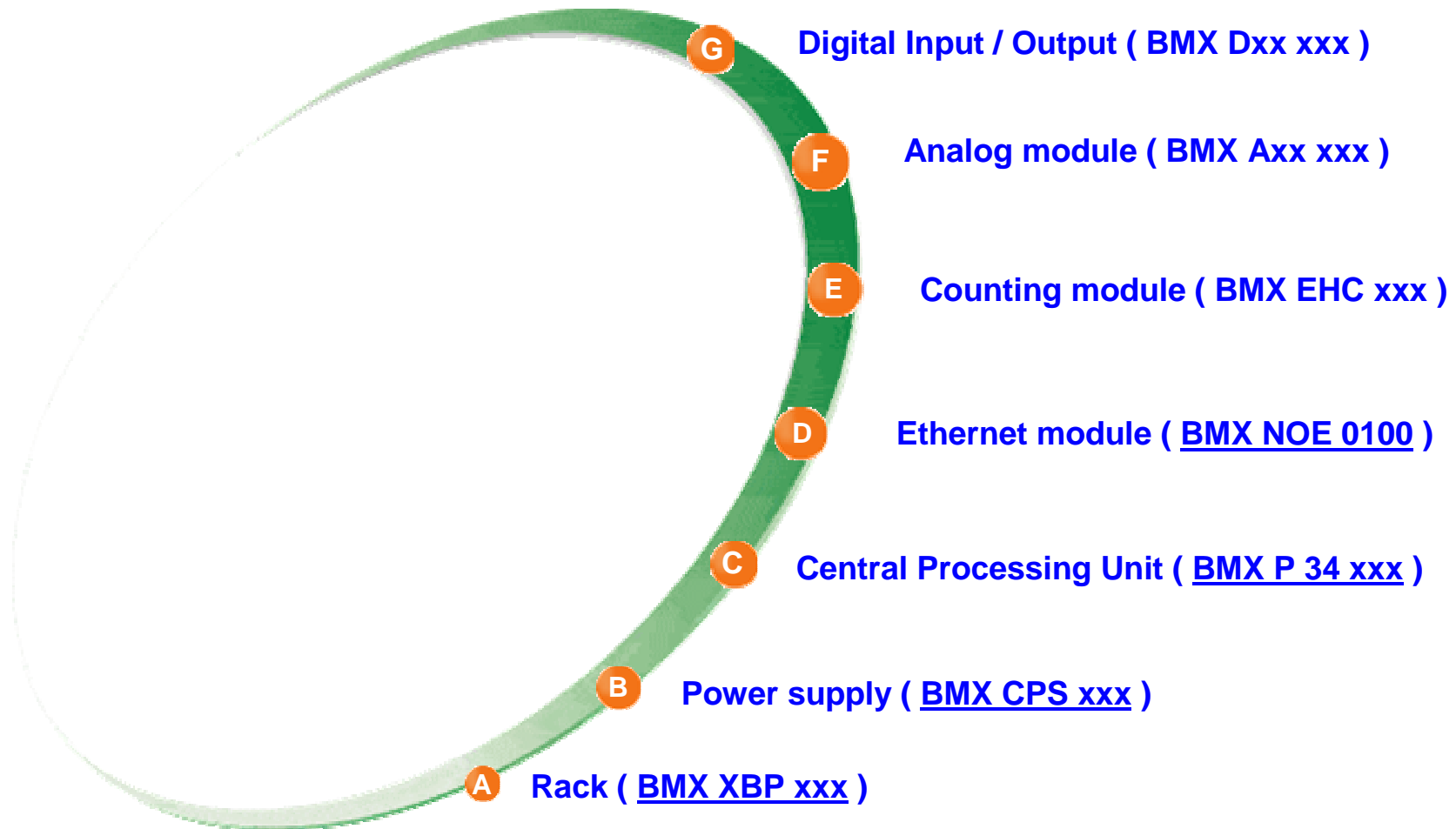


MODICON M340 : Hardware setting



A new automation platform...

optimized for medium & small configurations

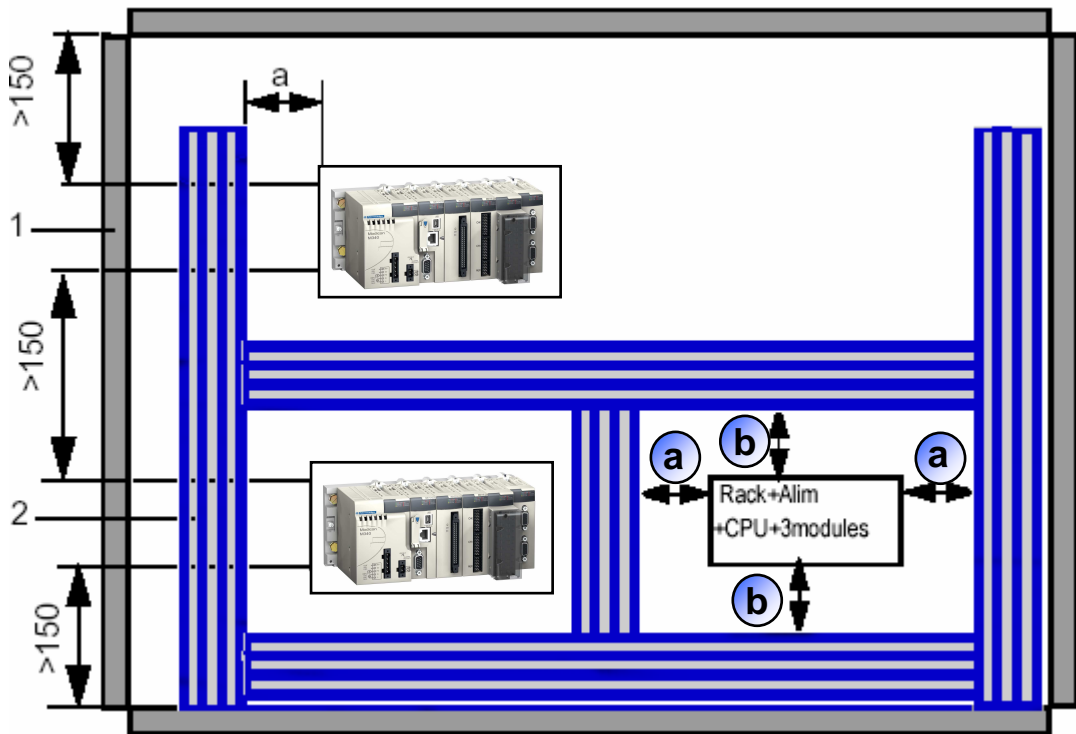
- size
- Low & High density
- Embedded communication ports



A – Modicon M340 racks

Rack installation rules

■ As the different modules (power supply, processors, discrete I/O, etc.) are cooled by natural convection, it is mandatory to install the different racks horizontally and on a vertical level.



- a** Greater than or equal to 20 mm.
- b** Greater than or equal to 80 mm.

Description Racks BMX XBP xxxx

- At a Glance :

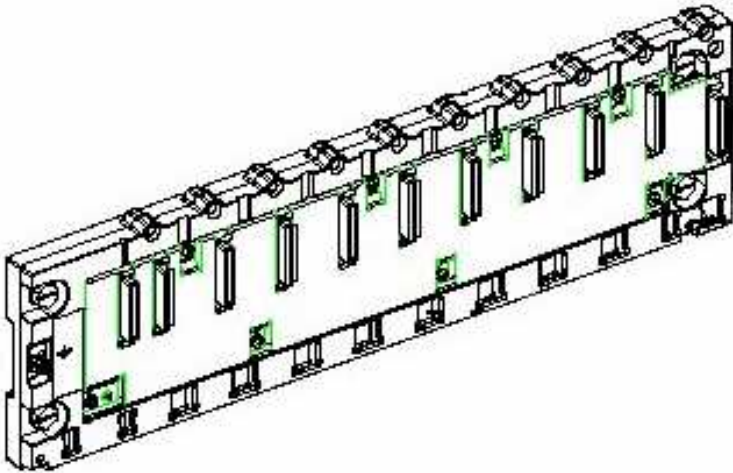
- **BMX XBP xxx** racks form the base unit of M340 unit. These racks serve the following functions:

1. **Mechanical function:**

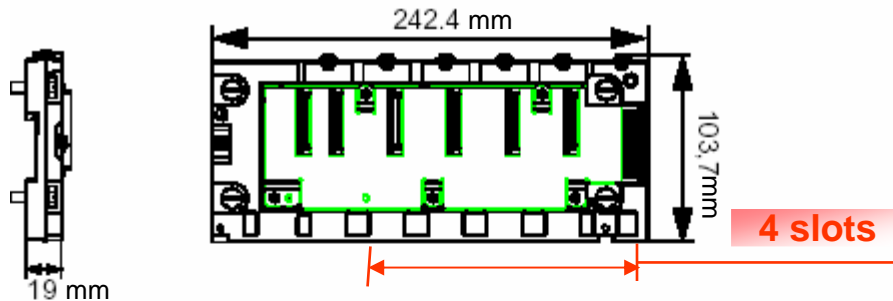
They are used to mount a set of modules for a PLC station (i.e. supply modules, processors, discrete/analog input/output modules, application-specific modules). They can be mounted in cabinets, machine frames or on panels.

2. **Electrical function:**

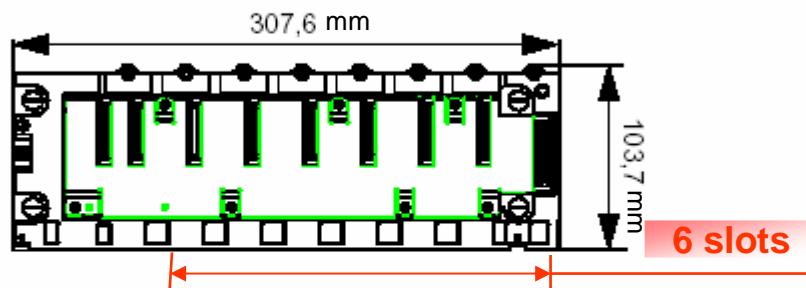
the racks have a built-in PLC bus, which distributes the required supply for each module on the same rack



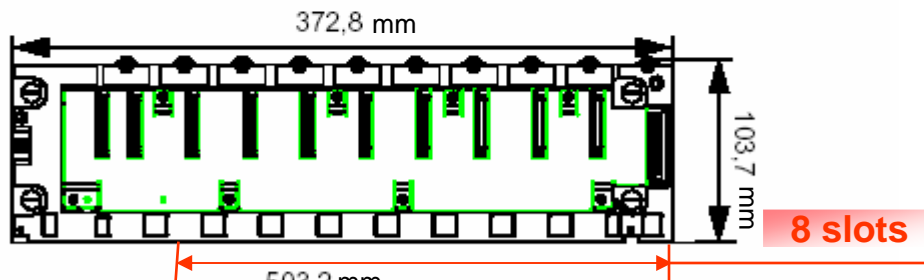
Size :Racks BMX XBP xxxx



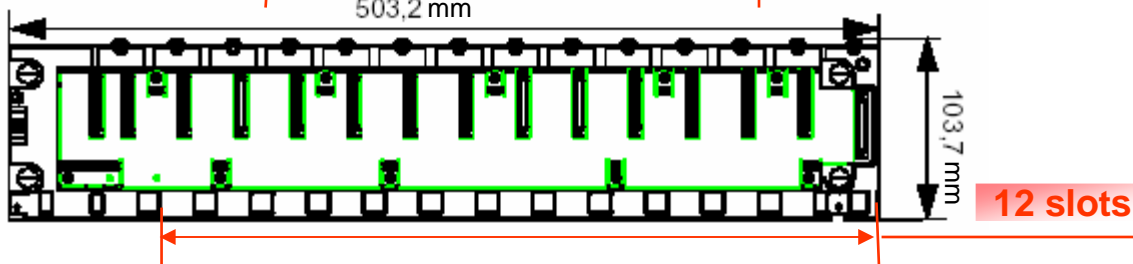
BMX XBP 0400



BMX XBP 0600

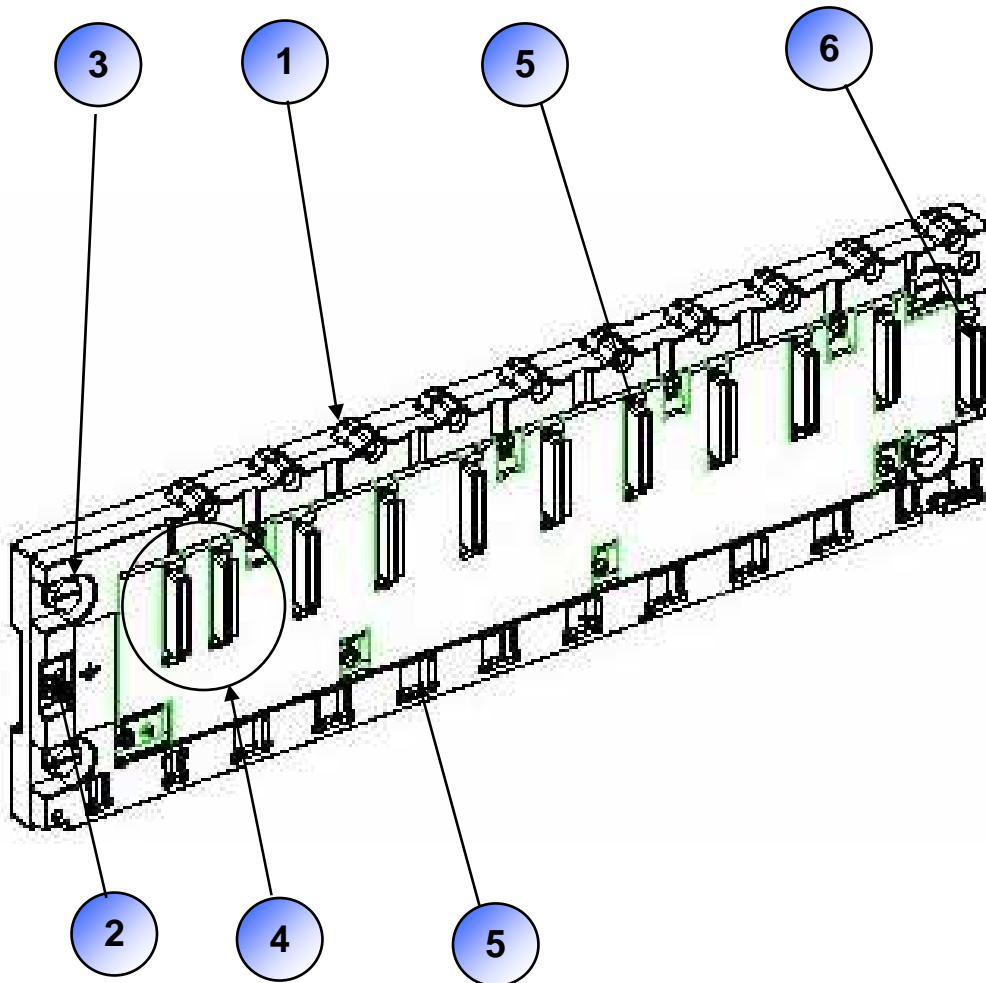


BMX XBP 0800



BMX XBP 1200

Description Racks BMX XBP xxxx



	Description
1	Metal sheet which: supports the X-Bus electronic card, and protects against EMI and ESD interference. maintains the rack's physical rigidity.
2	Ground terminals for grounding the rack.
3	Holes for mounting the rack on a support. These holes can take M6 screws.
4	2 Connectors 40 pts dedicated for the connection rack / power supply
5	Mecanical part dedicated to anchoring the module
6	Connector 40 pts Dedicated for the extension rack
7	Connector 40 pts dedicated for the connection rack / module

