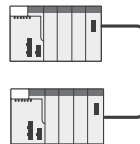
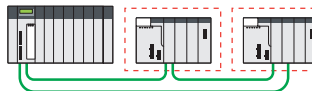


## Modicon X80 I/O platform

Product compatibility according to the network architecture

| Product type                 |                          | Reference                | Local rack Modicon M340                                                           | EIO Quantum drop with Modicon X80 EIO drop with CRA drop adaptor type               |                           |
|------------------------------|--------------------------|--------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------|
|                              |                          |                          | Single-rack or multi-rack                                                         | "standard" BMXCRA31200                                                              | "performance" BMXCRA31210 |
|                              |                          |                          |  |  |                           |
| Application-specific modules | SSI encoder              | BMXEAE0300/BMXEAE0300H   |                                                                                   |                                                                                     |                           |
|                              | Counter                  | BMXEHC0200/BMXEHC0200H   |                                                                                   |                                                                                     |                           |
|                              |                          | BMXEHC0800/BMXEHC0800H   |                                                                                   |                                                                                     |                           |
|                              | Time stamping            | BMXERT1604T              |                                                                                   |                                                                                     |                           |
|                              | PTO (Pulse Train Output) | BMXMSP0200               |                                                                                   |                                                                                     |                           |
|                              | Weighing                 | PMESWT0100               |                                                                                   |                                                                                     |                           |
| Communication modules        | Ethernet                 | BMXNOC0401               |                                                                                   |                                                                                     |                           |
|                              |                          | BMENOC03•1               |                                                                                   |                                                                                     |                           |
|                              |                          | BMXNOE0100/BMXNOE0100H   |                                                                                   |                                                                                     |                           |
|                              |                          | BMXNOE0110/BMXNOE0110H   |                                                                                   |                                                                                     |                           |
|                              | Serial link              | BMXNOM0200/BMXNOM0200H   |                                                                                   |                                                                                     |                           |
|                              | RTU                      | BMXNOR0200H              |                                                                                   |                                                                                     |                           |
|                              | AS-Interface             | BMXEIA0100               |                                                                                   |                                                                                     |                           |
|                              | Optical fibre            | BMXNRP0200               |                                                                                   |                                                                                     |                           |
|                              |                          | BMXNRP0201               |                                                                                   |                                                                                     |                           |
|                              |                          | Wi-Fi                    | PMXNOW0300                                                                        |                                                                                     |                           |
| Communication heads          |                          | BMXCRA31200              |                                                                                   |                                                                                     |                           |
|                              |                          | BMXCRA31210/BMXCRA31210C |                                                                                   |                                                                                     |                           |
|                              |                          | BMECRA31210/BMECRA31210C |                                                                                   |                                                                                     |                           |
|                              |                          | BMXPRA0100               |                                                                                   |                                                                                     |                           |
| CPUs                         | M340                     | BMXP341000/BMXP341000H   |                                                                                   |                                                                                     |                           |
|                              |                          | BMXP342000               |                                                                                   |                                                                                     |                           |
|                              |                          | BMXP342010               |                                                                                   |                                                                                     |                           |
|                              |                          | BMXP3420102              |                                                                                   |                                                                                     |                           |
|                              |                          | BMXP342020H              |                                                                                   |                                                                                     |                           |
|                              |                          | BMXP3420302/BMXP3420302H |                                                                                   |                                                                                     |                           |
|                              | M580                     | BMEP581020/BMEP581020H   |                                                                                   |                                                                                     |                           |
|                              |                          | BMEP582020/BMEP582020H   |                                                                                   |                                                                                     |                           |
|                              |                          | BMEP582040/BMEP582040H   |                                                                                   |                                                                                     |                           |
|                              |                          | BMEP583020               |                                                                                   |                                                                                     |                           |
|                              |                          | BMEP583040               |                                                                                   |                                                                                     |                           |
|                              |                          | BMEP584020               |                                                                                   |                                                                                     |                           |
|                              |                          | BMEP584040               |                                                                                   |                                                                                     |                           |
|                              |                          |                          |                                                                                   |                                                                                     |                           |
| Compatible                   |                          | Not compatible           |                                                                                   |                                                                                     |                           |

