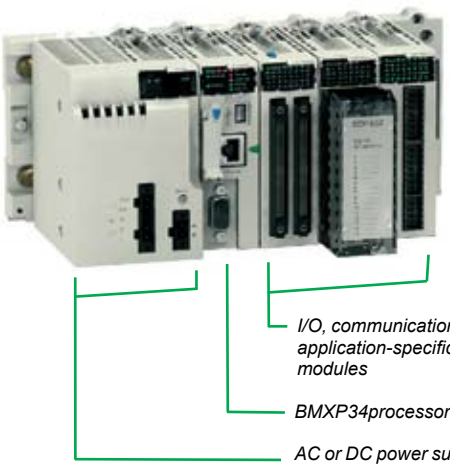
Modicon™ M340™ automation platform
Processor modules



For severe environments, see the "ruggedized" Modicon M340 parts on pages 6/2 to 6/9.

Introduction

The robust Modicon™ M340™ automation platform includes both: Standard processors, **BMXP341000**, and Performance processors, **BMXP342●●●●**. These processors manage single-rack or multi-rack PAC stations whose slots can be equipped with:
- Discrete I/O modules
- Analog I/O modules
- Communication modules: Ethernet Modbus/TCP network, AS-Interface actuator/sensor buses and RTU *(Remote Terminal Unit)*
- Application-specific modules: counter, axis control and serial link

The five processors offered have different memory capacities, processing speeds, number of I/O and number and type of communication ports.
In addition, depending on the model, they offer a maximum (non-cumulative) of:
- 512 to 1024 discrete I/O
- 128 to 256 analog I/O
- 20 to 36 application-specific channels (1) (process counter, motion control and serial link, or RTU)
- 0 to 3 Ethernet Modbus/TCP or Ethernet/IP™ networks (with or without integrated port and 2 network modules maximum)
- 4 "Full Extended master" AS-Interface V3 actuator/sensor buses, profile M4.0

Depending on the model, Modicon M340 processors include:
- A 10BASE-T/100BASE-TX Ethernet Modbus/TCP port
- A CANopen machine and installation bus port
- A Modbus™ or Character mode serial link port

Each processor has a USB TER port (for connecting a programming terminal or a Magelis™ XBTGT/GK/GTW, GTW HMI, or STU/STO HMI terminal) and is supplied with a memory card used for:
- Backing up the application (program, symbols and constants)
- Activating a standard Web server for the Transparent Ready™ class B10 integrated Ethernet port (depending on the model)

This memory card can be replaced by another type of memory card (to be ordered separately) that supports:
- Backing up the application and activation of the standard Web server (same as other card)
- An 8 MB or 128 MB storage area, depending on the option card, for storing additional data organized in a file system (directories and sub-directories)

Design and setup of Modicon M340 applications

To set up Modicon M340 automation platform processors, you need one of the following:
- Unity™ Pro Small programming software
- Unity Pro Medium, Large, Extra Large or XLS Safety programming software identical to that used to set up Modicon Premium™ and Modicon Quantum™ automation platforms

Depending on requirements, you may also need:
- Unity EFB toolkit software for developing EF and EFB libraries in C language
- Unity SFC View software for viewing and diagnostics of applications written in Sequential Function Chart (SFC) or Grafcet language

The function block software libraries provide Modicon M340 processors with the processing capability required to meet the needs of specializt applications in the following areas:
- Process control via programmable control loops (EF and EFB libraries)
- Motion control with multiple independent axis functions (MFB *(Motion Function Block)* library). The axes are controlled by Altivar™ 312/71 variable speed drives or Lexium 05/32 servo drives connected on the CANopen machine and installation bus.

***BMXP3420102/20302** processors with integrated CANopen bus are compatible with Unity Pro **version ≥ 4.1**. Both these processors can be used to customize configuration of the device Boot Up procedure compatible with CANopen third-party products.*

(1) Maximum number of application-specific channels per station. Only the application-specific channels actually configured in the Unity application count.