B – Modicon M340 power supplies

Power supply BMX CPS xxxx



- At a Glance
 - **BMX CPS..** supply modules are designed to supply each BMX XBP... rack and its modules. The supply module is chosen according to the distribution network (direct or alternating current) and the power required.
 - There are 4 types of supply modules.
- Auxiliary functions of supply modules
 - Each supply module has auxiliary functions:
 1. a display panel.
 2. an alarm relay.
 3. a recessed button which, when pressed, simulates a power-supply outage, and launches a cold start of the application.
 4. a 24 VDC sensor supply (only on models supplied from an alternating current network).



Power supply

BMX CPS xxxx

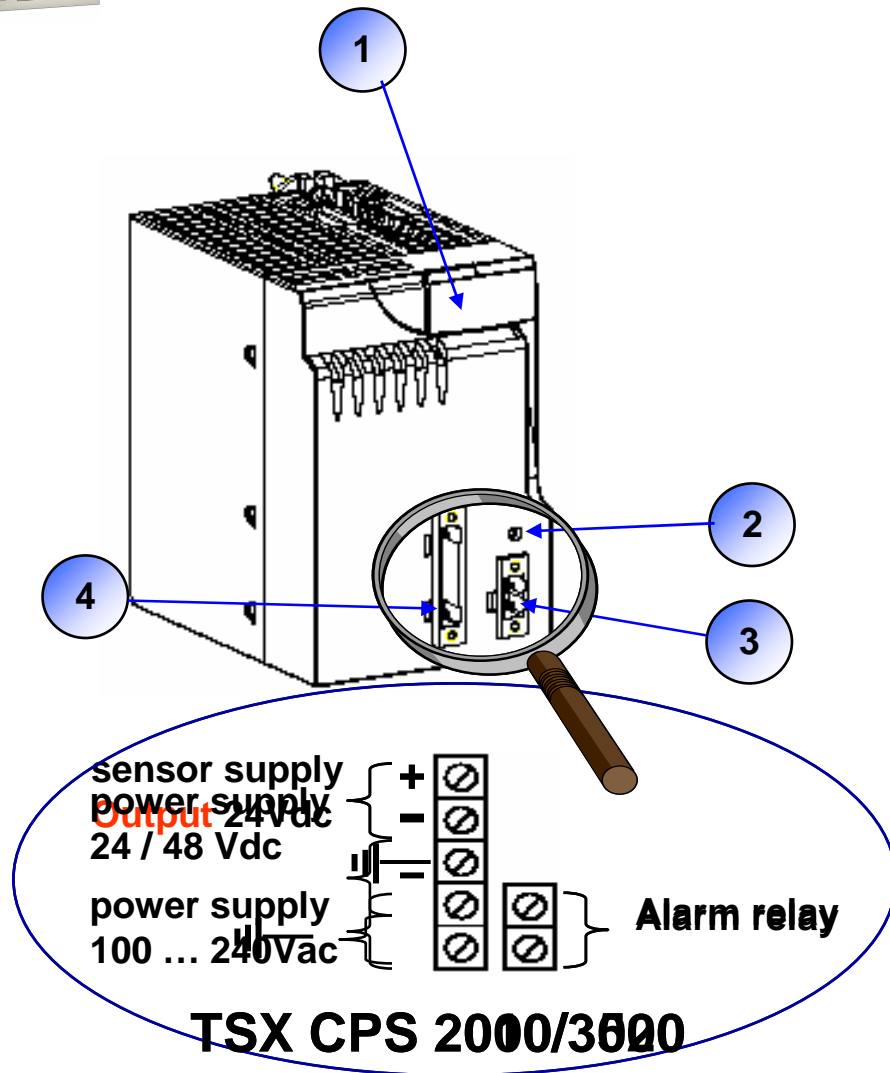
Characteristics and performance



Types	BMX CPS 2000	BMX CPS 3500	BMX CPS 2010	BMX CPS 3020
Nominal voltage	100..120 & 200..240 Vac	100..120 & 200..240 Vac	24 Vdc	24 & 48 Vdc
Limit voltage	85 & 264 Vac	85 & 264 Vac	18..31,2 Vdc	18 .. 62,4 Vdc
Frequency	47....67Hz	47....67Hz		
Nominal current	0.61 A/115V 0.31A/240V	1.04 A/115VV 0.52A/240V	1A / 24V	1.64 A/24V 0.83A/48V
Accepted length μ-power cutages	<=10ms	<=10ms	<=1ms	<=1ms
Phases Protection	Internal fuse	Internal fuse	Internal fuse	Internal fuse
Total output	20 W	21,6 W	16,5 W	31,2 W
3.3V output	2,5 A	2,5 A	2,5 A	2,5 A
	8,3 W	8,3 W	8,3 W	15 W
24 V output	0,69 A	0,69 A	0,69 A	0,69 A
	16,5 W	16,5 W	16,5 W	16,5 W
24 V output sensor	0,4 A			
	10,8 W	21,6 W		
Dissipated power	8,5 W			

These 3 outputs are
protected against :
Overload
Short circuit



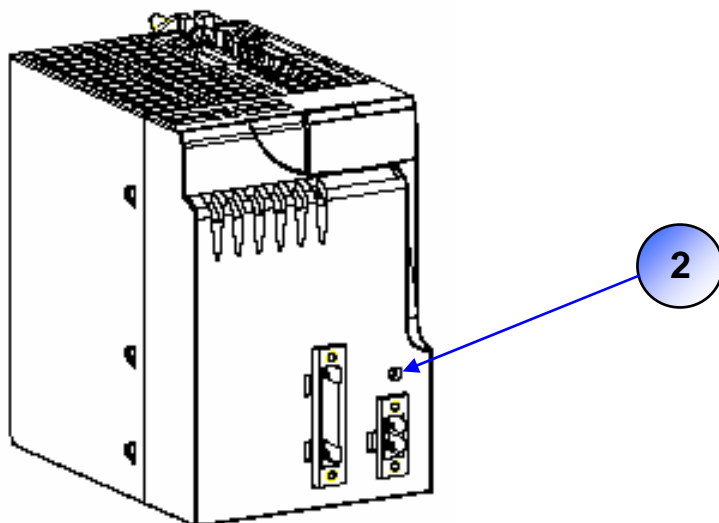
Description Power supply BMX CPS xxxx



	Description
1 OK led  24V led 	Display block containing: OK LED (green), lit if the voltages are present and correct, 24V LED (green), lit when the voltage sensor is present. This LED is only present on alternating current supply modules TSX CPS 2000/3500.
2	RESET button.
3	Screw terminal block for linking up to: the alarm relay contact,
4	Screw terminal block for linking up to: The supply network. The sensor supply (TSX CPS 2000/3500)



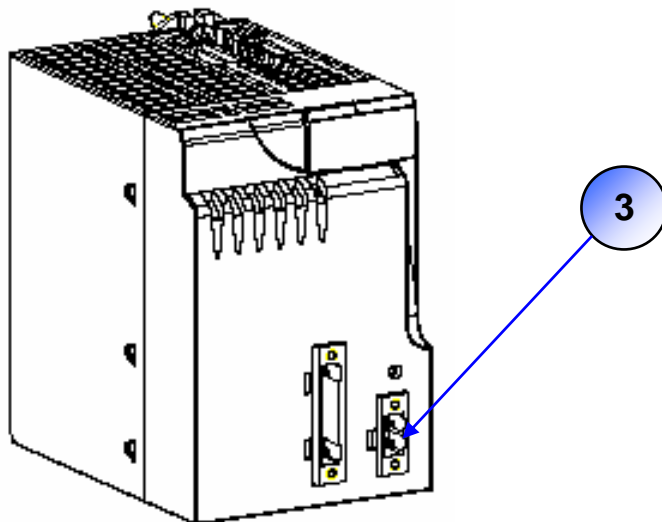
Description Power supply BMX CPS xxxx



	Description
2	<p>RESET button when pushed :</p> <ul style="list-style-type: none"> -The INIT_BAC is activated and RESETS all the modules in the rack. -The Alarm relay is forced 'OPEN'. - The OK LED is off <p>The action on the reset button is egal to : a COLD START.</p>

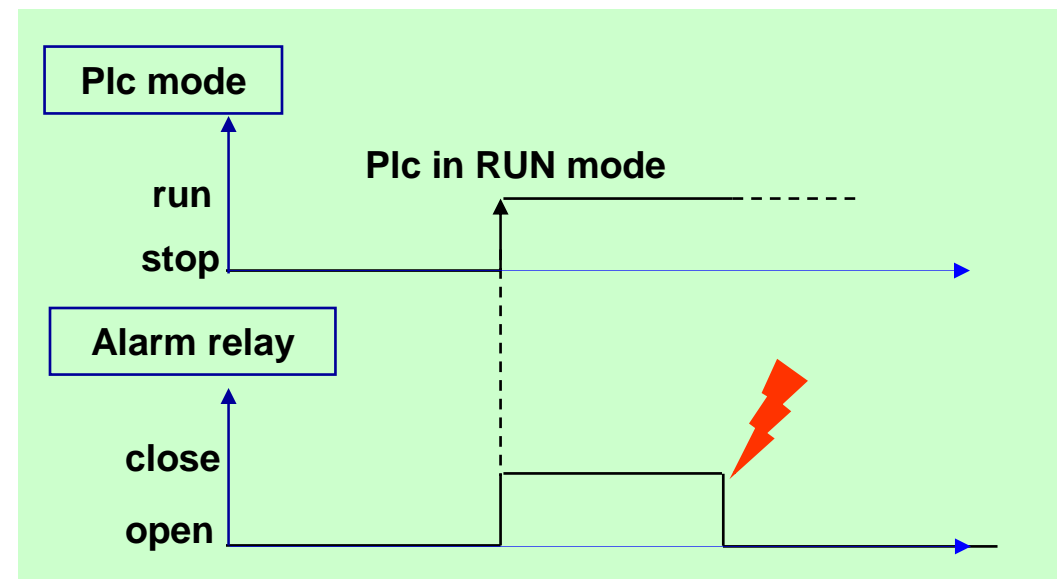


Description Power supply BMX CPS xxxx



Limit tension	AC	264 V / 2A
Limit current	DC	62,4V / 2A
Reponse time	locking	<12 ms
	unlocking	<10ms
Built in Protection	NO	NO

	Description
3	Screw terminal block for linking up to: the alarm relay contact,



The Alarm relay is open if :

- Blocking fault on the CPU
- The output voltage are incorrect



Power supply BMX CPS xxxx

		BMX CPS 2000	BMX CPS 3500	BMX CPS 2010	BMX CPS 3020
I _{eff}	24 Vdc			1 A	1.65 A
	48 vdc				0.83 A
	115Vac	0.61 A	1.04 A		
	230Vac	0.31 A	0.52 A		
I signal (1)	24 Vdc			30 A	30 A
	48 vdc				60 A
	115Vac	30 A	30 A		
	230Vac	60 A	60 A		
I _t	24 Vdc			0.15 A	0.2 A
	48 vdc				0.3 A
	115Vac	0.03 As	0.05 As		
	230Vac	0.06 A s	0.07 As		
I ² T	24 Vdc			0.6A ² s	1A ² s
	48 vdc				3A ² s
	115Vac	0.5A ² s	1A ² S		
	230Vac	2A ² s	3A ² s	(1) Values at initial power-up and at 25°C.	

C – Modicon M340 Central Units

Central processing Unit

■ At a Glance :




The MODICON M340 CPU **BMX P34 xxx** automated platform processors manage the entire PLC station, which is made up of "Discrete" input/output modules, analog input/output modules and application-specific modules.

These can be distributed over one racks connected (first step) to the PLC Bus or the field bus.

