

BX 10/10E MPUs

BX-DM1E-10ER3-D **\$321.00**

BRX MPU with Do-more! DM1 technology

- 24VDC required; serial port; Ethernet port; microSD slot
- Discrete input: 6-point, sink/source
- Analog input: 1-channel, current / voltage
- Discrete output: 4-point, relay
- Analog output: 1-channel, current / voltage

CPU Specifications

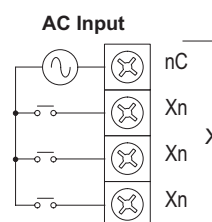
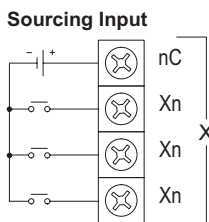
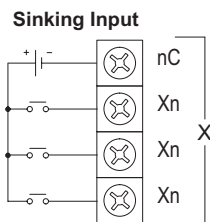
Program Memory Type	FLASH memory
User Data Memory Type	Battery-backed RAM, user configurable
Serial Port	RS-232/485 3-Pin, Software selectable
Ethernet Port	RJ-45, 10/100 Mbps
Pluggable Option Module	RS-232, RS-485, Ethernet 10/100 BASE-T (1 Mbps throughput max), USB 2.0 Type B
Data Logging/File Management	microSD card slot (32G max)
Expansion Modules	2 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
MPU Weight	190g (6.7 oz)

Discrete Input Specifications

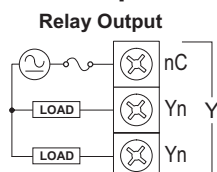
Input Type	Sink/Source
Total Inputs per Module	6 High Speed * * All inputs may be used as standard inputs.
Commons	2 (3 points/common) Isolated
Nominal Voltage Rating	12–24 VAC/DC
Input Voltage Range	9–30 VAC/DC
Maximum Voltage	30 VAC/DC
DC Frequency	250kHz - High Speed
Minimum Pulse Width	0.5 µs - High 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

I/O Wiring

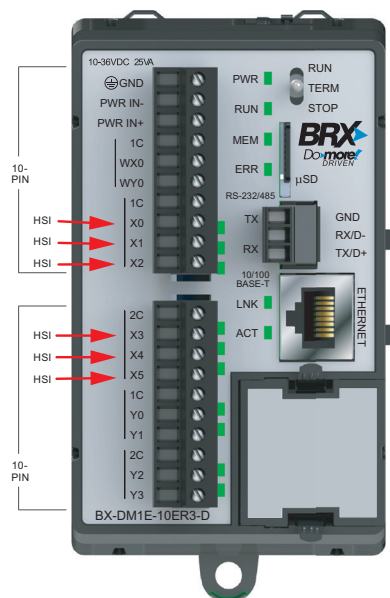
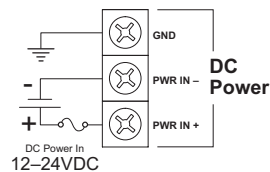
Discrete Input Wiring



Discrete Output Wiring



Supply Power Wiring



I/O Terminal Blocks sold separately.
(See Removable Terminal Block Specifications Table on BX 10/10E MPU Accessories page.)

Discrete Output Specifications

Output Type	Relay Form A (SPST)
Total Outputs per Module	4 Relay
Commons	2 (2 points/common) Isolated
Maximum current per common	4A
Nominal Voltage Ratings	5–48 VDC, 24–240 VAC
Output Voltage Range	5–60 VDC, 18–264 VAC
Maximum Voltage	60VDC, 264VAC
Minimum Output Current	0.1 mA @ 24VDC
Maximum Output Current	2A
Maximum Leakage Current	1µA (DC) 300µA (AC) due to RC Snubber Circuit
Maximum Switching Frequency	10Hz
Status Indicators	Logic Side, Green

