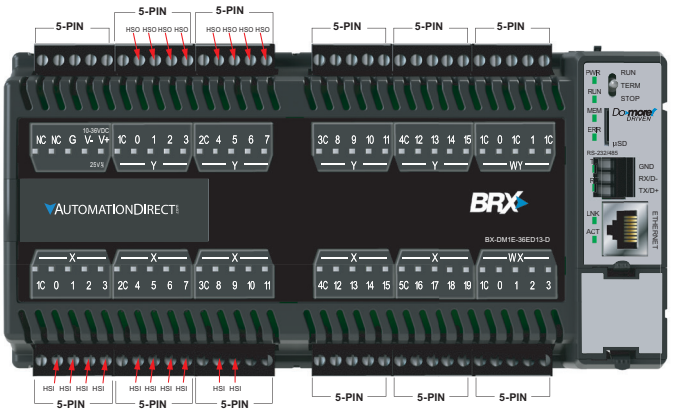
BX 36/36E MPUs

BX-DM1E-36ED13-D $473.00

BRX MPU with Do-more! DM1 technology

- 24VDC required; serial port; Ethernet port; microSD slot
- Discrete input: 20-point, sink/source
- Analog input: 4-channel, current / voltage
- Discrete output: 16-point, sinking
- Analog output: 2-channel, current / voltage



I/O Terminal Blocks sold separately.
(See Removable Terminal Block Specifications Table on BX 36/36E MPU Accessories page.)

CPU Specifications

Program Memory Type	FLASH memory
User Data Memory Type	Battery-backed RAM, user configurable
Serial Port	RS-232/485 3-Pin, Software selectable
Ethernet Port	RJ-45, 10/100 Mbps
Pluggable Option Module	RS-232, RS-485, Ethernet 10/100 BASE-T (1 Mbps throughput max), USB 2.0 Type B
Data Logging/File Management	microSD card slot (32G max)
Expansion Modules	8 expansion modules max
Real Time Clock Accuracy	±2.6 s per day typical at 25°C ±8s per day max at 60°C
Programming Software	Do-more! Designer – Ver. 2.0 or higher
Programming Cable Options	BX-PGM-CBL
Custom Label Window Size	0.75″ x 2.25″ (19mm x 57.2 mm)
MPU Weight	422g (14.9 oz)

Discrete Input Specifications

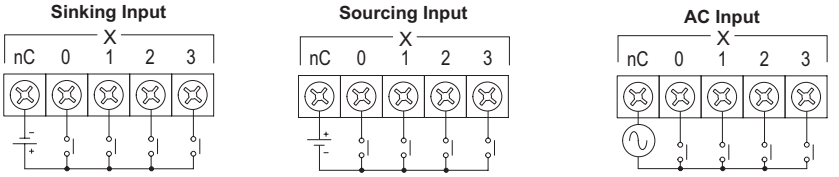
Input Type	Sink/Source
Total Inputs per Module	20 Total – 10 High Speed (X0...X9)* 10 Standard (X10...X19) *All inputs may be used as standard inputs
Commons	5 (4 points/common) Isolated
Nominal Voltage Rating	12–24 VAC/DC
Input Voltage Range	9–30 VAC/DC
Maximum Voltage	30 VAC/DC
DC Frequency	250kHz - High Speed
Minimum Pulse Width	0.5 µs - High Speed
AC Frequency	47–63 Hz (240Hz filter must be set in software for AC operation)
Input Impedance	3kΩ @ 24VDC
Input Current (typical)	6mA @ 24 VAC/DC
Maximum Input Current	12mA @ 30 VAC/DC
Maximum OFF Current	2.0 mA
ON Voltage Level	> 9.0 VAC/VDC
OFF Voltage Level	< 2.0 VAC/VDC
Status Indicators	Logic Side, Green

Discrete Output Specifications

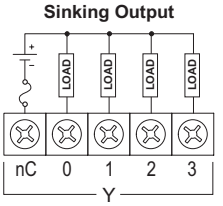
Output Type	Sinking	
Total Outputs per Module	16 Total – 8 High Speed (Y0...Y7)* 8 Standard (Y8...Y15) *All outputs may be used as standard outputs	
Commons	4 (4 points/common) Isolated	
Maximum Current per Common	2A	
Nominal Voltage Rating	12–24 VDC	
Output Voltage Range	5–36 VDC	
Maximum Voltage	36VDC	
Minimum Output Current	0.1 mA @ 24VDC	
Maximum Output Current	0.5 A per output, no derating over temperature range	
Maximum Leakage Current	10µA	
Maximum Switching Frequency	1m cable	250kHz
	10m cable	100kHz
Status Indicators	Logic Side, Green	

