE
 - FC87 LIFO TABLE
 - FC88 TBL TABLE
 - FC89 TBL_WRD TABLE
 - FC90 WSR SHIFT
 - FC91 WRD_TBL TABLE
 - FC92 SHRB SHIFT
 - FC93 SEG CONVERT
 - FC94 ATH CONVERT

Functions(FC):



Timing Diagram



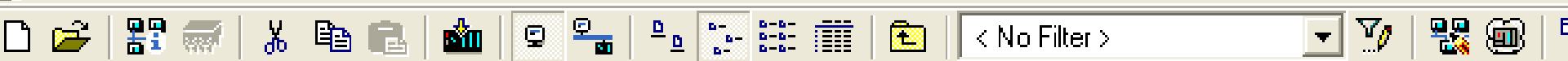
$$PV = \text{TIME(SEC)} * 1000$$

- تتبدل الريشة عند : عد التيمر $\leq$ العد المطلوب
- هذا التيمر لا تعود ريشته للوضع الأصلي إلا بأمر RESET
- هذا التيمر تراكمي أى يمكن أن يعد بشكل متواصل / متقطع

Create Functions(FB):

SIMATIC Manager - [magdy -- C:\Program Files\Step7\s7proj\magdy]

File Edit Insert PLC View Options Window Help



magdy

- SIMATIC 300(1)
 - CPU 315-2 DP
 - S7 Program(2)
 - Sources
 - Blocks

OB1

Cut	Ctrl+X
Copy	Ctrl+C
Paste	Ctrl+V
Delete	Del
Insert New Object	▶
PLC	▶
Rewire...	
Compare Blocks...	
Reference Data	▶
Check Block Consistency...	
Print	▶
Object Properties...	Alt+Return
Special Object Properties	▶

Organization Block

Function Block

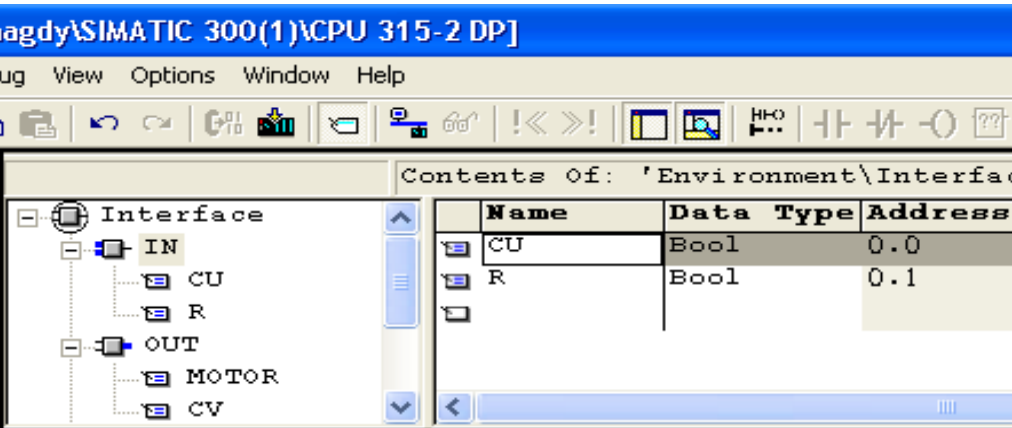
Function

Data Block

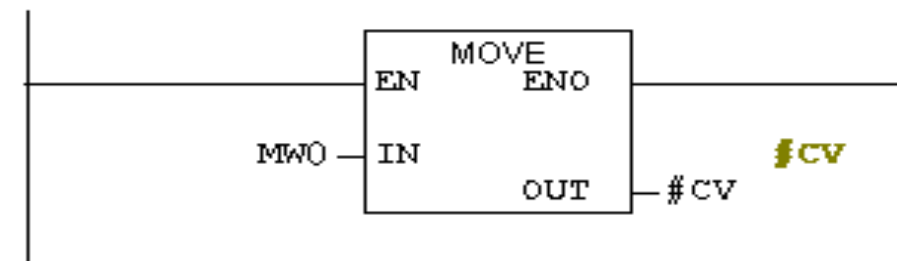
Data Type

Variable Table

Create Functions(FB):

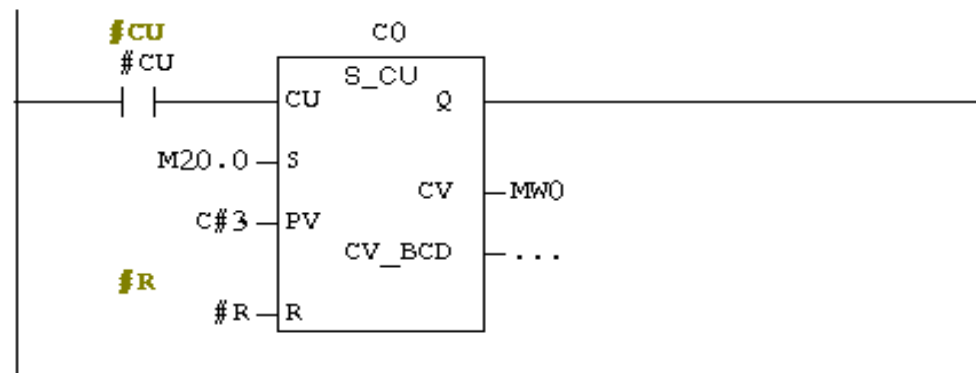


Network 3: Title:

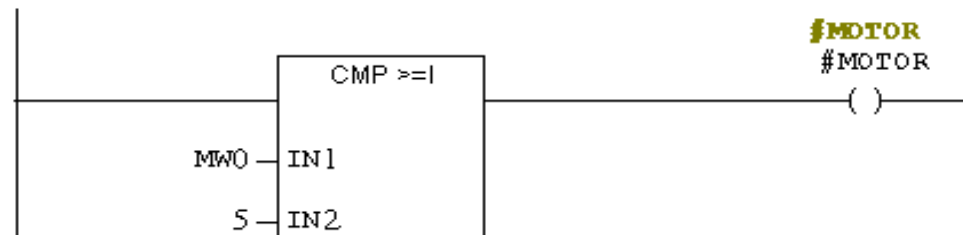


FB1 : Title:

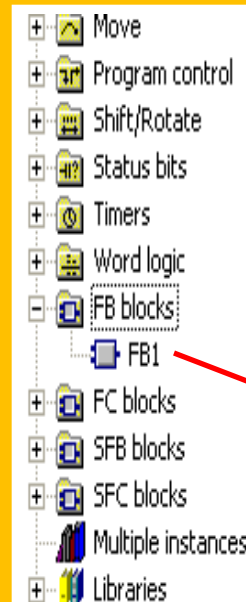
Network 1: Title:



Network 2: Title:



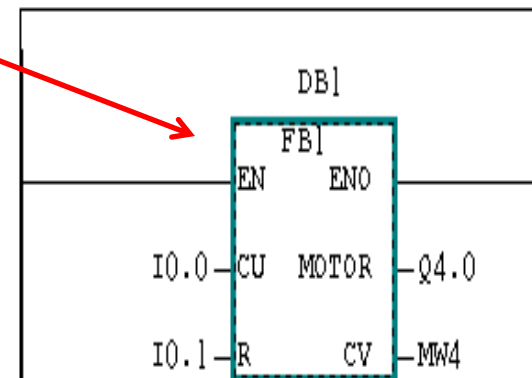
OB1:



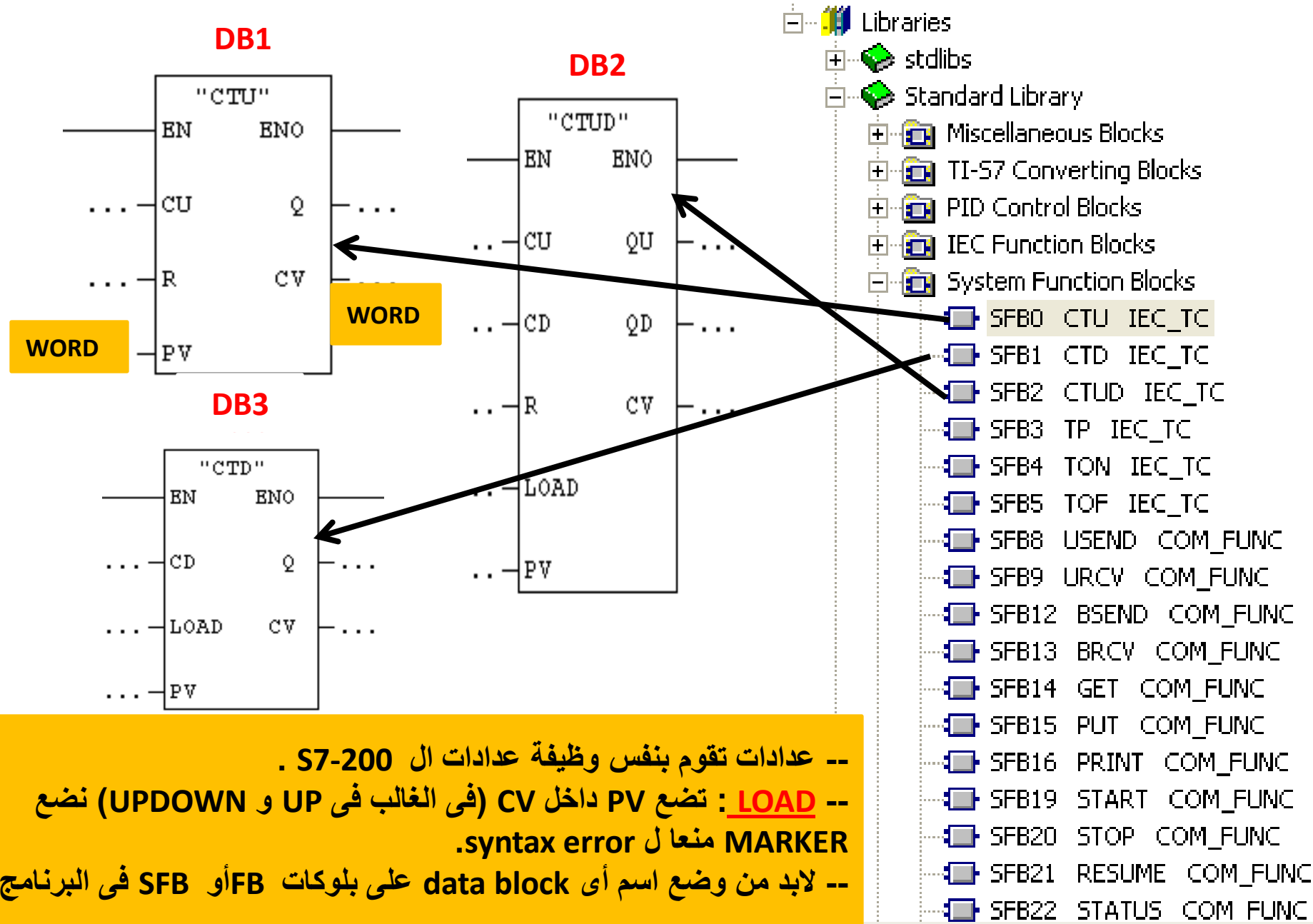
Comment:

Network 1: Title:

Comment:

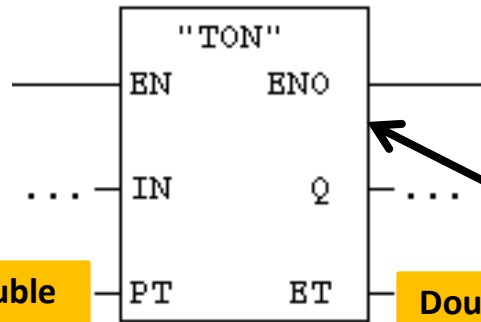


System Function Blocks (SFB):



System Function Blocks (SFB):

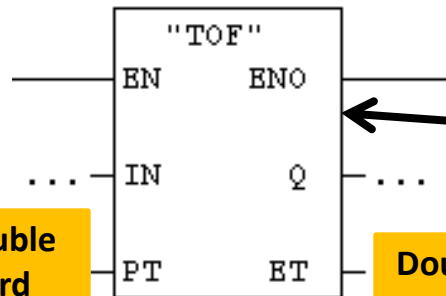
DB1



Double Word

Double Word

DB2

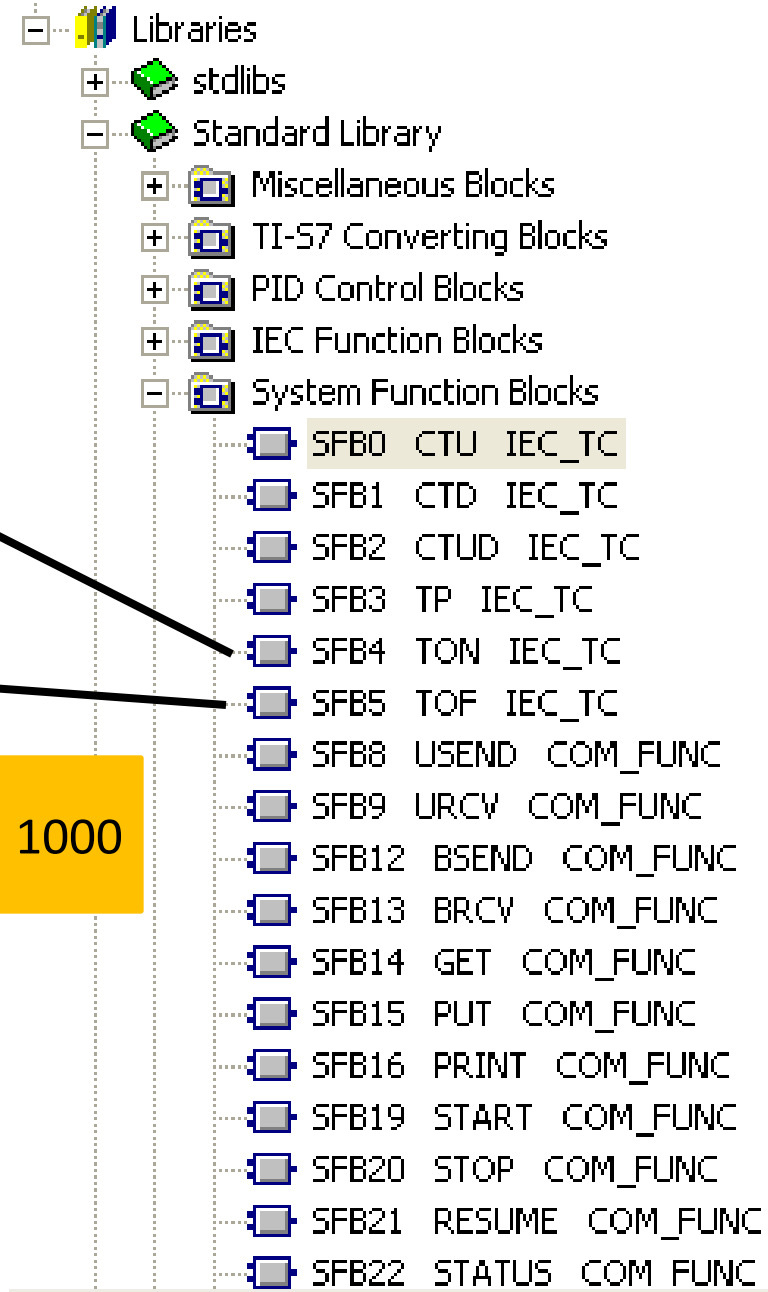
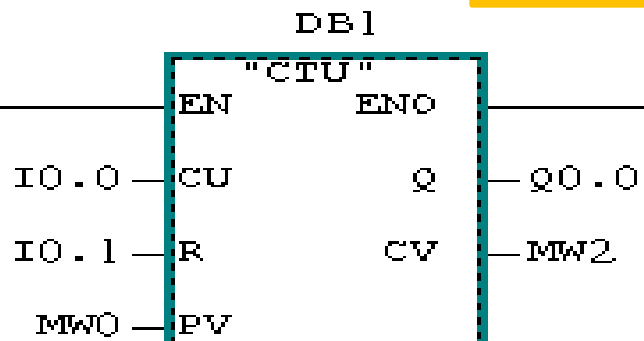


Double Word

Double Word

$PT = \text{TIME(SEC)} * 1000$

EX.:



Note:

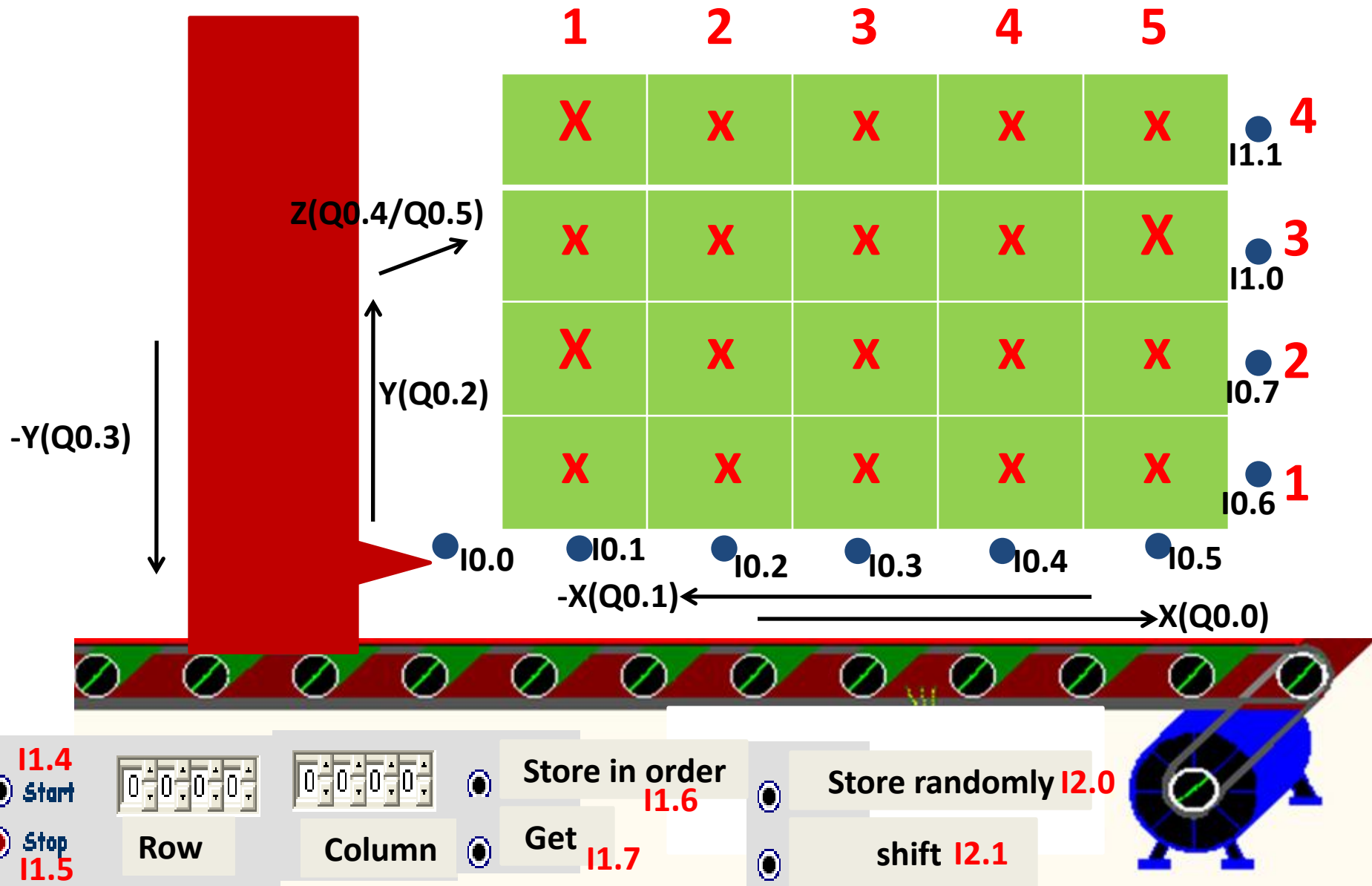
3 -- C:\Program Files\Step7\s7proj\vnagdy3]

Options Window Help



إذا استخدمت أى FC أو FB أو SFB أو مع
OB(ORGANIZATION BLOCK) فلا بد من تحديد كل هذه العناصر
وعمل DOWNLOAD جماعى لها وإلا فإن لمبة SF سوف تضى لأن
البرنامج الرئيسى OB1 لا يعرف البلوكات الجديدة الموجودة بداخله
بدون تحميلها معه.

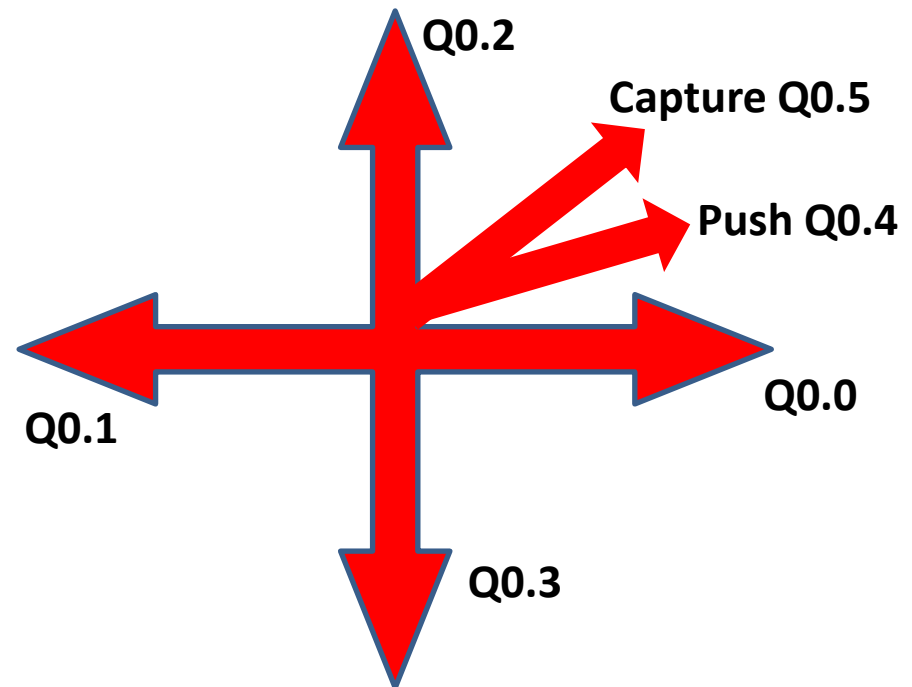
Automatic Store:



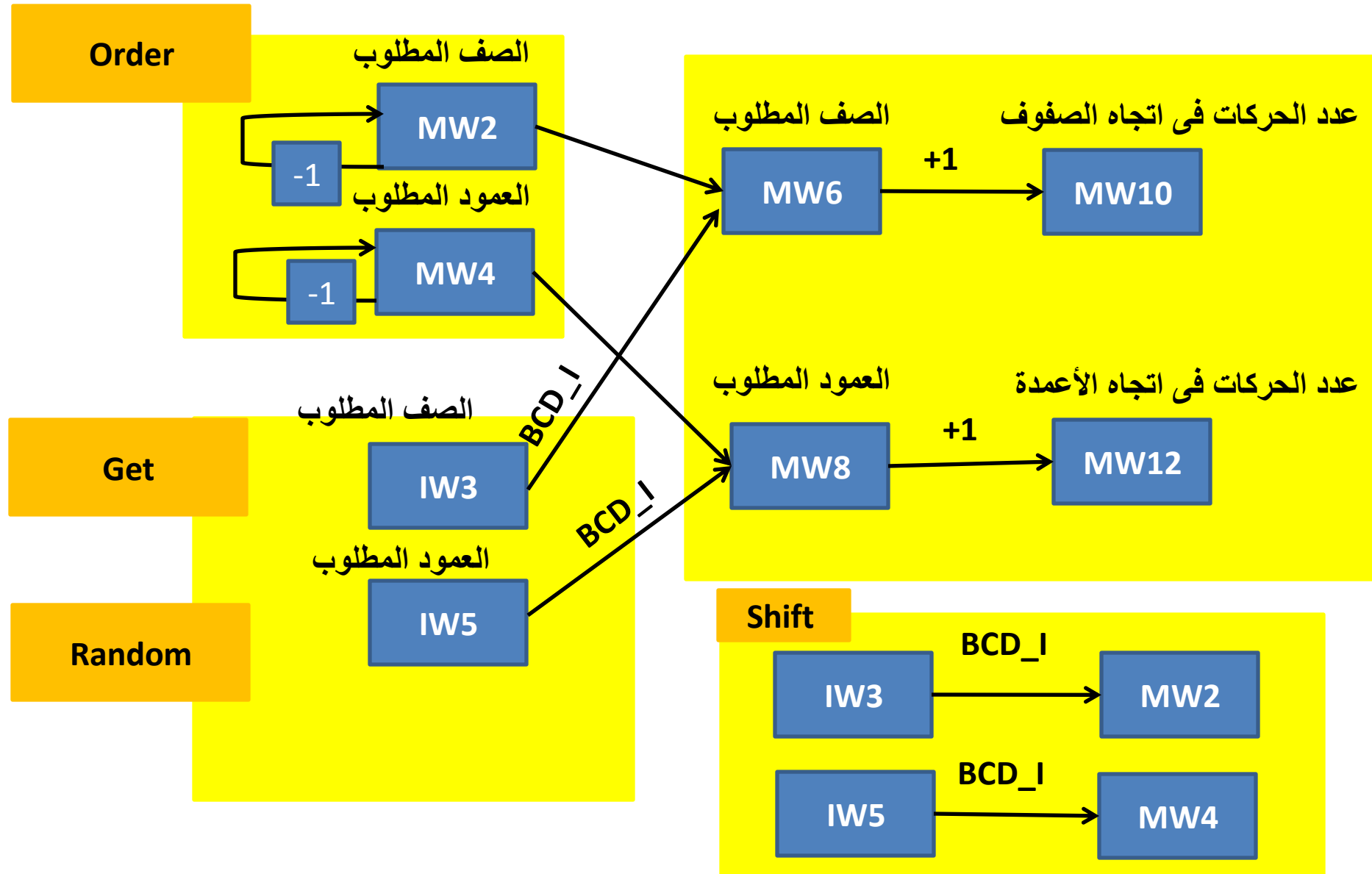
Automatic store:

i0.0	s1	q0.0	right
i0.1	s2	q0.1	left
i0.2	s3	q0.2	up
i0.3	s4	q0.3	down
i0.4	s5	q0.4	push
i0.5	s6	q0.5	capture
i0.6	s7	iw3	row
i0.7	s8	iw5	column

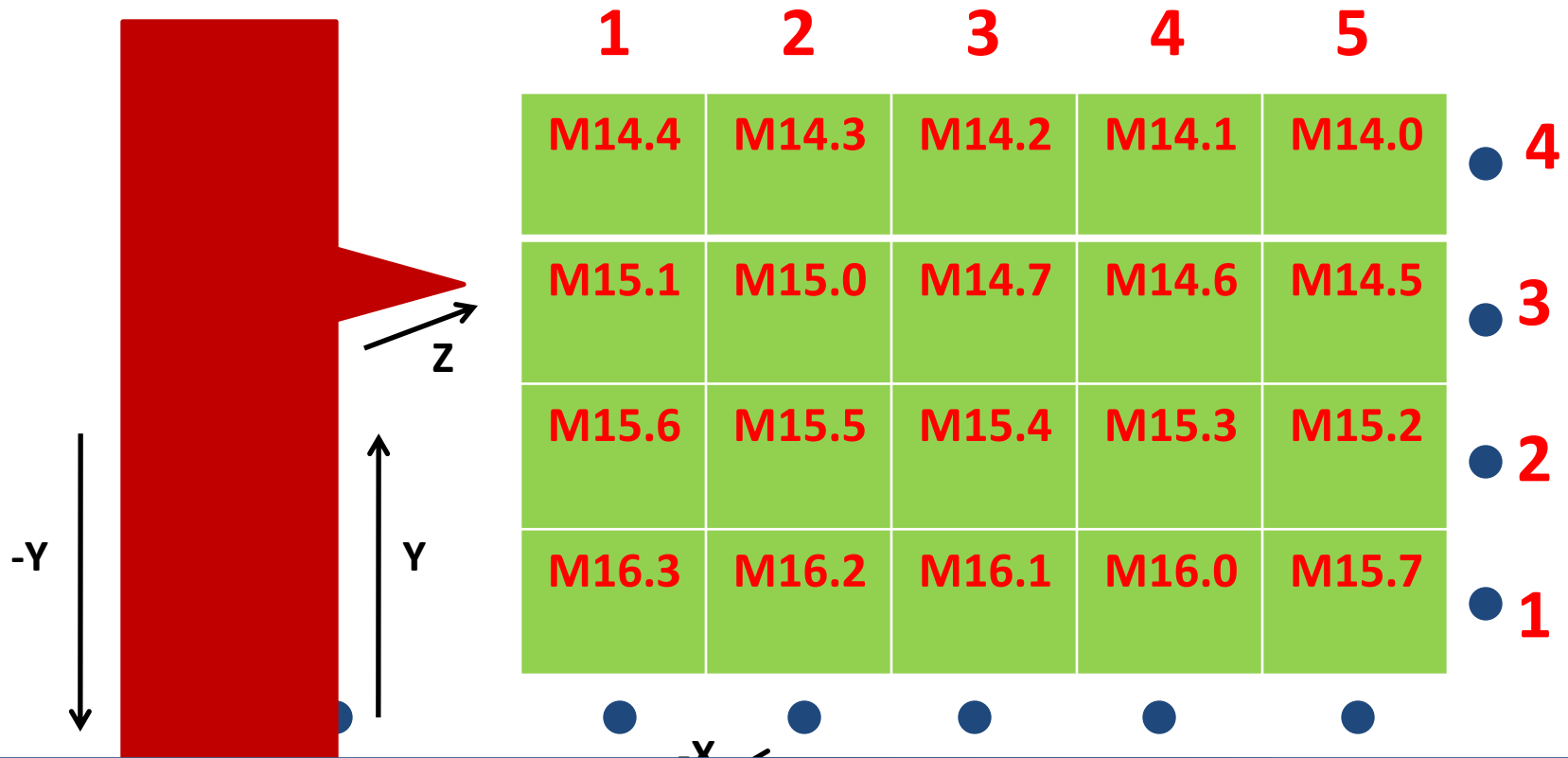
i1.0 s9
i1.1 s10
i1.2 push end
i1.3 capture end
i1.4 on
i1.5 off
i1.6 order
i1.7 get
i2.0 random
i2.1 shift



Automatic Store:



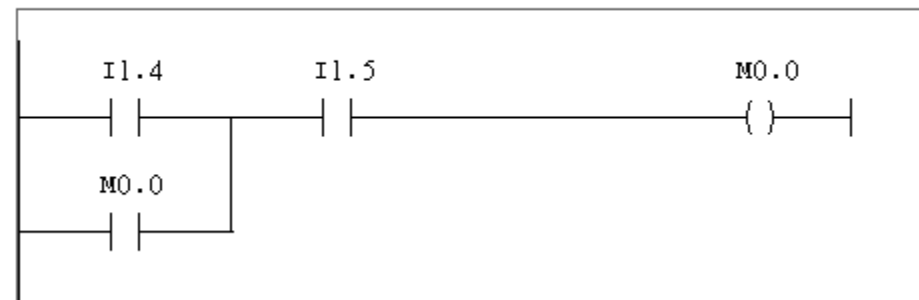
Automatic Store:



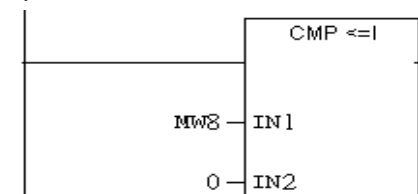
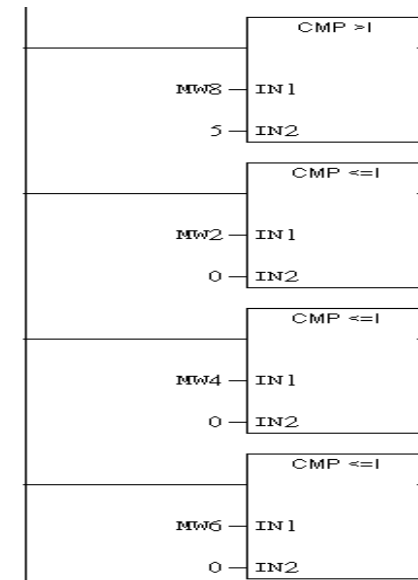
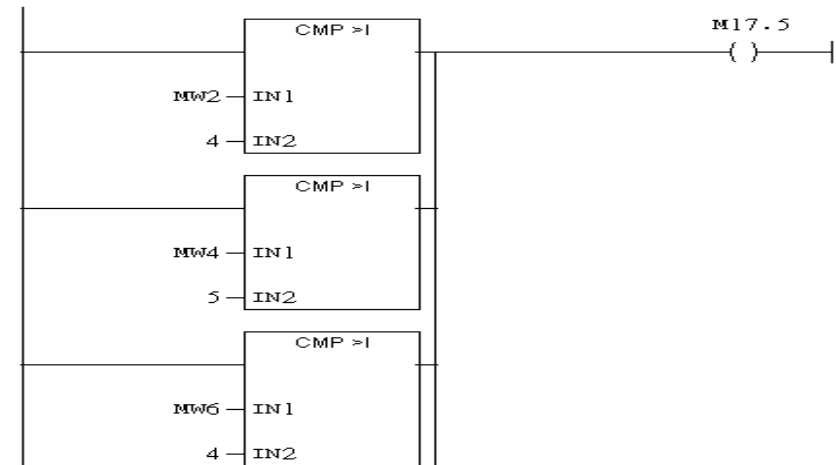
M17.4 → INVALID POSITIONS
M17.5 → OUT OF RANGE

Automatic Store :

Network 1 : Title:



Network 2 : Title:

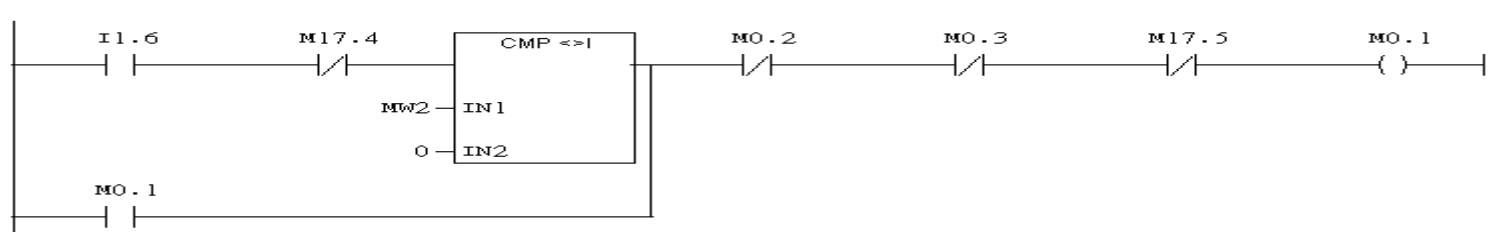


Automatic Store :

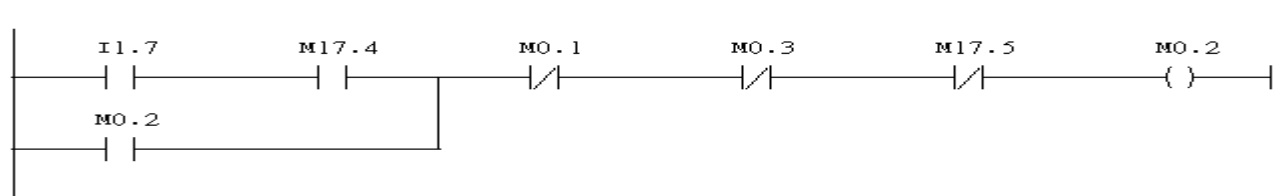
Network 3 : Title:



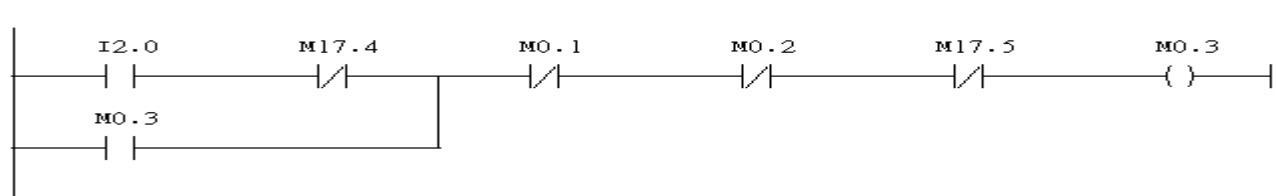
Network 4 : Title:



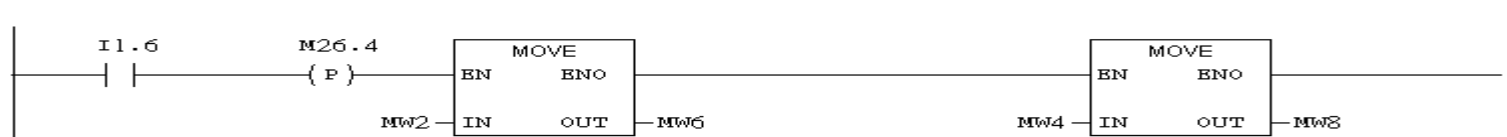
Network 5 : Title:



Network 6 : Title:

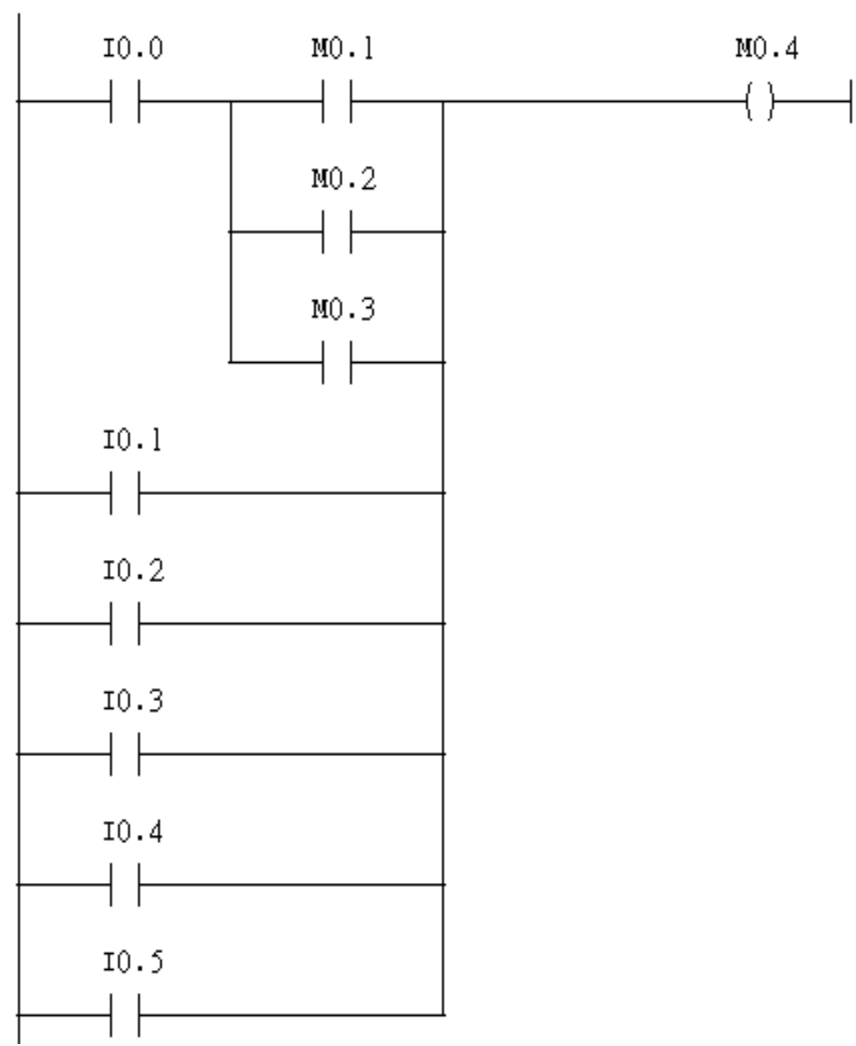


Network 7 : Title:

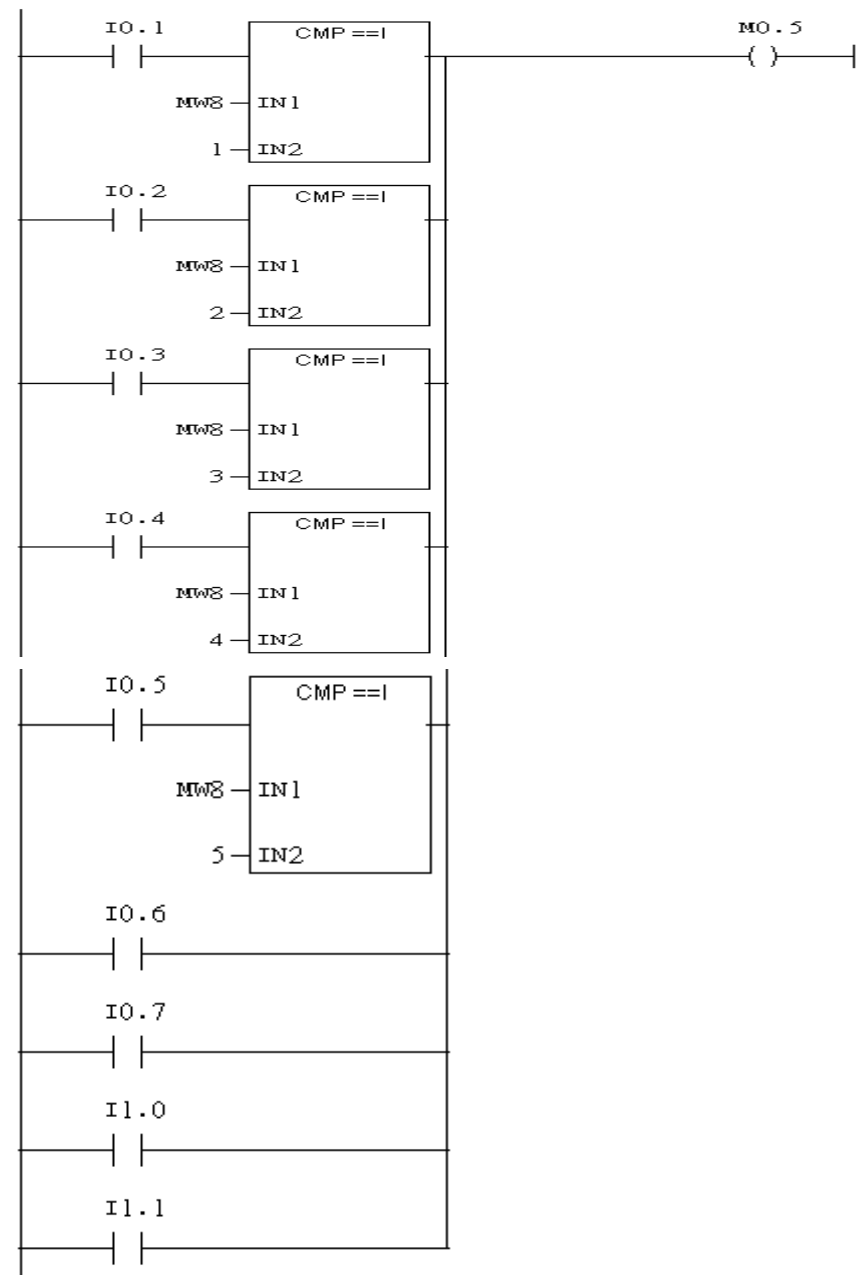


Automatic Store :

Network 8 : Title:



Network 9 : Title:

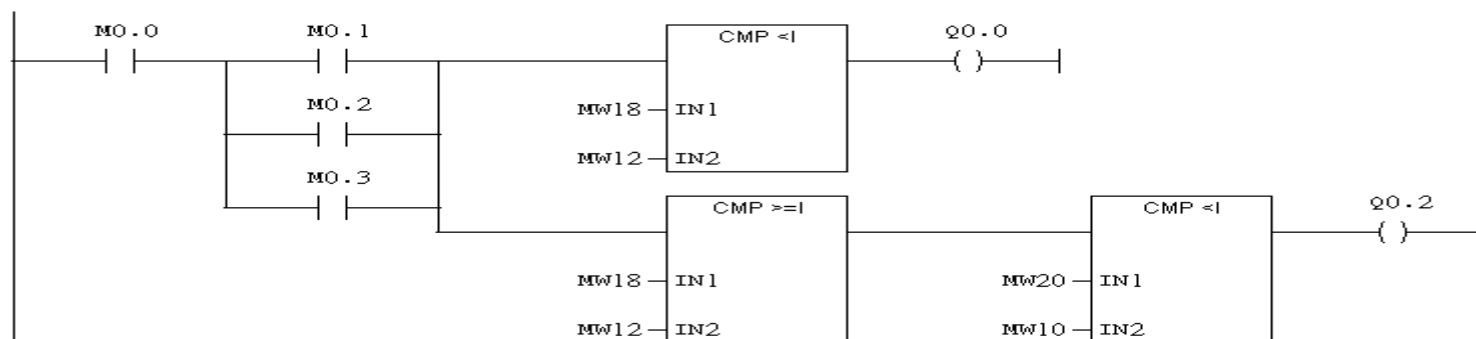


Automatic Store :

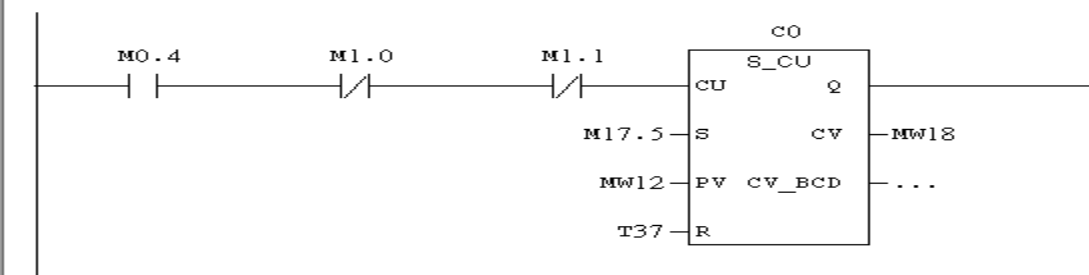
Network 10 : Title:



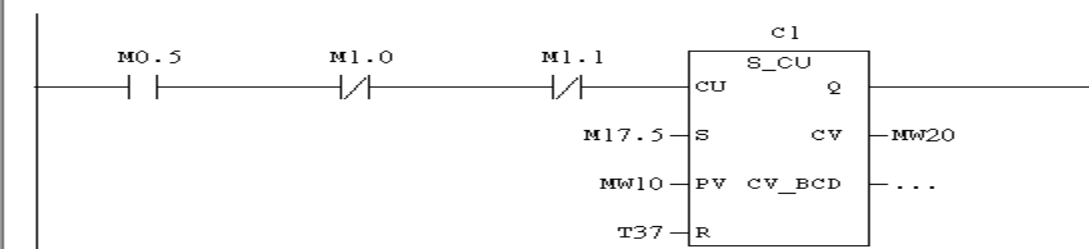
Network 11 : Title:



Network 12 : Title:

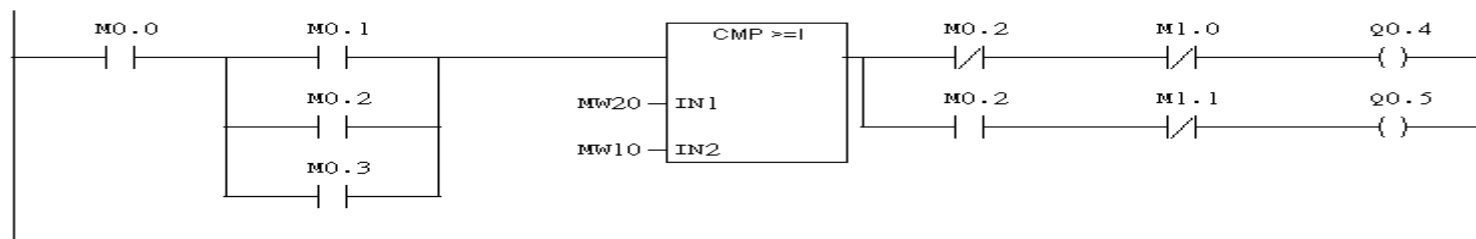


Network 13 : Title:



Automatic Store :

Network 14 : Title:



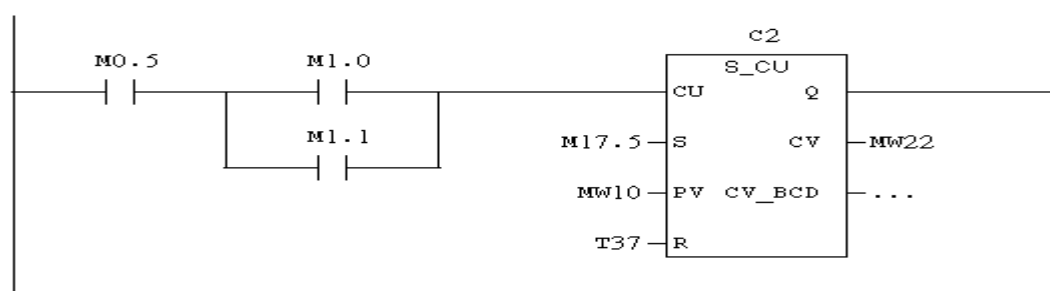
Network 15 : Title:



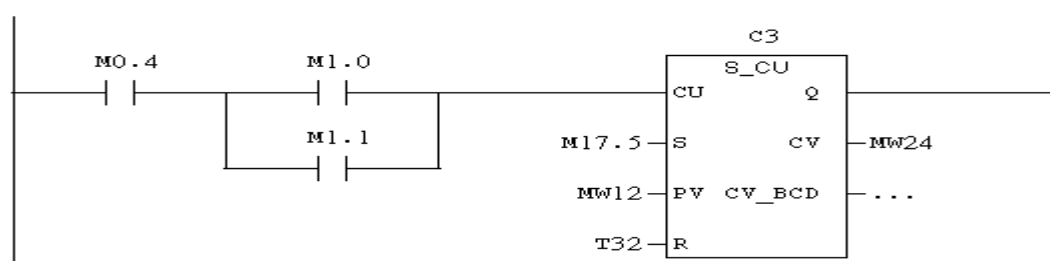
Network 16 : Title:



Network 17 : Title:

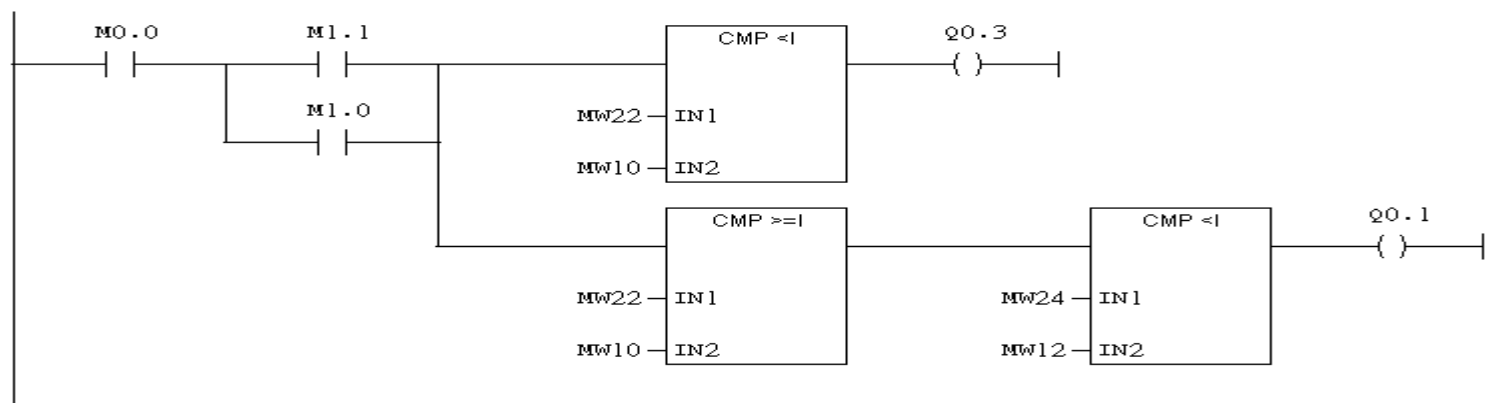


Network 18 : Title:



Automatic Store :

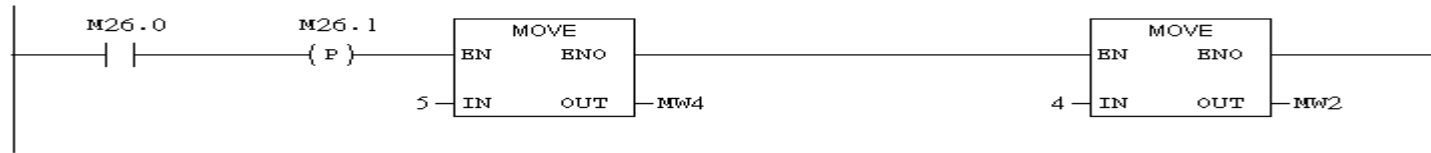
Network 19 : Title:



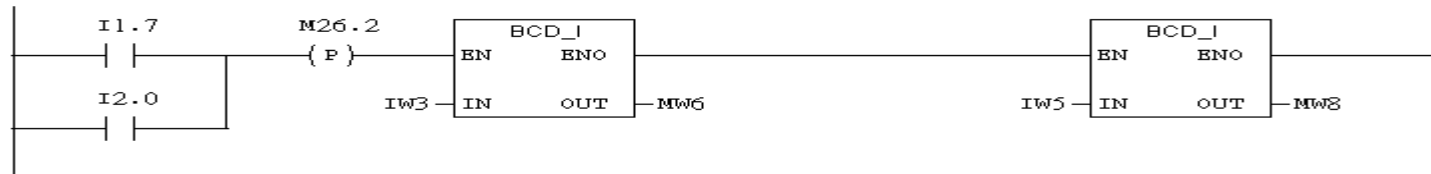
Network 20 : Title:



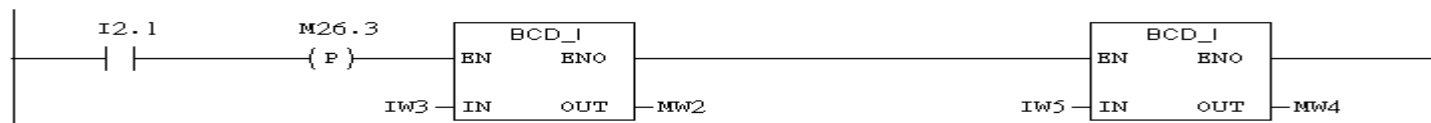
Network 21 : Title:



Network 22 : Title:

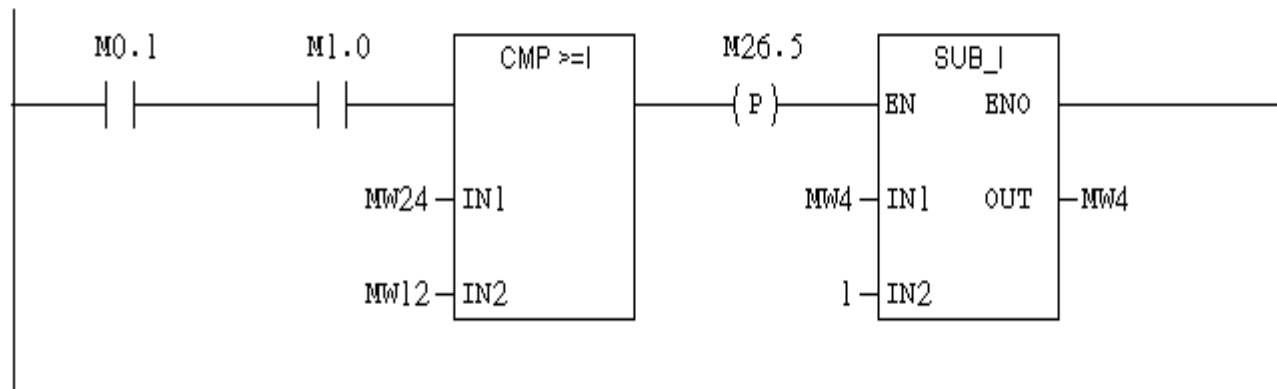


Network 23 : Title:

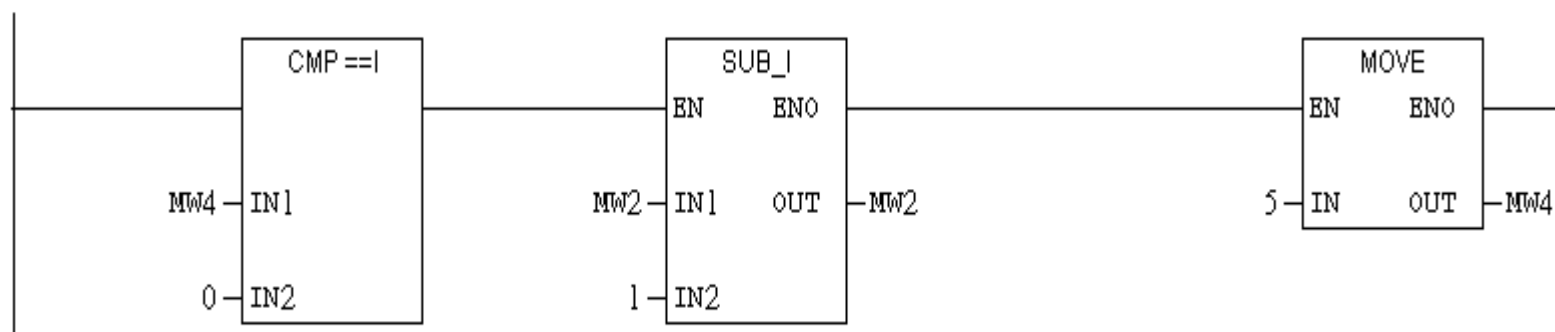


Automatic Store :

Network 24 : Title:

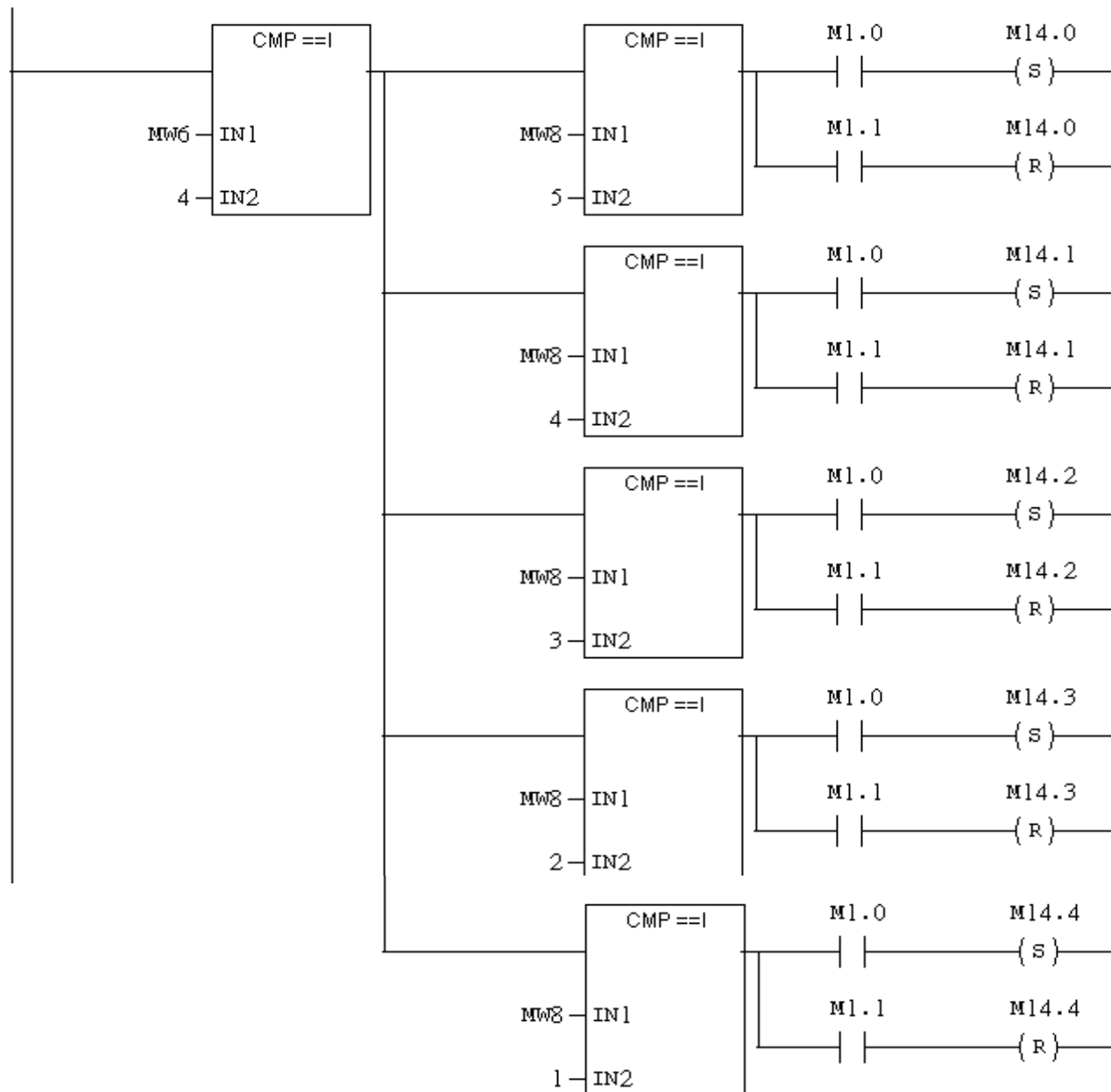


Network 25 : Title:



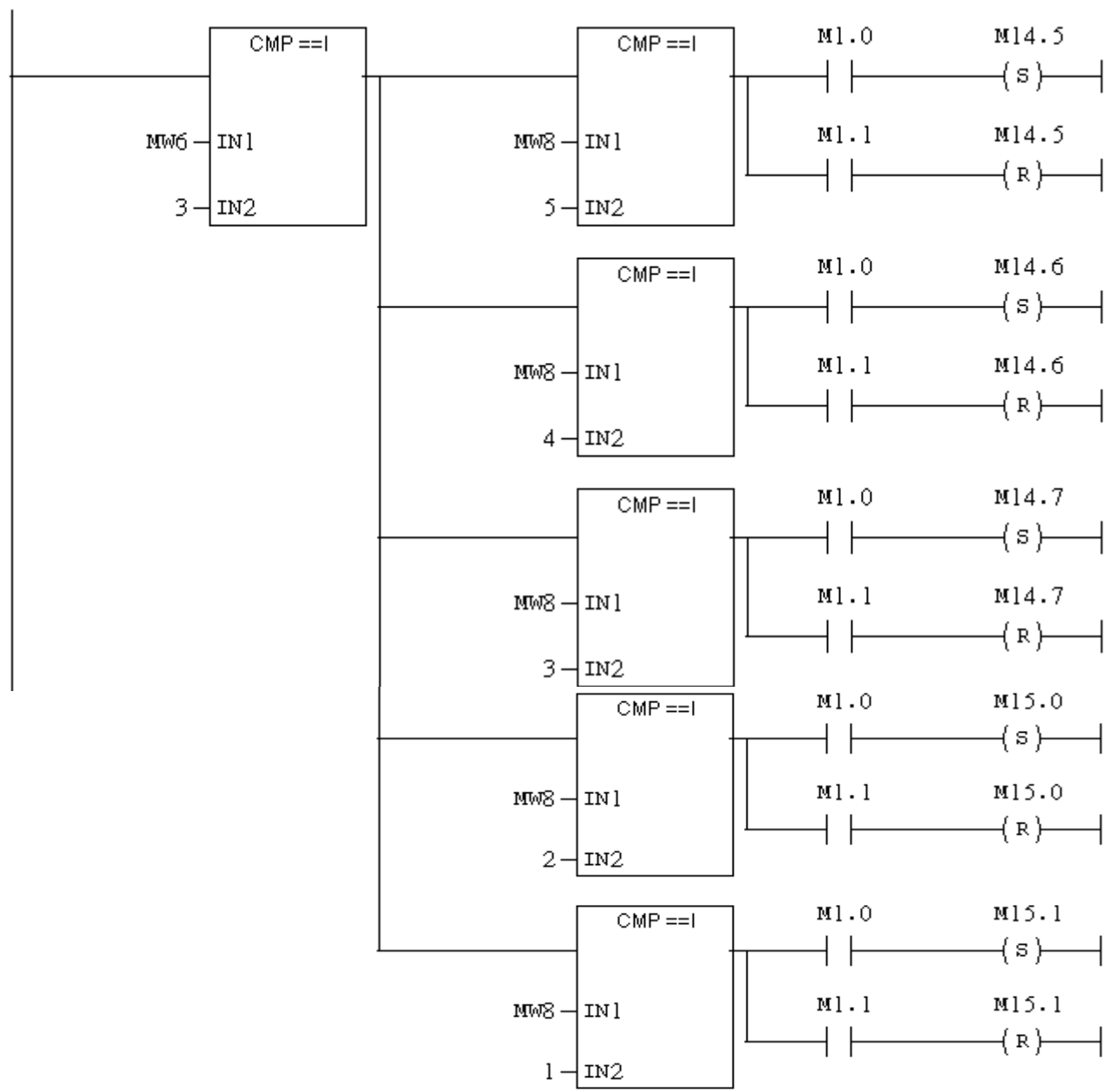
Automatic Store :

Network 26 : Title:



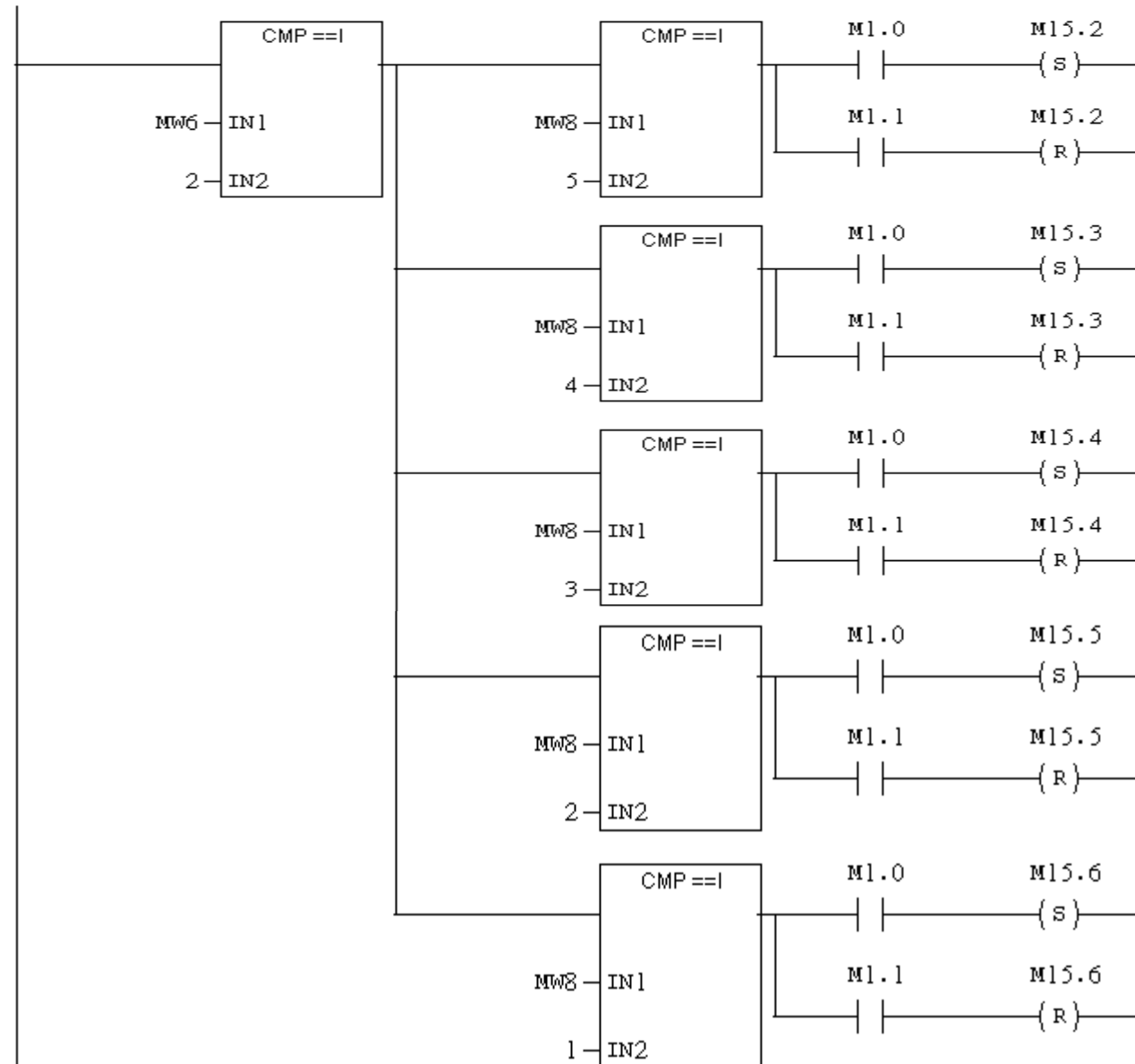
Automatic Store :

Network 27 : Title:



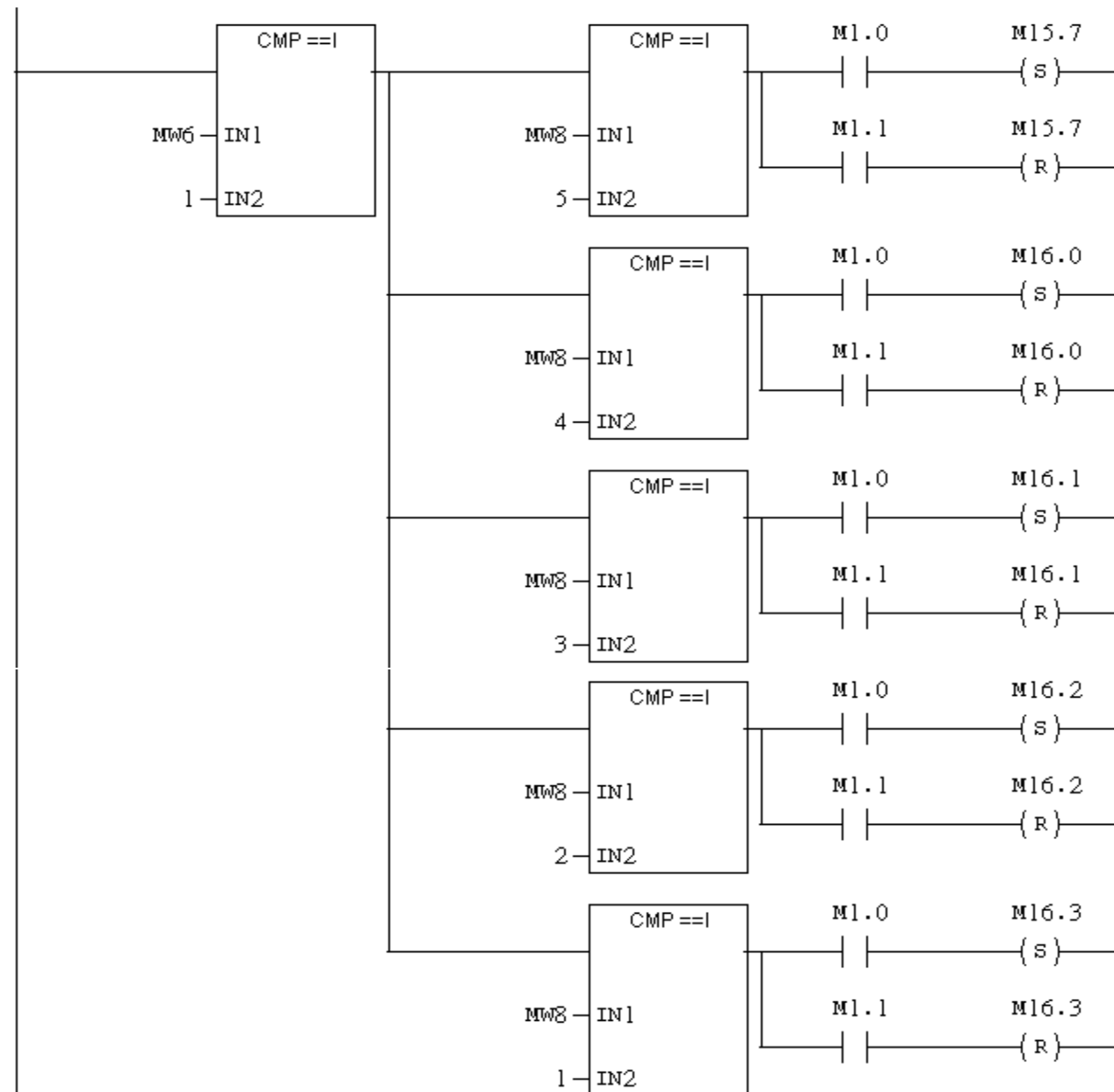
Automatic Store :