A processor module is always installed on the BMX XBP xxx rack with address 0 and in position 00

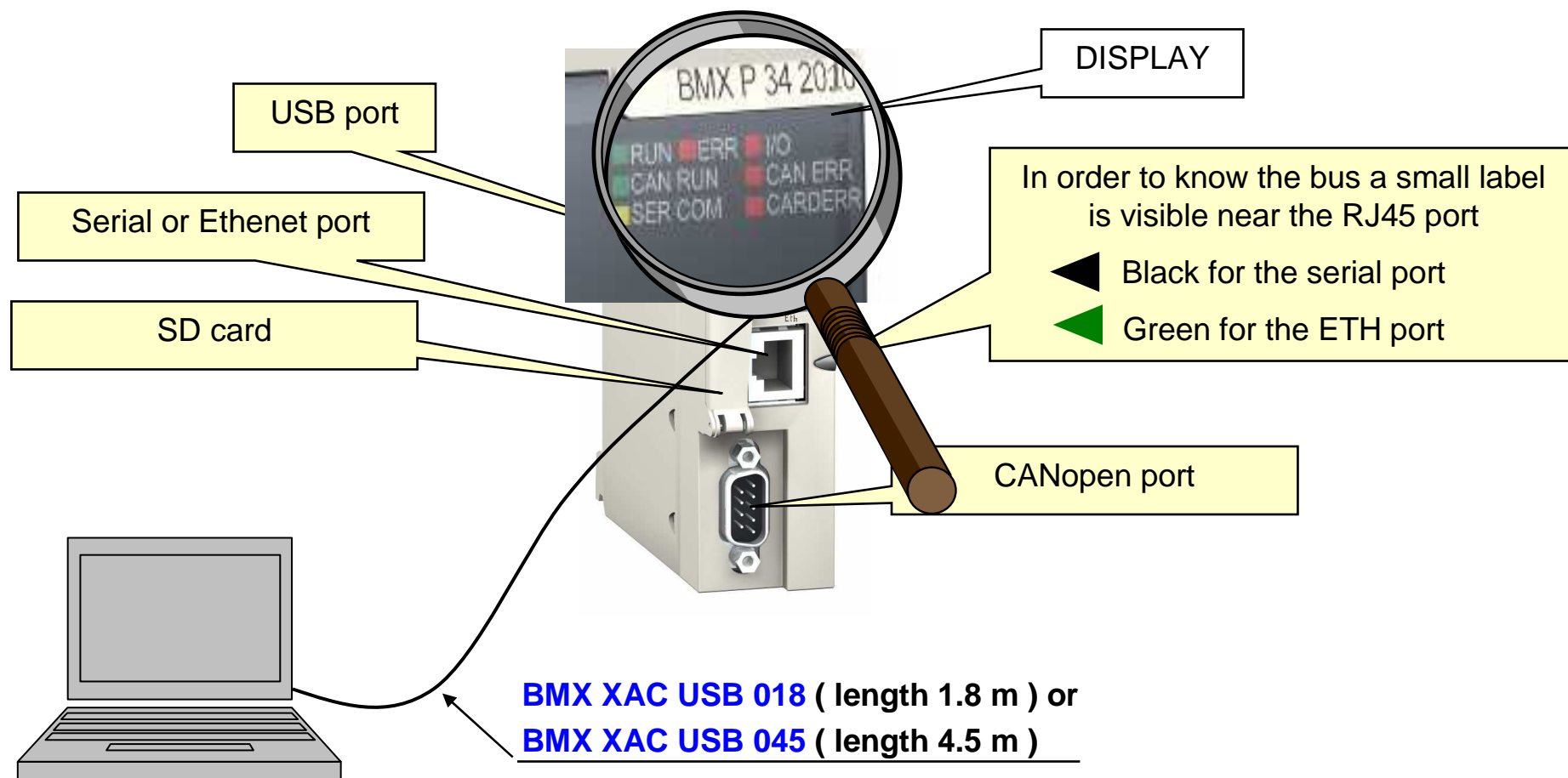


Central processing Unit

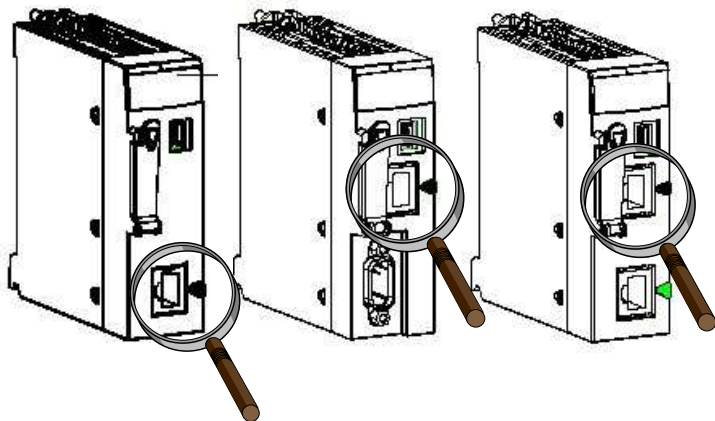
	STANDARD	PERFORMANCE		
Characteristics and performance				
Types	BMX P34 1000	BMX P34 2010	BMX P34 2020	BMX P34 2030
Short description	USB terminal port Memory card slot One comm port : - Serial	USB terminal port Memory card slot Two comm port : - Serial - CANopen	USB terminal port Memory card slot Two comm port : - Serial - Ethernet	USB terminal port Memory card slot Two comm port : -CANopen -Ethernet
number of in-rack TOR in /out	512*	1024*		
number of in-rack Analog in /out	128*	256*		
Counting chs & Serial port	20	36		
Memory appli	2 Mb	4 Mb		
User data	128 Kb	256 Kb		

* for L11 the value is inferior only one rack

Central processing Unit



Serial port integrated

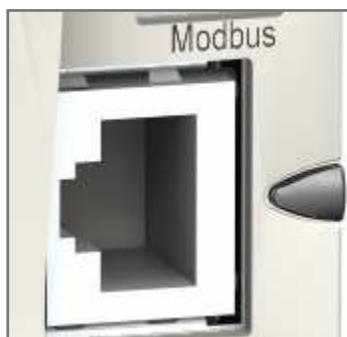


■ Supported Protocols

- Modbus (ASCII et RTU)
- Character mod

BMX P34 1000/2010/2020

RJ45 female



1	RXD
2	TXD
3	
4	D1
5	D0
6	
7	vcc
8	Com
Shield	

RS 232

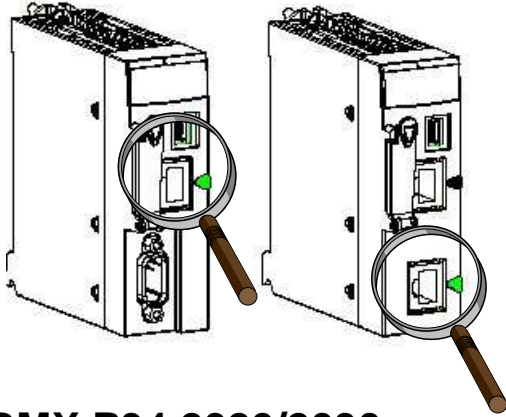
RS 485

RS 232

5 Vdc / 200mA

Mainly dedicated
for the HMI

ETH port integrated



BMX P34 2020/2030

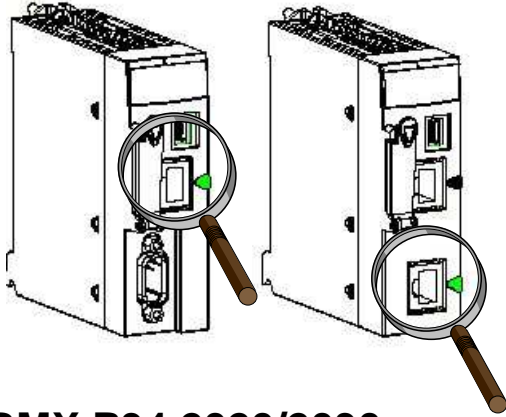
- Supported Protocol
 - Ethernet communication

RJ45 female

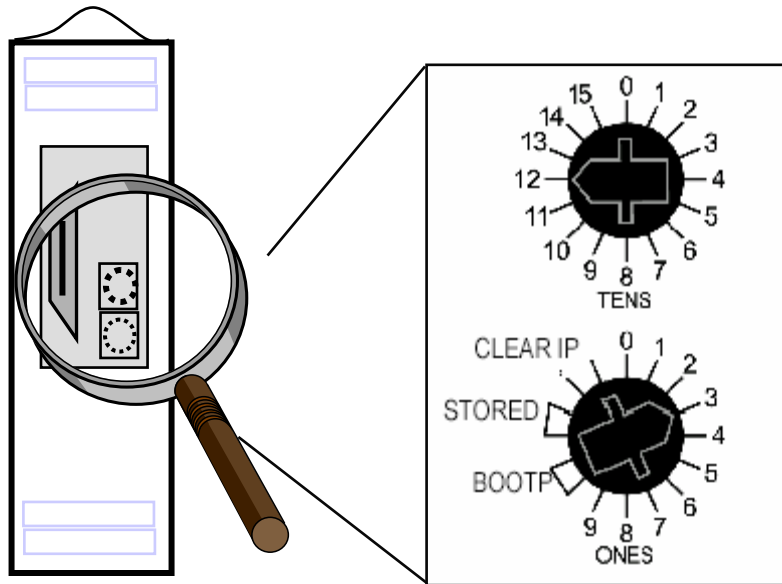


1	TD+
2	TD -
3	RD+
4	
5	
6	RD -
7	
8	
Shield	

ETH port integrated



BMX P34 2020/2030



- Addressing : 2 rotary switches used to **set IP address** of device

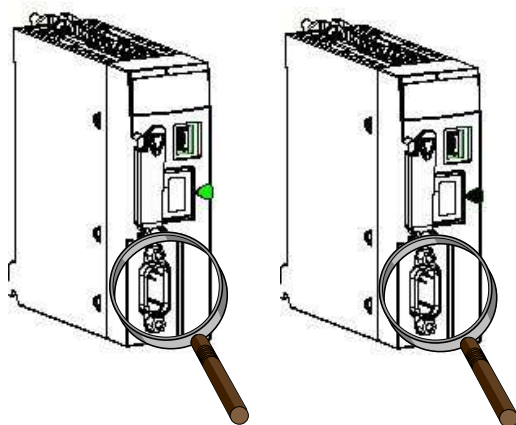
4 ways are available to obtain the IP address

1. **By STORED** Device uses application's configured IP address
2. **By BOOTP** Device gets an IP address from a BootP server
3. **By CLEAR IP** Device uses default IP address based on MAC address (84 + the 3 last bytes of hexadecimal values converted in decimal)
4. **Tens** (xx = 0 to 15) and **Ones** (y = 0 to 9) digits
 - Uses to define the default device name of the module to obtain IP address from a DHCP server

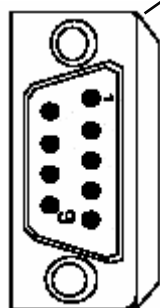
CANopen port integrated

■ Supported Protocol

- CANopen



BMX P34 2010/2030



1	reserved
2	CAN_L Bus line
3	CAN_GND ground
4	reserved
5	reserved
6	GND Ground
7	CAN_H Bus line
8	reserved
9	reserved



Central processing Unit

■ Performances

Characteristics and performance

Types	BMX P34 1000	BMX P34 2010	BMX P34 2020	BMX P34 2030
Task	1 Mast 1 Fast 32 Event	1 Mast 1 Fast 64 Event	1 Mast 1 Fast 64 Event	1 Mast 1 Fast 64 Event
System Overhead	Mast 1.5 ms Fast 0.38 ms	Mast 1 ms Fast 0.25 ms		

Application code execution : ms for 1 K inst (Internal RAM)

100% boolean	0.21	0.14
65% boolean 35% numeric	0.23	0.15

	Processors	Application code execution	
		Internal RAM	
Boole		100% Boolean	65% Boolean + 35% digital
Nume	TSX P57 0244	0.21 ms	0.28 ms
Nume	TSX P57 104/1634		
Nume	TSX P57 154		
Floati	TSX P57 204/254/2634	0.21 ms	0.28 ms
	TSX PCI 57 204		
	TSX P57 304/354/3634	0.15 ms	0.21 ms
	TSX PCI 57 354		



Central processing Unit

■ memory features

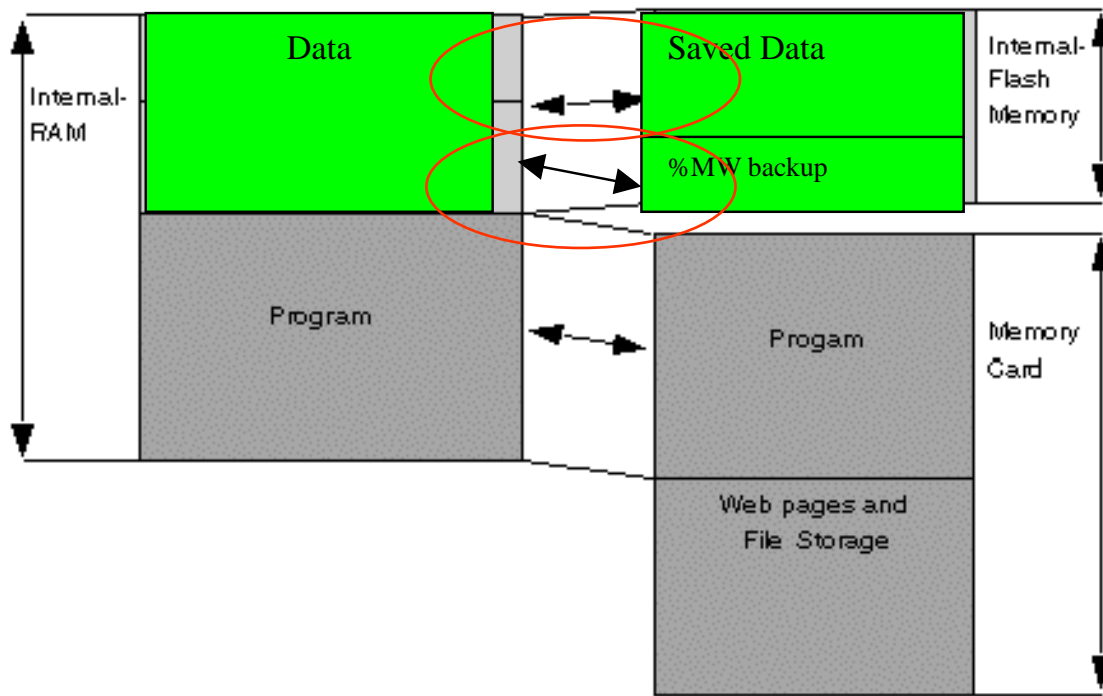
Characteristics and performance

Types	BMX P34 1000	BMX P34 2010	BMX P34 2020	BMX P34 2030
%Mxx (MAX)	16 250	32 634	32 634	32 634
%Sxx (MAX)	128	128	128	128
%MWxx (MAX)	32 464	32 464	32 464	32 464
%KWxx (MAX)	32 760	32 760	32 760	32 760
%SWxx (MAX)	168	168	168	168
MAX Data size	128 K	256 K	256 K	256 K

Maximun Data size is equal to **Unlocated datas** plus the **located datas** (%M,%MW).