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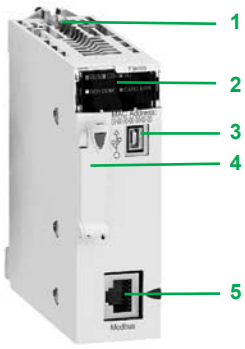
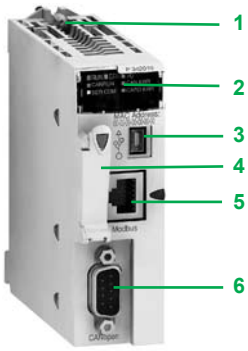
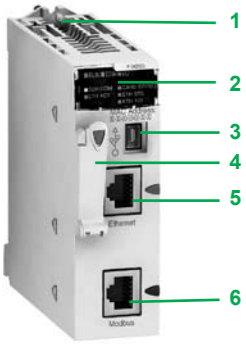


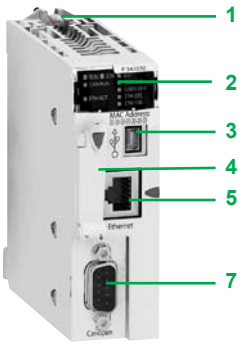
BMXP341000/2000



BMXP3420102



BMXP342020



BMXP3420302

(1) Magelis™ XBTGT/GK/GTW, GTW HMI and STU/STO HMIGraphic terminals with USB port and Vijeo™ Designer configuration software version ≥ 4.5. Please consult our "Human Machine Interfaces" catalog

Description: BMXP341000/2000/20102 processors

BMXP341000/2000/20102 Standard and Performance single-format processors include the following features:

1 Safety screw for locking the module in its slot (marked 0) in the rack

2 Display block is comprised of 5 or 7 LEDs, depending on the model:
- RUN LED (green): processor in operation (program execution)
- ERR LED (red): incorrect processor or system operation detected
- I/O LED (red): incorrect I/O module operation detected
- SER COM LED (yellow): activity on the Modbus™ serial link
- CARD ERR LED (red): memory card missing or inoperative
- CAN RUN LED (green): integrated CANopen bus operational (**BMXP3420102** model only)
- CAN ERR LED (red): incorrect integrated CANopen bus operation detected (**BMXP3420102** model only)

3 Mini B USB connector for a programming terminal (or a Magelis™ XBTGT/GK/GTW, GTW HMI, STU/STO HMI terminal *(1)*)

4 Slot equipped with its Flash memory card for backing up the application (an LED, located above this slot, indicates recognition of or access to the memory card)

5 RJ45 connector for the Modbus serial link or Character mode link (RS 232C/RS 485, 2-wire, non-isolated)

In addition, for model **BMXP3420102**:

6 9-way SUB-D connector for the integrated CANopen master bus

Description: BMXP342020/20302 processors with integrated Ethernet Modbus/TCP port

BMXP342020/20302 Performance single-format processors include the following features:

1 Safety screw for locking the module in its slot (marked 0) in the rack

2 Display block is comprised of 8 or 10 LEDs, depending on the model:
- RUN LED (green): processor in operation (program execution)
- ERR LED (red): incorrect processor or system operation detected
- I/O LED (red): incorrect I/O module operation detected
- SER COM LED (yellow): activity on the Modbus serial link
- CARD ERR LED (red): memory card missing or inoperative
- ETH ACT LED (green): activity on the Ethernet Modbus/TCP network
- ETH STS LED (green): Ethernet Modbus/TCP network status
- ETH 100 LED (red): Ethernet Modbus/TCP data rate (10 or 100 Mbps)
- CAN RUN LED (green): integrated CANopen bus operational (**BMXP3420302** model only)
- CAN ERR LED (red): incorrect integrated CANopen bus operation detected (**BMXP3420302** model only)

3 Mini B USB connector for a programming terminal (or a Magelis™ XBTGT/GK/GTW, GTW HMI and STU/STO HMI terminal *(1)*)

4 Slot equipped with its Flash memory card for backing up the application (an LED, located above this slot, indicates recognition of or access to the memory card)

5 RJ45 connector for connection to the 10BASE-T/100BASE-TX Ethernet Modbus/TCP network

In addition, depending on the model:

6 **BMXP342020** processor: an RJ45 connector for the Modbus serial link or Character mode link (RS 232C/RS 485, 2-wire, non-isolated)

7 **BMXP3420302** processor: a 9-way SUB-D connector for the integrated CANopen master bus

On the back panel: 2 rotary switches for selecting the IP address assignment method for the module.