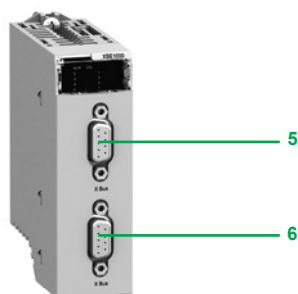
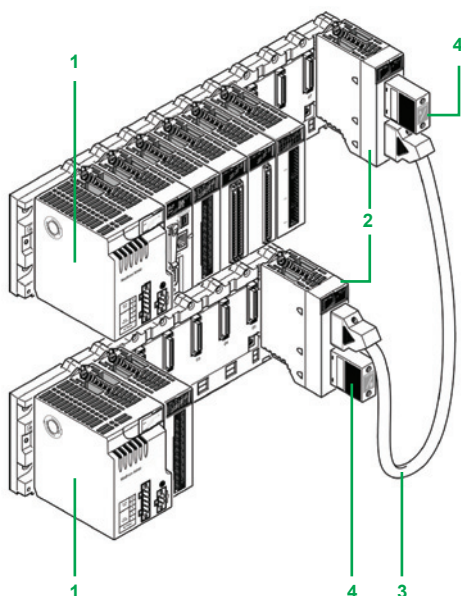
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# Modicon M340 automation platform

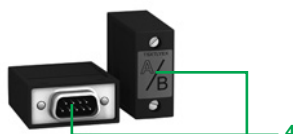
## Software configuration and multi-rack configuration



Unity Pro



Rack expansion module  
BMXXBE1000



Line terminator  
TSXTLYEX

### Presentation (continued)

#### Design and setup of Modicon M340 applications

Setting up of the Modicon M340 automation platform processors requires the use one of the following software packages:

- Unity Pro Small programming software
- Unity Pro Medium, Large or Extra Large programming software or identical to that used to set up Modicon Premium and Modicon Quantum automation platforms
- Optionally, depending on requirements, Unity EFB toolkit software for developing EF and EFB function block libraries in C language

The function block software libraries provide Modicon M340 processors with the processing capability required to meet the specialized requirements within the motion control with multiple independent axis functions domain (MFB "Motion Function Blocks" library). The axes are controlled by Altivar 312/71 variable speed drives or Lexium 32 servo drives connected on the CANopen machine bus.

**Note:** Compatibility of BMXP3420102/20302 processors with the Unity Pro software version. 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 all CANopen third-party products.

### Composition of a multi-rack configuration

Multi-rack configurations are made up of standard BMXXBP●●00 racks. They comprise:

- 2 racks maximum for a station with BMXP341000 processor
- 4 racks maximum for a station with BMXP3420●●● or BMXP3420●●●CL processor

Each rack is equipped with:

- 1 A BMXCPS●●●● power supply
- A BMXXBE1000 expansion rack module. This module, inserted in the right-hand end of the rack (XBE slot) does not occupy rack slots 00...11 (4, 6, 8 or 12 slots are still available). For further information, please consult our "Modicon X80 I/O platform" catalog available on our website [www.schneider-electric.com](http://www.schneider-electric.com).

### X-bus

The racks, distributed on the X-bus, are connected to each other by X-bus extension cordsets 3 with a total length of 30 m/98.42 ft maximum.

The racks are connected in a daisy chain using BMXXBC●●0K (1) X-bus extension cordsets connected to the two 9-way SUB-D connectors 5 and 6 on the front panels of the BMXXBE1000 rack expansion modules 2.

### Line terminators 4

Both expansion modules at the ends of the daisy chain must have a line terminator 4 TSXTLYEX on the unused 9-way SUB-D connector.

**Note:** The processor module is always positioned in the rack at address 0. However, in an X-bus daisy chain, the order of the racks has no effect on operation; the order of the daisy chain could be, for example 0-1-2-3, 2-0-3-1, 3-1-2-0, etc.

### Cybersecurity

Schneider Electric has always taken care of the security of its systems. Security guidelines are available for our customers to ensure their systems are protected from attacks.

The Modicon M340 is a cyber-secure platform thanks to its advanced built-in cybersecurity features and robustness.