Central processing Unit



Saved Data :

On a power-off all the located ,unlocated Data and the diagnostic buffer are saved on the **Internal Flash memory** automatically

They are restored after at warm start

%MW backup :

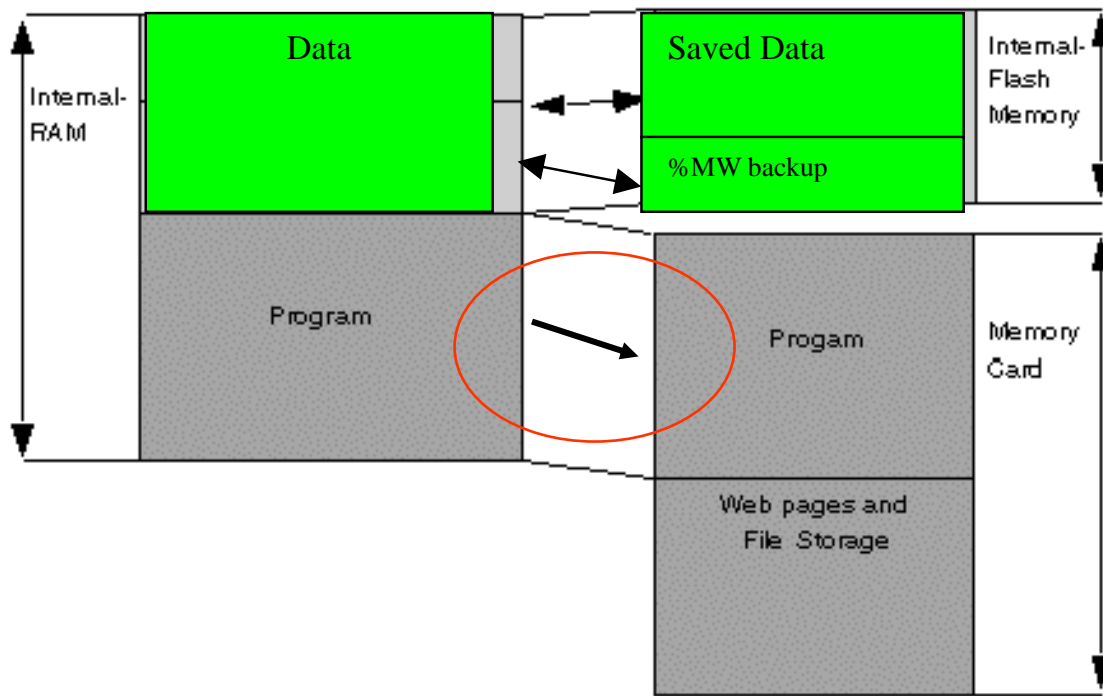
The values of the %Mwi can be saved in the **internal Flash memory** using %SW96.

These values will be restored at cold start, including application download, if the option "Initialize of %MW on cold start" is unchecked in the processor Configuration screen



Central processing Unit

The program is saved on the memory card:



Automatically, after:

A download: if the memory card is present and not write-protected.

Online modification: if the memory card is present and not write-protected,

Detection of a system bit %S66 rising edge.

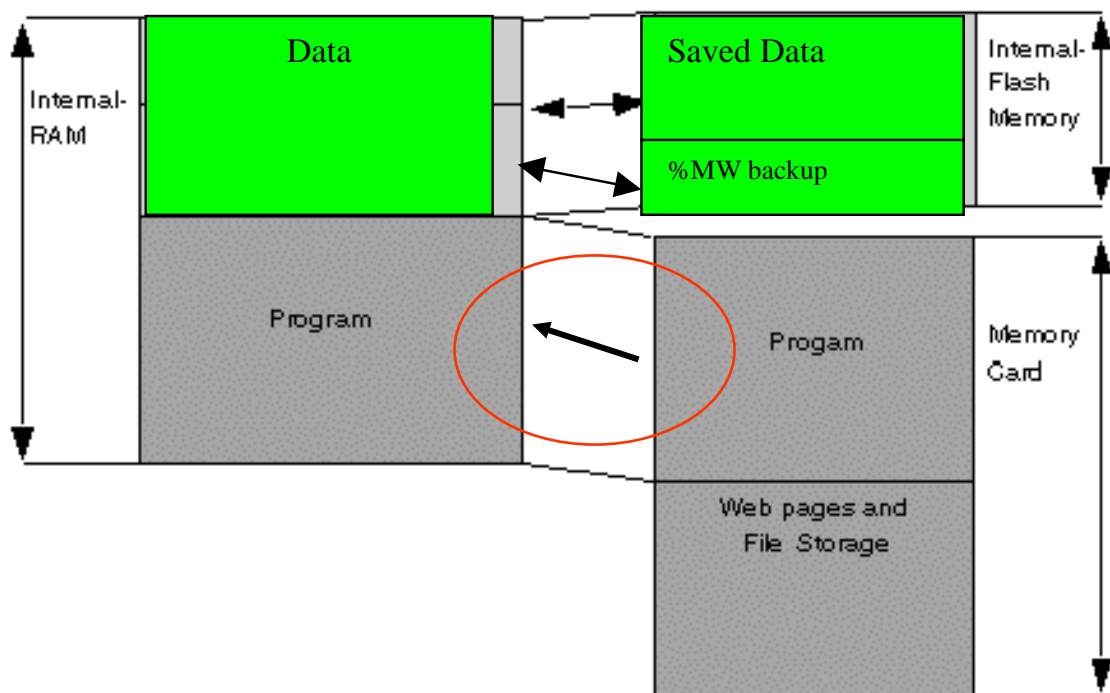
Manually, with the command PLC ® Project backup ® Backup Save.

Note: If you remove the memory card when the backup is in progress, the program on the memory card is lost.



Central processing Unit

The program is copied from the Memory card to the internal memory



Automatically after:

On a warm start.

On a cold start.

Manually,

With the Unity Pro command
PLC Project backup Backup Restore.

Note: When you insert the memory card in run or stop mode, you have to do a power cycle to restore the project on the PLC.



Central processing Unit

■ %MW management

A configuration setting provides the option to initialize Memory Words (%MW) on a **cold start** or **application download**.

■ Initialize %MW

In the PLC configuration if we select :

☒ Initialize %MW on cold start



After a Cold start the variable %MW will be initialised



Central processing Unit

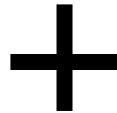
■ %MW management

If you wish to save the current value of memory Words %MW in CPU's internal memory (flash memory) and restore the values on **cold start** or **application download**.

■ Restore %MW

In the PLC configuration if we don't select :

☐ Initialize %MW on cold start



The %MW are saved in the internal memory

Save operation :

- The save is performed only in STOP.
- It is triggered by a rising edge on bit 0 of %SW96.
- All %MW are saved to internal memory.



After a Cold start the variable %MW will be restore from the internal Flash memory



Central processing Unit

■ %MW management

If you wish to maintain the current value of memory words %MW on a **SOFTWARE cold start** or **application download**.

■ Maintain %MW

In the PLC configuration if we don't select :

☐ Initialize %M/Wi on cold start

+

The %MW are **not** saved in the internal memory



After a Cold start triggered by the Software (case 1, 2, 3, 4, 7) the variable %MW will keep the current value

1	Init in the UNITY screen
2	Set %S0 by application
3	Cold start in the PLC screen
4	Application download
7	Insert Memory card with a new application (send restore with P unit)



Central processing Unit

■ %MW management

If you wish to initialize the %MW on a **HARDWARE Cold start**

■ Initialize %MW

In the PLC configuration if we don't select :

☐ Initialize %M/Wi on cold start

+

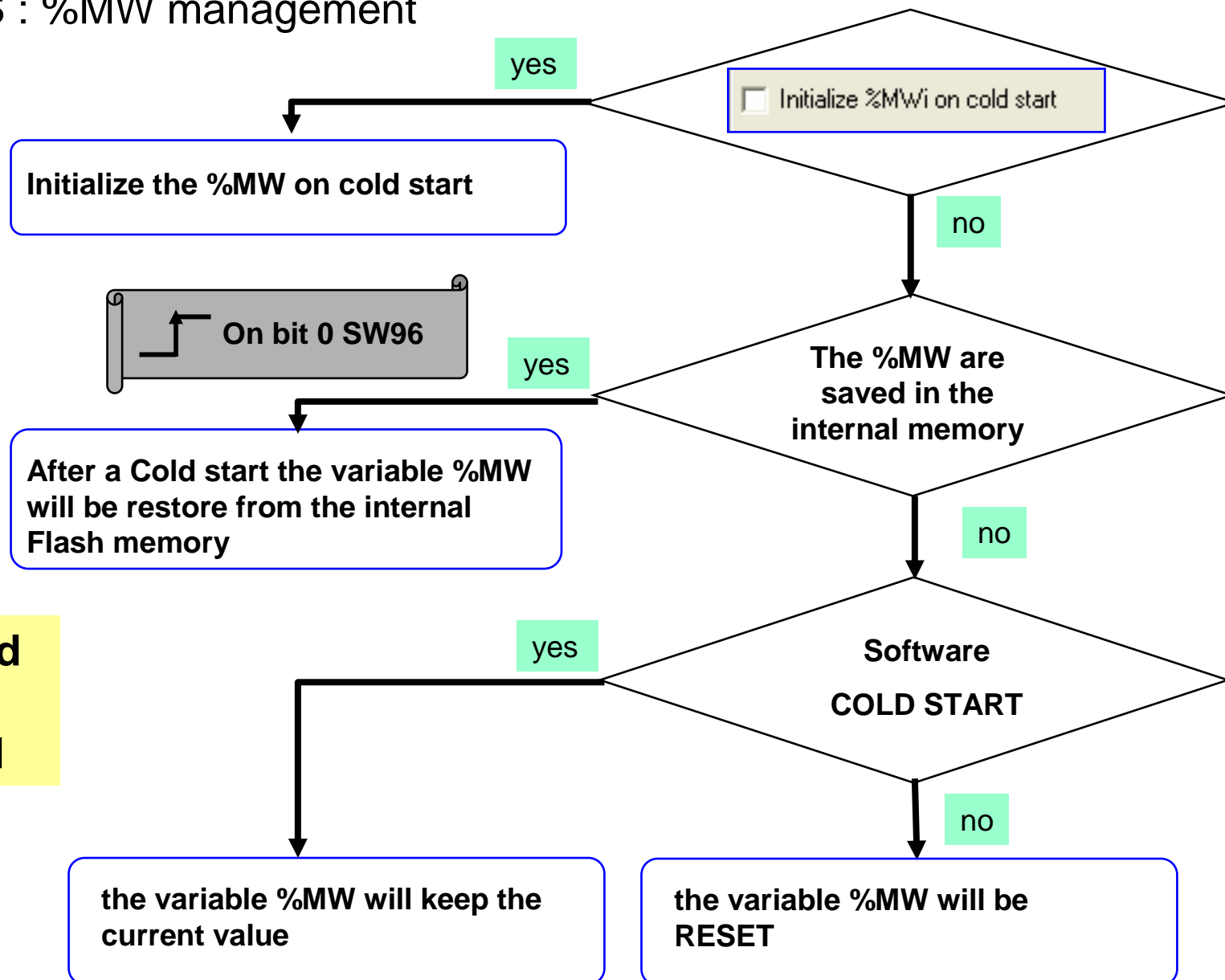
The %MW are **not** saved in the internal memory



- | | |
|---|---|
| 5 | Reset button on the power supply |
| 6 | Cold start on context change (memory card) |

After a Cold start triggered by the Hardware (case 5, 6) the variable %MW get their initial value

■ SYNTHESIS : %MW management



The **unlocated** variables are not concerned



Central processing Unit

- New %S and %SW dedicated for the M340

%S65 CARDIS R/W	Set to 1 by the user to disable access to the card <p>The system will detect a rising edge on this bit. Then all current access are finished, then the access led will be off indicate that extraction is possible. The user has to reset the bit after extracting the card.</p>
%S66 LEDBATT APPLIBCK R/W	Set to 1 by the user to start a backup operation (transfer application from ram to card). The system will detect the rising edge to start the backup. The state of this bit is polled by the system every second. A backup takes place only if the application in RAM is different from the one in the card. Set to 0 by the system when the backup is finished.
%S96 BACKUPPRO GOK R/..	Set to 0 by the system when the card is missing or not usable (bad format, unrecognized type...) or card content inconsistent with Internal Application Ram. Set to 1 when the card is correct and application is consistent with CPU Internal Application RAM



Central processing Unit

- New %S and %SW dedicated for the M340

%SW6-7 R/..	These 2 works store the IP address of the CPU
%SD20 R/..	1 ms counter updated under 1 ms interrupt.
%SW23 R/..	Low byte contains rotary switch (ethernet role name)
%SW27-29 R/..	%SW27 contains the number of milliseconds spent in the system during the last Mast cycle. %SW28 contains the maximum overhead time. %SW29 contains the minimum overhead time
%SW91-92 R/..	%SW91: Number of function blocks message sent by second %SW92: Number of function blocks message received by second.



