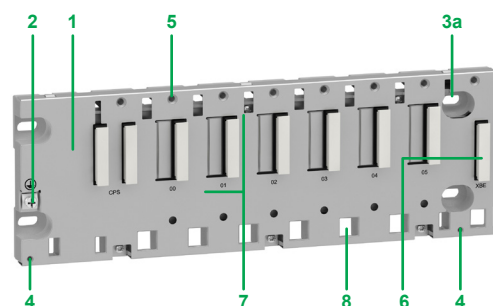
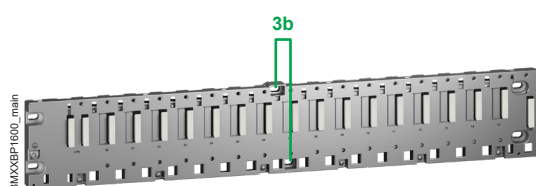
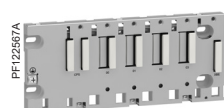




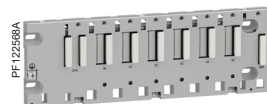
BMXXBP0600 backplane with 6 slots



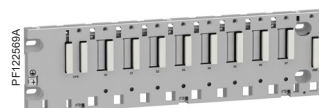
BMXXBP1600 with 16 slots and additional fixing holes



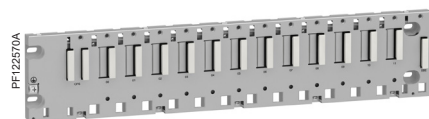
BMXXBP0400



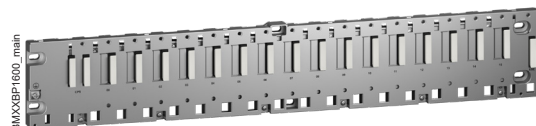
BMXXBP0600



BMXXBP0800



BMXXBP1200



BMXXBP1600

X-bus backplanes

Description

BMXXBP●●00 backplanes are available in 4-, 6-, 8-, 12-, or 16-slot versions and comprise:

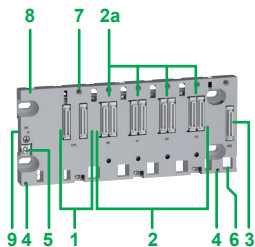
- 1 A metal frame that:
 - Holds the X-bus electronic card and helps it withstand EMI and ESD type interference
 - Holds the modules
 - Gives the rack mechanical rigidity
- 2 A ground terminal for grounding the rack
- 3a 4 holes (big enough for M6 screws) for mounting the backplane on a frame
- 3b 2 holes for mounting the backplane on a frame (**BMXXBP1600 only**)
- 4 2 fixing points for the shielding connection bar
- 5 Tapped holes to take the locking screw on each module
- 6 A connector for a rack expansion module, marked **XBE**
- 7 40-way female ½ DIN connectors forming the electrical connection between the backplane and each module, marked **CPS, 00...15** (the backplane is delivered with each connector protected by a cover, which needs to be removed before inserting the module)
- 8 Slots for anchoring the module pins

References

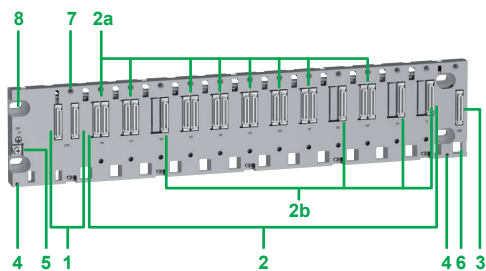
Description	Type of module to be inserted	No. of slots (1)	Power consumption (2)	Reference	Weight kg/lb
X-bus backplanes	BMXCPS power supply, BMXP34 or BMEP58 processor, I/O modules, communication modules and application-specific modules (counter, motion control, and serial)	4	1.12 W	BMXXBP0400	0.630/ 1.389
		6	1.68 W	BMXXBP0600	0.790/ 1.742
		8	PV<0.3: 2.21 W PV≥0.3: 0.13 W	BMXXBP0800	0.950/ 2.094
		12	0.17 W	BMXXBP1200	1.270/ 2.780
		16	0.17 W	BMXXBP1600	1.594/ 3.514

(1) Number of slots taking the processor, I/O modules, communication modules, and application-specific modules (excluding power supply).

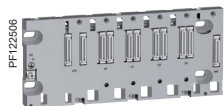
(2) Including power consumption of anti-condensation resistor(s) for 4-, 6-, and 8-slot backplanes.