I/O Wiring

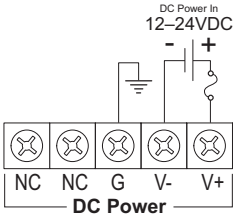
Discrete Input Wiring



Discrete Output Wiring



Supply Power Wiring



BX 36/36E MPUs

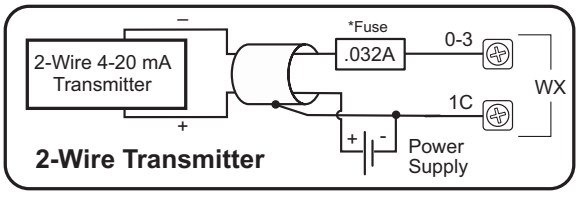
Analog Input Specifications

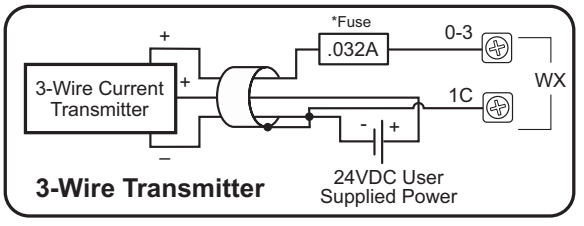
Inputs per Module	4
Input Voltage Range	Software Selectable ±10V, ±5V, 0–10 V, 0–5 V
Input Current Range	Software Selectable ±20mA, 4–20 mA
Resolution	16 bit @ ± 10V, ± 20mA
Conversion Time	1.2 ms
Input Impedance Voltage Modes	220kΩ
Input Impedance Current Modes	249Ω

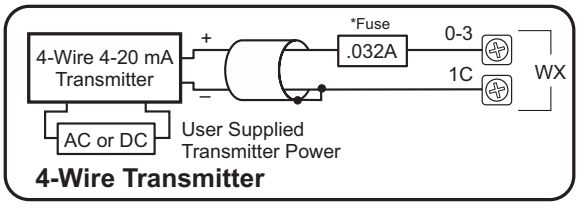
Analog Output Specifications

Outputs per Module	2
Output Voltage Range	Software Selectable ±10V, ±5V, 0–10 V, 0–5 V
Minimum Voltage Load Impedance	1kΩ
Output Current Range	Software Selectable ±20mA, 4–20 mA
Maximum Current Load Impedance	500Ω
Conversion Time	< 1ms
Resolution	16 bit @ ± 10V, ± 20mA

Analog Current Sinking Input Circuits



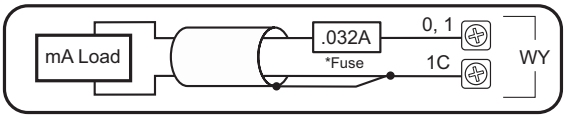




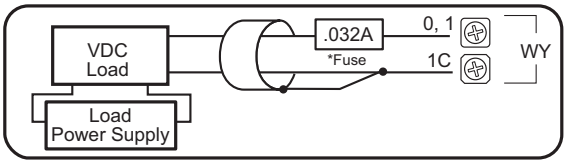
*NOTE: An Edison S500-32-R 0.032 A fast-acting fuse is recommended for all analog voltage inputs, analog outputs, and current loops.