The Modicon M340 automation platform also offers the following features:

- Protection against unauthorized remote connections via an online editable Access Control List
- Protection against remote programming changes via a password
- Option to enable or disable HTTP or FTP services
- Integrity of Unity Pro executable files
- Unnecessary services disabled by default
- Security features enabled by default

(1) Extension cordsets BMXXBC●●0K in lengths of 0.8 m/2.62 ft, 1.5 m/4.92 ft, 3 m/9.84 ft, 5 m/16.40 ft or 12 m/39.37 ft with elbowed connectors or TSXCBY●08K in lengths of 1 m/3.28 ft, 3 m/9.84 ft, 5 m/16.40 ft or 12 m/39.37 ft, 18 m/59.05 ft ou 28 m/91.86 ft with straight connectors.

Modicon M340 automation platform

Modicon M340 processors

Type of Modicon M340 processor

Standard processor

Performance processors with or without memory card



|                                       |                                                           |
|---------------------------------------|-----------------------------------------------------------|
| Racks                                 | Number of racks                                           |
|                                       | Max. number of slots (excluding power supply module)      |
| I/O                                   | In-rack discrete I/O (1)                                  |
|                                       | In-rack I/O (1)                                           |
|                                       | Distributed I/O (limited depending on the type of medium) |
| In-rack application-specific channels | No. of channels (counter, motion control, serial link)    |
|                                       | Counter (1)                                               |
|                                       | Motion control (1)                                        |
|                                       | Serial link (process or RTU) (1)                          |
|                                       | Process control, programmable loops                       |
| Integrated communication ports        | Ethernet Modbus/TCP network                               |
|                                       | CANopen master bus                                        |
|                                       | Serial link (process or RTU)                              |
|                                       | USB port                                                  |
| Communication modules (1)             | Ethernet network Max. no. Type of module                  |
|                                       | AS-Interface bus Max. no. Type of module                  |
| Internal memory capacity              | Internal user RAM                                         |
|                                       | Program, constants and symbols                            |
|                                       | Located/unlocated data                                    |
| Memory card capacity (on processor)   | Backup of program, constants and symbols                  |
|                                       | Hosting and display of user Web pages                     |
|                                       | File storage                                              |
| Application structure                 | Master task                                               |
|                                       | Fast task                                                 |
|                                       | Event tasks                                               |
| No. of K instructions executed per ms | 100% Boolean                                              |
|                                       | 65% Boolean + 35% fixed arithmetic                        |
| Rack power supply                     |                                                           |
| References                            |                                                           |
| Page                                  |                                                           |

