

Modicon M580/M340 platforms and Modicon X80 modules

Product compatibility according to network architecture and platform

Product type	Product main feature	Commercial reference (1)	Module type	Modicon M340	Modicon M580								Modicon M580/M340
					Local rack with CPU				Modicon X80 drops on Ethernet remote I/O				Modicon X80 drops on distributed I/O
					Standalone CPU		Redundant CPU		Standalone or redundant CPU				N/A
					X-bus backplane (2) BMXXBP●●●●	Dual X-bus and Ethernet backplane BMEXBP●●●●	X-bus backplane (2) BMXXBP●●●●	Dual X-bus and Ethernet backplane BMEXBP●●●●	X-bus backplane (2) BMXXBP●●●●		Dual X-bus and Ethernet backplane BMEXBP●●●●		X-bus backplane BMXXBP●●●●, Dual X-bus and Ethernet backplane BMEXBP●●●●
									BMXCRA31200	BMXCRA31210	BMECRA31210	BMECRA31310	BMXPRA0100
Modicon X80 analog modules	Analog High-level Input	BMXAMI0410 (H)	4 voltage/current inputs										
		BMXAMI0800	8 voltage/current inputs										
		BMXAMI0810 (H)	8 voltage/current inputs										
		BMEAHI0812 (H)	8 current inputs, HART										
	Analog Low-level Input	BMXART0414 (H)	4 RTD, thermocouple and voltage inputs										
		BMXART0814 (H)	8 RTD, thermocouple and voltage inputs										
	Analog Mixed I/O	BMXAMM0600 (H)	4 voltage/current inputs & 2 voltage/current outputs										
	Analog High-level Output	BMXAMO0210 (H)	2 voltage/current outputs										
		BMXAMO0410 (H)	4 voltage/current outputs										
		BMXAMO0802 (H)	8 current outputs										
		BMEAHO0412 (C)	4 current outputs, HART										
Modicon X80 Expert modules	SSI encoder interface	BMXEAE0300 (H)	3 channels										
	Counter	BMXEHC0200 (H)	2 channels										
		BMXEHC0800 (H)	8 channels										
	Time Stamping	BMXERT1604T/H	16 inputs , 24...125 V ~										
	Motion Control	BMXMSP0200	2 channels										
	Frequency Input	BMXETM0200H	2 channels										
	Weighing (3)	PMESWT0100	1 channel										
Communication modules (4)	Modicon X80	BMXNOM0200 (H)	Serial link										
		BMXEIA0100	AS-Interface										
		BMECXM0100 (H)	CANopen										
		BMXNRP0200 (C)	Fiber converter, multimode										
		BMXNRP0201 (C)	Fiber converter, single mode										
		PMEPXM0100 (H)	PROFIBUS DP										
		BMENOS0300 (C)	Ethernet switch										
		BMENOC0301 (C)	Ethernet										
		BMENOC0311 (C)	Ethernet FactoryCast										
		BMENOC0321 (C)	Ethernet control router										
	Modicon M580	BMENOP0300	IEC 61850										
		BMXNGD0100	Ethernet Global Data										
		BMENUA0100 (H)	OPC UA										
		BMENOR2200H	Advanced RTU										
		BMXNOR0200H	RTU										
		BMXNOE0100 (H)	Ethernet										
		BMXNOE0110 (H)	Ethernet FactoryCast										
		BMXNOC0401	Ethernet										
	Modicon M580/M340												
	Modicon M340												
Edge Module	Edge compute node	BMEECN0100H	Edge compute node										
Modicon X80 I/O expansion modules	RIO drop adapter	BMXCRA31200	X-bus, Standard										
		BMXCRA31210 (C)	X-bus, Performance										
		BMECRA31210 (C)	Ethernet, Performance										
		BMECRA31310 (H)	Ethernet, Performance										
	DIO drop adapter	BMXPRA0100	Peripheral										

(1) Optional versions: (C) - "Coated", (H) - "Hardened", and (T) - "Extended Temperature"

(2) BMXXBP●●●● with PV02 or later required

(3) Products by our Technology Partners; see more information on our [partner website page](#)

(4) According to the module type, the communication module description is included in the Modicon X80 catalog, Modicon M580 catalog, or Modicon M340 catalog.

Not compatible

Compatible

Only compatible in the standalone configuration of remote Modicon X80 drop

Selection guidepage 2/2

Modicon M340 processor offer

■ **Presentation, description**.....page 2/4

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□ Memory cards.....page 2/5

□ Protecting the application.....page 2/5

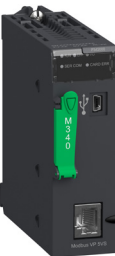
□ Modifying the program in online modepage 2/5

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Modicon M340 automation platform