Analog Output Wiring

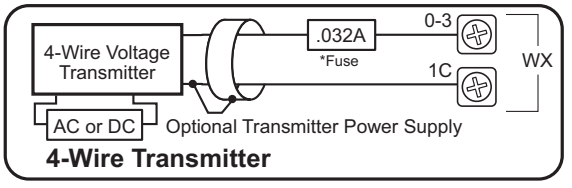
Current Source Output

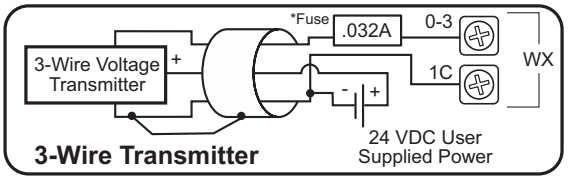


Voltage Output



Analog Voltage Input Circuits



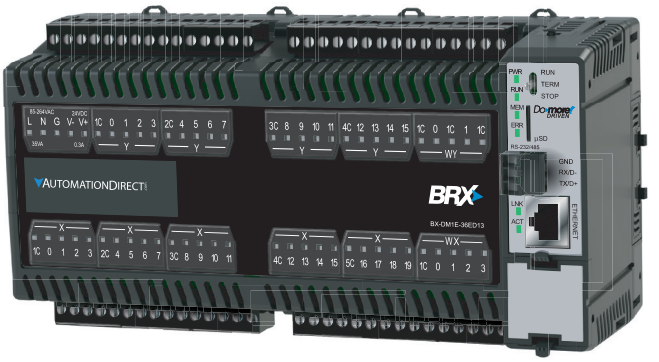


BX 36E MPUs

36 Discrete I/O Points: 20 Inputs, 16 Outputs

Features

- All units have 4 analog inputs and 2 analog outputs (current/voltage software selectable per channel)
- All units have built-in Ethernet port, 10/100 Mbps
- Models with DC inputs
  - have 10 high-speed inputs up to 250kHz
  - can accept 12–24 nominal voltages, AC or DC
  - can be wired as sinking or sourcing
- Models with AC inputs can accept 120–240 nominal voltages
- Output types available are DC sinking, DC sourcing, and relay
- Models with DC outputs have 8 high-speed outputs up to 250kHz
- Support for 8 additional expansion modules
- Onboard RS-232/485 port with removable 3-Pin connector
- microSD card slot
- Coupon for a 30-day free trial of online training from Interconnecting Automation (the official training partner of AutomationDirect).



BX 36E Micro PLC Unit (MPU)
(Built-in Analog and Ethernet port)

BX 36E MPUs

Part Number	Price	External Power	Discrete Inputs	Discrete Output	Analog		Expansion Modules
					Input	Output	
BX-DM1E-36ED13	$494.00	120–240 VAC	10 High-speed 10 Standard DC Sinking or Sourcing	8 High-Speed 8 Standard DC Sinking	4 Current or Voltage	2 Current or Voltage	8
BX-DM1E-36ED13-D	$473.00	12–24 VDC					
BX-DM1E-36ED23	$494.00	120–240 VAC		8 High-Speed 8 Standard DC Sourcing			
BX-DM1E-36ED23-D	$472.00	12–24 VDC					
BX-DM1E-36ER3	$489.00	120–240 VAC		16 Form A Relay			
BX-DM1E-36ER3-D	$463.00	12–24 VDC					
BX-DM1E-36AR3	$492.00	120–240 VAC	20 Standard AC				