USB terminal port

The USB port 3 offering a useful data rate of 12 Mbps, is compatible with the Unity™ Pro programming software, the OPC Factory Server™ *(OFS™)* and Magelis XBTGT/GK/GTW, GTW HMI and STU/STO HMI terminals *(1)*.

BMXP34 processors can be connected to a USB bus is comprised of several peripheral devices. However:
- Only one processor can be connected to the USB bus
- No device on the USB bus can be controlled by the PAC (modem, printer)

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Modicon™ M340™ automation platform
Processor modules

Memory cards

BMXRMS008MP memory card (supplied as standard)

Modicon™ M340™ processors come standard with an SD *(Secure Digital)* type Flash memory card, **BMXRMS008MP**. This card is used for backing up the two memory areas on the processor module's internal RAM:
- Program, symbols and comments area, that contains the executable binary code and the IEC source code of the application program for the program part
- Constants area, that contains the constant data located by address

The data is backed up automatically when the PAC is turned off. Likewise, restoration of data is transparent to the user, on return of power.
Capacity of the “backup area” on the memory card: 1792 KB for the **BMXP341000** Standard processor, 3584 KB for **BMXP342●●●●** Performance processors.

Processors with an integrated Ethernet port, **BMXP342020/20302, have an additional** 2 MB **memory area specifically for “**Standard Web services” (Transparent Ready™ B10) (see page 3/14).

The **BMXRMS008MP** memory card is formatted by Schneider Electric and supplied with each processor. It is referenced as a replacement part.

BMXRMS008MPF/128MPF optional memory cards

Performance processors, **BMXP342●●●●**, can accept a **BMXRMS008MPF** or **BMXRMS128MPF** optional memory card in place of the standard memory card. In addition to the features of the standard card, this card also provides a “file storage area” with a maximum capacity of 8 MB (for the **BMXRMS008MPF** card) or 128 MB (for the **BMXRMS128MPF** card).

This “file storage area” enables:
- Any user-defined Microsoft Word®, Excel®, PowerPoint® or Acrobat Reader® document (for example, maintenance manuals, diagrams. etc.) to be received via FTP
- Additional data (for example: production data, manufacturing recipes, etc.) to be stored via EFB user function blocks

Unity Pro programming software helps the application designer manage the structure and memory space on the Modicon M340 automation platform.

Application security

If necessary, it is possible to prohibit access to the application (in terms of reading and modifying the program) by only loading the executable code in the PAC.

Additionally, a memory protection bit, set in configuration mode, is also available to help prevent any program modification (via the programming terminal or downloading).

For Unity™ Pro V5.0 and later versions, the user has function blocks to help secure intellectual property by means of a signature that can be loaded and stored in the M340 processor module's Flash memory card. The code is not executed if the signature is not present.

Modifying the program in online mode

As with the Modicon Premium and Quantum platforms (with Unity Pro software), the online program modification function is available on the Modicon M340 with the option of adding or modifying the program code and data in different places in the application in a single modification session. This helps to ensure that the modification is homogenous and consistent with the controlled process.
A dedicated memory area of the application internal RAM authorizes these program modification or addition sessions, while supporting the structuring of the application program in several, reasonably-sized sections.

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Modicon™ M340™ automation platform
Processor modules

BMXP341000

BMXP342000

BMXP3420102
BMXP3420302

BMXP342020

BMXRMS008/128MPF

BMXXCAUSBH0●●

Modicon™ M340™ processors

I/O capacity	Max. no. of network and bus modules	Integrated communication ports	Compatibility with Unity™ Pro software	Reference	Weight kg
Standard BMXP3410, 2 racks					
512 discrete I/O 128 analog I/O 20 application-specific channels 2048 KB integrated (internal user memory)	2 Ethernet networks 2 AS-Interface buses	1 Modbus™ serial link	Version ≥ 3.0	**BMXP341000**	0.200
Performance BMXP3420, 4 racks					
1024 discrete I/O 256 analog I/O 36 application-specific channels 4096 KB integrated (internal user memory)	2 Ethernet networks 4 AS-Interface buses	1 Modbus serial link	Version ≥ 3.0	**BMXP342000**	0.200
		1 Modbus serial link 1 CANopen bus	Version ≥ 4.1	**BMXP3420102**	0.210
		1 Modbus serial link 1 Ethernet network	Version ≥ 3.0	**BMXP342020**	0.205
		1 Ethernet network 1 CANopen bus	Version ≥ 4.1	**BMXP3420302**	0.215