Network 28 : Title:



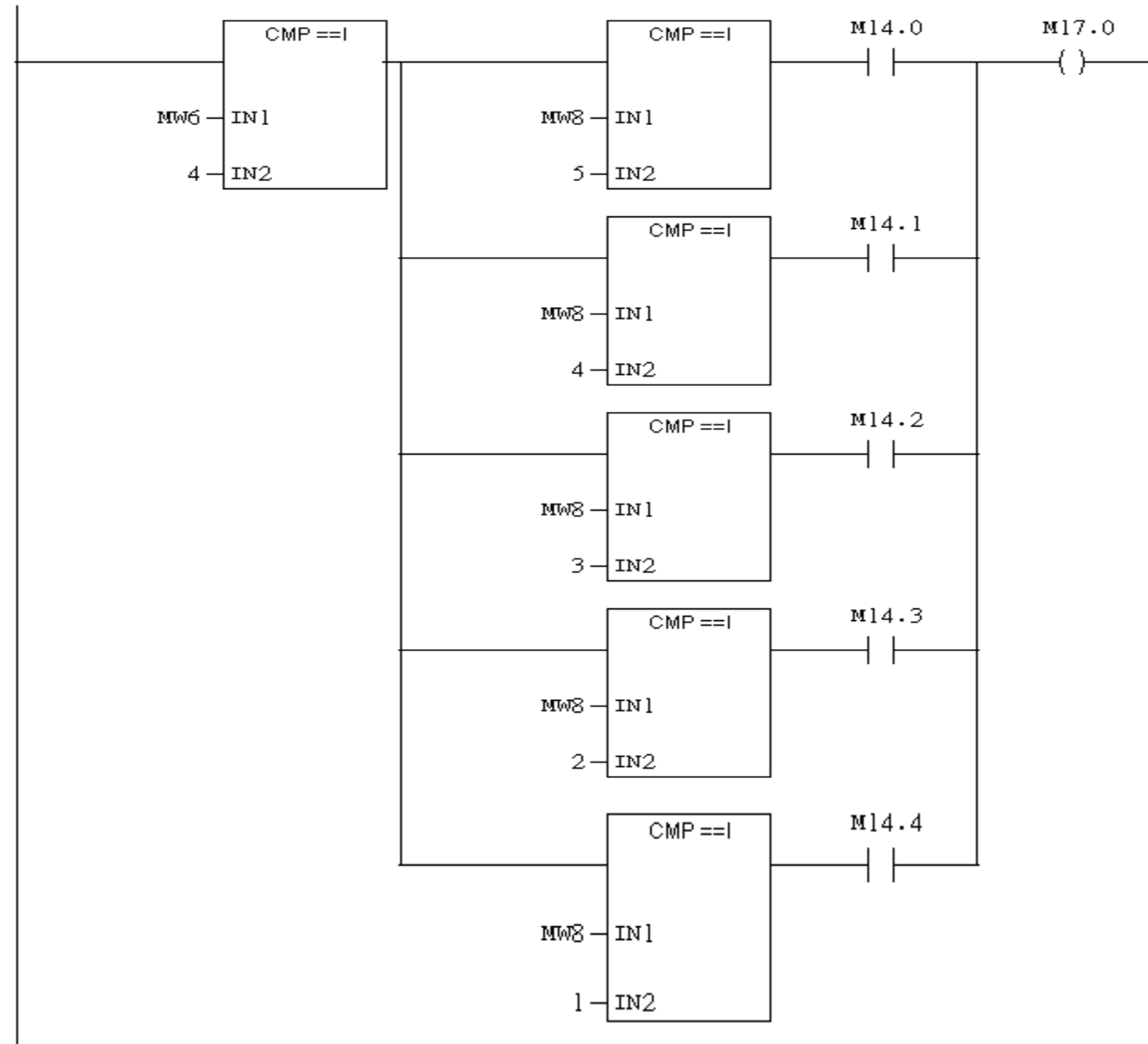
Automatic Store :

Network 29 : Title:



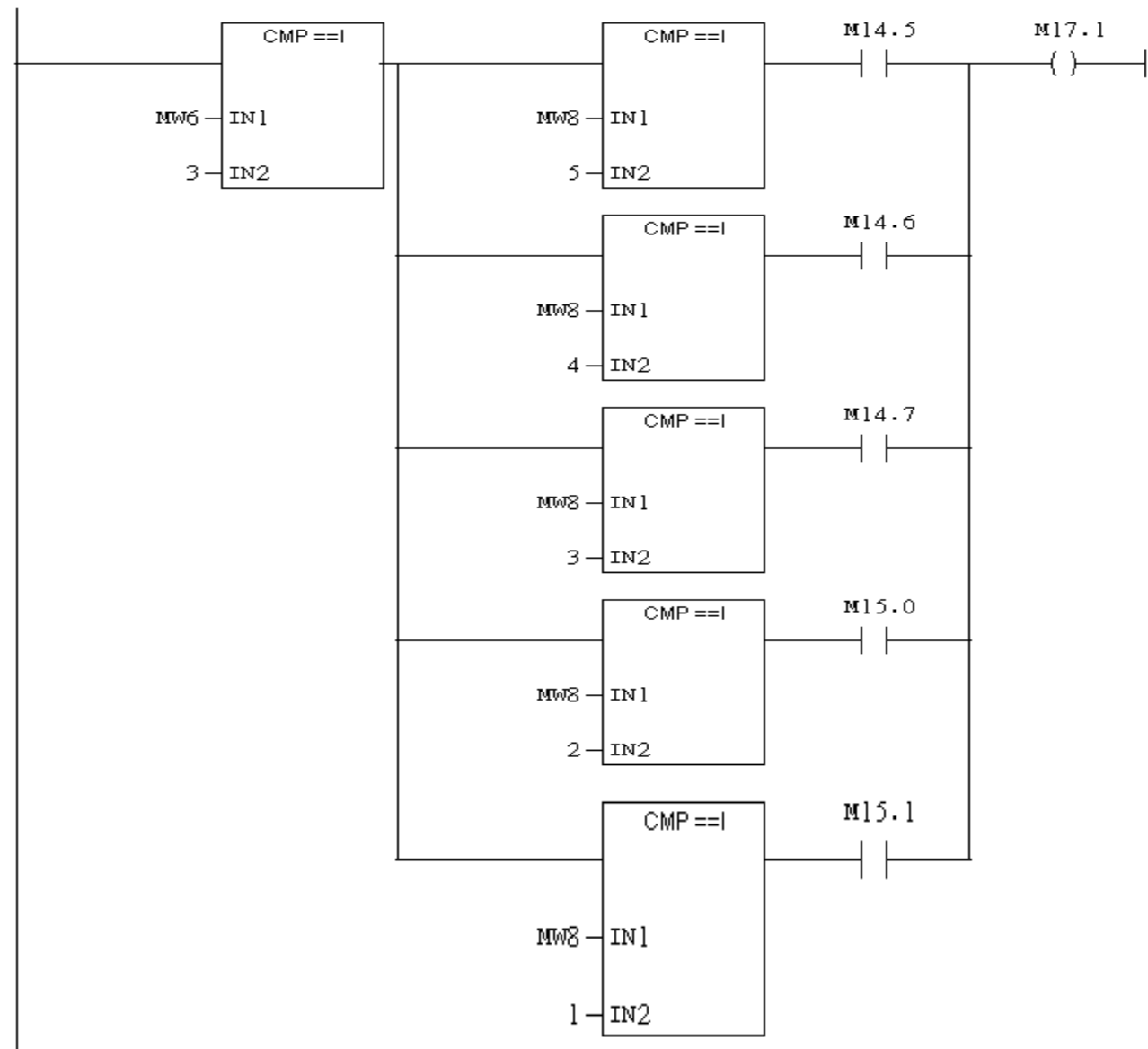
Automatic Store :

Network 30 : Title:



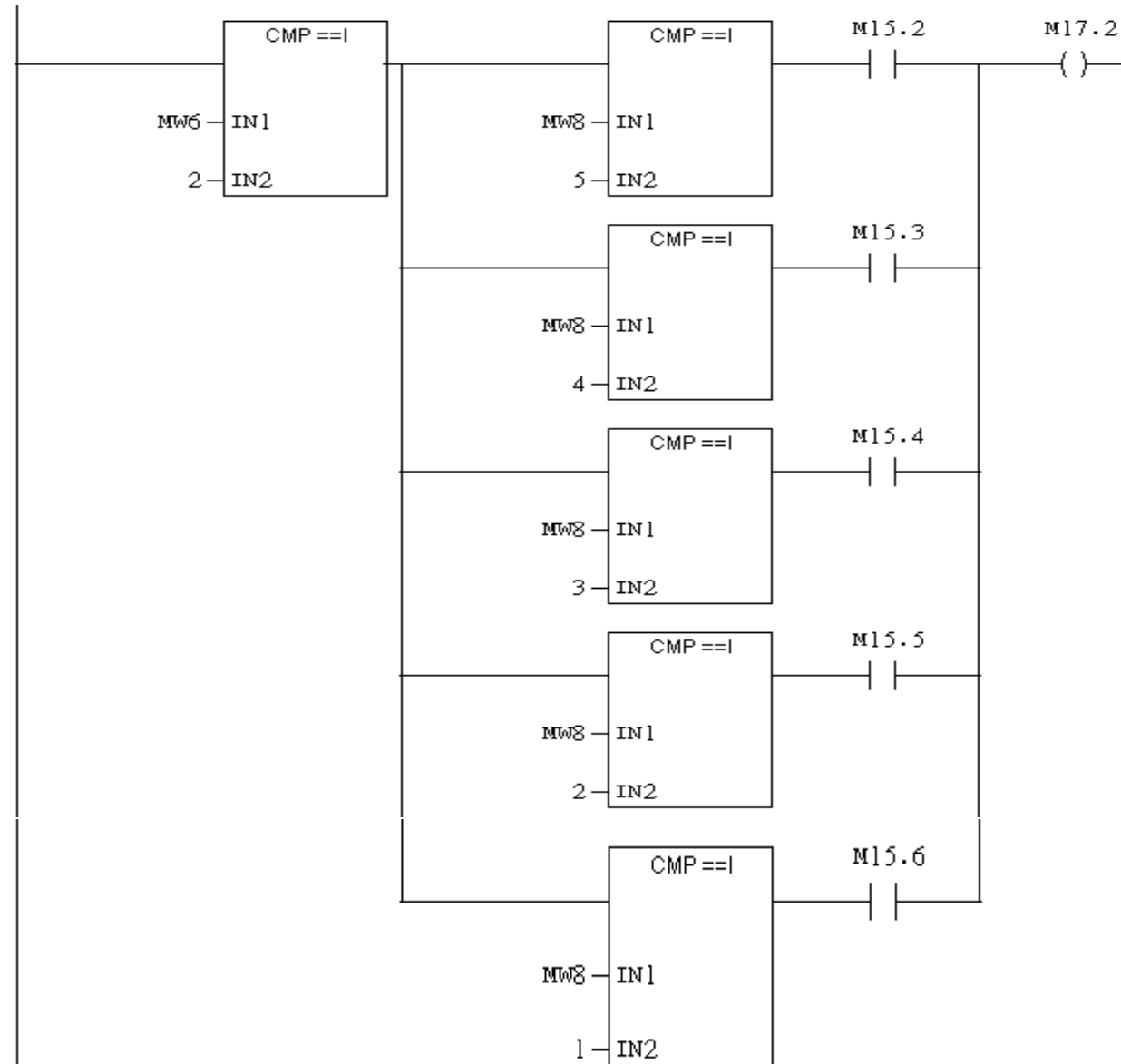
Automatic Store :

Network 31 : Title:



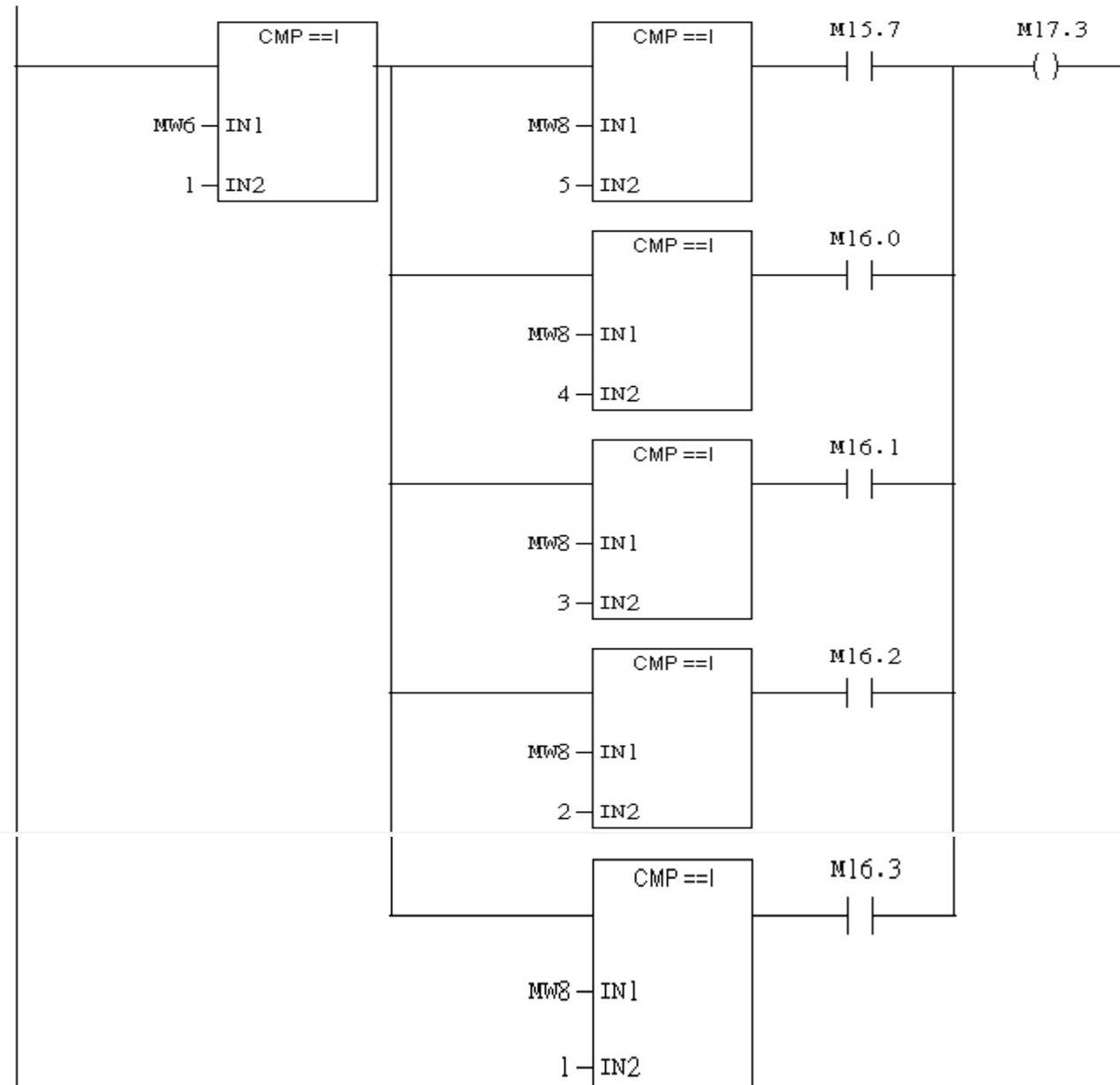
Automatic Store :

Network 32 : Title:



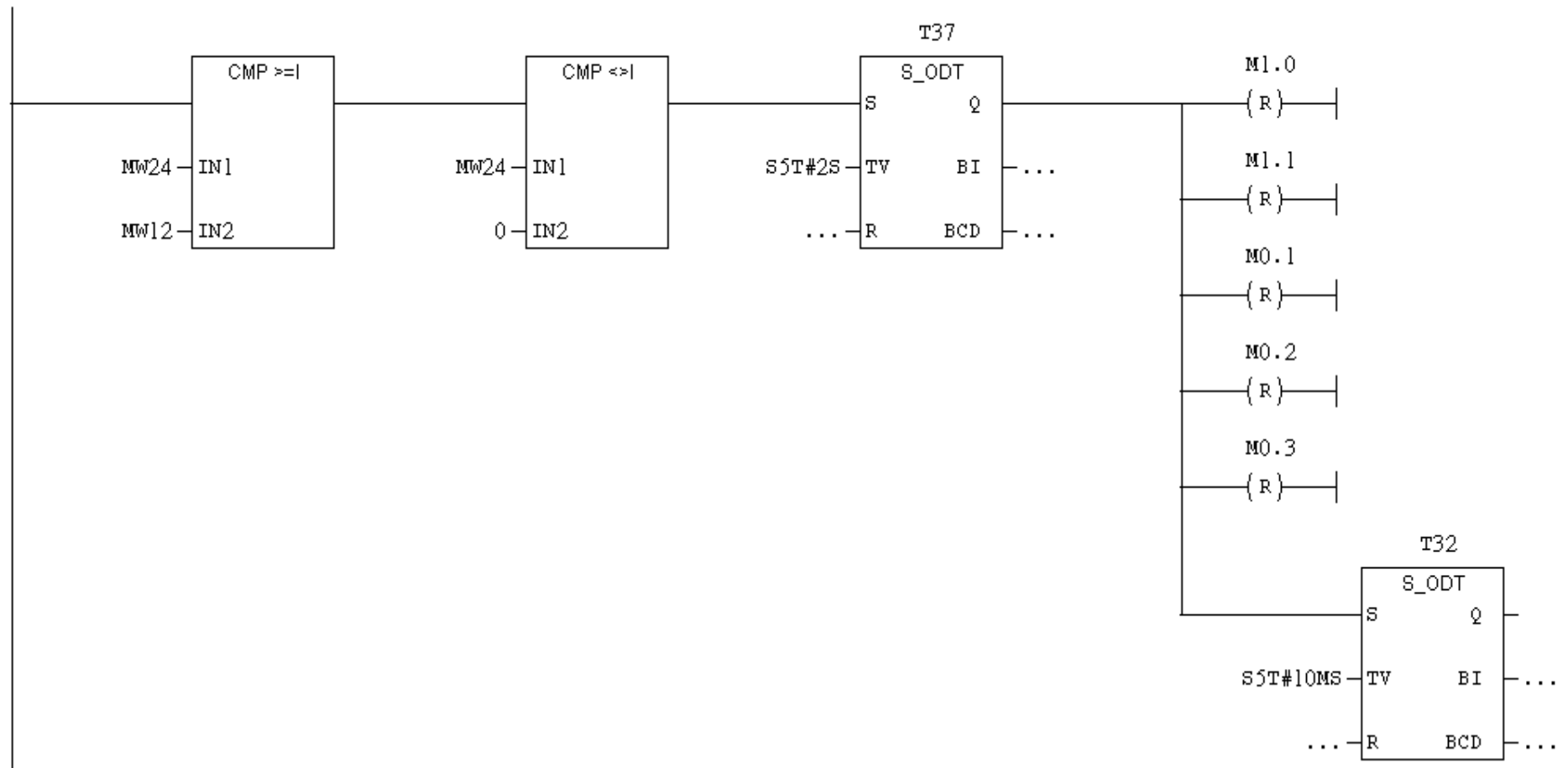
Automatic Store :

Network 33 : Title:

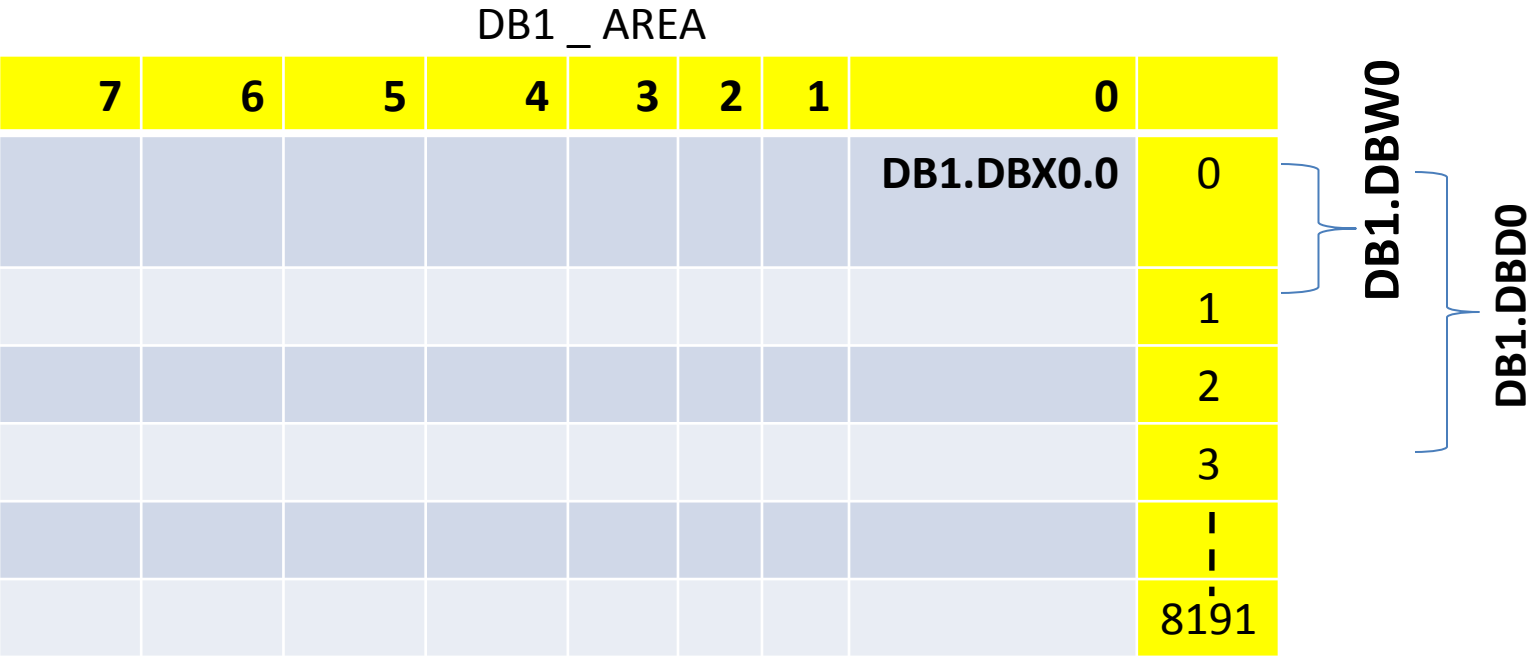


Automatic Store :

Network 34 : Title:

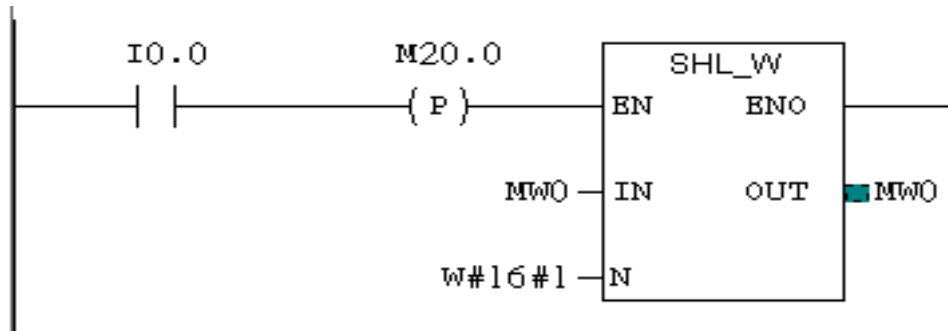


DATA BLOCK (DB):

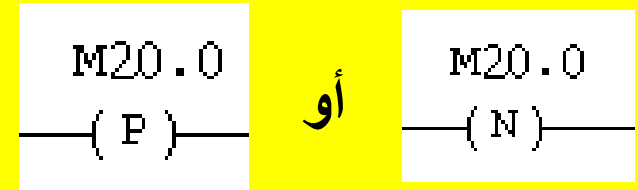


BIT	DB [DB ORDER] .DBX [BYTE] . [BIT]	DB1.DBX0.0
BYTE	DB[DB ORDER] . DBB [BYTE ORDER]	DB1.DBB0
WORD	DB[DB ORDER] .DBW[WORD ORDER]	DB1.DBW0
DOUBLE WORD	DB[DB ORDER].DBD[DOUBLE WORD ORDER]	DB1.DBD0

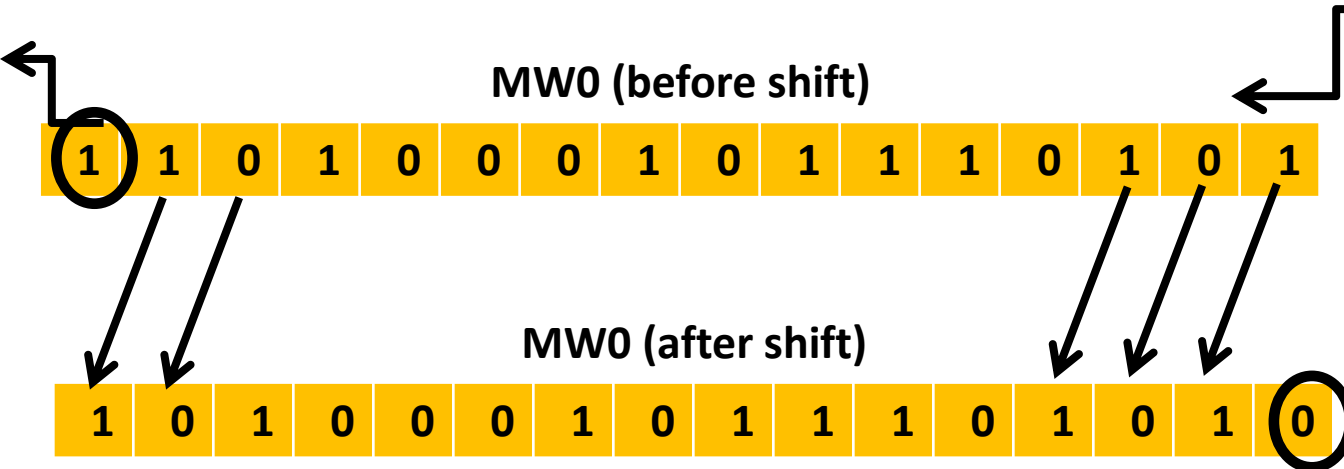
SHIFT /ROTATE :



SOURCE = DESTINATION إذا كان
فلا بد من وضع أحد الأمرين:

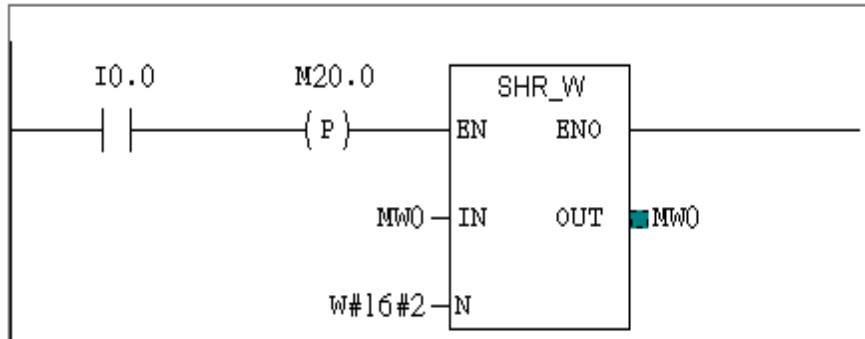


IN	Source (address/ value) suitable to type
N	No. of shifts per scan
OUT	Destination (address) suitable to type

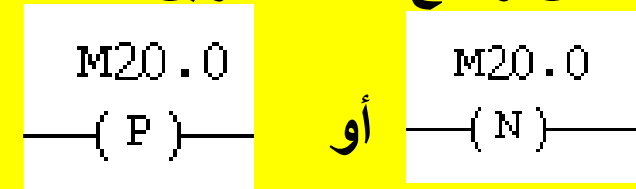


SHIFT / ROTATE :

Network 1: Title:



SOURCE = DESTINATION إذا كان
فلا بد من وضع أحد الأمرين:



IN	Source (address/ value) suitable to type
N	No. of shifts per scan
OUT	Destination (address) suitable to type

MW0 (before shift)

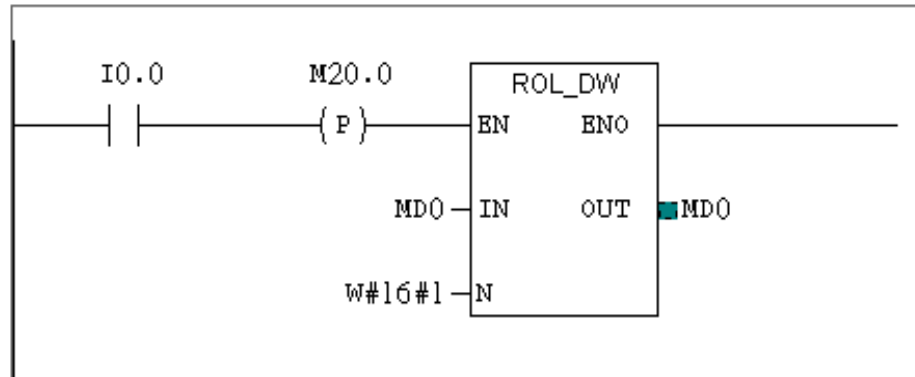


MW0 (after shift)

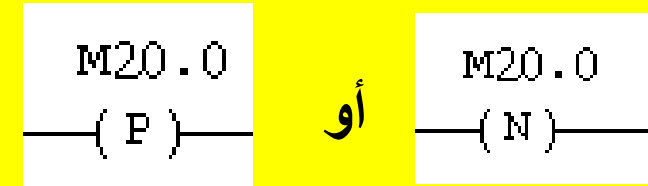


SHIFT /ROTATE :

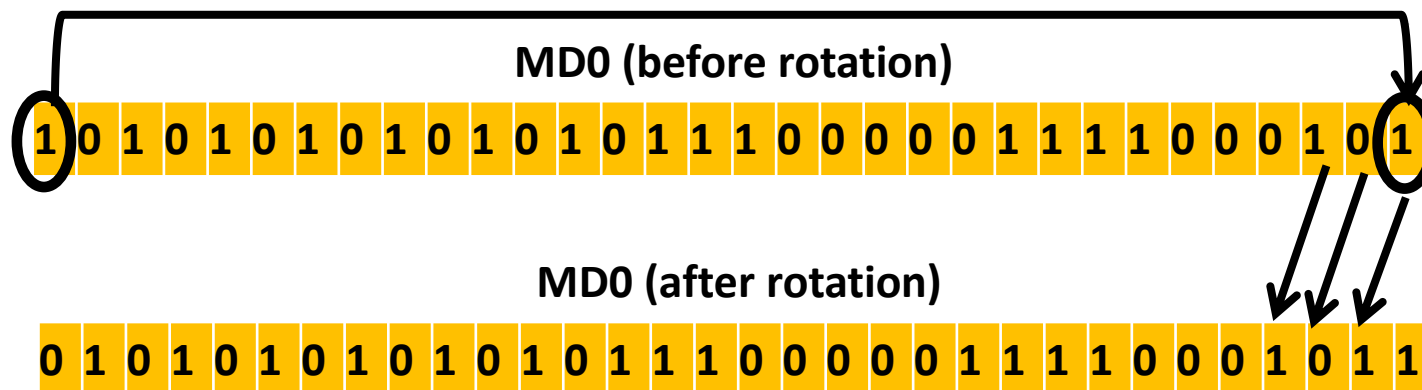
Network 1: Title:



إذا كان **SOURCE = DESTINATION** فلا بد من وضع أحد الأمرين :

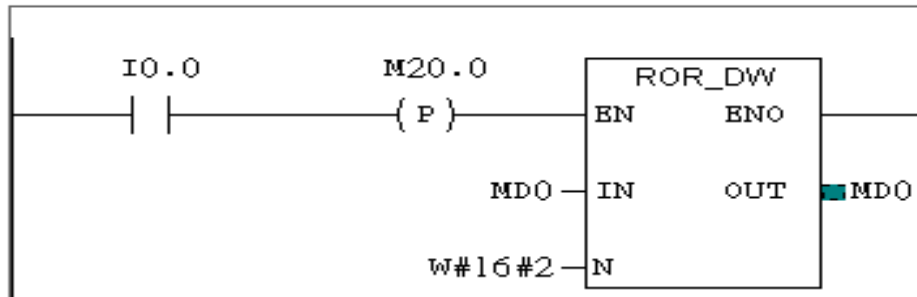


IN	Source (address/ value) suitable to type
N	No. of shifts per scan
OUT	Destination (address) suitable to type

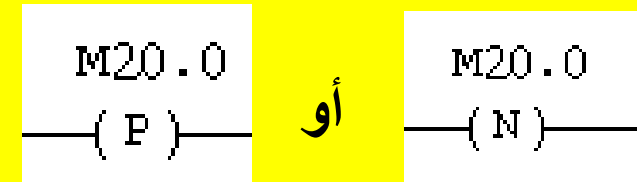


SHIFT /ROTATE :

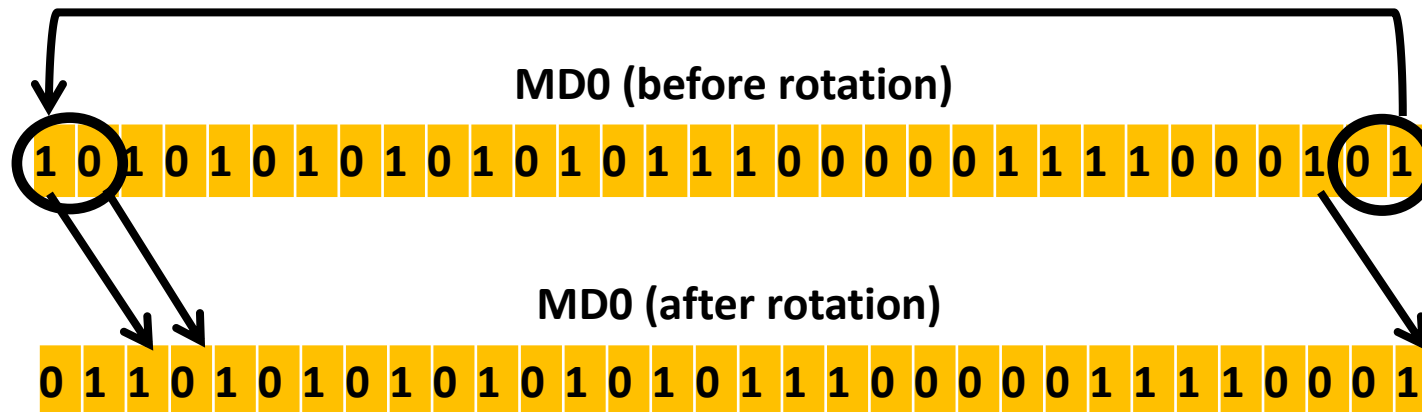
Network 1 : Title:



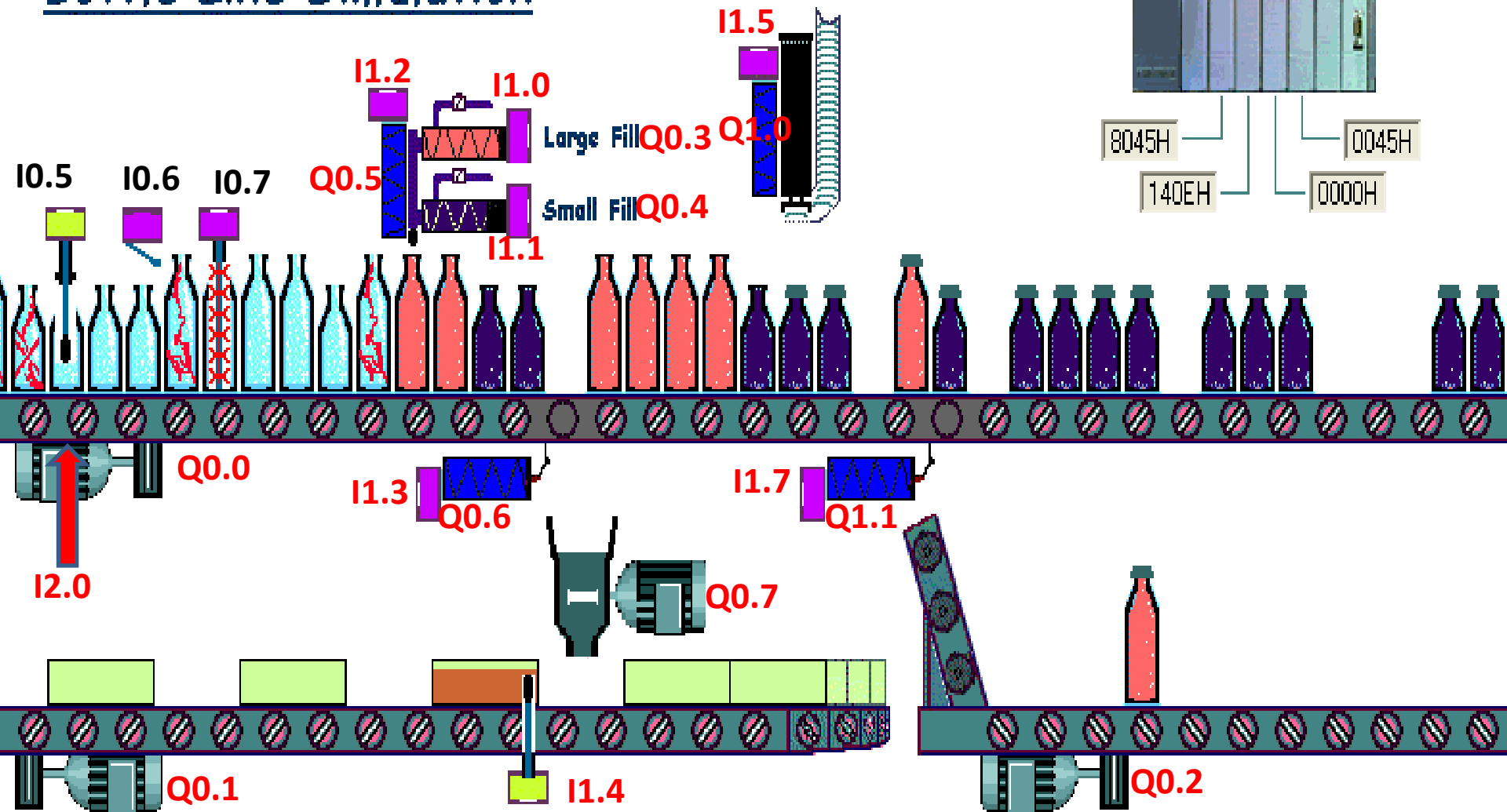
SOURCE = DESTINATION إذا كان
فلا بد من وضع أحد الأمرين :



IN	Source (address/ value) suitable to type
N	No. of shifts per scan
OUT	Destination (address) suitable to type



Bottle Line Simulation



i0.0 on
i0.1 off

10.2 A

10.3 B

10 4 C

10.4	C
10.5	C

10.5 all sensor
10.6 loop over

10.6 large sensor

10.7 broken sensor

```
i1.0 large end
```

```

i1.1 sma]] end

```

```
i1.2 fill tube end
```

i1 3 drop broken end

i1.4 bolt#2 sensor

11.4 belTZ sensor
11.5 lamp and

11.5	large end
11.0	17

```
11.6 small end
```

```
i1.7 drop large end
```

i2.0 steps sensor

$$a_0, 0, b e^{1+t}$$

q0 1 be1+2

q0.1 be 1L2
q0.2 be 1+3

q0.2 belts
0.2 6:11.1

q0.3	f711	large
q0.4	f717	medium
q0.5	f723	small

q0.4 fill small

q0.5 fill tube

q0.6 drop broken

q0.7 miller

q1 0 cover

q1.1 drop [large/small]

q1.1 drop

q1.2 run

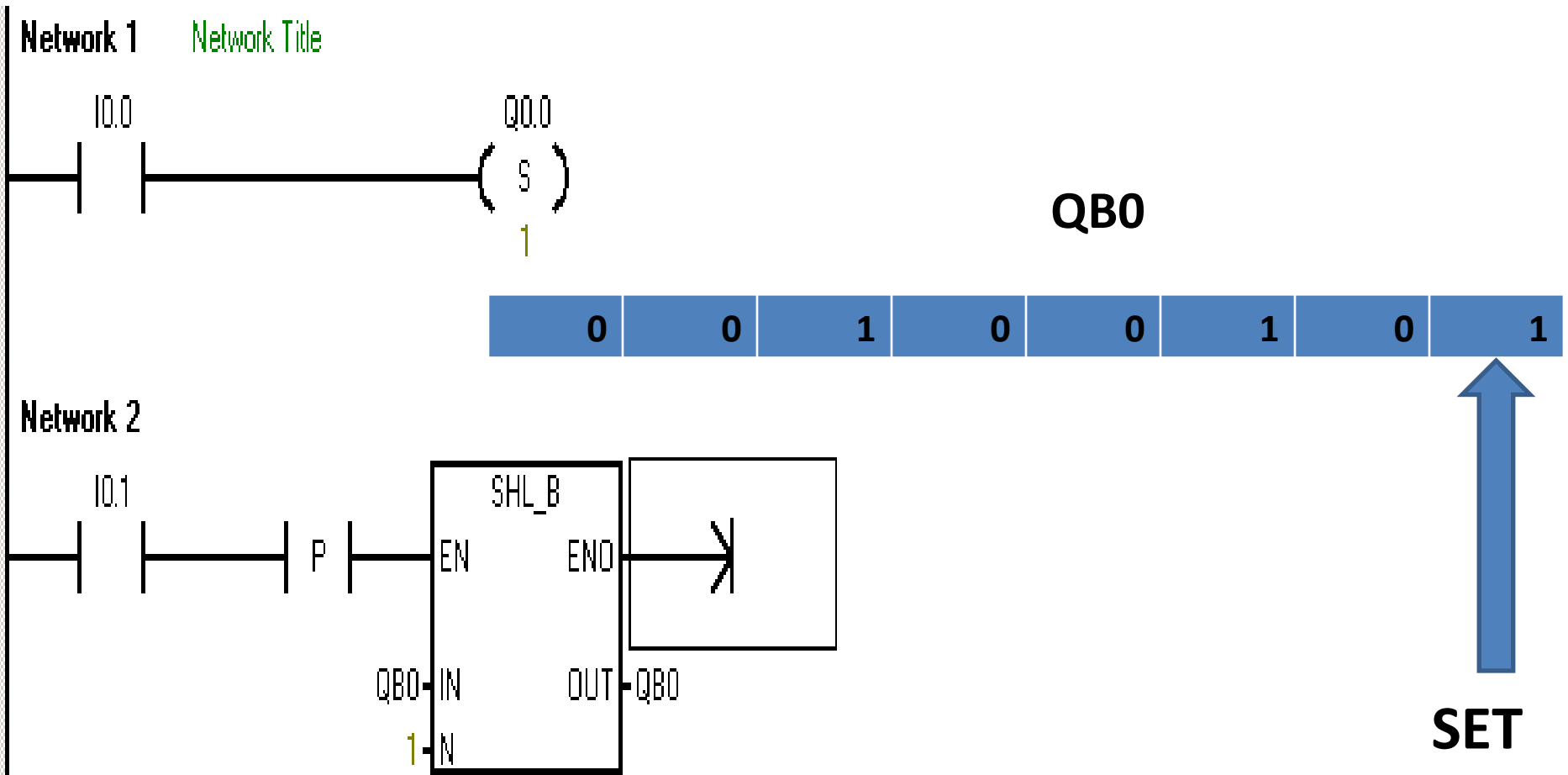
qw2 large

qw4 sma11

qw6 broken

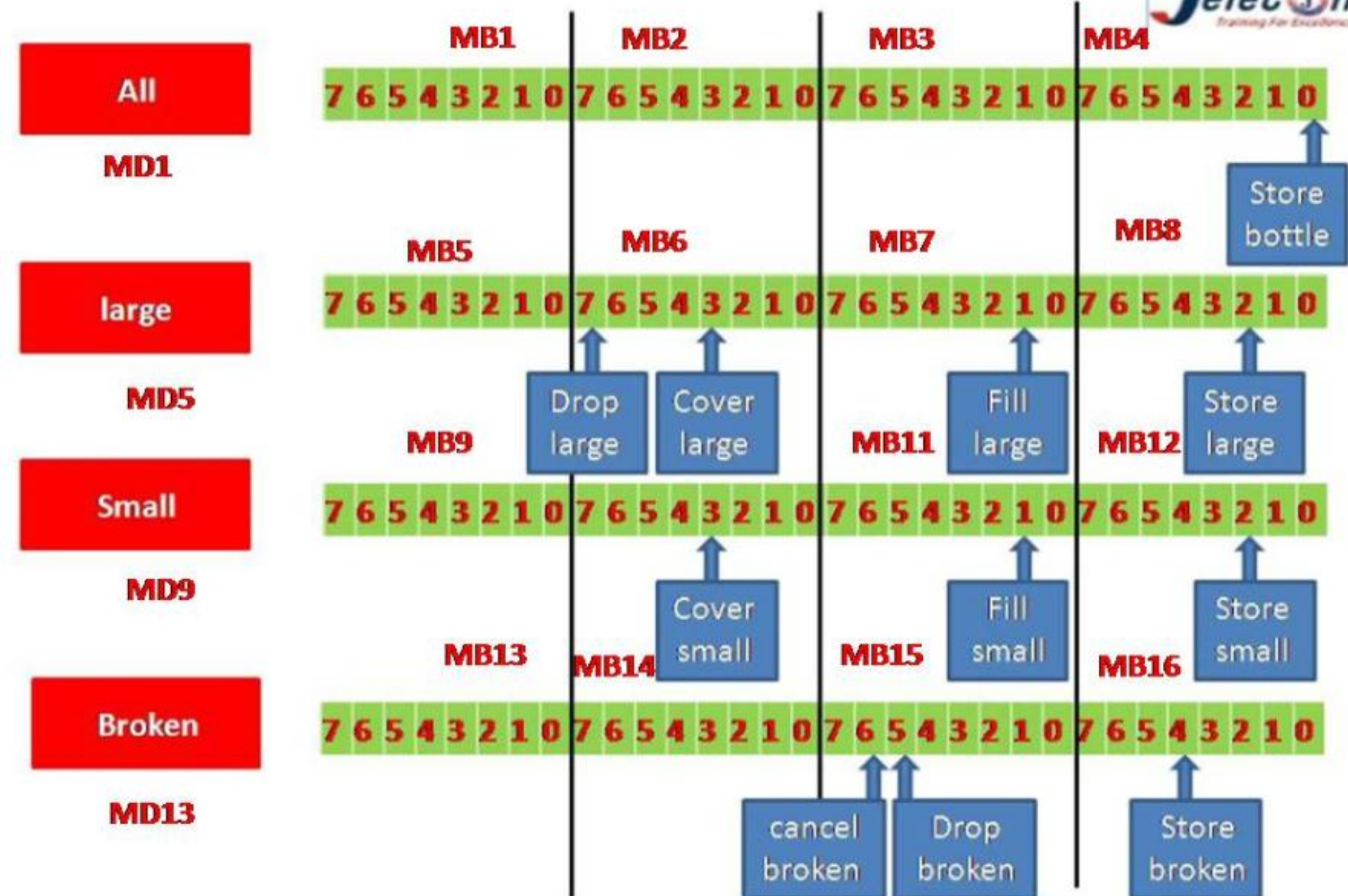
qwr8 boxes

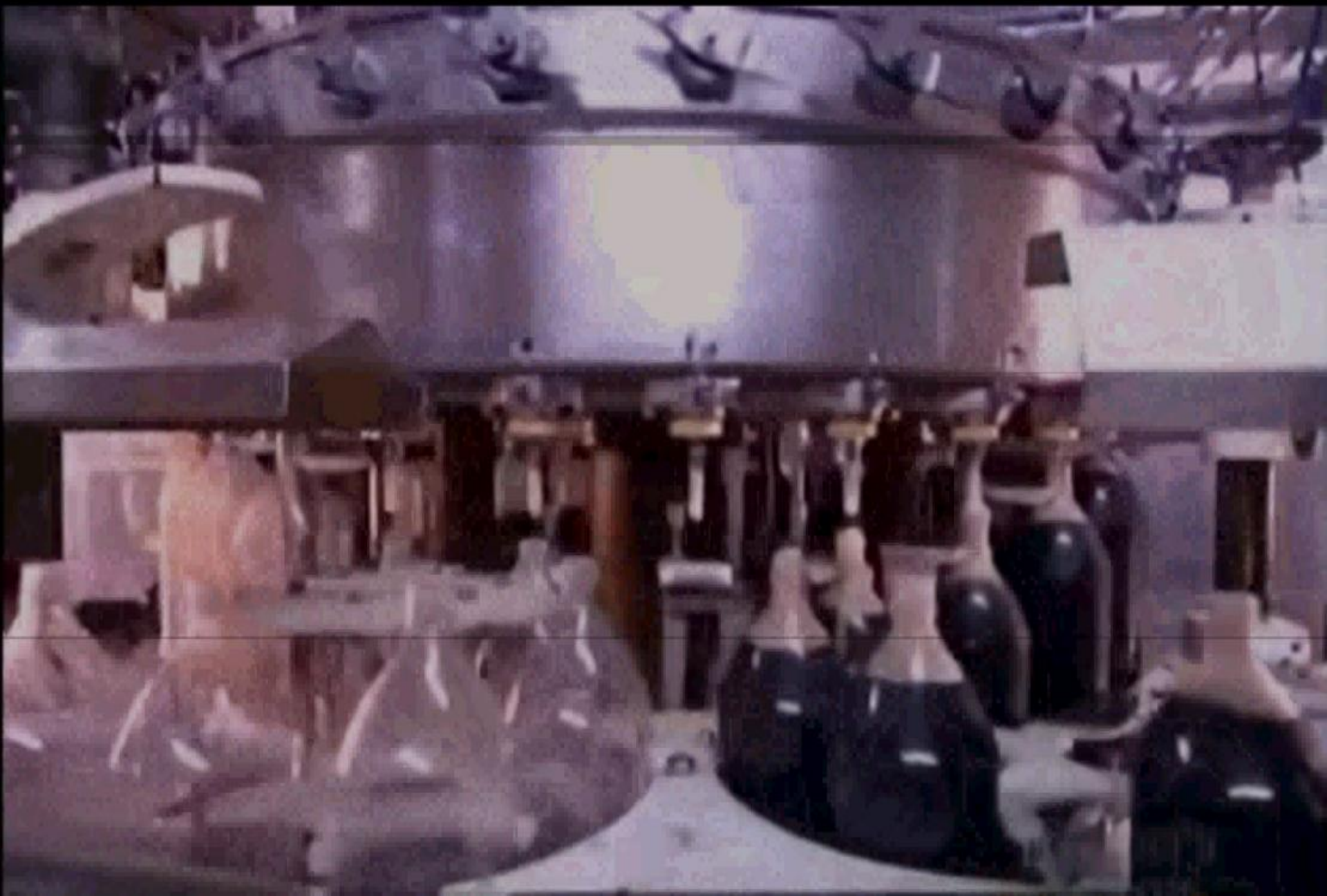
Bottle line :



-- أمر SET يضع ال 1 ولن يتحول إلى 0 إلا إذا قام ال SHIFT بتحريكه لليسار.
 -- كل أمر SET جديد يضع 1 فى نفس الموضع ويتحرك ال 1 من موضعه بال SHIFT ويسمح بعمل SET جديد بحيث نستطيع أن نحدد مكان 1 القديم والجديد.

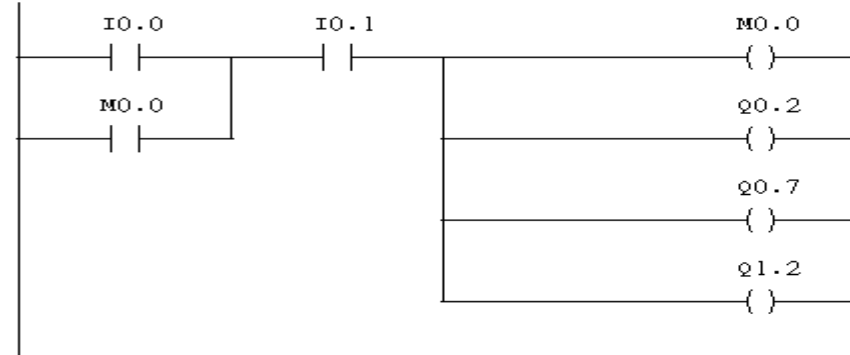
Bottle line :



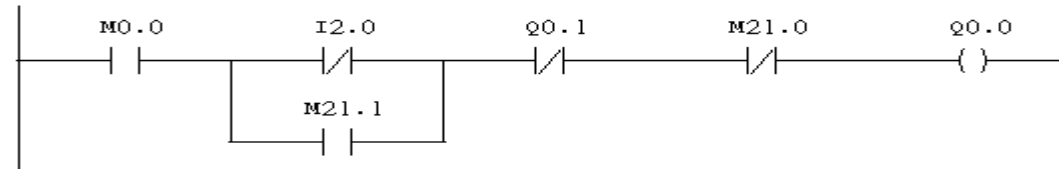


Bottle line :

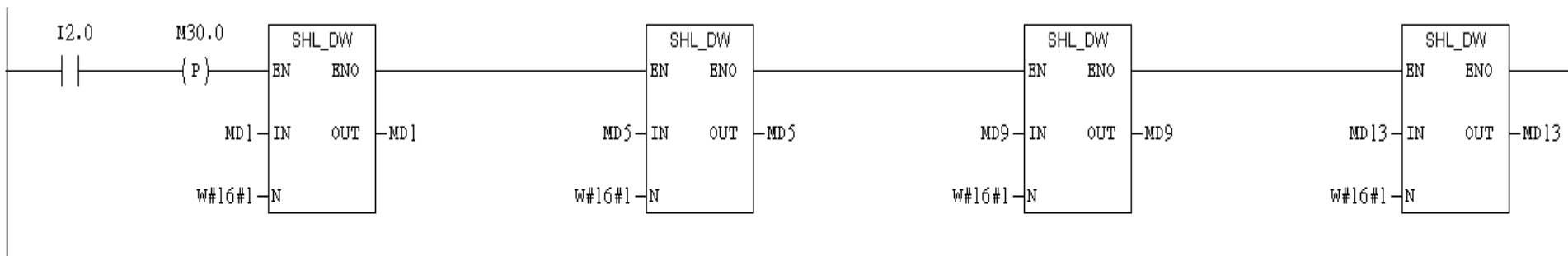
Network 1: Title:



Network 2: Title:



Network 3: Title:

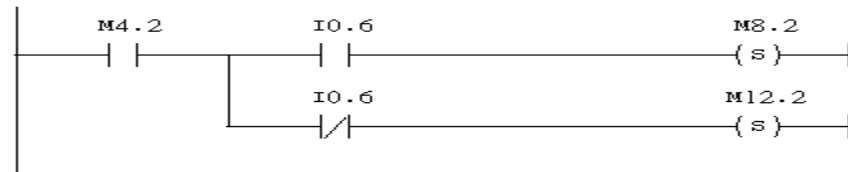


Network 4: Title:

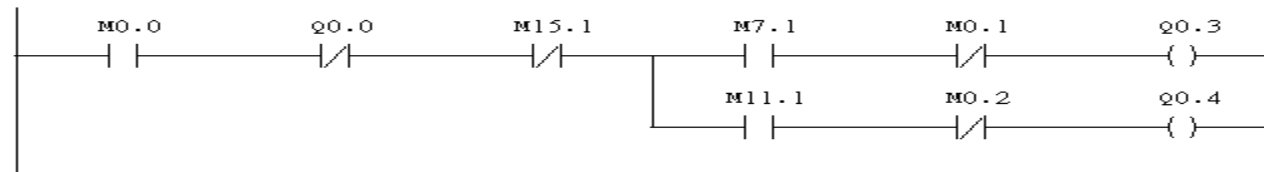


Bottle line :

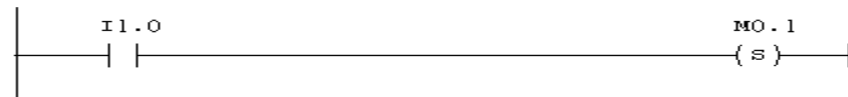
Network 5 : Title:



Network 6 : Title:



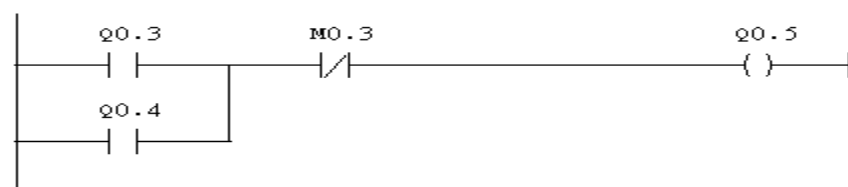
Network 7 : Title:



Network 8 : Title:



Network 9 : Title:



Network 10 : Title:

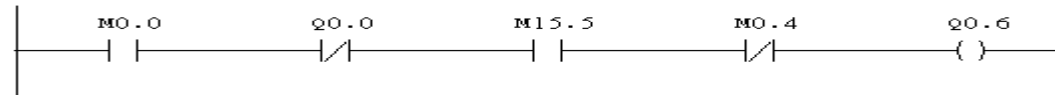


Bottle line :

Network 11 : Title:



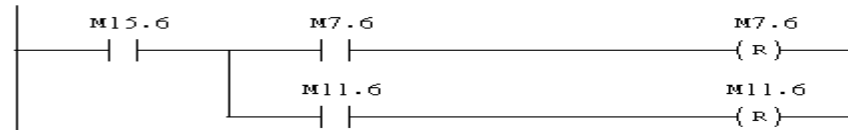
Network 12 : Title:



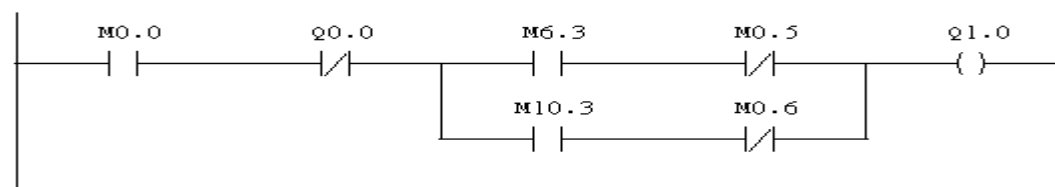
Network 13 : Title:



Network 14 : Title:



Network 15 : Title:



Network 16 : Title:

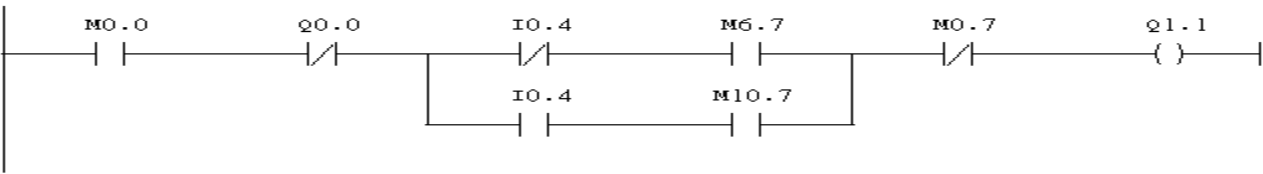


Network 17 : Title:



Bottle line :

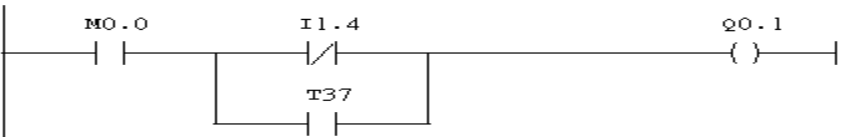
Network 18 : Title:



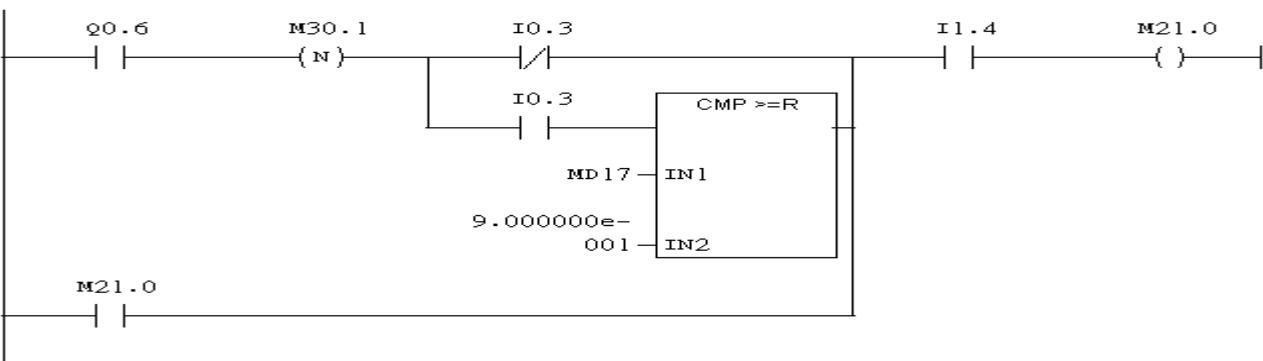
Network 19 : Title:



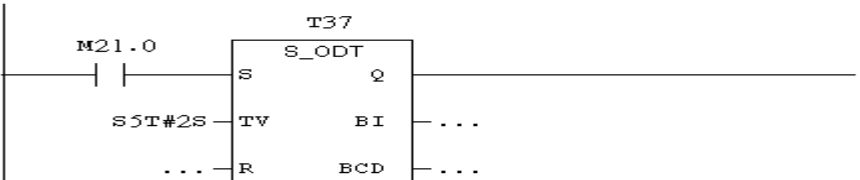
Network 20 : Title:



Network 21 : Title:

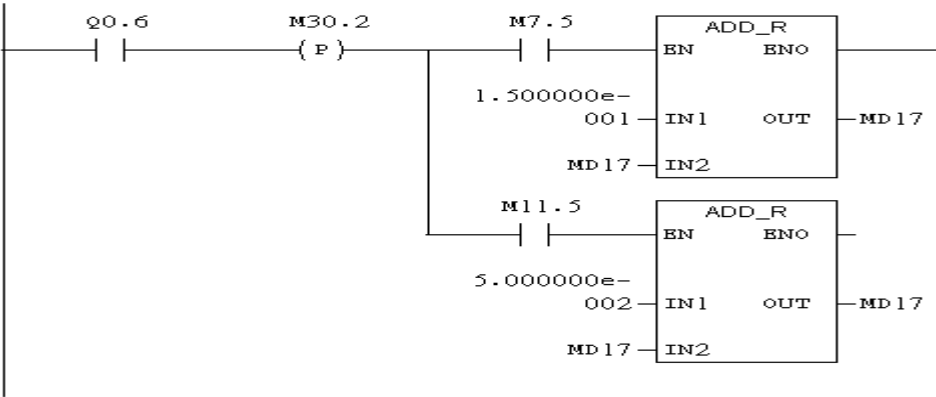


Network 22 : Title:

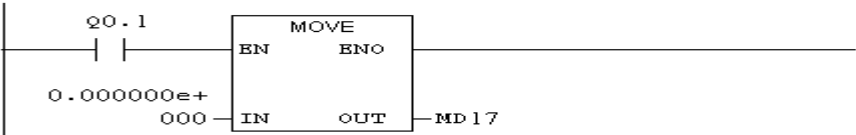


Bottle line :

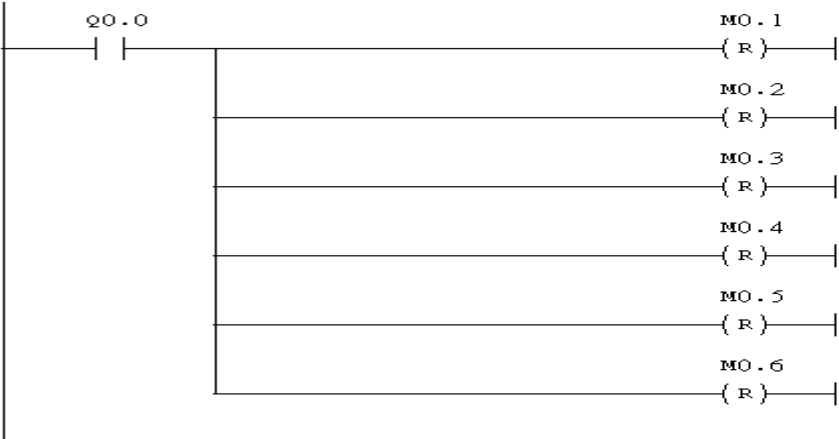
Network 23 : Title:



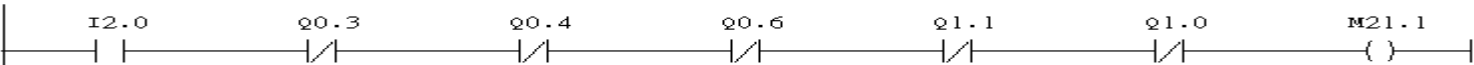
Network 24 : Title:



Network 25 : Title:

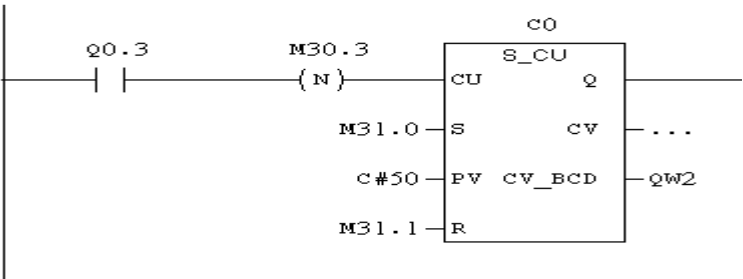


Network 26 : Title:

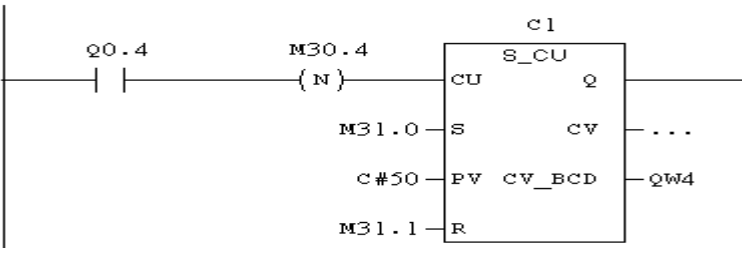


Bottle line :

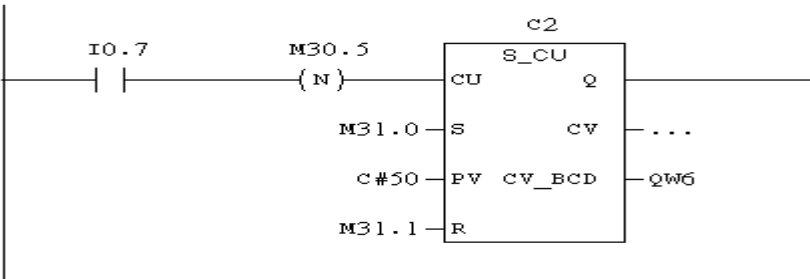
Network 27 : Title:



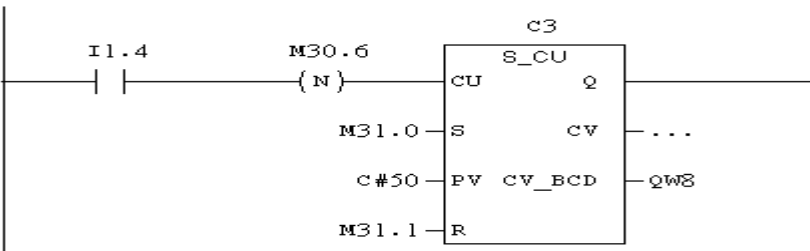
Network 28 : Title:



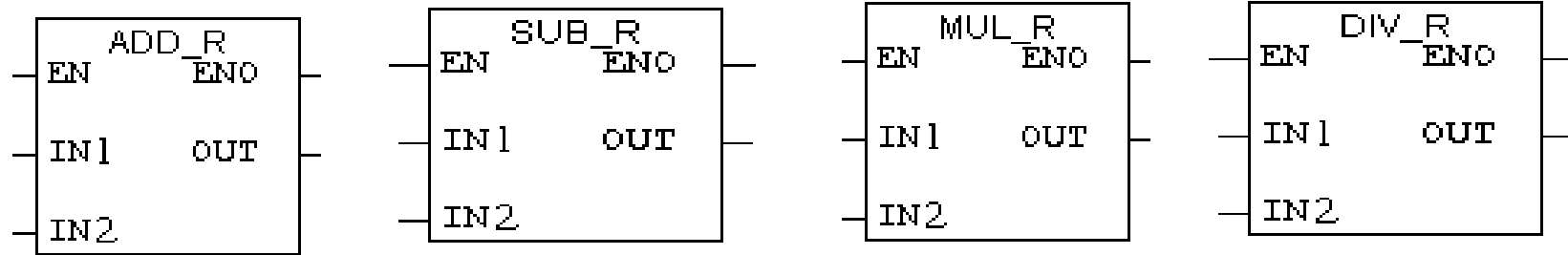
Network 29 : Title:



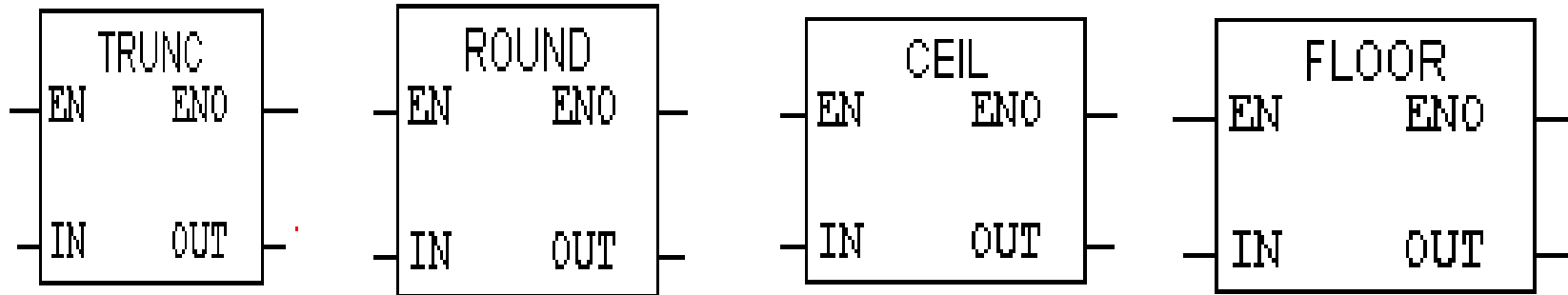
Network 30 : Title:



FLOATING POINT:



كما في **INTEGER FUNCTION** مع نفس الحالات الخاصة ولكن الفارق هو أن نوع المدخلات والمخرجات لهذه البلوكات هو **DOUBLE WORD**.