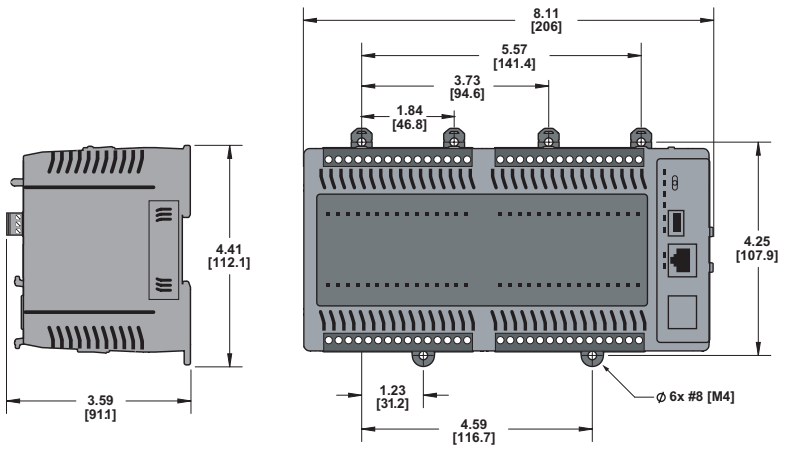
Built-in Ethernet Specifications

Port Name	ETHERNET
Description	Standard transformer isolated Ethernet port with built-in surge protection.
Transfer Rate	10 Mbps (Yellow LED) and 100 Mbps (Green LED)
Port Status LED	LED is solid when network LINK is established. LED flashes when port is active (ACT).
Supported Protocols	Do-more! Protocol Ethernet Remote I/O Modbus TCP/IP (Client & Server) EtherNet/IP (Explicit Messaging) HOST ECOM (DirectLogic) SMTP (Email), SNTP (Time Server) TCP/IP, UDP/IP (Raw packet)
Cable Recommendation	C5E-STxxx-xx from AutomationDirect.com
Port Type	RJ45, Category 5, 10/100 BASE-T, Auto Crossover

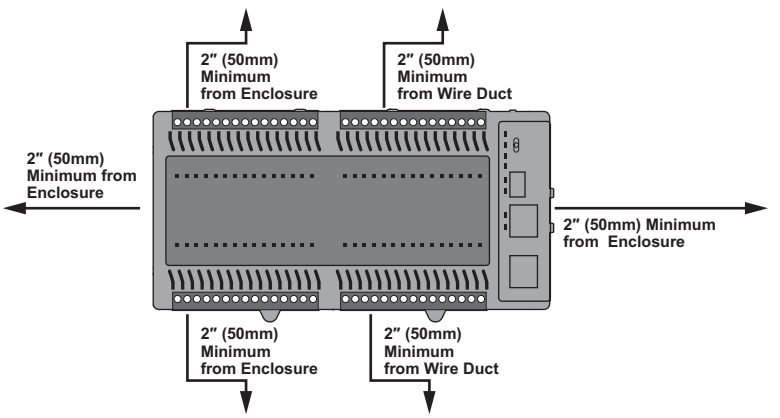
Ethernet Port Numbers:	
MODBUS TCP/IP	502, TCP
EtherNet/IP (Explicit Messaging)	44818, TCP
HOST ECOM	28784, UDP
Do-more Protocol	28784, UDP

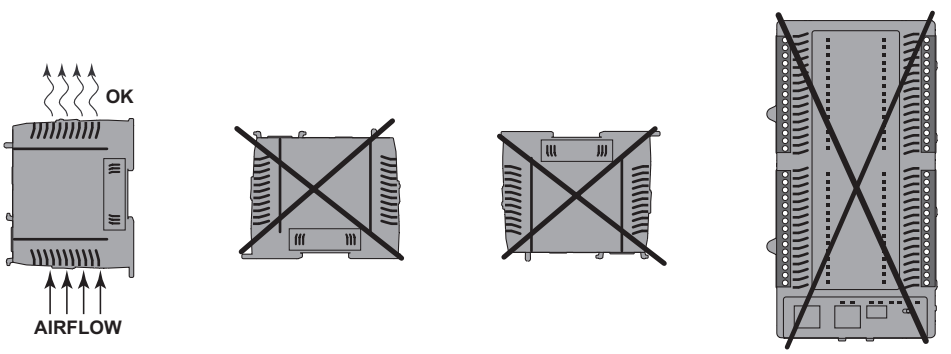
BX 36/36E MPUs

Dimensions, inches[mm]



Clearances and Mounting Restrictions





BX 36/36E MPUs Accessories

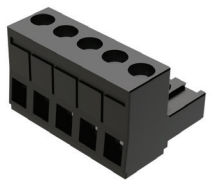
BX 36/36E Wiring Termination Selection

The BX 36/36E MPUs ship without wiring terminals. This enables you to select the termination type that best suits your application. Several removable terminal block options are available, including screw terminals, spring clamp terminals, as well as pre-wired ***ZIP***Link module and cable solutions.

Terminal Block Connectors

The terminal block connectors are provided in kits and can be easily ordered as a single part number. Each kit contains all the terminal block connectors required: (12) 5-pin 5mm terminal blocks.

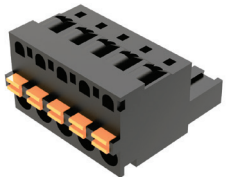
The BX 36/36E MPUs terminals are configured into groups consisting of 4 inputs and 4 outputs each with an isolated common. For example, inputs X0–X3 are grouped with a common terminal. The groups are isolated such that a single 5-pin connector can be removed without affecting another group of I/O or the external power source.