BX 10/10E MPUs

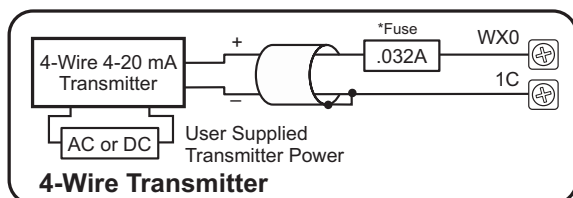
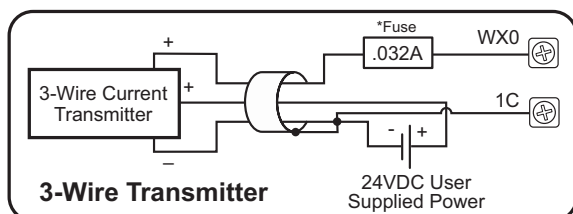
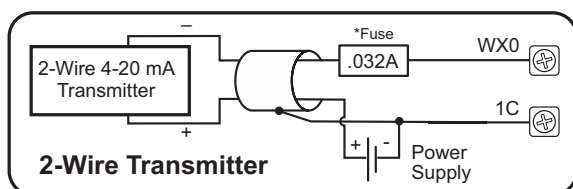
Analog Input Specifications

Inputs per Module	1
Input Voltage Range	Software Selectable $\pm 10\text{V}$, $\pm 5\text{V}$, $0\text{--}10\text{ V}$, $0\text{--}5\text{ V}$
Input Current Range	Software Selectable $\pm 20\text{mA}$, $4\text{--}20\text{ mA}$
Resolution	16 bit @ $\pm 10\text{V}$, $\pm 20\text{mA}$
Conversion Time	1.2 ms
Input Impedance Voltage Modes	220k Ω
Input Impedance Current Modes	249 Ω

Analog Output Specifications

Outputs per Module	1
Output Voltage Range	Software Selectable $\pm 10\text{V}$, $\pm 5\text{V}$, $0\text{--}10\text{ V}$, $0\text{--}5\text{ V}$
Minimum Voltage Load Impedance	1k Ω
Output Current Range	Software Selectable $\pm 20\text{mA}$, $4\text{--}20\text{ mA}$
Maximum Current Load Impedance	500 Ω
Conversion Time	< 1ms
Resolution	16 bit @ $\pm 10\text{V}$, $\pm 20\text{mA}$

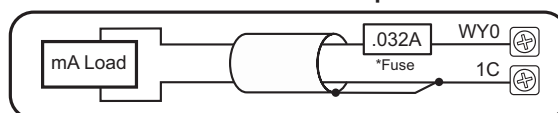
Analog Current Sinking Input Circuits



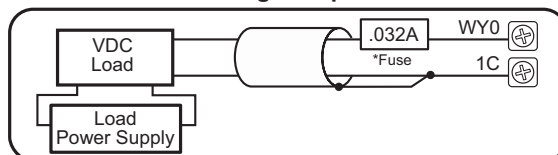
*NOTE: An Edison S500-32-R 0.032A fast-acting fuse is recommended for all analog voltage inputs, analog outputs, and current loops.

Analog Output Wiring

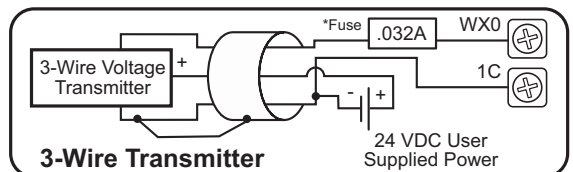
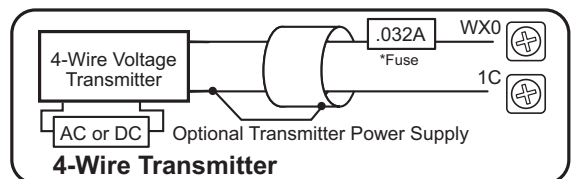
Current Source Output