Central processing Unit

- New %S and %SW dedicated for the M340

%SW93 format R/W	This word is used by the customer to format the file system in the SD card. Formatting is possible only in Stop. <ul style="list-style-type: none"> - SW93.0 : a rising edge start the Format operation. - SW93.1 : give the state of the file partition. 0 : invalid file partition (bad format, format in progress, ...), 1 : valid file partition.
%SD94-95 Sign R/..	Contains a 32bit value (%SW94 low word, %SW95 high word) that changes at every application modification except: <ul style="list-style-type: none"> -updating upload information -replace initial value by current value -save parameter command



Central processing Unit

- New %S and %SW dedicated for the M340

%SW96

R/W

- bit 0:** Request to copy current value of %MW to internal memory.
Set to 1 by user to request the save. Set to 0 by the system when save is in progress.
- bit 1:** Set to 1 by the system when save is finished. Set to 0 by the system when save is in progress.
- bit 2:** At 1, indicates error on save or restore operation.
- bit 3:** At 1, indicates that a restore operation is in progress.
- bit 4:** Set to 1 by the user to delete %MW area in internal memory
- bit 7:** At 1, indicates that internal memory has valid %MW backup.
- bit 8..15:** Error codes when bit 2 is set to 1:
- 2 saved %MW number less than configured number
 - 3 saved %MW number greater than configured number
 - 7 error on write in internal memory.

Memory card for CPU

■ At a Glance :



The MODICON M340 CPU BMX P34 xxx processors use a **BMX RMS 008MPx** memory card.

A memory card **BMX RMS 008 MP** is delivery with each processor.



■ The memory card **BMX RMS 008MPx** are formatted to be used with the M340 range, it is not possible to use a standard memory card.



Memory card for CPU

Characteristics and performance

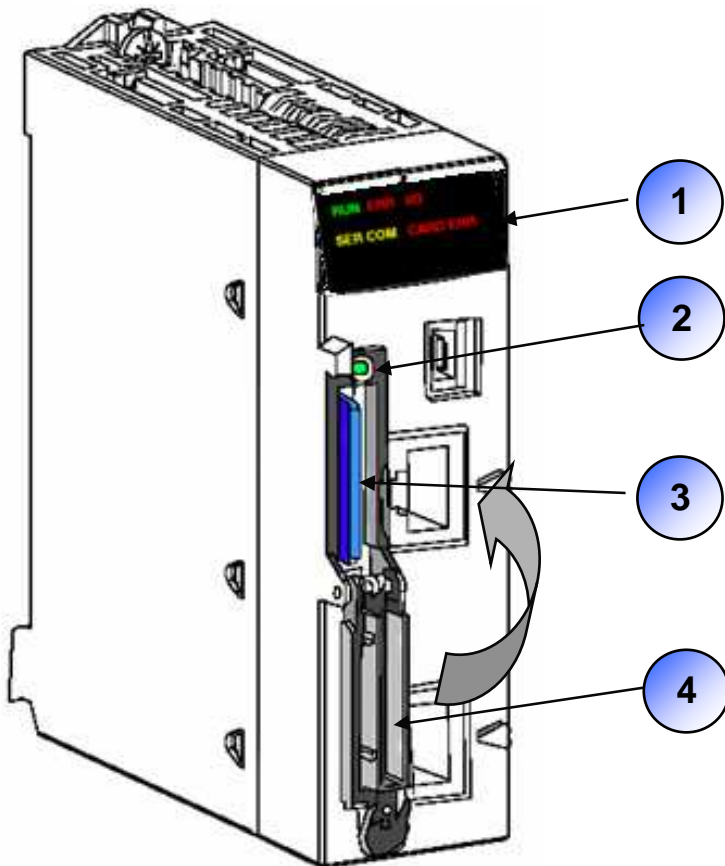
Types	BMX RMS 008MP	BMX RMS 008MPF
Short description	<p>Mem card 8 Mb</p> <p>Memory card for Programmable Logic Controller When inserted in processor this memory card</p> <ul style="list-style-type: none"> – insures application backup – activates the WEB server on the Ethernet embedded port (Transparent Ready class B) 	<p>Mem card 8Mb + Files 16Mb</p> <p>Memory card for Programmable Logic Controller When inserted in processor this memory card</p> <ul style="list-style-type: none"> – insures application backup – activates the WEB server on the Ethernet embedded port (Transparent Ready class B) – provides 16 Mega bytes for user files storage

■ Compatibility :

1. The memory card BMX RMS 008 MP is compatible with all the processor
2. The memory card BMX RMS 008 MPF is compatible with :

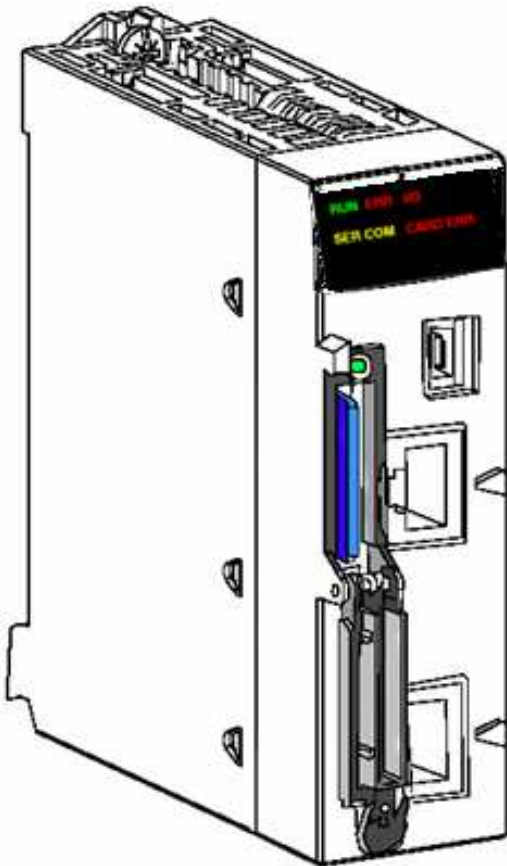
BMX P34 2010 - BMX P34 2020 - BMX P34 2030

Memory card for CPU



	Description
1	CARDERR : Provide information about the memory card (more detail in the diagnostic chapter).
2	Green LED dedicated for the communication between the processor and the memory card. <ul style="list-style-type: none"> – On : the memory card and the communication are OK – Flashing : When the processor is communicating to the card. – OFF : Communication stopped, the memory card can be remove
3	Memory card. To extract the card we must push slightly. <div data-bbox="1108 1047 1249 1198" data-label="Image"> </div> <p>A raising edge on the Sytem bit %S65 stops the communication in order to remove the card.</p>
4	the mask of protection

Memory card for CPU



- The memory card can be use to download an application inside the processor.
 1. When you power-on the processor the download operation is done automatically.
- With the system bit %S66 it's possible to force the tranfer between the processor to the memory card.
 1. If you plug a memory card in the processor without power off, this memory can be loaded by the application.

CPU Diagnostic

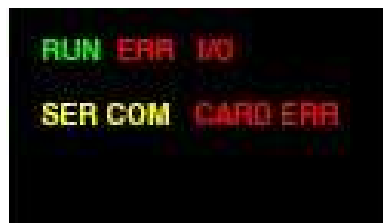
The LEDs on the front panel of the processor enable fast diagnostics of the status of the PLC.

- Status processor
- Memory card status
- Modules communication

- Serial communication
- CANopen communication
- ETHERNET communication



BMX P34 2020



BMX P34 1000



BMX P34 2030



BMX P34 2010






CPU Diagnostic



LEDs	On 	Quick Flashing 	Flash 	Slow Flashing 	Off
RUN	-CPU is running OK			-CPU stopped -Software fault	-No application -Not Validate -Not compatible
ERR	-Processor fault -System fault			-No application -Not Validate -Not compatible -CPU in software fault	Normal state OK
I / O	-I/O fault -Configuration fault				Normal state OK
SER COM			Datas exchanges running		
CARDERR	-No memory card -Memory card unknown -Content of the memory card <> of the processor memory				-Memory card Content of the memory card = with the processor memory OK






CPU Diagnostic

CAN RUN CAN ERR

LEDs	On 	Quick Flashing 	Flash 	Slow Flashing 	Off 
CAN RUN	-CANopen network in OPERATIONAL state OK	- Automatic detection of datas Traffic. - LLS services running -(flashing according with CAN ERR)	One :CANopen network in STOP state Three : Software downloading	-CANopen network in PRE - OPERATIONAL state	
CAN ERR	-Bus CANopen stopping	- Automatic detection of datas Traffic. -LLS services running -(flashing according with CAN RUN)	One :one fault counter pass the alarm level. Two :watch dog detect (node guarding or heartbeat) Three : The SYNC message is not received in the timeout	-CANopen is not validated	No error OK

CPU Diagnostic

ETH ACT ETH STS
ETH 100

LEDs	On 	Quick Flashing 	Flash 	Slow Flashing 	Off 
ETH ACT	-Ethernet connection OK but no traffic		-Ethernet connection OK and traffic on the line		-Ethernet connection NOK
ETH STS	-Ethernet communication OK		Two :Mac adress wrong Three : Processor no connected on the network Four : Several device with the same IP adress Five : Wait a IP adress Six : Processor in security mode, IP adress by default. Seven : inconsistency between the hardware adress and the software adress.		
ETH 100	-Ethernet connection OK (speed 100 Mbs)		Collision on Ethernet		-Ethernet connection NOK or speed < 100 Mbs

D – Modicon M340 Ethernet

Ethernet module BMX NOE 0100

■ At a Glance :

■ **BMX NOE 0100** is the network option module for communications on Ethernet systems with MODICON M340 mid-range I/O rack-based modular platforms.



■ Network Module for Programmable Logic Controller

- 1 RJ45 10/100 Ethernet port
- Memory Card slot
 - Services according Transparent Ready
 - Class B30 or C30 depending of the memory

■ Memory cards for **BMX NOE 0100**

■ **BMX RWS B008M**

- Provided services conform to Transparent Ready class **B30** (Schneider web page)

■ **BMX RWS C016M**

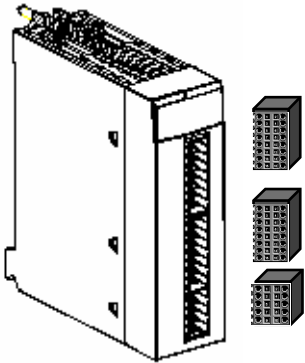
- Provided services conform to Transparent Ready class **C30** (User Web page)

B* Schneider web page

C* User Web page

E – Modicon M340 Counting

Count module BMX EHC 200, BMX EHC 800



BMX EHC 0200

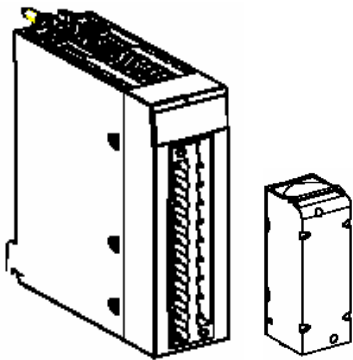
■ At a Glance :

Counting modules are standard format modules that enable pulses from a sensor to be counted at a maximum frequency of 60 KHz (**BMX EHC 0200**) or 10 KHz (**BMX EHC 0800**).

Each module has several counting channels:

2 channels for the **BMX EHC 0200** module

4 or 8 channels for the **BMX EHC 0800** module



BMX EHC 0200

These modules may be installed in any available slot in the PLC rack.

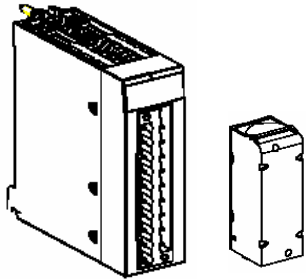
F – Modicon M340 Analog

Analog input module

At a Glance :

Analog modules are standard format modules, this offer is made up of two Input modules :

4 channels for the **BMX AMI 0410** module



BMX AMI 0410

The BMX AMI 0410 module offers the following range for each input, according to the selection made during configuration:

- +/-10 V,
- 0..10 V,
- 0..5 V / 0..20 mA,
- 1..5 V / 4..20 mA,
- +/- 5 V +/- 20 mA

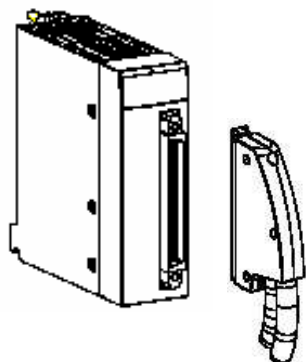
It includes four read resistors connected to the terminal block to perform current inputs.

Analog input module

■ At a Glance :

■ Analog modules are standard format modules, this offer is made up of two Input modules :

4 channels for the **BMX ART 0414** module



BMX ART 0414

BMX ART 0414 module is a multi-range acquisition device with four inputs isolated from each other. This module offers the following ranges for each input, according to the selection made at configuration:

Thermowell IEC Pt100/Pt1000 in 2,3 or 4 wires

US/JIS Pt100/Pt1000 in 2, 3 or 4 wires

Cu10, Ni100/Ni1000 in 2, 3 or 4 wires

thermocouple B, E, J, K, L, N, R, S, T, U

Voltage +/- 40 mV at +/- 1.28 V.

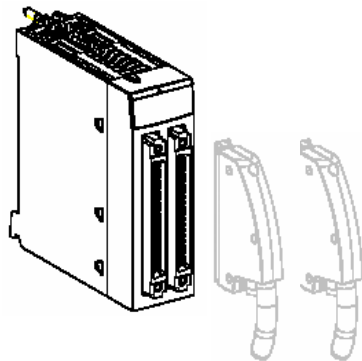
Analog input module

Module
available
in the
launch
L12A.