استئصال
الجزء
الكسرى من
الرقم

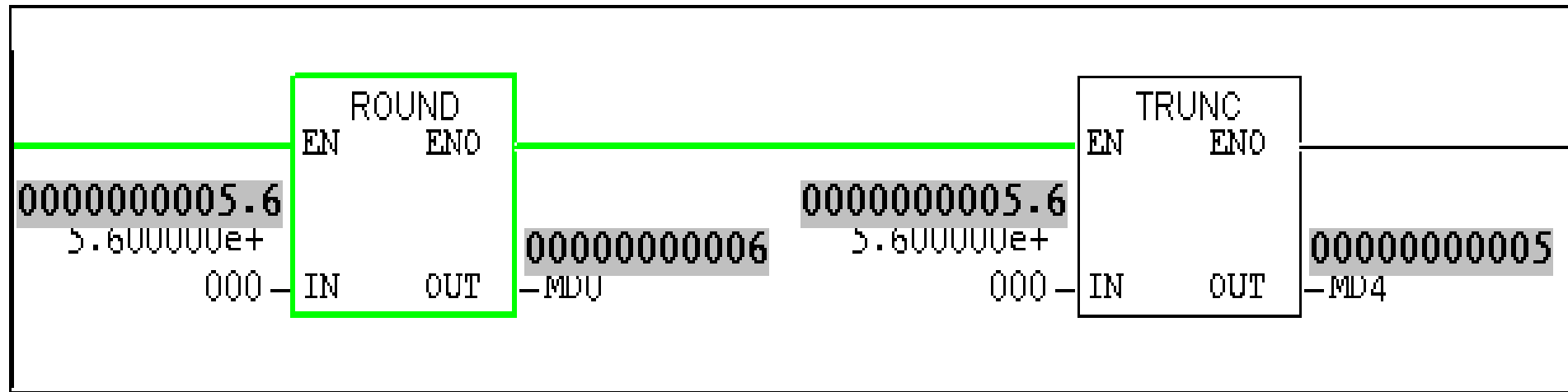
تقريب الرقم
الكسرى
لأقرب رقم
صحيح

تقريب الرقم
الكسرى لأقرب
رقم صحيح
للأعلى

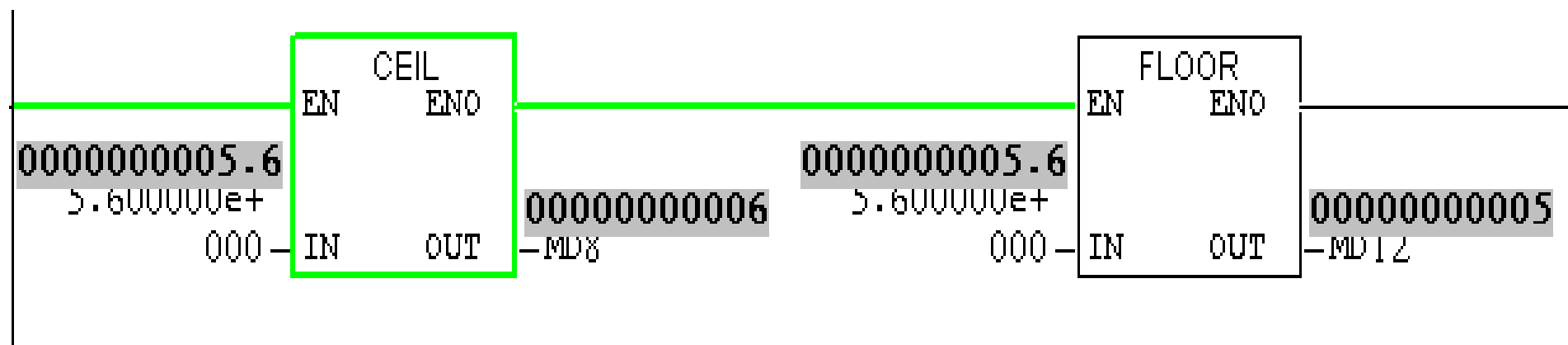
تقريب الرقم
الكسرى لأقرب
رقم صحيح
للأسفل

FLOATING POINT (FROM RUN TIME SCREEN):

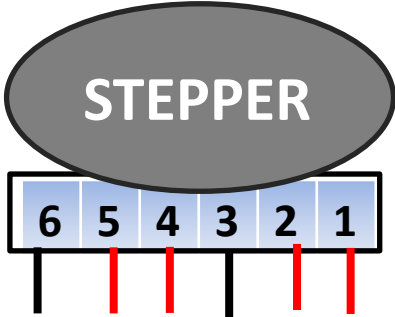
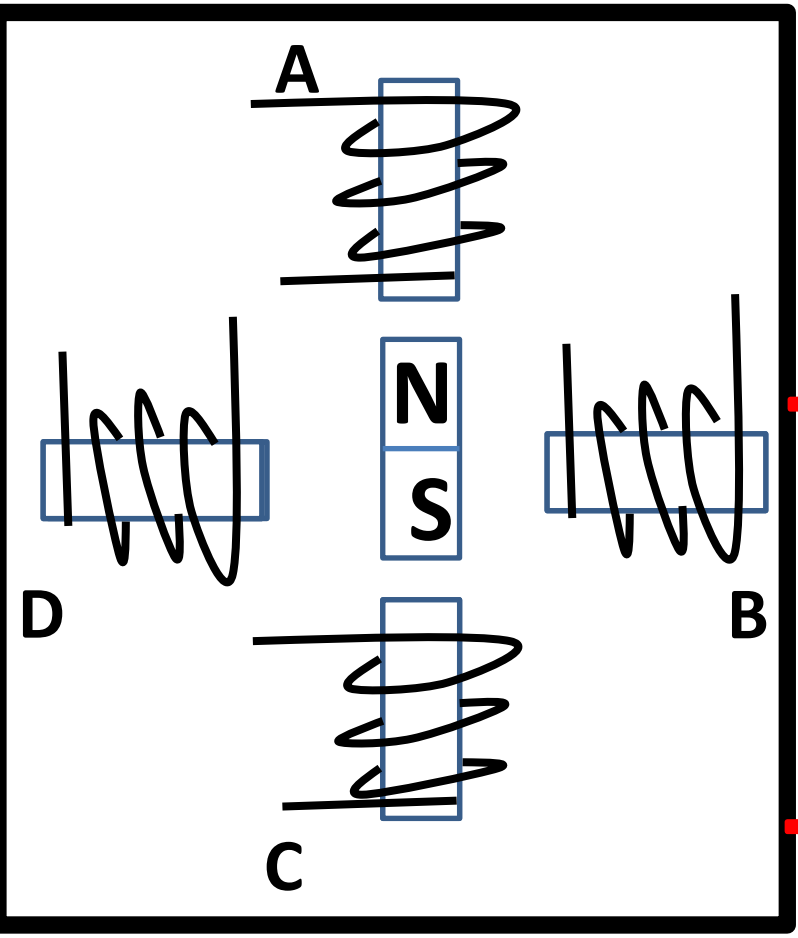
Network 1: Title:



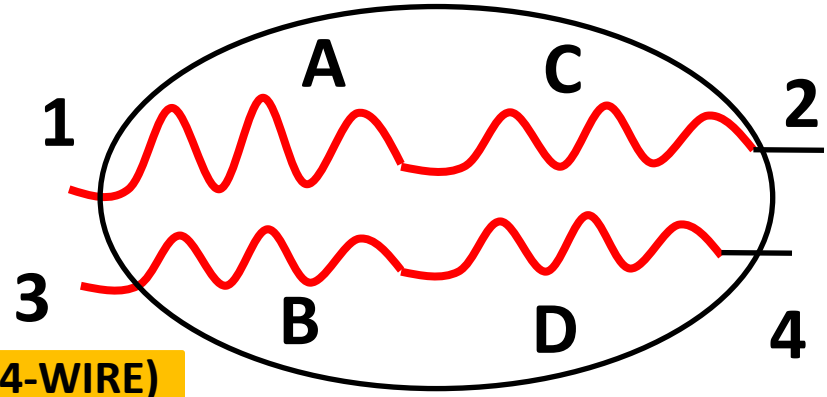
Network 2: Title:



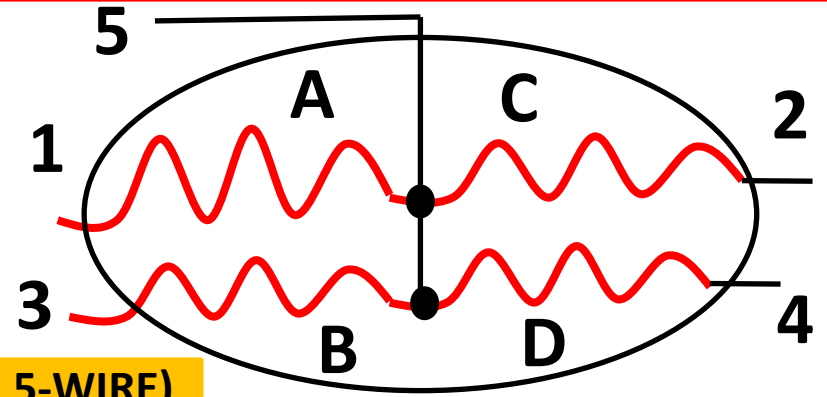
STEPPER MOTOR:



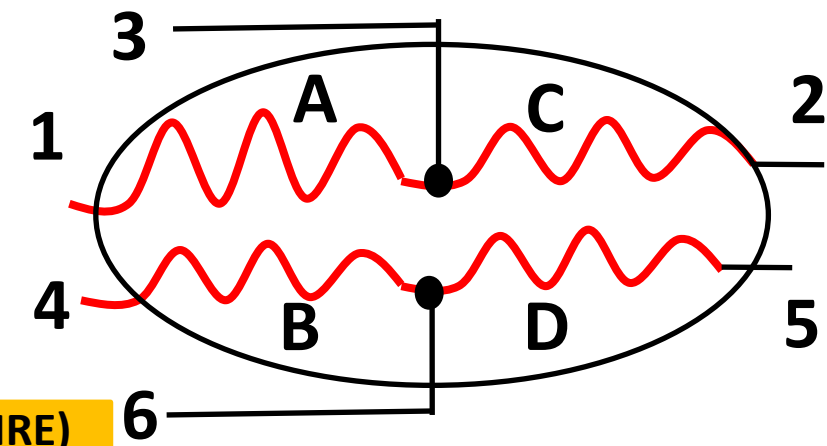
Bipolar (4-WIRE)



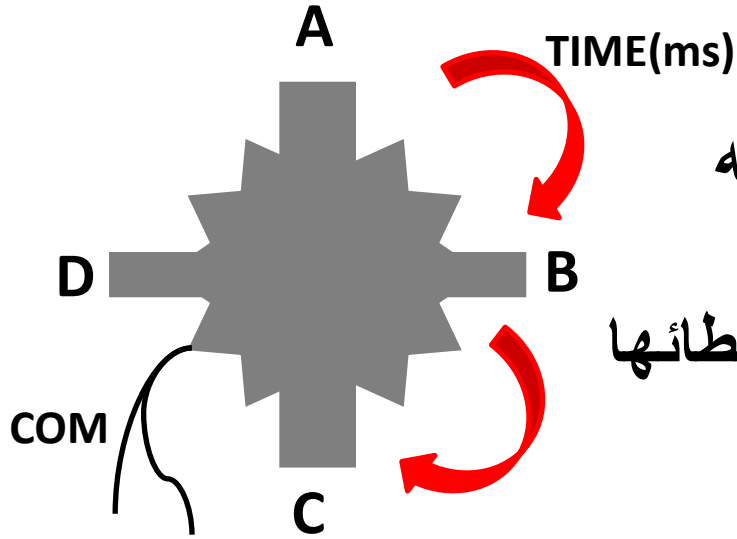
Unipolar (5-WIRE)



Unipolar (6-WIRE)



STEPPER MOTOR:



:FORWARD

اعطاء الاشارة إلى A وبعد زمن قطع الاشارة عنه
واعطائها إلى B وبعد زمن قطع الاشارة عنه
واعطائها إلى C وبعد زمن قطع الاشارة عنه واعطائها
إلى D

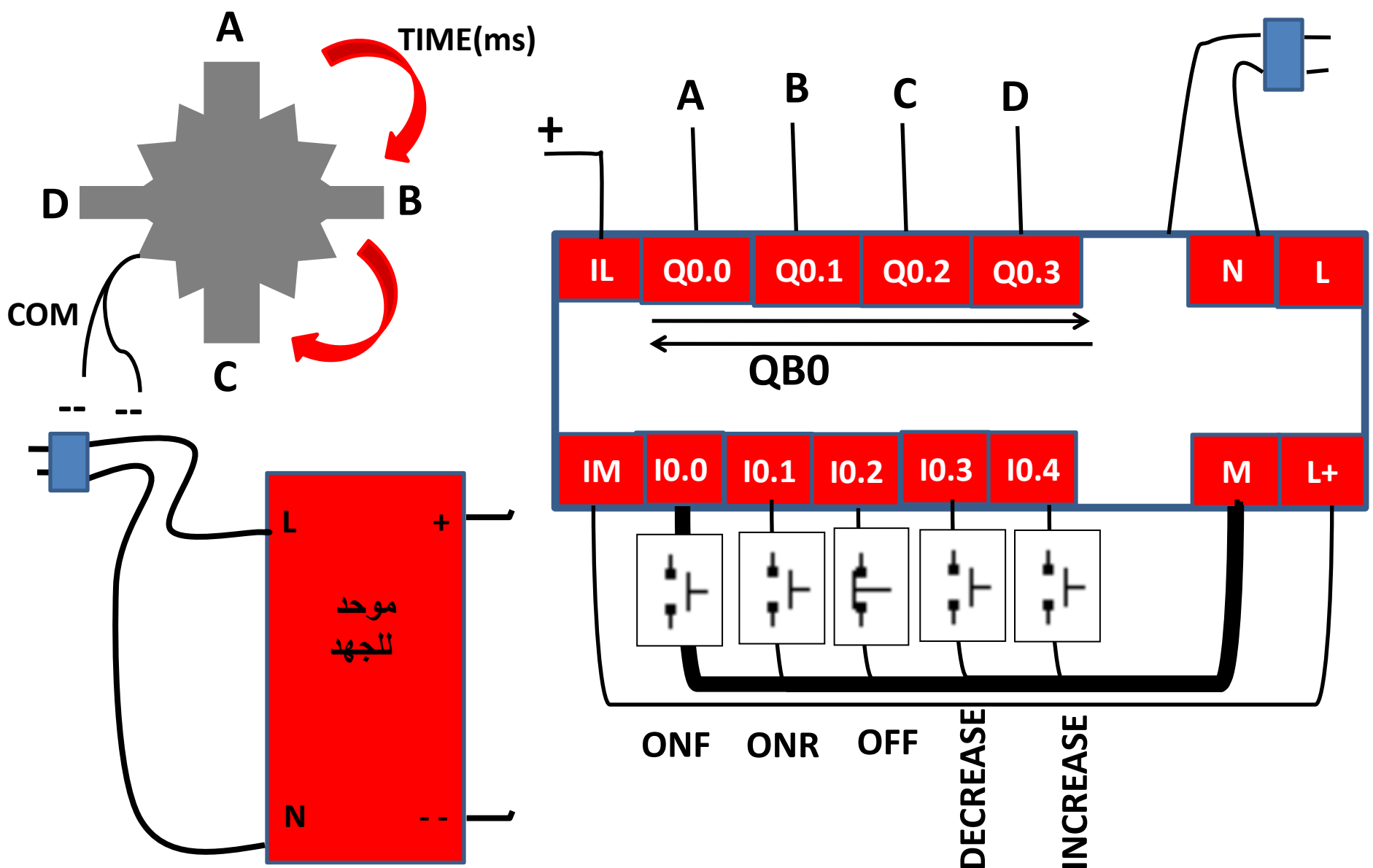
:REVERSE

اعطاء الاشارة إلى A وبعد زمن قطع الاشارة عنه واعطائها إلى D وبعد زمن
قطع الاشارة عنه واعطائها إلى C وبعد زمن قطع الاشارة عنه واعطائها إلى B

:SPEED CONTROL

كلما كان الزمن كبيرا كلما كانت السرعة أقل وكلما كان الزمن صغيرا كلما كانت
السرعة أكبر.

CONTROL FOR UNIPOLAR STEPPER MOTOR:



يفضل أن يكون ال plc له output transistor

CONTROL ON UNIPOLAR STEPPER MOTOR:

QB0

0	0	0	1
---	---	---	---

 1

0	0	1	0
---	---	---	---

 2

0	1	0	0
---	---	---	---

 4

1	0	0	0
---	---	---	---

 8

←
SHIFT LEFT

FORWARD

QB0

1	0	0	0
---	---	---	---

 8

0	1	0	0
---	---	---	---

 4

0	0	1	0
---	---	---	---

 2

0	0	0	1
---	---	---	---

 1

→
SHIFT RIGHT

REVERSE

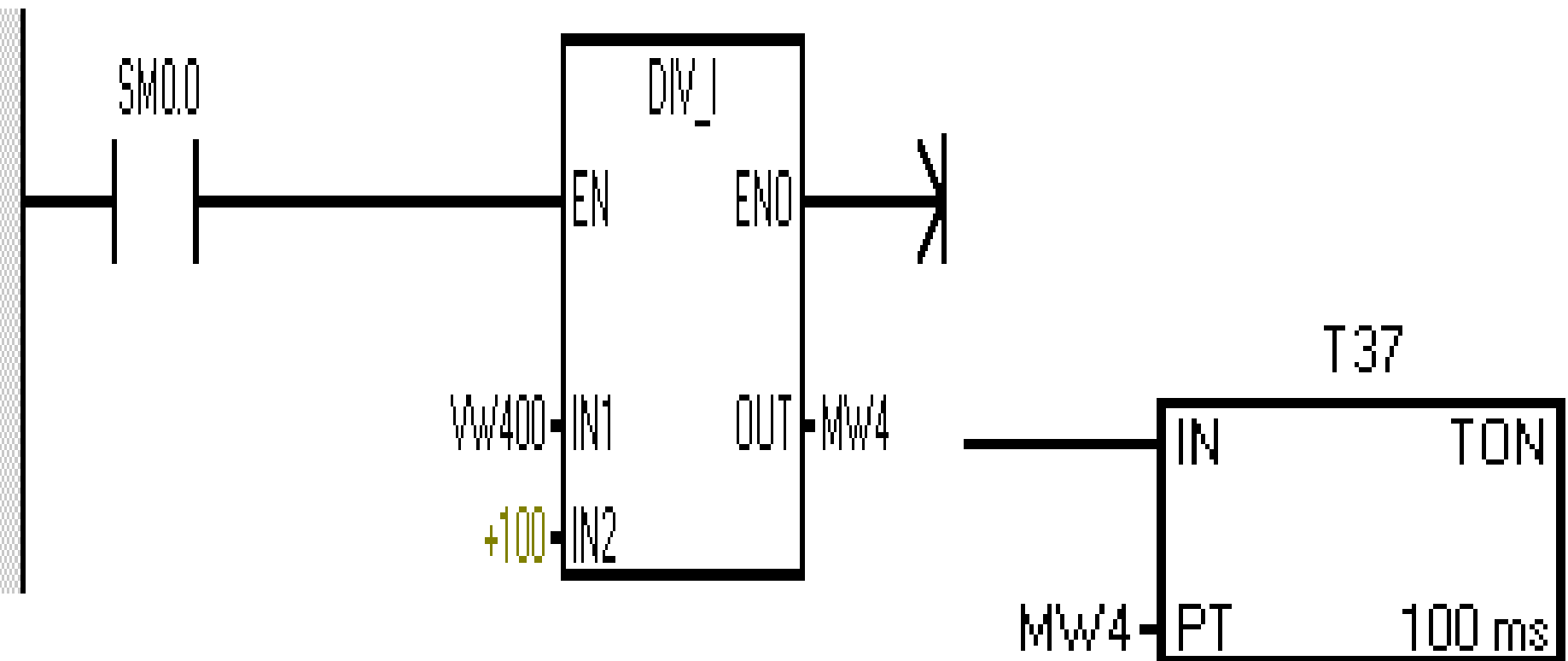
CONTROL ON UNIPOLAR STEPPER MOTOR:

TIME = RESOLUTION * PT

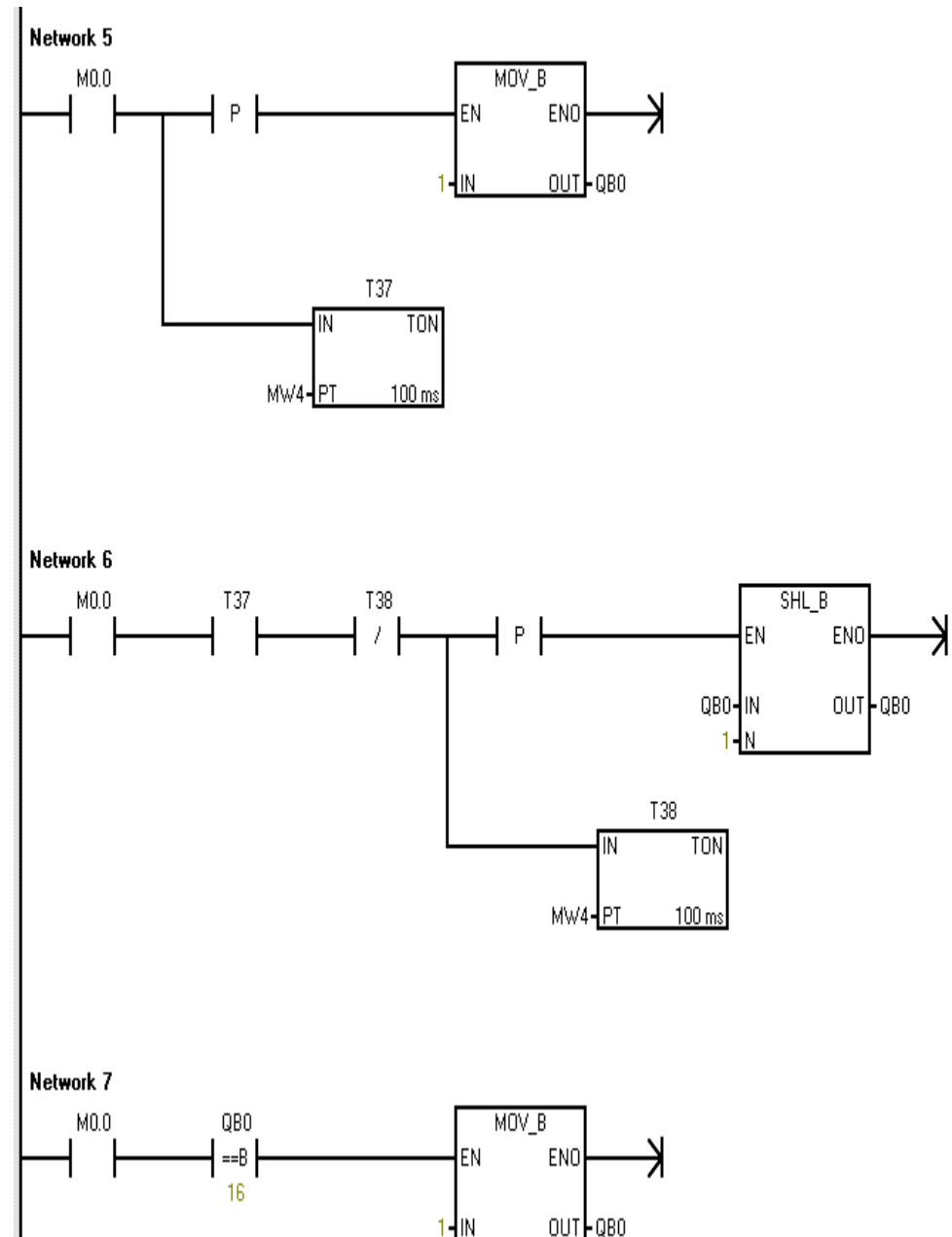
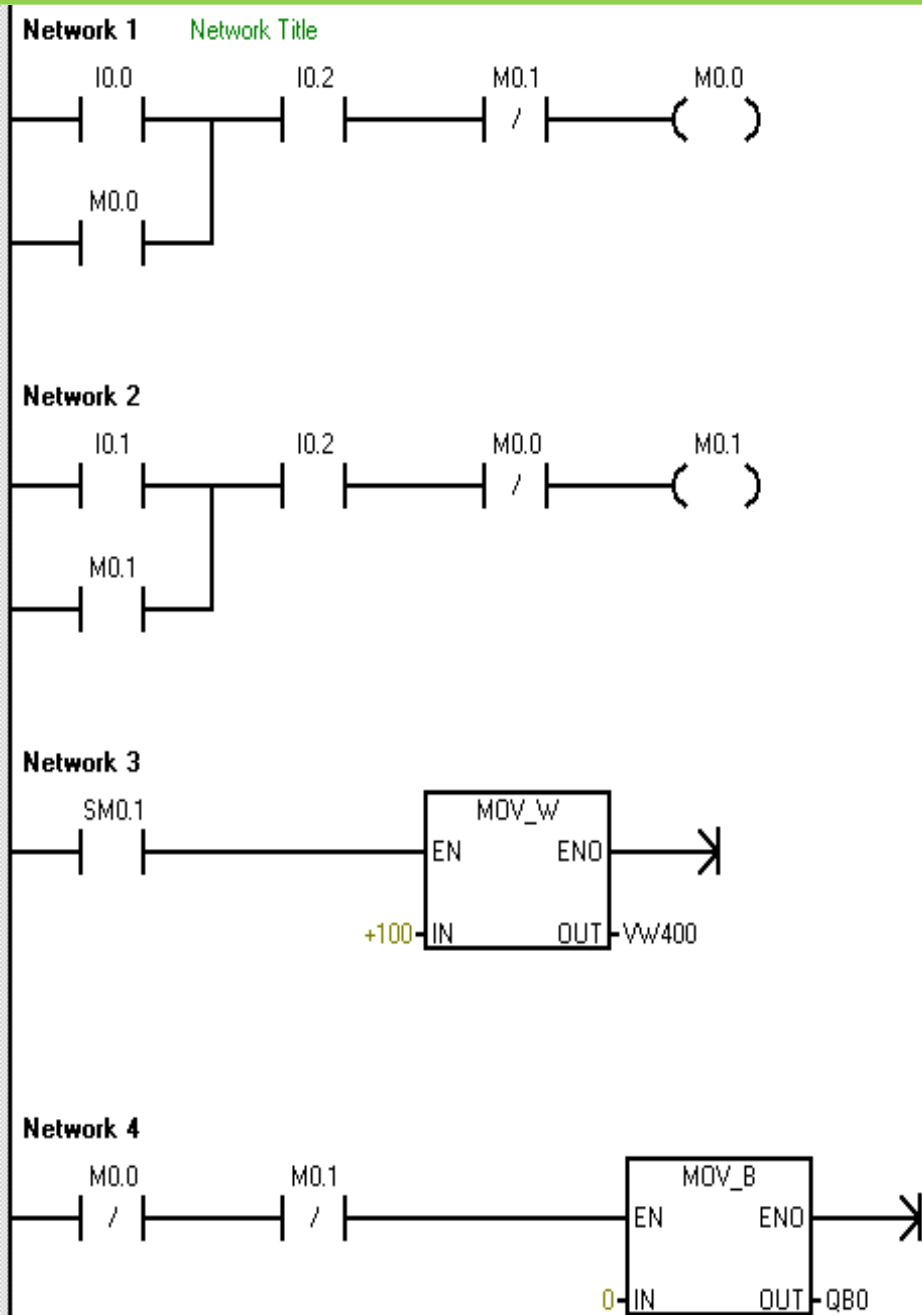
PT = TIME (SECONDS) * 10 $\rightarrow$ RES.=100MS

MW4 = [VW400(MILLISECONDS) / 1000] * 10

MW4 = VW400 / 100

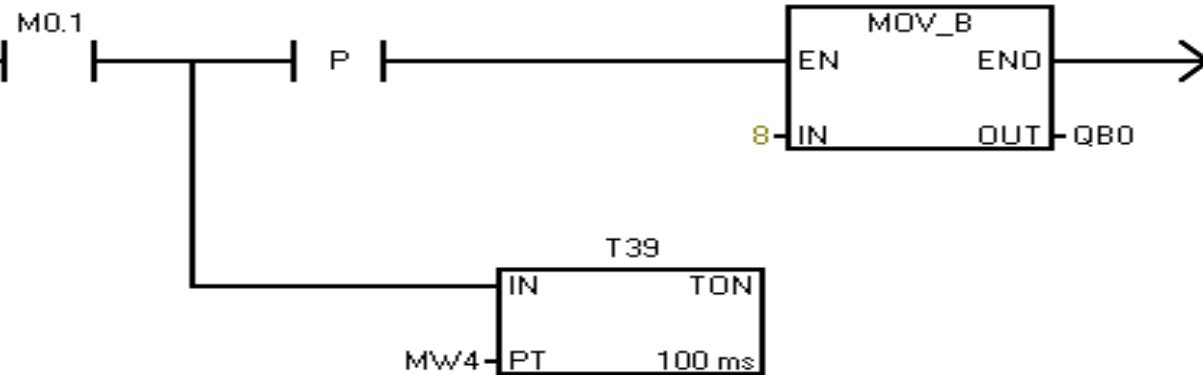


CONTROL ON UNIPOLAR STEPPER MOTOR:

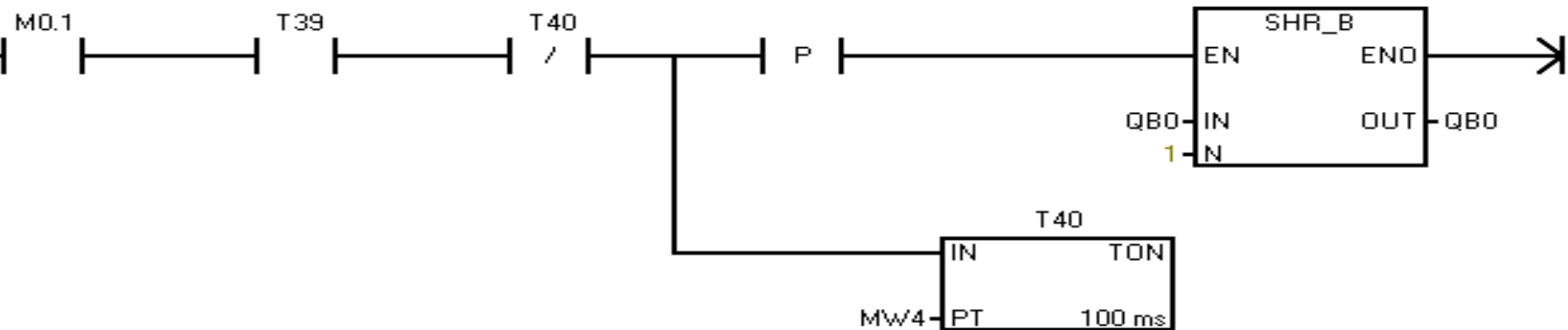


CONTROL ON UNIPOLAR STEPPER MOTOR:

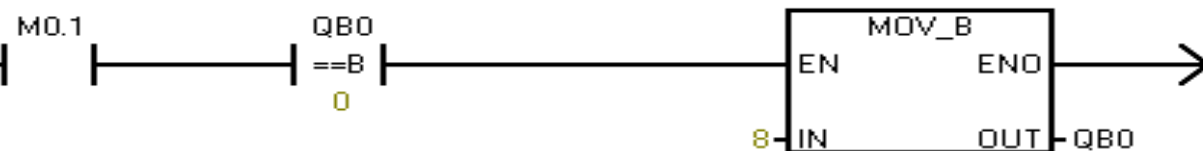
Network 8



Network 9

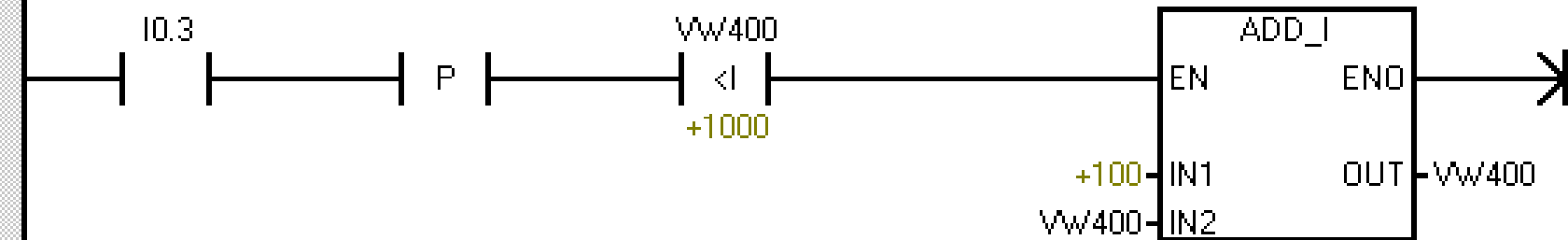


Network 10

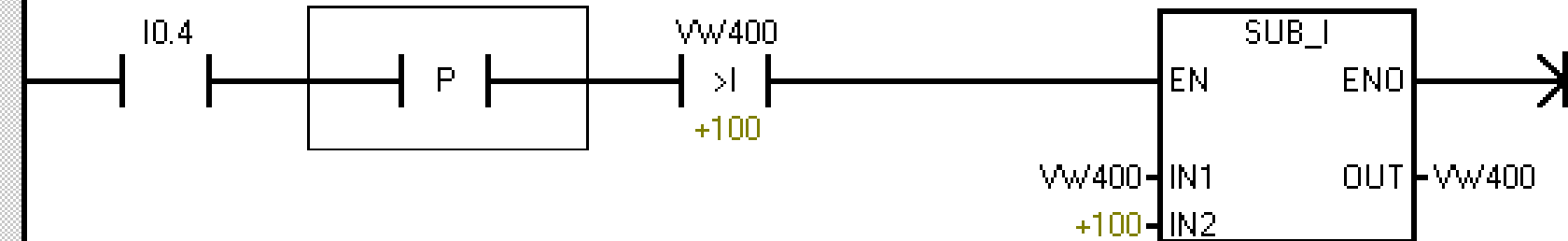


CONTROL ON UNIPOLAR STEPPER MOTOR:

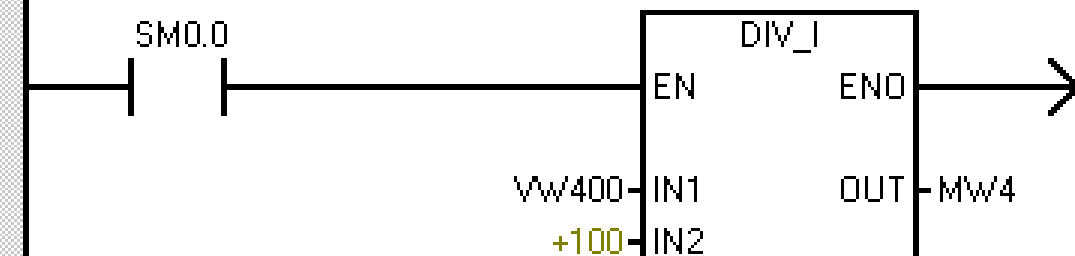
Network 11



Network 12

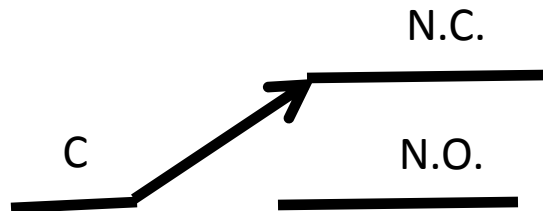


Network 13



Analog in PLC:

DIGITAL (SWITCH)



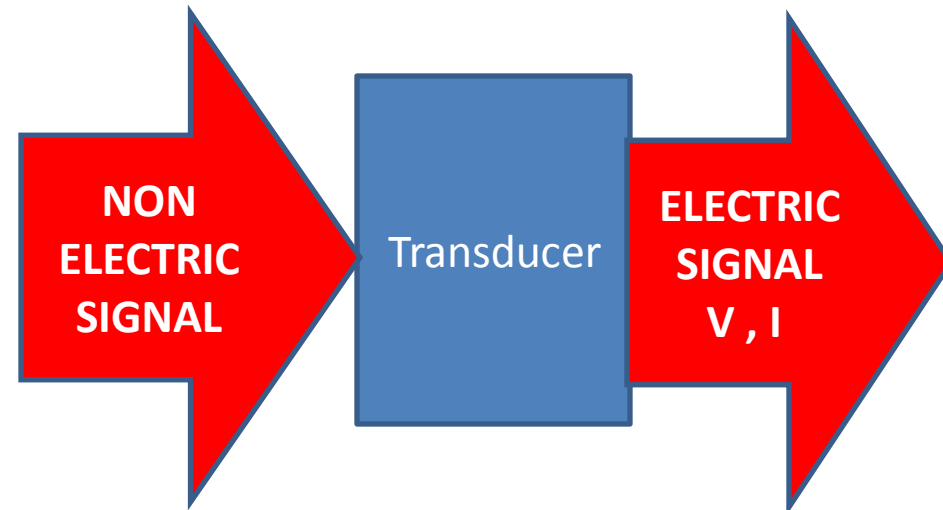
1	CONTACT CHANGE
0	CONTACT BACK

EX.:

Digital
Temperature
sensor



ANALOG (Variable signal)



EX.:

Analog
Temperature
sensor
(THERMOCOUPLE)



Analog in PLC SIEMENS S7-200:

- Channel A: 0-10V
- Channel B: Not used, so connect you B+ to B-
- Channel C: 0-20 mA signal from an active sensor.
- Channel D: 4-20 mA signal from a passive sensor

**EM 235 Analog Combination 4 Inputs/1 Output
(6ES7 235-0KD22-0XA0)**

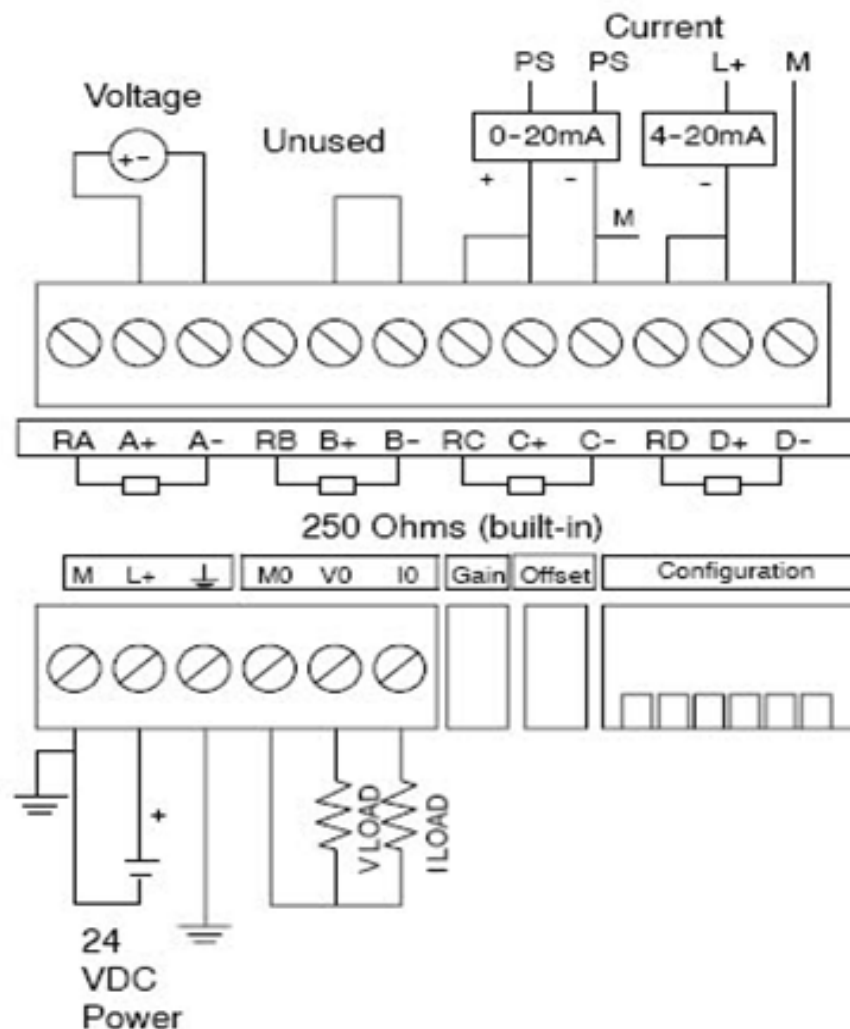
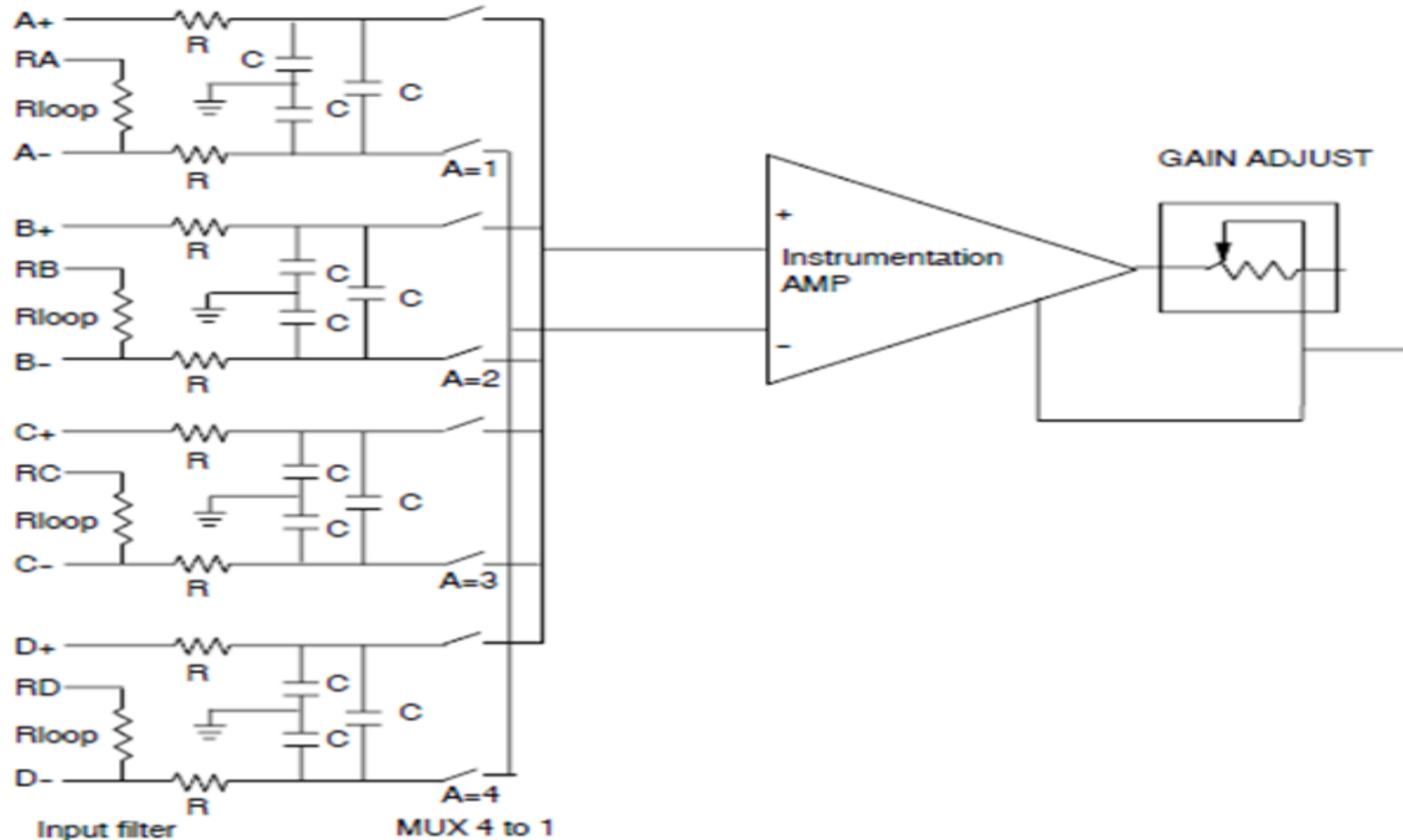


Figure A-14 Wiring Diagrams for Analog Expansion Modules

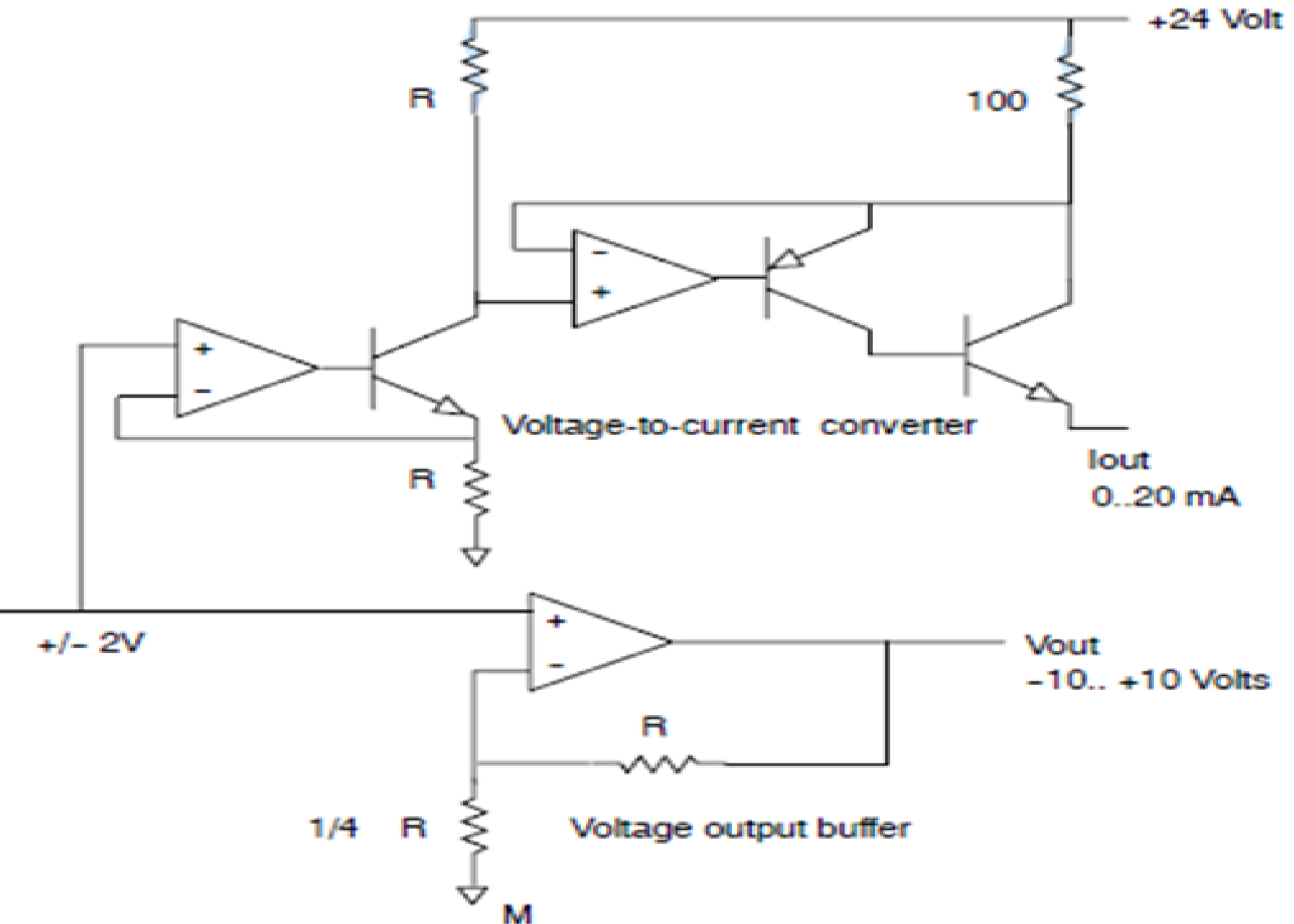
Analog Input, 4 Inputs



Configuration for EM 235

Unipolar						Full-Scale Input
SW1	SW2	SW3	SW4	SW5	SW6	
ON	OFF	OFF	ON	OFF	ON	0 to 50 mV
OFF	ON	OFF	ON	OFF	ON	0 to 100 mV
ON	OFF	OFF	OFF	ON	ON	0 to 500 mV
OFF	ON	OFF	OFF	ON	ON	0 to 1 V
ON	OFF	OFF	OFF	OFF	ON	0 to 5 V
ON	OFF	OFF	OFF	OFF	ON	0 to 20 mA
OFF	ON	OFF	OFF	OFF	ON	0 to 10 V
Bipolar						Full-Scale Input
SW1	SW2	SW3	SW4	SW5	SW6	
ON	OFF	OFF	ON	OFF	OFF	± 25 mV
OFF	ON	OFF	ON	OFF	OFF	± 50 mV
OFF	OFF	ON	ON	OFF	OFF	± 100 mV
ON	OFF	OFF	OFF	ON	OFF	± 250 mV
OFF	ON	OFF	OFF	ON	OFF	± 500 mV
OFF	OFF	ON	OFF	ON	OFF	± 1 V
ON	OFF	OFF	OFF	OFF	OFF	± 2.5 V
OFF	ON	OFF	OFF	OFF	OFF	± 5 V
OFF	OFF	ON	OFF	OFF	OFF	± 10 V

Analog output in PLC SIEMENS S7-200:



Analog in PLC SIEMENS S7-300 (internal):

(0) UR	
1	
2	CPU 313C
2.2	DI24/DO16
2.3	AI5/AO2
2.4	Count
3	
4	
5	
6	
7	
8	
9	
10	
11	

PIW752

PIW754

PIW756

PIW758

PIW760

PQW752

PQW754

Properties - AI5/AO2 - (R0/S2.3)

General | Addresses | Inputs | Outputs

Temperature unit: Degrees Celsius

Input	0	1	2	3	4
-------	---	---	---	---	---

Measurement

Measurement type: V V I V R-2L

Measuring range: +/- 10 V +/- 10 V 0..20 mA +/- 10 V 600 Ohms

interference frequency +/- 10 V 0..10 V Hz 50 Hz 50 Hz

OK

Cancel

Help

Slot	Module	Order num			
1					
2	CPU 313C	6ES7 313			
2.2	DI24/DO16			124...126	124...125
2.3	AI5/AO2			752...761	752...755
2.4	Count			768...783	768...783
3					

Analog in PLC SIEMENS S7-300 (external):

(0) UR

1	
2	CPU 313C-2 DP
X2	DP
2.2	DI16/DO16
2.4	Count
3	
4	AI8x13Bit
5	AO2x12Bit
6	
7	
8	
9	
10	
11	

+/- 50 mV
+/- 500 mV
+/- 1 V
+/- 5 V
+/- 10 V
1..5 V
0..10 V

deactivated
E voltage
I Current
R Resistance
RTD Thermal resistor (lin.)

Properties - AI8x13Bit - (R0/S4)

General

Addresses

Inputs

Measuring

Temperature unit: °C

Int Frequency: 50 Hz

Input

◀◀ ▶▶

0

1

2

3

Measurement

Measurement type: E E E E

Measuring range: +/- 10 V +/- 10 V +/- 10 V +/- 10 V

OK

Cancel

Help

(0) UR

Module	...	O...	Fi...	M...
CPU 313C-2 DP	6ES7	V2.0	3	
DP				
DI16/DO16				
Count				
AI8x13Bit	6ES7			
AO2x12Bit	6ES7			

Analog in PLC SIEMENS S7-300 (external):

(0) UR	
1	
2	CPU 313C-2 DP
X2	DP
2.2	DI16/DO16
2.4	Count
3	
4	AI8x13Bit
5	AO2x12Bit
6	
7	
8	
9	
10	
11	

Properties - AO2x12Bit - (R0/S5)

General | Addresses | Outputs

Enable
☒ Diagnostic Interrupt

0 1

Diagnostics
 Group Diagnostics: ☒ ☒

Output
 Type of Output: E E
 Output Range: +/- 10 V +/- 10 V
 Reaction to CPU-STOP: OCV OCV
 Substitute Value:

OK Cancel Help

OCV Outputs have no current or voltage
 KLV Keep last value
 SV Substitute a value

deactivated

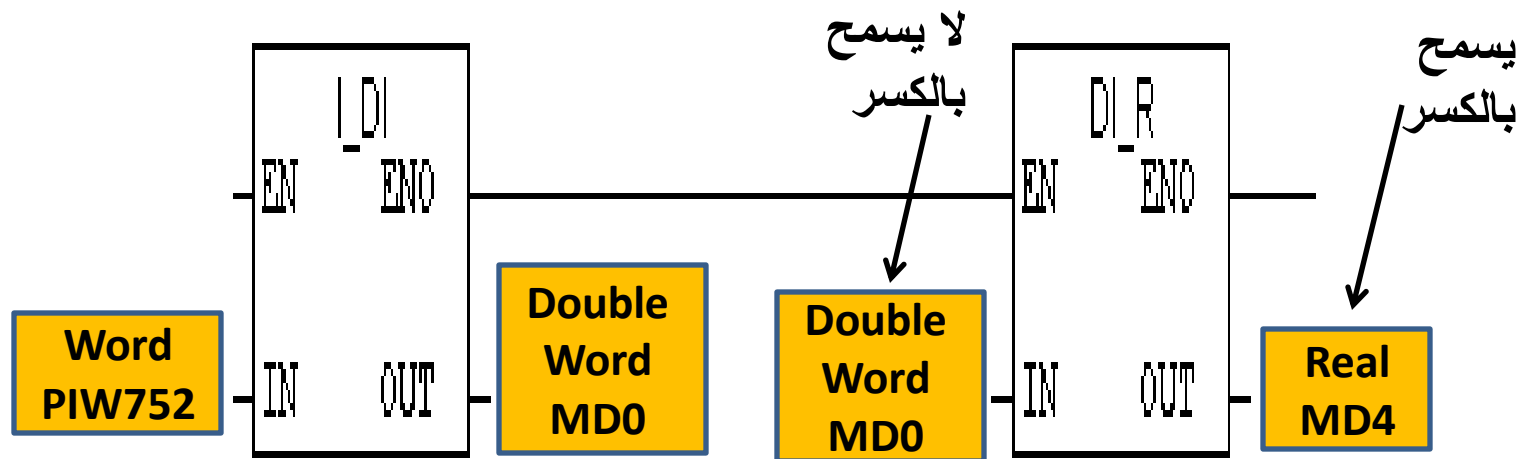
E voltage
 I current

1..5 V

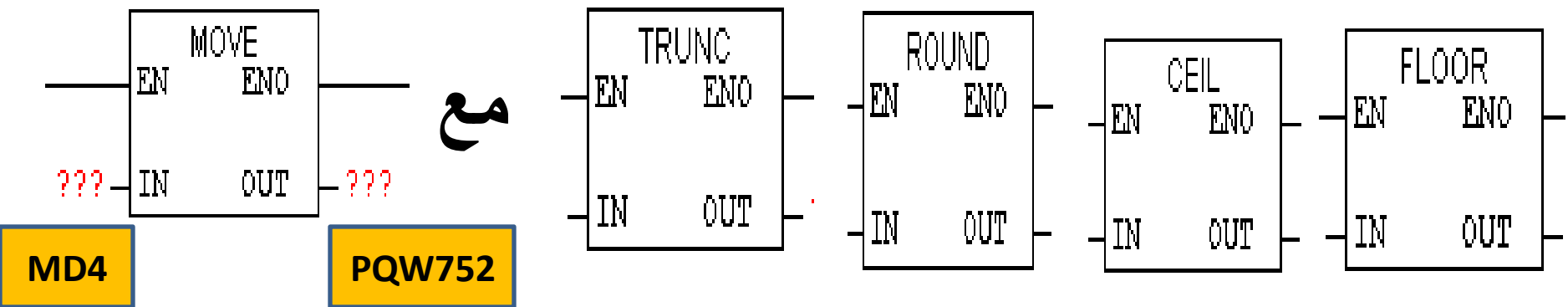
0..10 V

+/- 10 V

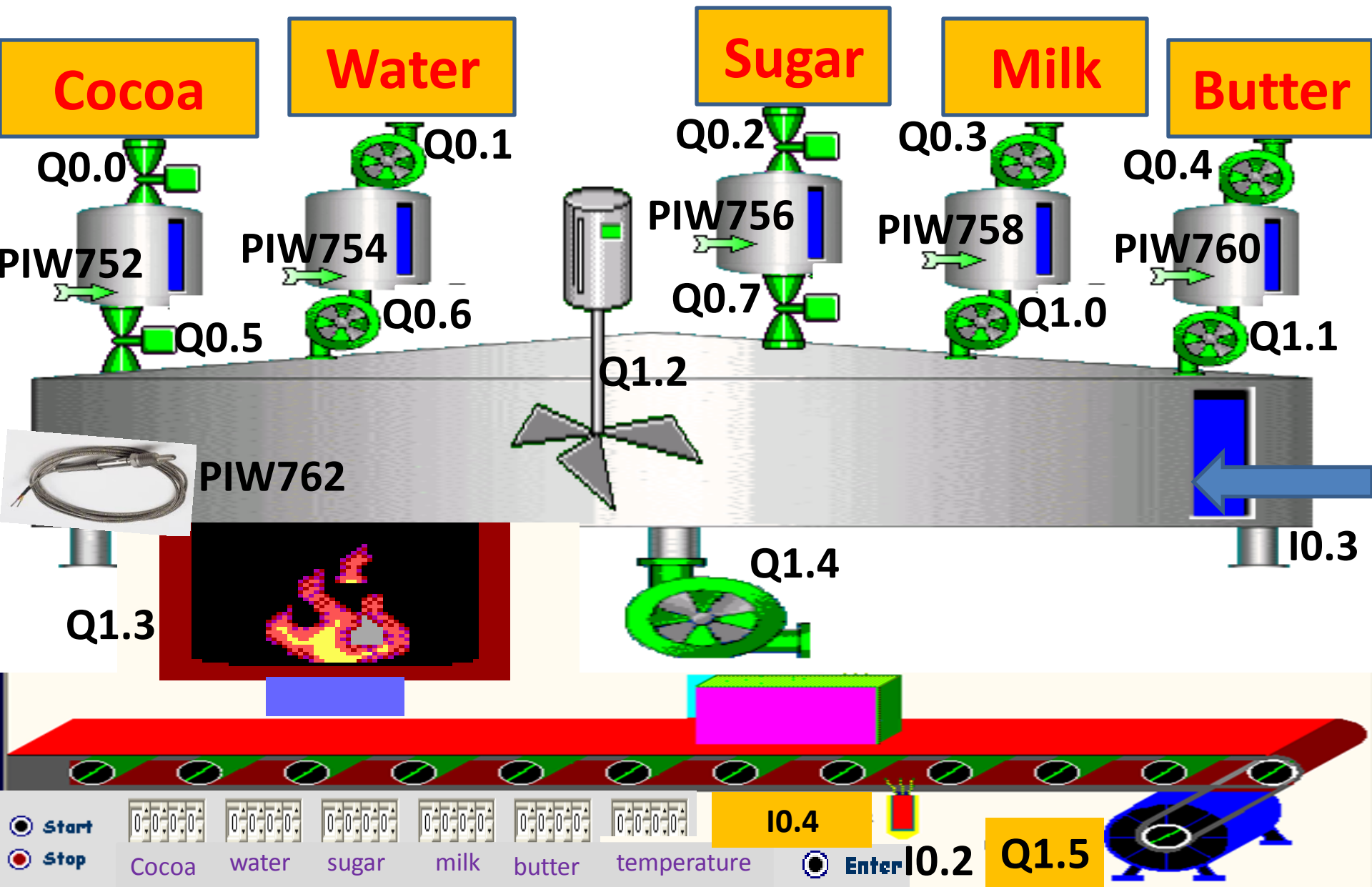
-- لا بد من عمل التحويلة الآتية للحصول على نتائج دقيقة:



-- وإذا أردت ربط الدخل بالخرج الأنالوج فعليك استخدام أى بلوك من الآتى:



Chocolate production project:



Chocolate production project:

مطلوب تجميع مكونات الشيكولاتة من كاكاو وماء وسكر ولبن وزبدة عبر إدخال وزن كل كمية من الخارج بحد أقصى 10 كجم لكل مكون (شاشة/ برنامج PLC) وبعد التحقق من الأوزان يتم انزال الكاكاو والماء والسكر واللبن والزبدة وكل له حساس وزن ثم يتم إسقاط الأوزان المطلوبة إلى الخزان الكبير ثم يتم خلط المكونات عن طريق الخلاط لمدة 5 ثواني ثم يتم تسخين الخليط عند درجة الحرارة المطلوبة من الخارج ثم يتم انزال الخليط في الكرتونة إلى أن يفرغ الخزان (يوجد حساس مستوي سفلي).

Chocolate production :

i0.0 --> on
i0.1 --> off
i0.2 --> enter/execute
i0.3 --> level sensor
i0.4 --> belt sensor
q0.0 --> cocoa
q0.1 --> water
q0.2 --> sugar
q0.3 --> milk
q0.4 --> butter
q0.5 --> cocoa2
q0.6 --> water2
q0.7 --> sugar2
q1.0 --> milk2
q1.1 --> butter2
q1.2 --> mixer
q1.3 --> heater
q1.4 --> drain

q1.5 --> belt
MD2 --> cocoa percent
MD6 --> water percent
MD10 --> sugar percent
MD14 --> milk percent
MD18 --> butter percent
MD22 --> temperature
PIW752 --> cocoa percent
PIW754 --> water percent
PIW756 --> sugar percent
PIW758 --> milk percent
PIW760 --> butter percent
PIW762 --> thermocouple

CHOCOLATE PRODUCTION:

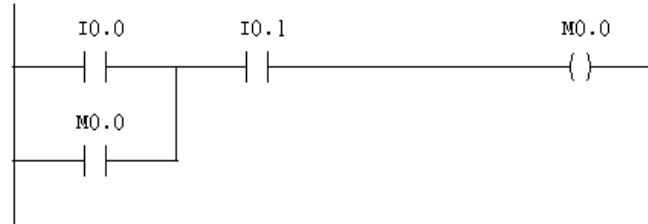
V0 – M0	ANALOG I/P	WIGHT(KG)	ANALOG I/P	TEMP(°C)
0	0	0	0	0
				
10V	27648	10	27648	100

$$\begin{aligned}\text{WANTED WEIGHT VALUE} &= [\text{WIGHT(KG)} * 27648] / 10 \\ &= [\text{WEIGHT(KG)} * 2764.8]\end{aligned}$$

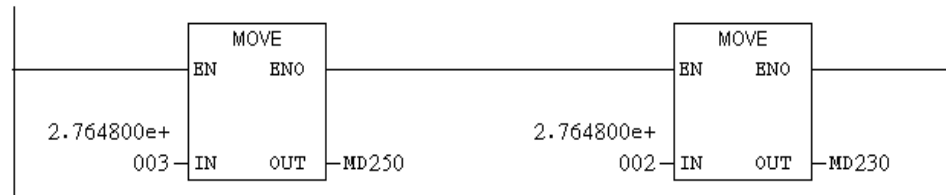
$$\begin{aligned}\text{WANTED TEMP VALUE} &= [\text{TEMP(°C)} * 27648] / 100 \\ &= [\text{TEMP(°C)} * 276.48]\end{aligned}$$

Chocolate production :

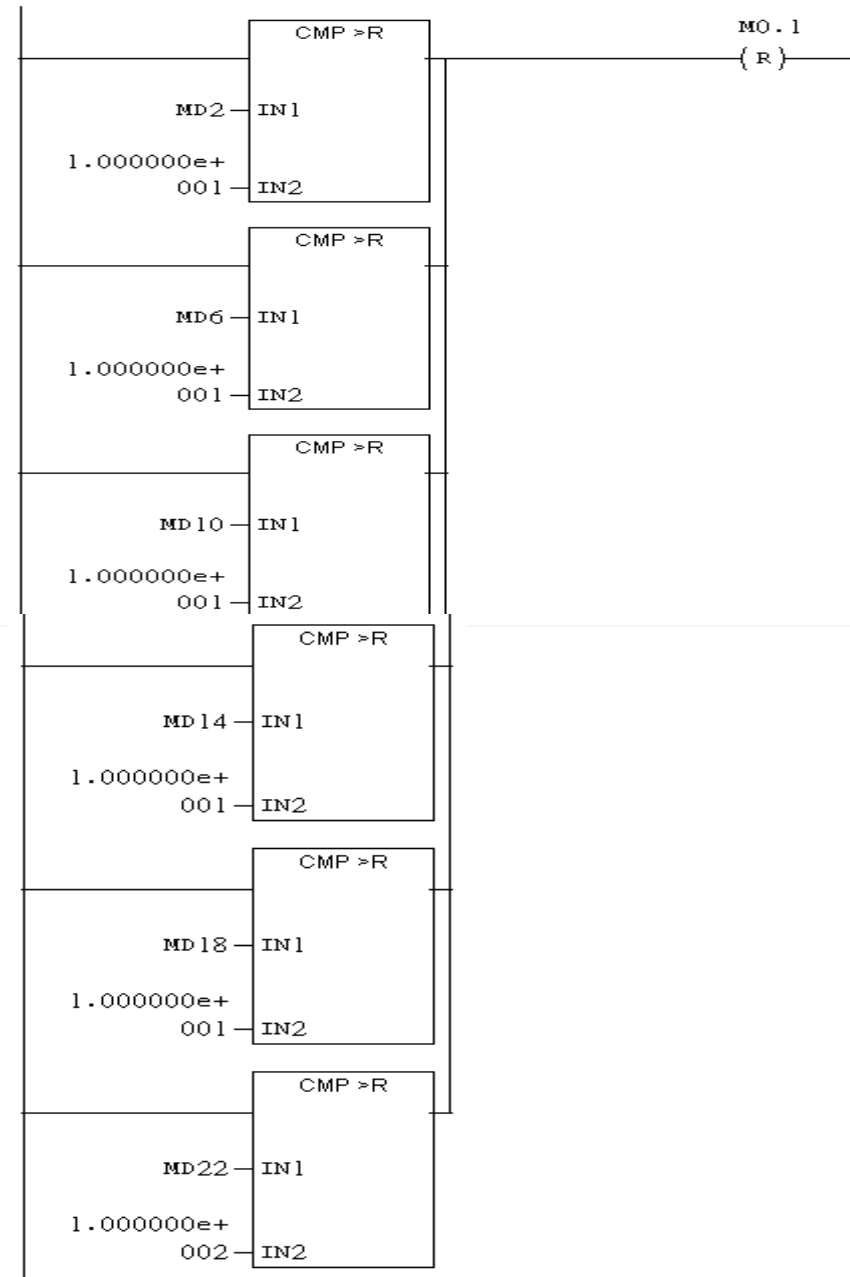
Network 1 : Title:



Network 2 : Title:



Network 3 : Title:



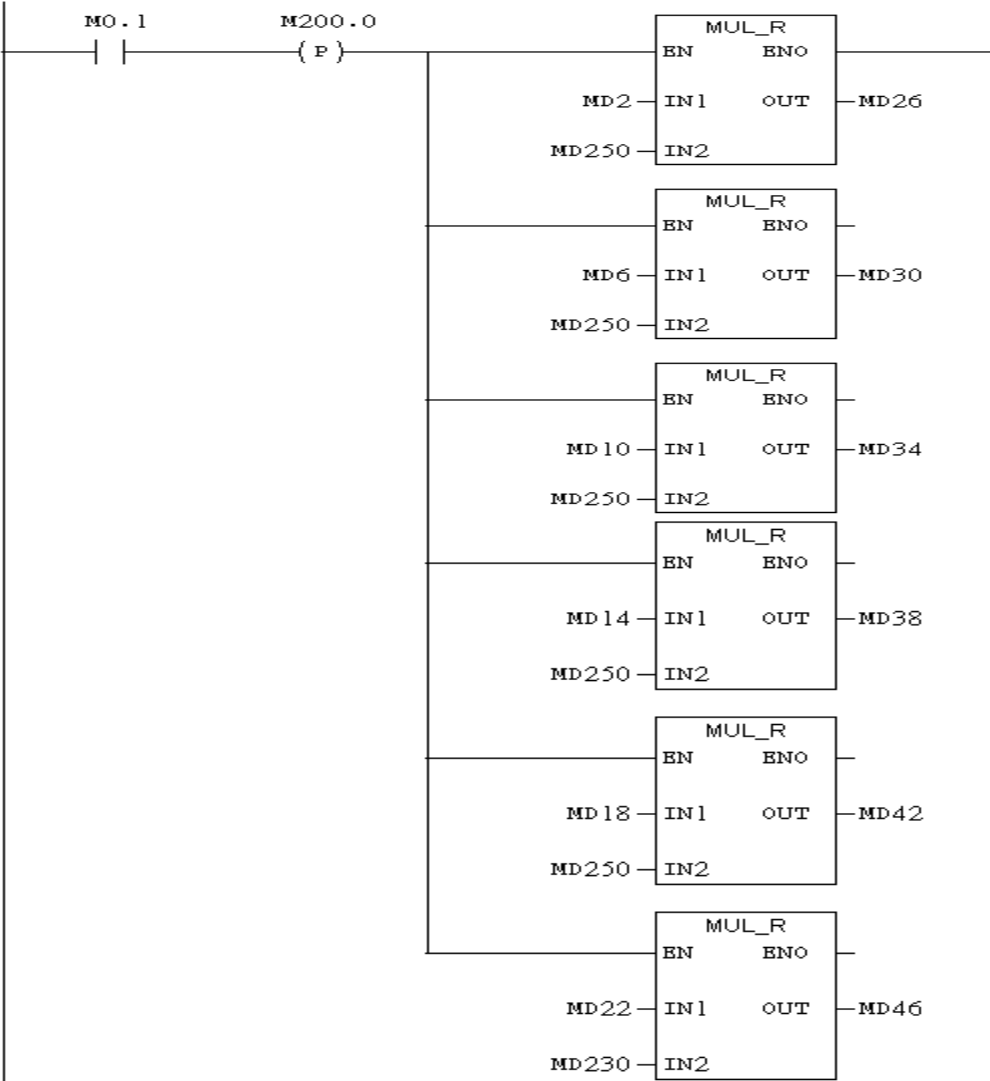
Chocolate production :



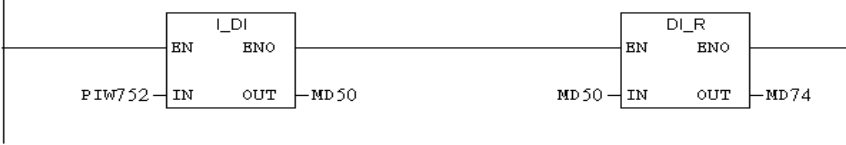
Network 4 : Title:



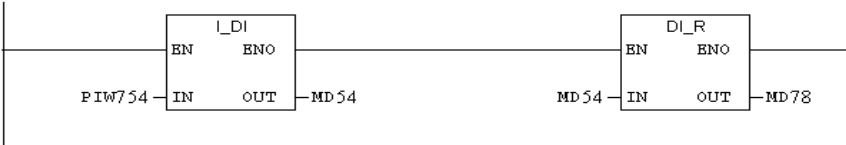
Network 5 : Title:



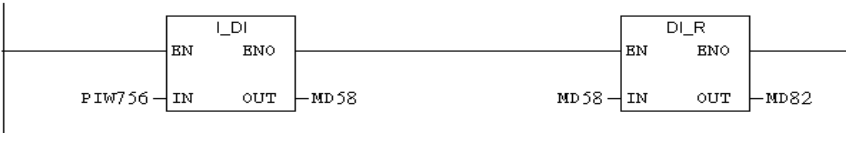
Network 6 : Title:



Network 7 : Title:



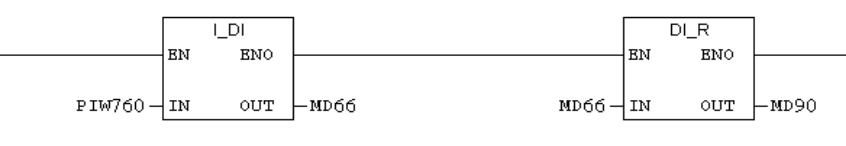
Network 8 : Title:



Network 9 : Title:



Network 10 : Title:

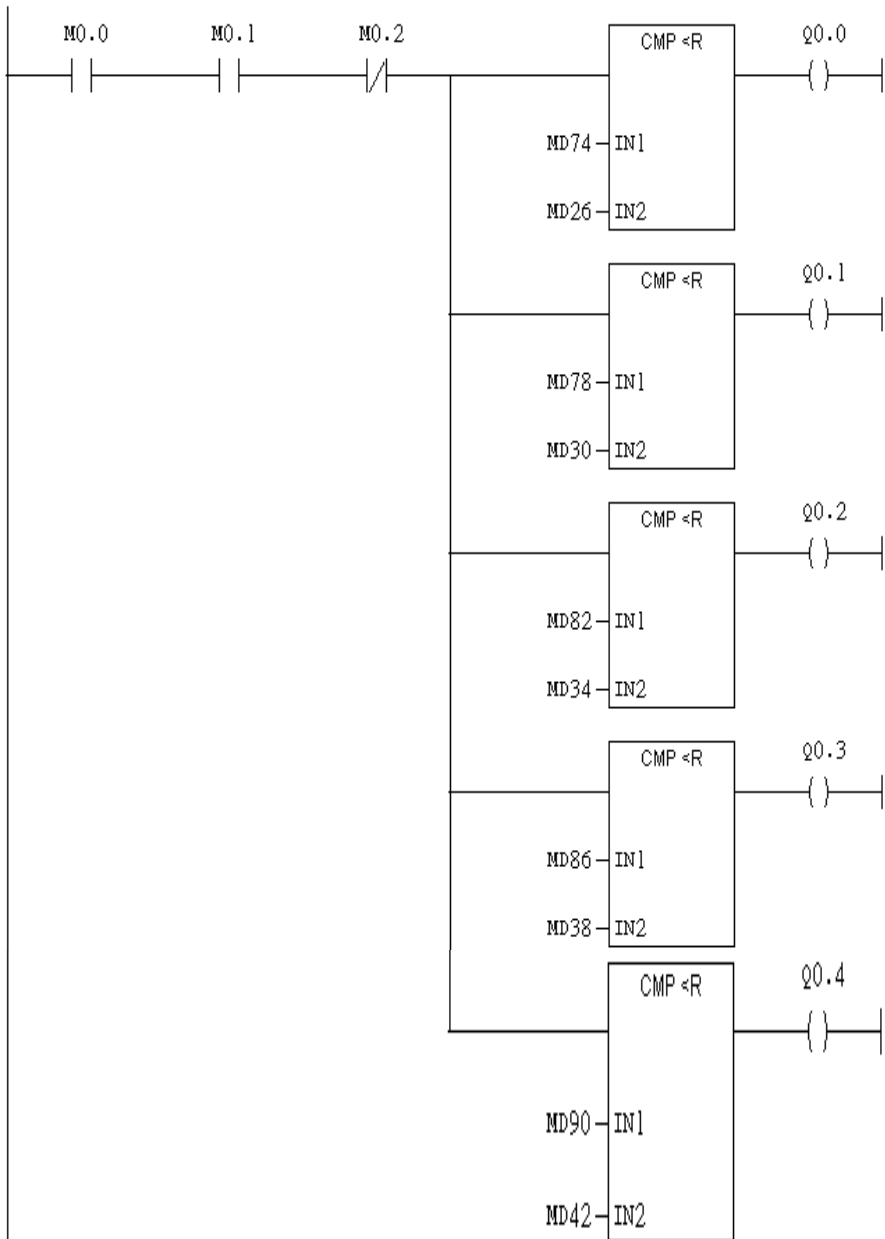


Network 11 : Title:

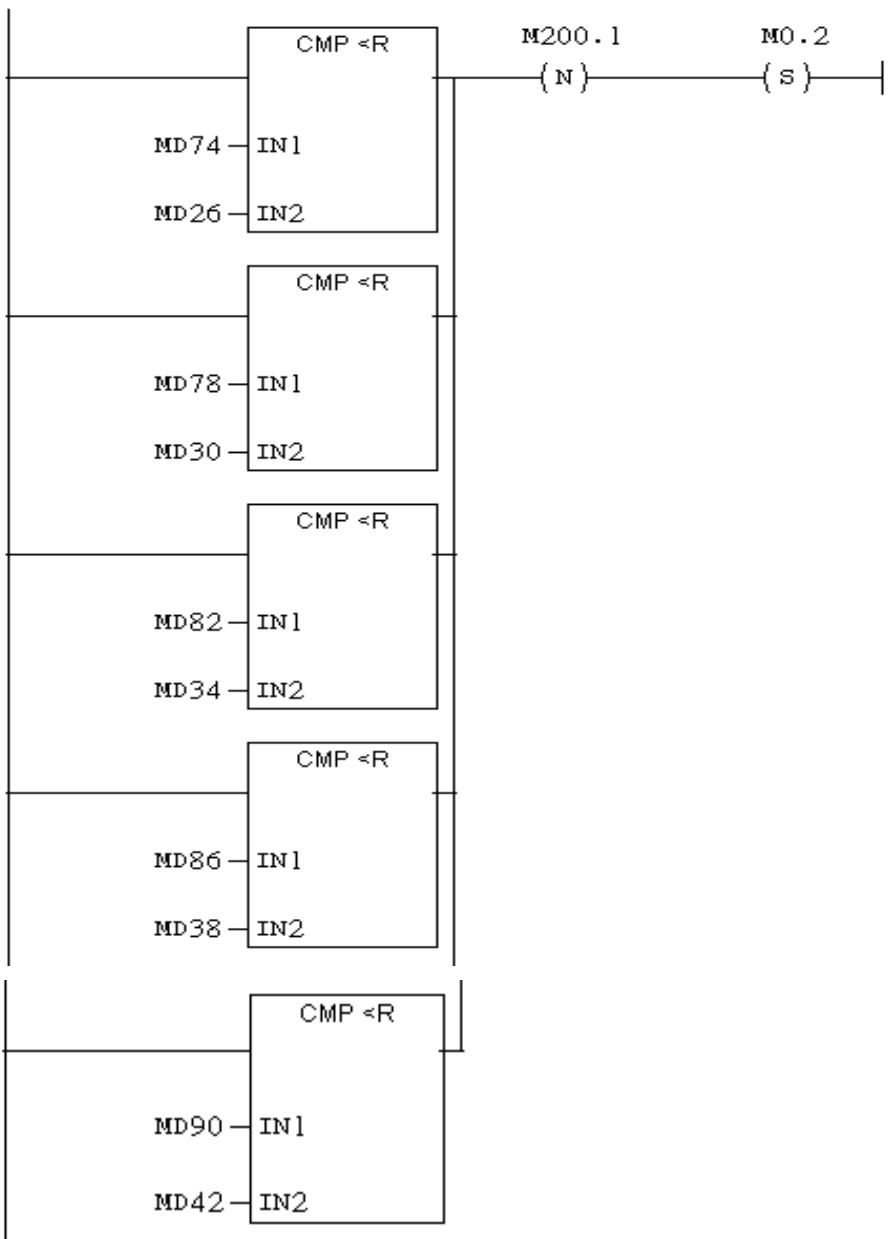


Chocolate production :

Network 12: Title:

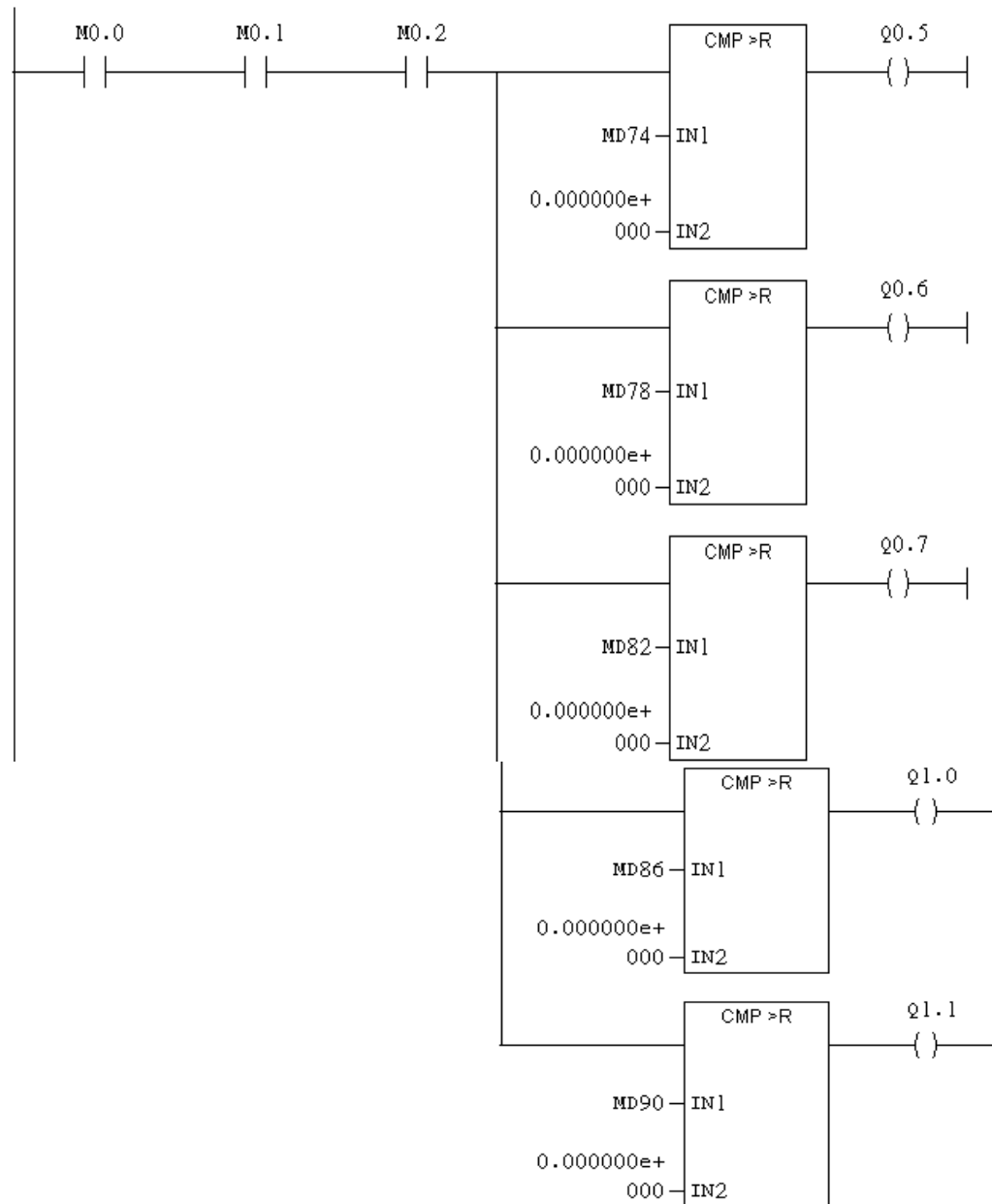


Network 13: Title:

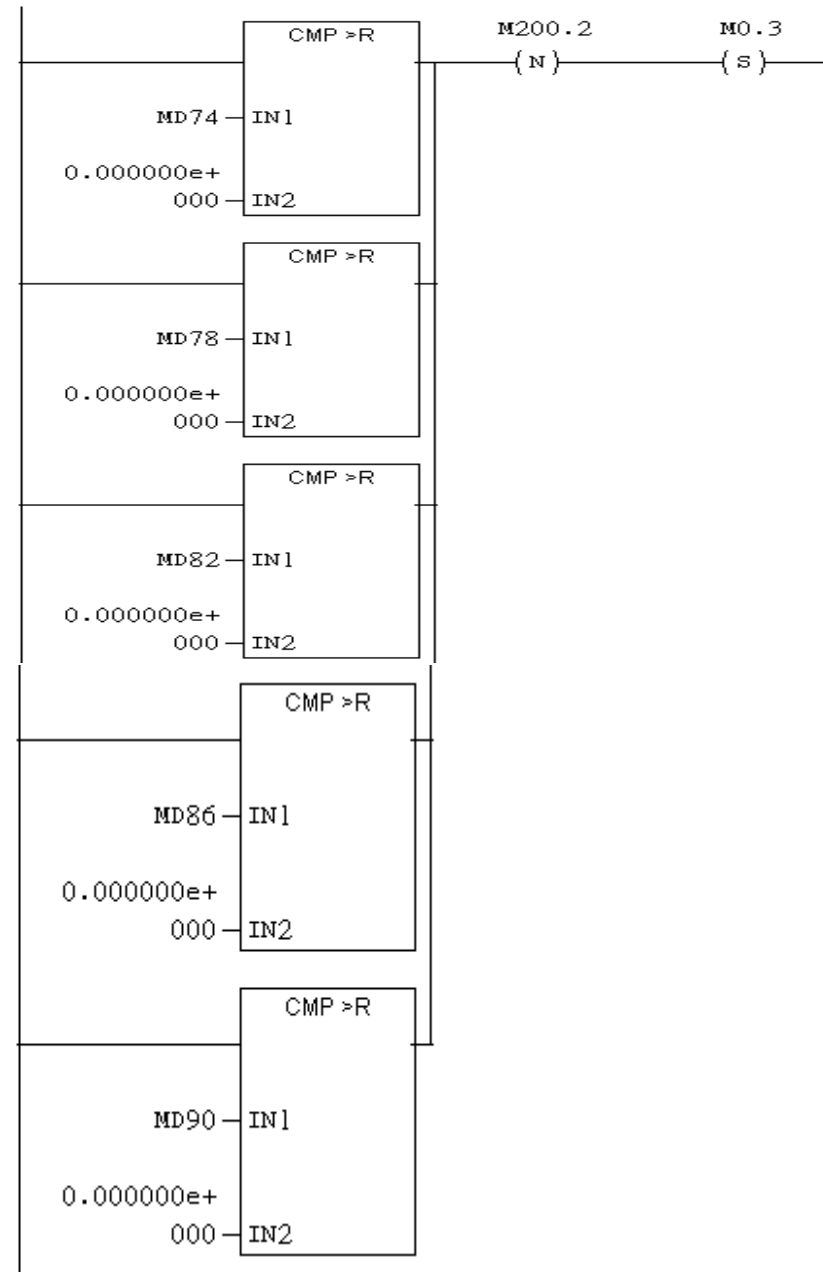


Chocolate production :

Network 14 : Title:



Network 15 : Title:



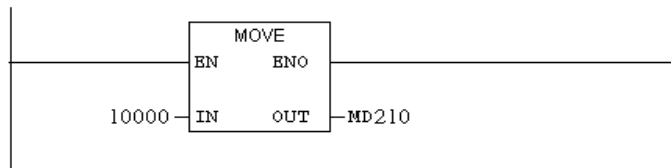
Chocolate production :

Network 16: Title:

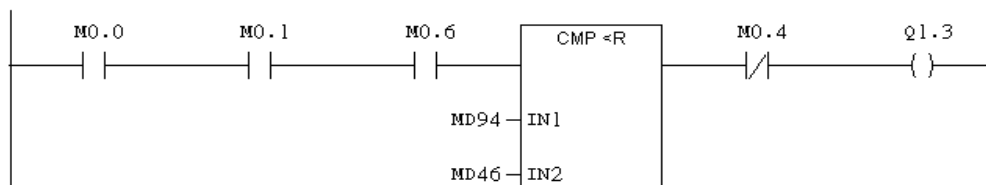
```

A    M    0.0
A    M    0.1
A    M    0.3
=    L    20.0
A    L    20.0
AN   M    0.6
=    Q    1.2
A    Q    1.2
=    L    20.1
BLD  103
A    M    255.0
=    L    20.2
BLD  103
A    L    20.0
JNB  _00d
CALL  "TONR"          FC80          -- Timer On Delay - Retentive
    TMR_EN :=L20.1
    RESET  :=L20.2
    PV     :=MD210
    DELTA_T:=#OB1_PREV_CYCLE      #OB1_PREV_CYCLE  -- Cycle time of previous OB1 scan (milliseconds)
    Q      :=M0.6
    ET     :=MD205
_00d: NOP  0
  
```

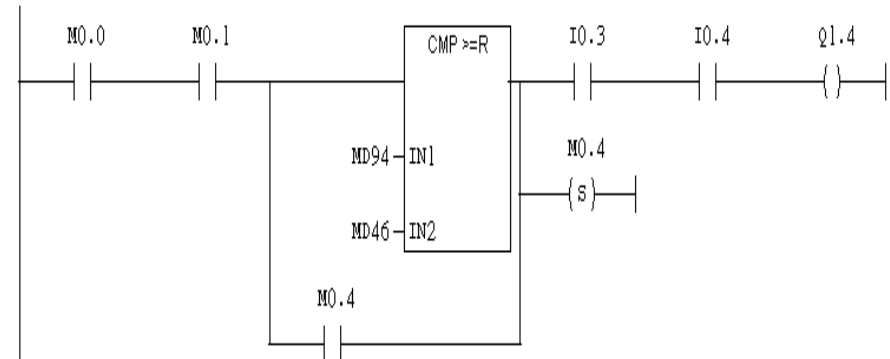
Network 17: Title:



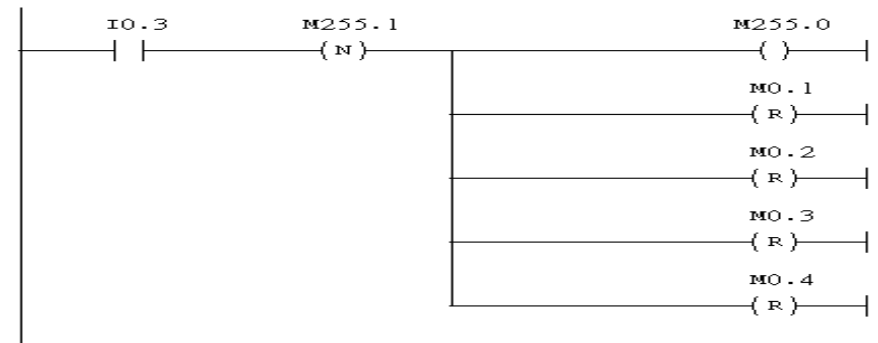
Network 18: Title:



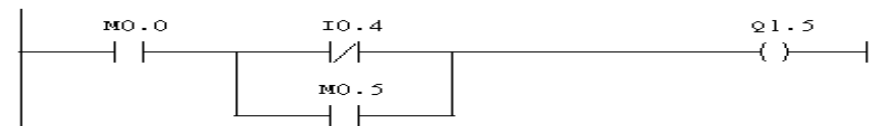
Network 19: Title:



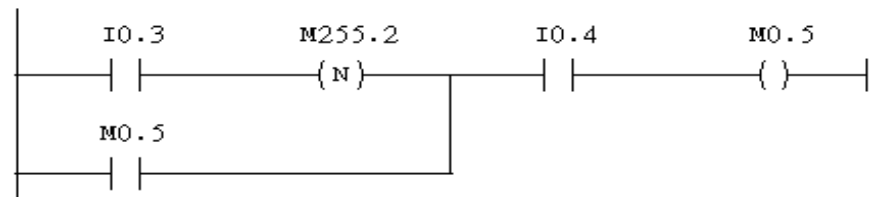
Network 20: Title:



Network 21: Title:



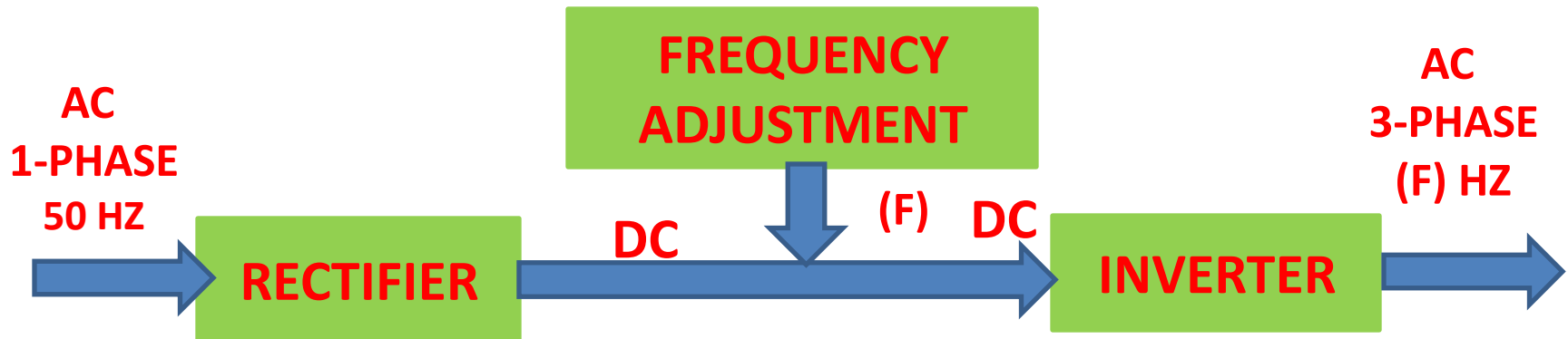
Network 22: Title:



AC DRIVE:

Main Usages:

- Source of 3-phase lines.
- start/stop for motor (keypad/terminals).
- control speed of 3-phase motor.
- reverse motion of 3-phase motor.
- DC braking for 3-phase motor.



AC DRIVE KEYPAD:



AC DRIVE MICROMASTER 420 TERMINALS:

TERMINAL	FUNCTION
1	+10 V
2	0 V
3	ANALOG INPUT (+)
4	ANALOG INPUT (-)
5	DIGITAL INPUT 1 (Activated at +24V)
6	DIGITAL INPUT 2 (Activated at +24V)
7	DIGITAL INPUT 3 (Activated at +24V)
8	+24 V
9	0 V
10	OUTPUT RELAY CONTACT
11	
12	
13	ANALOG OUTPUT (0-20 mA)
14	} For advanced communications
15	



AC DRIVE MICROMASTER 420 TERMINALS:

3.3 Block diagram

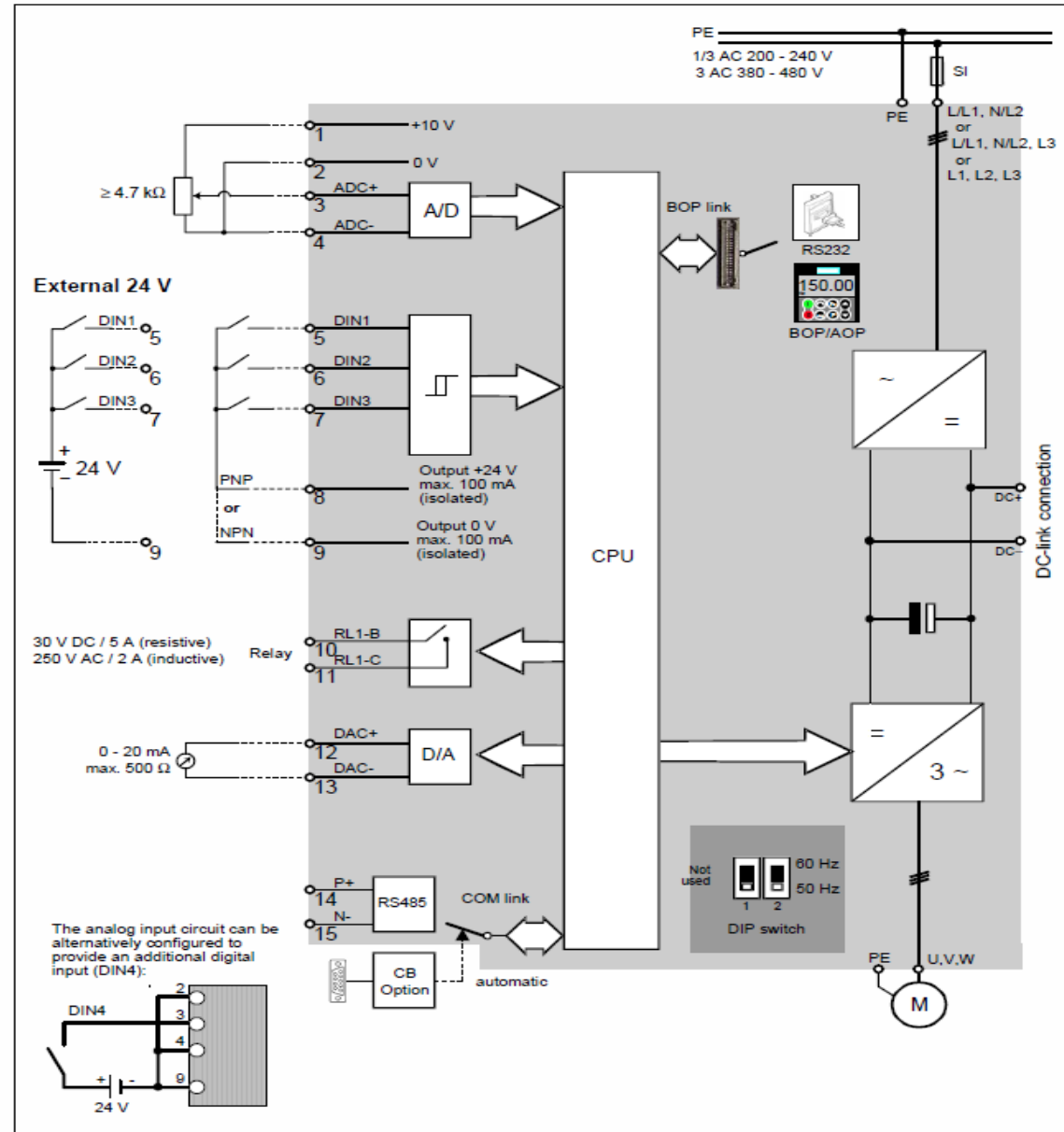


Fig. 3-11 MICROMASTER 420 – block diagram

AC DRIVE MICROMASTER 420 PARAMETERS:

PARAMETER	VALUE	FUNCTION
P0003	1	Most frequently used parameters
	2	Parameters + Drive I/O functions
P0010	1	Quick commissioning
P0100	0	European system.
P0304	Motor plate	Rated motor voltage (volt)
P0305	Motor plate	Rated motor current (Ampere)
P0307	Motor plate	Rated motor power (KW)
P0310	Motor plate	Rated motor frequency (HZ)
P0311	Motor plate	Rated motor speed (R.P.M)
P0700	1	Inputs from keypad
	2	Inputs from terminal (P0003=2)
p1000	1	Frequency from keypad
	2	Frequency from terminals (analog input)
p1080	0	Minimum frequency (HZ)
p1082	50	Maximum frequency (HZ)
p3900	1	Start quick commissioning

P0701	1 (on/off)
P0702	25 (Brake)
P0703	10 (Jog)

AC DRIVE YASKAWA V1000 SIMULATION:

V1000 Programming Simulator



File Help

User Terminals

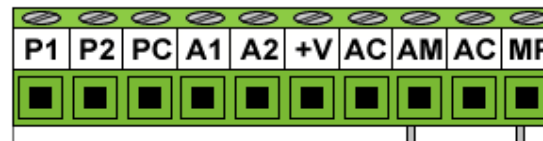
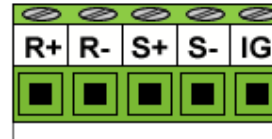
Fault and Alarms

Help

Move mouse over terminals for additional information or click to program.

[Submit Comments, Suggestions or Bugs](#)

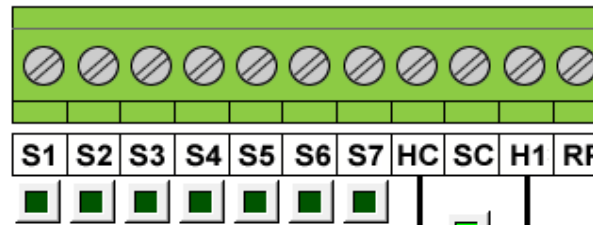
☐ Alternate Terminal Board



P1-PC
P2-PC
Photocoupler
Output

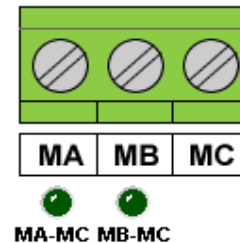
88888
Analog
Output (V)

88888
Pulse Output
(Hz)



Multi-function
Digital Inputs

Hardwire
Baseblock



MA-MC MB-MC
Multi-function
Relay Output

Operator Information:

Status: Drive is currently turned Off, to turn the drive On click on the Main Power

Control Panel

Main Power



S1

V I

S2

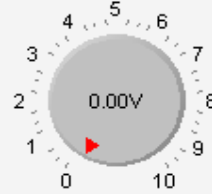
Off On

S3

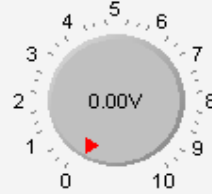
SINK



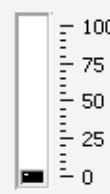
SOURCE



A1



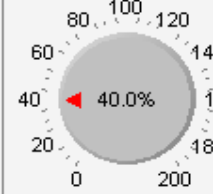
A2



%

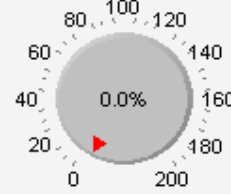
Pulse Input

0.0 A



Motor Current

Motor Load



Output Torque

Motor Simulation



0 RPM

www.yaskawa.com

AC DRIVE YASKAWA V1000 SIMULATION:

V1000 Programming Simulator

File Help



Operator Information:

Status: Drive is currently turned Off, to turn the drive On click on the Main Power

User Terminals Fault and Alarms **Help**



V1000 Flyer

Flyer V1000 Current Vector Drive 1/8 to 25 HP



V1000 Flyer (NEMA 4X)

Flyer V1000-4X Current MicroDrive 1/8 to 25 HP



V1000 Quick Start Guide

V1000 Quick Start Guide shows mechanical installation, parameters and basic programming.

Click here to open Quick Start Guide



V1000 Quick Start Procedure

V1000 Quick Start Procedure shows a step by step basic setup of the V1000.



V1000 Technical Manual

V1000 Technical Manual shows detailed parameter descriptions, keypad operations, wiring diagrams and more.



Program Help

Detailed document explaining on how to use this program.



Check for Updates

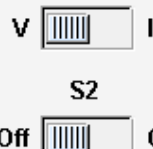
Check if an update of this software is available. (Requires internet connection).

Control Panel

Main Power



S1



S3



SOURCE

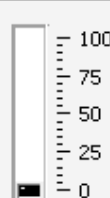
Analog Inputs



A1



A2

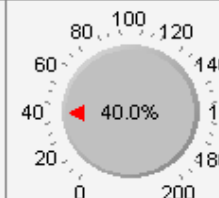


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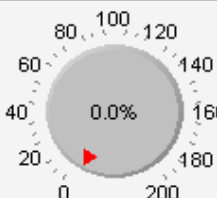
Pulse Input

0.0 A

Motor Load



Motor Current



Output Torque

Motor Simulation



0 RPM

AC DRIVE YASKAWA V1000 SIMULATION:

Bookmarks

- Preface & General Safety
- Receiving
- Mechanical Installation
- Electrical Installation**
- Start-Up Programming & Operation
- Troubleshooting
- Specifications
- Parameter List
- Standards Compliance



YASKAWA AC Drive-V1000

Compact Vector Control Drive

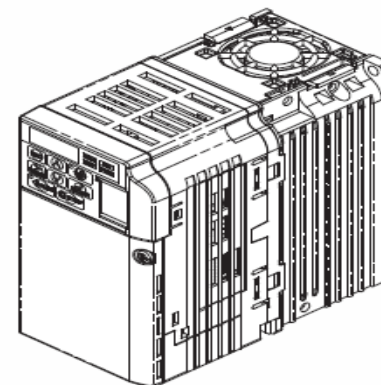
Quick Start Guide

Type: GIMR-VU

Models: 200 V Class, Three-Phase Input: 0.1 to 18.5 kW
200 V Class, Single-Phase Input: 0.1 to 3.7 kW
400 V Class, Three-Phase Input: 0.2 to 18.5 kW

To properly use the product, read this manual thoroughly and retain for easy reference, inspection, and maintenance. Ensure the end user receives this manual.

Contém manual suplementar em Português.



Receiving

1

Mechanical Installation

2

Electrical Installation

3

Start-Up Programming & Operation

4

Troubleshooting

5

Specifications

A

Parameter List

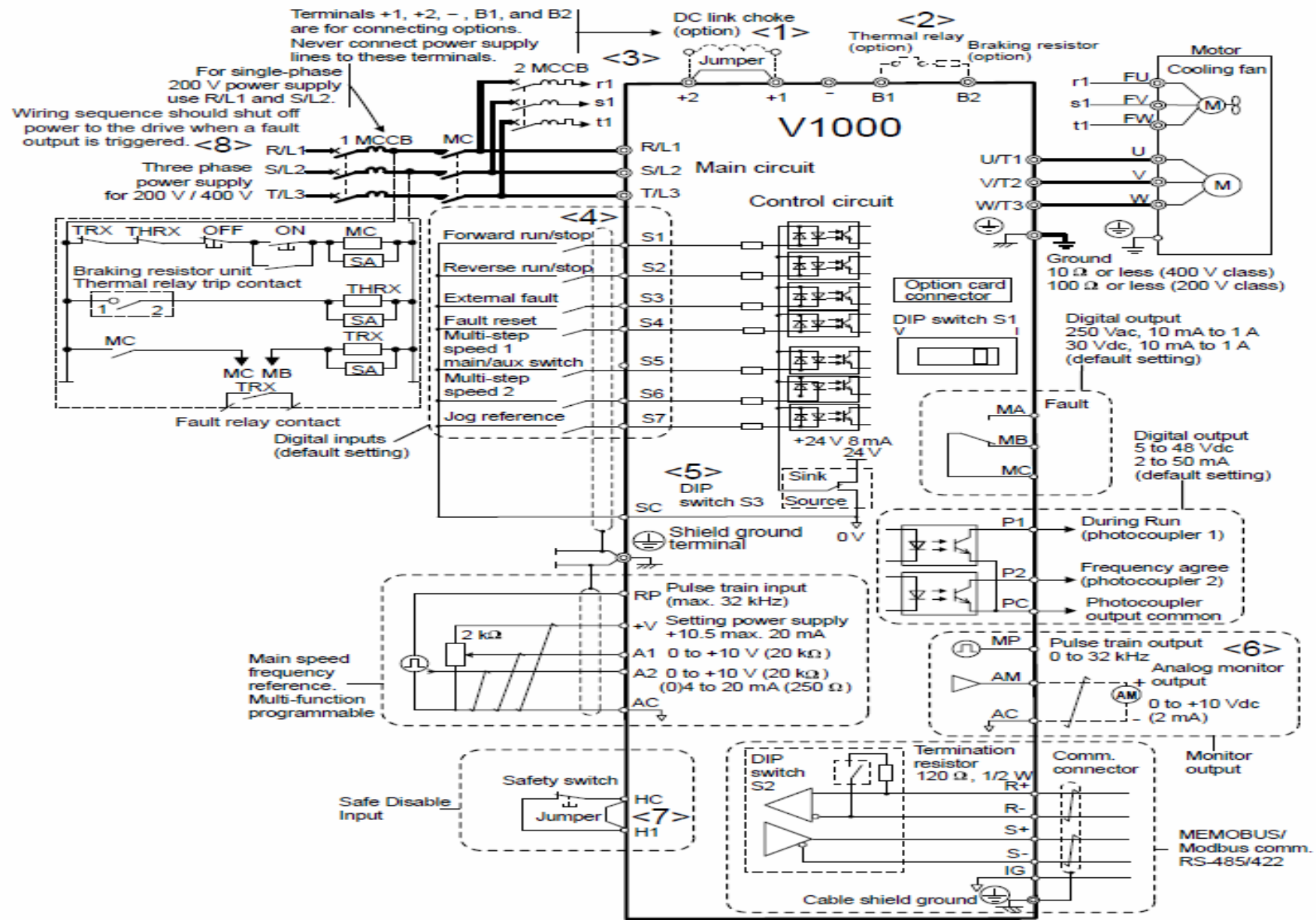
B

Standards Compliance

C

AC DRIVE YASKAWA V1000 SIMULATION:

3.1 Standard Connection Diagram



V1000 SIMULATION(Run from keypad):

V1000 Programming Simulator

File Help



Operator Information:

Status: Frequency Reference Display

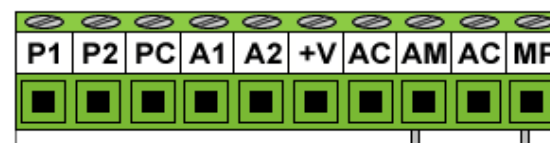
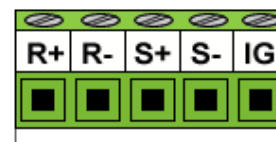
User Terminals

Fault and Alarms

Help

Move mouse over terminals for additional information or click to program.

☐ Alternate Terminal Board



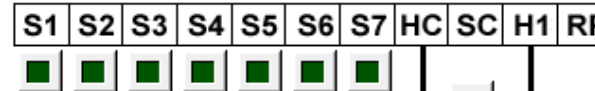
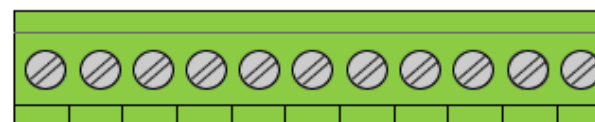
P1-PC
P2-PC
Photocoupler
Output



Analog
Output (V)

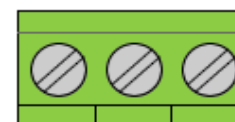


Pulse Output
(Hz)



Multi-function
Digital Inputs

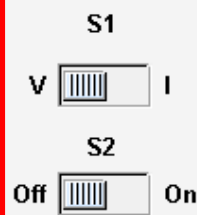
Hardwire
Baseblock



MA-MC MB-MC
Multi-function
Relay Output

Control Panel

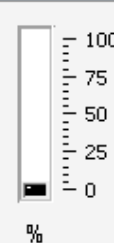
Main Power



Analog Inputs

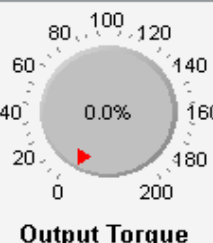
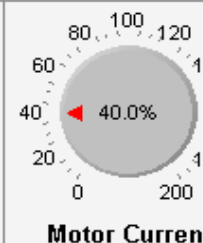


Pulse Input



0.0 A

Motor Load



Motor Simulation



www.yaskawa.com

V1000 SIMULATION(Run from keypad):

V1000 Programming Simulator

File ▾ Help ▾



Operator Information:

Status: Frequency Reference Display

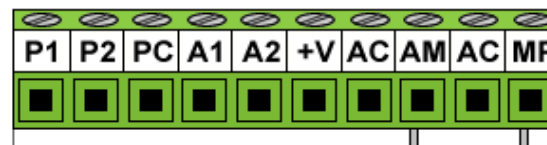
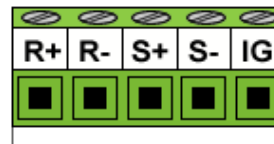
User Terminals

Fault and Alarms

Help

Move mouse over terminals for additional information or click to program.

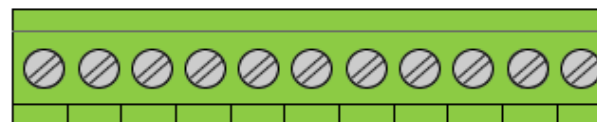
☐ Alternate Terminal Board



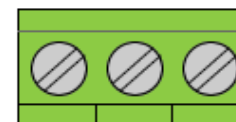
P1-PC
P2-PC
Photocoupler
Output

Analog
Output (V)

Pulse Output
(Hz)



S1 S2 S3 S4 S5 S6 S7 HC SC H1 RP
Multi-function
Digital Inputs



MA MC MB-MC
Multi-function
Relay Output

[Submit Comments, Suggestions or Bugs](#)

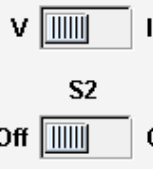
www.yaskawa.com

Control Panel

Main Power



S1

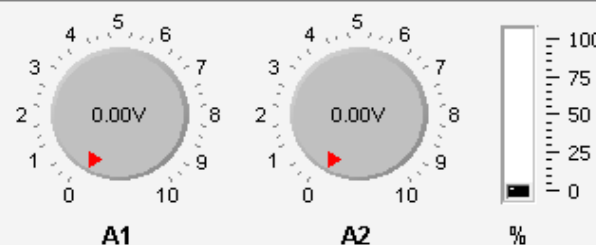


S3



SOURCE

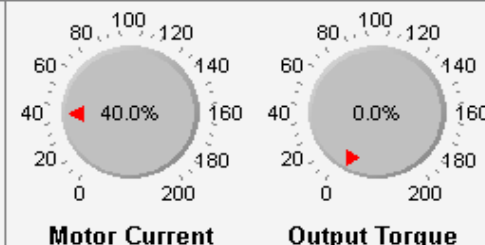
Analog Inputs



Pulse Input

0.0 A

Motor Load



Motor Simulation



V1000 SIMULATION(frequency from keypad):

V1000 Programming Simulator

File Help



Operator Information:

Status: Frequency Reference Display

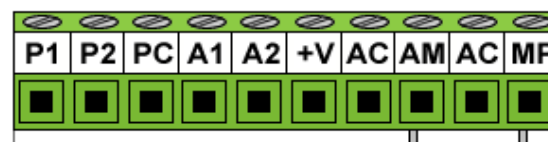
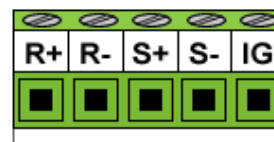
User Terminals

Fault and Alarms

Help

Move mouse over terminals for additional information or click to program.

☐ Alternate Terminal Board



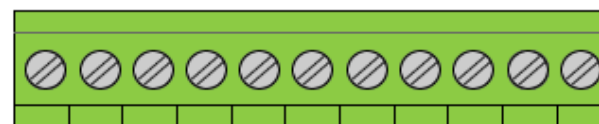
P1-PC
P2-PC
Photocoupler
Output

88.33

Analog
Output (V)

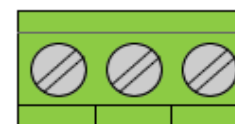
88200

Pulse Output
(Hz)



Multi-function
Digital Inputs

Hardwire
Baseblock



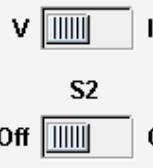
MA-MC MB-MC
Multi-function
Relay Output

Control Panel

Main Power



S1



S3



Off

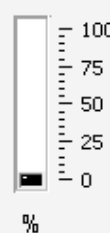
On

SOURCE

Analog Inputs

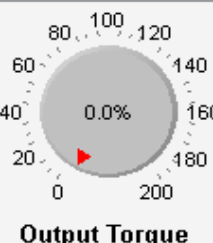
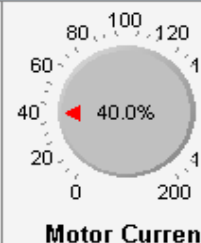


Pulse Input



0.8 A

Motor Load



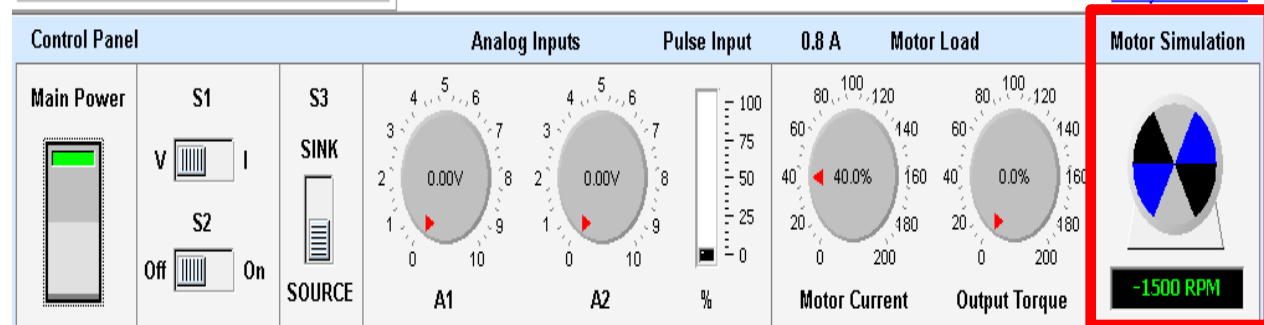
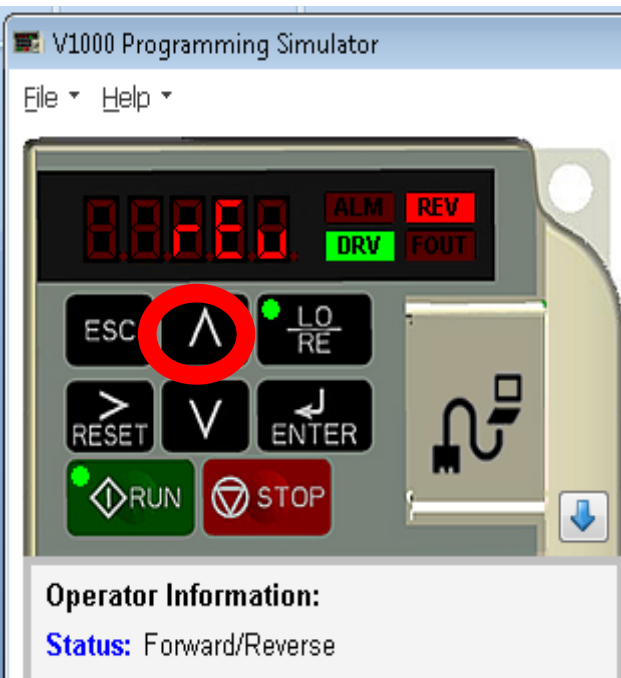
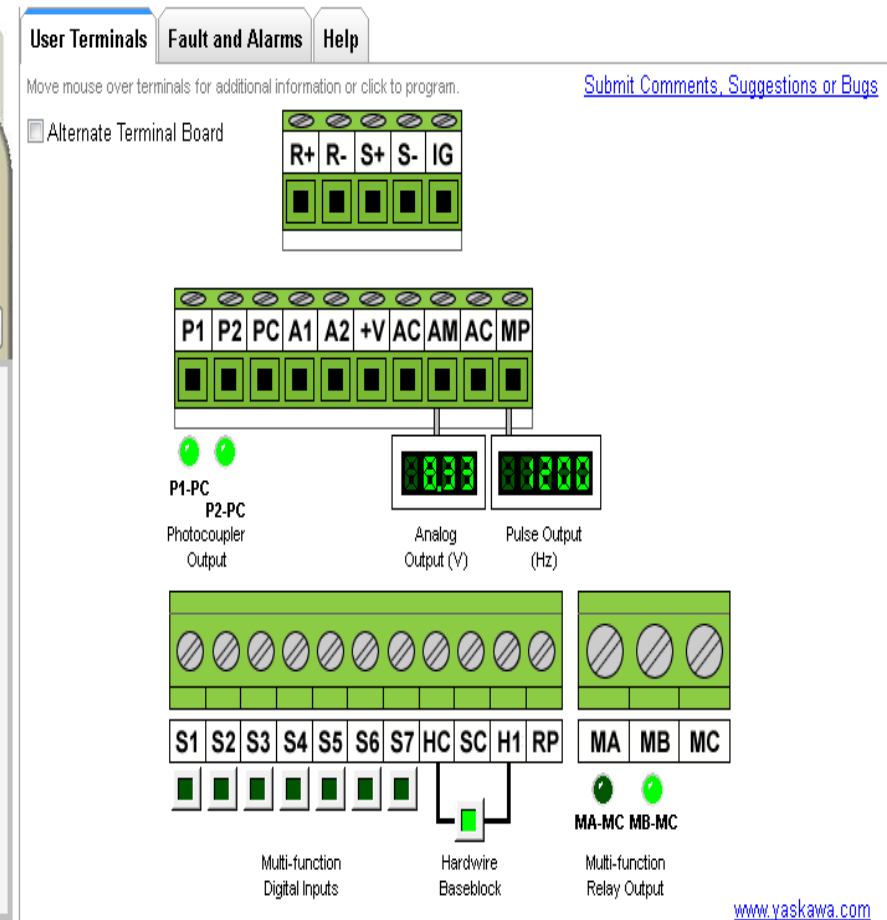
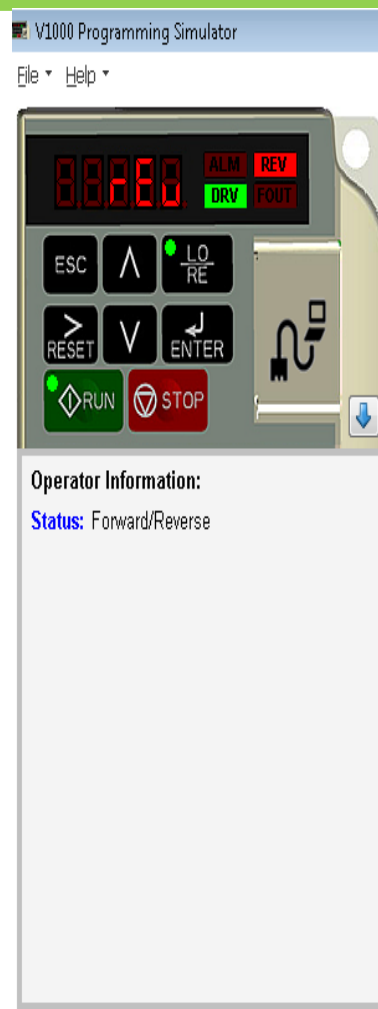
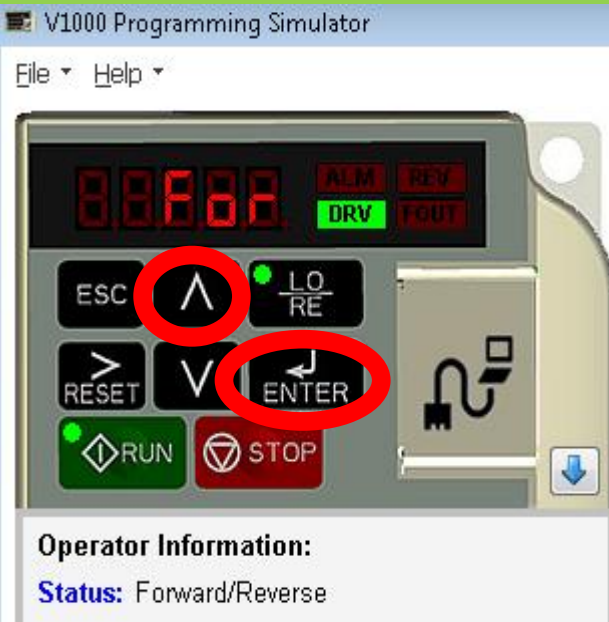
Motor Simulation



1500 RPM

www.yaskawa.com

V1000 SIMULATION(from keypad/reverse):



V1000 SIMULATION(run from terminal):

V1000 Programming Simulator

File Help



Operator Information:

Status: Frequency Reference Display

User Terminals

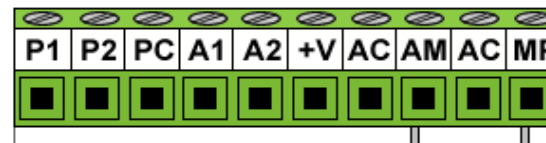
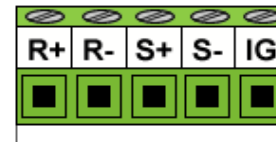
Fault and Alarms

Help

Move mouse over terminals for additional information or click to program.

[Submit Comments, Suggestions or Bugs](#)

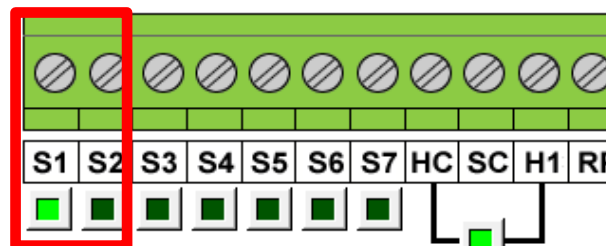
☐ Alternate Terminal Board



P1-PC
P2-PC
Photocoupler
Output

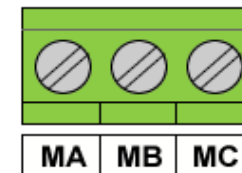
Analog
Output (V)

Pulse Output
(Hz)



Multi-function
Digital Inputs

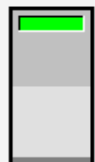
Hardwire
Baseblock



MA-MC MB-MC
Multi-function
Relay Output

Control Panel

Main Power



S1

V I

S2

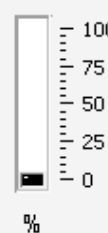
Off On

S3

SINK

SOURCE

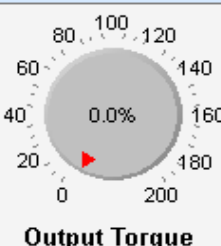
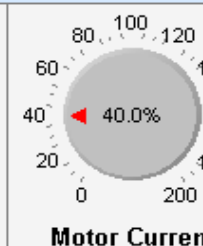
Analog Inputs



Pulse Input

0.8 A

Motor Load



Motor Simulation



894 RPM

www.yaskawa.com

V1000(reverse/frequency from terminal):

V1000 Programming Simulator

File Help



Operator Information:

Status: Frequency Reference Display

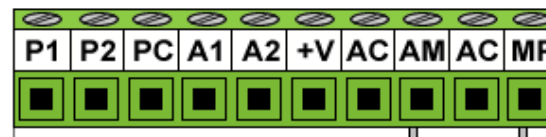
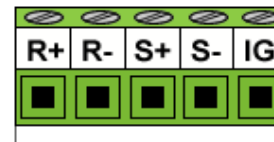
User Terminals

Fault and Alarms

Help

Move mouse over terminals for additional information or click to program.

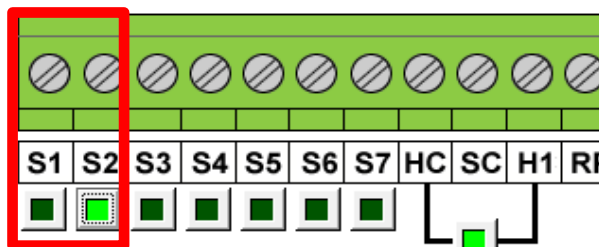
☐ Alternate Terminal Board



P1-PC
P2-PC
Photocoupler
Output

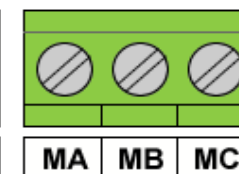
Analog
Output (V)

Pulse Output
(Hz)



Multi-function
Digital Inputs

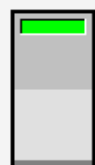
Hardwire
Baseblock



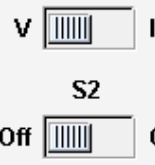
MA-MC MB-MC
Multi-function
Relay Output

Control Panel

Main Power



S1



S3



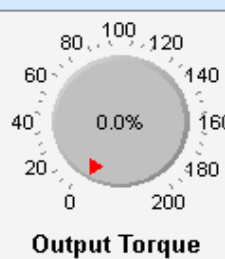
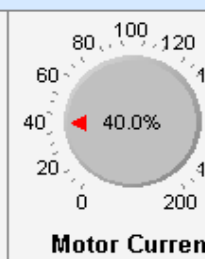
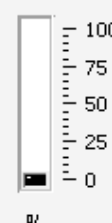
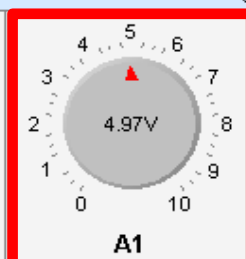
SOURCE

Analog Inputs

Pulse Input

0.8 A

Motor Load



Motor Simulation



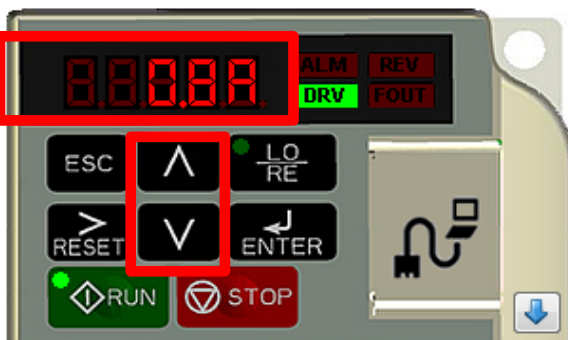
-894 RPM

www.yaskawa.com

AC DRIVE V1000 SIMULATION DISPLAY:

V1000 Programming Simulator

File ▾ Help ▾



Operator Information:

Status: Output Current Display

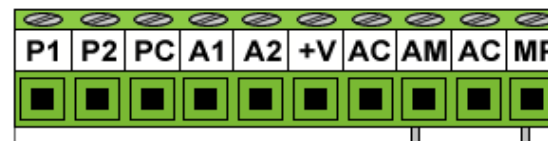
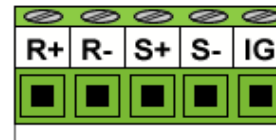
User Terminals

Fault and Alarms

Help

Move mouse over terminals for additional information or click to program.

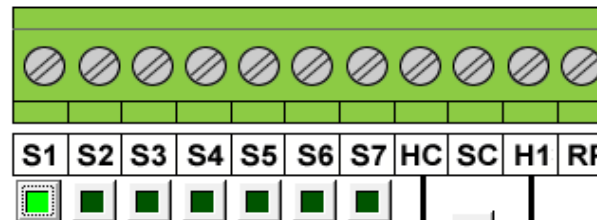
☐ Alternate Terminal Board



P1-PC
P2-PC
Photocoupler
Output

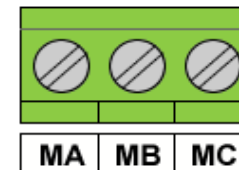
Analog
Output (V)

Pulse Output
(Hz)



Multi-function
Digital Inputs

Hardwire
Baseblock



MA-MC
MB-MC
Multi-function
Relay Output

www.yaskawa.com

Control Panel

Analog Inputs

Pulse Input

0.8 A

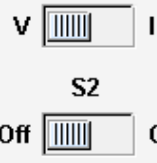
Motor Load

Motor Simulation

Main Power



S1



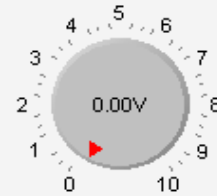
S3



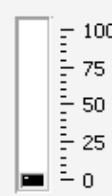
SOURCE



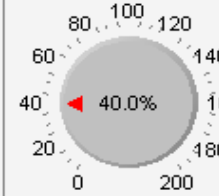
A1



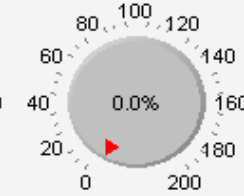
A2



%



Motor Current

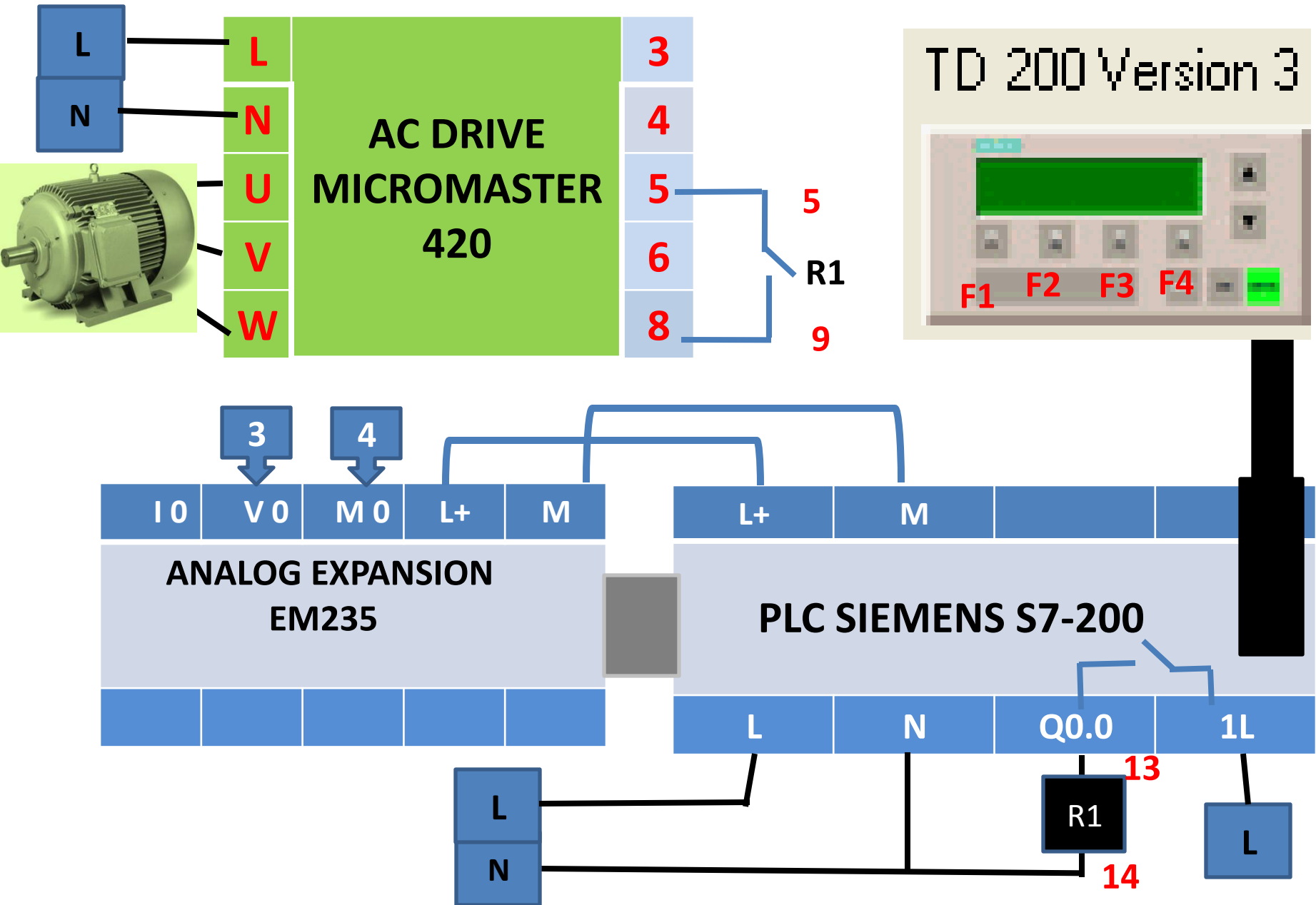


Output Torque



894 RPM

AC DRIVE – TD200 SCREEN – PLC SIEMENS S7-200 CONNECTIONS:



V0 – M0	AQW0	SPEED(r. p. m)	
0	0	0	← MIN. SPEED
			
10V	32000	1360	← MAX. SPEED

$$AQW0 = [\text{SPEED (R.P.M)} * 32000] / 1360$$

$$= [\text{SPEED (R.P.M)} * 3200] / 136$$

$$= [\quad VW400 \quad * 3200] / 136$$

TD-200 CONFIGURATION:

Text Display Wizard



Select TD Model and Version

Use this page to select the model and version of your TD device.



Configure

To view the specific features supported by your TD, please select the model and version of TD you have. To determine the model and version of your TD, you may power-up the unit. The initial screen will display the model and version. The model and version may also be listed on the back of your TD. If there is no version listed on the back of the unit, then select 'Version 2.1 and earlier', below.

Select TD Model and Version

- ☐ TD 200 Version 2.1 and earlier
- ☒ TD 200 Version 3.0
- ☐ TD 200C Version 1.0
- ☐ TD 100C Version 1.0
- ☐ TD400C Version 1.0
- ☐ TD400C Version 2.0

TD 200 Version 3



[Click for Help and Support](#)

<Prev

Next>

Cancel

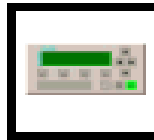
TD-200 CONFIGURATION:

Text Display Wizard



Configure Keypad Buttons

Use this page to configure the Set Bit buttons defined for the TD keypad.



Configure

The keypad defines buttons for controlling 8 V-Memory bits. Using the SHIFT button, each Set Bit button may control two PLC bits.

Suggested symbolic names for the V-Memory bits controlled by each button are listed below. You may configure each button to either set the bit or act as a momentary contact.

	Button Name	Button Symbol	Button Action	
1	F1	F1	Momentary contact	← start
2	SHIFT+F1	S_F1	Set bit	
3	F2	F2	Momentary contact	← stop
4	SHIFT+F2	S_F2	Set bit	
5	F3	F3	Momentary contact	← Increase speed
6	SHIFT+F3	S_F3	Set bit	
7	F4	F4	Momentary contact	← Decrease speed
8	SHIFT+F4	S_F4	Set bit	

☒ Display feedback on the TD 200 display when a Set Bit button is pressed.

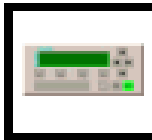


Click for Help and Support

<Prev

Next>

Cancel



Define a User Menu



User Menu

The TD 200 supports a user-defined menu with multiple screens that can be used to display operator instructions. This menu is accessed by a keypress on the TD 200 and is not under program control. Each menu choice may have multiple screens that may include PLC data references and graphical icons.



[Click for Help and Support](#)

<Prev

Next>

Cancel

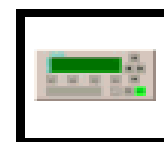
TD-200 CONFIGURATION:

Text Display Wizard



Define a User Menu

Use this page to to define the choices and screens for your user menu.



The TD 200 supports a user menu with 8 choices. Each of these choices may lead to 8 screens. Enter your menu choices in the spaces below. Click the buttons to the right to define screens that will be displayed for each menu choice.



User Menu

screen1|

ENTER



Add Screen

Add Screen

Add Screen

Add Screen

Add Screen

Add Screen

Add Screen

Add Screen

Move Choice Up

Move Choice Down

Delete Choice



[Click for Help and Support](#)

<Prev

Next>

Cancel

TD-200 CONFIGURATION:

Text Display Wizard



Screen for Menu Choice 'screen1'

Use this page to define the screen. A screen may include PLC data references and graphical icons.



Screen 0 (1 defined for this choice)

Edit Data (VW400)...



SIEMENS

speed :  r . p . m

F5
F1

F6
F2

F7
F3

F8
F4



SHIFT

ESC

ENTER

INS

☐ This screen should be the default display when there has been no operator interaction.