Voltage Output



Analog Voltage Input Circuits



BX 10E MPUs

10 Discrete I/O Points: 6 Inputs, 4 Outputs

Features

- All units are externally powered by a nominal 12–24 VDC
- All units have a built-in RJ-45 Ethernet port, 10/100 Mbps
- Models with DC inputs have:
 - 6 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
- All units have 1 analog input (current/voltage software selectable)
- Output types available are DC sinking, DC sourcing, and relay
- Models with DC outputs have 2 high speed outputs up to 250kHz
- Support for 2 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 10E Micro PLC Unit (MPU)
(Built-in Analog and Ethernet port)

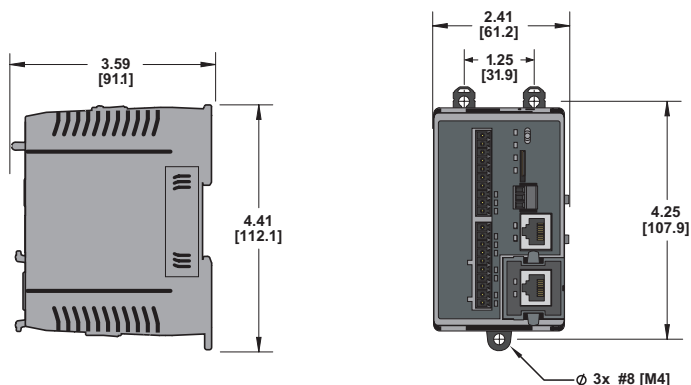
BX 10E MPUs							
Part Number	Price	External Power	Discrete Inputs	Discrete Output	Analog		Expansion Modules
					Input	Output	
<i>BX-DM1E-10ED13-D</i>	\$327.00	12–24 VDC	6 High-Speed, Sinking or Sourcing	2 High-Speed 2 Standard DC Sinking	1 Current or Voltage	1 Current or Voltage	2
<i>BX-DM1E-10ED23-D</i>	\$326.00			2 High-Speed 2 Standard DC Sourcing			
<i>BX-DM1E-10ER3-D</i>	\$321.00			4 Form A Relay			
<i>BX-DM1E-10AR3-D</i>	\$314.00		6 Standard AC				

Built-in Ethernet Specifications

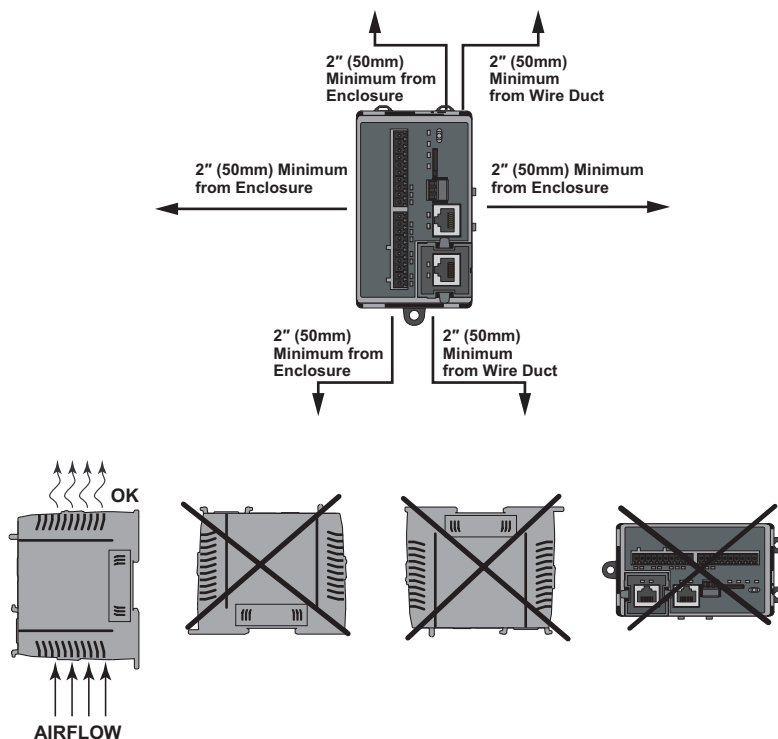
Port Name	ETHERNET	
Description	Standard transformer isolated Ethernet port with built-in surge protection.	
Transfer Rate	10 Mbps (Yellow LED) and 100 Mbps (Green LED)	
Port Status LED	LED is solid when network LINK is established. LED flashes when port is active (ACT).	
Supported Protocols	Do-more! 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 10/10E MPUs