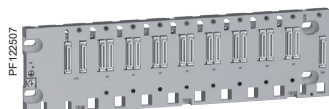
BMEXBP0400 backplane



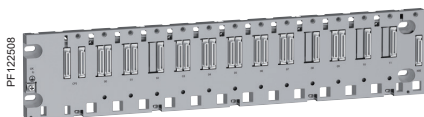
BMEXBP1200 backplane



BMEXBP0400



BMEXBP0800



BMEXBP1200

Dual X-bus and Ethernet backplanes (1) (2)

Description

The number of X-bus and Ethernet slots found on a backplane depends on the backplane size.

BMEXBP0400/BMEXBP0800 are 4- or 8-slot dual X-bus and Ethernet backplanes with:

- 1 CPS slot for power supply
- 2 4 slots (**BMEXBP0400**) or 8 slots (**BMEXBP0800**) with:
 - 2a 4 or 8 X-bus and Ethernet connectors for X-bus or Ethernet modules (3)
- 3 Extension: 1 connector for an X-bus rack expansion
- 4 2 fixing points for the shielding connection bar
- 5 Protective ground screw
- 6 Slots for anchoring the module pin
- 7 Tapped holes for the locking screw on each module
- 8 4 holes for M4, M5, M6, or UNC #6-32 screws (4.32 mm to 6.35 mm/0.17 to 0.25 in.)
- 9 The backplane is fastened to 35 mm/1.38 in. wide and 15 mm/0.59 in. deep DIN rails. Mounting on a 35 mm/1.38 in. wide and 7.5 mm/0.295 in. deep DIN rail is also possible (in this case, the product withstands less mechanical stress).

BMEXBP1200 is a 12-slot dual X-bus and Ethernet backplane with:

- 1 CPS slot for power supply
- 2 12 slots with:
 - 2a 8 X-bus and Ethernet connectors for X-bus or Ethernet modules (3)
 - 2b 4 X-bus connectors for X-bus modules
- 3 Extension: 1 connector for an X-bus rack expansion
- 4 2 fixing points for the shielding connection bar
- 5 Protective ground screw
- 6 Slots for anchoring the module pin
- 7 Tapped holes for the locking screw on each module
- 8 4 holes for M4, M5, M6, or UNC #6-32 screws (4.32 mm to 6.35 mm/0.17 to 0.25 in.)

References

Description	Type of module to be inserted	Ethernet connectors	X-bus connectors	Power consumption (4)	Reference	Weight kg/lb
4-slot (5) X-bus and Ethernet backplane	BMXCPS power supply, BMEP58/BMEH58 processor, I/O modules, communication modules, and application-specific modules (counter, motion control, and serial)	4	4	2.99 W	BMEXBP0400	0.719/1.500
8-slot (5) X-bus and Ethernet backplane		8	8	4.15 W	BMEXBP0800	1.064/2.350
12-slot (5) X-bus and Ethernet backplane		8	12	4.22 W	BMEXBP1200	1.398/3.080

(1) In a Modicon M580 architecture, Ethernet backplanes can be used for Ethernet RIO drop (EIO) and for expansion racks. Only the X-bus is extended across expansion racks connected in a daisy chain. Modules that require connection to the Ethernet bus do not operate when installed in expansion racks (refer to compatibility table page 1/10).

(2) For multi-rack configuration, see page 2/7.

(3) Modules supporting both X-bus and Ethernet. All Modicon X80 I/O modules are X-bus modules, except for HART modules. See compatibility table for more details (page 1/10).

(4) Including power consumption of anti-condensation resistor(s).

(5) Maximum number of slots for modules excluding power supply and rack expansion modules.



BMXCPS2010/3020



BMXCPS2000/3500



BMXCPS4002



BMXCPS4022



BMXCPS3522

Functions

Alarm relay

The alarm relay incorporated in each power supply has a volt-free contact accessible on the 2-way connector on the front panel.

The operating principle is as follows:

In normal operation, with the PLC in RUN, the alarm relay is energized and its contact is closed (state 1).

The relay de-energizes and its associated contact opens (state 0) whenever the application stops, even partially, due to any of the following:

- Detection of a blocking fault
- Incorrect rack output voltages
- Loss of supply voltage

Reset pushbutton

The power supply in each backplane has a Reset button on the front panel which, when pressed, triggers an initialization sequence on the processor and the modules in the rack it supplies.