[Click for Help and Support](#)

OK

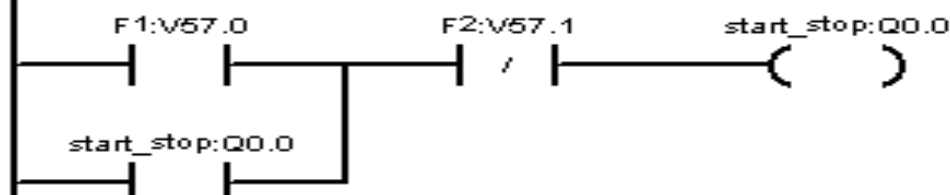
Cancel

S7-200 program:

PROGRAM COMMENTS

Network 1 Network Title

Network Comment



Symbol	Address	Comment
F1	V57.0	Symbol for keypad button 'F1' pressed (Momentary Contact)
F2	V57.1	Symbol for keypad button 'F2' pressed (Momentary Contact)
start_stop	Q0.0	

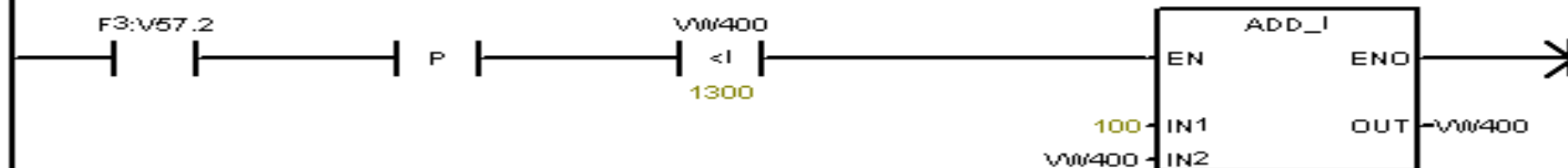
Network 2

reset speed



Network 3

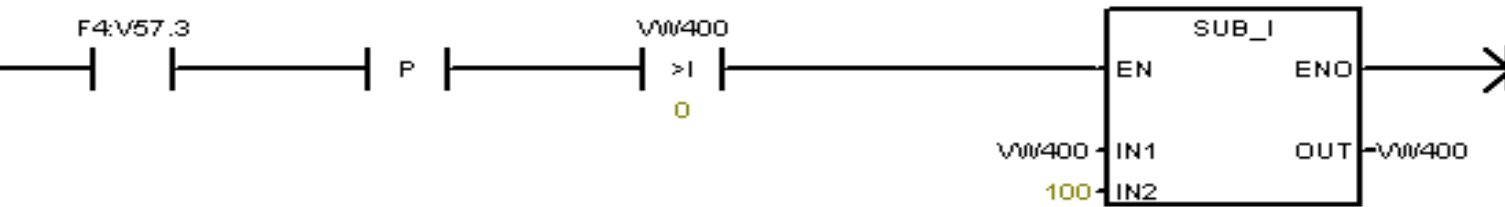
increase speed



S7-200 program:

Network 4

decrease speed

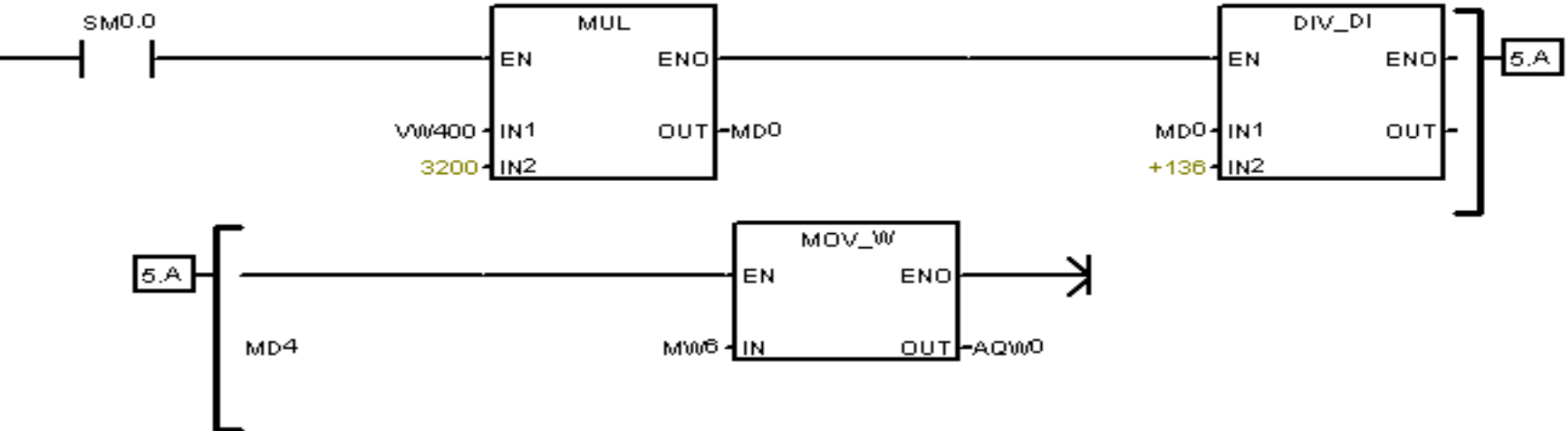


Symbol
F4

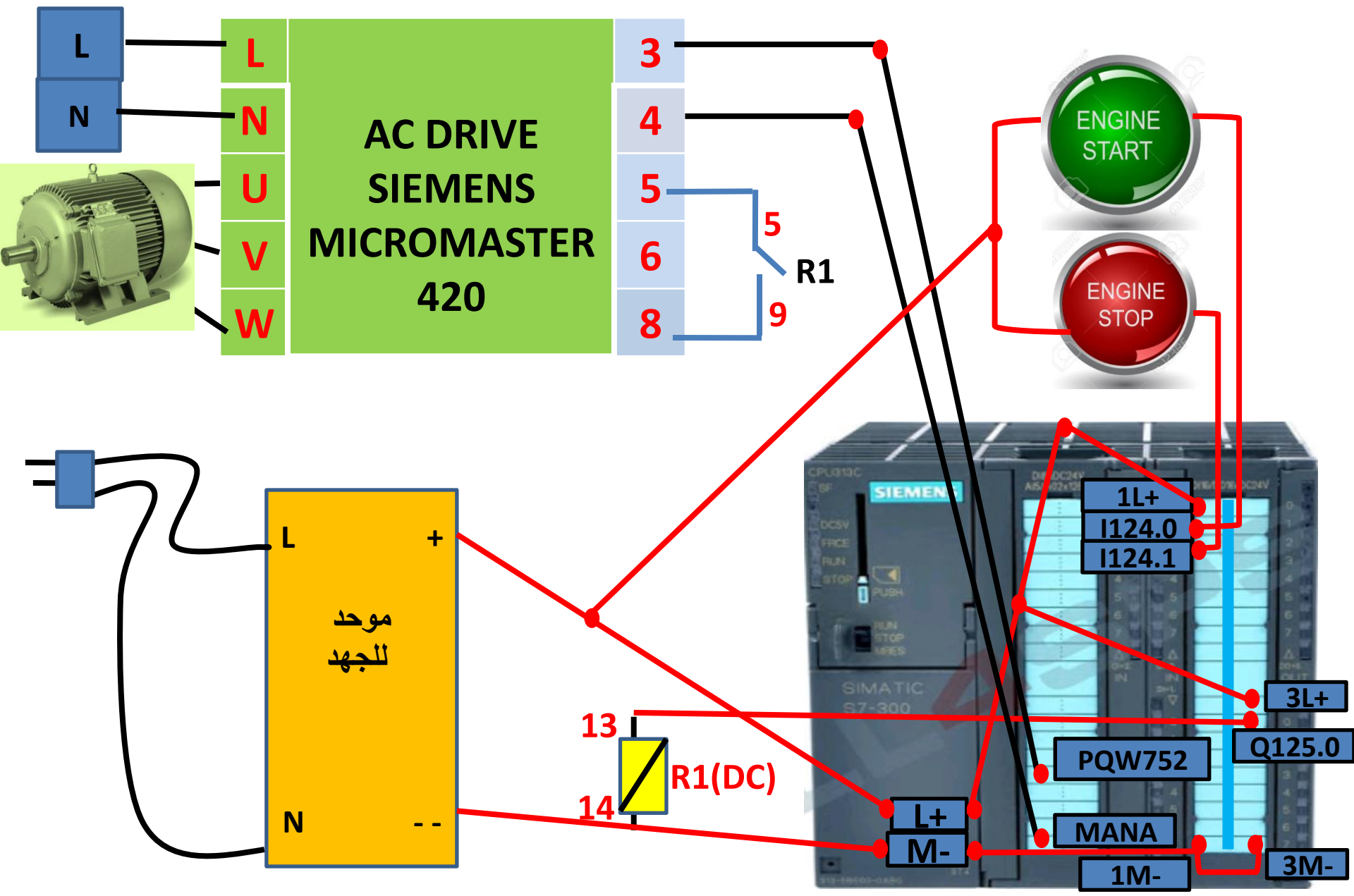
Address
V57.3

Comment
Symbol for keypad button 'F4' pressed (Momentary Contact)

Network 5



AC DRIVE – PLC SIEMENS S7-300 CPU313C CONNECTIONS:



AC DRIVE – PLC SIEMENS S7-300 CPU313C CONNECTIONS:

HW Config - [SIMATIC 300(1) (Configuration) -- ali]

Station Edit Insert PLC View Options Window Help

Properties - AI5/AO2 - (R0/S2.3)

General | Addresses | Inputs | **Outputs**

Output: 0 1

Output type: V V

Output range: 0..10 V +/- 10 V

OK Cancel Help

(0) UR

1		
2	CPU 313C	
2.2	DI24/DO16	
2.3	AI5/AO2	
2.4	Count	
3		
4		
5		
6		
7		
8		
9		
10		
11		

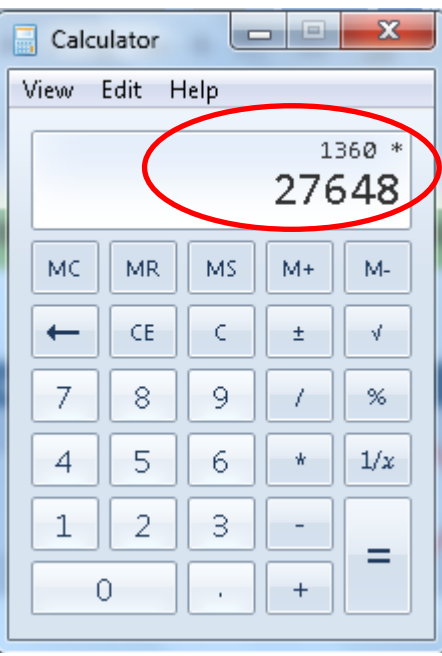
(0) UR

Slot	Module	...	O...	Fi...	M...	I...	Q...
1							
2	CPU 313C		6ES7V2.6	2			
2.2	DI24/DO16					124...	124...
2.3	AI5/AO2					752...	752...
2.4	Count					768...	768...
3							
4							
5							
6							
7							
8							
9							
10							
11							

AC DRIVE – PLC SIEMENS S7-300 CPU313C CONNECTIONS:



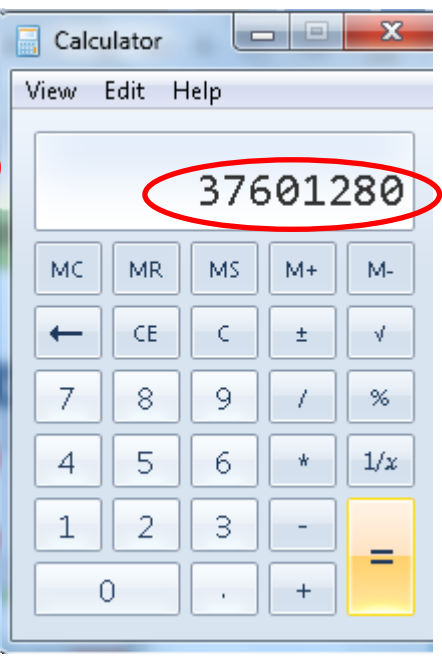
V0 – MANA	PQW752	SPEED(r. p. m)	
0	0	0	← MIN. SPEED
↓	↓	↓	
10V	27648	1360	← MAX. SPEED



Calculator

1360 *
27648

37601280



Calculator

37601280

PQW752 = [SPEED (R.P.M)* 27648] / 1360

= [MW2 * 27648] / 1360

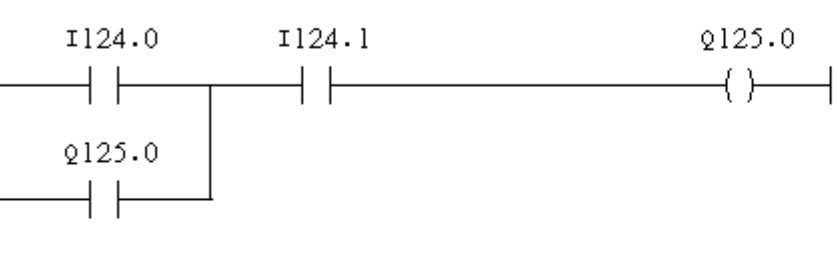
MD8

MD12

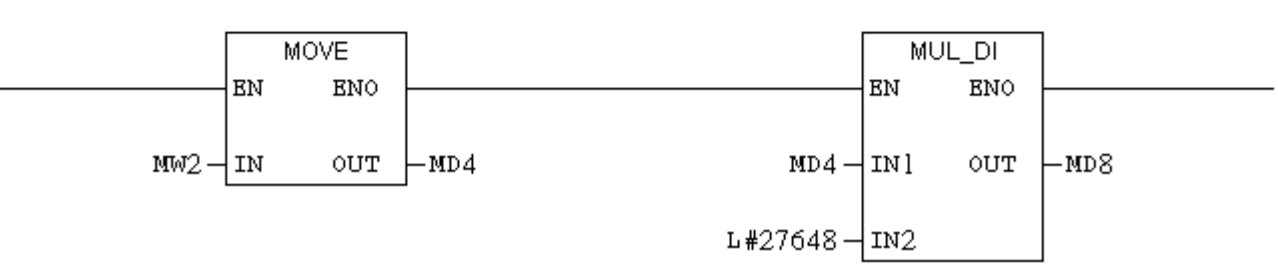
AC DRIVE – PLC SIEMENS S7-300 CPU313C CONNECTIONS:

OB1 : "Main Program Sweep (Cycle)"

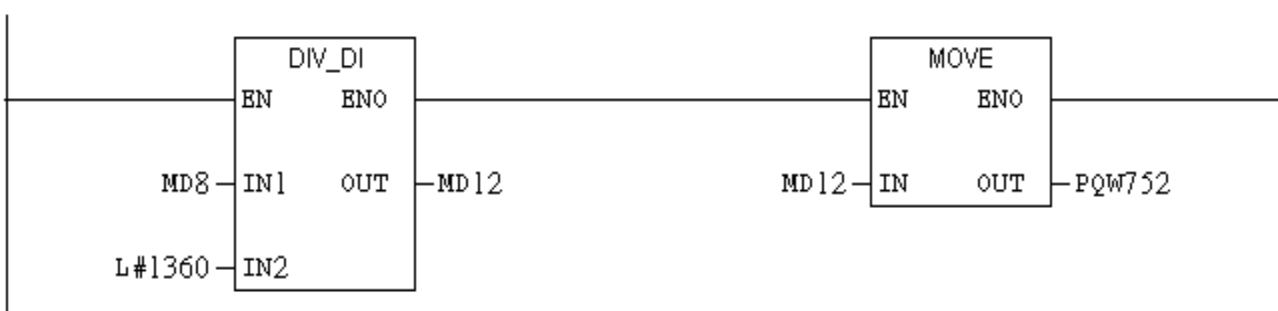
Network 1: Title:



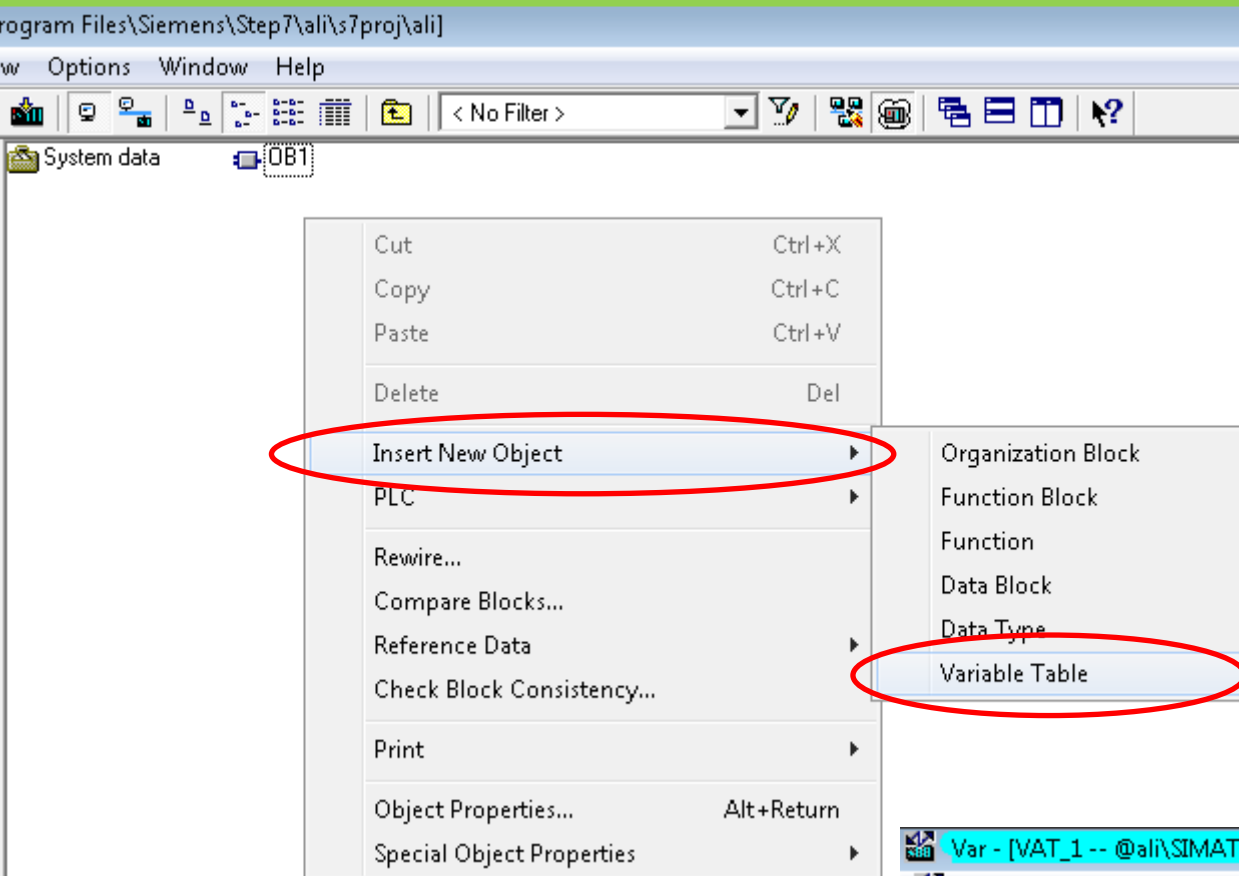
Network 2: Title:



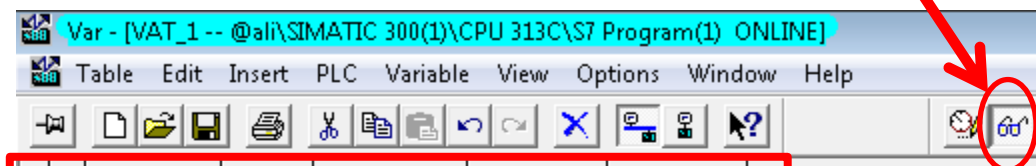
Network 3: Title:



AC DRIVE – PLC SIEMENS S7-300 CPU313C CONNECTIONS:



اضغط هنا
فيمكنك مراقبة
القيم التي
تتغير



	Address	Symbol	Display format	Status value	Modify value
1	I 124.0		BOOL	false	
2	I 124.1		BOOL	false	
3	MW 2		DEC	0	
4	Q 125.0		BOOL	false	false
5	PQW 752		HEX		

AC DRIVE – PLC SIEMENS S7-300 CPU313C CONNECTIONS:

Var - [VAT_1 -- @ali\SIMATIC 300(1)\CPU 313C\S7 Program(1) ONLINE]

Table Edit Insert PLC Variable View Options Window Help

	Address	Symbol	Display format	Status value	Modify value
1	I 124.0		BOOL	 true	
2	I 124.1		BOOL	 true	
3	MW 2		DEC	0	1360
4	Q 125.0		BOOL	 true	false
5	PQW 752		HEX		
6					

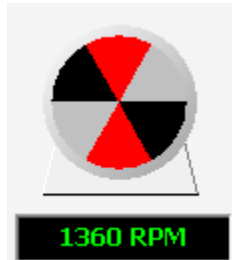
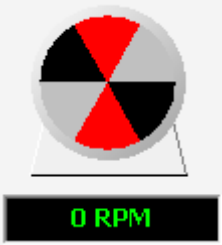
RIGHT CLICK

- Monitor Ctrl+F7
- Modify Ctrl+F9
- Update Monitor Values F7
- Activate Modify Value F9**
- Modify Address to 1 Ctrl+1
- Modify Address to 0 Ctrl+0
- Cut Ctrl+X
- Copy Ctrl+C
- Paste Ctrl+V
- Delete Del
- Insert Range of Variables... Ctrl+K
- Modify/Force Value As Comment F3
- Row Not Effective Ctrl+B



اضغط علي

أدخل السرعة 1360

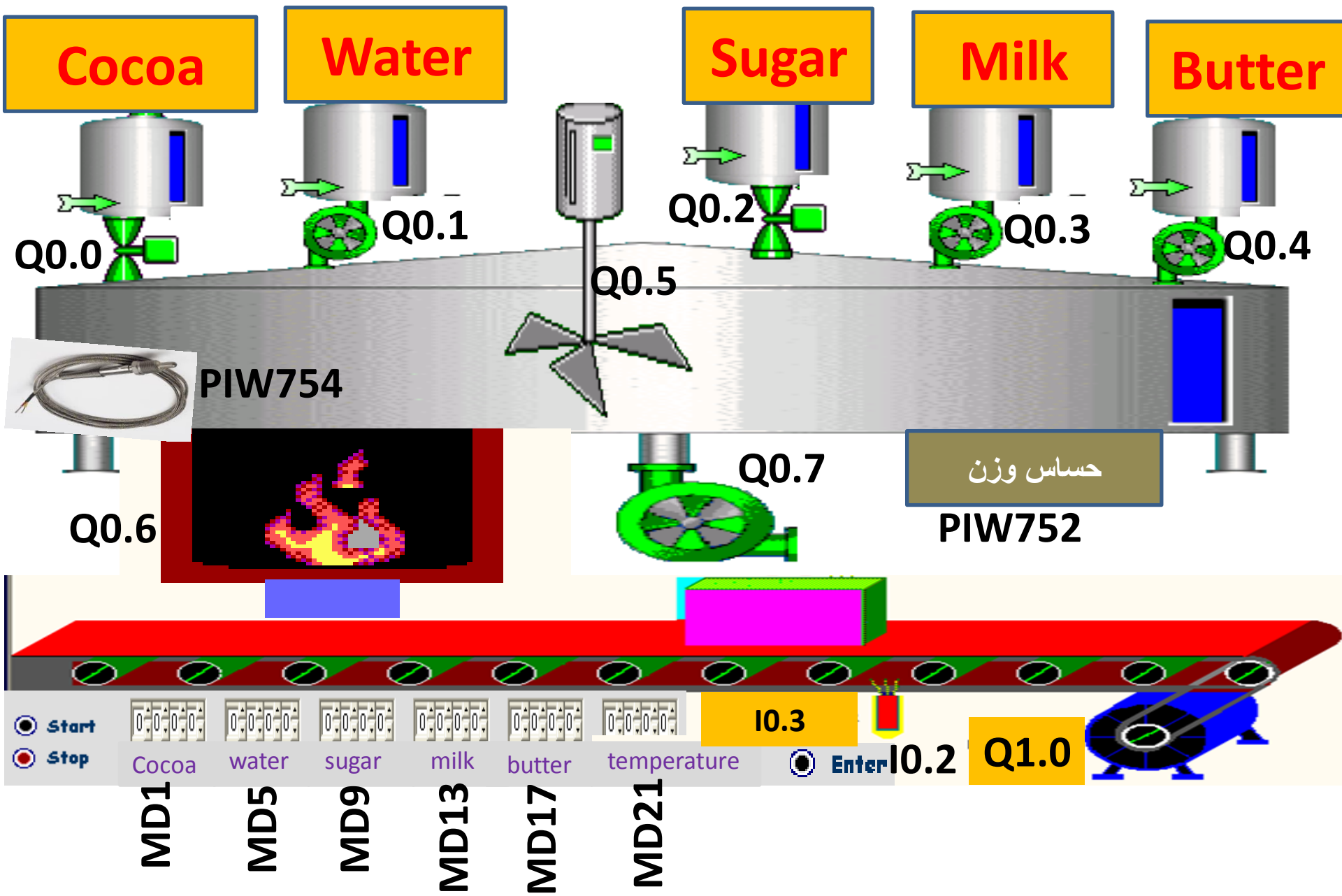


	Address	Symbol	Display format	Status value	Modify value
1	I 124.0		BOOL	 true	
2	I 124.1		BOOL	 true	
3	MW 2		DEC	 1360	1360
4	Q 125.0		BOOL	 true	false

ADDITIONAL CIRCUITS

دوائر إضافية

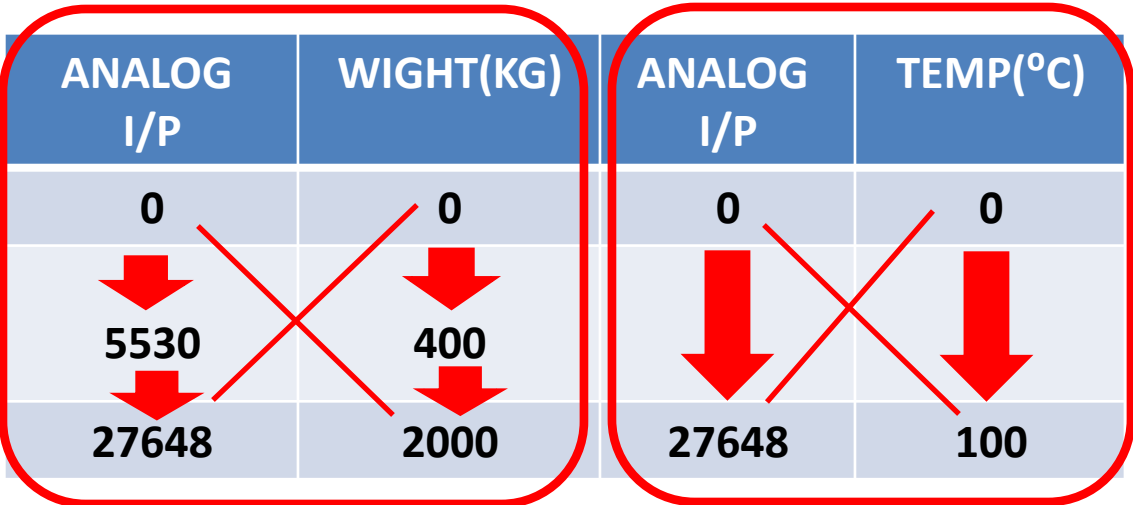
Chocolate production project:



Chocolate production project:

مطلوب تجميع مكونات الشيكولاتة من كاكاو وماء وسكر ولبن وزبدة عبر إدخال وزن كل كمية من الخارج بحد أقصى 400 كجم لكل مكون (شاشة/ برنامج PLC) وبعد التحقق من الأوزان يتم انزال الكاكاو يليه الماء يليه السكر يليه اللبن يليه الزبدة لوجود حساس وزن واحد ثم يتم خلط المكونات عن طريق الخلاط لمدة 5 ثواني ثم يتم تسخين الخليط عند درجة الحرارة المطلوبة من الخارج ثم يتم انزال الخليط علي عدد من الكراتين بحيث تكون عبوة كل كرتونة بحد أقصى ربع الوزن الأقصى للخزان وهو 2000 كجم أي 500 كجم

CHOCOLATE PRODUCTION:



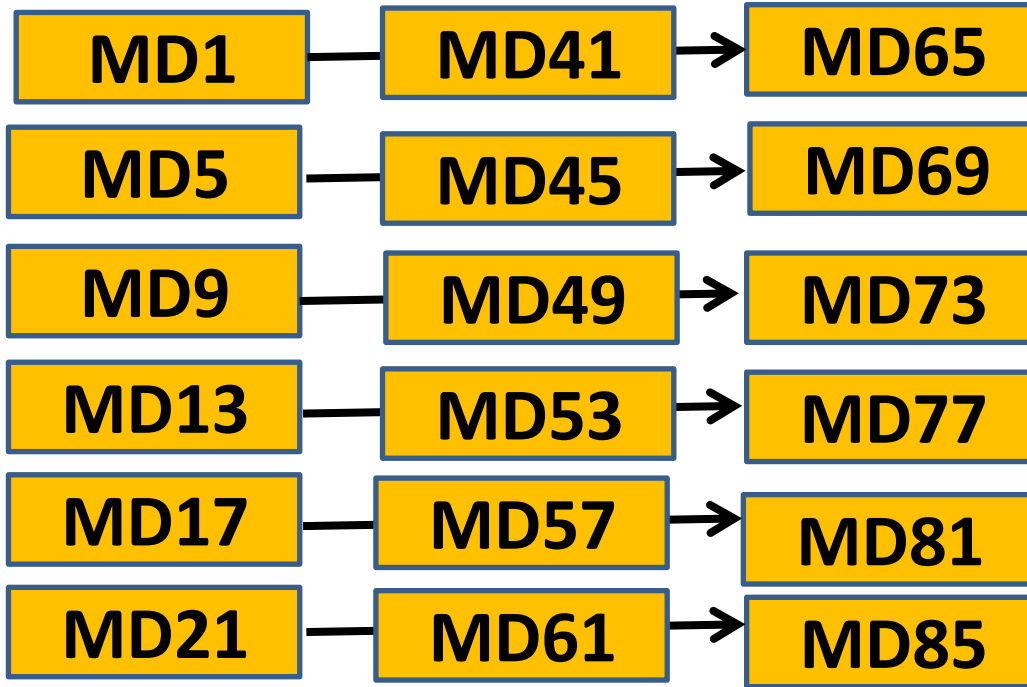
WANTED TOTAL WEIGHT VALUE = [WIGHT(KG)* 5530] / 400

WANTED TEMP VALUE = [TEMP(°C)* 27648] / 100

مجموع المطلوب من المكونات

MD65	+ MD69	=MD89 (COCOA+ WATER)
MD89	+ MD73	=MD93 (COCOA + WATER + SUGAR)
MD93	+ MD77	=MD97 (COCOA + WATER+ SUGAR+MILK)
MD97	+ MD81	=MD101(COCOA + WATER+ SUGAR+MILK+BUTTER)

CHOCOLATE PRODUCTION:



CONVERT
WEIGHT /
TEMPERATURE
INTO MEASURING
VALUE

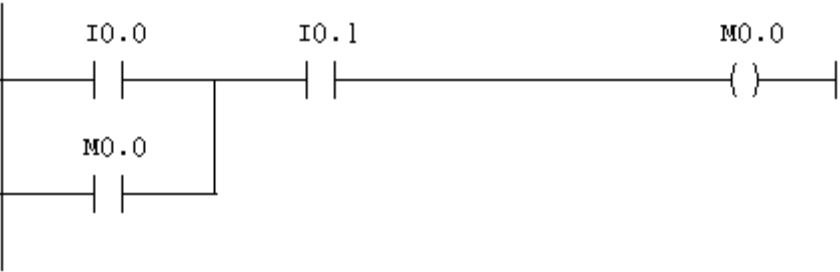


CONVERT ANALOG
INPUT INTO REAL
VALUE
I → DI , DI → R

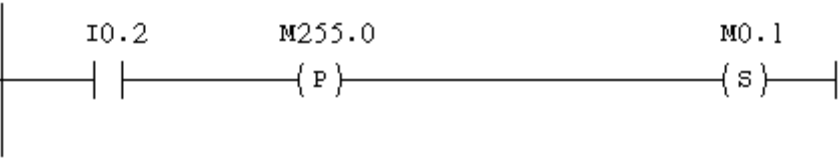
عبوة الكرتونية = العبوة القصوى للخران / 4
 عبوة الكرتونية = 2000 كجم / 4 = 500 كجم ← القراءة = 6912
 عبوة الكرتونية المطلوبة كل مرة = الوزن المقاس المتبقي - ربع الوزن الاقصى

CHOCOLATE PRODUCTION:

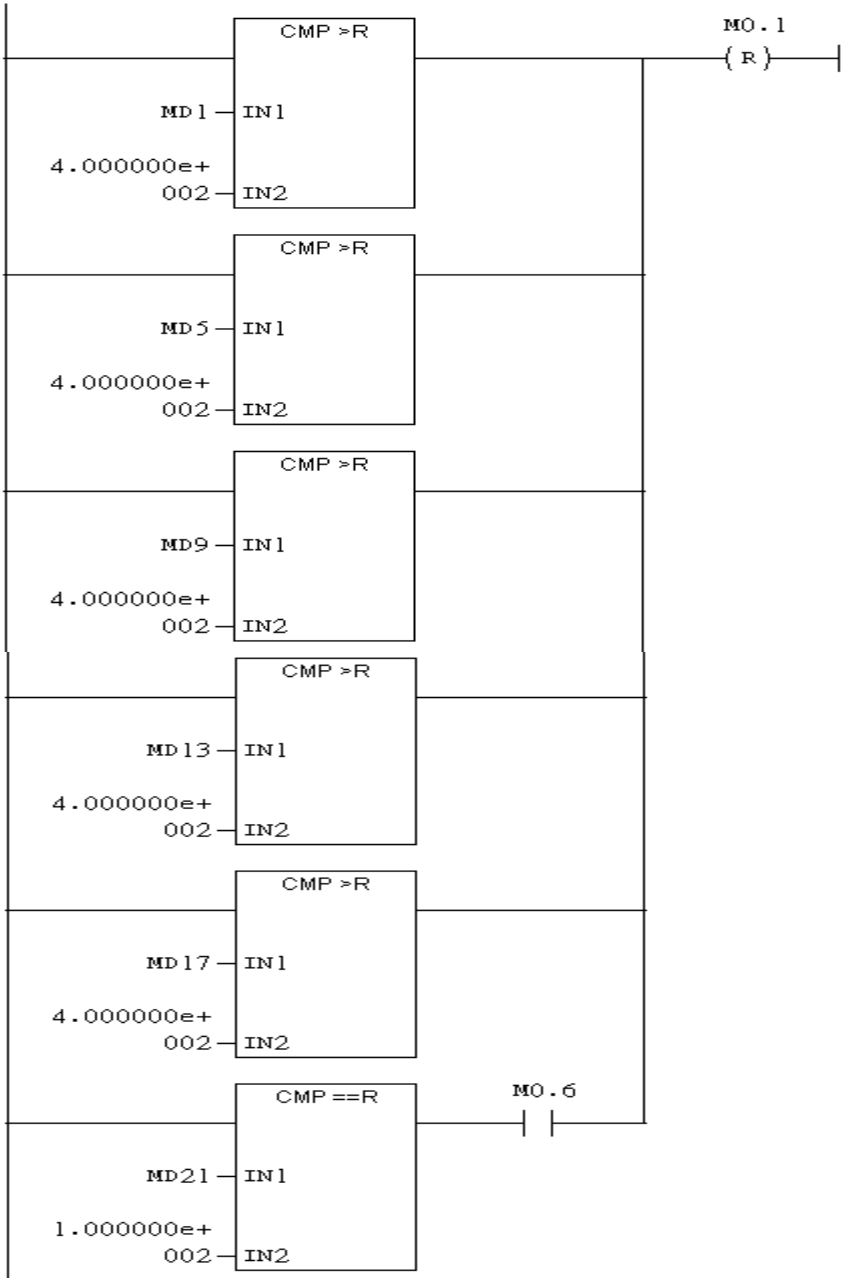
Network 1: Title:



Network 2: Title:

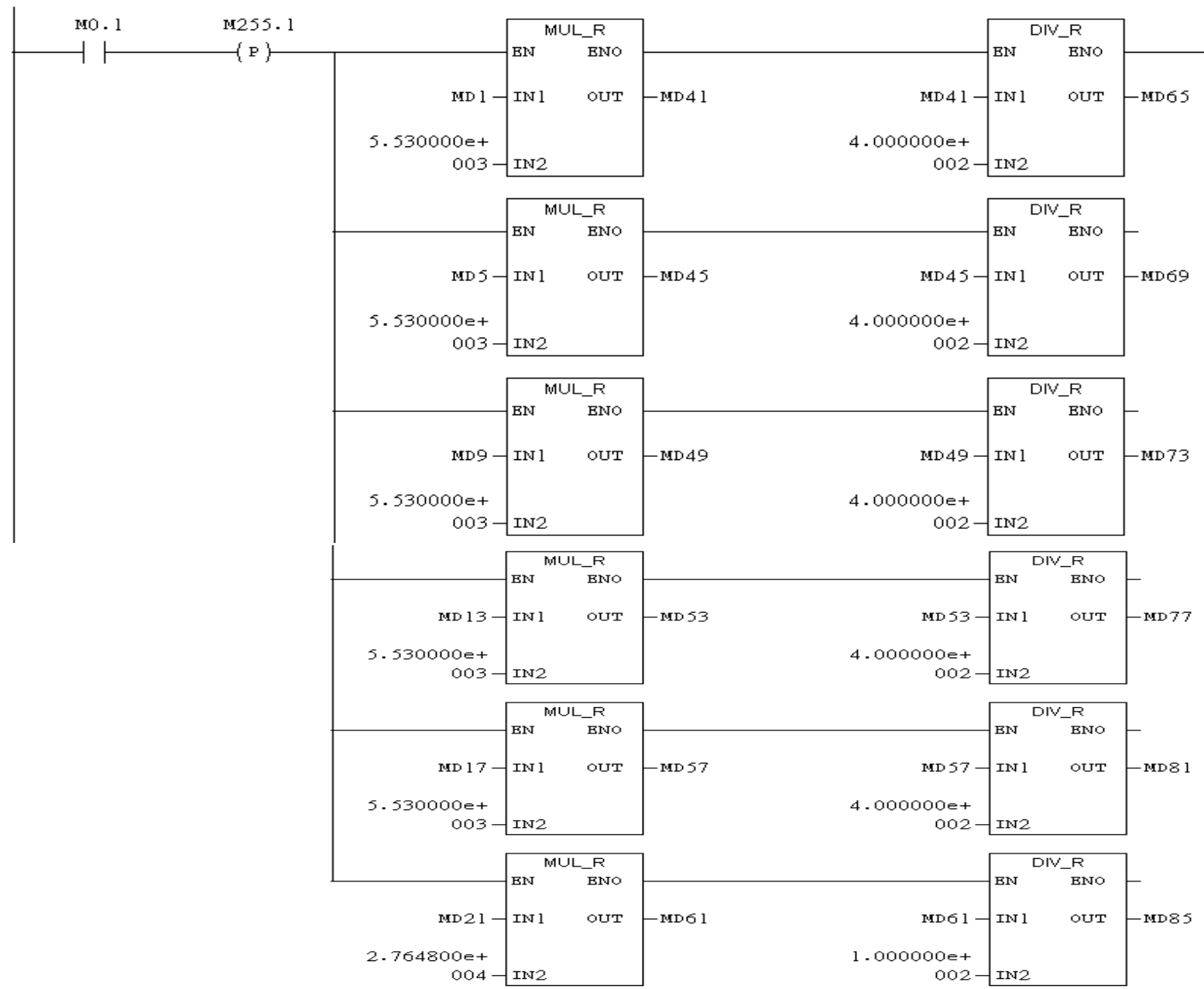


Network 3: Title:



CHOCOLATE PRODUCTION:

Network 4: Title:



CHOCOLATE PRODUCTION:

Network 5 : Title:



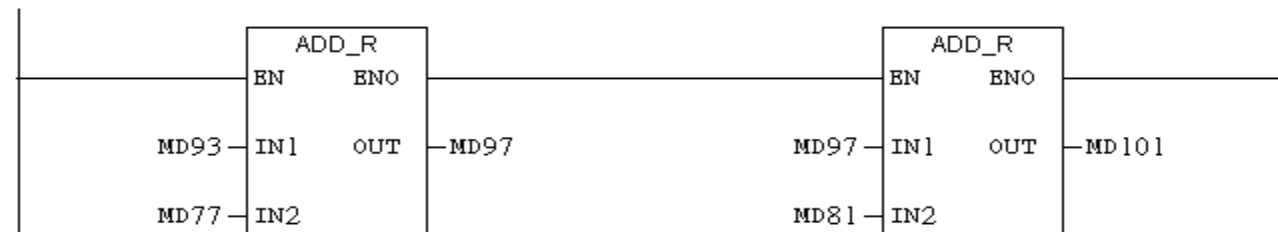
Network 6 : Title:



Network 7 : Title:

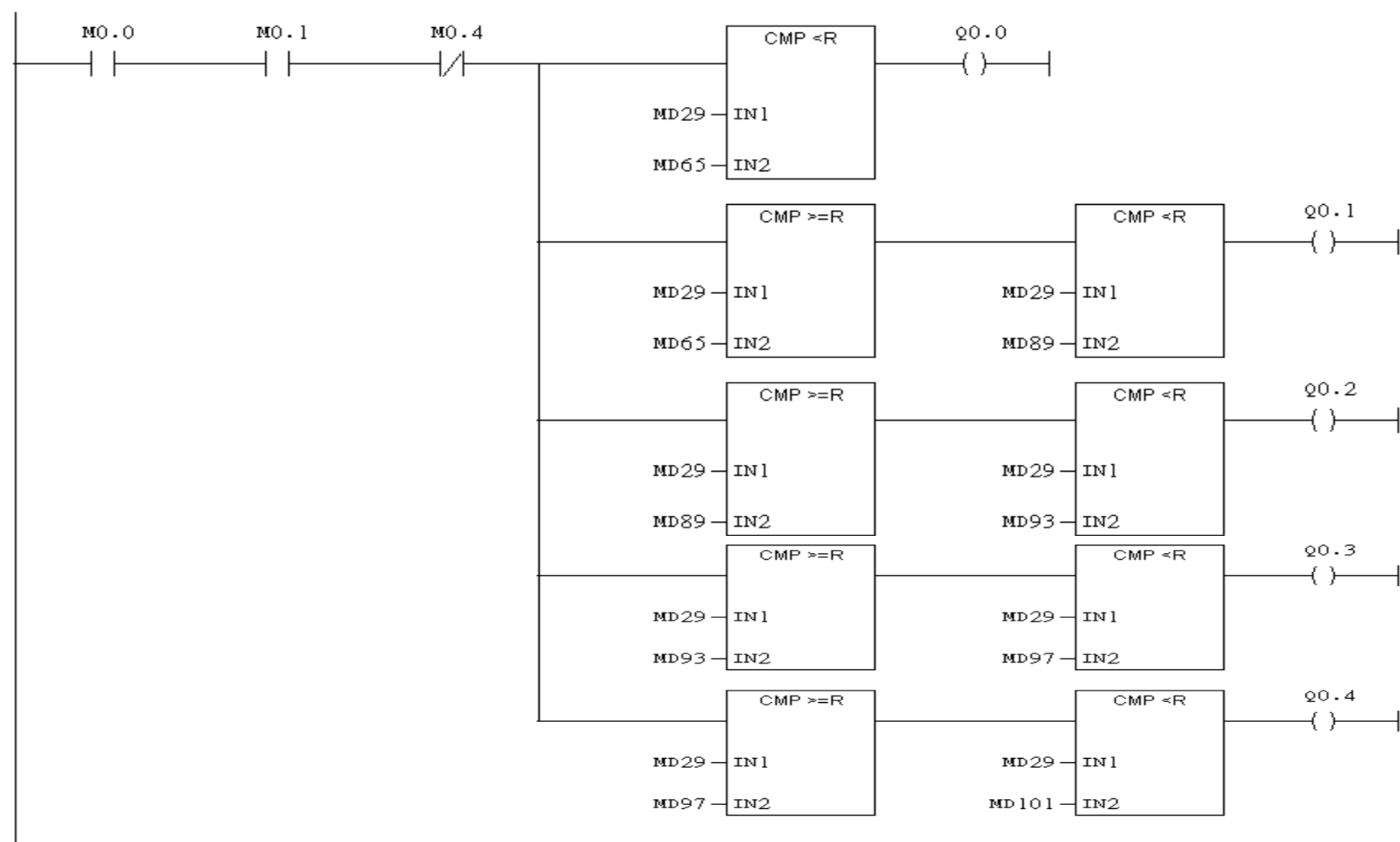


Network 9 : Title:

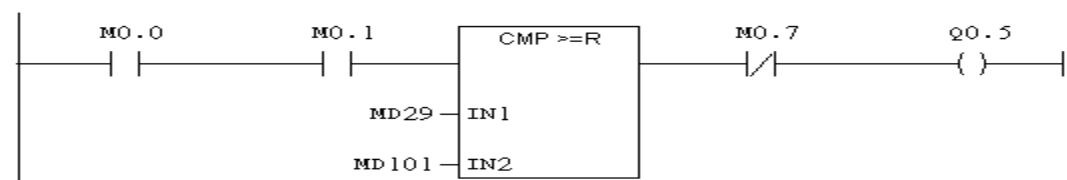


CHOCOLATE PRODUCTION:

Network 10 : Title:

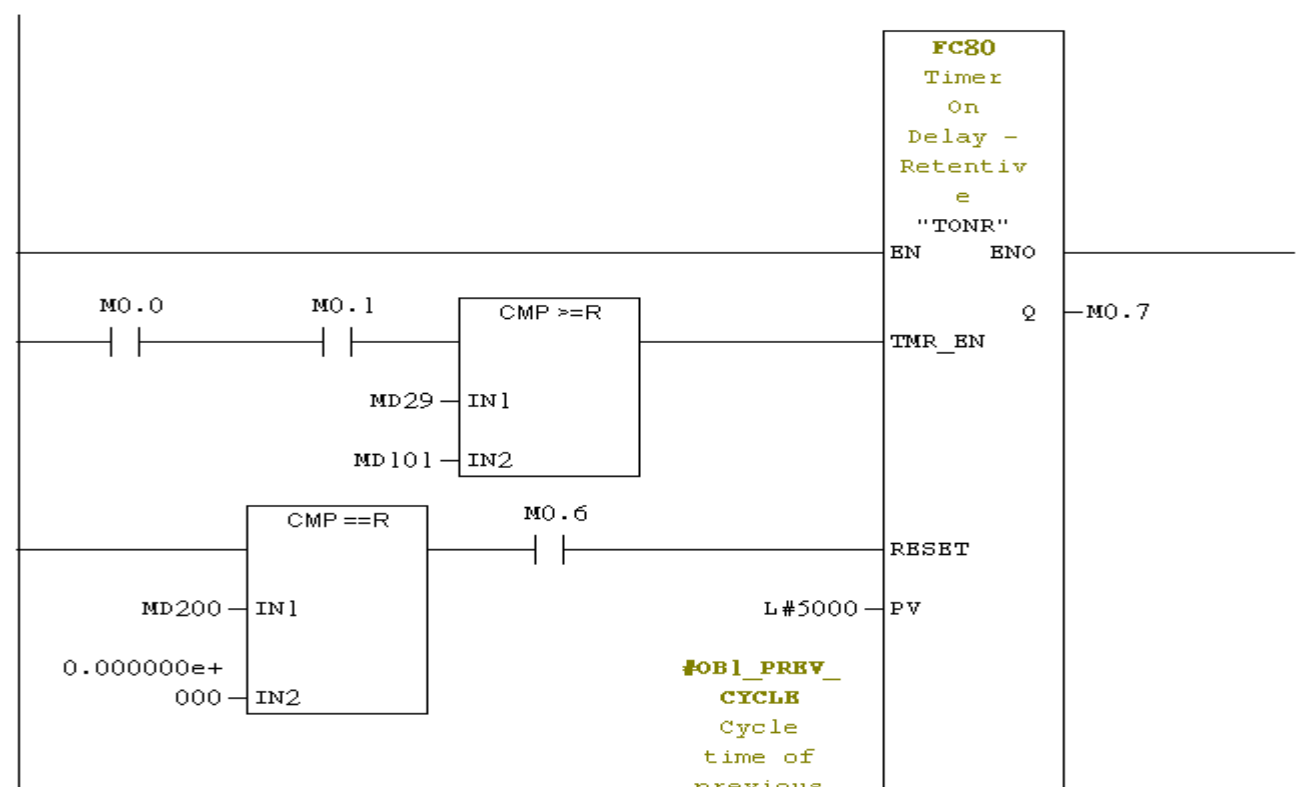


Network 11 : Title:

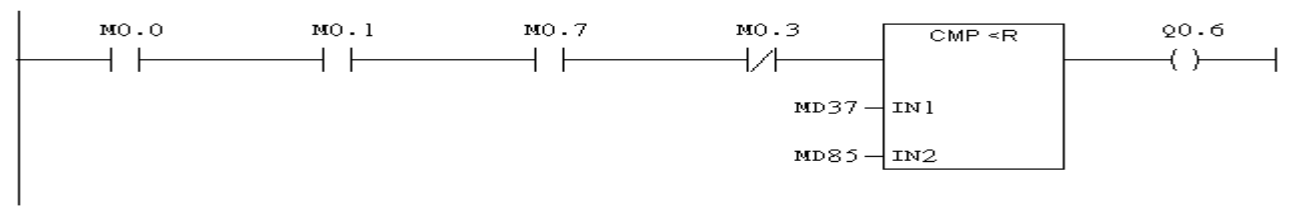


CHOCOLATE PRODUCTION:

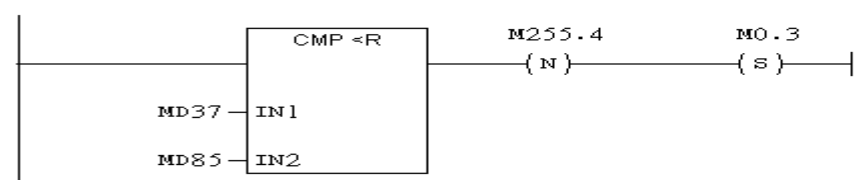
Network 12 : Title:



Network 13 : Title:

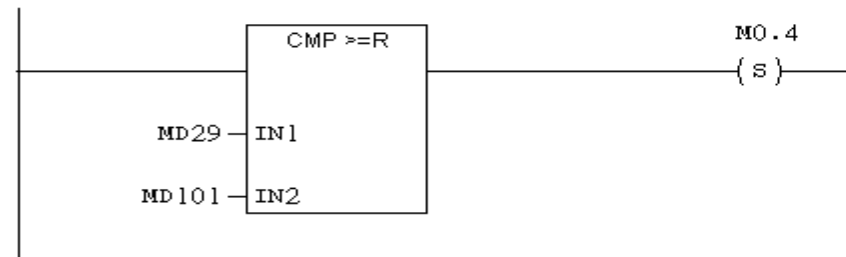


Network 14 : Title:

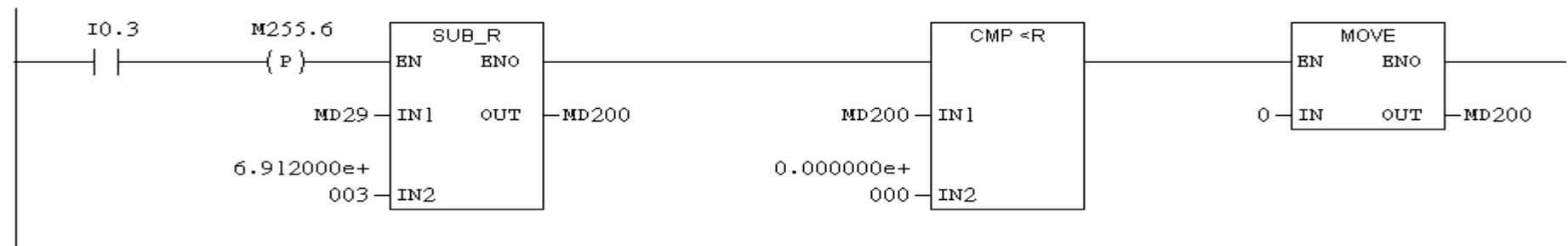


CHOCOLATE PRODUCTION:

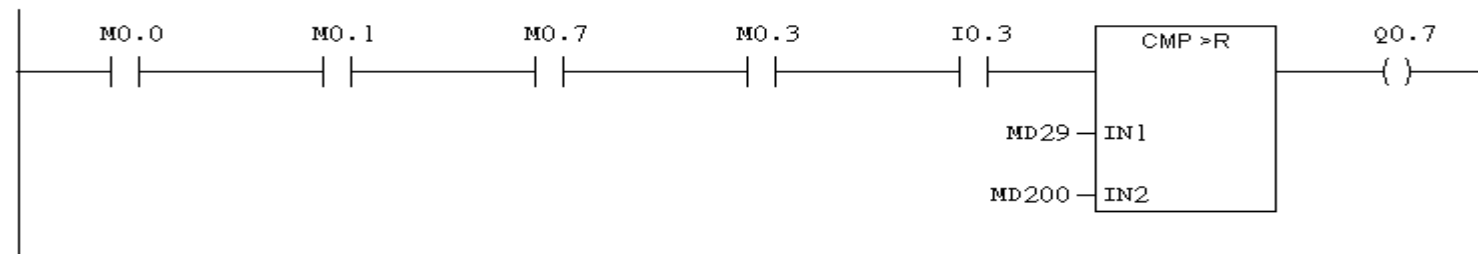
Network 15: Title:



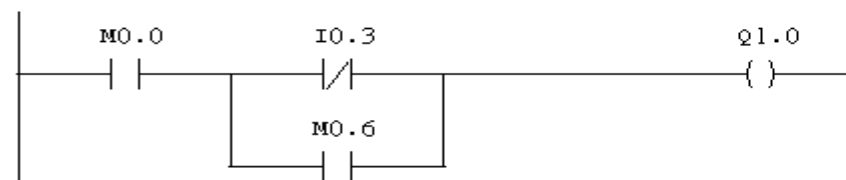
Network 16: Title:



Network 17: Title:

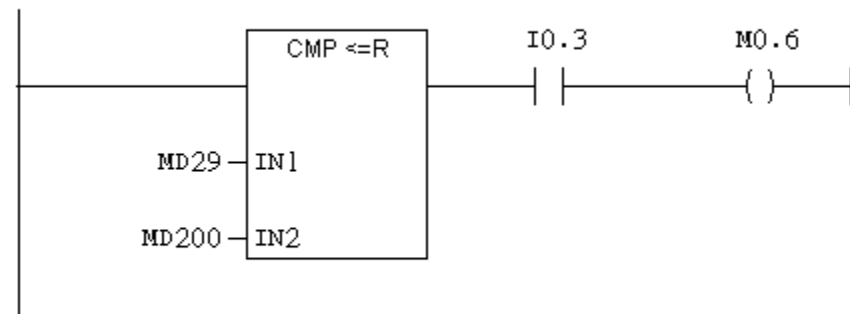


Network 18: Title:

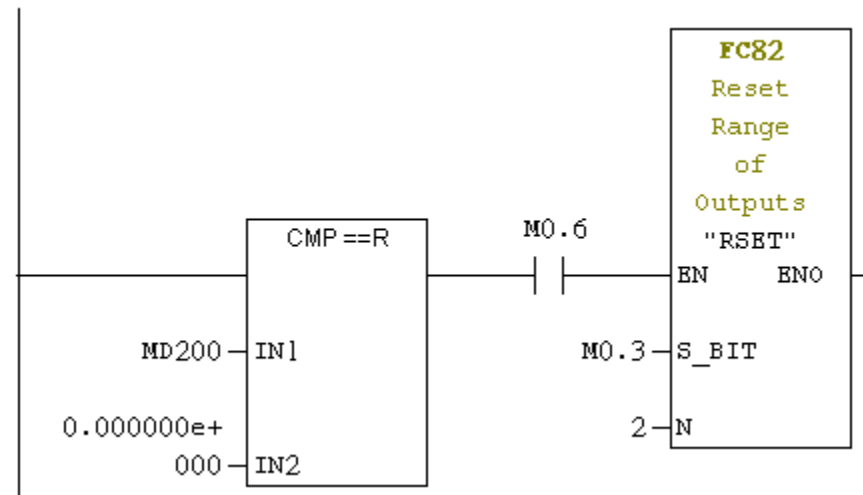


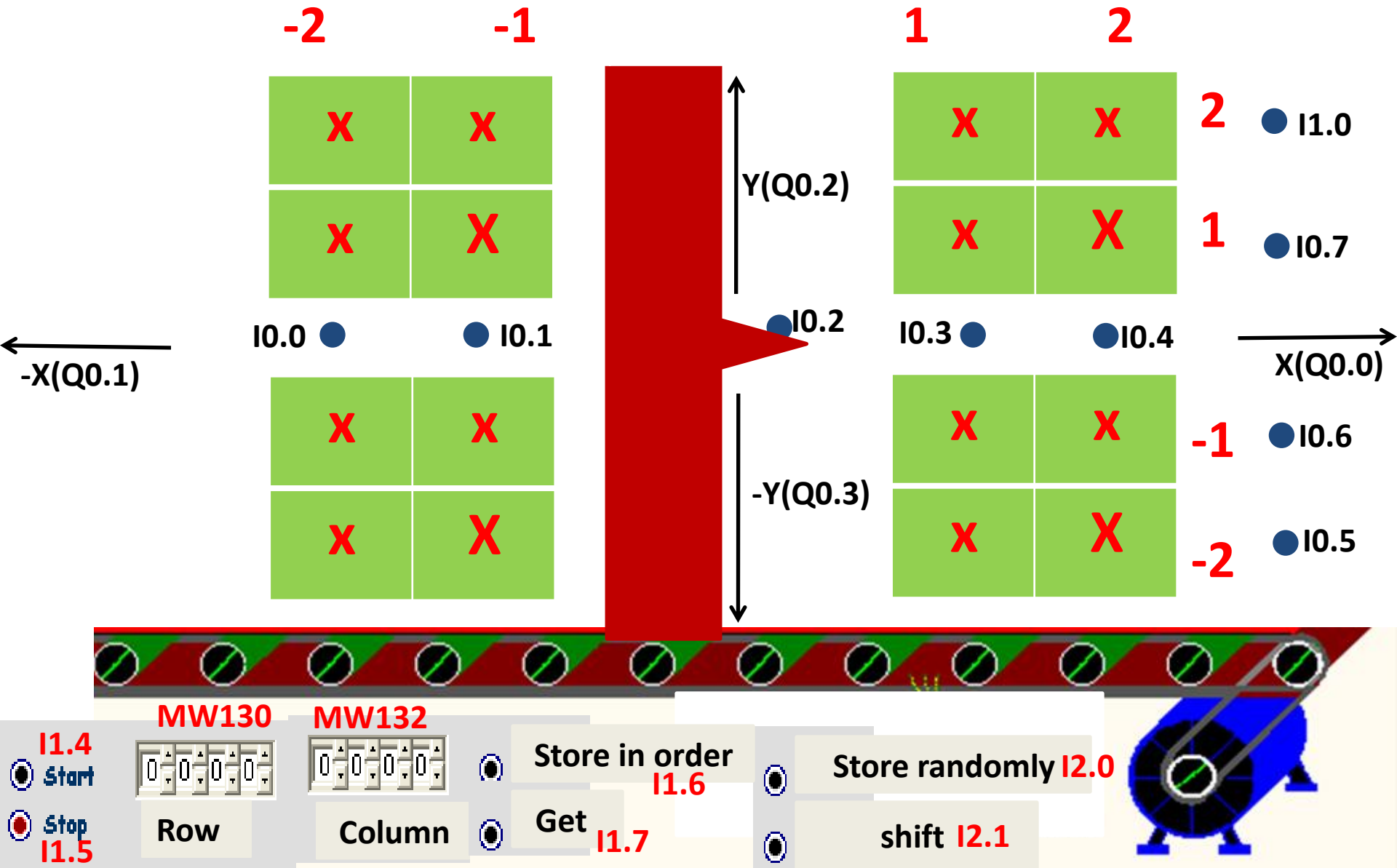
CHOCOLATE PRODUCTION:

Network 19 : Title:



Network 20 : Title:



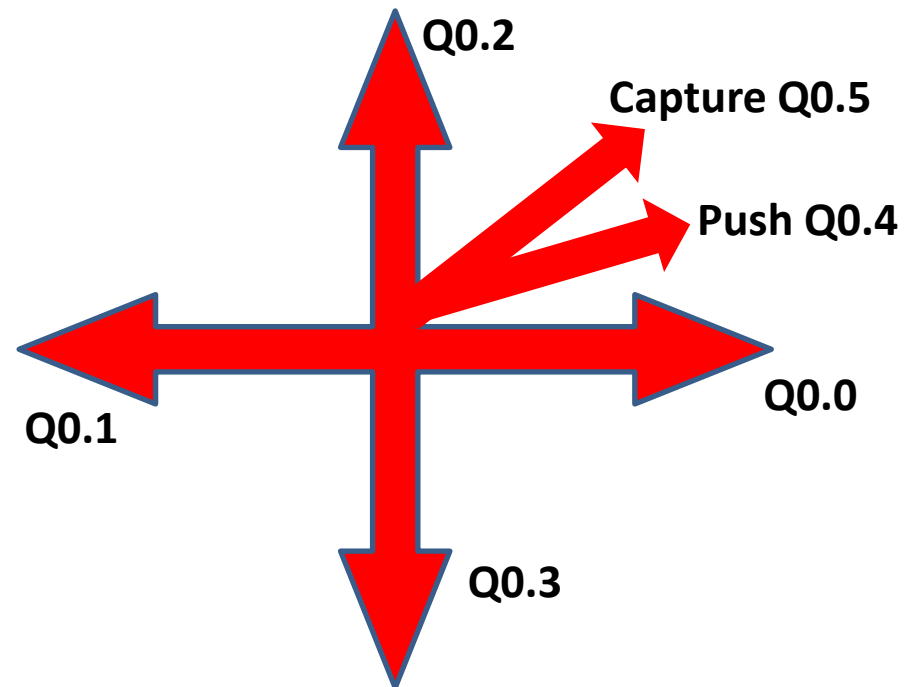


Automatic store:

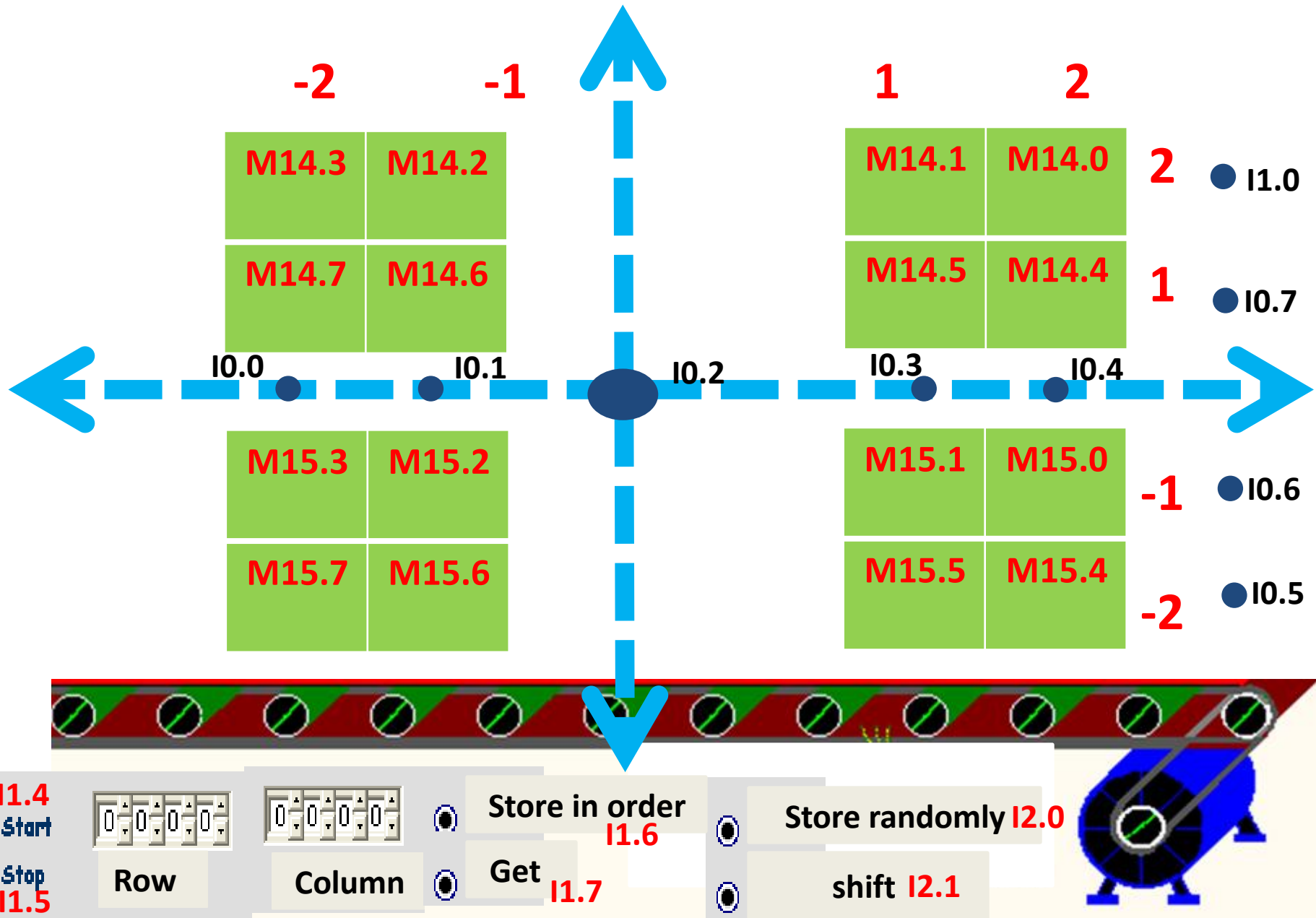
i0.0 s1
i0.1 s2
i0.2 s3
i0.3 s4
i0.4 s5
i0.5 s6
i0.6 s7
i0.7 s8
i1.0 s9

q0.0 right
q0.1 left
q0.2 up
q0.3 down
q0.4 push
q0.5 capture
iw3 row
iw5 column

i1.2 push end
i1.3 capture end
i1.4 on
i1.5 off
i1.6 order
i1.7 get
i2.0 random
i2.1 shift

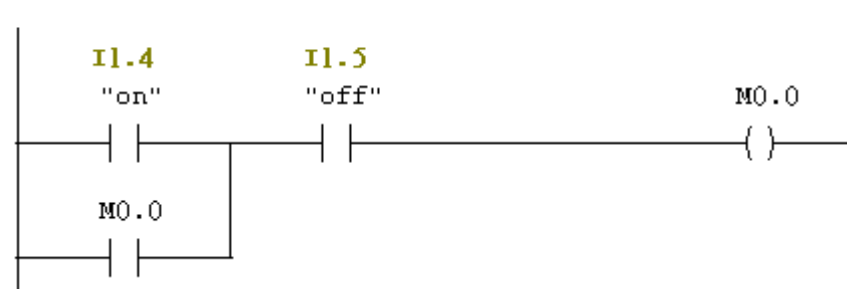


Automatic Store:

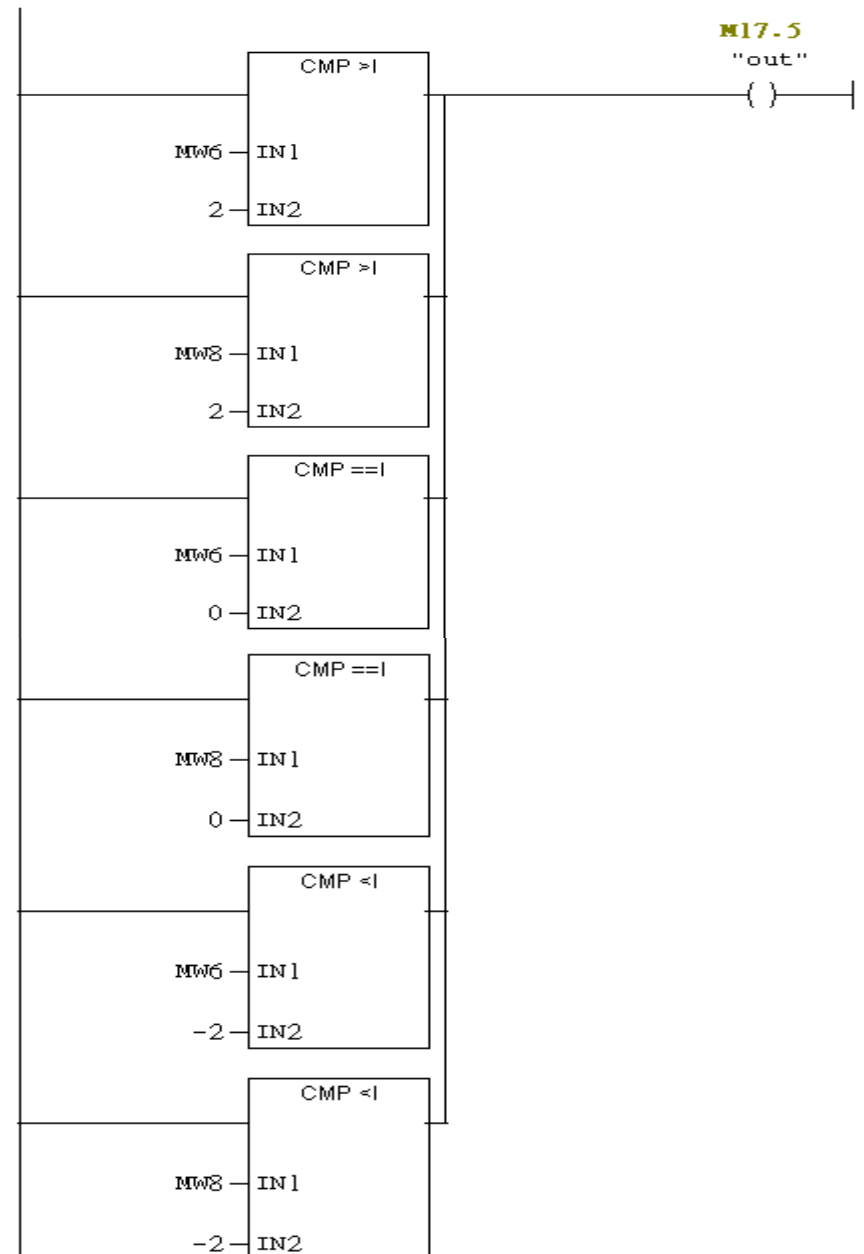


Automatic store:

Network 1: Title:



Network 2: Title:

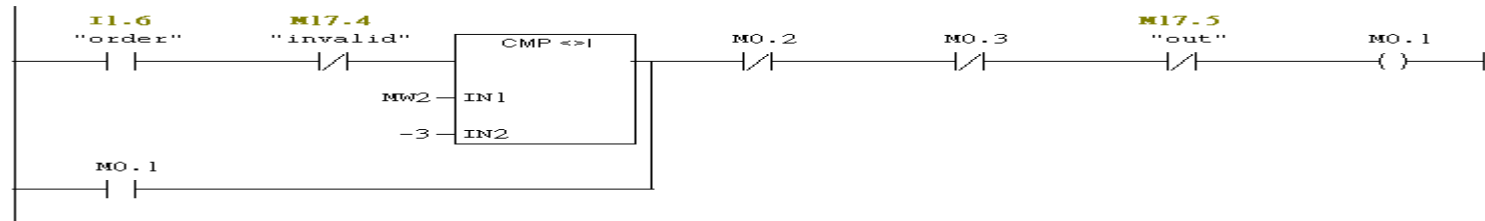


Automatic store:

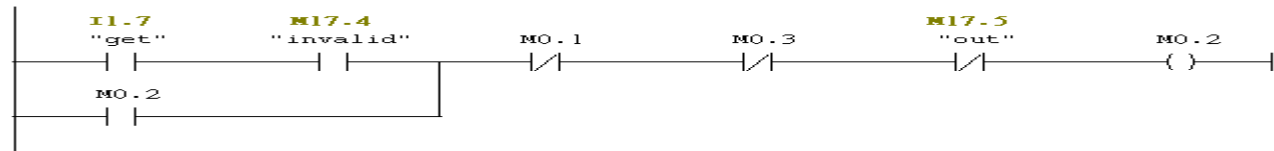
Network 3 : Title:



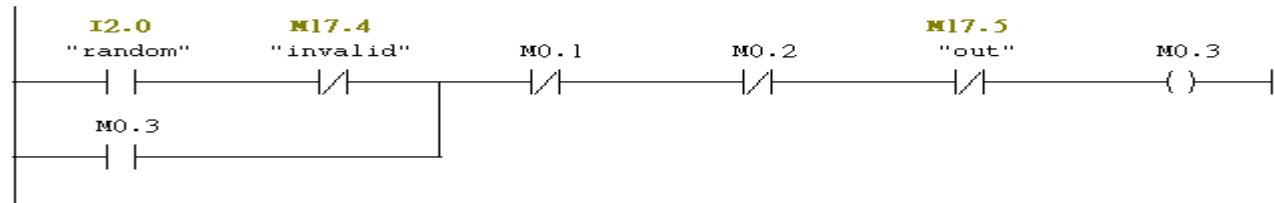
Network 4 : Title:



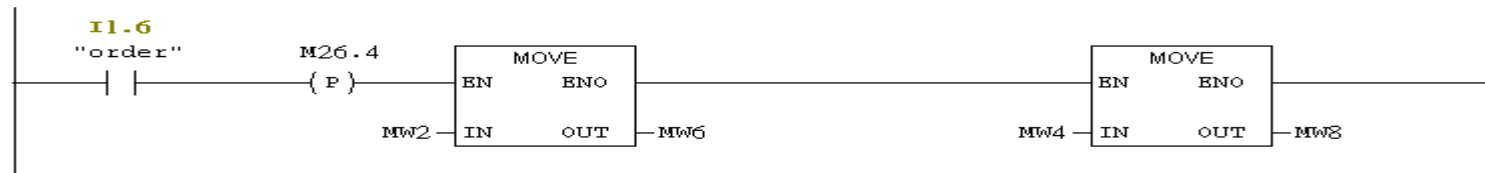
Network 5 : Title:



Network 6 : Title:

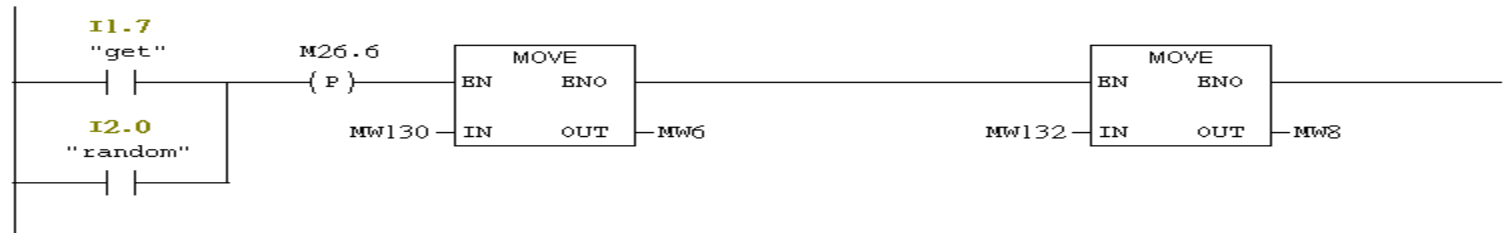


Network 7 : Title:

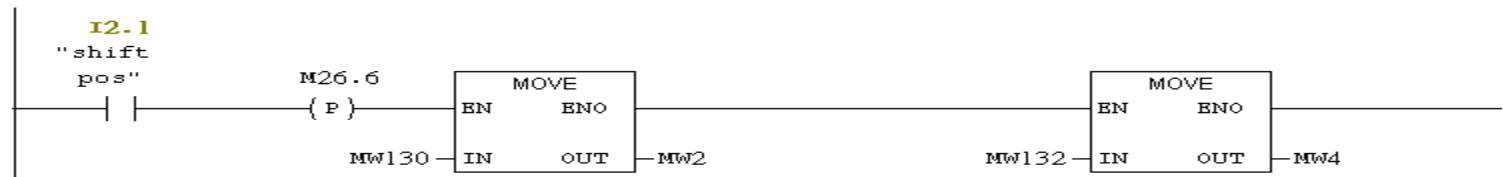


Automatic store:

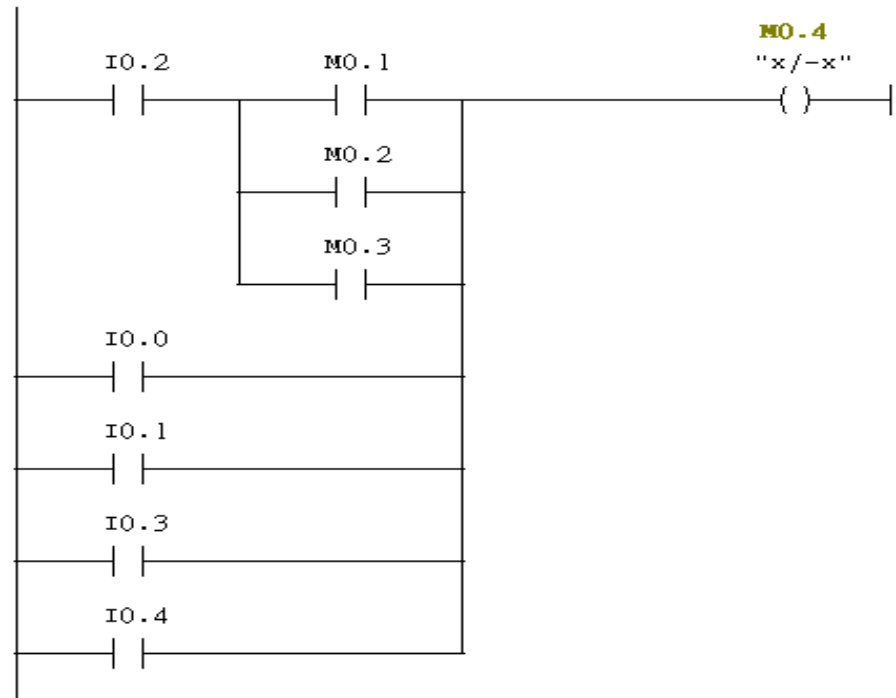
Network 8 : Title:



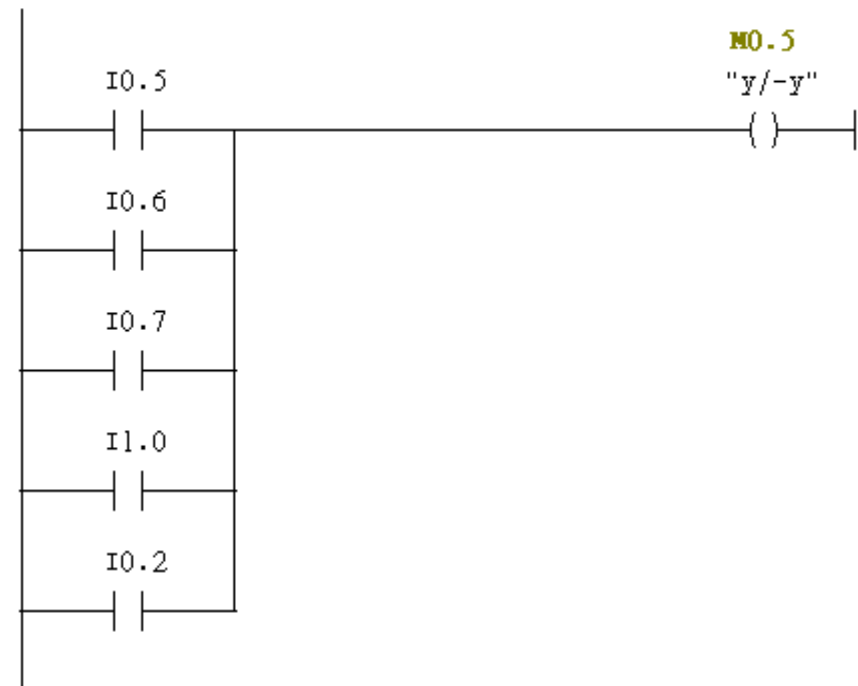
Network 9 : Title:



Network 10 : Title:

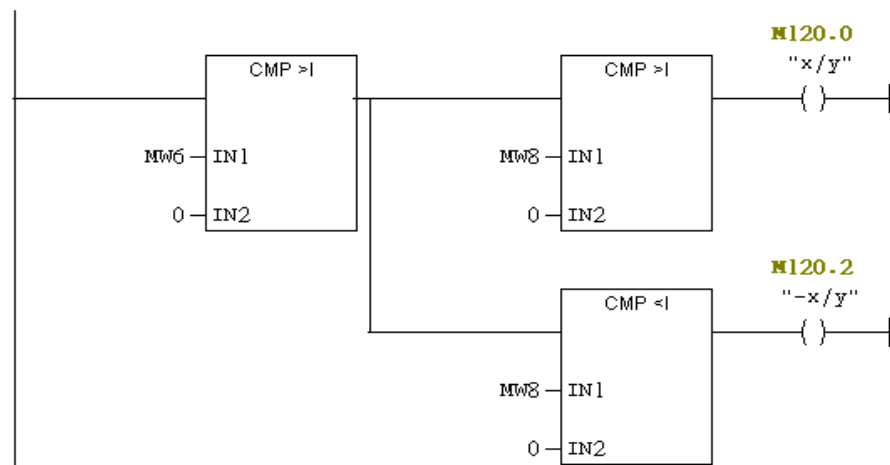


Network 11 : Title:

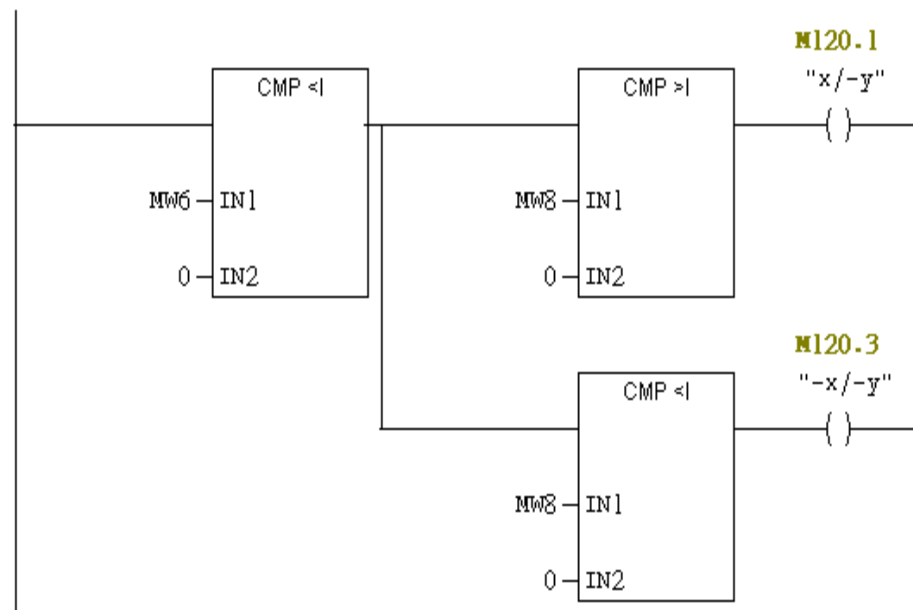


Automatic store:

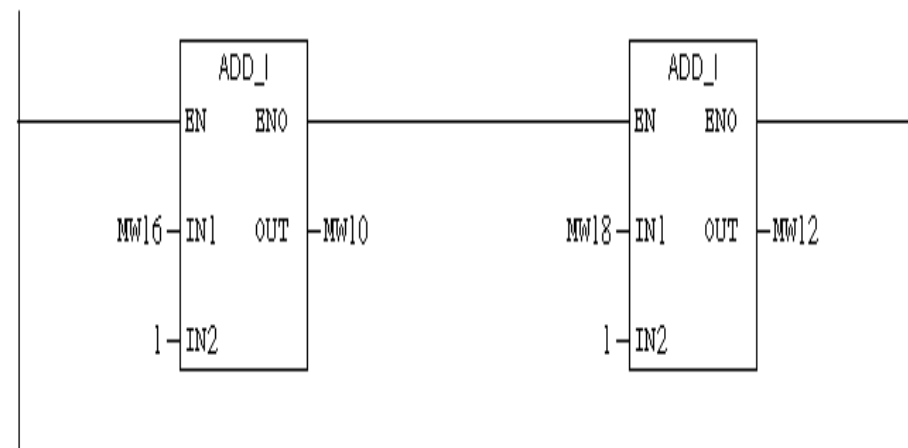
Network 12: Title:



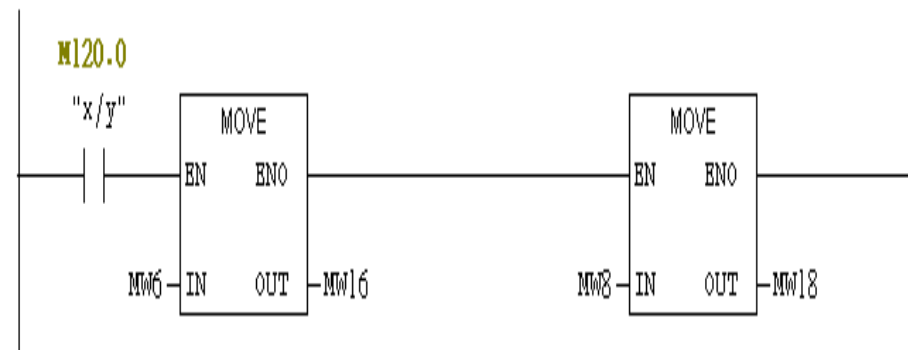
Network 13: Title:



Network 14: Title:



Network 15: Title:



Automatic store:

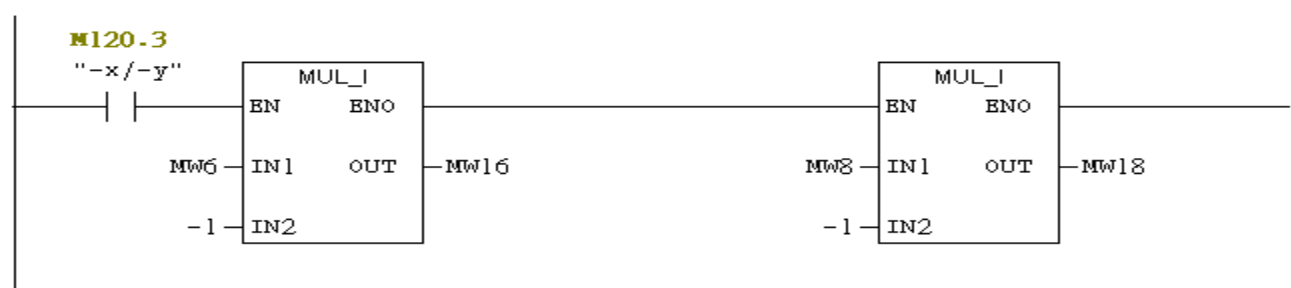
Network 16 : Title:



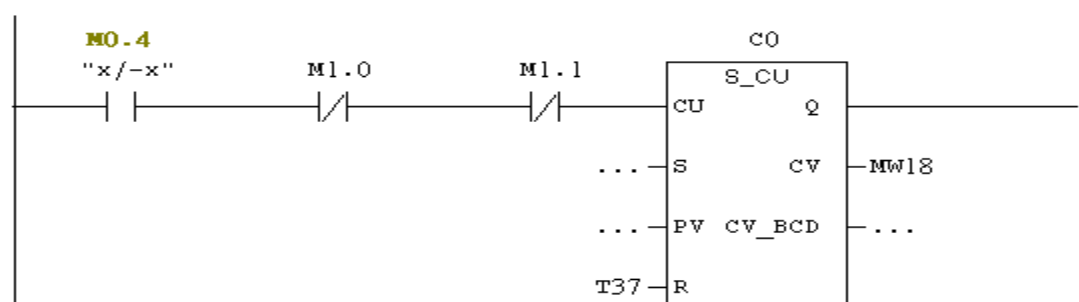
Network 17 : Title:



Network 18 : Title:

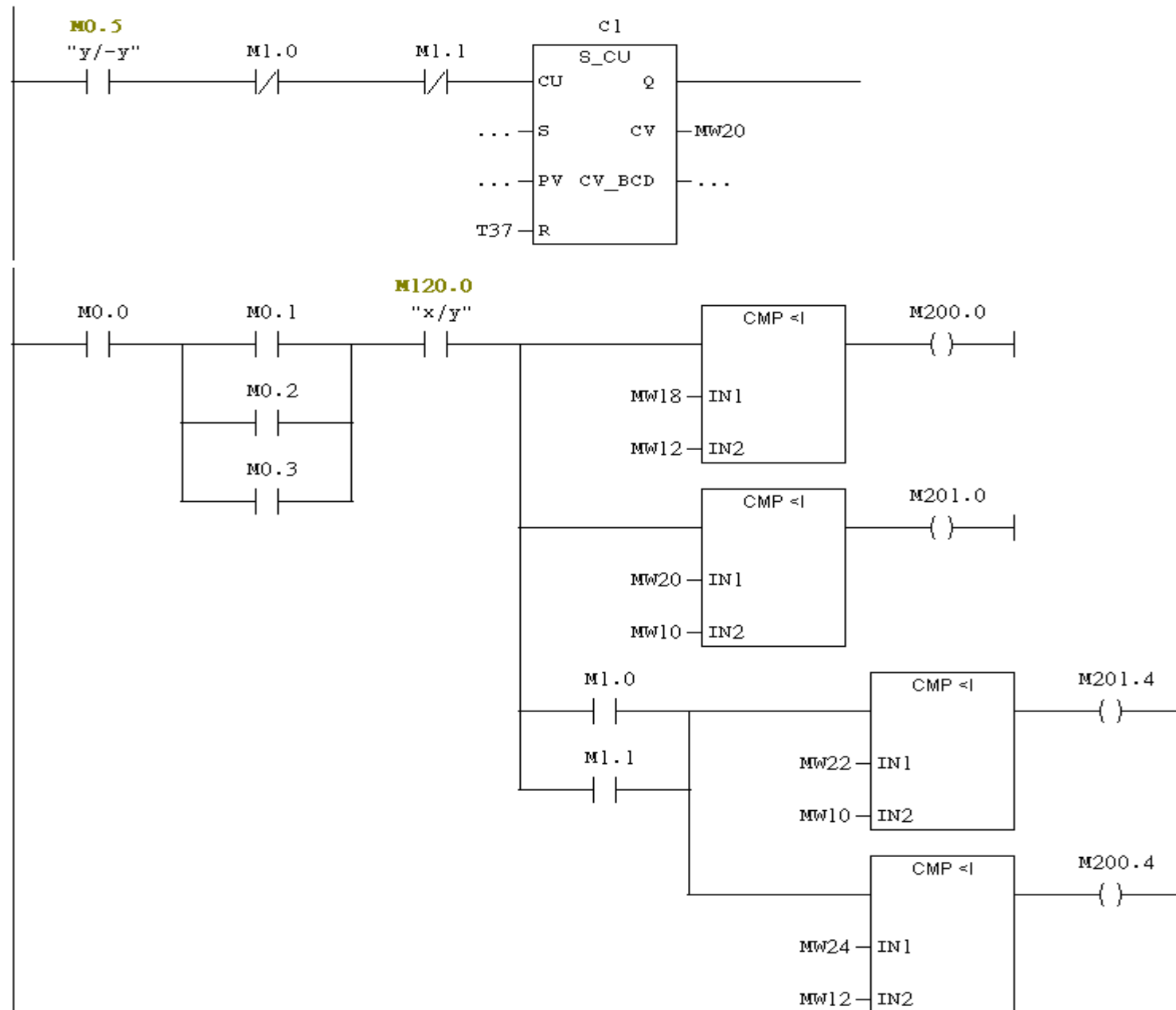


Network 19 : Title:

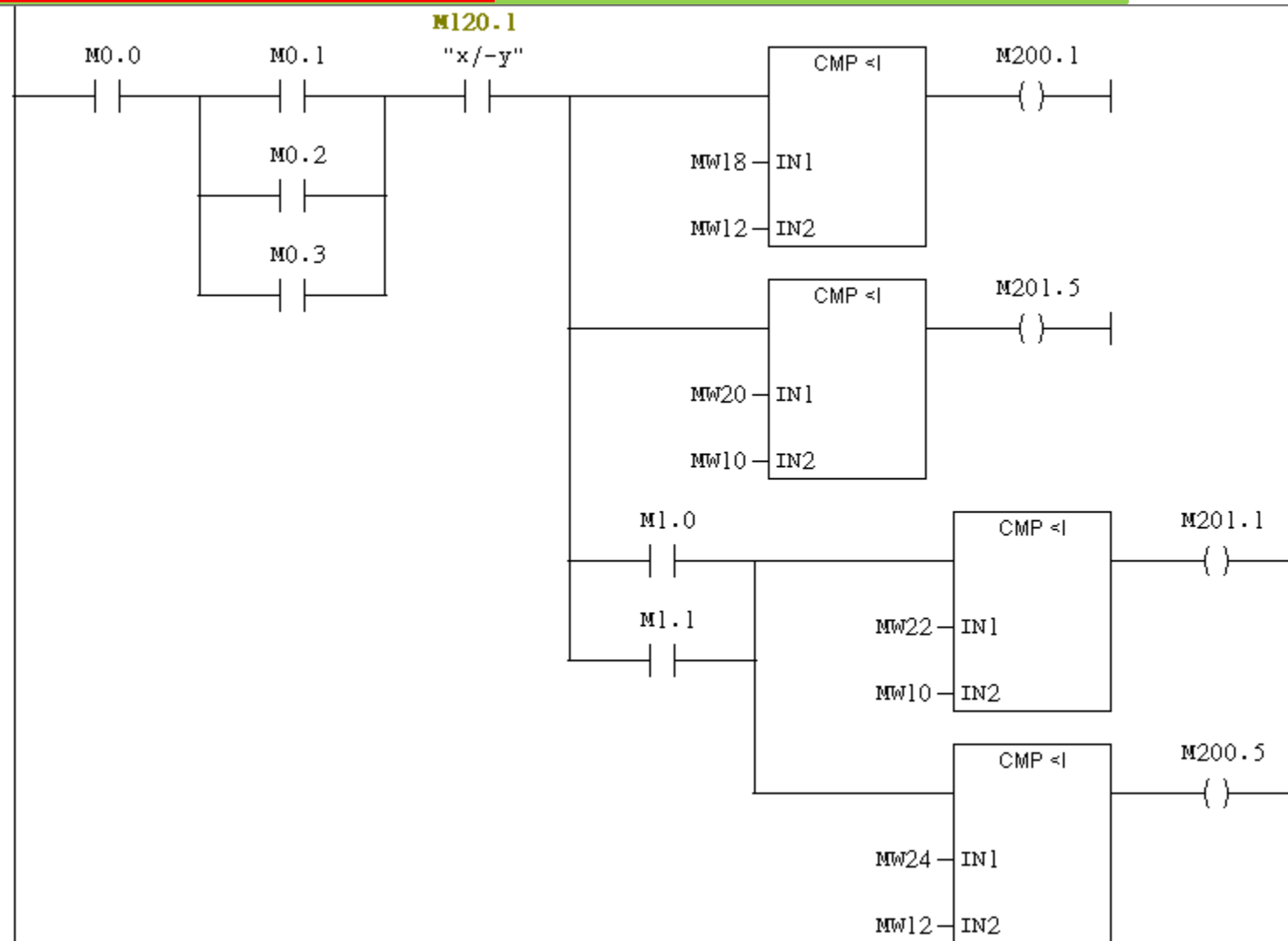


Automatic store:

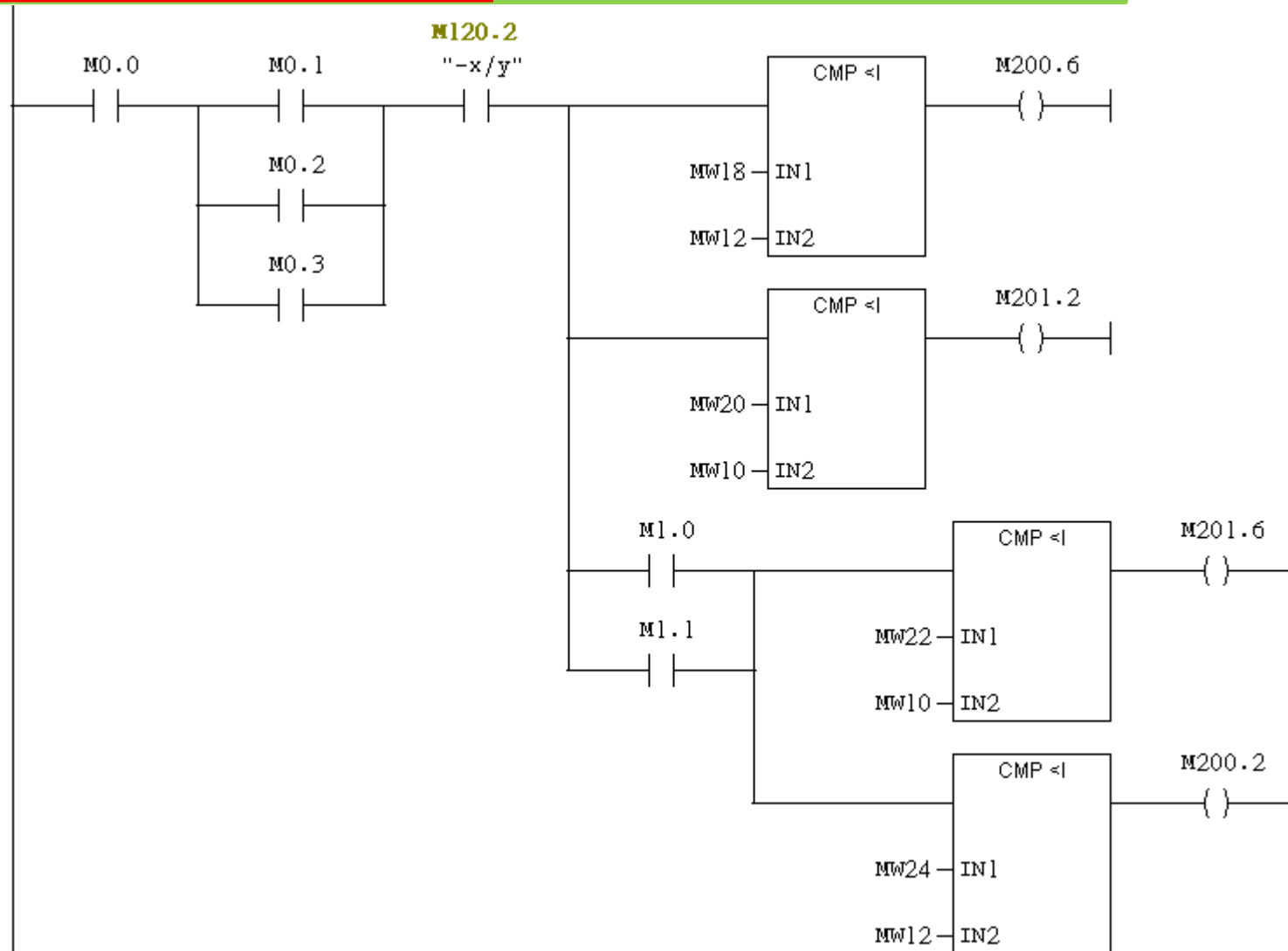
Network 20 : Title:



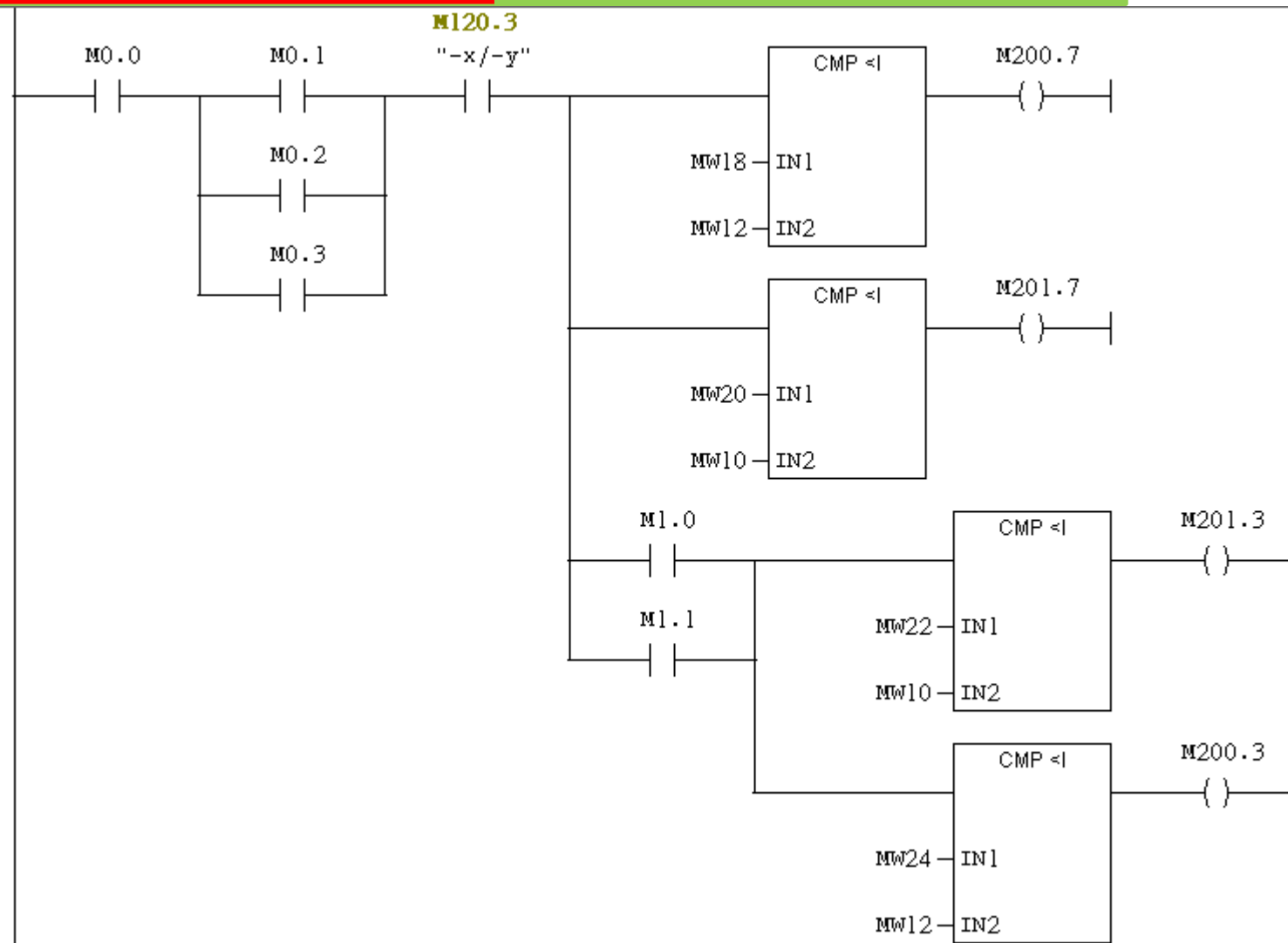
Automatic store:



Automatic store:

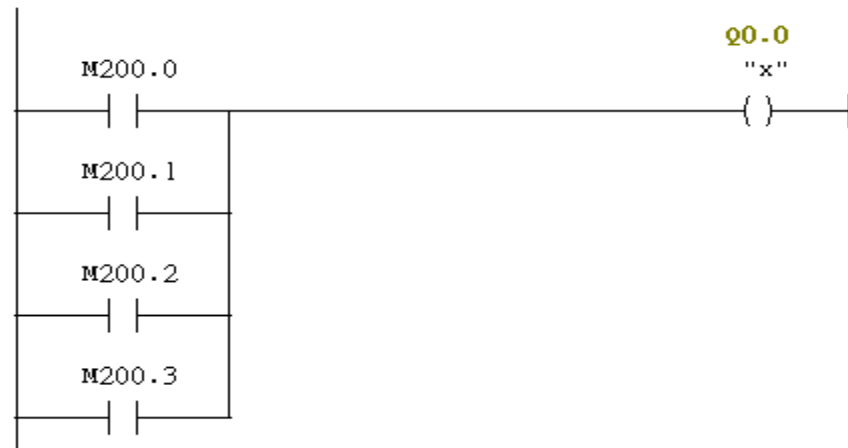


Automatic store:

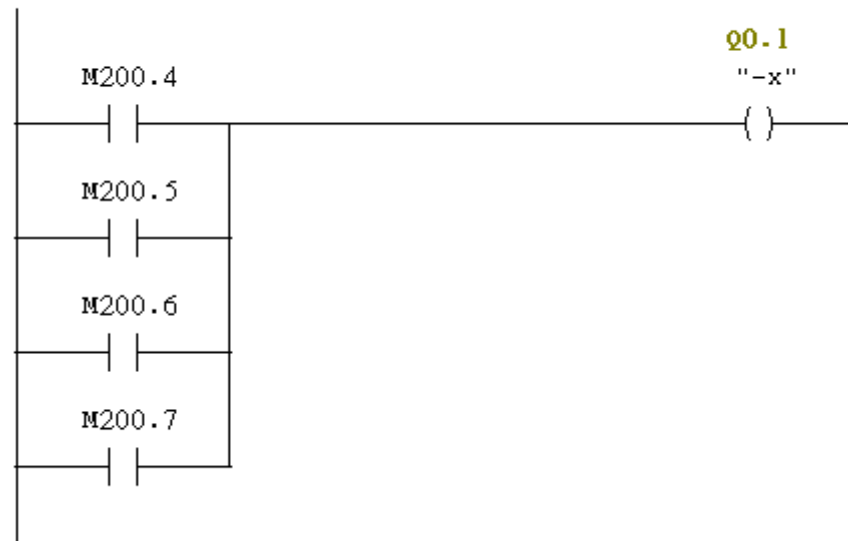


Automatic store:

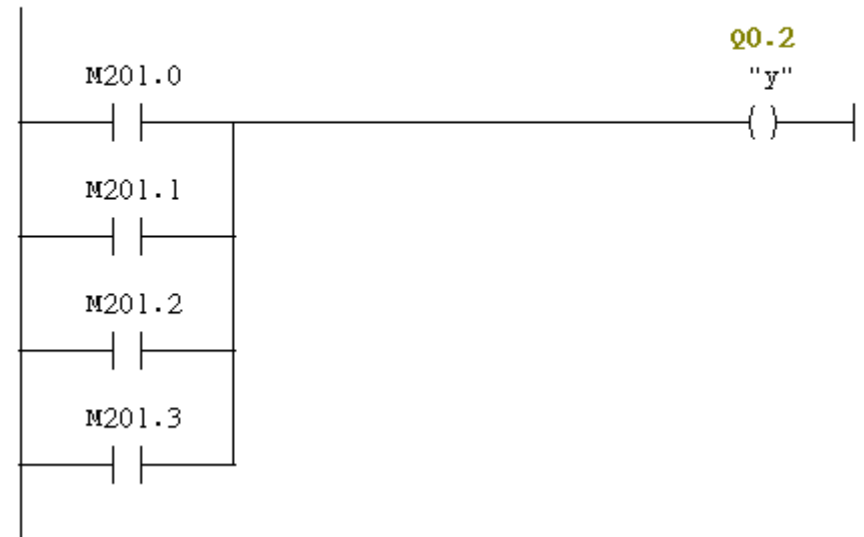
Network 25 : Title:



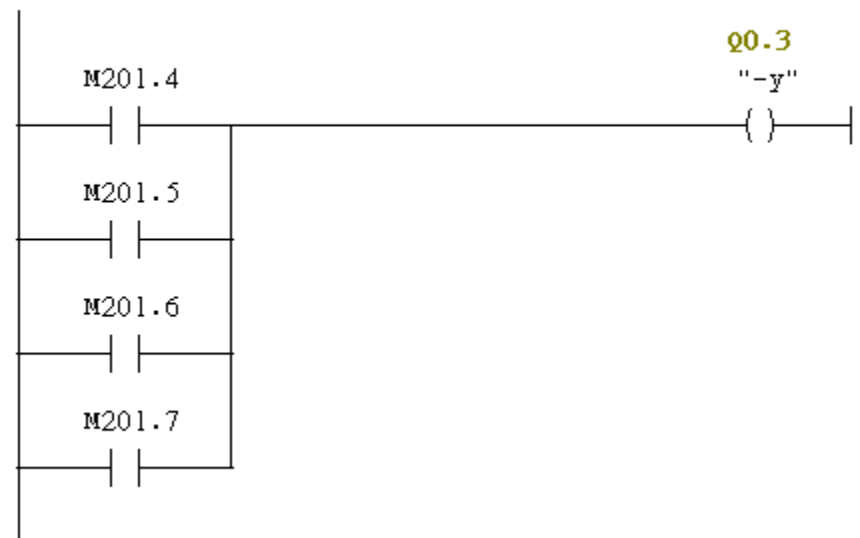
Network 26 : Title:



Network 27 : Title:

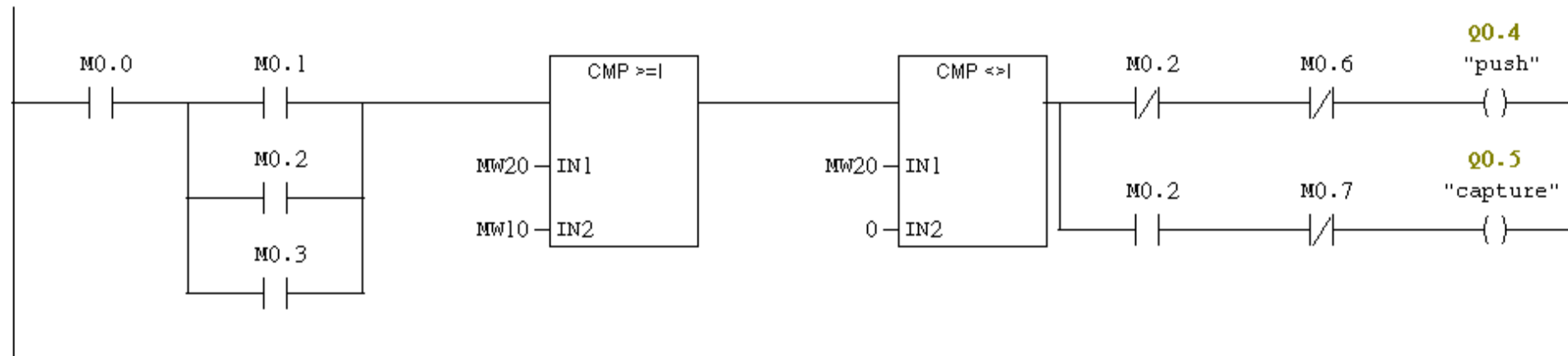


Network 28 : Title:



Automatic store:

Network 29: Title:



Network 30: Title:

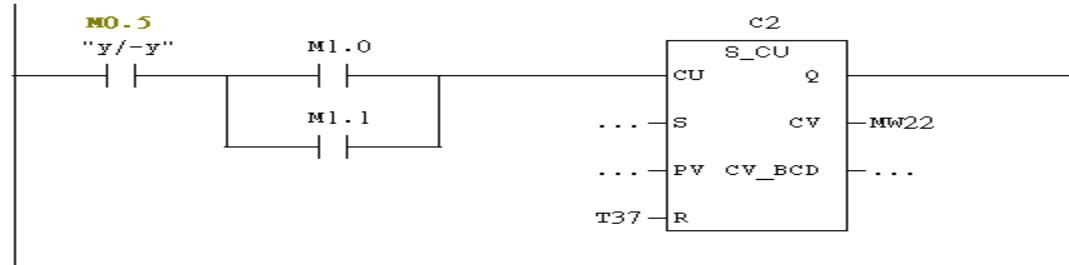


Network 31: Title:

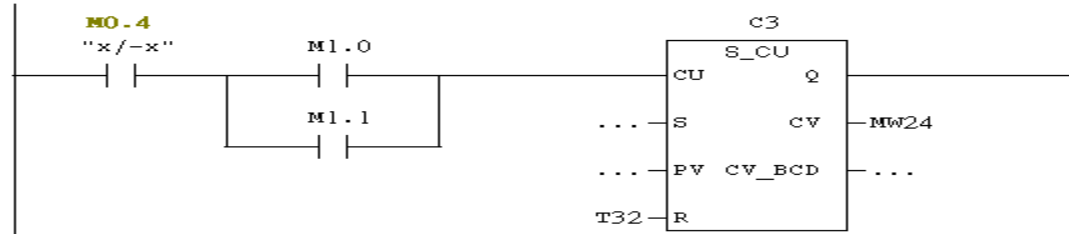


Automatic store:

Network 32: Title:



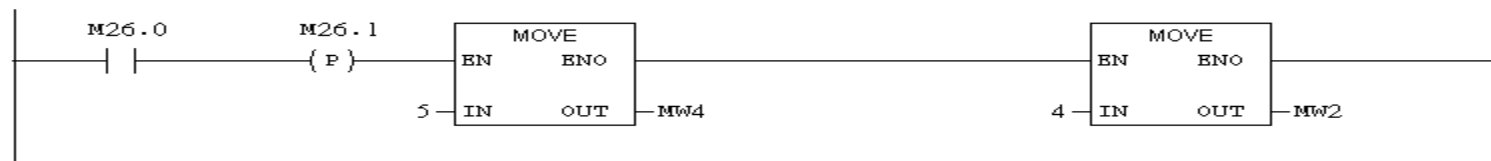
Network 33: Title:



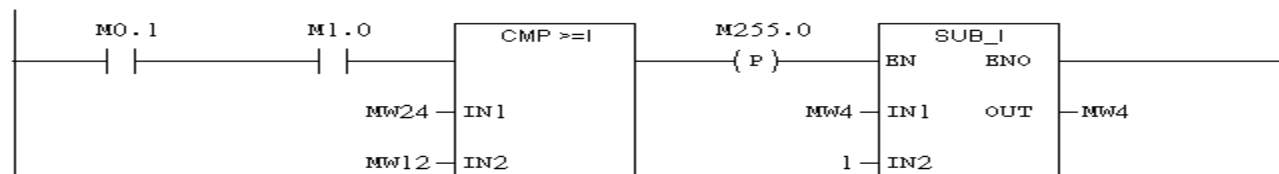
Network 34: Title:



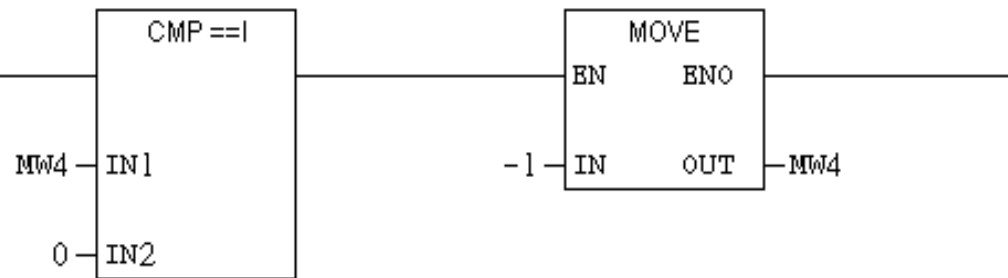
Network 35: Title:



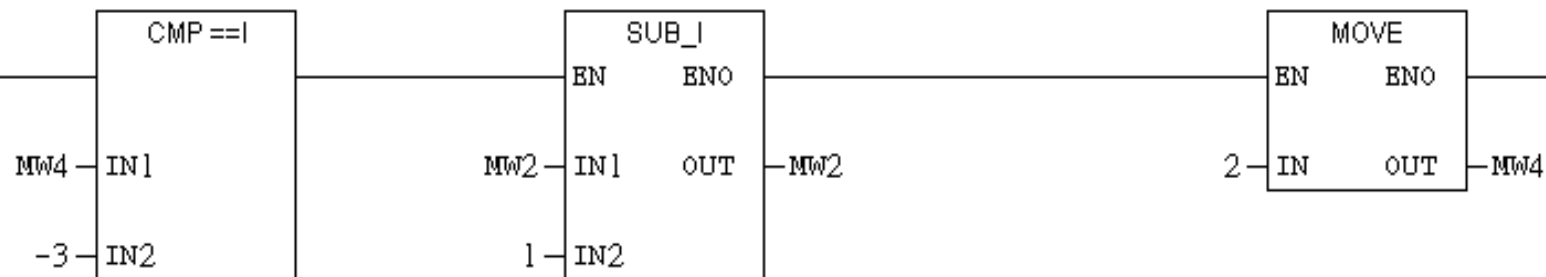
Network 36: Title:



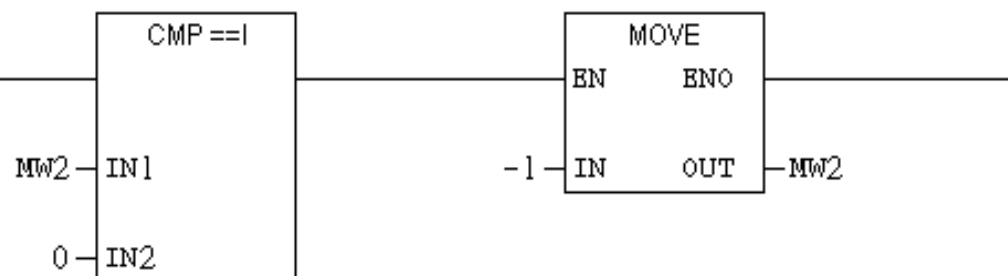
Automatic store:



Network 38 : Title:

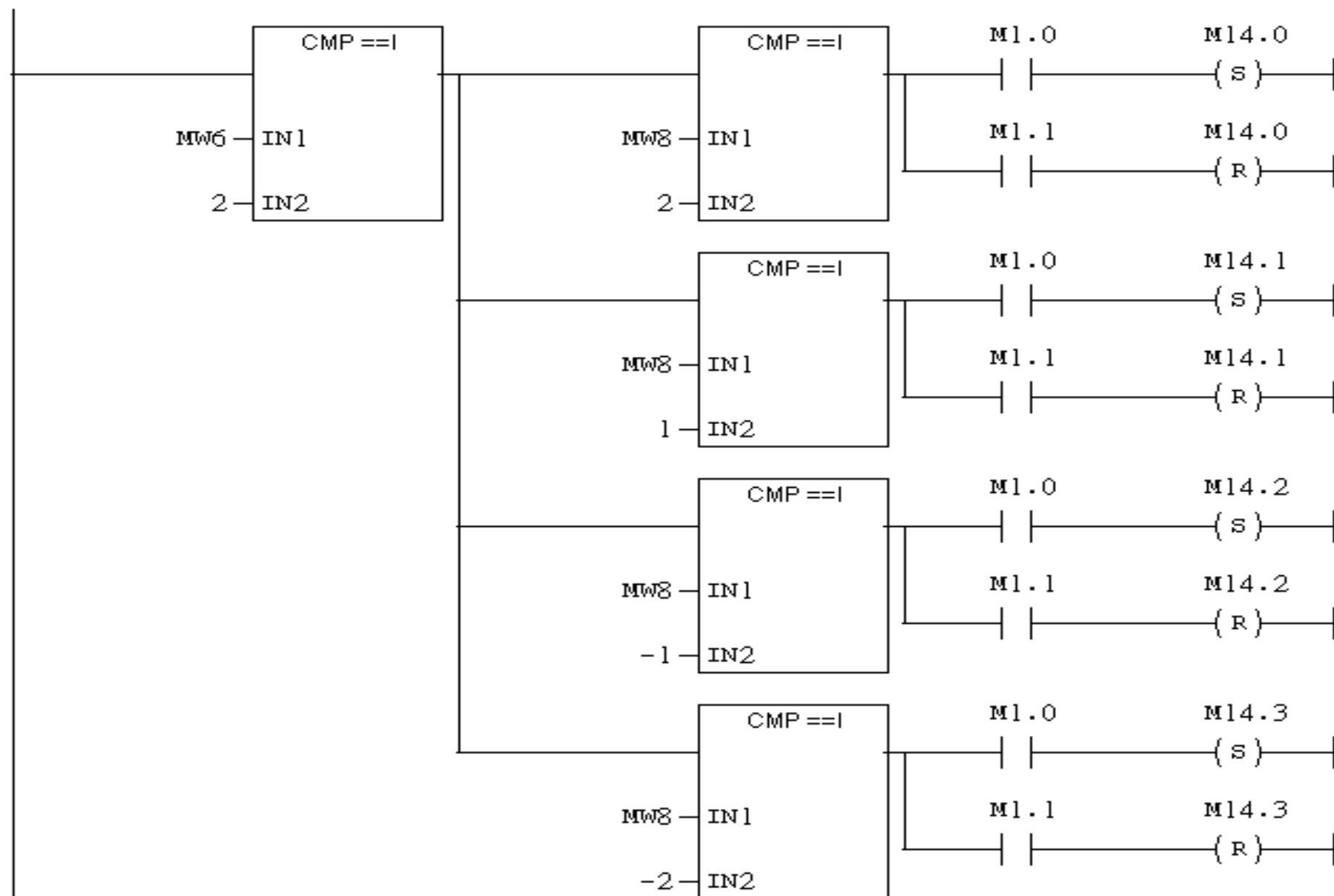


Network 39 : Title:



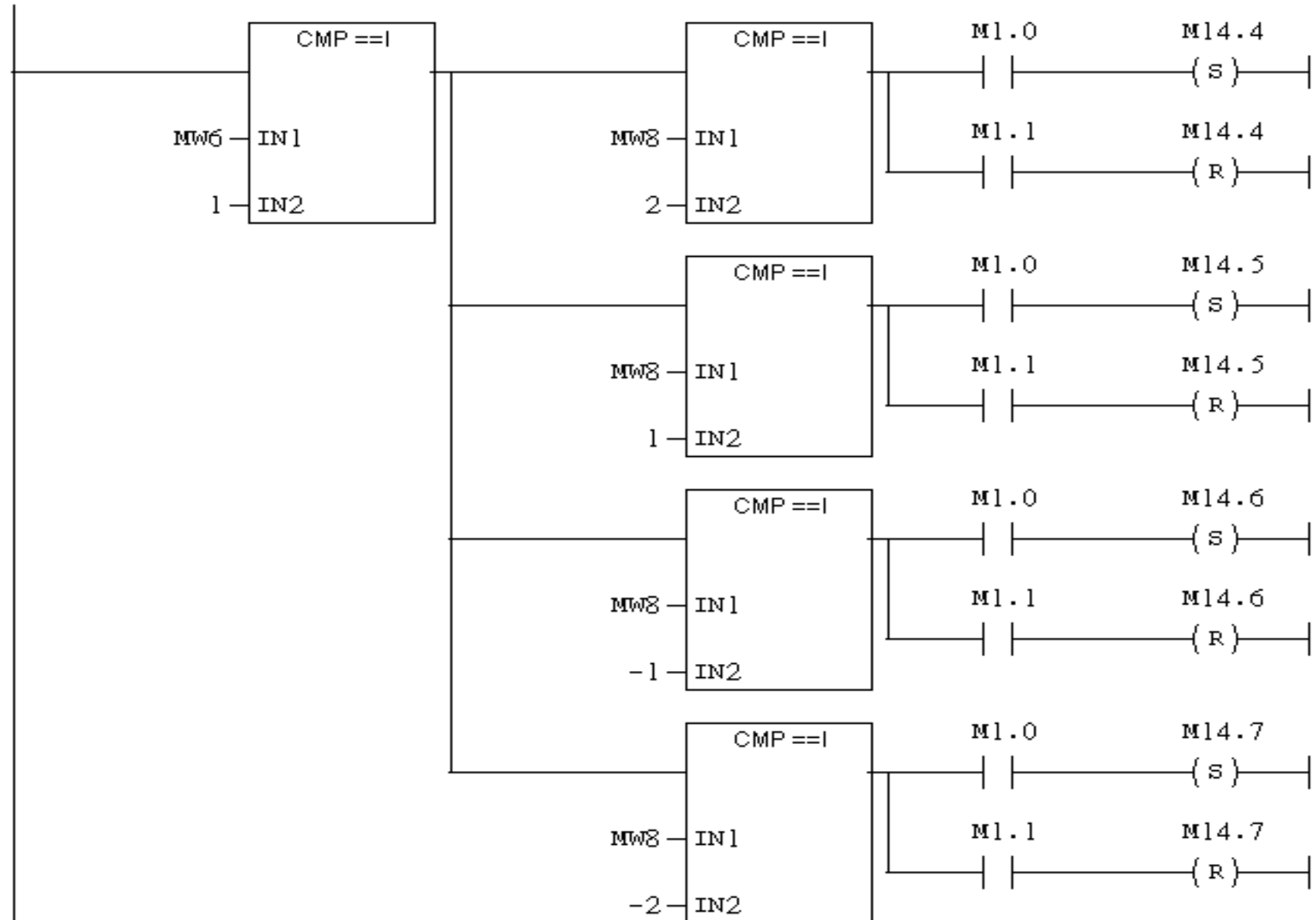
Automatic store:

Network 40 : Title:



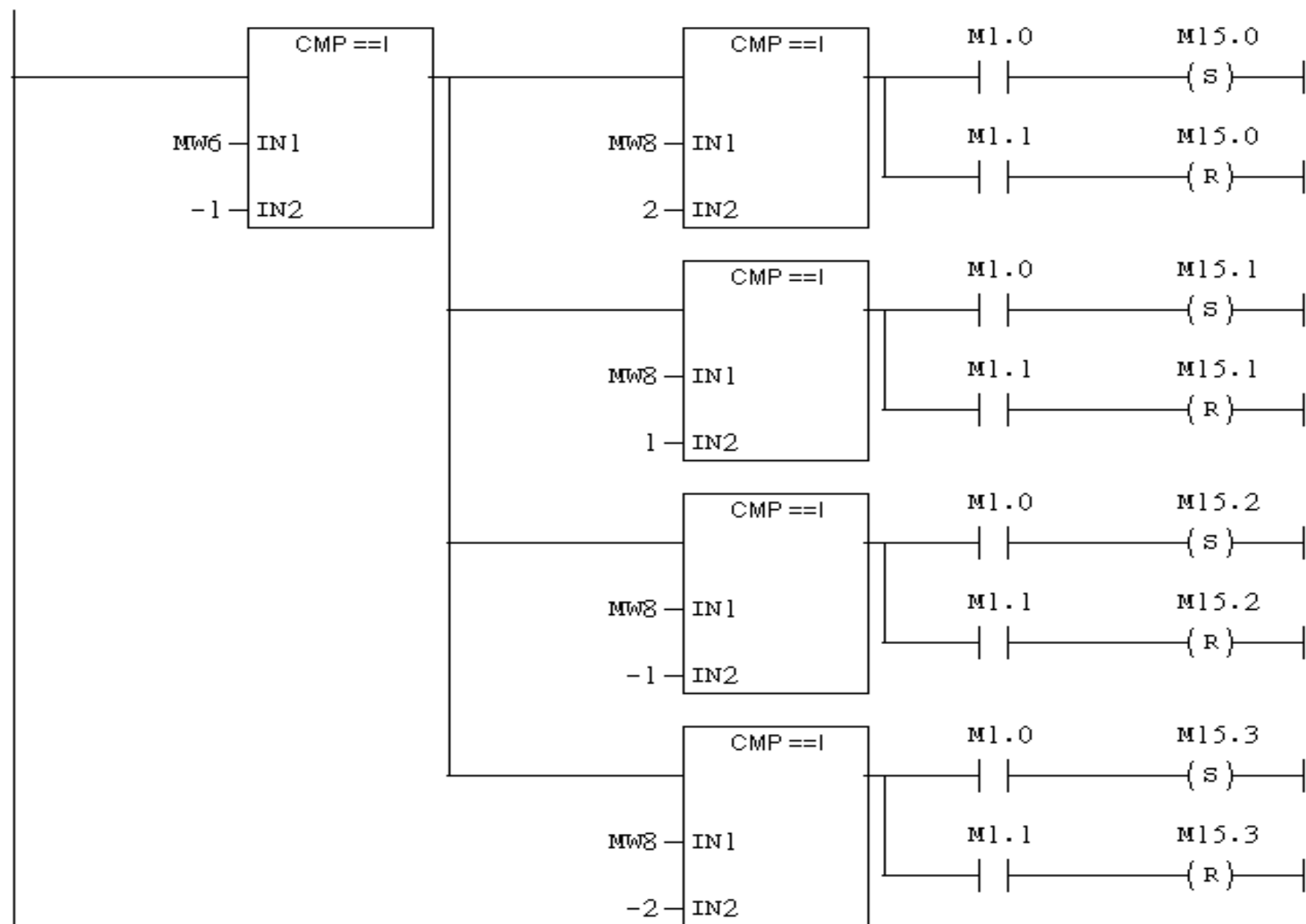
Automatic store:

Network 41 : Title:



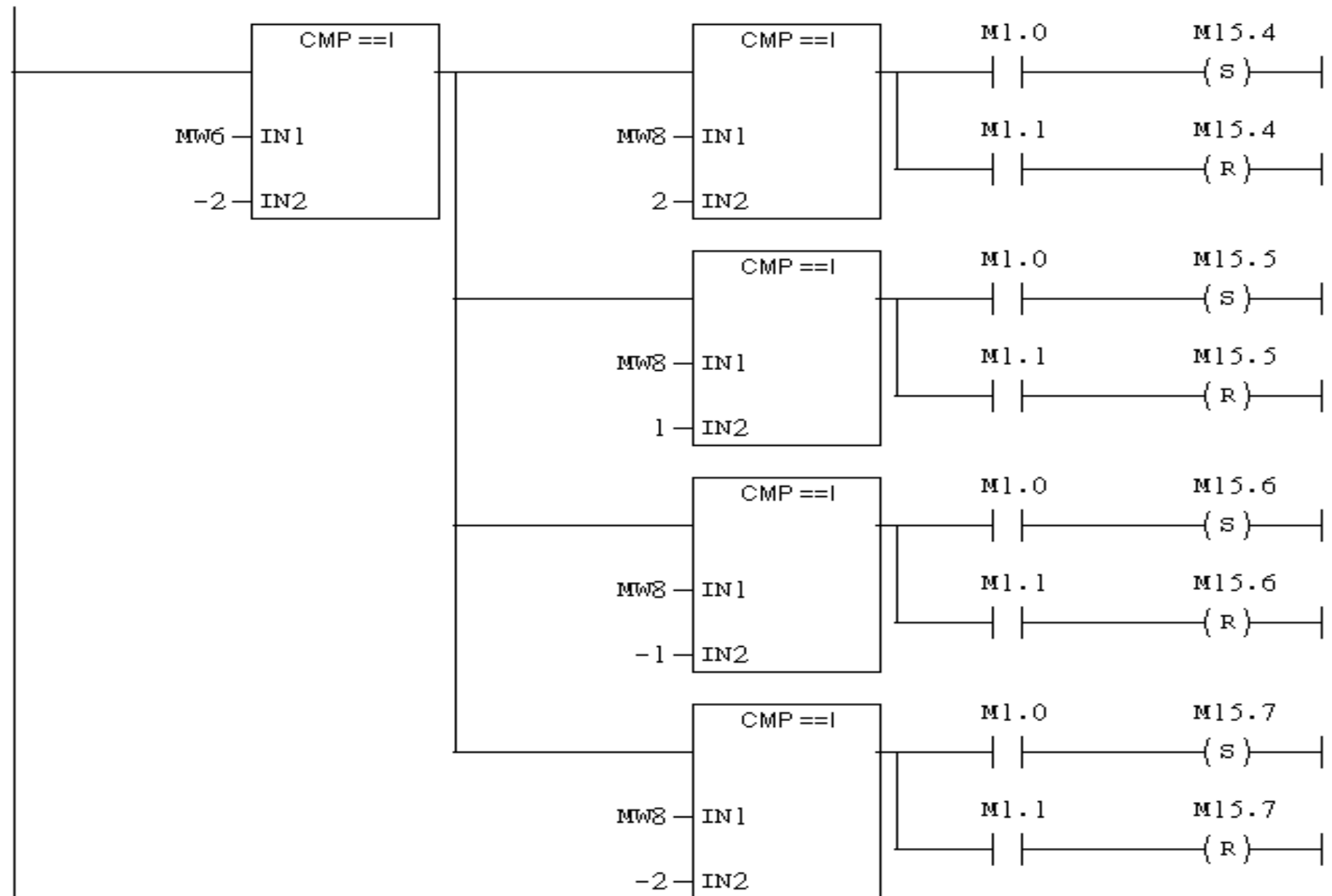
Automatic store:

Network 42 : Title:



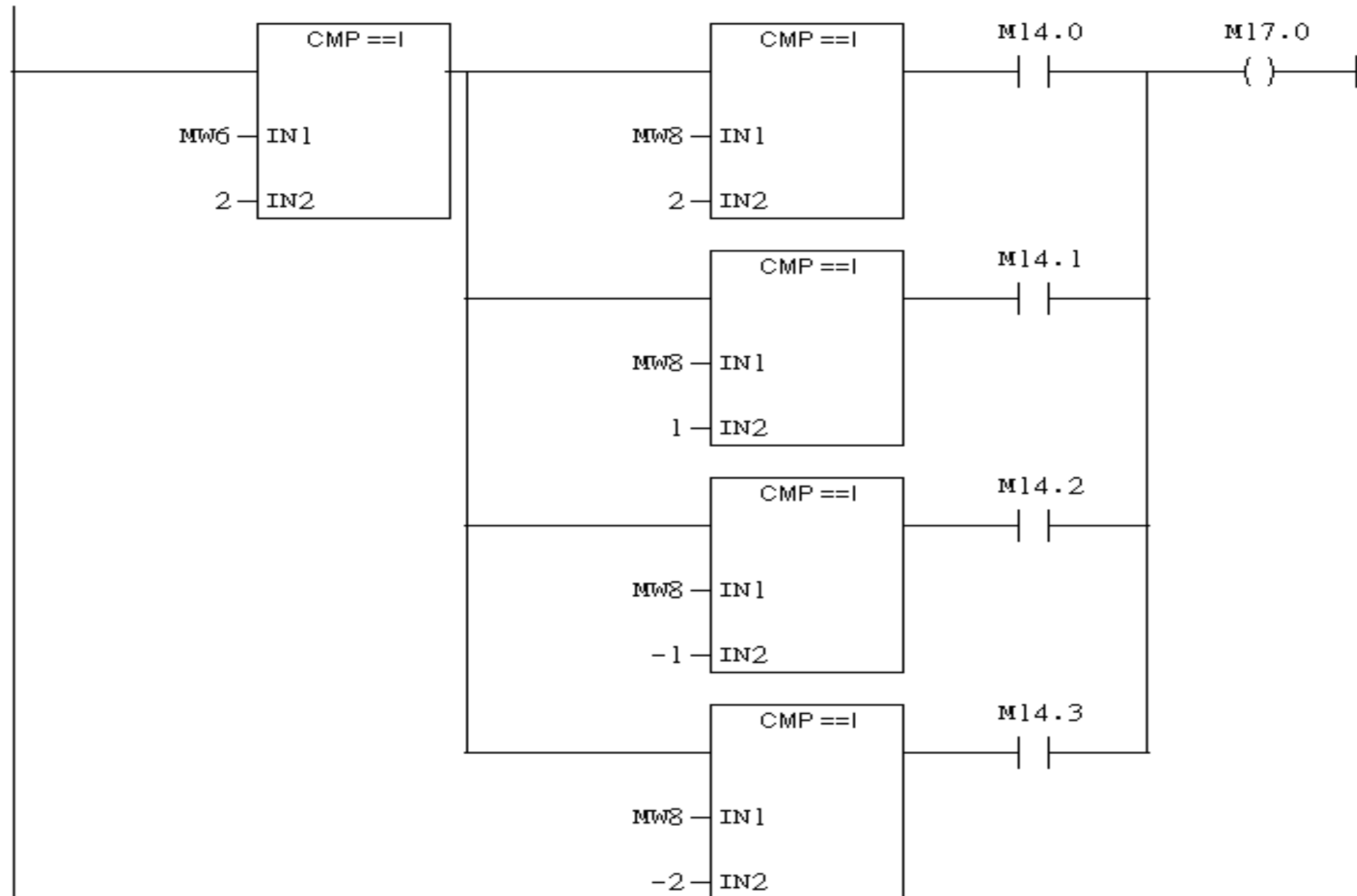
Automatic store:

Network 43 : Title:



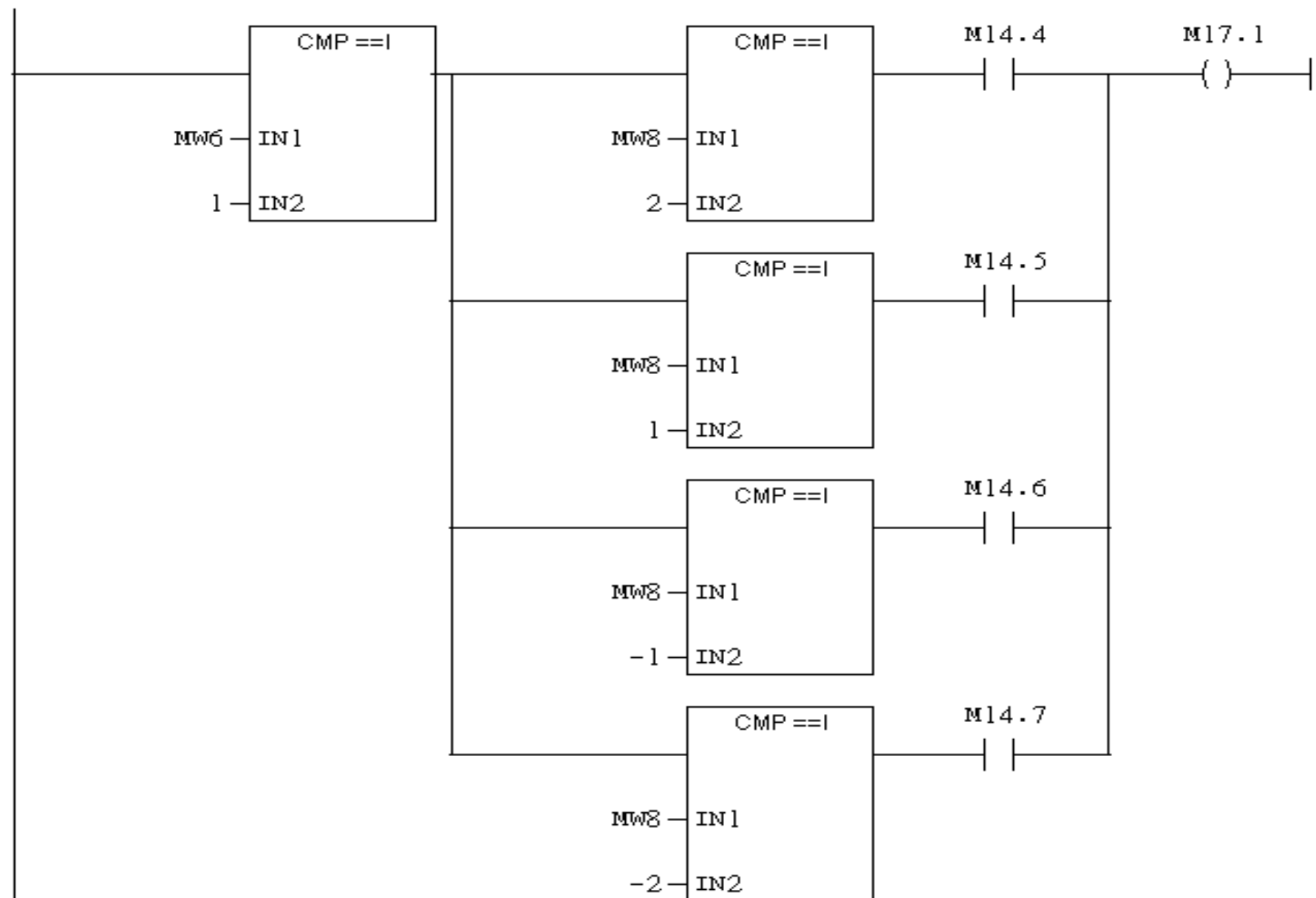
Automatic store:

Network 44 : Title:



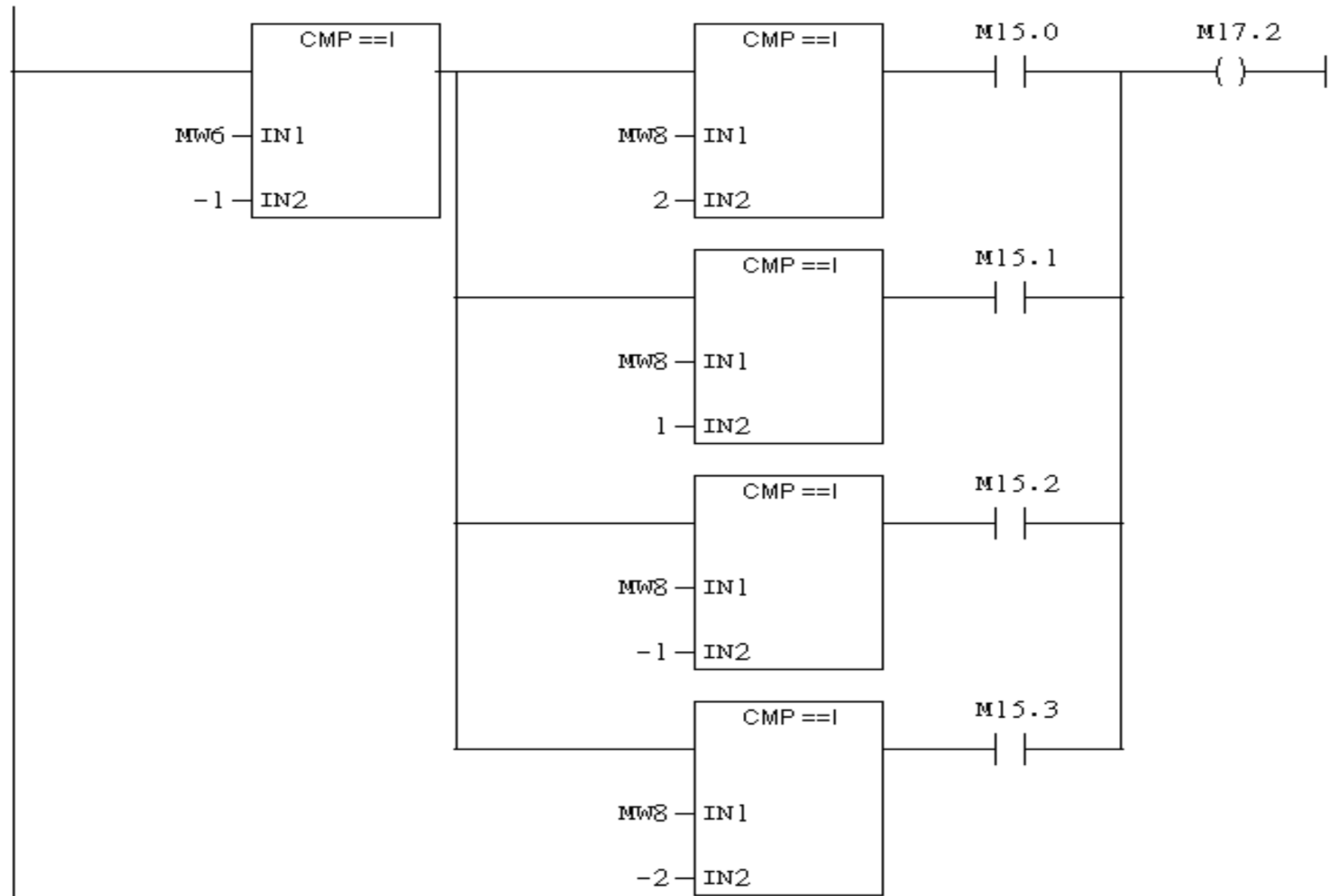
Automatic store:

Network 45 : Title:



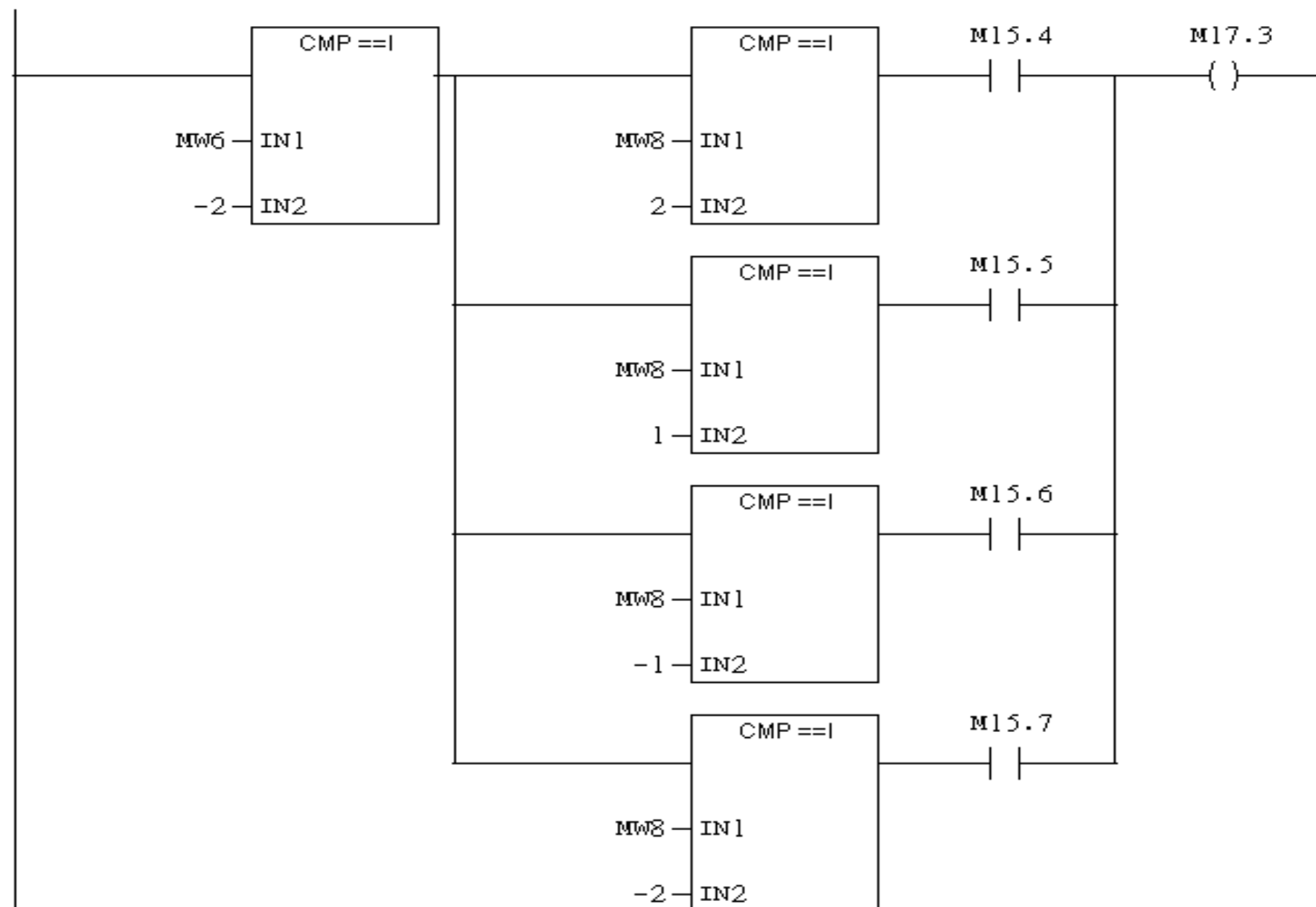
Automatic store:

Network 46 : Title:

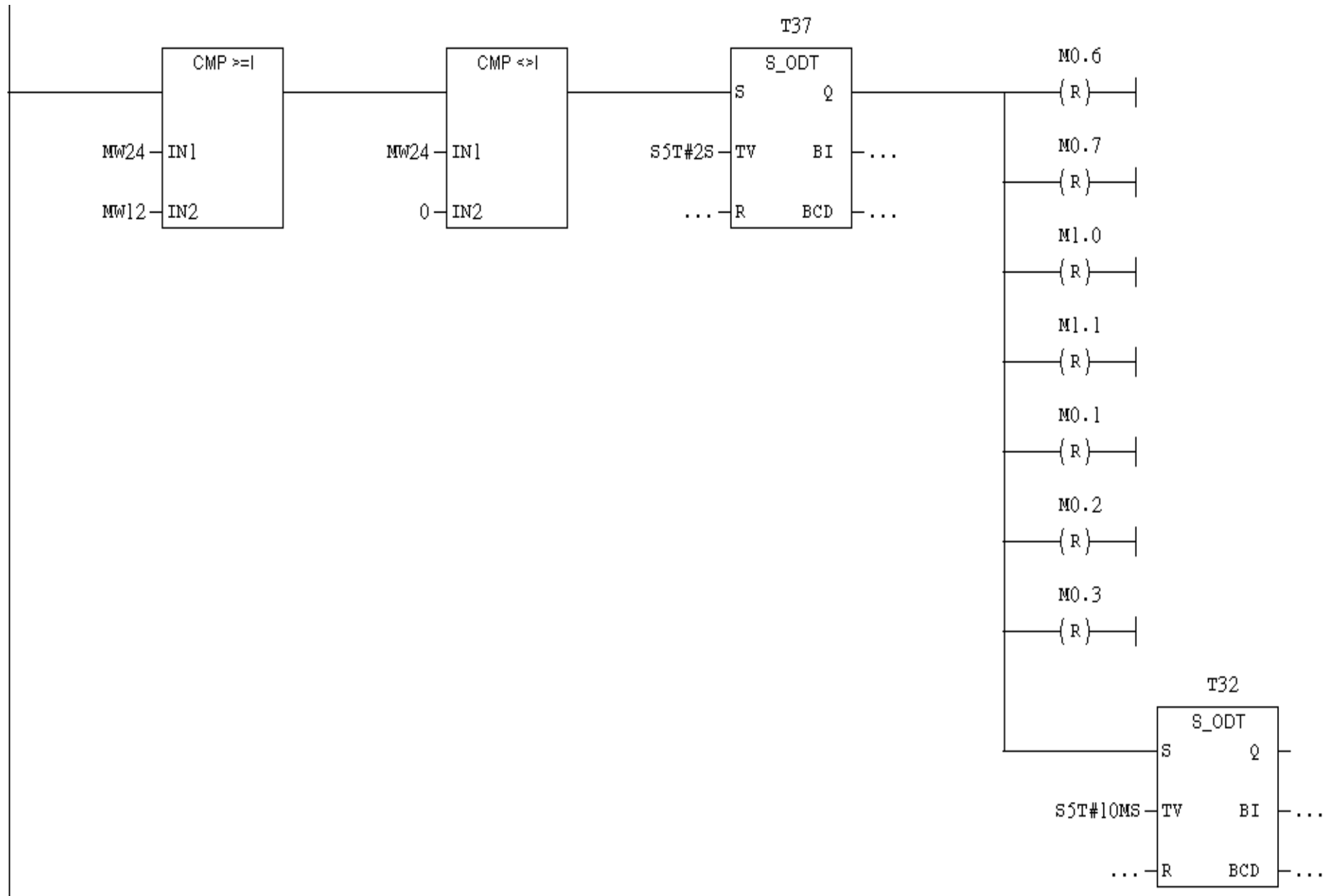


Automatic store:

Network 47 : Title:



Automatic store:



ENCODER AND HIGH SPEED COUNTER:

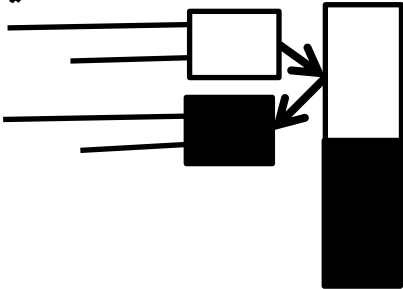
ENCODER:

هو جهاز يستخدم لتتبع حركة الموتور يمينا ام يسارا سريع أو بطئ ويمكن استخدامه لقياس سرعة الموتور أو تحديد وجهة الموتور اي متي يتحرك واين ومتي يتوقف.

ENCODER IDEA OF WORK:

فكرة العمل قائمة على فكرة من اثنين :

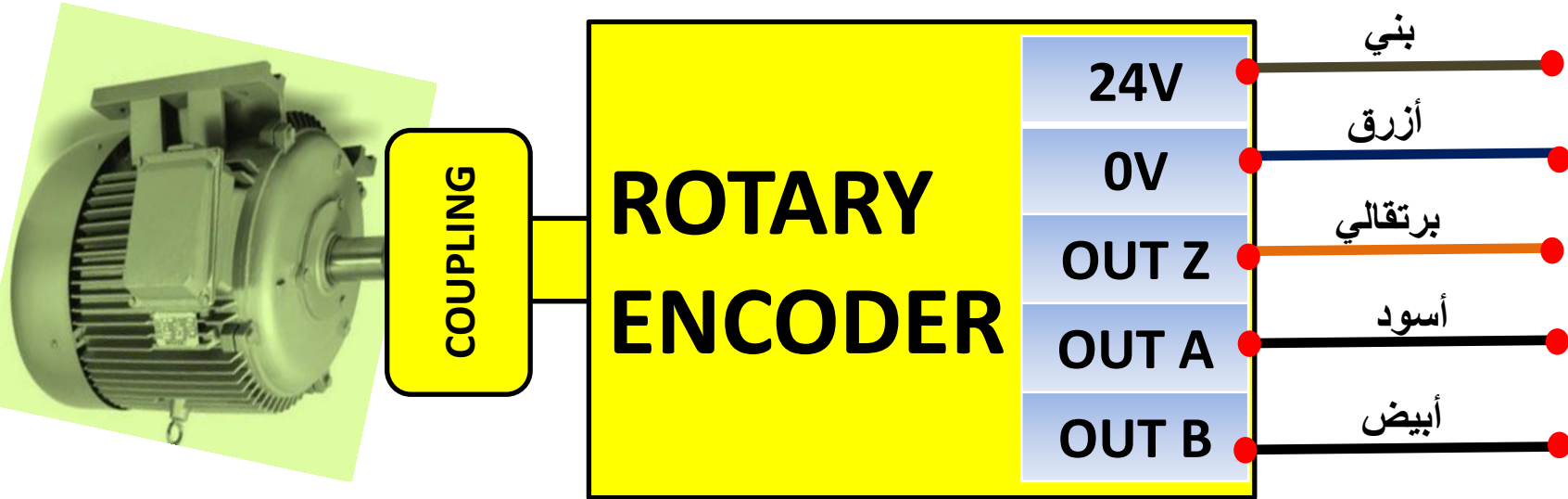
-- وجود LED و photodiode حيث تصدر LED الضوء فاذا استقبل سطح فاتح اللون هذا الضوء فانه يعكس الضوء الي PHOTODIODE فيقوم باعطاء اشارة واذا قابل الضوء سطح داكن فان PHOTODIODE لا يستقبل الضوء وبالتالي تنقطع الاشارة كما هو في الغالب في ROTARY ENCODER .