■ At a Glance :

■ Analog modules are standard format modules, this offer is made up of two Input modules :

8 channels for the **BMX ART 0814** module



BMX ART 0814

BMX ART 0414 module is a multi-range acquisition device with four inputs isolated from each other. This module offers the following ranges for each input, according to the selection made at configuration:

Thermowell IEC Pt100/Pt1000 in 2,3 or 4 wires

US/JIS Pt100/Pt1000 in 2, 3 or 4 wires

Cu10, Ni100/Ni1000 in 2, 3 or 4 wires

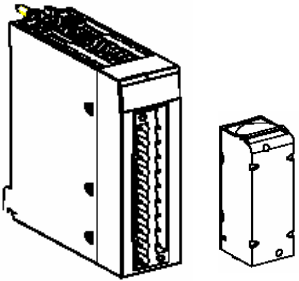
thermocouple B, E, J, K, L, N, R, S, T, U

Voltage +/- 40 mV at +/- 1.28 V.

Analog output module

■ At a Glance :

■ Analog modules are standard format modules, this offer is made up of one output Input module :



BMX AMO 0210

2 channels for the **BMX AMO 0210** module

The BMX AMO 0210 is a module with two analog outputs isolated from one other. It offers the following ranges for each output:

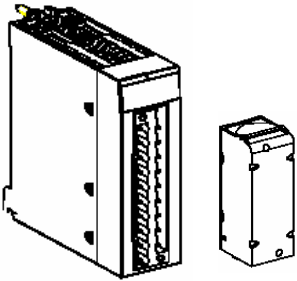
Voltage ± 10 V

Current 0..20 mA and 4..20 mA

The range is selected during configuration.

Analog output module

Module
available
in the
launch
L12A.



BMX AMM 0600

■ At a Glance :

■ Analog modules are standard format modules, this offer is made up of one output Input module :

2 Analog Output and 4 Analog Input for the **BMX AMM 0600** module

- **2 analog output** not isolated from one other. It offers the following ranges for each output:

Voltage ± 10 V

Current 0..20 mA and 4..20 mA

- **4 analog input** offers the following range for each input:

± 10 V, 0..10 V,

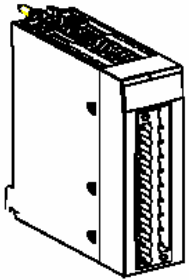
0..5 V / 0..20 mA,

1..5 V / 4..20 mA,

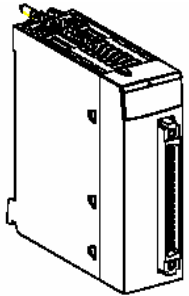
± 5 V ± 20 mA

G – Modicon M340 Digital Inputs / Outputs

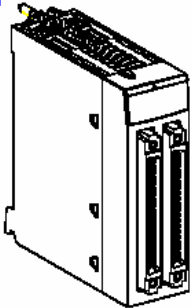
Digital Input / Output module



20 pts connectors



40 pts connectors



2 x 40 pts connectors

■ At a Glance :

■ The discrete I/O modules of the MODICON M340 range are standard format modules (occupying one single position), equipped with either a 40 pts connector, or a terminal block with 20pts. For all modules, the Telefasts are available that enable Input / output to be quickly connected to operational parts.

A wide range of Discrete inputs and outputs make it possible to meet the following requirements:

- Functional: direct or alternating I/Os, positive or negative logic.
- Modularity: 8, 16, 32 or 64 channels/modules.

Inputs

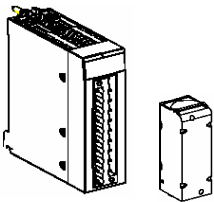
Inputs receive signals from the sensors and carry out the following functions:

Acquisition, adaptation, galvanic insulation, filtering, protection against interference.

Outputs

Outputs store the orders given by the processor, in order to control pre-actuators via decoupling and amplification

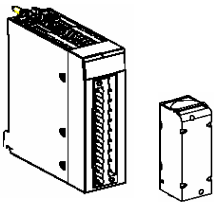
BMX D.I



Digital Input

BMX DDI 1602

Module		BMX DDI 1602 (current sink) 16 inputs	24 VDC positive logic inputs
Nominal voltage		Voltage	24 Vdc
		Current	3,5 mA
Threshold input values	At 1	Voltage	>= 11V
		Current	> 2 mA
	At 0	Voltage	< 5 V
		Current	< 1.5 mA
Input impedance		U nominal	6,8 K ohms
Response Time (filtering time)		Typical	4 ms
		max	7 ms
Sensor voltage check threshold		OK	> 18 Vdc
		FAULT	< 14 Vdc
Fiability		MTBF (hours)	798237
Temperature downgrading			no

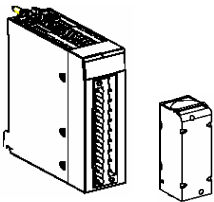


Digital Input

BMX DDI 1603*

Module		BMX DDI 1603 (current sink) 16 inputs	48 VDC positive logic inputs
Nominal voltage		Voltage	48 Vdc
		Current	2,5 mA
Threshold input values	At 1	Voltage	>= 34V
		Current	> 2 mA
	At 0	Voltage	< 10 V
		Current	< 0.5 mA
Input impedance		U nominal	19,2 K ohms
Response Time (filtering time)		Typical	4 ms
		max	7 ms
Sensor voltage check threshold		OK	> 36 Vdc
		FAULT	< 24 Vdc
Fiability		MTBF (hours)	798237
Temperature downgrading			no

*** L12A.**

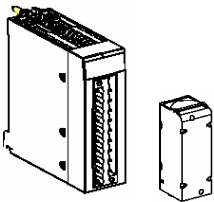


Digital Input

BMX DAI 1602*

Module 16 inputs		BMX DAI 1602	24 VDC negative logic inputs	
Nominal voltage		Voltage	24 Vdc	24 Vac
		Current	3 Ma	3 Ma
Threshold input values	At 1	Voltage	>= 11V	>= 15V
		Current	> 2 Ma	> 2 Ma
	At 0	Voltage	< 5 V	< 5 V
		Current	< 1.5 Ma	< 1.5 Ma
Input impedance		U nominal	6 K ohms	6 K ohms
Response Time (filtering time)		Typical	10 ms	15 ms
		max	20 ms	20 ms
Sensor voltage check threshold		OK	> 18 Vdc	> 18 Vdc
		FAULT	< 14 Vdc	< 14 Vdc
Fiability		MTBF (hours)	?????	?????
Temperature downgrading			no	no

*** L12A.**

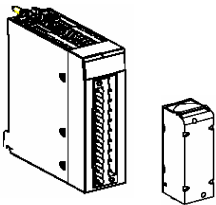


Digital Input

BMX DAI 1603*

Module		BMX DDI 1603 (current sink) 16 inputs	48 VAC inputs
Nominal voltage		Voltage	48 Vac
		Current	5 mA
Threshold input values	At 1	Voltage	>= 34V
		Current	> 2 mA
	At 0	Voltage	< 10 V
		Current	< 0.5 mA
Input impedance		U nominal	9 K ohms
Response Time (filtering time)		Typical	9 ms
		max	10 ms
Sensor voltage check threshold		OK	> 36 Vac
		FAULT	< 24 Vac
Fiability		MTBF (hours)	798237
Temperature downgrading			no

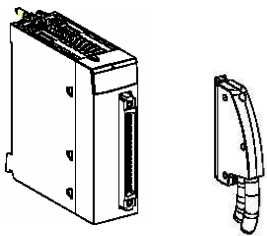
*** L12A.**



Digital Input

BMX DAI 1604

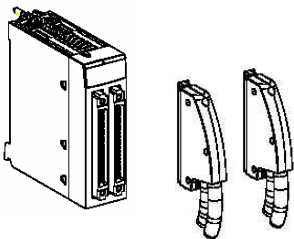
Module		BMX DDI 1604 (capacity input) 16 inputs	100...120 VCA inputs
Nominal voltage		Voltage	100....120 Vca (50 / 60 hz)
		Current	5 mA
Threshold input values	At 1	Voltage	>= 74 V
		Current	> 2,5 mA
	At 0	Voltage	<= 20 V
		Current	< 1 mA
		U nominal f=55 Hz	13 K ohms
Peak current at activation (at nominal U)			240 mA
Response Time (filtering time)		Typical	10 ms
		max	20 ms
Sensor voltage check threshold		OK	> 82 Vdc
		FAULT	< 40 Vdc
Fiability		MTBF (hours)	1504958
Temperature downgrading			no



Digital Input

BMX DDI 3202K

Module		BMX DDI 3202 K (current sink) 32 inputs	24 VDC positive logic inputs
Nominal voltage		Voltage	24 Vdc
		Current	2,5 Ma
Threshold input values	At 1	Voltage	>= 11V
		Current	> 2 mA
	At 0	Voltage	5 V
		Current	< 1.5 mA
Input impedance		U nominal	9,6 K ohms
Response Time(filtering time)		Typical	4 ms
		max	7 ms
Sensor voltage check threshold		OK	> 18 Vdc
		FAULT	< 14 Vdc
Fiability		MTBF (hours)	696 320
Temperature downgrading			no



Digital Input

BMX DDI 6402K

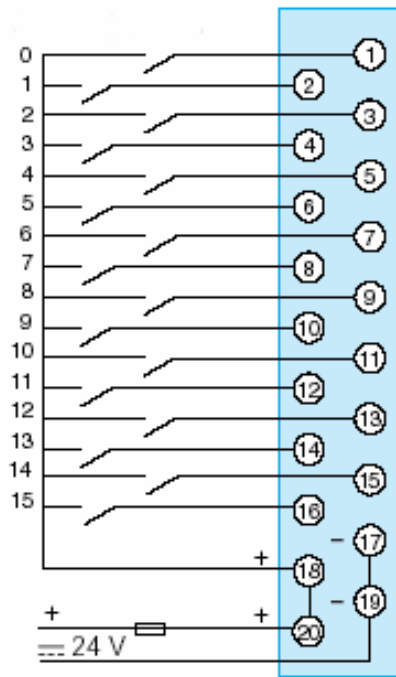
Module		BMX DDI 6402 K (current sink) 64 inputs	24 VDC positive logic inputs
Nominal voltage		Voltage	24 Vdc
		Current	1 mA
Threshold input values	At 1	Voltage	>= 15 V
		Current	> 1 mA
	At 0	Voltage	5 V
		Current	< 0.5 mA
Input impedance		U nominal	9,6 K ohms
Response Time (Filtering time)		Typical	4 ms
		max	7 ms
Sensor voltage check threshold		OK	> 18 Vdc
		FAULT	< 14 Vdc
Fiability		MTBF (hours)	362 681
Temperature downgrading			no

Digital Input / Output

BMX D.I

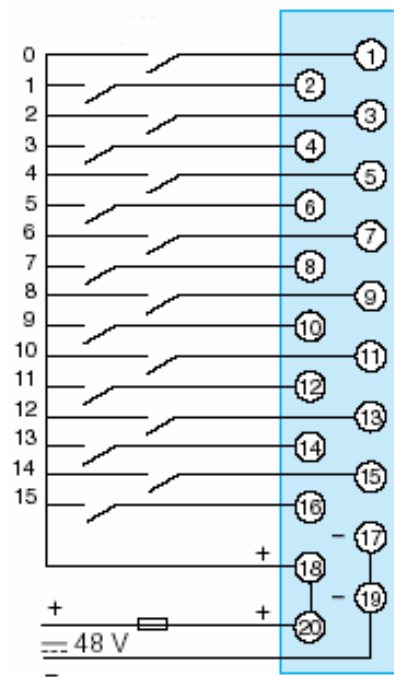
Input WIRING :