Pressing this pushbutton triggers a sequence of service signals, which is the same as that for:

- A power break, when the pushbutton is pressed
- A power-up, when the pushbutton is released
- In terms of the application, these operations represent a cold start (forcing the I/O modules to state 0 and initializing the processor).

Sensor power supply

BMXCPS2000/3500 AC power supplies and **BMXCPS3540T** DC power supplies have an integrated 24 V --- supply for powering the input sensors.

Connection to this 24 V --- sensor power supply is via the 5-way connector on the front panel. The available power depends on the power supply (0.45 A or 0.9 A).

References

Each **BMEXBP●●00** or **BMXXBP●●00** rack must be equipped with a power supply. **BMEXBP●●02** must be equipped with one or two redundant power supplies. These power supplies are inserted in the leftmost power supply slots of each rack (marked CPS).

The power required to supply each backplane depends on the type and number of modules installed in the backplane. It is therefore necessary to draw up a power consumption table for each backplane in order to determine which **BMXCPS●●●●** power supply is the most suitable for each backplane (please use the [Modicon PLC Configurator tool](#)).

X80 power supplies (1)							
Line supply	Available power (2)				Nominal current	Reference	Weight
	3.3 V $\overline{\text{---}}$ (3)	24 V $\overline{\text{---}}$ (3)	24 V $\overline{\text{---}}$ sensors (4)	Total	24 V $\overline{\text{---}}$ rack (3)		
24 V $\overline{\text{---}}$ isolated	8.3 W	17 W	–	17 W	0.7 A	BMXCPS2010	0.290/ 0.639
24...48 V $\overline{\text{---}}$ isolated	15 W	32 W	–	32 W	1.3 A	BMXCPS3020	0.340/ 0.750
24...48 V $\overline{\text{---}}$	18 W	40 W	–	40 W	1.67 A	BMXCPS4022	0.810/ 1.786
100...150 V $\overline{\text{---}}$	15 W	31.2 W	21.6 W	36 W (5)	1.3 A	BMXCPS3540T (5)	0.340/ 0.750
	18 W	40 W	–	40 W	1.67 A	BMXCPS3522	0.610/ 1.345
100...240 V $\sim$	8.3 W	16.8 W	10.8 W	20 W	0.7 A	BMXCPS2000	0.300/ 0.661
	15 W	31.2 W	21.6 W	36 W	1.3 A	BMXCPS3500	0.360/ 0.794
	18 W	40 W	–	40 W	1.67 A	BMXCPS4002	0.360/ 0.794

Separate parts

Description	Type	Composition	Reference	Weight kg/lb
Set of 2 removable connectors	Spring-type	One 5-way terminal block and one 2-way terminal block	BMXXTSCPS20	0.015/ 0.033
	Caged	One 5-way terminal block and one 2-way terminal block	BMXXTSCPS10	0.020/ 0.044

(1) Include a set of two caged removable connectors. Spring-type connectors available separately under reference **BMXYTSCPS20**.

(2) The sum of the power consumed on each voltage (3.3 V --- and 24 V ---) must not exceed the total power of the module. Calculate the power consumption using the [Modicon PLC Configurator tool](#) or EcoStruxure Control Expert: see the power supply and I/O budget available in the power supply properties in EcoStruxure Control Expert.

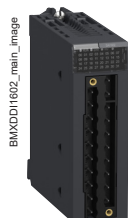
(3) 3.3 V $\equiv$ and 24 V $\equiv$ rack voltages for powering modules in the Modicon X80 I/O rack.

(5) Extended operating temperature -25 to +70 °C/-13 to +158 °F with power derating at extreme temperatures: 27 W between -25 and 0 °C/-13 and 0 °F and between 60 and 70 °C/140 and 158 °F).