-- وجود MAGNETIC SENSORS وقطع مغناطيس فكلما وجد MAGNETIC SENSOR مغناطيس أمامه فانه يصدر اشارة وان لم يجد تنقطع هذه الاشارة كما هو في الغالب في absolute encoder .

ENCODER TYPES:

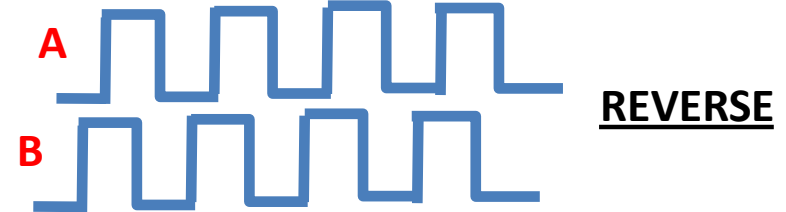
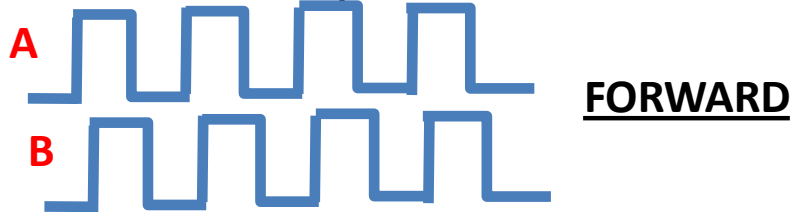
INCREMENTAL / ROTARY ENCODER:



لهذا ال ENCODER طرفين للتغذية حيث يأخذ 12-24VDC علي الطرفين البني والأزرق ويعمل علي نظامين :
 -- الخرج Z وهو يخرج مجموعة من النبضات (يتزايد عددها مع زيادة سرعة الموتور) طالما يتحرك الموتور سواء يميناً أو يساراً ويستخدم هذا النظام للاستدلال علي الحركة وقياس السرعة

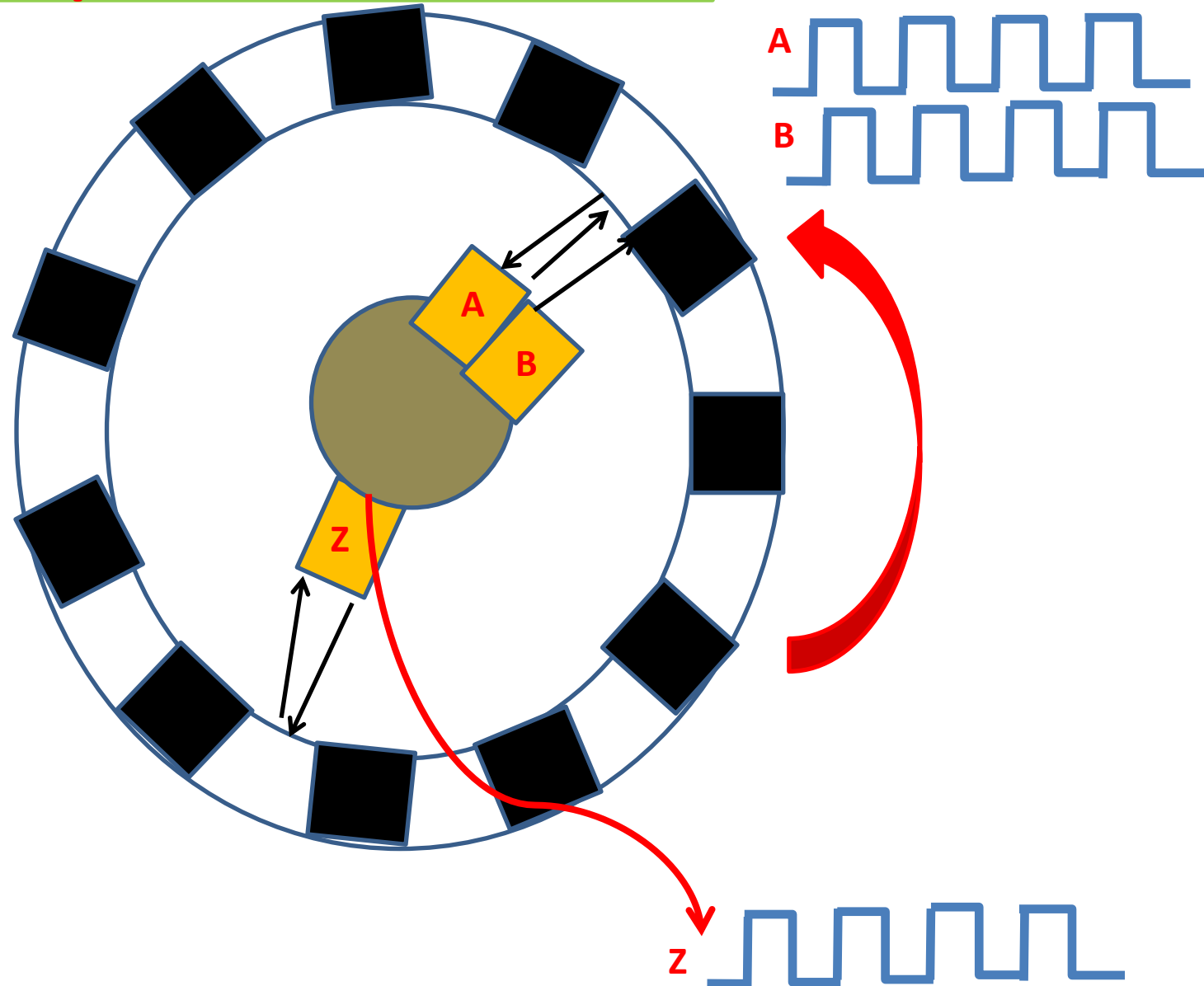


-- الخرجين A-B ويستخدم لمعرفة وجهة الموتور اذا كان يتحرك يميناً او يساراً (عد تصاعدي أو تنازلي)

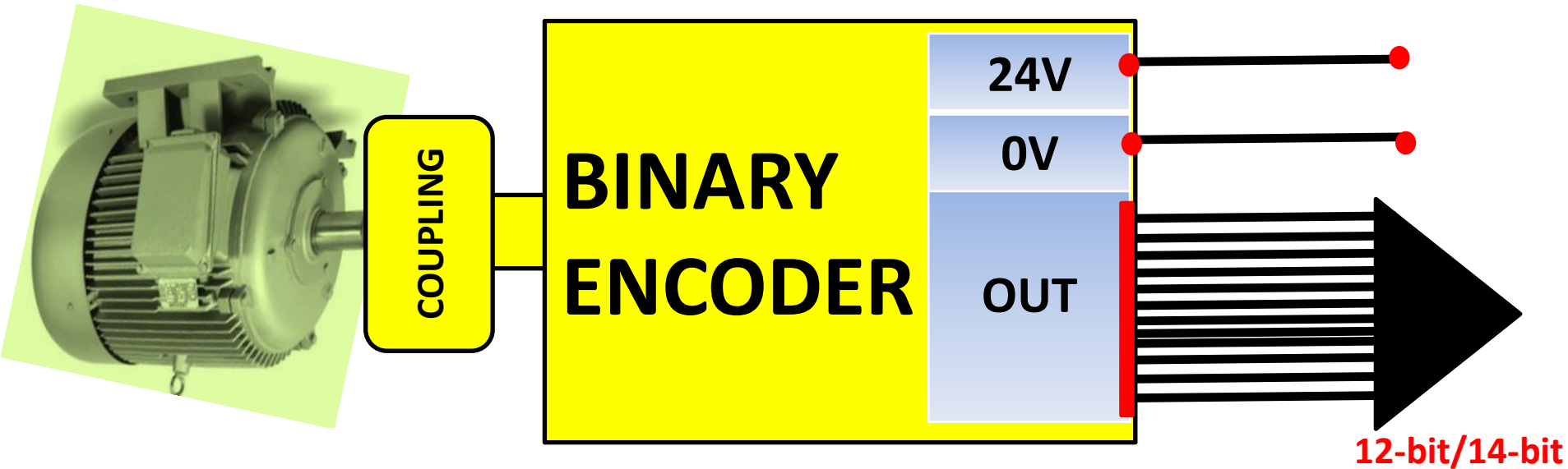


ENCODER TYPES:

INCREMENTAL / ROTARY ENCODER:



ABSOLUTE/BINARY ENCODER:



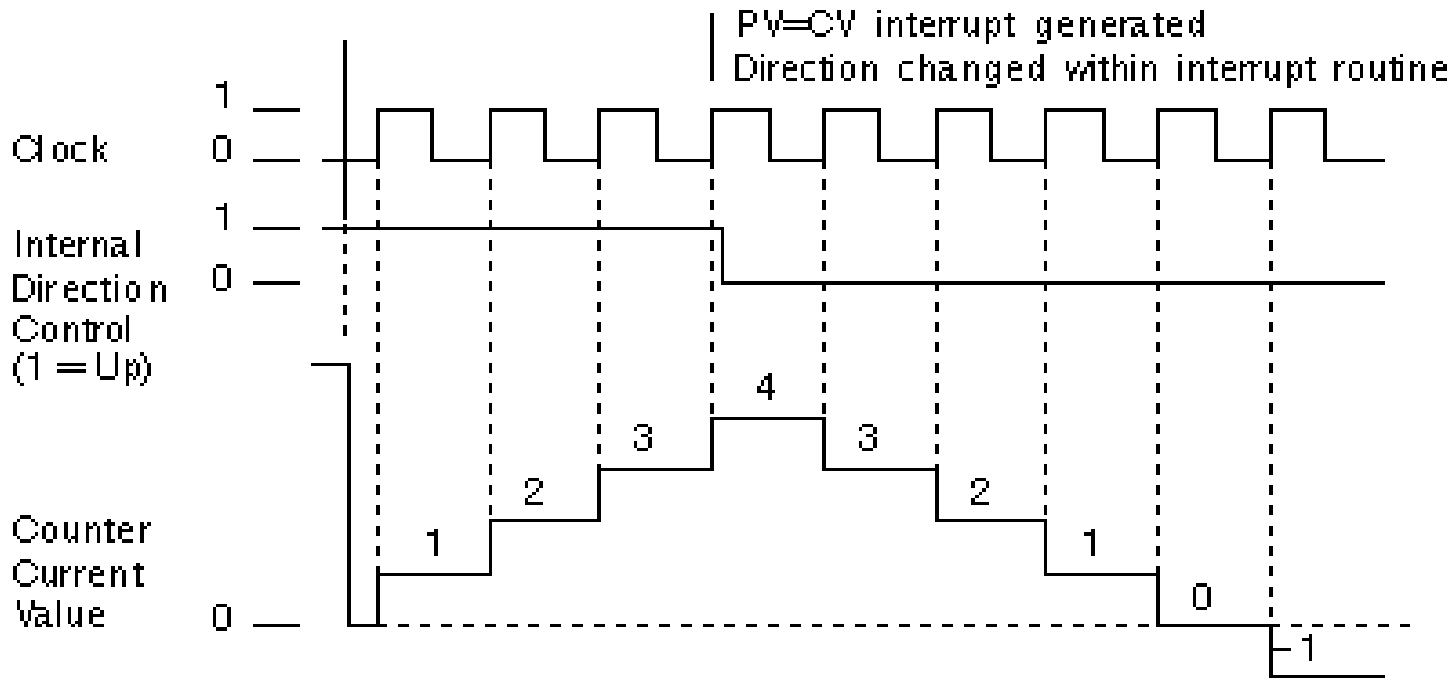
لهذا ال ENCODER طرفين للتغذية حيث يأخذ 12-24VDC وله 12 خرج أو 14 خرج لتحديد الزاوية التي يتحركها الموتور من 0 الى 360 .

[illegible]

هذا الكلام ينطبق علي أجهزة PLC التي تدعم HIGH SPEED COUNTER لأن العدادات العادية لا تستطيع التواصل مع السرعة العالية لحركة الموتور وهذا من خلال الانماط الآتية:

Single phase counter with one direction:

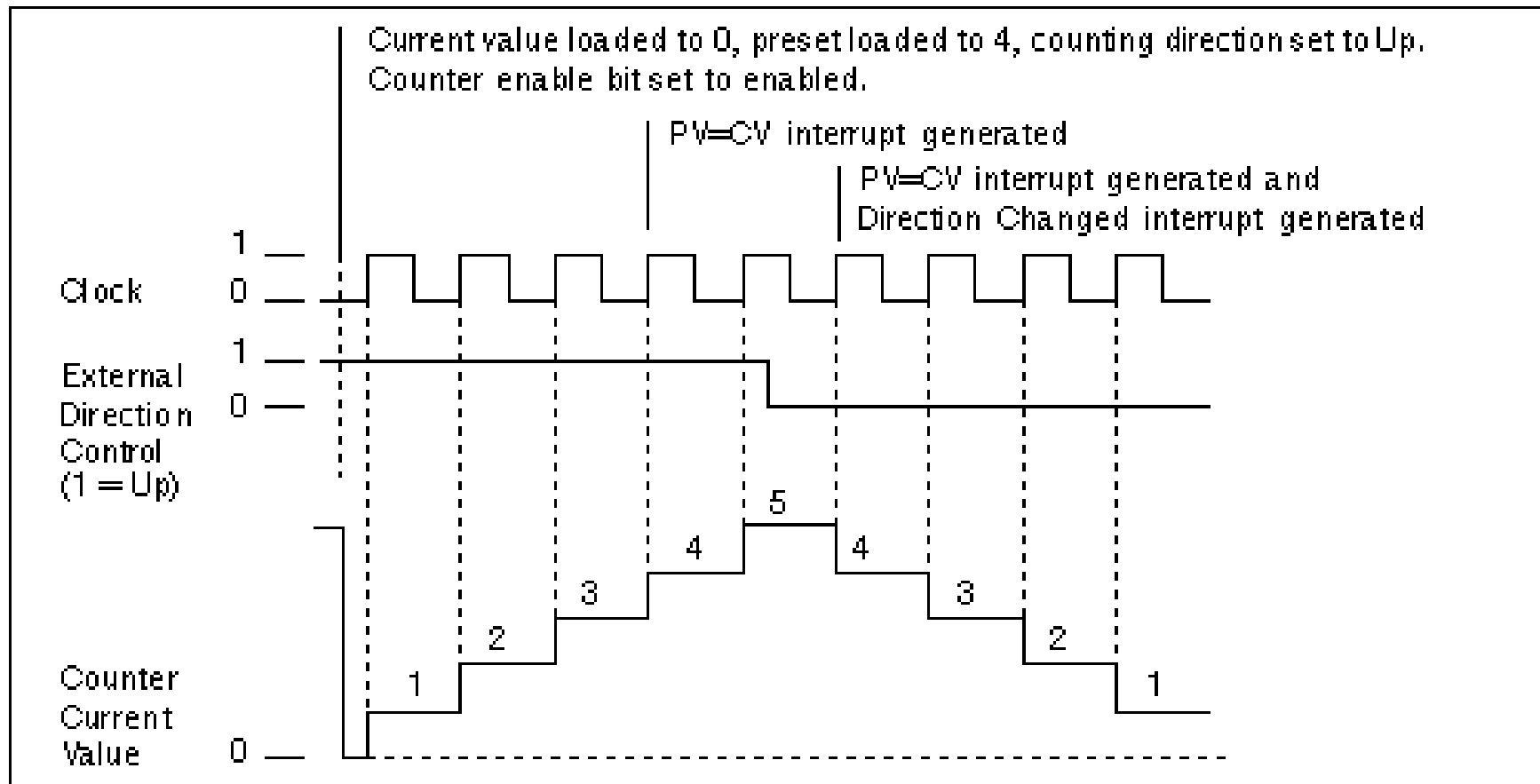
Current value loaded to 0, preset loaded to 4, counting direction set to Up.
Counter enable bit set to enabled.



لمراقبة حركة الموتور سريعا أم بطيئا للتوجيه ولقياس سرعته ويمكن تحديد اذا كان العداد تصاعديا ام تنازليا من خلال INSTRUCTION WIZARD الخاص ببرنامج PLC .

ENCODER WITH PLC:

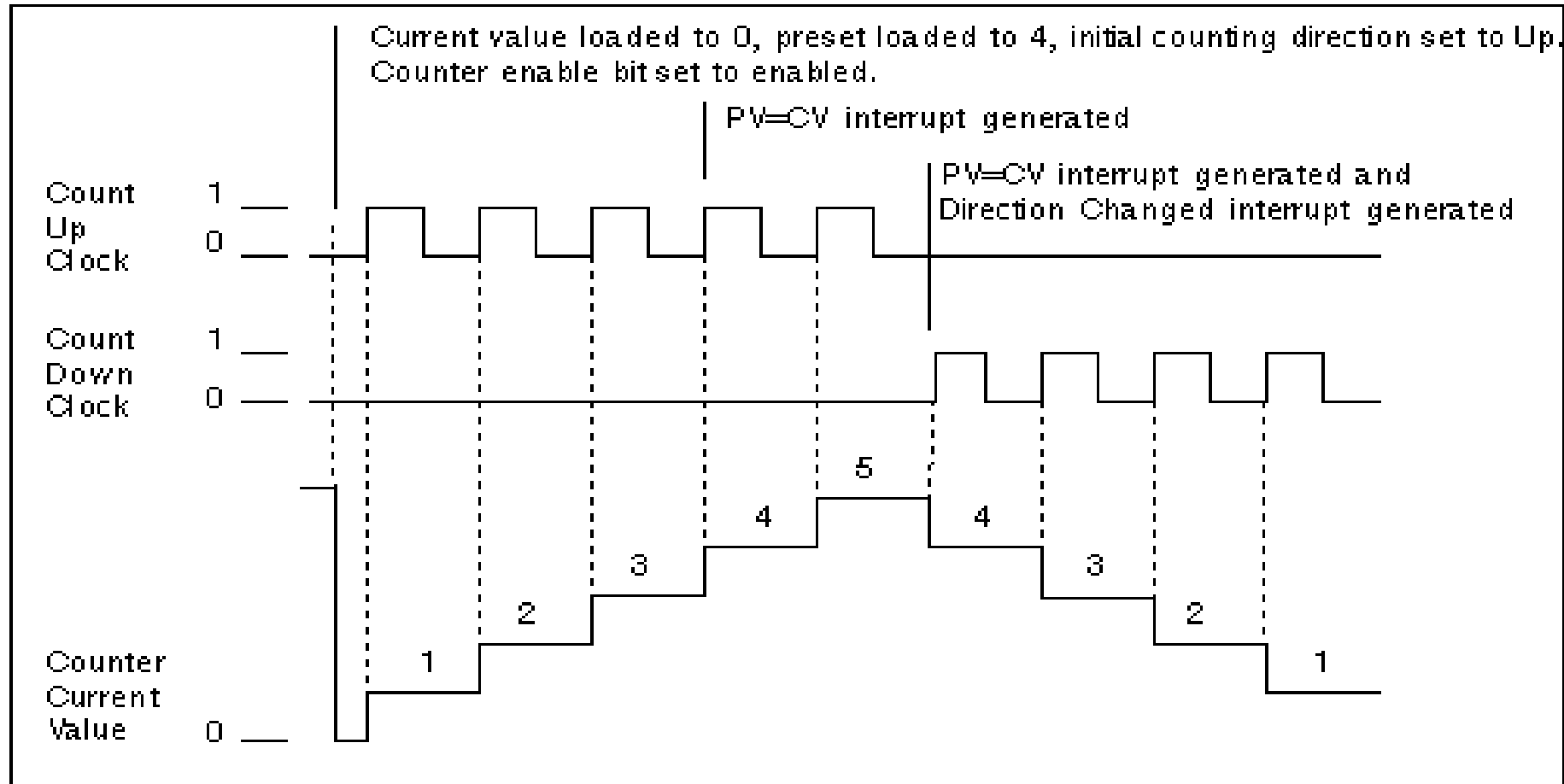
Single phase counter with one direction with external input:



لمراقبة حركة الموتور سريعا أم بطيئا للتوجيه ولقياس سرعته ويمكن تحديد اذا كان العداد تصاعديا ام تنازليا من خلال اعطاء الاشارة علي نقطة الدخول المعرفة من خلال برنامج PLC

ENCODER WITH PLC:

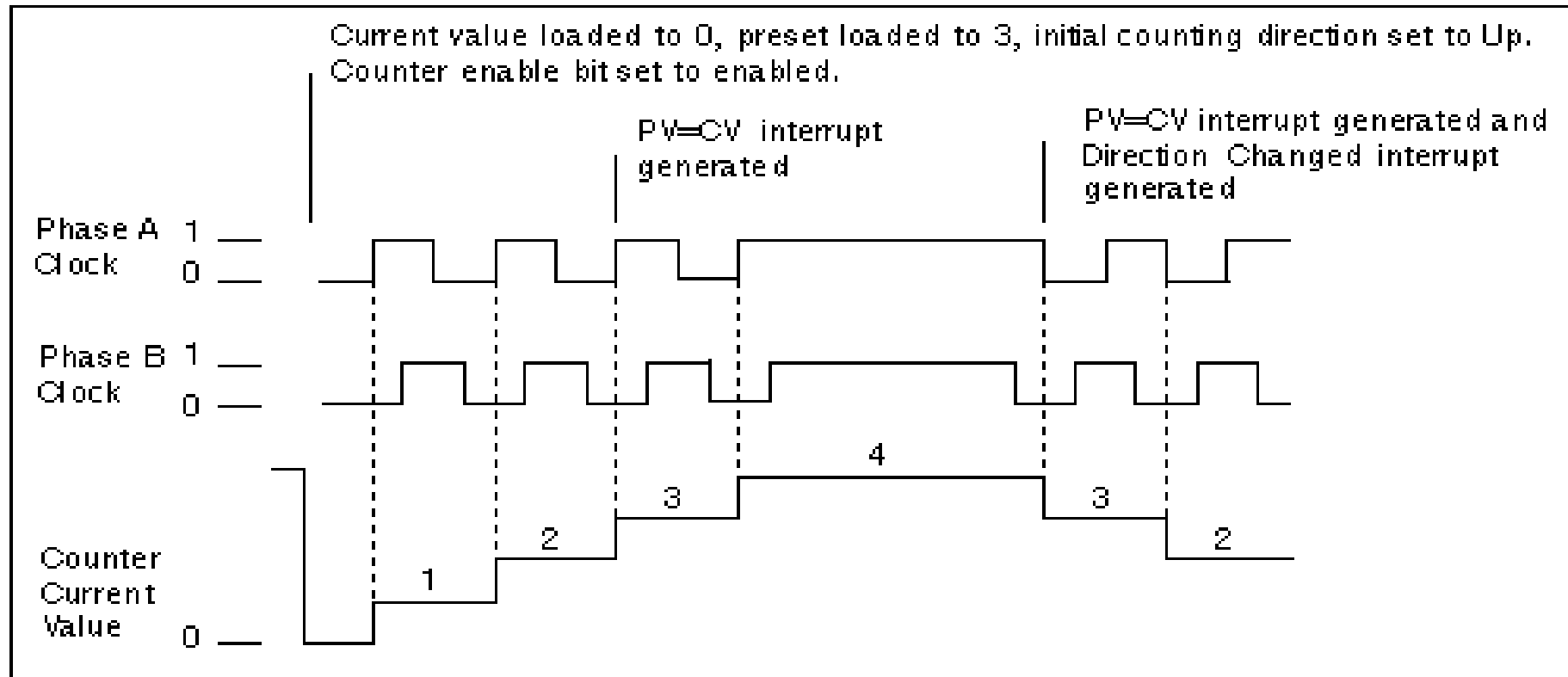
Single phase counter with two directions:



اثنان من نقاط دخل PLC أحدهما يزيد عدد العداد والآخر ينقص عدد العداد ويمكن معرفتهما من خلال instruction wizard الخاص ببرنامج plc .

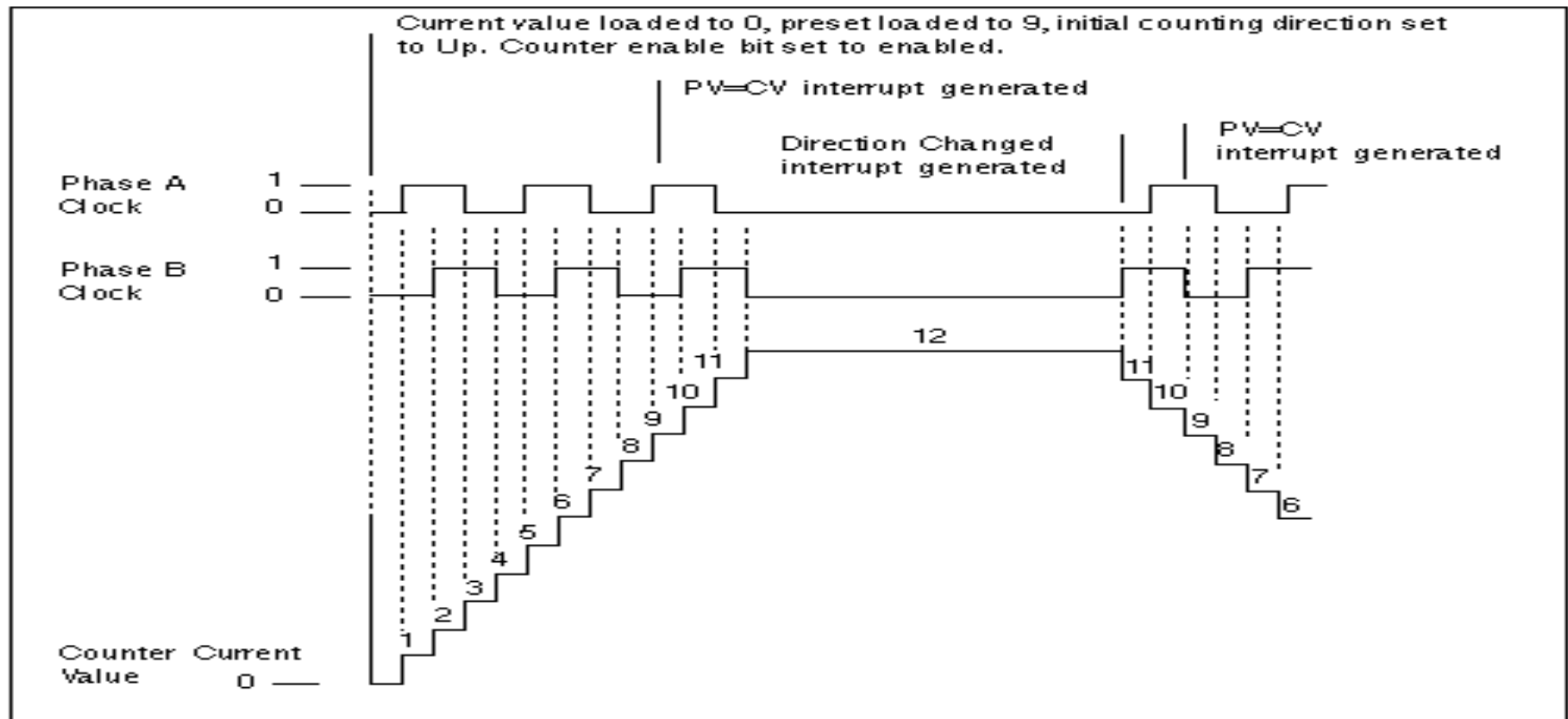
ENCODER WITH PLC:

two phase counter A/B(1X):



اثنان من نقاط دخل PLC A-B.... يمكن معرفتهما من خلال instruction wizard الخاص ببرنامج PLC فاذا سبق A ال B فهذا يزيد العدد ولو سبق B ال A فان ذلك ينقص العدد ولو أضفنا RESET خارجي فان العدد الموجب يعني وجهة الموتور FORWARD واذا كان العدد سالب فهذا يعني ان وجهة الموتور REVERSE.

two phase counter A/B(4X):



اثنان من نقاط دخل PLC A-B.... يمكن معرفتهما من خلال instruction wizard الخاص ببرنامج PLC فاذا سبق A ال B فهذا يزيد العدد مع A مرة ومع B مرة أخرى ولو سبق B ال A فان ذلك ينقص العدد مع B مرة ومع A مرة أخرى وهذا يساعد في التأكد من صحة حركة الموتور في الاتجاه المناسب.

ENCODER WITH PLC:

HW Config - [SIMATIC 300(1) (Configuration) -- Hasan]

Station Edit Insert PLC View Options Window Help



(0) UR

1	
2	CPU 313C
2.2	DI24/DO16
2.3	AI5/AO2
2.4	Count
3	
4	
5	
6	
7	
8	
9	

← → (0) UR

Slot	Module	...	O...	Fi...	M...	I address	Q address	Comment
1								
2	CPU 313C	6ES7V2.6 2						
2.2	DI24/DO16					124...126	124...125	
2.3	AI5/AO2					752...761	752...755	
2.4	Count					768...763	768...763	
3								
4								
5								
6								
7								
8								
9								
10								
11								

ENCODER WITH PLC:

HW Config - [SIMATIC 300(1) (Configuration) -- Hasan]

Station Edit Insert PLC View Options Window Help



(0) UR

1	
2	CPU 313C
2.2	DI24/DO16
2.3	AI5/AO2
2.4	Count
3	
4	
5	
6	
7	
8	
9	

(0) UR

Slot	Module	...	O...	Fi...
1				
2	CPU 313C		6ES7V2.6 2	
2.2	DI24/DO16			
2.3	AI5/AO2			
2.4	Count			
3				
4				
5				
6				
7				
8				
9				
10				
11				

Properties - Count - (R0/S2.4)

Channel: 0

Operating mode: Not configured

General | Addresses | Basic Parameters

Short Description: Count

Not configured
Count continuously
Count once
Count periodically
Frequency counting
Pulse-width modulation
3 channels; counting frequency, pulse width modulation with 2.5 kHz switching frequency, counting frequency

Name: Count

Comment:

OK

Default

Cancel

Help

ENCODER WITH PLC:

HW Config - [SIMATIC 300(1) (Configuration) -- Hasan]

Station Edit Insert PLC View Options Window Help



(0) UR	
1	
2	CPU 313C
2.2	DI24/DO16
2.3	AI5/AO2
2.4	Count
3	
4	
5	
6	
7	
8	
9	

Slot	Module	...	O...	Fi...
1				
2	CPU 313C		6ES7V2.6	2
2.2	DI24/DO16			
2.3	AI5/AO2			
2.4	Count			
3				
4				
5				
6				
7				
8				
9				
10				
11				

Properties - Count - (R0/S2.4)

Channel: Operating mode:

General | Addresses | Basic Parameters | **Count**

Operating Parameters

Main count direction: Comparison value:
Gate function: Hysteresis:
Start value: Time base:

Input

Signal evaluation:

Pulse / direction
Rotary encoder single
Rotary encoder double
Rotary encoder quadruple

Hardware Interrupt

☐ Hardware gate opening
☐ Hardware gate closing
☐ On reaching comparator
☐ On count pulse
☐ Overflow ☐ Underflow

Output

Characteristics of the output:

Pulse duration: ms

Max. frequency
Counting signals/HW gate:
Latch:

Assignment of the input data

☒ Count value ☐ Period time

OK

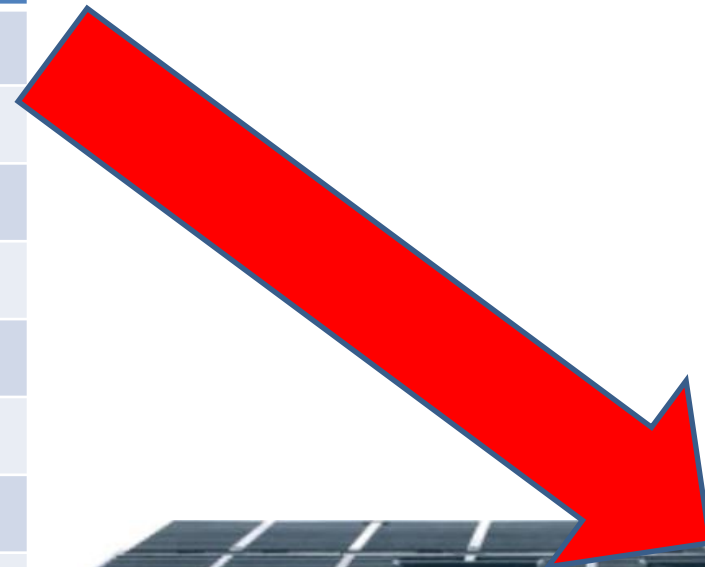
Default

Cancel

Help

ENCODER WITH PLC S7-300 CPU313C:

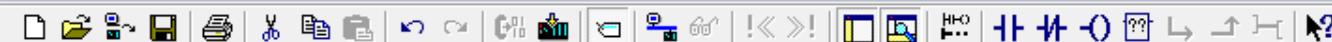
NAME	INPUT(X2)	COUNTING/FREQUENCY	
<u>HC0</u>	I124.0	CH0	TRACK A/PULSE
	I124.1	CH0	TRACK B/DIRECTION
	I124.2	CH0	H/W GATE
<u>HC1</u>	I124.3	CH1	TRACK A/PULSE
	I124.4	CH1	TRACK B/DIRECTION
	I124.5	CH1	H/W GATE
<u>HC2</u>	I124.6	CH2	TRACK A/PULSE
	I124.7	CH2	TRACK B/DIRECTION
	I125.0	CH2	H/W GATE



ENCODER WITH PLC S7-300 CPU313C:

LAD/STL/FBD - [OB1 -- "Cycle Execution" -- S7_Pro4\SIMATIC 300 Station\CPU312(1)\...\OB1]

File Edit Insert PLC Debug View Options Window Help



Libraries

- stdlibs
- Standard Library
 - Miscellaneous Blocks
 - TI-S7 Converting Blocks
 - PID Control Blocks
 - IEC Function Blocks
 - System Function Blocks
 - SFB0 CTU IEC_TC
 - SFB1 CTD IEC_TC
 - SFB2 CTUD IEC_TC
 - SFB3 TP IEC_TC
 - SFB4 TON IEC_TC
 - SFB5 TOF IEC_TC
 - SFB8 USEND COM_FUNC
 - SFB9 URCV COM_FUNC
 - SFB12 BSEND COM_FUNC
 - SFB13 BRCV COM_FUNC
 - SFB14 GET COM_FUNC
 - SFB15 PUT COM_FUNC
 - SFB16 PRINT COM_FUNC
 - SFB19 START COM_FUNC
 - SFB20 STOP COM_FUNC
 - SFB21 RESUME COM_FUNC
 - SFB22 STATUS COM_FUNC
 - SFB23 USTATUS COM_FUNC

COUNT / TEC_FUNC

Program elements Call structure

Contents Of: 'Environment\Interface'

Interface	Name
SFB47	
Common counter	
module	
"COUNT"	
EN	ENO
... LADDR	STS_GATE ...
... CHANNEL	STS_STRT ...
... SW_GATE	STS_LTCH ...
... CTRL_DO	STS_DO ...
... SET_DO	STS_C_DN ...
... JOB_REQ	STS_C_UP ...
... JOB_ID	COUNTVAL ...
... JOB_VAL	LATCHVAL ...
	JOB_DONE ...
	JOB_BRR ...
	JOB_STAT ...

ENCODER WITH PLC S7-300 CPU313C:

Controlling the Counter with SFB 47 "COUNT"

<u>Parameter</u>	<u>Declaration</u>	<u>Data type</u>	<u>Address (Instance DB)</u>	<u>Range of values</u>	<u>Default</u>	<u>Description</u>
LADDR	INPUT	WORD	0	CPU specific	W#16#0300	The I/O address of your submodule, specified by you in "HW Config". If the E and A addresses are not equal, the lower one of the two must be specified.
CHANNEL	INPUT	INT	2	CPU 312C: 0 to 1 CPU 313C: 0 to 2 CPU 314C: 0 to 3	0	Channel number:
SW_GATE	INPUT	BOOL	4.0	TRUE/FALSE	FALSE	Software gate for starting/stopping the counter
CTRL_DO	INPUT	BOOL	4.1	TRUE/FALSE	FALSE	Enable output
SET_DO	INPUT	BOOL	4.2	TRUE/FALSE	FALSE	Control output
JOB_REQ	INPUT	BOOL	4.3	TRUE/FALSE	FALSE	Job initialization (positive edge)

ENCODER WITH PLC S7-300 CPU313C:

Controlling the Counter with SFB 47 "COUNT"

JOB_ID	INPUT	WORD	6	W#16#0000 Job without function	W#16#0000	Job number
				W#16#0001 Write count value		
				W#16#0002 Write load value		
				W#16#0004 Write comparison value		
				W#16#0008 Write hysteresis		
				W#16#0010 Write pulse period		
				W#16#0082 Read load value		
				W#16#0084 Read comparison value		
				W#16#0088 Read hysteresis		
				W#16#0090 Read pulse period		
JOB_VAL	INPUT	DINT	8	-2^{31} up to $+2^{31}-1$	0	Value for write jobs.
STS_GATE	OUTPUT	BOOL	12.0	TRUE/FALSE	FALSE	Status of the internal gate
STS_STRT	OUTPUT	BOOL	12.1	TRUE/FALSE	FALSE	Status of the hardware gate (Start input)
STS_LTCH	OUTPUT	BOOL	12.2	TRUE/FALSE	FALSE	Status of the latch input
STS_DO	OUTPUT	BOOL	12.3	TRUE/FALSE	FALSE	Output status

ENCODER WITH PLC S7-300 CPU313C:

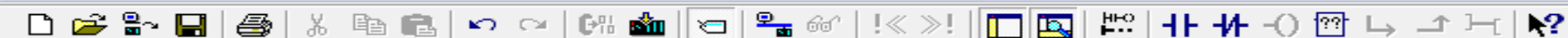
Controlling the Counter with SFB 47 "COUNT"

STS_C_DN	OUTPUT	BOOL	12.4	TRUE/FALSE	FALSE	Status reverse direction. Displayed is always the last direction of count. The value of STS_C_DN is FALSE after the first call of the SFB.
STS_C_UP	OUTPUT	BOOL	12.5	TRUE/FALSE	FALSE	Status forward direction Displayed is always the last direction of count. The value of STS_C_DN is TRUE after the first call of the SFB.
COUNTVAL	OUTPUT	DINT	14	-2^{31} up to $+2^{31}-1$	0	Actual count value
LATCHVAL	OUTPUT	DINT	18	-2^{31} up to $+2^{31}-1$	0	Actual latch value
JOB_DONE	OUTPUT	BOOL	22.0	TRUE/FALSE	TRUE	New job can be started
JOB_ERR	OUTPUT	BOOL	22.1	TRUE/FALSE	FALSE	Faulty job
JOB_STAT	OUTPUT	WORD	24	0 to W#16#FFFF	0	Job error number

ENCODER WITH PLC S7-300 CPU313C:

LAD/STL/FBD - [OB1 -- "Cycle Execution" -- S7_Pro4\SIMATIC 300 Station\CPU312(1)\...\OB1]

File Edit Insert PLC Debug View Options Window Help



Library of function blocks (SFB) and technology function blocks (TEC_FUNC):

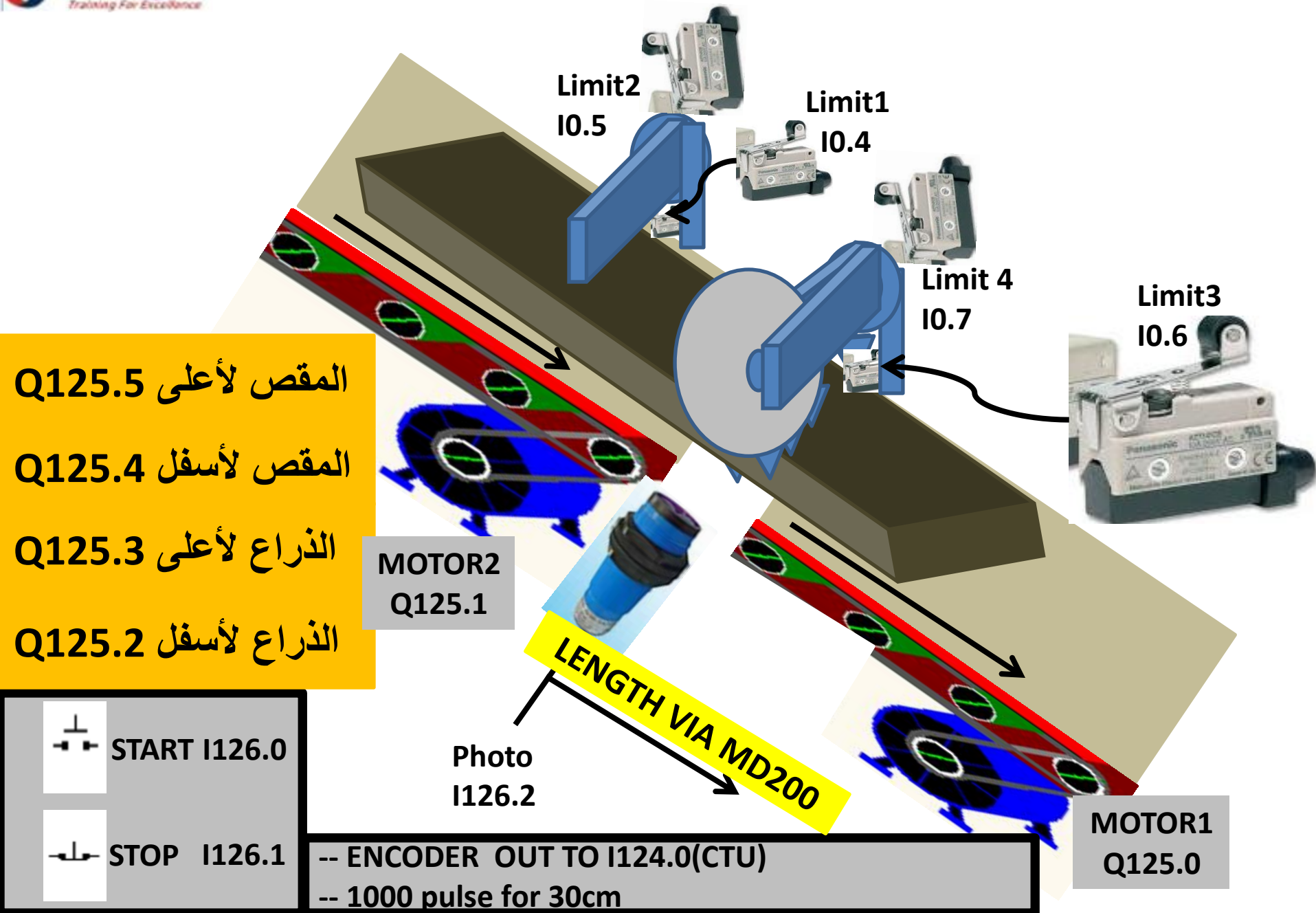
- SFB15 PUT COM_FUNC
- SFB16 PRINT COM_FUNC
- SFB19 START COM_FUNC
- SFB20 STOP COM_FUNC
- SFB21 RESUME COM_FUNC
- SFB22 STATUS COM_FUNC
- SFB23 USTATUS COM_FUNC
- SFB29 HS_COUNT COUNTERS
- SFB30 FREQ_MES COUNTERS
- SFB31 NOTIFY_8P COM_FUNC
- SFB32 DRUM TIMERS
- SFB33 ALARM COM_FUNC
- SFB34 ALARM_8 COM_FUNC
- SFB35 ALARM_8P COM_FUNC
- SFB36 NOTIFY COM_FUNC
- SFB37 AR_SEND COM_FUNC
- SFB38 HSC_A_B COUNTERS
- SFB39 POS COUNTERS
- SFB41 CONT_C ICNT
- SFB42 CONT_S ICNT
- SFB43 PULSEGEN ICNT
- SFB44 ANALOG TEC_FUNC
- SFB46 DIGITAL TEC_FUNC
- SFB47 COUNT TEC_FUNC
- SFB48 FREQUENC TEC_FUNC
- SFB49 PULSE TEC_FUNC

Selected block: COUNT / TEC_FUNC

Contents Of: 'Environment\Interface'

Interface		Name
DB1		
"COUNT"		
EN		ENO
W#16#300	LADDR	STS_GATE ...
0	CHANNEL	STS_STRT ...
M0.0	SW_GATE	STS_LTCH ...
M0.1	CTRL_DO	STS_DO ...
M0.2	SET_DO	STS_C_DN ...
M0.3	JOB_REQ	STS_C_UP ...
W#16#1	JOB_ID	COUNTVAL MD20
MD1	JOB_VAL	LATCHVAL ...
		JOB_DONE ...
		JOB_ERR ...
		JOB_STAT ...

Program elements Call structure



(0) UR	
1	
2	CPU 313C
2.2	DI24/DO16
2.3	AI5/AO2
2.4	Count
3	
4	
5	
6	
7	
8	

(0) UR

Slot	Module	...	O...	Fi...	M...	I address	Q addr...
1							
2	 CPU 313C		6ES7	V2.6	2		
2.2	 DI24/DO16					124...126	124...125
2.3	 AI5/AO2					752...761	752...755
2.4	 Count					768...783	768...783
3							
4							
5							
6							
7							
8							
9							
10							
11							

Properties - Count - (R0/S2.4)

Channel: Operating mode:

General | Addresses | Basic Parameters | **Count**

Operating Parameters

Main count direction: Comparison value:

Gate function: Hysteresis:

Start value: Time base:

End value:

Input

Signal evaluation:

☐ Hardware gate

☐ Count direction inverted

Hardware Interrupt

☐ Hardware gate opening

☐ Hardware gate closing

☐ On reaching comparator

☐ On count pulse

☐ Overflow ☐ Underflow

Output

Characteristics of the output:

Pulse duration: ms

Max. frequency

Counting signals/HW gate:

Latch:

Assignment of the input data

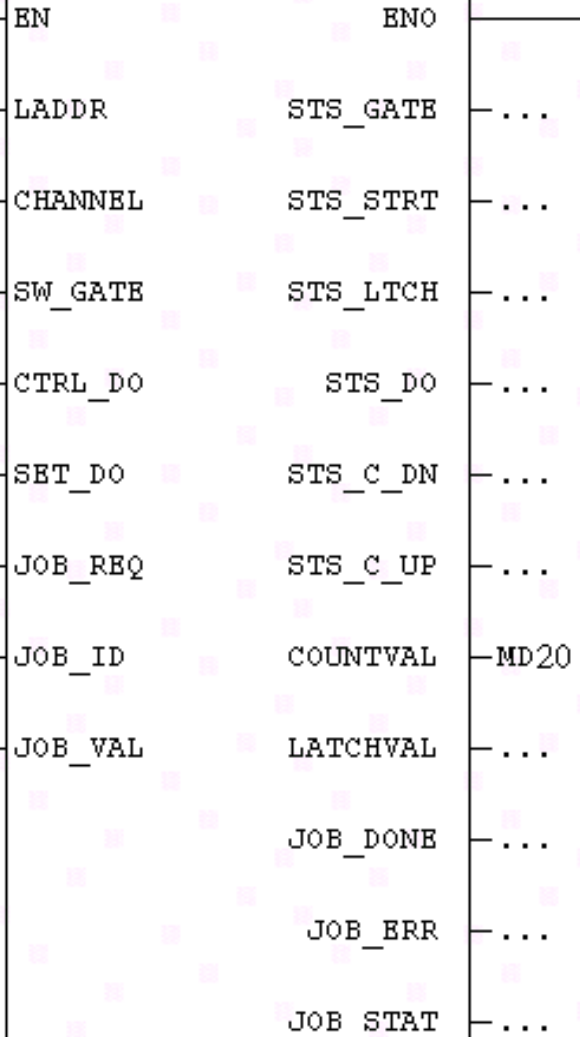
☒ Count value ☐ Period time

OK Default Cancel Help

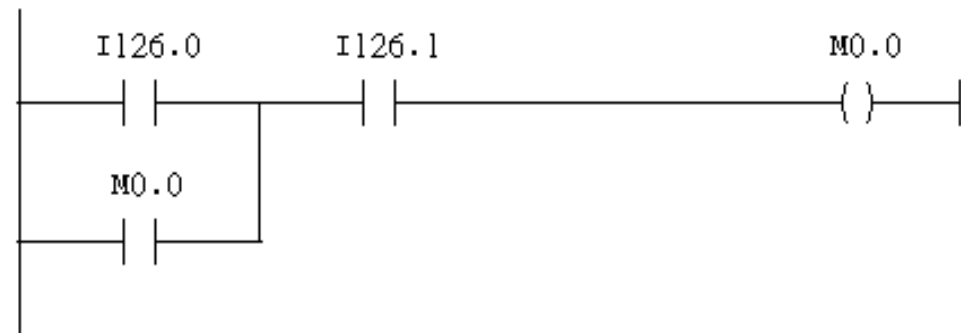
DB1

SFB47

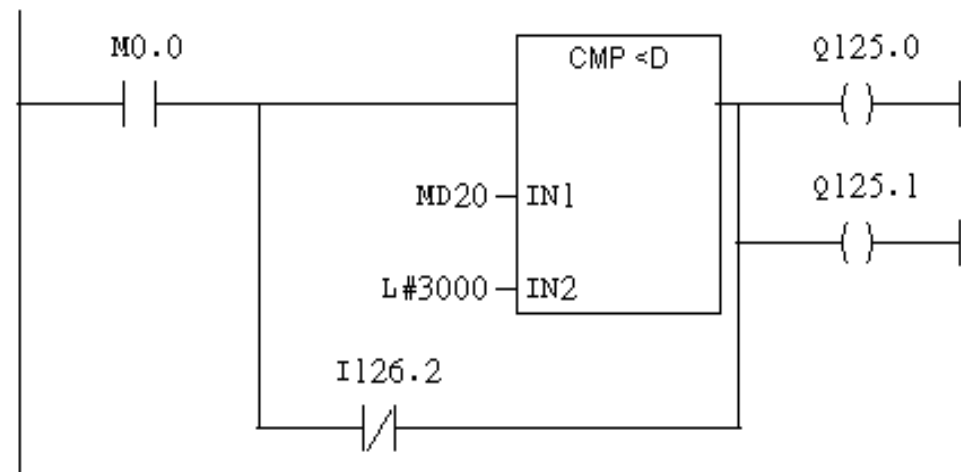
Common counter
module
"COUNT"



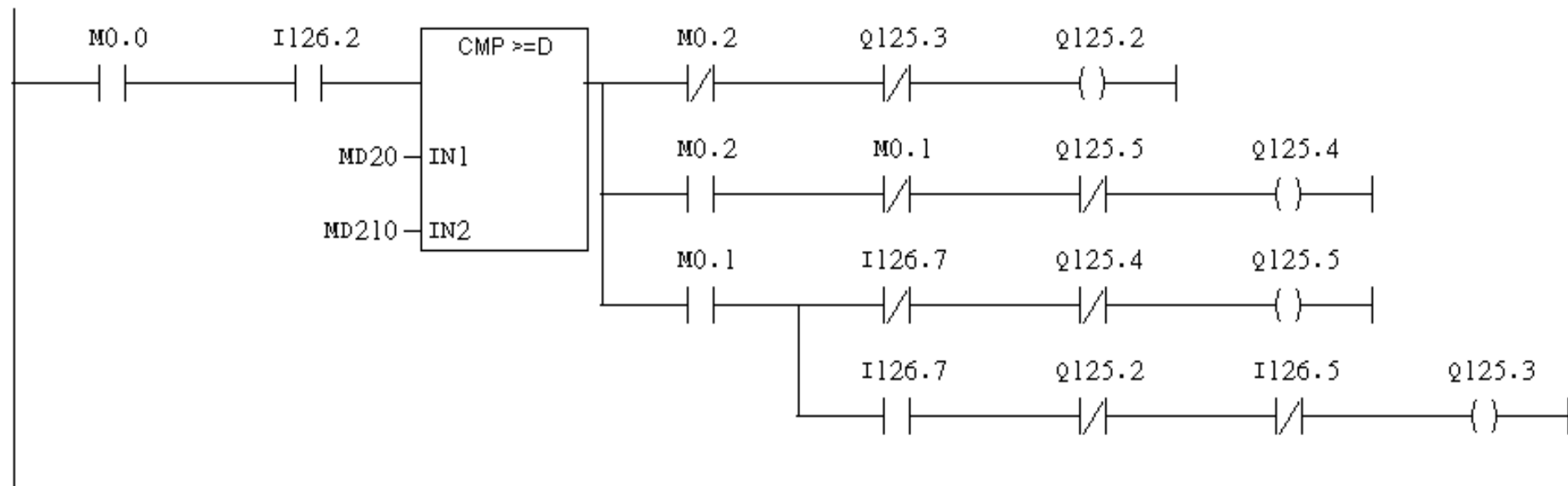
Network 2: Title:



Network 3: Title:



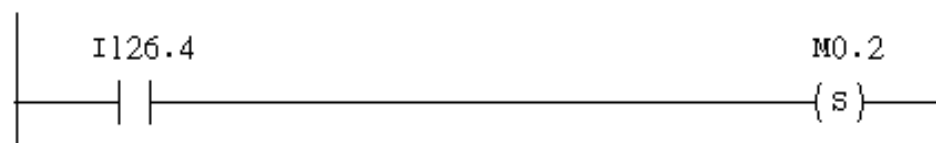
Network 4 : Title:



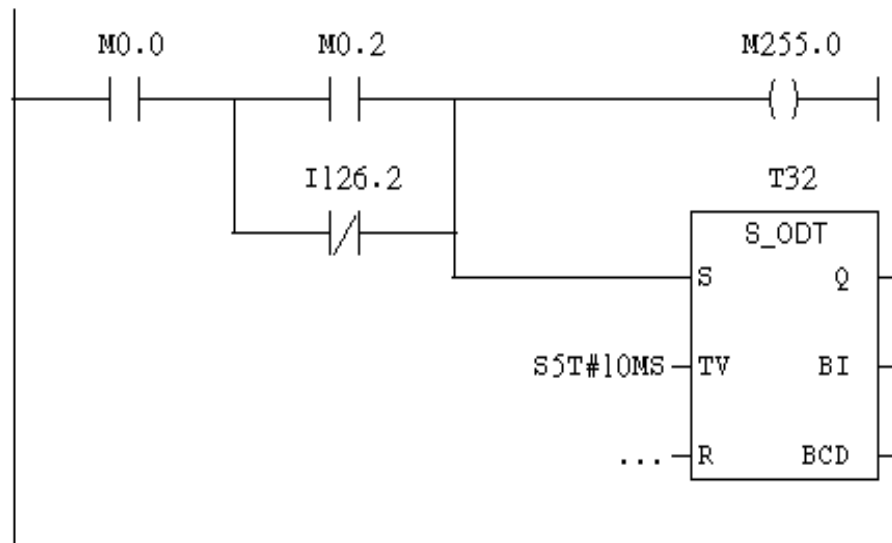
Network 5 : Title:



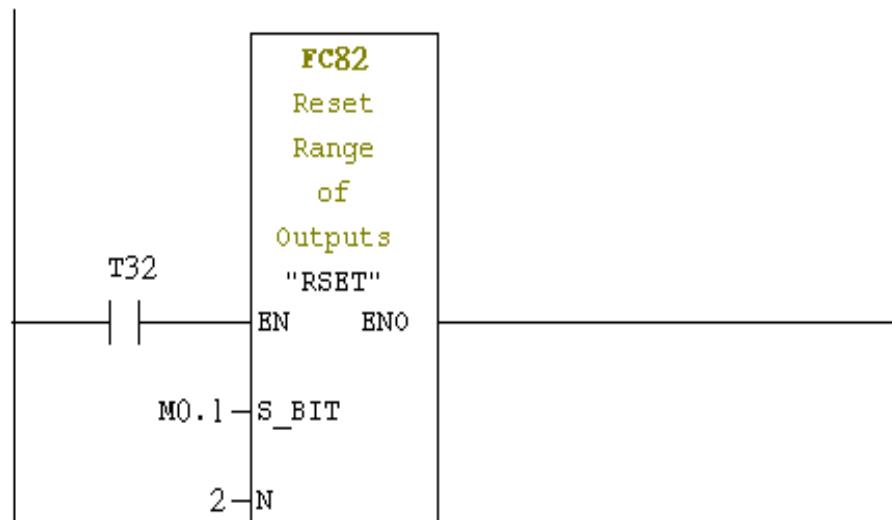
Network 6 : Title:



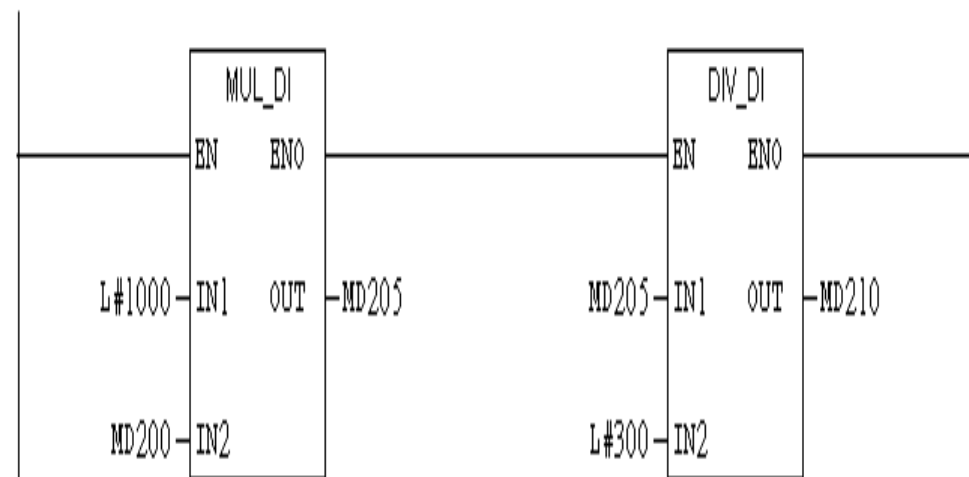
Network 7 : Title:



Network 8 : Title:



Network 9 : Title:



Length (md200) in mm → Pulses

300 mm → 1000



1mm → ?

$$\text{Pulses} = \text{length} * 1000 / 300$$

TABLE:

TABLE FORMAT:

Max. no. of entries	DB1.DBW0	5
Current no. of entries	DB1.DBW2	0
Entry1	DB1.DBW4	X
Entry2	DB1.DBW6	X
Entry3	DB1.DBW8	X
Entry4	DB1.DBW10	X
Entry5	DB1.DBW12	X

4 = CLEAR

4 = WORD

How to create TABLE?

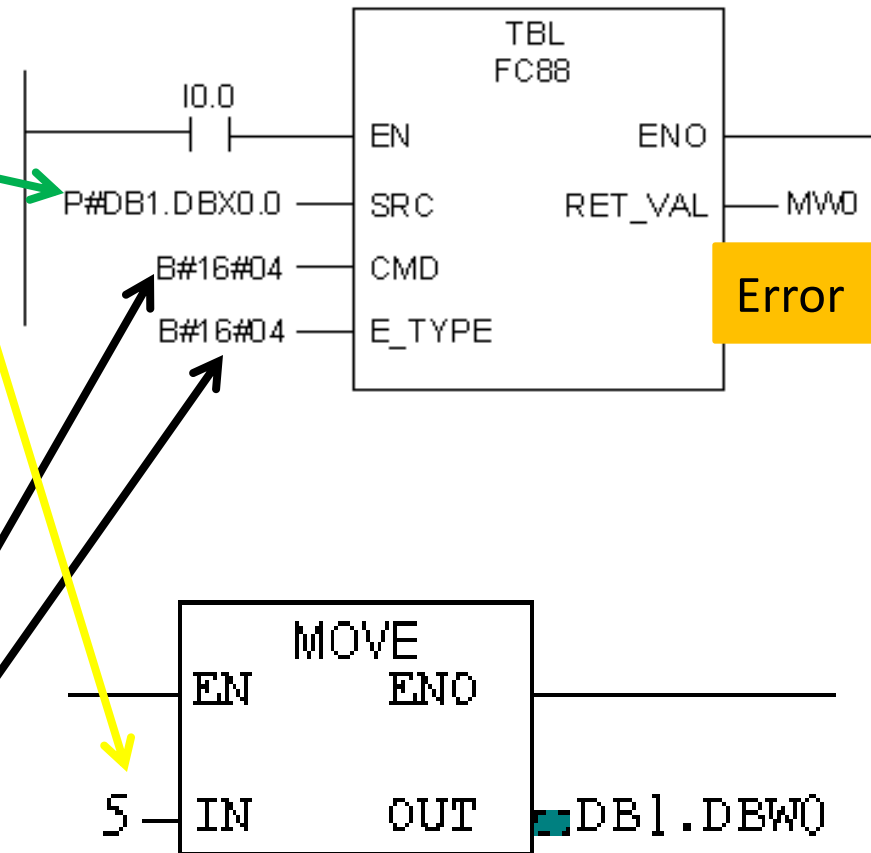
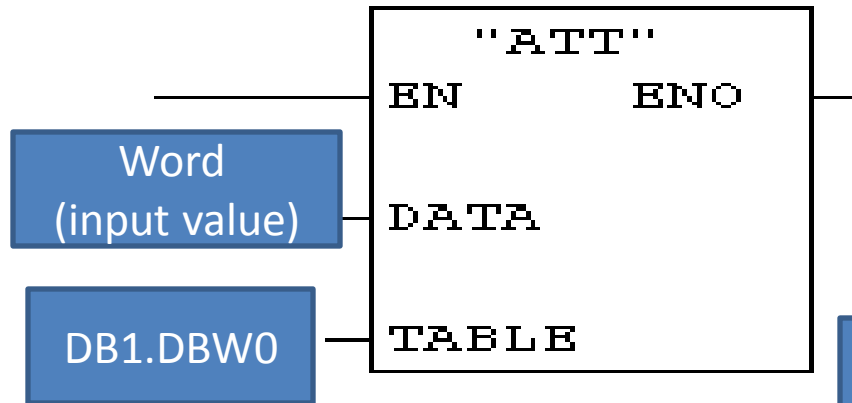
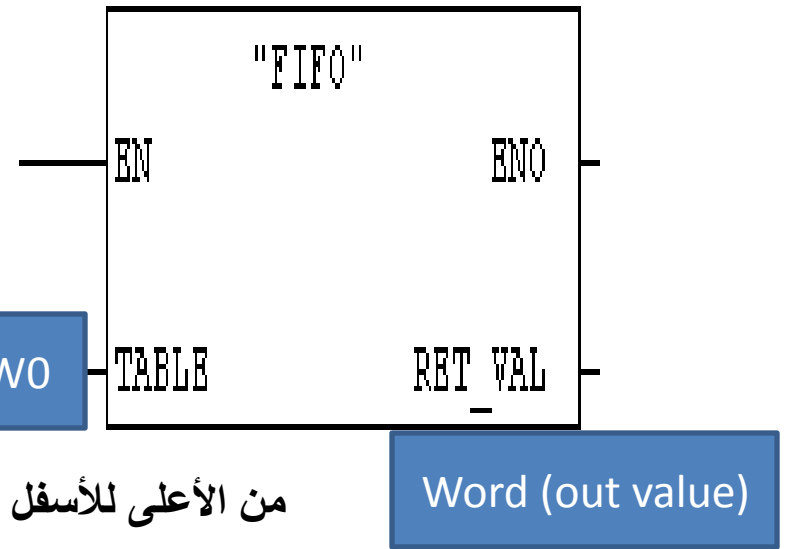


TABLE:

Add Data to TABLE:



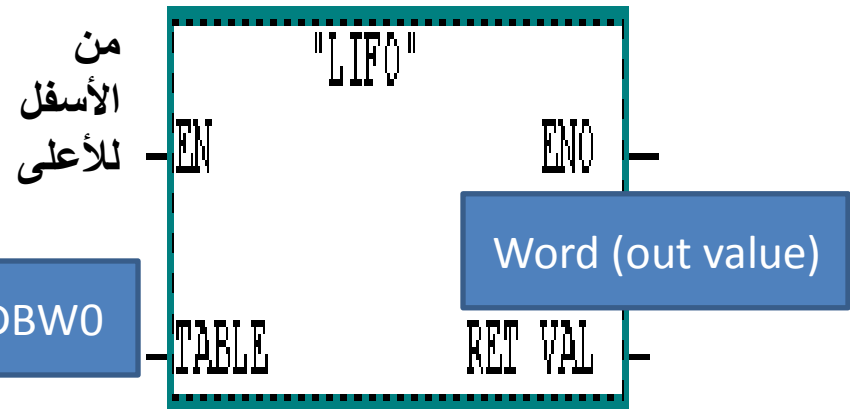
Extract Data from TABLE:



- ☒ FC84 ATT TABLE
- ☒ FC85 FIFO TABLE
- ☒ FC86 TBL_FIND TABLE
- ☒ FC87 LIFO TABLE
- ☒ FC88 TBL TABLE

DB1.DBW0

من الأعلى للأسفل



من الأسفل للأعلى

TABLE:

S7-200:

S7-300:

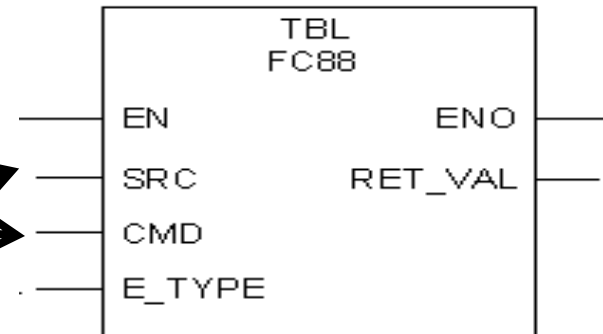
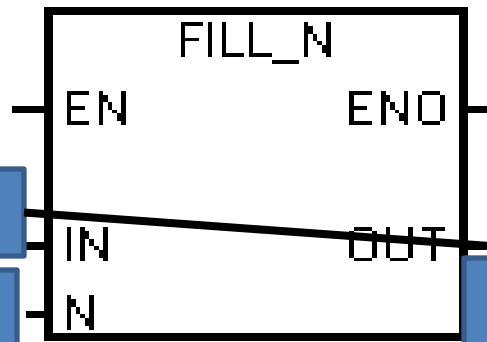
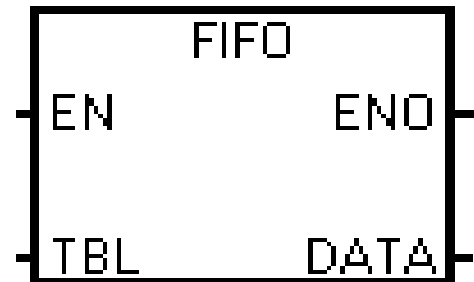
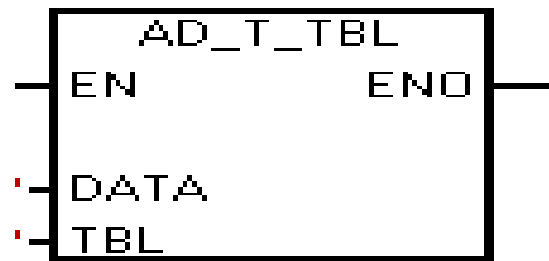
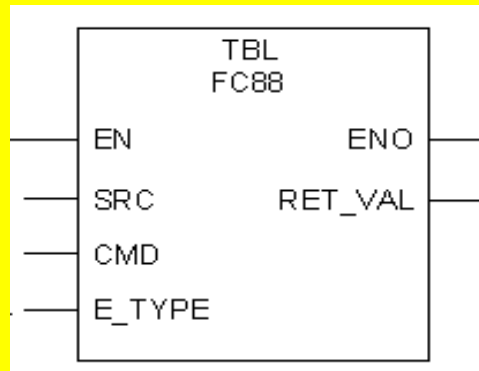


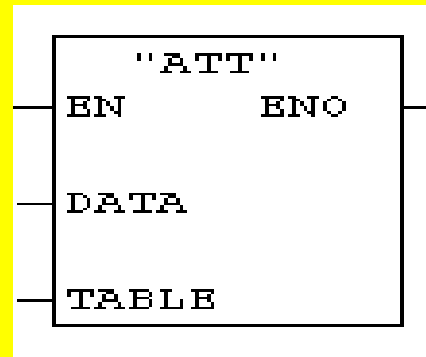
TABLE:

NOTE:

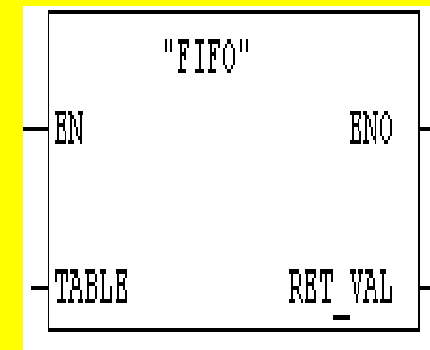
لا بد من وضع أحد الأمرين $\frac{M20.0}{(P)}$ أو $\frac{M20.0}{(N)}$ في الحالات الآتية:



لو لم يتم وضع هذه
الأوامر سيتم تصفير
عناصر الجدول لفترة
طويلة قد تؤثر على
إضافة العناصر
المطلوبة



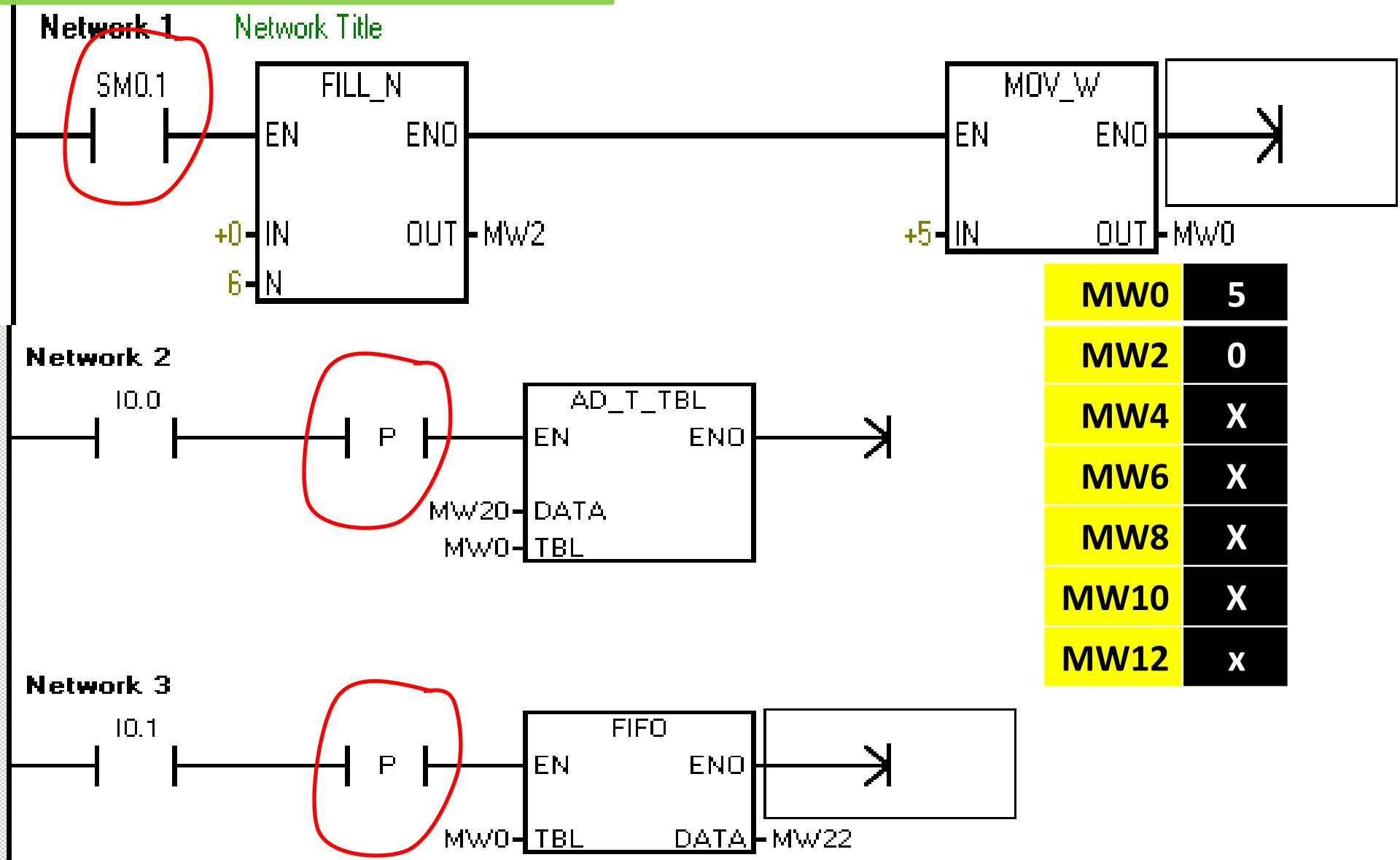
لو لم يتم وضع هذه
الأوامر سيتم إضافة
كل العناصر عند
الضغط أو إعطاء
الإشارة حتى يمتلأ
الجدول بأكمله



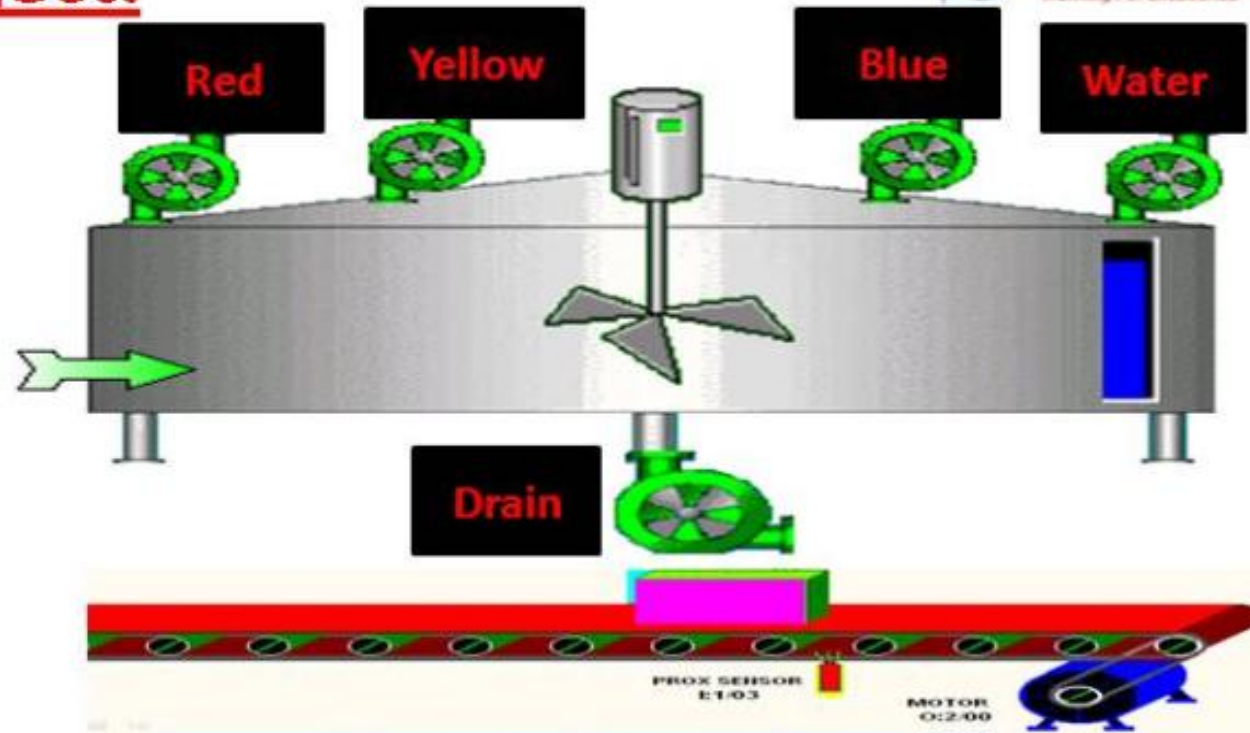
لو لم يتم وضع هذه
الأوامر سيتم استخراج
العناصر كلها مرة
واحدة مع أول إشارة
تعطى للبلوك

TABLE:

WANTED NETWORKS:



Color mixing project:



	Enable
	Disable
	RED
	YELLOW
	BLUE
	ORANGE
	GREEN
	VIOLET

	Red	Yellow	Blue
Red	100%	0%	0%
Yellow	0%	100%	0%
Blue	0%	0%	100%
Orange	60%	40%	0%
Green	0%	30%	70%
violet	80%	0%	20%

COLOR MIXING PROJECT:

i0.0 on
i0.1 off
i0.2 red
i0.3 yellow
i0.4 blue
i0.5 orange
i0.6 green
i0.7 violet
i1.0 level sensor
q0.0 red pump
q0.1 yellow pump
q0.2 blue pump
q0.3 mixer
q0.4 drain
q0.6 water pump

-- قبل البدء فى تنفيذ أى لون تعمل مضخة المياه بمصاحبة الخلط لمدة 10 ثوانى ثم تعمل مضخة السحب إلى أن يفرغ الخزان.