Dimensions, inches[mm]



Clearances and Mounting Restrictions



BX 10/10E MPUs Accessories

BX 10/10E MPU Wiring Termination Selection

The BX 10/10E MPUs ship without wiring terminals. This enables you to select the termination solution that

best fits your application. Several wiring options are available, including removable screw terminal connectors,

removable spring clamp terminal connectors and prewired **ZIP**Link cable solutions.

Terminal Block Connectors

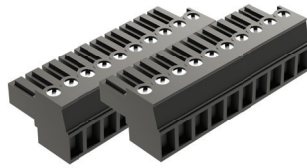
The terminal block connectors are provided in kits and can be easily ordered as a single part number to receive all the terminal block connectors needed. Each

kit for the BX 10/10E MPU comes with two (2) 10-pin 3.8 mm terminal blocks. On the BX 10/10E MPUs the terminals are organized into groups consisting of

3 inputs with an isolated common and 2 outputs with an isolated common. For example, inputs X0-X2 are in a group with their common terminal.

BX-RTB10 Screw Terminal Block Kit

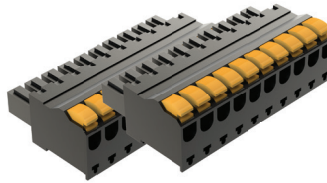
This terminal block kit includes 2 10-pin 3.8 mm terminal blocks (BX-RTB10). These are 90-degree screw terminal blocks. Wire is 180-degree pass through.



BX-RTB10

BX-RTB10-1 Screw Terminal Block Kit

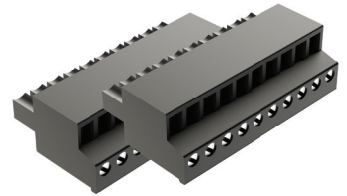
This terminal block kit includes 2 10-pin 3.8 mm terminal blocks (BX-RTB10-1). These are 90-degree screw terminal blocks. Wire is 180-degree pass through.



BX-RTB10-1

BX-RTB10-2 Screw Terminal Block Kit

This terminal block kit includes (2) 10-pin 3.8 mm terminal blocks (BX-RTB10-2). These are 180-degree screw terminal blocks. Wire is 180-degree pass through.



BX-RTB10-2

Removable Terminal Block Specifications

Part Number	BX-RTB10	BX-RTB10-1	BX-RTB10-2
Price (pkg)	\$12.00	\$12.00	\$12.00
Connector Type	Screw Type-90-degree	Spring Clamp Type-180-degree	Screw Type-180-degree
Wire Exit	180-degree	180-degree	180-degree
Pitch	3.81 mm	3.81 mm	3.81 mm
Screw Size	M2	N/A	M2
Recommended Screw Torque	<1.77 lb·in (0.2 N·m)	N/A	<1.77 lb·in (0.2 N·m)
Screwdriver Blade Width	2.5 mm	2.5 mm	2.5 mm
Wire Gauge (Single Wire)	28–16 AWG	28–18 AWG	30–16 AWG
Wire Gauge (Dual Wire)	28–16 AWG	30–20 AWG (Dual Wire Ferrule Required)	30–18 AWG
Wire Strip Length	0.24 in (6mm)	0.35 in (9mm)	0.26 in (6.5 mm)
Equiv. Dinkle part #	EC381V-10P-BK	ESC381V-10-BK	EC381F-10P-BK



Wiring Solutions

ZIPLink Pre-Wired Cable Solutions

ZIPLinks eliminate the normally tedious process of wiring between devices by utilizing prewired cables and DIN-rail mount connector modules. It's as simple as plugging in a cable connector at either end or terminating wires at only one end. Prewired cables keep installation clean and efficient, using less space at a fraction of the cost of standard terminal blocks.