References

Modicon X80 discrete input modules

Type	Input voltage	Connection via (1)	IEC/EN 61131-2 conformity	No. of channels (common x channels per group)	Reference	Weight kg/lb
⋮	24 V (positive logic)	20-way caged, screw clamp, or spring-type removable terminal block	Type 3	16 inputs (1 x 16)	BMXDDI1602	0.115/ 0.254
		One 40-way connector	Type 1	32 inputs (2 x 16)	BMXDDI3202K	0.110/ 0.243
		Two 40-way connectors	Non-type	64 inputs (4 x 16)	BMXDDI6402K (1)	0.145/ 0.320
	24 V (positive/ negative logic)	20-way caged, screw clamp, or spring-type removable terminal block	Non-type	16 inputs (1 x 16)	BMXDAI1602	0.115/ 0.254
	12/24 V (positive/ negative logic)	40-way caged or spring-type removable terminal block	Type 3	32 inputs (2 x 16)	BMXDDI3232	0.137/ 0.302
		48 V (positive logic)	20-way caged, screw clamp, or spring-type removable terminal block	Type 1	16 inputs (1 x 16)	BMXDDI1603
	40-way caged or spring-type removable terminal block		Type 3	32 inputs (2 x 16)	BMXDDI3203	0.137/ 0.302
~	125 V (positive logic)	20-way caged, screw clamp, or spring-type removable terminal block	Non-type	16 inputs (1 x 16)	BMXDDI1604T	0.144/ 0.317
		24 V	20-way caged, screw clamp, or spring-type removable terminal block	Type 1	16 inputs (1 x 16)	BMXDAI1602
	48 V	20-way caged, screw clamp, or spring-type removable terminal block	Type 3	16 inputs (1 x 16)	BMXDAI1603	0.115/ 0.254
		100...120 V	20-way caged, screw clamp, or spring-type removable terminal block	Type 3	8 isolated inputs (8 x 1)	BMXDAI0814
	20-way caged, screw clamp, or spring-type removable terminal block		Type 3	16 inputs (1 x 16)	BMXDAI1604	0.115/ 0.254
	40-way caged or spring-type removable terminal block		Type 1	16 isolated inputs	BMXDAI1614	0.157/ 0.346
	40-way caged or spring-type removable terminal block		Non-type at 50 Hz Type 1 at 60 Hz	16 isolated inputs	BMXDAI16142 (2)	0.157/ 0.346
	200...240 V		20-way caged, screw clamp, or spring-type removable terminal block	Type 2	8 inputs (1 x 8)	BMXDAI0805
		40-way caged or spring-type removable terminal block	Type 1	16 isolated inputs	BMXDAI1615	0.157/ 0.346



BMXDDI160●●
BMXDAI08●●●/160●



BMXDDI3202K



BMXDDI6402K



BMXDAI161●●

(1) 64-channel modules have two connectors and therefore require two connection cables.

(2) **BMXDAI16142** is optimized for 60Hz application, e.g. Quantum modules, while **BMXDAI1614** is compatible for both 50Hz and 60 Hz.

Modicon X80 modules

Modicon X80 I/O modules

Discrete output and mixed I/O modules

References

Modicon X80 discrete output modules

Type	Output voltage	Connection via (1)	IEC/EN 61131-2 conformity	No. of channels (common x channels per group)	Reference	Weight kg/lb
transistor	24 V (positive logic)	20-way caged, screw clamp, or spring-type removable terminal block	Yes	16 outputs (1 x 16)	BMXDDO1602	0.120/0.265
	24 V (negative logic)	20-way caged, screw clamp, or spring-type removable terminal block	Yes	16 outputs (1 x 16)	BMXDDO1612	0.120/0.265
	12...24 V (positive logic)	40-way caged or spring-type removable terminal block	Yes	32 outputs (2 x 16)	BMXDDO3202	0.142/0.313
	24 V (positive logic)	One 40-way connector	Yes	32 outputs (2 x 16)	BMXDDO3202K	0.110/0.243
		Two 40-way connectors	Yes	64 outputs (4 x 16)	BMXDDO6402K (1)	0.150/0.331
triac	100...240 V	20-way caged, screw clamp, or spring-type removable terminal block	Yes	16 outputs (4 x 4)	BMXDAO1605	0.140/0.309
	24...240 V	40-way caged or spring-type removable terminal block	Yes	16 isolated outputs	BMXDAO1615	0.250/0.551
relay	100...150 V	20-way caged, screw clamp, or spring-type removable terminal block	Yes	8 normally open isolated relay outputs	BMXDRA0804T	0.178/0.392
	24...125 V	20-way caged, screw clamp, or spring-type removable terminal block	Yes	8 normally open isolated relay outputs	BMXDRA0815	0.210/0.463
	24 V	20-way caged, screw clamp, or spring-type removable terminal block	Yes	16 normally open relay outputs (2 x 8)	BMXDRA1605	0.150/0.331
	5...125 V	40-way caged or spring-type removable terminal block	Yes	8 normally open and normally closed isolated relay outputs	BMXDRC0805	0.189/0.417