BMX DDI 1602



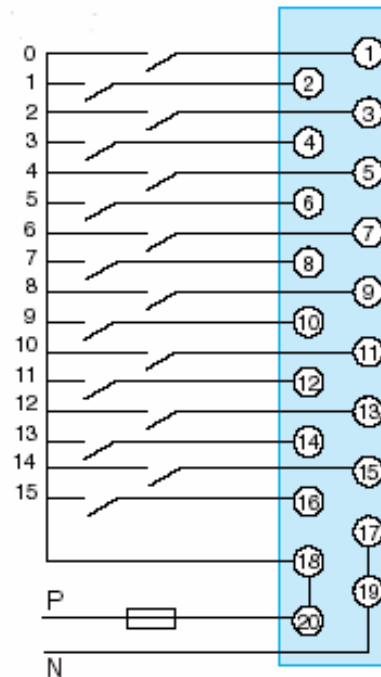
24Vdc

BMX DDI 1603



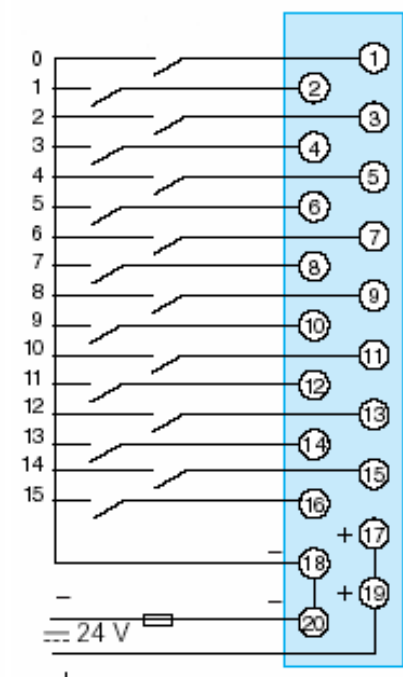
48Vdc

BMX DAI 1602/1603/1604



24/48/120Vac

BMX DAI 1602,



24Vdc

positive logic

negative logic

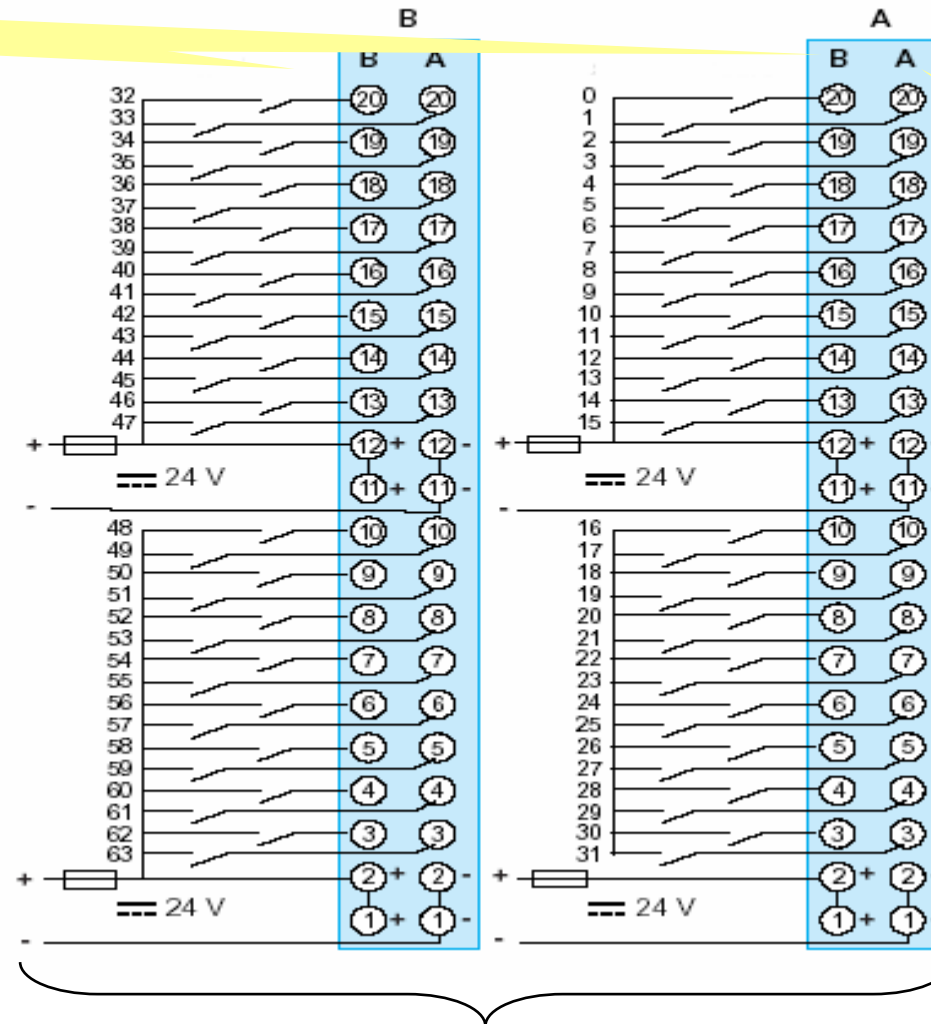
Digital Input / Output

BMX D.I

Input WIRING :

BMX DDI 3202K/6402K

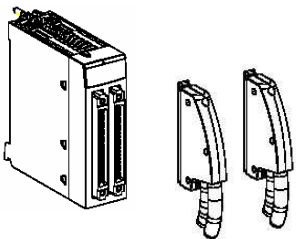
A and B
BMX DDI 6402K



A
BMX DDI 3202K

24Vdc
positive logic

BMX DDM



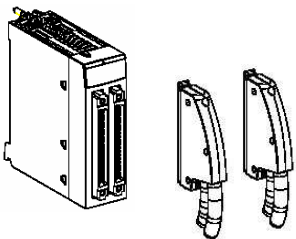
Digital Input / Output

BMX DDM 16022

1/2

■ Input characteristics :

Module		BMX DDM 16022 (current sink) 8 inputs	24 VDC positive logic inputs
Nominal voltage		Voltage	24 Vdc
		Current	3,5 Ma
Threshold input values	At 1	Voltage	>= 11 V
		Current	> 3 Ma
	At 0	Voltage	5 V
		Current	< 0.5 mA
Input impedance		U nominal	9,6 K ohms
Response Time (filtering time)		Typical	4 ms
		max	7 ms
Sensor voltage check threshold		OK	> 18 Vdc
		FAULT	< 14 Vdc
Fiability		MTBF (hours)	447 581
Temperature downgrading			no



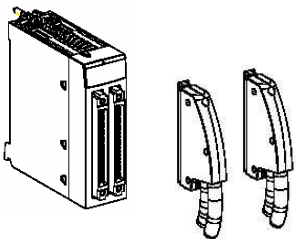
Digital Input / Output

BMX DDM 16022

2/2

■ Output characteristics :

Module BMX DDM 16022 8 Ouputs		Statics output 24 VDC positive logic
Nominal voltage	Voltage	24 Vdc
	Current	0,5 A
Threshold input values	Tension	19 ... 30 V
	Current/Channel	0.625 A
	Current/module	5 A
Input impedancePower of tungsten filament lamp	MAX	6 W
Wetting Current Voltage drop	At 0	< 0.5 mA
	At 1	< 1.2 V
Load impedance	MINI	48 Ohms
response time		1.2 ms
Sensor voltage check threshold	OK	> 18 Vdc
	FAULT	< 14 Vdc
Fiability	MTBF (hours)	447 581
Temperature downgrading		no



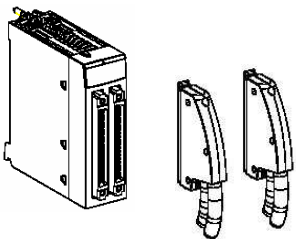
Digital Input / Output

BMX DDM 16025

1/2

Input characteristics :

Module		BMX DDM 16025 (current sink) 8 inputs	24 VDC positive logic inputs
Nominal voltage		Voltage	24 Vdc
		Current	3,5 mA
Threshold input values	At 1	Voltage	>= 11 V
		Current	> 2 mA
	At 0	Voltage	5 V
		Current	< 1.5 mA
Input impedance		U nominal	6,8 K ohms
Response Time (filtering time)		Typical	4 ms
		max	7 ms
Sensor voltage check threshold		OK	> 18 Vdc
		FAULT	< 14 Vdc
Fiability		MTBF (hours)	912 167
Temperature downgrading			no



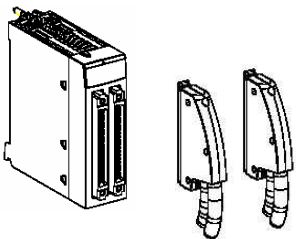
Digital Input / Output

BMX DMM 16025

2/2

■ Output characteristics :

Module BMX DDM 16025 8 Ouputs		Relay output 24 VDC or 24...240 VCA
Nominal voltage	Voltage	24 Vdc (resistive load) 220 VCA Cos =1
	Current	2 A (resistive load) 2 A (cos = 1)
Load for minimum commutation Load for maximum commutation	Tension/current	5 Vdc / 1 mA
	tension	264 VCA / 125 Vdc
Max commutation frequency	Cycles/hours	3600
Response time	ON	<= 10 ms
	OFF	<= 12 ms
Mecanical life	Commutation number	20 millions and more
Fiability	MTBF (hours)	912 167
Temperature downgrading		no



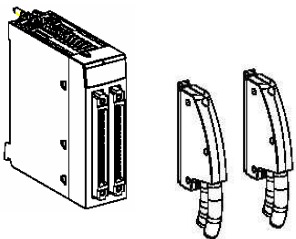
Digital Input / Output

BMX DMM 3202K

1/2

■ Input characteristics :

Module		BMX DDM 3202 K (current sink) 16 inputs	24 VDC positive logic inputs
Nominal voltage		Voltage	24 Vdc
		Current	2,5 Ma
Threshold input values	At 1	Voltage	>= 11 V
		Current	> 2 Ma
	At 0	Voltage	5 V
		Current	< 1.5 Ma
Input impedance		U nominal	9,6 K ohms
Response Time (filtering time)		Typical	4 ms
		max	7 ms
Sensor voltage check threshold		OK	> 18 Vdc
		FAULT	< 14 Vdc
Fiability		MTBF (hours)	4 32 904
Temperature downgrading			no



Digital Input / Output

BMX DMM 3202K

2/2

■ Output characteristics :

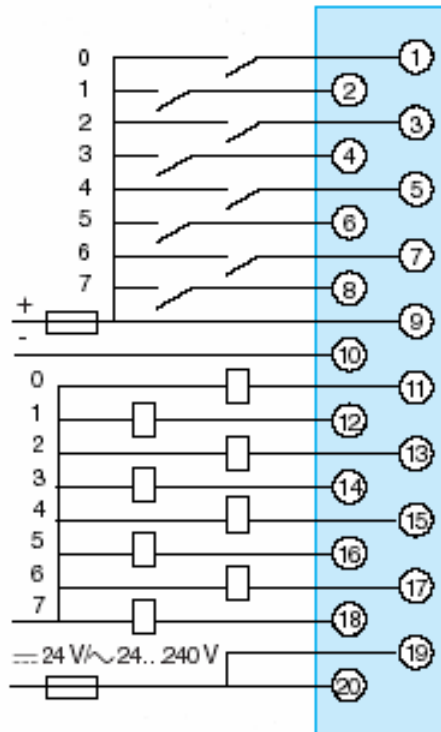
Module BMX DDM 3202 K 16 Ouputs		Statics output 24 VDC positive logic
Nominal voltage	Voltage	24 Vdc
	Current	0,1 A
Threshold input values	Tension	19 ... 30 V
	Current/Channel	0.125 A
	Current/module	3.2 A
Input impedancePower of tungsten filament lamp	MAX	1.2 W
Wetting Current Voltage drop	At 0	< 100 µa
	At 1	< 1.5 V if I=0.1 A
Load impedance	MINI	220 Ohms
Check response time		1.2 ms
Sensor voltage check threshold	OK	> 18 Vdc
	FAULT	< 14 Vdc
Fiability	MTBF (hours)	432 904
Temperature downgrading		no

Digital Input / Output

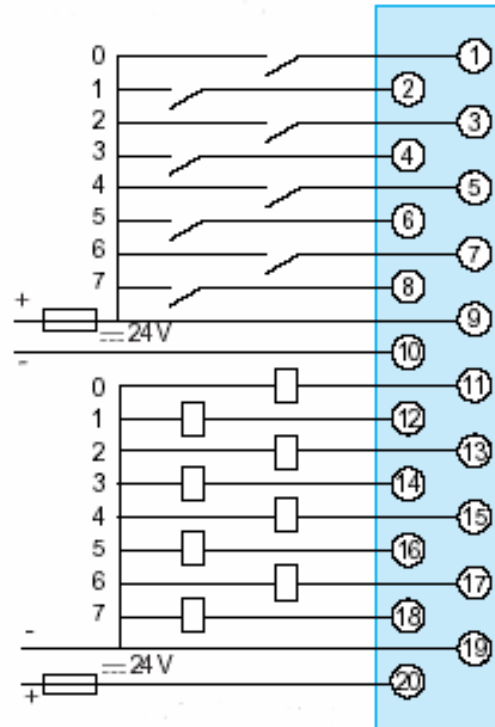
BMX DDM

■ Input / Output WIRING :

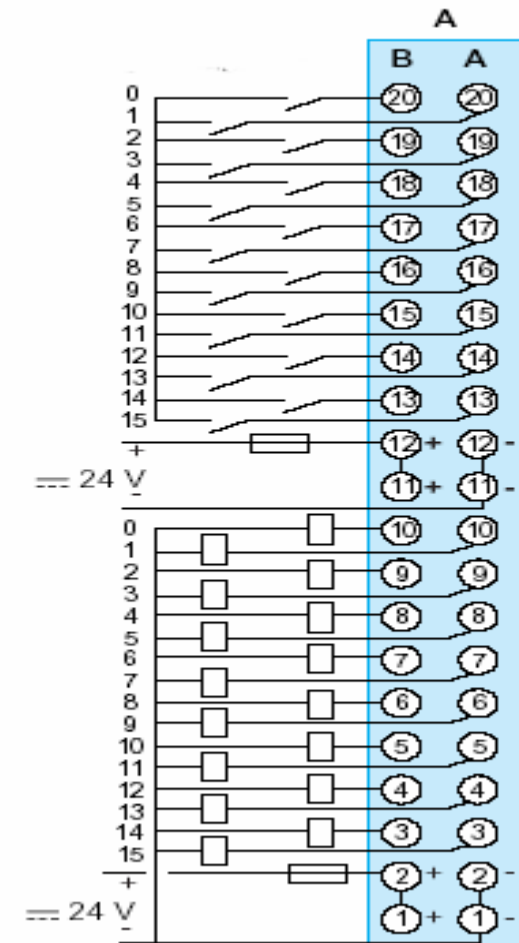
BMX DDM 16025



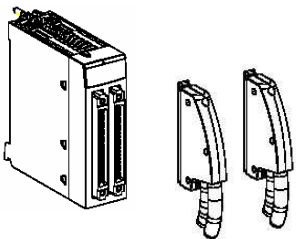
BMX DDM 16022



BMX DDM 3202K



BMX D.O

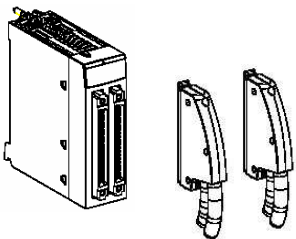


Digital Input / Output

BMX DDO 1602

■ Output characteristics :

Module BMX DDO 1602 16 Ouputs		Statics output 24 VDC positive logic
Nominal voltage	Voltage	24 Vdc
	Current	0,5 A
Threshold input values	Tension	19 ... 30 V
	Current/Channel	0.625 A
	Current/module	10 A
Input impedancePower of tungsten filament lamp	MAX	6 W
Wetting Current Voltage drop	At 0	< 500 µa
	At 1	< 1.2 V
Load impedance	MINI	48 Ohms
Response time		1.2 ms
Sensor voltage check threshold	OK	> 18 Vdc
	FAULT	< 14 Vdc
Fiability	MTBF (hours)	409 413
Temperature downgrading		no