|                                                                                                          |  |                                                       |  |
|----------------------------------------------------------------------------------------------------------|--|-------------------------------------------------------|--|
| 2 (with 4, 6, 8 or 12 slots)                                                                             |  | 4 (with 4, 6, 8 or 12 slots)                          |  |
| 24                                                                                                       |  | 48                                                    |  |
| 512 channels (modules with 8, 16, 32 or 64 channels)                                                     |  | 1024 channels (modules with 8, 16, 32 or 64 channels) |  |
| 128 channels (modules with 2, 4, 6 or 8 channels)                                                        |  | 256 channels (modules with 2, 4, 6 or 8 channels)     |  |
| - On Ethernet Modbus/TCP via network module (63 devices with I/O Scanning function)                      |  |                                                       |  |
| - On Modbus link (32 devices)                                                                            |  |                                                       |  |
| 20 max.                                                                                                  |  | 36 max.                                               |  |
| BMXEHC0200 2-channel (60 kHz) or BMXEHC0800 8-channel (10 kHz) modules                                   |  |                                                       |  |
| BMXMSP0200 2-channel (200 kHz) PTO ( <i>Pulse Train Output</i> ) modules for servo drives                |  |                                                       |  |
| -                                                                                                        |  |                                                       |  |
| BMXNOM0200 2-channel module or BMXNOR0200H module with 1 RTU serial channel                              |  |                                                       |  |
| Process control EFB library                                                                              |  |                                                       |  |
| -                                                                                                        |  |                                                       |  |
| -                                                                                                        |  |                                                       |  |
| 1 in RTU/ASCII Modbus master/slave mode or in Character mode (non-isolated RS232/RS485, 0.3...38.4 Kbps) |  |                                                       |  |
| 1 programming port (PC terminal) or HMI connection port                                                  |  |                                                       |  |
| 2                                                                                                        |  |                                                       |  |
| BMXNOE0100/0110 or BMXNOC0401 network modules or BMXNOR0200H module with 1 Ethernet RTU channel          |  |                                                       |  |
| 2                                                                                                        |  | 4                                                     |  |
| BMXEIA0100 master module                                                                                 |  |                                                       |  |
| 2048 KB                                                                                                  |  | 4096 KB                                               |  |
| 1792 KB                                                                                                  |  | 3584 KB                                               |  |
| 128 KB                                                                                                   |  | 256 KB                                                |  |
| 8 MB as standard                                                                                         |  |                                                       |  |
| (2)                                                                                                      |  |                                                       |  |
| -                                                                                                        |  | 8 or 128 MB (according to BMXRMS●●8MPF option card)   |  |
| 1                                                                                                        |  |                                                       |  |
| 1                                                                                                        |  |                                                       |  |
| 32                                                                                                       |  | 64                                                    |  |
| 5.4 Kinstructions/ms                                                                                     |  | 8.1 Kinstructions/ms                                  |  |
| 4.2 Kinstructions/ms                                                                                     |  | 6.4 Kinstructions/ms                                  |  |
| 24 V --- isolated, 24...48 V --- isolated or 100...240 V ~ power supply module                           |  |                                                       |  |
| BMXP341000                                                                                               |  | BMXP342000                                            |  |
| 1/13                                                                                                     |  |                                                       |  |

(1) The maximum values for the number of discrete I/O, analog I/O, counter/motion control/serial link channels and the number of networks are not cumulative (they are limited by the maximum number of slots in the configuration, 1 rack: 11, 2 racks: 23, 3 racks: 35 and 4 racks: 47).

(2) User web pages with BMXNOE0110 Ethernet FactoryCast module (12 MB available).

(3) BMXP3420102/20102CL/20302/20302CL processors can be used to customize configuration of the device Boot Up procedure compatible with all CANopen third-party products. Requires Unity Pro software, version ≥ V4.1.

Performance processors with or without memory card (continued)