Memory cards

Description	Processor compatibility	Capacity	Reference	Weight kg
Flash memory cards (optional) *(2)*	BMXP342000 BMXP3420102 BMXP342020 BMXP3420302	8 MB + 8 MB file storage	**BMXRMS008MPF**	0.002
		8 MB + 128 MB file storage	**BMXRMS128MPF**	0.002

Separate parts

Description	Use		Length	Reference	Weight kg
	From	To			
Terminal port/ USB cordsets	Mini B USB port on the Modicon M340 processor	Type A USB port on: - PC terminal - Magelis XBTGT/GK/ GTW, GTW HMI, STU/ STO HMIGraphic terminal	1.8 m	**BMXXCAUSBH018**	0.065
			4.5 m	**BMXXCAUSBH045**	0.110

Replacement parts

Description	Use	Processor compatibility	Reference	Weight kg
8 MB standard Flash memory card	Supplied as standard with each processor. Used for: - Backing up the program, constants, symbols and data - Activation of class B10 Web server	BMXP341000 BMXP342020 BMXP3420102/20302	**BMXRMS008MP**	0.002

(1) ***BMXP3420102/20302*** *processors, combined with Unity Pro software version ≥ 4.1 can be used to customize configuration of the device Boot Up procedure compatible with CANopen third-party products.*
(2) Memory cards for ***BMXP342●●●●*** *processors, to replace the standard memory card, used for:*
- *Backing up the program, constants, symbols and data*
- *Activation of class B10 Web server*
- *File storage*

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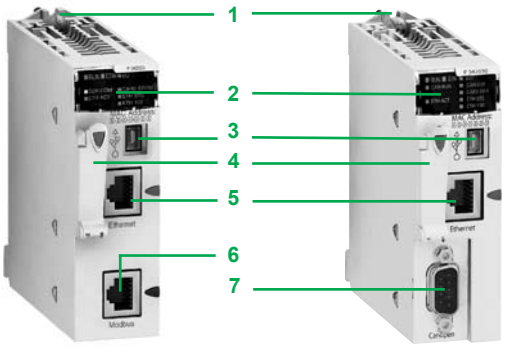
Modicon™ M340™ automation platform

Processors with integrated Ethernet Modbus™/ TCP port



Introduction

BMXP342020 and **BMXP3420302** standard format Modicon™ M340™ processors (with integrated Ethernet port) occupy a single slot marked “00” in the rack on the Modicon M340 platform.

Description

The front panel of **BMXP342020**/**20302** Modicon M340 processors features:

1 Screw for locking the module in a slot in the rack.

2 Display block with 8 LEDs, including 3 relating to the Ethernet port:
- ETH ACT LED (green): Activity on the Ethernet network
- ETH STS LED (green): Ethernet network status

Depending on processor version:
- Version 1**:** ETH 100 LED (green): data rate on the Ethernet network (10 or 100 Mbps)
- Version 2 and later**:** ETH LNK LED (green): Ethernet link status

3 Mini B USB connector for a programming terminal (or Magelis™ XBTGT/GK/ GTW HMI terminal).

4 Slot equipped with its Flash memory card for saving the application and activating the standard Web server (Transparent Ready™ class B10).

5 RJ45 connector for the connection to the Ethernet network.

Depending on model:

6 **BMXP342020** processor: An RJ45 connector for the Modbus™ serial link or Character mode link (RS 232C/RS 485, 2-wire, non-isolated)

7 **BMXP3420302** processor: A 9-way SUB-D connector for the master CANopen machine and installation bus.

On the rear panel: 2 rotary switches for selecting the IP address using one of 3 assignment methods:
- Address set by the position of the two switches
- Address set by the application parameters
- Address set by the Ethernet network BOOTP server

BMXP342020

BMXP3420302

References

Description	I/O capacity Memory capacity	Other integrated communication ports	Reference	Weight kg
Processors with integrated Ethernet Modbus/TCP link Transparent Ready class B10	1024 discrete I/O 256 analog I/O 36 app-specific channels 4096 KB integrated	Modbus serial link or Character mode	**BMXP342020**	0.205
		CANopen bus	**BMXP3420302**	0.215

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