

Modicon M580 automation platform

Multi-rack configuration



Modicon M580 + expansion rack

Composition of an expansion backplane configuration

M580 CPU supports 4 to 8 local racks (depending upon the CPU performance level), using existing X80 I/O modules and accessories. A Modicon M580 CPU must be installed in the first rack (#0) and this can be a dual bus rack. A Modicon M580 PLC will support up to 7 **BMXXBP** PV02 or higher backplanes (racks) of 4, 6, 8, or 12 slots. The main backplane (rack #0) will support the CPU.

To expand the configuration using additional racks, users must use a bus expansion module (**BMXXBE1000**) and X-bus cables. The backplane expander will be plugged in the dedicated connector on the right side of the backplane. It will not occupy any module slot. The XBE expansion module will not be hot-swappable in accordance with Modicon X80. Each backplane has to include a power supply module and will support up to 12 modules.

An expansion rack can be connected to the main backplane and the X80 drop (EIO).

The rack address is assigned as follows:

- Each rack will be assigned a physical address using 4 micro switches located in the bus expansion module.
- The main rack containing the CPU will be assigned address 0.
- The other racks will be assigned addresses 1 to 7.

Each rack is equipped with:

- 1** **BMXCPS** power supply
- 2** **BMXXBE1000** rack expansion 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).
- 3** The **BMXXBE1000** rack expansion modules are connected to each other by X-bus cordsets.
- 4** Line terminators: Both expansion modules at the ends of the daisy chain must have a line terminator **TSXTLYEX** on the unused 9-way SUB-D connector.

Modicon M580 automation platform

Multi-rack configuration

1



Modicon X80 drop + expansion rack

Ethernet racks

The Modicon M580 CPU supports dual bus backplanes (Ethernet and X-bus) and all the processors support Ethernet ring or star architectures on their Ethernet port.

BMXP58●●2● processors support Ethernet star or ring architectures (RSTP loop is supported on ports 2 and 3). The embedded scanner allows scanning of distributed equipment. The CPU drives these devices directly ("NOC" embedded function).

BMXP58●●4● processors support an embedded scanner that allows scanning of X80 drops on Ethernet RIO (EIO) in addition to distributed equipment.

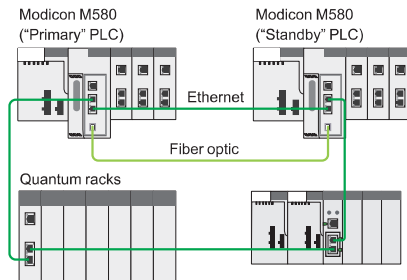
M580 CPUs have an additional third Ethernet port dedicated to the connection of a service tool such as a PC, HMI, or network analyzer. This port is labeled "01 Service". It does not support RSTP.

M580 CPUs can communicate on the main Ethernet backplane. The Modicon M580 CPU cannot be installed in an expansion rack.

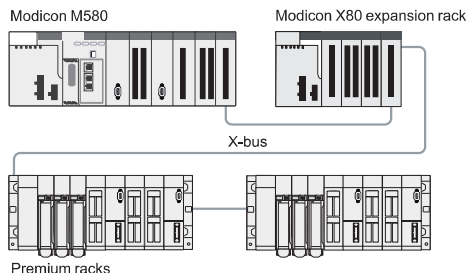
Reference	Description
BMEXBP0400	Standard 4-slot backplane
BMEXBP0800	Standard 8-slot backplane
BMEXBP1200	Standard 12-slot backplane
BMEXBP0602	Dual power supply 6-slot backplane
BMEXBP1002	Dual power supply 10-slot backplane
BMEXBP0400H	Ruggedized 4-slot backplane
BMEXBP0800H	Ruggedized 8-slot backplane
BMEXBP1200H	Ruggedized 12-slot backplane
BMEXBP0602H	Ruggedized dual power supply 6-slot backplane
BMEXBP1002H	Ruggedized dual power supply 10-slot backplane

Modicon M580 automation platform

Multi-rack configuration



Quantum Ethernet I/O migration



Premium X-bus expansion example



Quantum Ethernet I/O migration

Modicon M580 processors, level 4 and above (**BMEP584040**, **BMEP585040**, **BMEP586040**), support Quantum I/O using the Quantum Ethernet remote drop adapter **140CRA31200**. The number of remote I/O drops allowed (up to 31) depends on the M580 processor model.