BX-RTB36

BX-RTB36 Screw Terminal Block Kit

This terminal block kit includes (12), 5-pin 5mm, 90-degree screw terminal blocks with 180-degree wire pass through. It fits all BRX 36-point MPUs.



BX-RTB36-1

BX-RTB36-1 Spring Terminal Block Kit

This terminal block kit includes (12) 5-pin, 5mm, 180-degree spring clamp wire terminal blocks. It fits all BRX 36-point MPUs

Removable Terminal Block Specifications		
Part Number	***BX-RTB36***	***BX-RTB36-1***
Price	$29.00	$29.00
Connector Type	Screw Type-90-degree	Spring Clamp Type-180-degree
Wire Exit	180-degree	180-degree
Pitch	5.0 mm	5.0 mm
Screw Size	M2.5	N/A
Screw Torque	< 3.98 lb·in (0.45 N·m)	N/A
Screwdriver Blade Width	3.5 mm	3.5 mm
Wire Gauge (Single Wire)	28–12 AWG	28–14 AWG
Wire Gauge (Dual Wire)	28–16 AWG	28–16 AWG (Dual wire ferrule required)
Wire Strip Length	0.3 in (7.5 mm)	0.37 in (9.5 mm)
Equiv. Dinkle P/N	5ESDV-05P-BK	5ESDSR-05P-BK

Wiring Solutions

*ZIP*Link Pre-Wired Cable Solutions

ZIPLinks eliminate the normally tedious process of wiring between devices by utilizing prewired cables and DIN-rail mount connector modules. ***ZIP***Links are as simple as plugging in a cable connector at either end or terminating wires at only one end. Pre-wired cables keep installation clean and efficient, using less space at a fraction of the cost of standard terminal blocks. ***ZIP***Links pre-wired cables connect directly from the MPU to a ***ZIP***Links remote terminal block module or with the pigtail cable option, that enables for a convenient solution to wire the BRX platform to third-party devices. For the BX 36/36E MPUs four (4) cables and four (4) ***ZIP***Links feedthrough modules are needed to connect all the onboard wiring termination points.

There are two (2) feed-through module options available, the ZL-RTB20 and the ZL-RTB20-1. The ZL-RTB20 is a standard feedthrough terminal module while the ZL-RTB20-1 is a feedthrough terminal block having a more compact footprint, requiring less space in the control cabinet.

BX 36/36E ZIPLink Selector

MPU Part Number	Component Type	Module Part Number	Max Quantity Needed	Cable Part Number*	Max Quantity Needed
BX-DM1-36ED1	Feedthrough	ZL-RTB20 (Standard) -OR- ZL-RTB20-1 (Compact)	4	ZL-BX-CBL15	4
BX-DM1-36ED1-D					
BX-DM1-36ED2					
BX-DM1-36ED2-D					
BX-DM1-36ER					
BX-DM1-36ER-D					
BX-DM1-36AR					
BX-DM1-36ED13					
BX-DM1-36ED13-D					
BX-DM1-36ED23					
BX-DM1-36ED23-D					
BX-DM1-36ER3					
BX-DM1-36ER3-D					
BX-DM1-36AR3					

**** Select the cable length: Blank = 0.5 m, -1 = 1.0 m, or -2 = 2.0 m; -1P = 1.0 m, -2P = 2.0 m. 'P' extension is pigtail cable.***

ZIPLink Wiring Solutions

ZIPLink Pre-wired Cables

Custom molded ***ZIP***Link pre-wired cables allow for fast and easy connection of field wiring to the BRX platform. The prewired cables are available in 0.5 meter, 1 meter and 2 meter lengths. Pigtail cables are used to connect the BRX platform directly to third-party devices, reducing your wiring time and cost. The pigtail cables are available in 1 meter and 2 meter lengths.

Pre-wired ZIP**Link **Cable

ZIP**Link **Pigtail Cable

ZIPLink Feedthrough Modules

Feedthrough modules provide low-cost and compact field wiring screw termination solutions for quickly connecting with the BRX platform. Two (2) modules are available for use with the BRX platform, the ZL-RTB20 and the ZL-RTB20-1. The ZL-RTB20 is a standard 2-row, 20-pin, DIN-rail mountable feedthrough module. The ZL-RTB20-1 is a compact 3-row, 24-pin, DIN-rail mountable feedthrough module with a smaller footprint design.