Standard processor

Performance processors



Racks		Max. number of local racks (main + extension)
I/O	In-rack	Max. number of discrete I/O (1) (2)
		Max. number of analog I/O (1) (2)
	Distributed	Max. number of devices on CANopen bus
		Max. number of devices on Ethernet Modbus/TCP (3)
		Max. number of devices on Modbus link
Integrated communication ports		Ethernet Modbus/TCP network (RJ45)
		CANopen master (9-way SUB-D)
		Serial link (Modbus and Character) (RJ45)
		Mini-B USB port
Communication modules	Ethernet	Max. number (4)
		- Modbus/TCP
		- FactoryCast Modbus/TCP
		- EtherNet/IP and Modbus/TCP
		- RTU (DNP3/IEC 60870-5-101/104)
	AS-Interface	Max. number
		- AS-Interface Master
	Serial link (Modbus and Character)	Max. number
		- Serial link
Application-specific channels		Max. number (5)
		- Counter module
		- Motion control module
		- Serial link (Process or RTU) module or processor integrated serial link
Internal memory capacity (on processor)		Internal user RAM
		- Program, constants, and symbols
		- Located/unlocated data
Memory card capacity		Backup of program, constants, and symbols
		Hosting and display of user Web pages
		File storage
No. of K instructions executed per ms		100% Boolean (Kinstr/ms)
		65% Boolean + 35% fixed arithmetic (Kinstr/ms)
References		
Pages		

2 racks	4 racks
512 channels	1,024 channels
128 channels	256 channels
—	63 devices
Via network module (63 devices with I/O scanning function)	
32 devices	—
—	1 x 10BASE-T/100BASE-TX (Modbus/TCP, BOOTP/DHCP, FDR client, e-mail notification, class B10 standard Web server)
—	1 (63 clients, 50...1,000 Kbps, class M20)
1 in RTU/ASCII Modbus server/client mode or in Character mode (non-isolated RS-232/RS-485, 0.3...38.4 Kbps)	—
1 port for engineering console programming (EcoStruxure Control Expert) or HMI connection	
2 modules	
BMXNOE0100	
BMXNOE0110	
BMXNOC0401	
BMXNOR0200H	
2 modules	4 modules
BMXEIA0100	
Shared with other cumulative application-specific channels	
BMXNOM0200 (2-channel)	
20 channels	36 channels
BMXEHC0200 2-channel (60 kHz) module, BMXEHC0800 8-channel (10 kHz) module	
BMXMSP0200 2-channel (200 kHz) PTO (Pulse Train Output) module for servo drives	
BMXP34●0●0 processor with one integrated serial channel, BMXNOM0200 2-channel serial module, BMXNOR0200H module with one integrated RTU serial channel	
2,048 KB	4,096 KB
1,792 KB	3,584 KB
128 KB	256 KB
8 MB as standard	
(6)	8 or 128 MB (according to BMXRMS●●8MPF option card)
5.4 Kinstructions/ms	8.1 Kinstructions/ms
4.2 Kinstructions/ms	6.4 Kinstructions/ms
BMXP341000	BMXP342000
	BMXP3420102
	BMXP342020
	BMXP3420302

(1) Local Modicon X80 I/O are localized in local racks (main or extension).

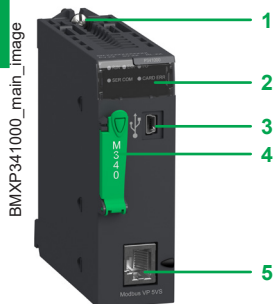
(2) Maximum number of discrete and analog application-specific I/O channels is not cumulative.

(3) Via network module.

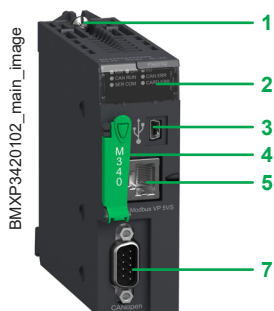
(4) Maximum number of Ethernet modules is cumulative with different Ethernet communication modules.

(5) Maximum number of application-specific channels is cumulative with channels in counter module, motion control module, serial link modules, and processor integrated serial link.

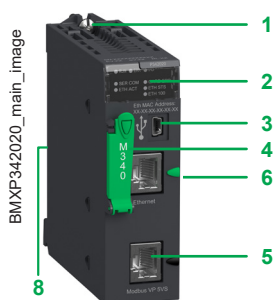
(6) User Web pages with BMXNOE0110 Ethernet FactoryCast module (12 MB available).



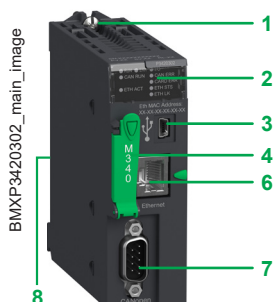
BMXP341000/2000



BMXP3420102



BMXP342020



BMXP3420302

Presentation

Dedicated **BMXP34●●●●●** processors, which form part of a Modicon M340 automation platform, are available in two types:

- Standard type processor
- Performance type processor

The main differences between these two types of processor are:

- The number of I/O
- Their memory capacity
- The types of communication ports integrated in each model

Description of processors

BMXP34●●●●● single-format processors feature the following parts:

- 1 A screw for locking the module in its slot (marked 0) in the rack.
 - 2 A display block comprising 5 to 10 LEDs, depending on the model
 - Common LEDs:
 - RUN LED (green): processor in operation (program execution)
 - ERR LED (red): detected processor or system fault
 - I/O LED (red): detected I/O module fault
 - SER COM LED (yellow): activity on the Modbus serial link
 - CARD ERR LED (red): memory card missing or detected fault
 - Specific LEDs depending on the model:
 - CAN RUN LED (green): integrated CANopen bus operational (**BMXP3420102** and **BMXP3420302** models only)
 - CAN ERR LED (red): detected fault on integrated CANopen bus (**BMXP3420102** and **BMXP3420302** models only)
 - ETH ACT LED (green): activity on the Ethernet Modbus/TCP network (**BMXP342020** and **BMXP3420302** models only)
 - ETH STS LED (green): Ethernet Modbus/TCP network status (**BMXP342020** and **BMXP3420302** models only)
 - ETH 100 (red): Ethernet Modbus/TCP data rate (10 or 100 Mbps) (**BMXP342020** and **BMXP3420302** models only)
 - 3 A Mini-B USB connector for a programming terminal (or Harmony HMI terminal) (1)
 - 4 A slot equipped with a flash memory card for backing up the application (an LED, located above this slot, indicates recognition of or access to the memory card)
- In addition, depending on the model:
- 5 An RJ45 connector for Modbus serial link or Character mode link (RS-232-C/RS-485, 2-wire, non-isolated) for **BMXP341000**, **BMXP342000**, **BMXP3420102**, and **BMXP342020** models
 - 6 An RJ45 connector for connection to the 10BASE-T/100BASE-TX Ethernet Modbus/TCP network for **BMXP342020** and **BMXP3420302**
 - 7 A 9-way SUB-D connector for the integrated CANopen master bus for **BMXP3420102** and **BMXP3420302** models.
 - 8 (On the rear) two 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 EcoStruxure Control Expert programming software, the OPC Factory Server (OFS), and Harmony HMI terminals.

All **BMXP34●●●●●** processors can be connected to a USB bus comprising 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 PLC (modem, printer).

(1) For more detailed information, please refer to [our website](#).

Memory cards

BMXRMS008MP memory card (included as standard)

Modicon M340 processors are supplied as standard (1) with an SD (*Secure Digital*) type flash memory card, formatted by Schneider Electric and referenced **BMXRMS008MP** as a replacement part. This card is intended for backing up the two memory areas on the processor internal RAM:

- Program, symbols, and comments area, which contains the executable binary code and the IEC source code of the application program for the program part
- Constant area, which contains the constant data located by address

The data is backed up automatically by duplication when the PLC is turned off. Likewise, data restoration is transparent for the user on return of power.

Capacity of the backup area on the memory card:

- 1,792 KB for the **BMXP341000** Standard processor
- 3,584 KB for the **BMXP342●●●●** Performance processors

BMXP342020/20302 processors with an integrated Ethernet port have an additional 2 MB memory area specifically for Standard Web services (Transparent Ready B10) (see [page 3/8](#)).

BMXRMS008MPF/128MPF optional memory cards

BMXP342●●●● Performance processors can take a **BMXRMS008MPF** or **BMXRMS128MPF** optional memory card, with greater memory capacity, in place of the standard memory card. These cards also provide 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 Word, Excel, PowerPoint, or Acrobat Reader document to be received via FTP (for example, maintenance manuals, diagrams., etc.)
- Additional data to be stored via EFB user function blocks (for example: production data, manufacturing recipes, etc.)

EcoStruxure Control Expert programming software helps the application designer manage the structure and memory space occupation of the Modicon M340 automation platform.

Protecting the application

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 PLC.

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

With EcoStruxure Control Expert, the user has function blocks to help protect know-how by means of a signature that can be loaded and stored in the M340 processor flash memory card (code not executed if the signature is not present).

Modifying the program in online mode

The online program modification function is available on the Modicon M340 automation platform with EcoStruxure Control Expert software. Program code and data can be added or modified in different places in the application in a single modification session, thus helping to ensure that 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 complying with the recommendation to structure the application program in several, reasonably-sized sections.

2



BMXP342000



BMXP3420102



BMXP3420302



BMXP342020

Modicon M340 processors					
I/O capacity	Max. no. of communication modules	Integrated communication ports	Memory card	Reference	Weight kg/lb
Standard BMXP3410, 2 racks					
512 discrete I/O 128 analog I/O 20 application-specific channels	2 Ethernet modules 2 AS-Interface modules	Modbus serial link	Included	BMXP341000	0.200/ 0.441

Performance BMXP3420, 4 racks					
1,024 discrete I/O 256 analog I/O 36 application-specific channels	2 Ethernet modules	Modbus serial link	Included	BMXP342000	0.200/ 0.441
	4 AS-Interface modules	Modbus serial link	Included	BMXP3420102 (1)	0.210/ 0.463
		Modbus serial link	Included	BMXP342020	0.205/ 0.452
		CANopen bus	Included	BMXP3420302 (1)	0.215/ 0.474

(1) BMXP3420102/20302 processors, combined with EcoStruxure Control Expert software, can be used to customize configuration of the device Boot Up procedure compatible with all third-party CANopen products.