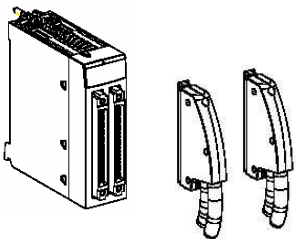
Digital Input / Output

BMX DDO 1612*

■ Output characteristics :

Module	BMX DDO 1612	16 Ouputs	Statics output 24 VDC Negative logic
Nominal voltage		Voltage	24 Vdc
		Current	0,5 A
Threshold input values		Tension	19 ... 30 V
		Current/Channel	0.625 A
		Current/module	10 A
Input impedancePower of tungsten filament lamp		MAX	6 W
Wetting Current Voltage drop		At 0	< 500 µa
		At 1	< 1.2 V
Load impedance		MINI	48 Ohms
Response time			1.2 ms
Sensor voltage check threshold		OK	> 18 Vdc
		FAULT	< 14 Vdc
Fiability		MTBF (hours)	?????
Temperature downgrading			no

*** L12A.**



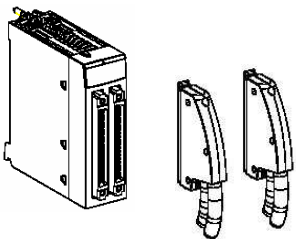
Digital Input / Output

BMX DAO 1605*

■ Output characteristics :

Module Outputs		BMX DAO 1605 16	100...240 VCA outputs
Nominal voltage / current	Voltage	100...240 Vca / limit 85...288 Vca	
	Current MAX Current MIN	0,6 A / Channel 2,4 by COM / 4,8 for all 0,25 mA	
Wetting Current	At 0	< 1,5 ma 120 Vac / < 3 ma 24 Vac	
Voltage drop	At 1	< 1.25V	
Response time		1 ms	

*** L12A.**

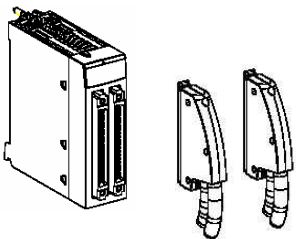


Digital Input / Output

BMX DDO 3202K

■ Output characteristics :

Module BMX DDO 3202 K 32 Ouputs		Statics output 24 VDC positive logic
Nominal voltage	Voltage	24 Vdc
	Current	0,1 A
Threshold input values	Tension	19 ... 30 V
	Current/Channel	0.125 A
	Current/module	3.2 A
Input impedancePower of tungsten filament lamp	MAX	1.2 W
Wetting Current Voltage drop	At 0	< 100 µa
	At 1	< 1.5 V if I=0.1 A
Load impedance	MINI	220 Ohms
Response time		1.2 ms
Sensor voltage check threshold	OK	> 18 Vdc
	FAULT	< 14 Vdc
Fiability	MTBF (hours)	360 412
Temperature downgrading		no



Digital Input / Output

BMX DDO 6402K

■ Output characteristics :

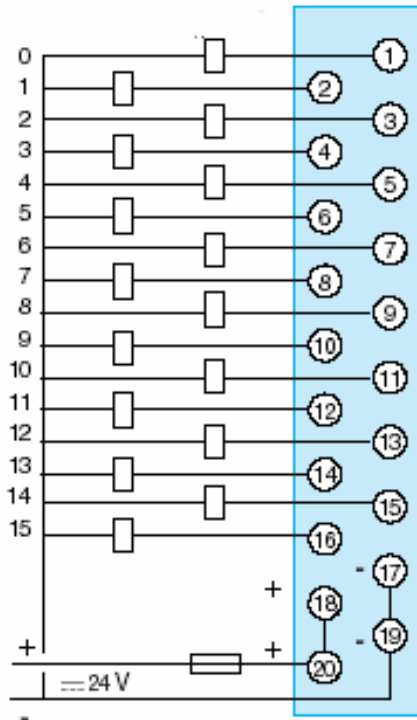
Module BMX DDO 6402 K 64 Ouputs		Statics output 24 VDC positive logic
Nominal voltage	Voltage	24 Vdc
	Current	0,1 A
Threshold input values	Tension	19 ... 30 V
	Current/Channel	0.125 A
	Current/module	6,4 A
Input impedancePower of tungsten filament lamp	MAX	1.2 W
Wetting Current Voltage drop	At 0	< 100 µa
	At 1	< 1.5 V if I=0.1 A
Load impedance	MINI	220 Ohms
Response time		1.2 ms
Sensor voltage check threshold	OK	> 18 Vdc
	FAULT	< 14 Vdc
Fiability	MTBF (hours)	173 792
Temperature downgrading		No

Digital Input / Output

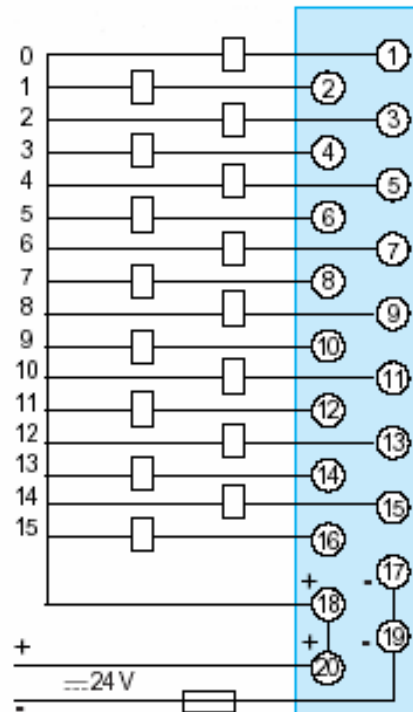
BMX D.0

■ Output WIRING :

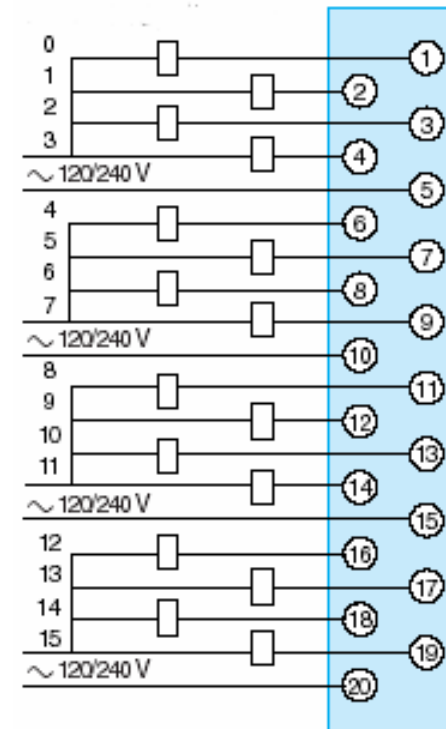
BMX DDO 1602



BMX DDO 1612



BMX DAO 1605



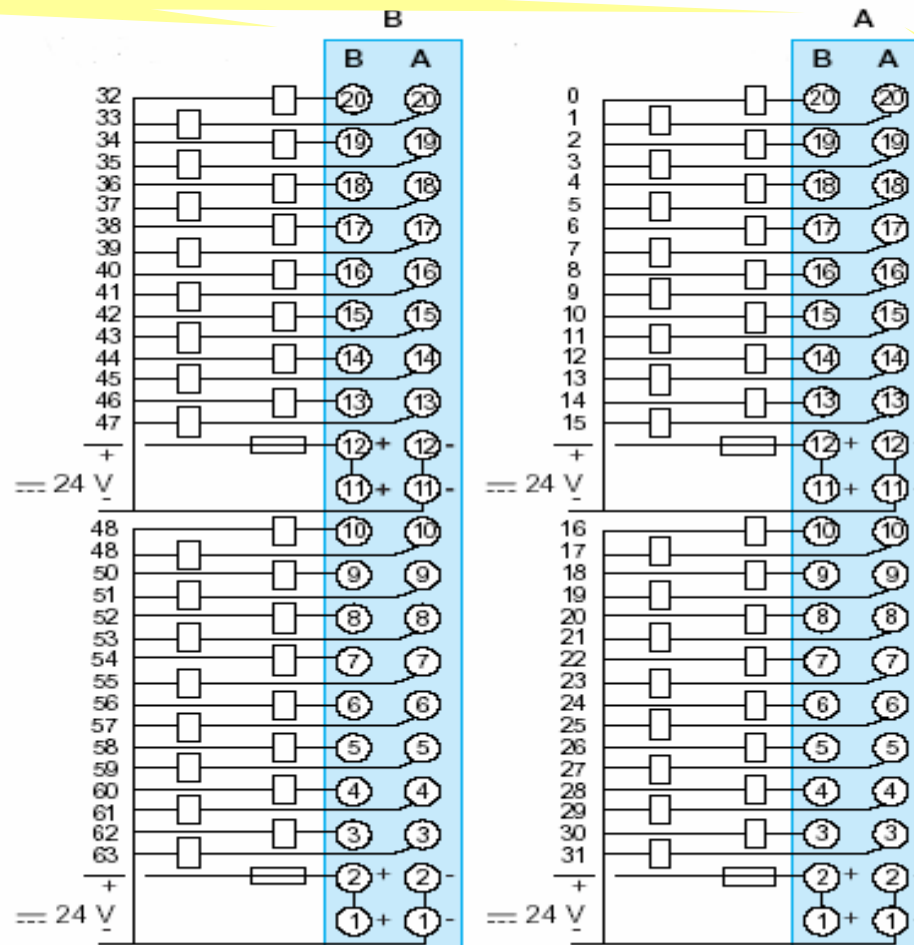
Digital Input / Output

BMX D.0

■ Output WIRING :

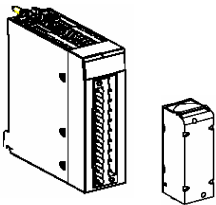
A and B
BMX DDO 6402K

BMX DDO 3202K/6402K



A
BMX DDO 3202K

BMX DRA

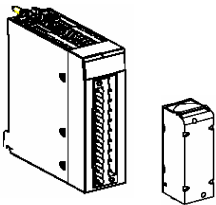


Digital Input / Output

BMX DRA 0805

■ Output characteristics :

Module BMX DRA 0805 8 Outputs		Relay output VDC or VAC
Threshold service voltage	direct	10 ...34 Vdc
	Alternating	10....264 Vac
Thermal current		3 A
Minimun load for Commutation		5Vdc / 1 mA
Max commutation frequency	Cycles/hours	3600
Response time	ON	<= 10 ms
	OFF	< 8 ms
Mecanical life	Commutation number	20 millions and more
Fiability	MTBF (hours)	1 573 341
Temperature downgrading		no
Built in Protection		None protection, provide an external protection



Digital Input / Output

BMX DRA 1605

■ Output characteristics :

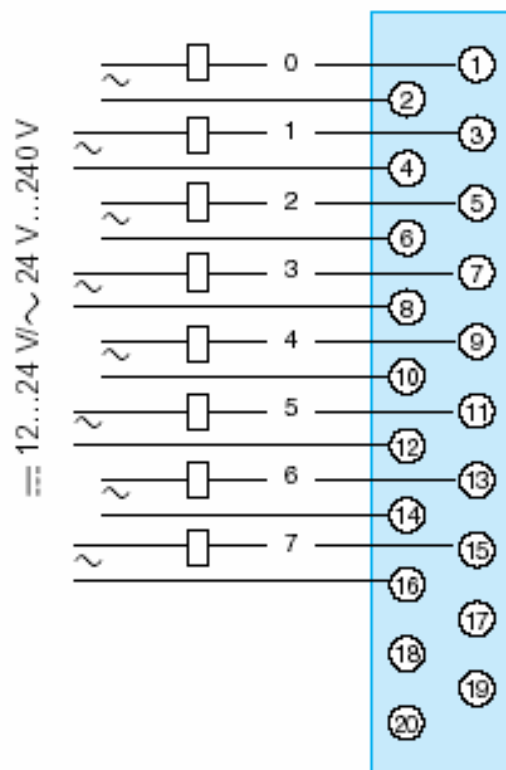
Module BMX DRA 1605 16 Outputs		Relay output VDC or VAC
Threshold service voltage	direct	1034 Vdc
	Alternating	10....264 Vac
Thermal current		2 A
Minimun load for Commutation		5 Vdc / 1 mA
Max commutation frequency	Cycles/hours	3600
Response time	ON	<= 10 ms
	OFF	< 12 ms
Mecanical life	Commutation number	20 millions and more
Fiability	MTBF (hours)	2 463 296
Temperature downgrading		no
Built in Protection		None protection, provide an external protection

Digital Input / Output

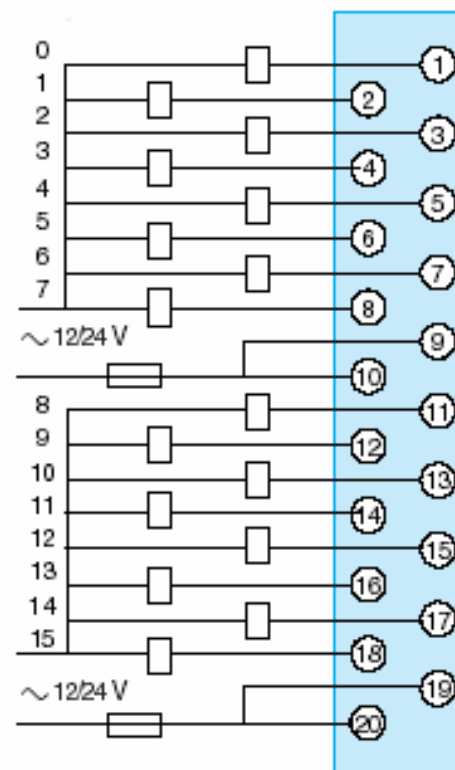
BMX DRA

■ Output WIRING :

BMX DRA 0805



BMX DRA 1605



architecture overview