ZIPLink Module Specifications

Part Number	ZL-RTB20 (Maximum of 4 needed)	ZL-RTB20-1 (Maximum of 4 needed)
Number of positions	20 screw terminals, 2 rows	24 screw terminals, 3 rows
Screwdriver Width	1/8 in (3.8 mm) maximum	
Screw Torque	4.4 lb·in (0.5 N·m)	4.4 lb·in (0.5 N·m)

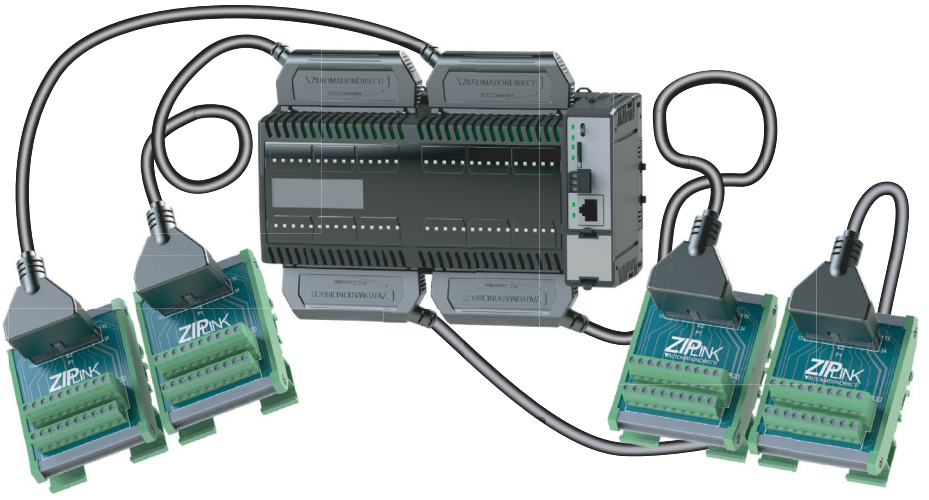
ZL-RTB20

ZL-RTB20-1

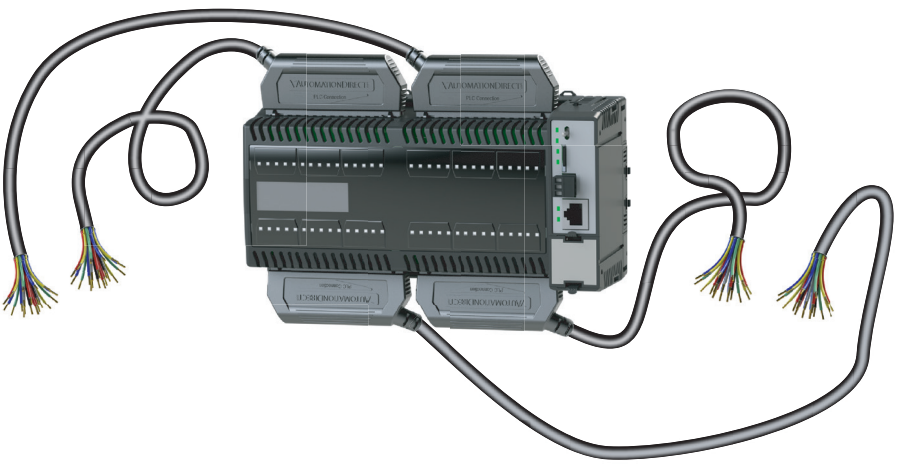
Wiring Solutions

*ZIP*Link System Examples

BX 36 MPU with ***ZIP***Link pre-wired cables and ZL-RTB20 feedthrough modules.



BX 36 MPU with ***ZIP***Link pigtail cables installed.