-- الخلط يعمل مع الألوان المختلطة فقط بحيث يبدأ عمله مع اللون الأطول زمنا ويستمر فى عمله بعد اللون الأطول زمنا لمدة 10 ثوانى ثم تعمل مضخة السحب إلى ان يفرغ الخزان.

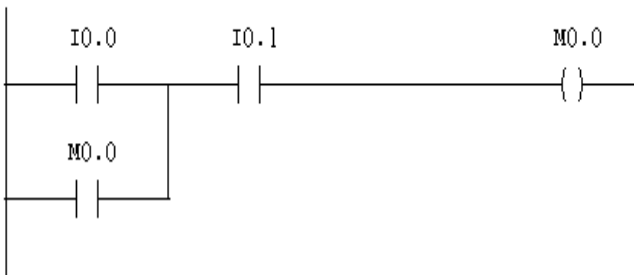
-- طلب أى لون يسجل وينفذ بعد الإنتهاء من اللون الحالى.

1	RED
2	YELLOW
3	BLUE
4	ORANGE
5	GREEN
6	VIOLET

q0.5 belt
I1.1 belt sensor

COLOR MIXING PROJECT:

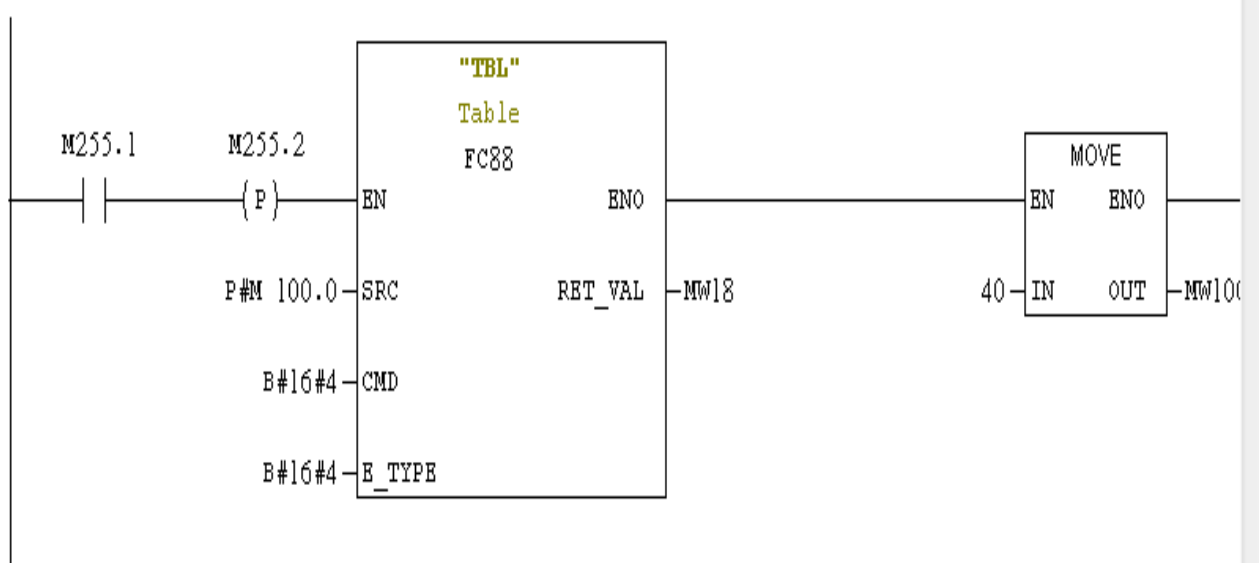
Network 1: Title:



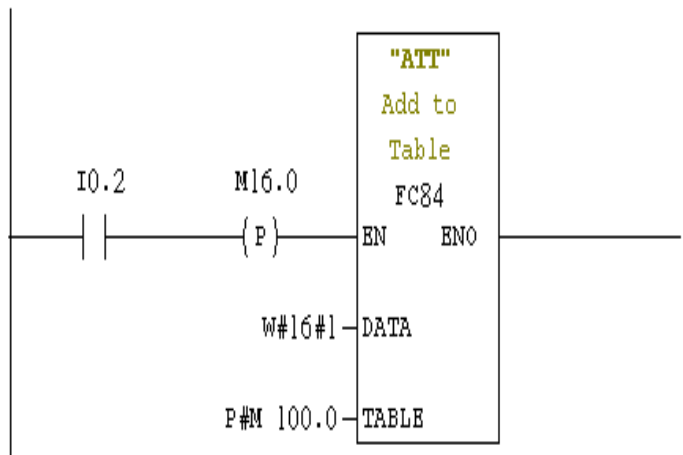
Network 2: Title:



Network 3:

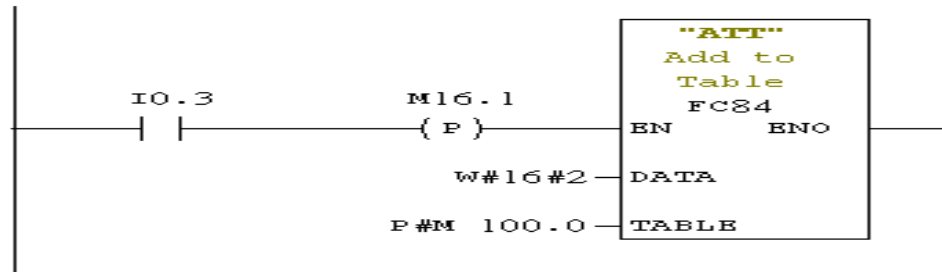


Network 4: Title:

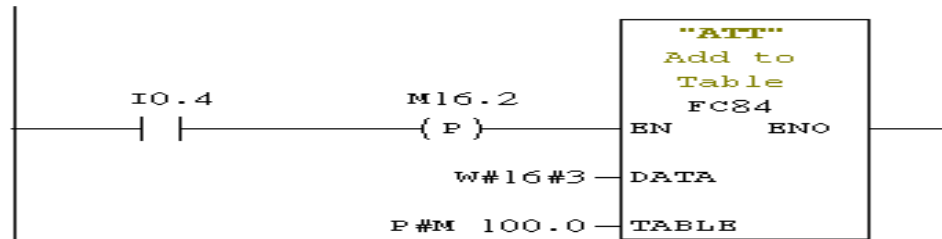


COLOR MIXING PROJECT:

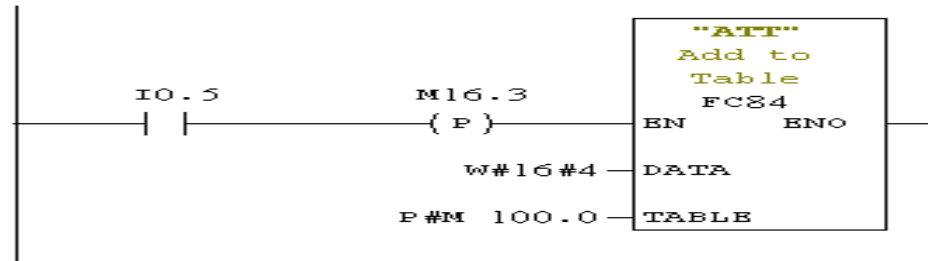
Network 5 : Title:



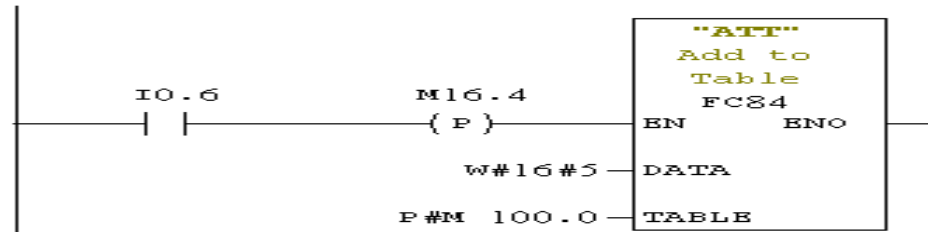
Network 6 : Title:



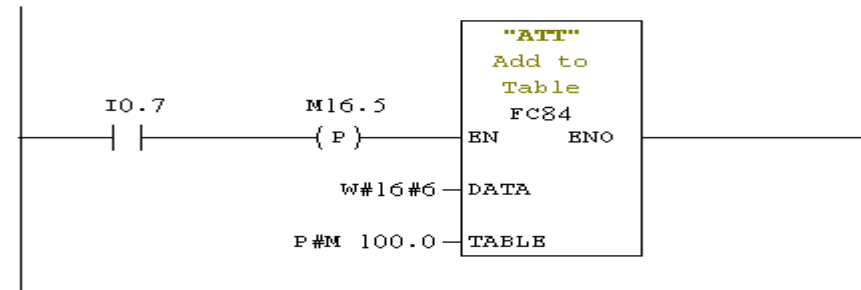
Network 7 : Title:



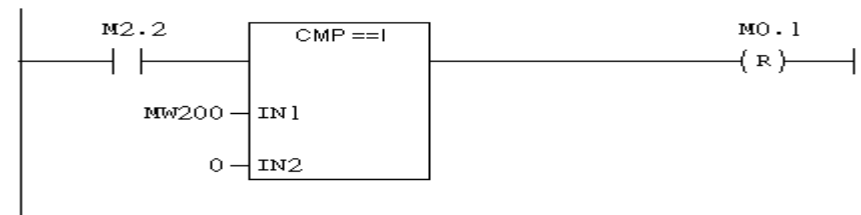
Network 8 : Title:



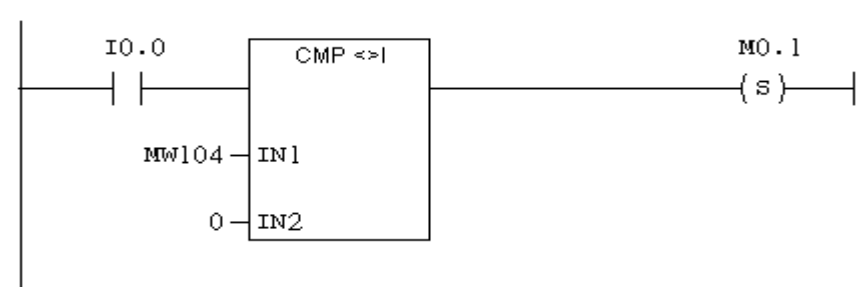
Network 9 : Title:



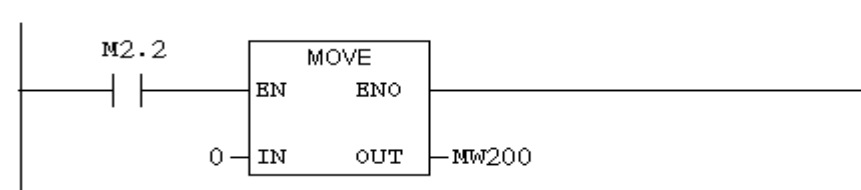
Network 10 : Title:



Network 11 : Title:

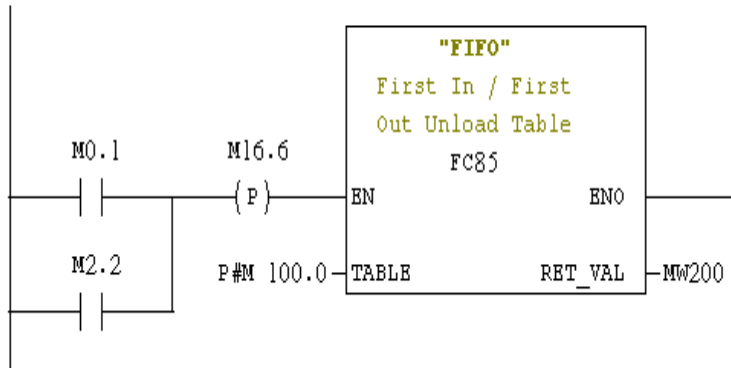


Network 12 : Title:

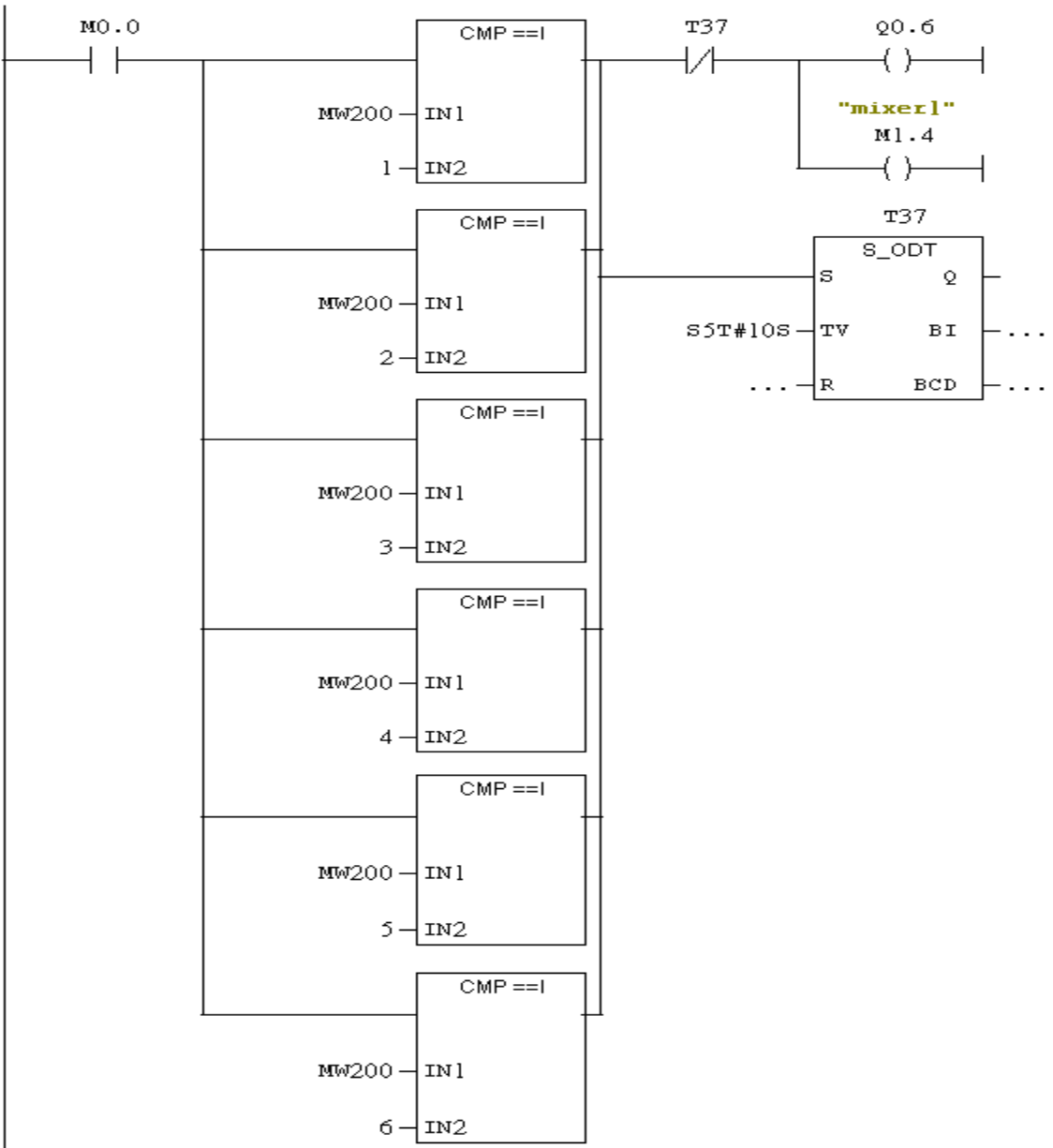


COLOR MIXING PROJECT:

Network 13: Title:



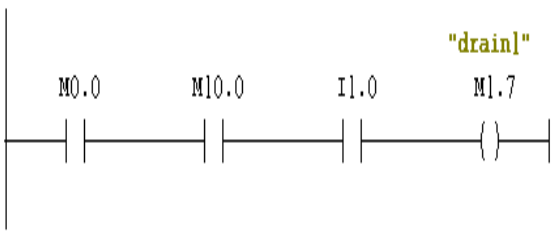
Network 14: Title:



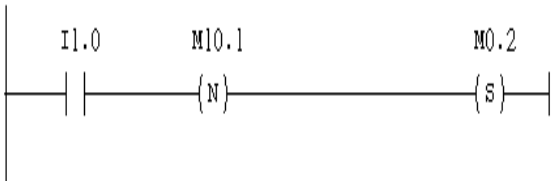
COLOR MIXING PROJECT:



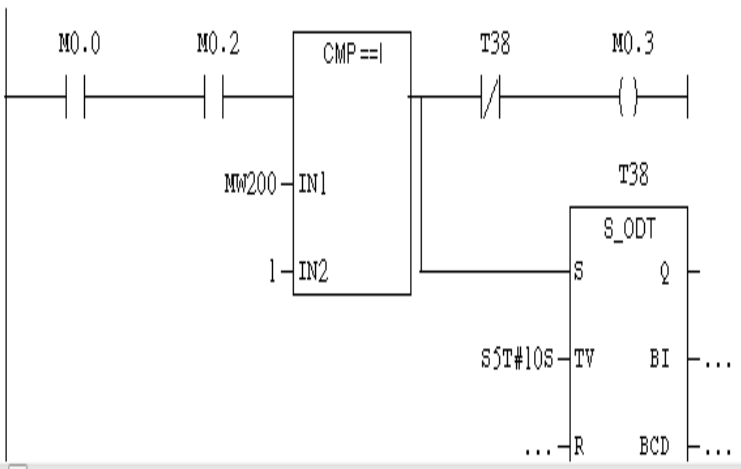
Network 15: Title:



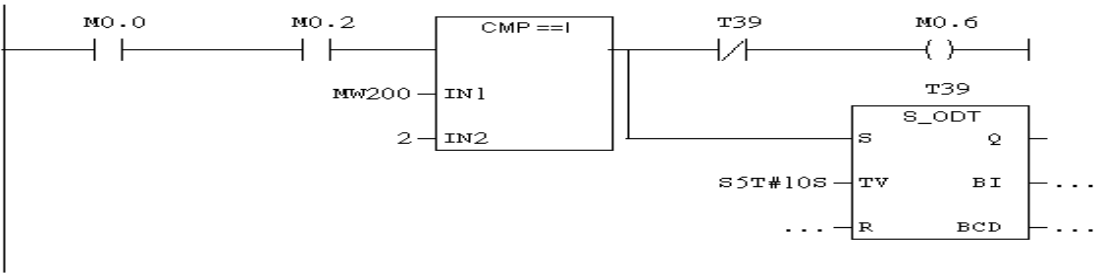
Network 16: Title:



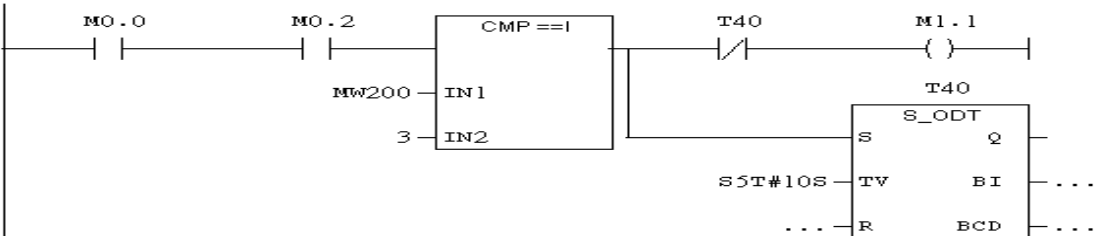
Network 17: Title:



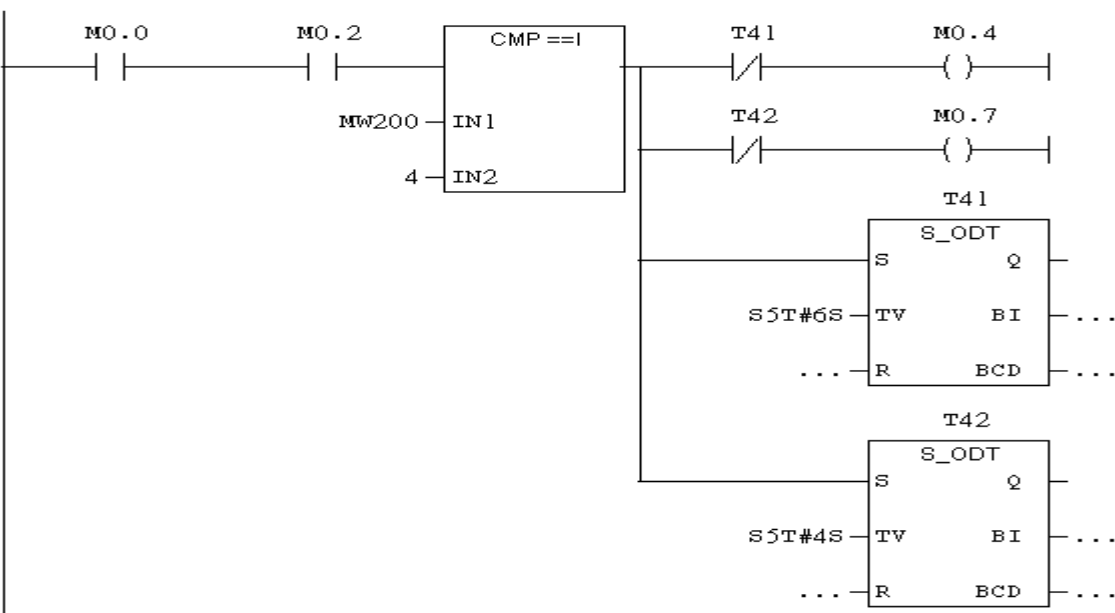
Network 18: Title:



Network 19: Title:

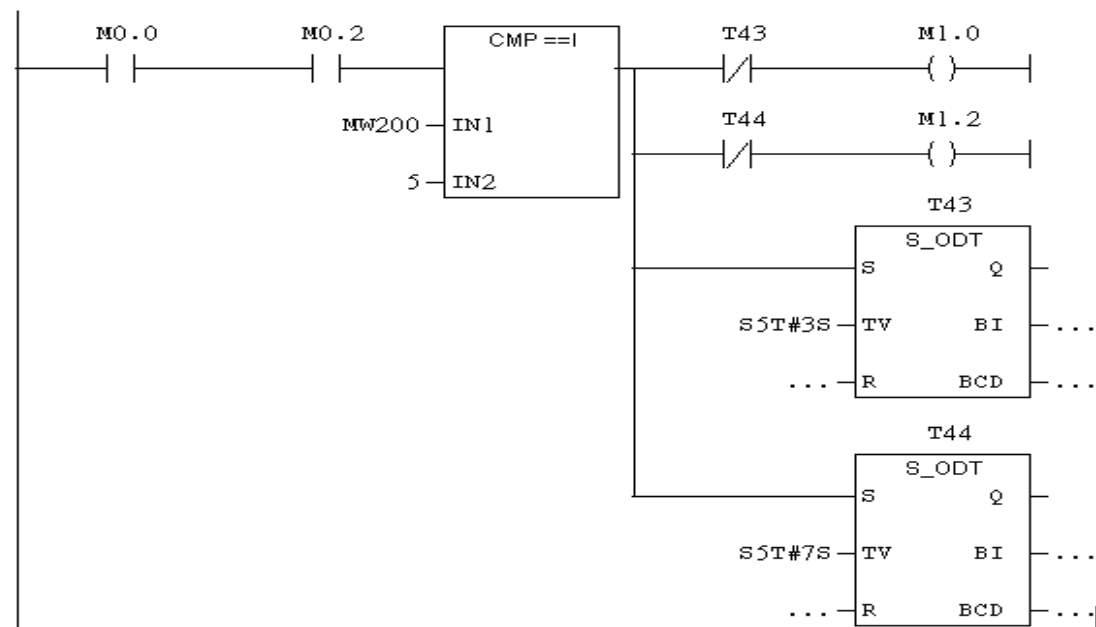


Network 20: Title:

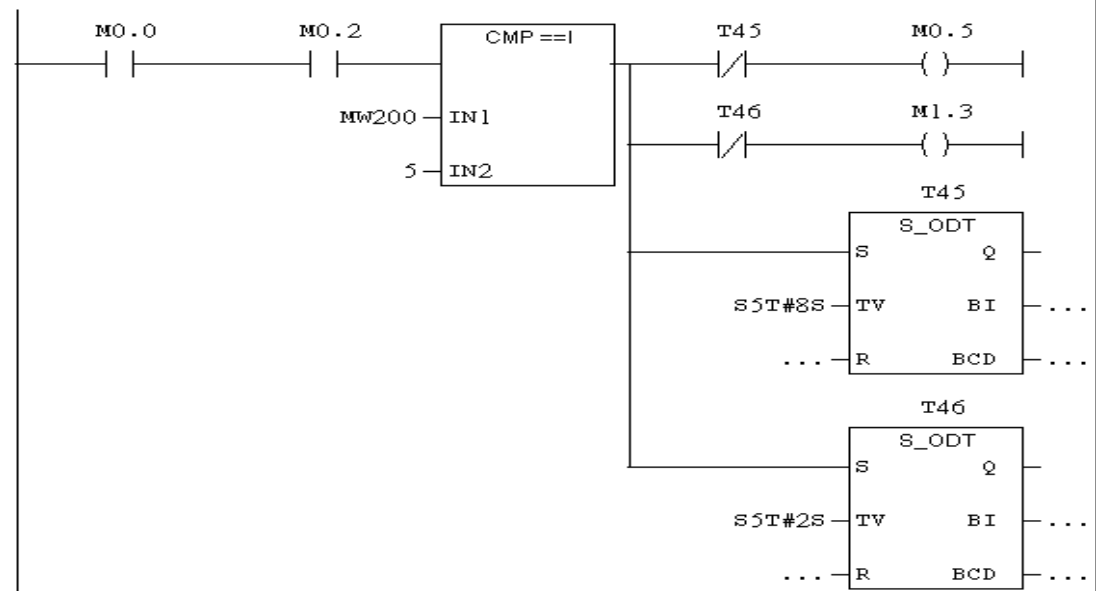


COLOR MIXING PROJECT:

Network 21: Title:



Network 22: Title:



Network 23: Title:



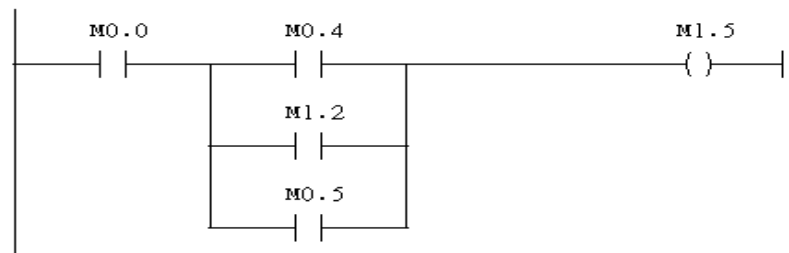
Network 24: Title:



Network 25: Title:

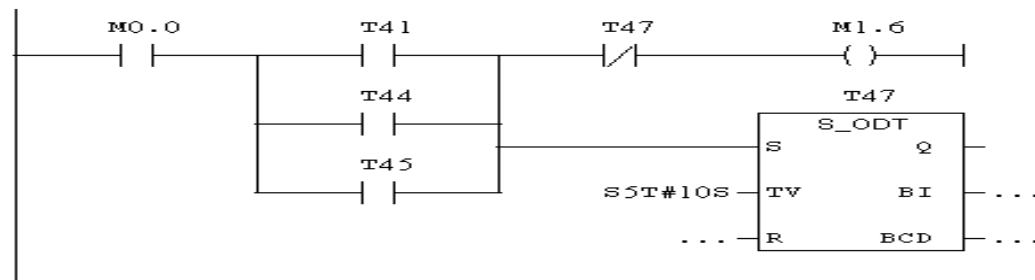


Network 26: Title:

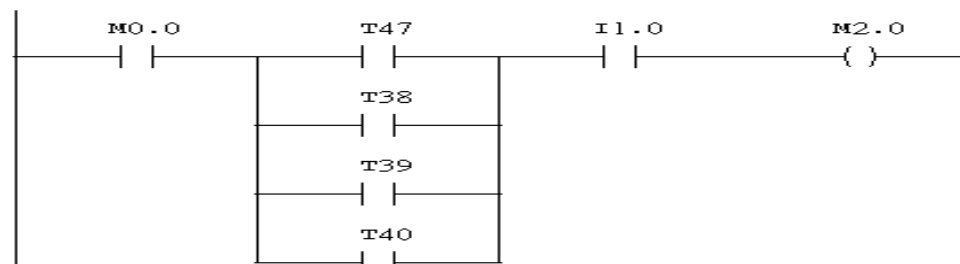


COLOR MIXING PROJECT:

Network 27 : Title:



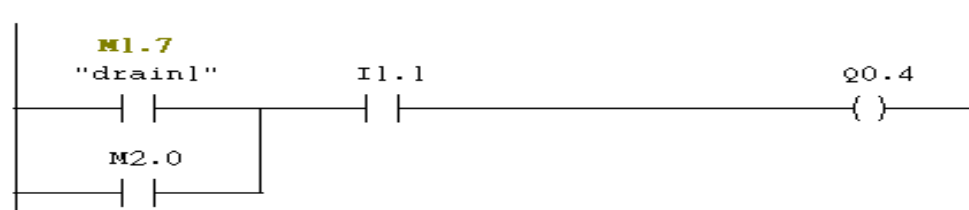
Network 28 : Title:



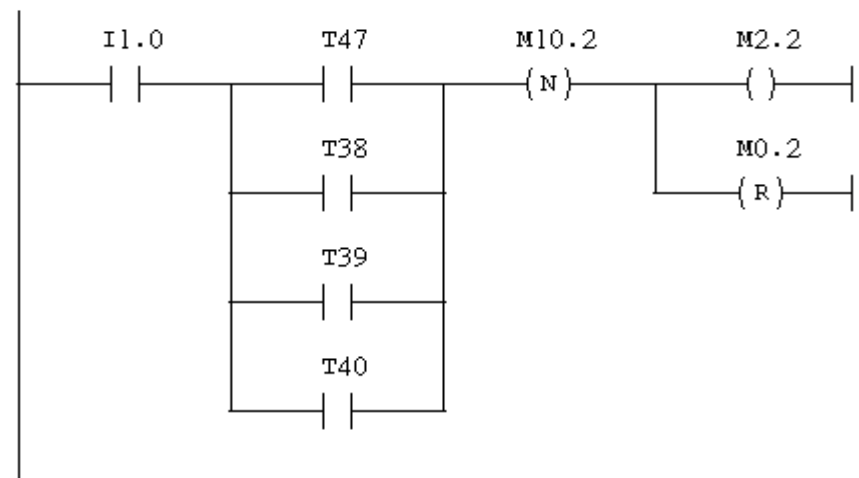
Network 29 : Title:



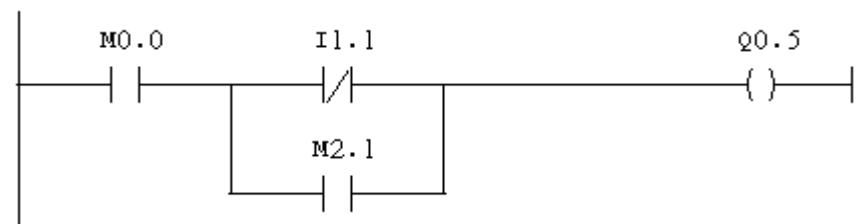
Network 30 : Title:



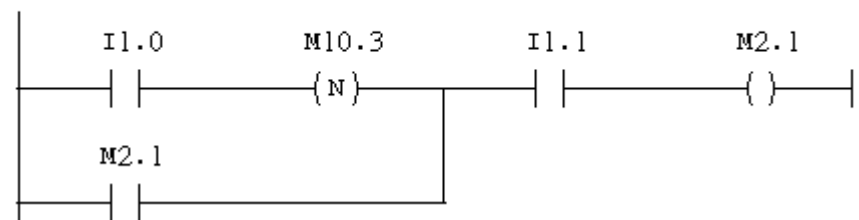
Network 31 : Title:



Network 32 : Title:

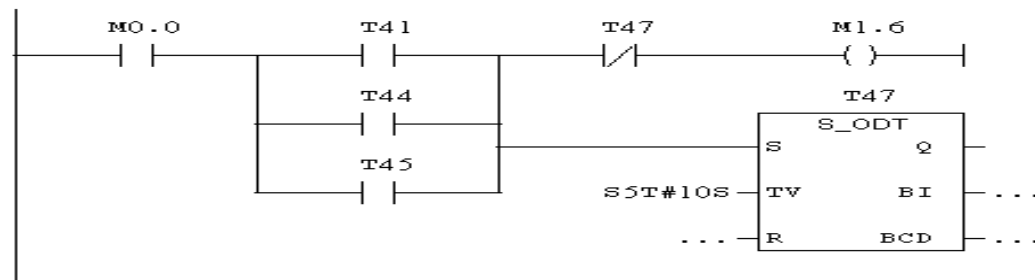


Network 33 : Title:

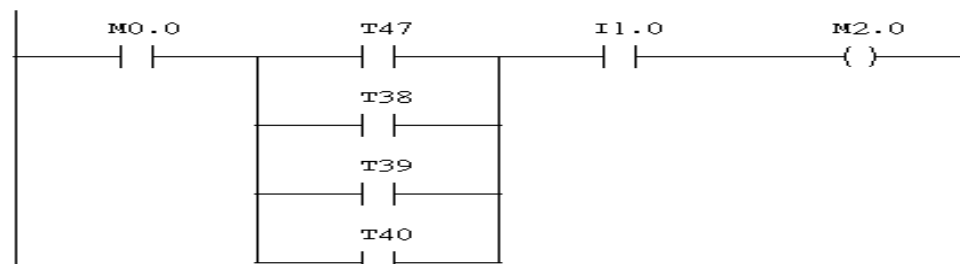


COLOR MIXING PROJECT:

Network 27 : Title:



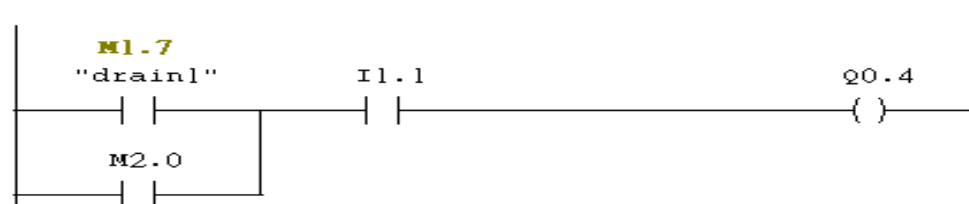
Network 28 : Title:



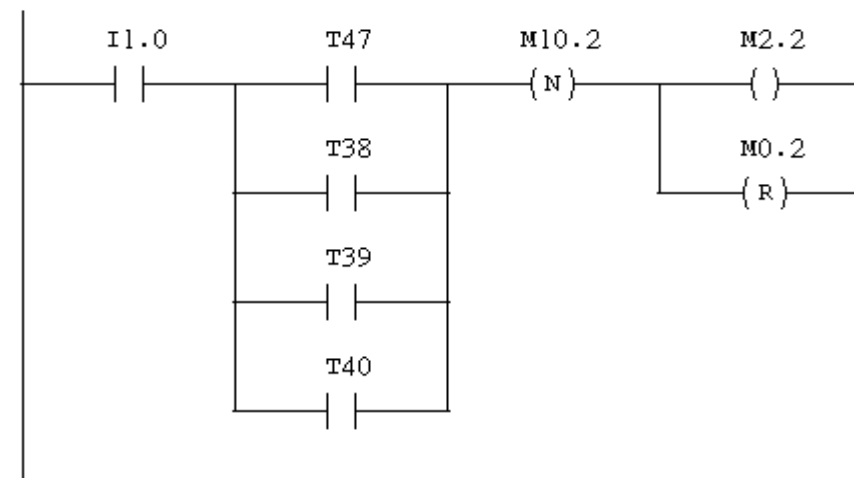
Network 29 : Title:



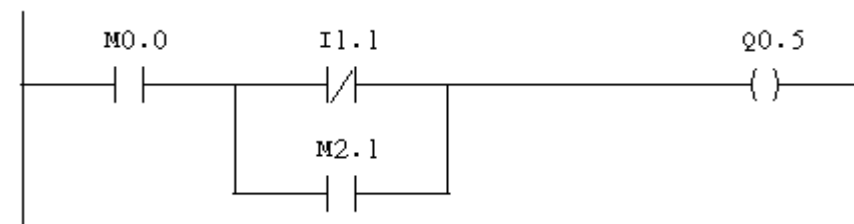
Network 30 : Title:



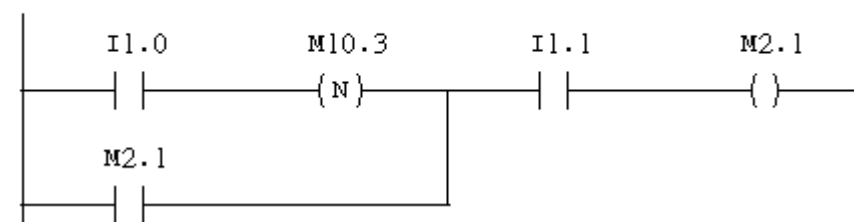
Network 31 : Title:



Network 32 : Title:



Network 33 : Title:



AUTOMATION COMPANIES IN EGYPT:



Egypt Smart Home

☆ Egypt Smart Home

٢,٣ ★★★★★ 3 تعليقات

خدمة أمنية في مدينة الشروق، مصر

صفحة ويب

مشاركة

اتجاهات السير

الاتصال بـ

181 شارع الشباب - أسكان الشباب 100 متر -
بجوار مدرسة الفيوتشر، محافظة القاهرة 11837

مفتوح اليوم ١٠ص - ١٠م

0115 000 4344



العاشر من رمضان

شركة البنا للدواجن

Map data ©2017 Google, ORION-ME

☆ سماتر اوتوميشن - مصر

مشاركة

الاتصال بـ

العاشر من رمضان، أكباد القبليّة، مركز فاقوس،
الشرقية

015 374356

AUTOMATION COMPANIES IN EGYPT:



MISC

★★★★★ ٥,٠ تعليقات (2)

مورد معدات صناعية في مصر



صفحة ويب



مشاركة



اتجاهات السير



الاتصال بـ

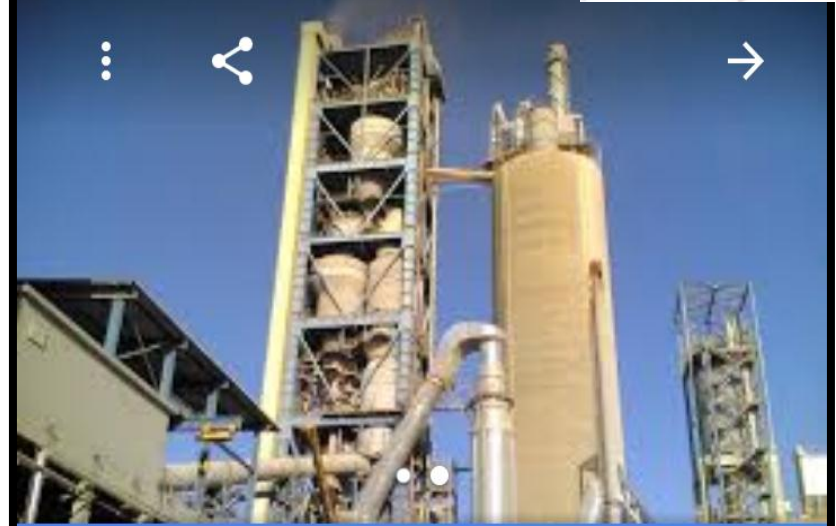
6 سيد زكريا، شيراتون المطار، قسم النزهة، محافظة
القاهرة 11361



مفتوح اليوم ٩ ص - ٥ م



02 22680994



اسيك للتحكم الالى

★★★★★ ٣,٦ 7 تعليقات

مهندس كهرباء في مصر



صفحة ويب



مشاركة



اتجاهات السير



الاتصال بـ

6 ش 308، البساتين الشرقية، المعادي، محافظة
القاهرة



مفتوح اليوم ٨ ص - ٥ م



02 27042601



AUTOMATION COMPANIES IN EGYPT:



☆ الكترو هيدروليك اوتوميشن - اى اتش اية
٣,٠ ★★★★★ تعليق واحد

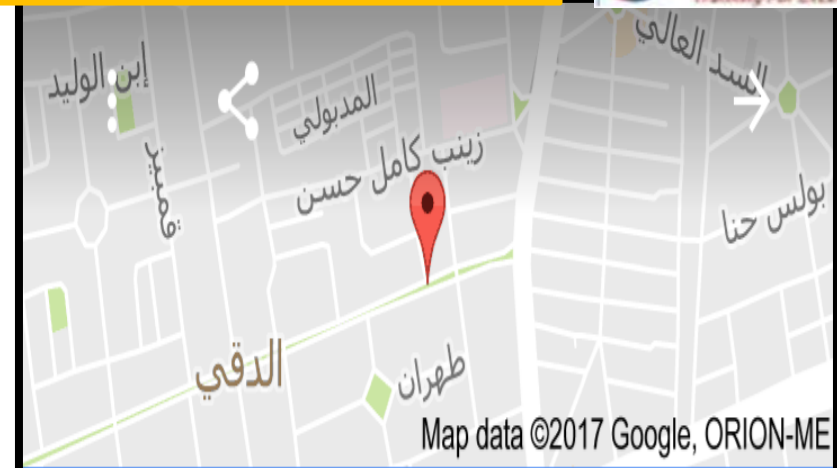
صفحة ويب

مشاركة

الاتصال بـ

ahmed essmat st 74، الزهراء ومساكن
الحلمية، قسم عين شمس، محافظة القاهرة

02 24941760



☆ هاك اوتوميشن

مشاركة

اتجاهات السير

الاتصال بـ

58 متفرع من ش مصدق، الدقي، الجيزة

02 37612747

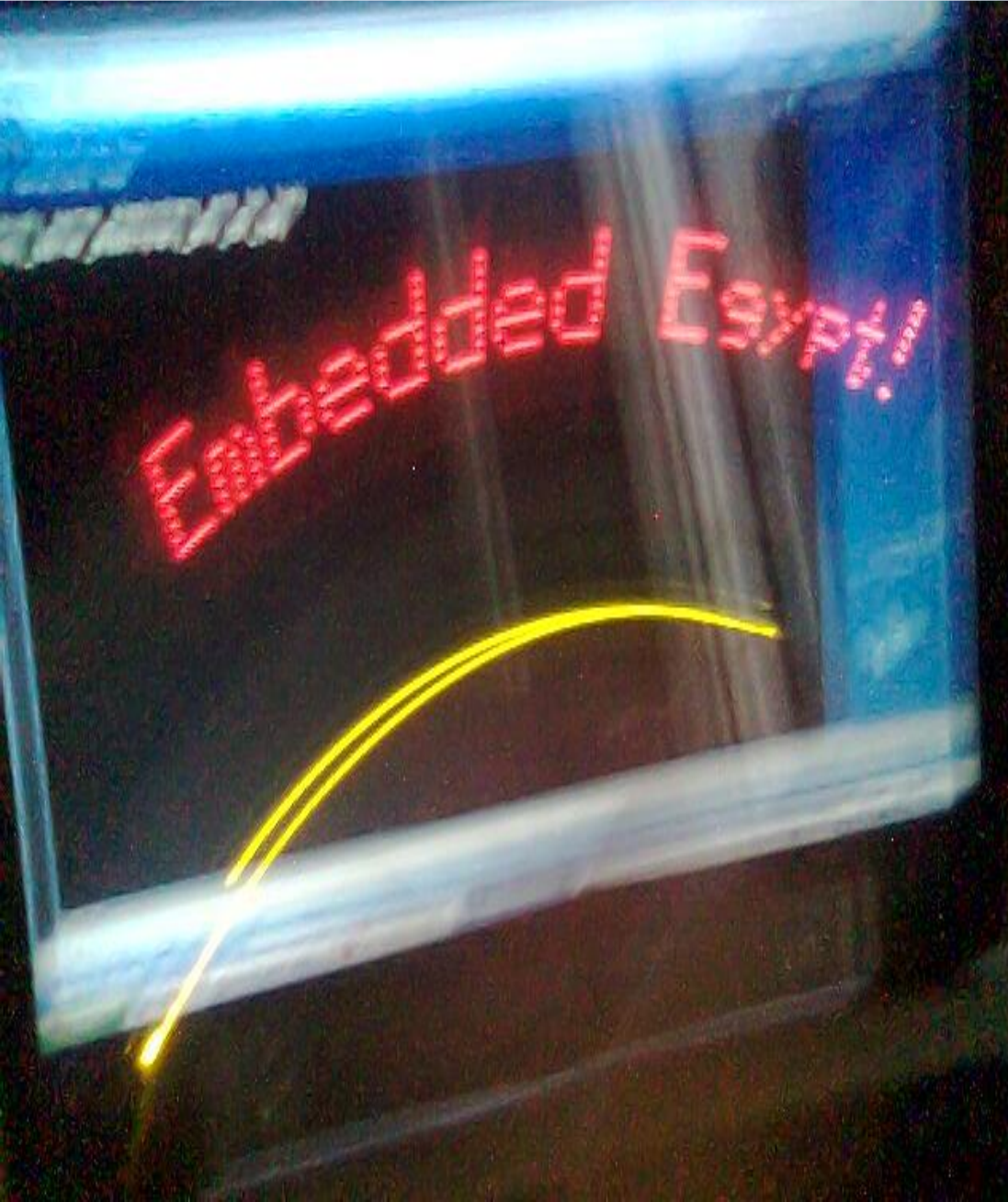
DISTRIBUTION COMPANIES IN EGYPT:

	B	C	D	E	F	G
1	اسم المجموعة أو المكتب	عدد الفروع	الفروع	العنوان	التليفونات	الفاكس
2			المعادي	مبنى رقم 2075 و 2078 مدينة المعراج - المعادي	02-25204500 - 02-25204501 - 02-25204502	02-25204505
3	المجموعة الاستشارية شامر	3	المهندسين	45 شارع محمد حسن حلمي - المهندسين	02-33454113 - 02-33454972	
4			بولاق الذكور	شارع علي ابو عيطه - بولاق الذكور	02-33287651	
5	مكتب الهندسي الاستشاري صبور و شركاه	1	الدقي	20 شارع لطفى حسونه - الدقي	02-37613140	
6			مدينة نصر	عمارة 2 - بلوك 10 حي السفارات , مدينة نصر	02-22744740	02-22744748
7	جماعة المهندسين الاستشاريين - ECG	3	الاسكندرية	16 ش ابراهيم نصير لوزار, الاسكندرية	03-5820322	
8			القرية الذكية	طريق الاسكندرية القاهرة الصحراوي, الاسكندرية	02-22744740	
9	ACE Consulting Engineers	2	Dokki	5 El-Gomhouria El-Mottaheda Square Dokki, Cairo	+202 33 37 71 20, 33 36 17 47 / 78 39	202 37 49 82 54
10	Moharram.Bakhom		Cairo Downtown	2 Champollion Street- Cairo Downtown	202 25 74 48 76 / 11 17, 25 75 36 10	+202 25 78 44 58
11	المهندسون الاستشاريون العرب	1	المهندسين	3 ش عبد القوى احمد- المهندسين الجيزة	02-33020841	
12	المجموعة الاستشارية للمعمارية وتنمية البيئة	1		6 شارع المتحف الزراعي - دقي - القاهرة - مصر	+202 7487005 & +202 3380538	+202 7487005
13	مجموعته ابو الخير الاستشارية - دكتور م احمد ابو الخير بدر	1		98 شارع التحرير - الدقي - القاهرة - مصر	02-33388748	
14	مكتب هندسي استشاري محمود خليل المشنب	1		16 شارع منشية الطيران - مصر الجديدة - القاهرة - مصر	02-24140925	
15	المكتب العلمي للهندسة الكهروميكانيكية	1		ش الشيخ احمد ابراهيم - النزهة - الدور 3 شقة 3 الالف سكن	02-26351176, 0100-1112131	
16	المحمودية العامة للمقاولات والاستثمار العقاري	1		1 ش عصام الدالي - الدقي, الجيزة	02-33363691	02-33362413
17	مختار ابراهيم للمقاولات	1		199 امتداد شارع 26 يوليو / المجوزة / القاهرة		
18	المقاولون العرب المركز الرئيسي			34 ش عدلي - القاهرة	02 23959500- 02 23959522	02 23937674
19	المقاولون العرب / الإدارة العامة للاستثمارات الهندسية	3		26 ش الجمهورية القاهرة	002 02 2390 35 50	002 02 2390 39 99
20	المقاولون العرب / قطاع الإحتياجات والعطاءات			11 شارع دكتور يسرى جواهر - مدينة نصر	002 02 2403 89 84	002 02 2262 15 84
21			Sheikh Zayed	Km 38 Cairo-Alexandria Desert Road, Sheikh Zayed City	02 3857 0061-3	02 3857 0060
22	SODIC	3	Zamalek	Abou El Feda St., Abou El Feda Commercial Tower, Zamalek 3	02 2737 6010/2737 6019	
23			Heliopolis	El Thawra St., Heliopolis 46	02 2290 3491/2290 3597/2290 4393	
24	Orascom Hotels and Development	2	Corniche El Nil	Nile City Towers, South Tower, 9th Floor 2005 A Corniche El Nil	02 2461 8999	02 2461 9977
25	Orascom Construction Industries		Corniche El Nil	Nile City Towers, Corniche El Nil	02 2461 1111	
26	وادي النيل للمقاولات والاستثمارات العقارية			7 طريق النصر المنطقة السادسة , مدينة نصر, القاهرة	16640, 02-26900893, 02-26900901, 02-26900903	
27	الشركة الوطنية للمقاولات العامة والتوريدات		مدينة نصر	14 ش محمود طلعت من الطيران	22611536	22608230
28	Egyptian For Coastal Construction - ECC		Heliopolis	65 El Maqrizy St. Rowy, Heliopolis, Cairo	02-22591985	
29	ايناء حسن علام	1	Sheraton Heliopolis	Yehia Zakaria St., Industrial Zone - lot 5, Sheraton Heliopolis Housing, Cairo, Egypt	02 22666 917	02 22666 920
30	الاسكندرية للاستشارات - طلعت مصطفى	2	المركز الرئيسي - الاسكندرية	- محرم بك ميدان الطريق الصحراوي - ص.ب. 754 - الاسكندرية	3600267 (203) - 3601376 (203)	3600278 (203)
31			فرع القاهرة	34, 36 ش مصنف - الدقي - جيزة ص.ب. رقم 12311	33315600 (202) - 33312000 (202)	33360437 (202) - 3336

DISTRIBUTION COMPANIES IN EGYPT:

	B	C	D	E	F	G
1	اسم الجمعية او المكتب	عدد الفروع	الفروع	العنوان	التليفونات	الفاكس
32	الجمعية الاستشارية للدراسات المتكاملة وإدارة المشروعات	1		ش الجزائر مقرق من ش جامعة الدول العربية المهندس الجيزة	0122-9500411, 02-33038810, 02-33038820, 02-33038830	02-33038850
33	مركز تطوير البناء	1		38 ش احمد الصاوى من مكرم عبید مدينة نصر, القاهرة	02-22757438, 02-26703241, 02-267032	02-22758797
34	ارت فيجين معماريون ومهندسون	1		عمارة الفيروز - صمات رابعة الاستثمارى - طريق النصر مدينة نصر, القاهرة	0114-0477744, 02-24170251	02-24170251
35	مكتب التصميمات الميكانيكية الكهربائية (MED)	1		26 ش سوريا المهندسين, الجيزة	02-33386292, 02-37489121	02-33386292
36	اريا للعمارة والتصميم الداخلى	1		صمات الفسطاط - ش الفسطاط شقة 34 امام متحف الحضارة الفسطاط, القاهرة	0122-3976791	
37	الاستشاريون العرب	1		9 ش عدلى وسط البلد, القاهرة	02-23960914, 02-23960915	
38	الخبراء الفنيون للاستشارات الهندسية وإدارة المشاريع	1		عماد الدين كامل متفرع من ش عباس العقاد المنطقة الأولى , مدينة نصر, القاهرة	02-24050709	02-24023999
39	الجمعية المتحدة للاستشارات الهندسية	1		ش عبد الخالق ثروت وسط البلد, القاهرة 15	0122-2315803	
40	الترجي حروب للهندسة والاستشارات	1		461 ش سكة الوابلى تقسيم الجمعية حدائق القبة , القاهرة	26015207	02-24536676
41	تكنو كونسلت - الخدمات الهندسية والاستشارية	1		14 أ ش كليوباترا - الكورية مصر الجديدة, القاهرة	0100-2118550, 02-24180700	02-24187875
42	GAAFAR GROUP CONSULTANTS			شارع الشيخ محمد رفعت - ميدان المحكمة - مصر الجديدة - 11351 - القاهرة	26382713	26426284
43	نوتالينى - الخيرات الدولية المتكاملة			79 هـ طريق النصر مدخل 2 - بجوار طيبة مول ، مدينة نصر	24010245	
44	جدوى للاستشارات			51 ش لبنان المهندس الجيزة	02-33472444	
45	جلوبال للاستشارات الاستراتيجية			13 ش ابراهيم نجيب جاردن سيتى, القاهرة	02-27926285, 02-27926286	
46	جودة للاستشارات الهندسية			73 ش عمر بن الخطاب مصر الجديدة, القاهرة	0106-3179966, 0106-8800141, 02-24173486,	02-24186445
47	حمزة وشركاه			5 ش ابن مروان الدقى, الجيزة	02-37607238	
48	خالد عويضة وشركوه للاستشارات الهندسية			84 ش الميرغنى كلية البنات , مصر الجديدة, القاهرة	02-24140071	
49	دار الاستشارات الهندسية - د. م. احمد رأفت ابو طييح			71 - تعاونيات سموحة سموحة, الاسكندرية	03-4252497, 03-6444539	
50	دار الخليج للاستشارات الهندسية			ش فوزى المطيعى مبان الاسماعيلية , مصر الجديدة, القاهرة 24	03-4252497	
51	فاين تاتش للاستشارات الهندسية	2	القاهرة الجديدة	التجمع الخامس القاهرة الجديدة, القاهرة	02-26171945	
52			المنظم	ش 9 المنظم القاهرة	02-25084057	

EMBEDDED COMPANIES IN EGYPT:



CAIRO

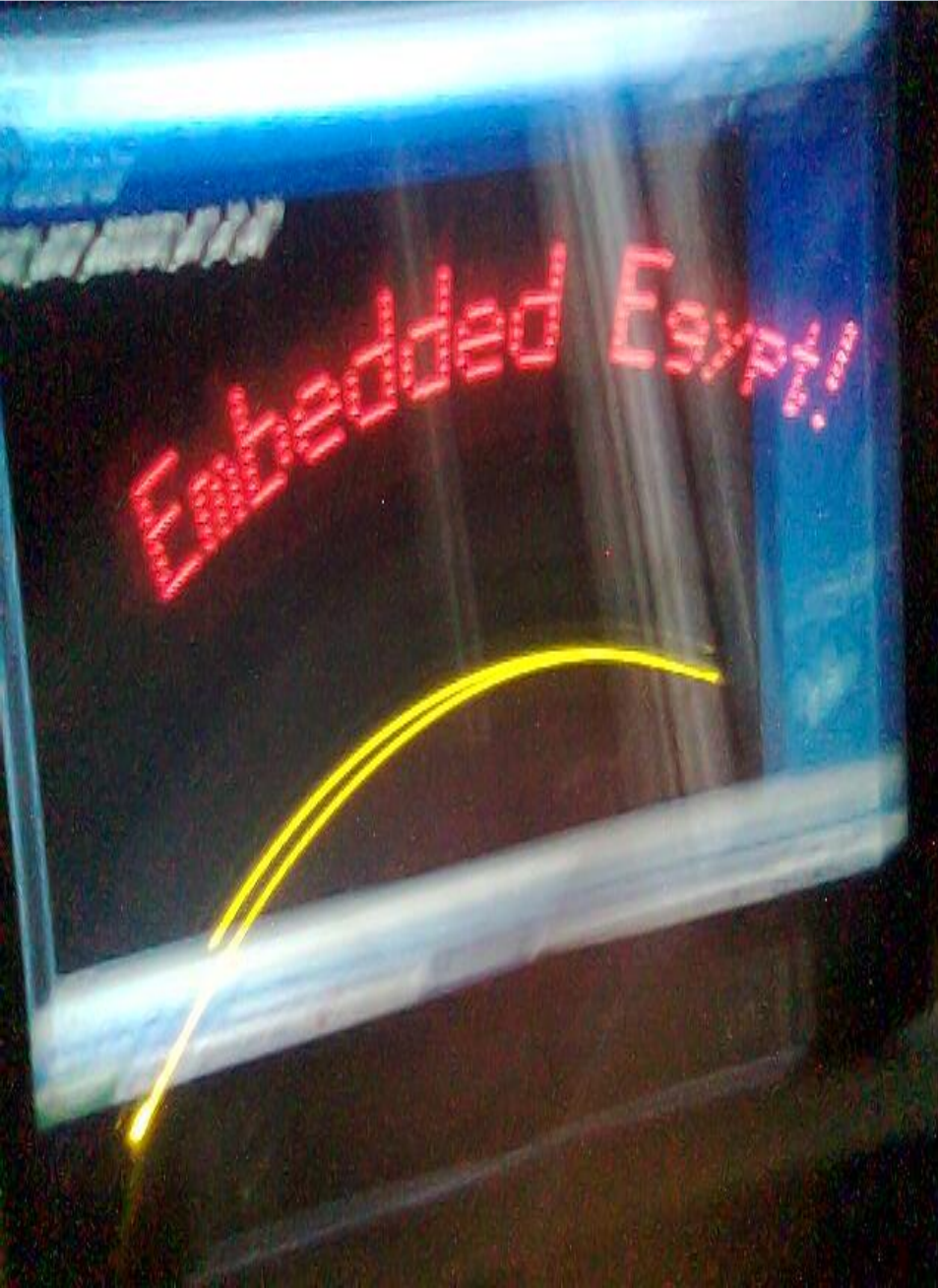
- 1- ALFA ELECTRONICS
- 2- AXXCELERA
- 3- AVELABS
- 4- ATI SYSTEMS INC
- 5- ALMANAR
- 6- ASSET TECHNOLOGY
- 7- AUTOMATION CONSULTANTS
- 8- ARTRONIX
- 9- ATMEL
- 10- AUTOSYS
- 11- BIRD ICT
- 12- BACCAH
- 13- BIOBUSINESS-EG
- 14- BRILLIANCE TECH
- 15- CIT GLOBAL
- 16- CATALYST BUSINESS SOLUTIONS
- 17- CONSULTIX
- 18- CENEERING
- 19- CONNECT IT
- 20- CREATIVE-BITS

EMBEDDED COMPANIES IN EGYPT:

CAIRO

- 
- 21- ENGINEERING OFFICE FOR INTEGRATED PROJECTS - EOIP
 - 22- EDGE TECHNOLOGY
 - 23- EGY AUDIO - INTERNATIONAL ELECTRICAL PRODUCTS (IEP)
 - 24- ELSEWEDY ELECTROMETER
 - 25- EGYTRONIX
 - 26- EXNEER
 - 27- ENERGY SAVING FACTORY
 - 28- EID SOLUTIONS
 - 29- EJAD
 - 30- GST
 - 31- GLOBALTRONICS S.A.E.
 - 32- HITTITE MICROWAVE EGYPT
 - 33- 3HANDSEG
 - 34- HYPER EMBEDDED SYSTEMS
 - 35- HIDELENA
 - 36- INVRONICS TECHNOLOGY EGYPT
 - 37- IPNEO
 - 38- ISS HOLDING
 - 39 - INTEGREIGHT
 - 40- INNOVA EGYPT

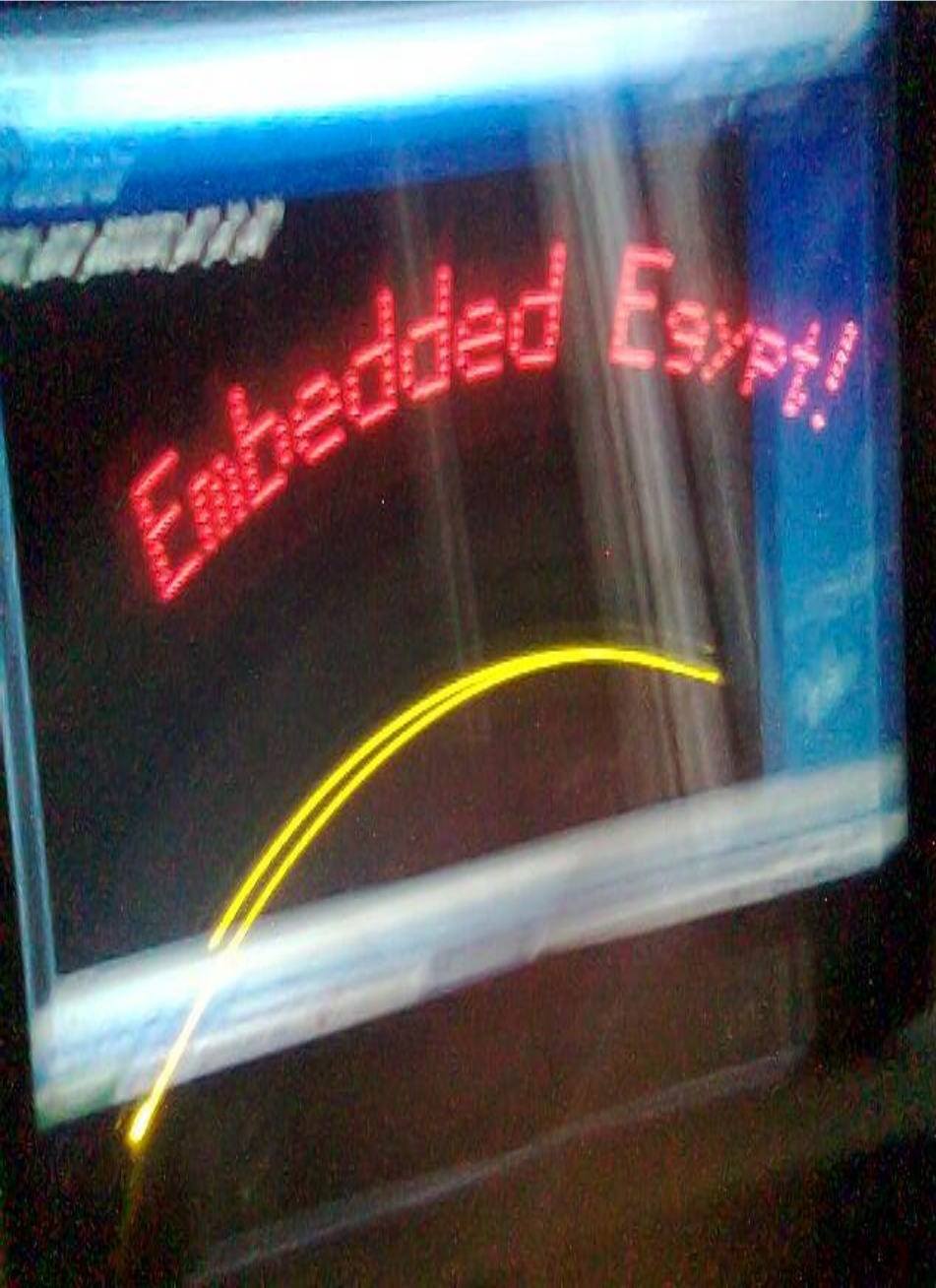
EMBEDDED COMPANIES IN EGYPT:



CAIRO

- 41- IDT SYSTEMS
- 42- ICPEDIA
- 43- IST NETWORK
- 44- JAMA ELECTRONICS
- 45- KARMSOLAR
- 46- LOGICA CGI
- 47 - MAGICVISION
- 48- MAZID LABS
- 49- MODERN TECHNOLOGY SUPPLY & ENGINEERING
- 50- MENTRONIX
- 51- NWEAVE
- 52- NEWPORT MEDIA
- 53- NMA TECHNOLOGIES
- 54- PYRAMID SYSTEMS DEVELOPMENT PSD
- 55- QUICKTEL
- 56- QOUDRA
- 57- QEYE - SMART VISION SYSTEM
- 58- REEM
- 59- SILGENIX
- 60- SMARTEC

EMBEDDED COMPANIES IN EGYPT:



CAIRO

- 61- SI-WARE SYSTEMS
- 62- SILMINDS
- 63- SMART DESGIN
- 64- SCADA INNOVATIONS
- 65- SHEIMYMICRO
- 66- SIOXIDE
- 67- SOFTLOCK
- 68- SMART ENGINEERING SOLUTION
- 69- STARKBITS
- 70- TAHACKOM
- 71- TTC TECHNOLOGIES LTD
- 72- THIRDWAYV
- 73- UNIVERSAL ADVANCED SYSTEMS (UAS)
- 74- VERTEX LLC
- 75- VERTEX TECHNOLOGIES
- 76- WAHA MICROSYSTEMS
- 77- WISSAM ELECTRONICS
- 78- XCELTRA
- 79- XONEBEE

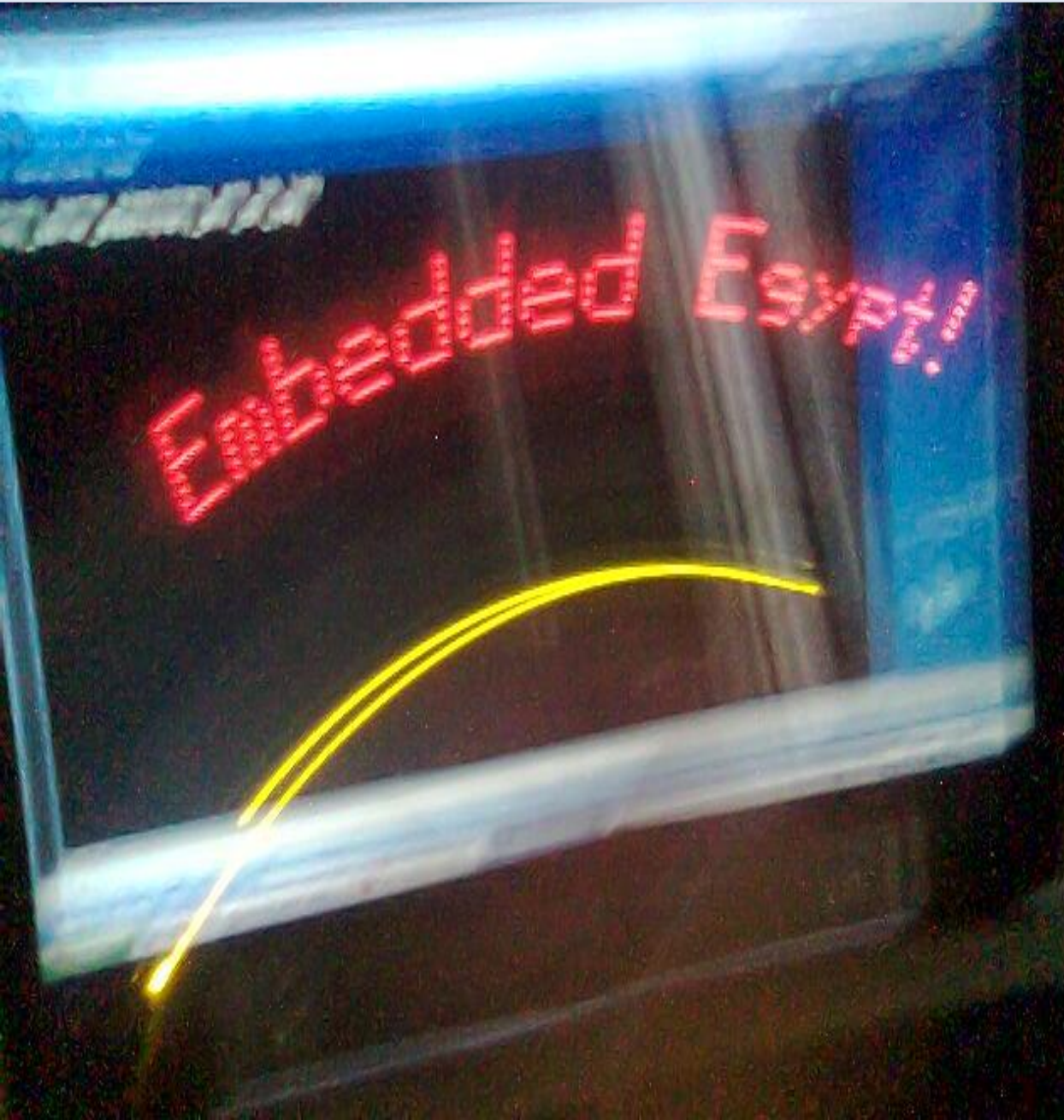
MANSOURA

- 80- EDUTKS

EMBEDDED COMPANIES IN EGYPT:

ALEXANDRIA

- 81- EVENTUM IT SOLUTIONS
- 82- GLOBAL IMPACT
- 83- MAS
- 84- QUINDEV
- 85- THINKODE



THANK YOU

Eng./ Mohammed Magdy