The Quantum Ethernet drop is configured with Unity Pro software. Each Quantum I/O can be configured using the X80 I/O model (Device DDT) or Quantum model ("State RAM": %I, %IW, %M, %MW) to simplify the reuse of legacy applications. The compatibilities of Quantum I/O in an Ethernet Quantum drop are identical to a Quantum processor based architecture. For more information, please refer to page 1/16.

In addition, the Modicon LL984 legacy language is supported by some CPU models (see pages 1/20 and 1/21).

Premium X-bus expansion - making migration as simple as possible

Modicon M580 CPU supports revamping of an existing Premium installation by replacing the Premium rack 0 (CPU and communication modules) with an M580 rack. It is also possible to associate **TSXRKY4EX/6EX/8EX/12EX** Premium racks with X80 I/O based on an X-bus rack. Most existing configurations are supported. The number of expansion racks allowed depends on the CPU that is being used:

- **BMEP581020**, **BMEP582020**, **BMEP582040**, **BMEP585040**, and **BMEP586040** CPUs support a main local rack and up to 3 expansion racks. If you are using 4, 6, or 8-slot Premium expansion racks, you may install 2 physical racks at each assigned rack address, allowing up to 6 Premium expansion racks (up to 6 backplanes and 100 m/328.083 ft. between 2 drops).

- **BMEP583020**, **BMEP583040**, **BMEP584020**, and **BMEP584040** CPUs support a main local rack with up to 7 expansion racks. If you are using 4, 6, or 8-slot Premium expansion racks, you may install 2 physical racks at each assigned rack address, allowing up to 14 Premium expansion racks.

The maximum number of supported X-bus racks is as follows:

- 4 for **BMEP581020/20●0**
- 8 for **BMEP58030●0/40●0**

The maximum number of X-bus drops is calculated as follows:

Max number = 1 (CPU rack: **BMXXBP●●00** or **BMEXBP●●00**)
 + ½ number of **TSXRKY4/6/8EX** racks
 + number of **TSXRKY12EX** racks
 + number of **BMXXBP●●00** racks

Description

The front panel of the **BMXXBE1000** rack expansion module comprises:

- 5 Retaining screw for locking the module in its slot (at the far right-hand end of the rack)
- 6 Display block with 5 LEDs:
 - RUN LED (green): module in operation
 - COL LED (red): several racks have the same address, or rack address 0 does not contain the **BMEP58●●00** processor module
 - LEDs 0, 1, 2, and 3 (green): rack address 0, 1, 2, or 3
- 7 9-way female SUB-D connector, marked X-bus, for the incoming X-bus cordset 3 connected to the upstream rack, or if it is the first rack, for the **A/** line terminator included in the **TSXTLYEX 4** pack (see page 1/33)
- 8 9-way female SUB-D connector, marked X-bus, for the outgoing X-bus cordset 3 to the downstream rack, or if it is the last rack, for the **/B** line terminator included in the **TSXTLYEX 4** pack (see page 1/33)

On the right-hand side panel

A flap for accessing the 3 rack addressing micro-switches: 0...3

Installation rules for BMXXBP●●00 racks: For the rules on how to install racks in enclosures, see our website www.schneider-electric.com.