ZIPLink prewired cables can connect directly to a **ZIPLink** remote terminal block module, or with the pigtail option they can allow for a convenient solution to wire the BRX platform to third-party devices. For the BX 10/10E MPUs, one cable and one feedthrough module is needed to connect to all the onboard wiring termination points. Two feedthrough module

options are available, the ZL-RTB20 and the ZL-RTB20-1. The ZL-RTB20 is a standard feedthrough terminal module and the ZL-RTB20-1 is a compact feedthrough terminal block module having a compact footprint taking up less space in the control cabinet.

BX 10/10E ZIPLink Selector				
MPU Part Number	Component Type	Module Part Number	Cable Part Number*	Max Quantity Needed
BX-DM1-10ED1-D	Feedthrough	ZL-RTB20 (Standard) OR ZL-RTB20-1 (Compact)	ZL-BX-CBL20	1
BX-DM1-10ED2-D				
BX-DM1-10ER-D				
BX-DM1-10AR-D				
BX-DM1E-10ED13-D				
BX-DM1E-10ED23-D				
BX-DM1E-10ER3-D				
BX-DM1E-10AR3-D				

* 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.



Wiring Solutions

ZIPLink Pre-wired Cables

Custom molded **ZIPLink** prewired cables allow for fast and easy connection of field wiring to the BRX platform. The prewired

cable is 0.5 meter in length. Pigtail cables are used to connect the BRX platform directly to third-party devices, reducing

your wiring time and cost. The pigtail cable is 1 meter in length.



Pre-wired ZIPLink Cable



ZIPLink Pigtail Cable

ZIPLink Remote Feedthrough Modules

Remote 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

BRX Programmable Option Modules (POM)

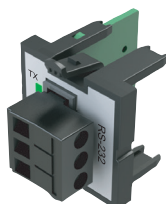
Overview

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

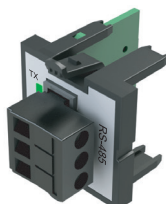
- RS-232 3-pin serial port
- RS-232 RJ12 port
- RS-485 serial port
- Ethernet port (RJ45)
- USB Type B Port

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

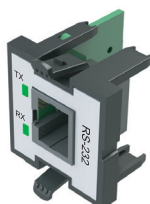
with a C-more panel. Then hot swap to the USB POM for programming. When programming is complete hot swap back to the RJ45 Ethernet POM without needing to power cycle or reconfigure the system.



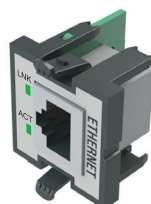
BX-P-SER2-TERM
RS-232 Port



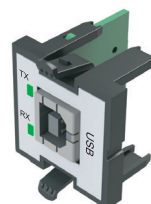
BX-P-SER4-TERM
RS-485 Port



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



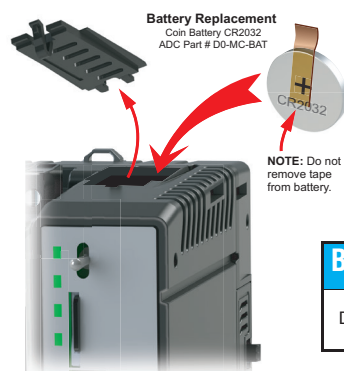
BX-PGM-CBL \$29.00

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 tagname 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