|                                                                                                          |               |                                                                                                                  |                                                                                  |
|----------------------------------------------------------------------------------------------------------|---------------|------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|
| 4 (with 4, 6, 8 or 12 slots)                                                                             |               |                                                                                                                  |                                                                                  |
| 48                                                                                                       |               |                                                                                                                  |                                                                                  |
| 1024 channels (modules with 8, 16, 32 or 64 channels)                                                    |               |                                                                                                                  |                                                                                  |
| 256 channels (modules with 2, 4, 6 or 8 channels)                                                        |               |                                                                                                                  |                                                                                  |
| - On CANopen bus (63 devices),                                                                           |               |                                                                                                                  |                                                                                  |
| - On Ethernet Modbus/TCP via network module (63 devices with I/O Scanning function),                     |               |                                                                                                                  |                                                                                  |
| - On Modbus link (32 devices).                                                                           |               |                                                                                                                  |                                                                                  |
| 36 max.                                                                                                  |               |                                                                                                                  |                                                                                  |
| BMXEHC0200 2-channel (60 kHz) or BMXEHC0800 8-channel (10 kHz) modules                                   |               |                                                                                                                  |                                                                                  |
| BMXMSP0200 2-channel (200 kHz) PTO ( <i>Pulse Train Output</i> ) modules for servo drives                |               |                                                                                                                  |                                                                                  |
| MFB (Motion Function Blocks) library (for drives or servo drives on CANopen bus)                         |               | -                                                                                                                | MFB (Motion Function Blocks) library (for drives or servo drives on CANopen bus) |
| BMXNOM0200 2-channel module or BMXNOR0200H module with 1 RTU serial channel                              |               |                                                                                                                  |                                                                                  |
| Process control EFB library                                                                              |               |                                                                                                                  |                                                                                  |
| -                                                                                                        |               | 1 x 10BASE-T/100BASE-TX (Modbus/TCP, BOOTP/DHCP, FDR client, e-mail notification, class B10 standard web server) |                                                                                  |
| 1 (63 slaves, 50...1000 Kbps, class M20) (3)                                                             |               | -                                                                                                                | 1 (63 slaves, 50...1000 Kbps, class M20) (3)                                     |
| 1 in RTU/ASCII Modbus master/slave mode or in Character mode (non-isolated RS232/RS485, 0.3...38.4 Kbps) |               | -                                                                                                                | -                                                                                |
| 1 programming port (PC terminal) or HMI connection port                                                  |               |                                                                                                                  |                                                                                  |
| 2                                                                                                        |               |                                                                                                                  |                                                                                  |
| BMXNOE0100/0110 or BMXNOC0401 network modules or BMXNOR0200H module with 1 Ethernet RTU channel          |               |                                                                                                                  |                                                                                  |
| 4                                                                                                        |               |                                                                                                                  |                                                                                  |
| BMXEIA0100 master module                                                                                 |               |                                                                                                                  |                                                                                  |
| 4096 KB                                                                                                  |               |                                                                                                                  |                                                                                  |
| 3584 KB                                                                                                  |               |                                                                                                                  |                                                                                  |
| 256 KB                                                                                                   |               |                                                                                                                  |                                                                                  |
| 8 MB as standard                                                                                         |               | Supplied without card                                                                                            | 8 MB as standard                                                                 |
| (2)                                                                                                      |               |                                                                                                                  | Supplied without card                                                            |
| 8 or 128 MB (according to BMXRMS●●8MPF option card)                                                      |               |                                                                                                                  |                                                                                  |
| 1                                                                                                        |               |                                                                                                                  |                                                                                  |
| 1                                                                                                        |               |                                                                                                                  |                                                                                  |
| 64                                                                                                       |               |                                                                                                                  |                                                                                  |
| 8.1 Kinstructions/ms                                                                                     |               |                                                                                                                  |                                                                                  |
| 6.4 Kinstructions/ms                                                                                     |               |                                                                                                                  |                                                                                  |
| 24 V --- isolated, 24...48 V --- isolated or 100...240 V ~ power supply module                           |               |                                                                                                                  |                                                                                  |
| BMXP3420102                                                                                              | BMXP3420102CL | BMXP342020                                                                                                       | BMXP3420302                                                                      |
| BMXP3420302                                                                                              | BMXP3420302CL |                                                                                                                  |                                                                                  |
| 1/13                                                                                                     |               |                                                                                                                  |                                                                                  |

(1) The maximum values for the number of discrete I/O, analog I/O, counter/motion control/serial link channels and the number of networks are not cumulative (they are limited by the maximum number of slots in the configuration, 1 rack: 11, 2 racks: 23, 3 racks: 35 and 4 racks: 47).

(2) User web pages with BMXNOE0110 Ethernet FactoryCast module (12 MB available).

(3) BMXP3420102/20102CL/20302/20302CL processors can be used to customize configuration of the device Boot Up procedure compatible with all CANopen third-party products. Requires Unity Pro software, version ≥ V4.1.

### 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, reference **BMXRMS008MP**. This card is intended for backing up the two memory areas on the processor module's 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
- Constants area, which contains the constant data located by address.

The data is backed up automatically by duplication, when the PLC is turned off.

Likewise, the restoration of the data is transparent for 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 the **BMXP342●●●●** Performance processors

**BMXP342020/20302/20302CL** processors with an integrated Ethernet port have an additional 2 MB memory area specifically for "Standard Web services" (Transparent Ready B10) (see page 2/16).

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

#### 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.)

Unity Pro 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 prevent any program modification (via the programming terminal or downloading).

From Unity Pro V5.0 on, the user has function blocks for protecting know-how by means of a signature that can be loaded and stored in the M340 processor module's Flash memory card (code not executed if the signature is not present).

#### Program modification in online mode

As with Modicon Premium and Quantum platforms (with Unity Pro software), the online program modification function is available on the Modicon M340 automation platform with the option of adding or modifying the program code and data in different places in the application in a single modification session (thus ensuring 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.

(1) With the exception of 2 models (see page 1/13).