Modicon M580 automation platform

Multi-rack configuration

1



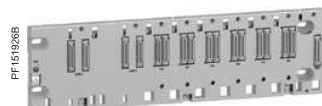
BMXXBP0400



BMXXBP1200



BMEXBP0800



BMEXBP0602



BMXXBE1000

Expansion racks

Description	Type of module to be inserted	No. of slots (1)	Power consumption (2)	Reference	Weight kg/lb
X-bus backplanes for expansion racks (3)	Modicon X80 I/O modules (3)	4	1 W	BMXXBP0400	0.630/ 1.389
		6	1.5 W	BMXXBP0600	0.790/ 1.742
		8	2 W	BMXXBP0800	0.950/ 2.094
		12	0.74 W	BMXXBP1200	1.270/ 2.800
Ethernet + X-bus backplanes for expansion racks (4)	Modicon X80 I/O modules (3)	4	2.8 W	BMEXBP0400	0.705/ 1.554
		8	3.9 W	BMEXBP0800	1.060/ 2.337
		12	3.9 W	BMEXBP1200	1.377/ 3.036
Dual power supply Ethernet + X-bus backplanes for expansion racks (4)	Modicon X80 I/O modules (3)	6	3.9 W	BMEXBP0602	1.377/ 3.036
		10	3.9 W	BMEXBP1002	1.377/ 3.036

Description	Use	Reference	Weight kg/lb
Modicon X80 I/O rack expansion module (3)	Standard module for mounting in each rack (XBE slot) and used to interconnect: - Up to 3 racks with BMEP581020/20●●●● processor module - Up to 7 racks with BMEP5830●●/40●● processor module - 1 rack with X80 drop (EIO)	BMXXBE1000	0.178/ 0.392
Modicon X80 I/O rack expansion kit (3)	Complete kit for 2-rack configuration comprising: - 2 BMXXBE1000 rack expansion modules - 1 BMXXBC008K extension cordset, length 0.8 m/2.625 ft. - 1 TSXTLYEX line terminator (set of 2)	BMXXBE2005	0.700/ 1.543

(1) Number of slots taking all modules except for power supply and rack expansion modules

(2) Power consumption of anti-condensation resistor(s)

(3) Please refer to the "Modicon X80 I/O platform" catalog on www.schneider-electric.com.

(4) The Ethernet slots cannot be used in expansion racks, so each of the slots should be set as X-bus.

PF-108142



BMXXBC●●●K

PF-108138



TSXTLYEX

Cordsets and connection accessories

Description	Use	Composition	Type of connector	Length m/ft.	Reference	Weight kg/lb
X-bus extension cordsets total length 30 m/98.425 ft. max.	Between 2 BMXXBE1000 rack expansion modules	2 x 9-way SUB-D connectors	Angled	0.8/2.625	BMXXBC008K	0.165/ 0.364
				1.5/4.921	BMXXBC015K	0.250/ 0.551
				3/9.842	BMXXBC030K	0.420/ 0.926
				5/16.404	BMXXBC050K	0.650/ 1.433
				12/39.37	BMXXBC120K	1.440/ 3.175
			Straight	1/3.281	TSXCBY010K	0.160/ 0.353
				3/9.842	TSXCBY030K	0.260/ 0.573
				5/16.404	TSXCBY050K	0.360/ 0.794
				12/39.37	TSXCBY120K	1.260/ 2.778
				18/59.05	TSXCBY180K	1.860/ 4.101
				28/91.86	TSXCBY280KT (1)	2.860/ 6.305
Cable reel	Length of cable to be equipped with TSXCBYK9 connectors	Cable with ends with flying leads, 2 line testers	—	100/328.08	TSXCBY1000	12.320/ 27.161

Description	Use	Composition	Type of connector	Sold in lots of	Unit reference	Weight kg/lb
Line terminators	Required on the 2 BMXXBP●●●0 modules located at either end of the daisy chain	2 x 9-way SUB-D connectors marked A/ and /B		2	TSXTLYEX	0.050/ 0.110
X-bus straight connectors	For TSXCBY1000 cables	2 x 9-way SUB-D straight connectors		2	TSXCBYK9	0.080/ 0.176
Connector assembly kit	For attaching TSXCBYK9 connectors	2 crimping pliers, 1 pen (2)		—	TSXCBYACC10	—

(1) Cable supplied with a set of 2 TSXTVSY100 electrical transient suppressors.

(2) To fit the connectors on the cable, you also need a wire stripper, a pair of scissors, and a digital ohmmeter.