Modicon X80 discrete mixed I/O modules

Type	Voltage		Connection via	IEC/EN 61131-2 conformity		No. of channels (common x channels per group)		Reference	Weight kg/lb
	Inputs	Outputs		Inputs	Outputs	Inputs	Outputs		
transistor	24 V	24 V	20-way caged, screw clamp, or spring-type removable terminal block	Type 3	Yes	8 (1 x 8)	8 (1 x 8)	BMXDDM16022	0.115/0.254
	(positive logic)	(positive logic)							
relay	24 V	24...240 V	20-way caged, screw clamp, or spring-type removable terminal block	Type 3	Yes	8 (1 x 8)	8 (1 x 8)	BMXDDM16025	0.135/0.298
	(positive logic)	(positive logic)							
transistor	24 V	24 V	One 40-way connector	Type 1	Yes	16 (1 x 16)	16 (1 x 16)	BMXDDM3202K	0.110/0.243

(1) 64-channel modules have two connectors and therefore require two connection cables.

Complementary characteristics (continued)

BMXAMO0210 analog output module

The **BMXAMO0210** module has 2 high-level isolated outputs (15 bits + sign).

The **BMXAMO0210** module offers the following ranges for each of the inputs depending on the choice made during configuration:

- Voltage: ± 10 V
- Current: 0-20 mA and 4-20 mA

BMXAMO0410/0802 analog output modules

BMXAMO0410/0802 analog output modules have 4 or 8 high-level isolated/non-isolated analog outputs (16 bits/15 bits + sign).

The **BMXAMO0410** module offers the following ranges for each of the outputs depending on the choice made during configuration:

- Voltage: ± 10 V
- Current: 0-20 mA and 4-20 mA

The **BMXAMO0802** module offers the current ranges 0-20 mA and 4-20 mA.

BMXAMM0600 analog mixed I/O module

The **BMXAMM0600** mixed module is a non-isolated I/O module with 4 inputs (12/14 bits) and 2 outputs (12 bits).

The module offers the following ranges for each of the inputs or outputs depending on the choice made during configuration:

- Voltage: ± 10 V, 0...10 V, 0...5 V, and 1...5 V
- Current: 0-20 mA and 4-20 mA

References

X80 analog input modules (1)

Type of input	Input signal range	Resolution	Connection via	No. of channels	Reference	Weight kg/lb
Isolated high-level inputs	± 10 V, 0...10 V, 0...5 V, 1...5 V, ± 5 V, 0-20 mA, 4-20 mA, ± 20 mA	16 bits	20-way caged, screw clamp, or spring-type removable terminal block	4 channels	BMXAMI0410	0.143/ 0.315
Non-isolated high-level inputs	± 10 V, 0...10 V, 0...5 V, 1...5 V, ± 5 V, 0-20 mA	15 bits + sign	28-way caged or spring-type removable terminal block	8 channels	BMXAMI0800	0.175/ 0.386
Isolated low-level inputs	Temperature probe, thermocouple, ± 40 mV, ± 80 mV, ± 160 mV, ± 320 mV, ± 640 mV, ± 1.28 V	15 bits + sign	40-way connector	4 channels	BMXART0414	0.135/ 0.298
				8 channels	BMXART0814	0.165/ 0.364

X80 analog output modules (1)

Type of outputs	Output signal range	Resolution	Connection via	No. of channels	Reference	Weight kg/lb
Isolated high-level outputs	± 10 V, 0-20 mA, 4-20 mA	16 bits	20-way caged, screw clamp, or spring-type removable terminal block	2 channels	BMXAMO0210	0.144/ 0.317
High-level outputs isolated	± 10 V, 0-20 mA, 4-20 mA	15 bits + sign	20-way caged, screw clamp, or spring-type removable terminal block	4 channels	BMXAMO0410	0.175/ 0.386
Non-isolated high-level inputs	0-20 mA, 4-20 mA	15 bits + sign	20-way caged, screw clamp, or spring-type removable terminal block	8 channels	BMXAMO0802	0.175/ 0.386

X80 analog mixed I/O module (1)

Type of I/O	Signal range	Resolution	Connection via	No. of channels	Reference	Weight kg/lb
Mixed I/O, non-isolated	± 10 V, 0...10 V, 0...5 V, 1...5 V, 0-20 mA, 4-20 mA	12 bits or 14 bits depending on the range	20-way caged, screw clamp, or spring-type removable terminal block	Inputs: 4 channels Outputs: 2 channels	BMXAMM0600	0.155/ 0.342

(1) Calculate the power consumption by using the online [Modicon PLC configurator tool](#).



BMXAMI0410



BMXART0414



BMXAMO0210



BMXAMM0600