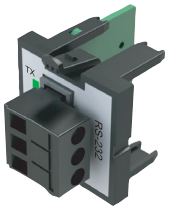
BRX Programmable Option Modules (POM)

Overview

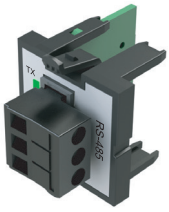
All BRX Do-more MPUs have an available slot to receive one BRX Pluggable Option Module (POM). Available POM configurations are:

- RS-232 3-pin serial port
- RS-232 RJ12 port
- RS-485 serial port
- Ethernet port (RJ45)
- USB Type B Port

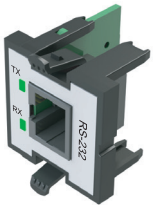
POM modules are hot swappable giving you the ability to utilize different communication options while the system is running. For example, you can configure the system using a POM RJ45 Ethernet port to talk with a C-more panel. Then hot swap to the USB POM for programming. When programming is complete hot swap back to the RJ45 Ethernet POM without needing to power cycle or reconfigure the system.



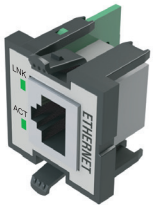
BX-P-SER2-TERM
RS-232 Port



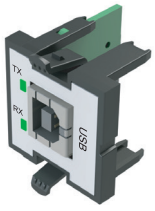
BX-P-SER4-TERM
RS-485 Port



BX-P-SER2-RJ12
RS-232 Port (RJ12)



BX-P-ECOMLT
Ethernet Port (RJ45)



BX-P-USB-B
USB Type B Port

BRX Programmable Option Modules		
Expansion Module Part No.	***Price***	***Description***
BX-P-SER2-TERM	$49.00	Non-isolated Serial port for communication via RS-232. Includes ESD protection and built-in surge protection.
BX-P-SER4-TERM	$49.00	Non-isolated Serial port for communication via RS-485. Includes ESD protection and built-in surge protection.
BX-P-SER2-RJ12	$49.00	Non-isolated Serial port for communication via RS-232 Includes ESD protection and built-in surge protection.
BX-P-ECOMLT	$69.00	Standard transformer isolated Ethernet port (1 Mbps throughput max) with built-in surge protection.
BX-P-USB-B	$27.00	USB Type B Port for programming.

General Specifications

General specifications common to all the POM modules are listed in the table below.

General Specifications	
Operating Temperature	0° to 60°C (32° to 140°F)
Storage Temperature	-20° to 85°C (-4° to 185°F)
Humidity	5 to 95% (non-condensing)
Environmental Air	No corrosive gases permitted
Vibration	IEC60068-2-6 (Test Fc)
Shock	IEC60068-2-27 (Test Ea)
Enclosure Type	Open equipment
Agency Approvals	UL 61010-2 - UL File # E185989 Canada and USA CE Compliant E185989*
Noise Immunity	NEMA ICS3-304
EU Directive	See the "EU Directive" in Appendix A or topic DMD0331 in the Help File.
Weight	7g (0.25 oz)

*Meets EMC and Safety requirements. See the D.O.C. for details.

BRX Programming Software & Cable Assembly

Do-more! Designer Programming Software
Part No. DM-PGMSW $10.00

Do-more! Designer Programming software is a full-featured programming software for all BRX Series PLCs, Do-more! H2 Series PLCs and Do-more! T1H Series PLCs. Do-more! Designer Software is a free download from Automationdirect.com. A CD-ROM version is also available for purchase for $10.00

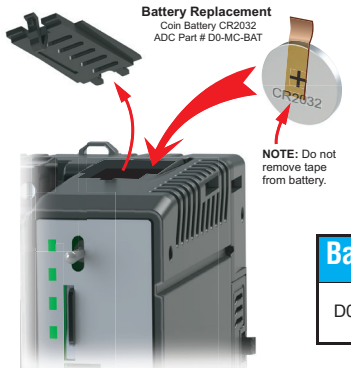
BX-PGM-CBL $29.00

The programming cable assembly connects your PC to any BRX MPU and enables you to program and configure the BRX MPU using the free Do-more! Designer software. BX-PGM-CBL includes (1) BX-P-USB-B USB POM module and (1) USB-CBL-AB6 standard USB Type A to USB Type B connector cable.

Replacement Battery

D0-MC-BAT $3.00

A battery is included with all BRX MPUs and is used to retain the time and data along with any tagnames values that are set up as retentive. It is recommended that the battery be replaced once every five years or when one year of cumulative OFF time has been exceeded.



Battery	
D0-MC-BAT	Coin type, 3.0V Lithium battery, number CR2032