



**BX-DM1E-10AR3-D**  
**BRX MPU with Do-more! DM1 technology**  
 24 VDC required, serial port, Ethernet port, microSD slot,  
 Discrete Input: 6-point, AC, Analog Input: 1-channel, current /  
 voltage, Discrete Output: 4-point, relay, Analog Output:  
 1-channel, current / voltage.

**I/O Terminal Blocks sold separately.**  
 (See Terminal Block Connection Options table).

Document Name	Edition/Revision	Date
BX-DM1E-10AR3-D	1st Ed. RevD	1/18/2022

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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	UL61010-2 - UL File # E185989 Canada and USA CE Compliant EN61131-2*
Noise Immunity	NEMA ICS3-304
EU Directive	See the "EU Directive" topic in the Help File
Weight	181g (6.4 oz)

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

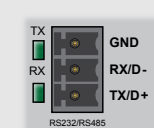
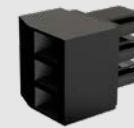
Power Supply Specifications	
Nominal Voltage Range*	12–24 VDC
Input Voltage Range (Tolerance)*	10–36 VDC
Maximum Input Voltage Ripple	<+/- 10%
Maximum Input Power	14W
Cold Start Inrush Current	5A, 2ms
Maximum Inrush Current (Hot Start)	5A, 2ms
Internal Input Protection	Reverse Polarity Protection and Undervoltage
Heat Dissipation	10.1W Max
Voltage Withstand (dielectric)	1500VAC Power Inputs to Ground applied for 1 minute

\*Class 2 or LPS Power Supply required.

CPU Specifications	
Program Memory Type	FLASH memory
User Data Memory Type	Battery Backed RAM, User configurable
Pluggable Option Module	RS-232, RS-485, Ethernet 10/100 BASE-T (1Mbps throughput max), USB 2.0 Type B
Expansion Modules	2 expansion modules max
Real Time Clock Accuracy	±2.6s 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

Terminal Block Connection Options	
<b>BX-RTB10</b>	Terminal Block Kit, 90-degree screw type, Fits all BRX 10-point PLCs and 16 point Expansion I/O Modules. Kit includes (2) 10-pin 3.8mm plugs.
<b>BX-RTB10-1</b>	Terminal Block Kit, 180-degree spring clamp type, Fits all BRX 10-point PLCs and 16 point Expansion I/O Modules. Kit includes (2) 10-pin 3.8mm plugs.
<b>BX-RTB10-2</b>	Terminal Block Kit, 180-degree screw type, Fits all BRX 10-point PLCs and 16 point Expansion I/O Modules. Kit includes (2) 10-pin 3.8mm plugs.
<b>ZL-BX-CBL20</b>	ZIPLink PLC I/O cable, 20-position terminal block to 24-pin connector, 24AWG, cable length 0.5meter (1.6ft).
<b>ZL-BX-CBL20-1</b>	ZIPLink PLC I/O cable, 20-position terminal block to 24-pin connector, 24AWG, cable length 1meter (3.3ft).
<b>ZL-BX-CBL20-2</b>	ZIPLink PLC I/O cable, 20-position terminal block to 24-pin connector, 24AWG, cable length 2meter (6.6ft).
<b>ZL-BX-CBL20-1P</b>	ZIPLink PLC I/O cable, 20-position terminal block to pigtail connection, 24AWG, cable length 1meter (3.3ft).
<b>ZL-BX-CBL20-2P</b>	ZIPLink PLC I/O cable, 20-position terminal block to pigtail connection, 24AWG, cable length 2meter (6.6ft).
<b>ZL-RTB20</b>	ZIPLink Two Level Feedthrough Module, 20-pole, 35mm, DIN mount.
<b>ZL-RTB20-1</b>	ZIPLink Three Level Feedthrough Module, 20-pole, 35mm, DIN mount.

Built-in RS-232/485 Port Specifications	
Port Name	RS-232/RS-485 Serial Port
Description*	Non-isolated serial port that can communicate via RS-232 or RS-485 (software selectable). Includes ESD protection and built-in surge protection.
Supported Protocols	Do-more Protocol (Default) Modbus RTU (Master & Slave) K-Sequence (Slave) ASCII (In & Out)
Data Rates	1200, 2400, 4800, 9600, 19200, 38400, 57600, and 115200
Default Settings	RS-232, 115200 bps, No Parity, 8 Data Bits, 1 Stop Bit, Station #1
Port Type	3-pin terminal strip 3.5mm pitch
Port Status LED	Green LED is illuminated when active for TXD and RXD
RS-485 Station Addresses	1-247
Cable Recommendations	RS-232 use L19772-XXX from AutomationDirect.com RS-485 use L19827-XXX from AutomationDirect.com
Replacement Connector	ADC Part # BX-RTB03S



Pinout	RS232	RS485
1	GND	GND
2	RX	D-
3	TX	D+

Removable connector included.

\* NOTE: When using RS-485, a terminator resistor is built-in and software selectable.

CPU Mode Switch Functions	
RUN position	CPU is forced into RUN Mode if no errors are encountered.
TERM position	RUN, PROGRAM and DEBUG modes are available. In this position, the mode of operation can be changed through the Do-more Designer Software.
STOP position	CPU is forced into STOP Mode.

Terminal Block Connector Specifications				
Part Number	BX-RTB03S	BX-RTB10	BX-RTB10-1	BX-RTB10-2
Connector Type	Screw Type-90°	Screw Type-90°	Spring Clamp Type-180°	Screw Type-180°
Wire Exit	180°	180°	180°	180°
Pitch	3.5mm	3.81mm	3.81mm	3.81mm
Screw Size	M2	M2	N/A	M2
Recommended Screw torque	<1.77 lb-in (0.2 N-m)	<1.77 lb-in (0.2 N-m)	N/A	<1.77 lb-in (0.2 N-m)
Screwdriver Blade Width	2.5mm	2.5mm	2.5mm	2.5mm
Wire Gauge (Single Wire)	28-16 AWG	28-16 AWG	28-18 AWG	30-16 AWG
Wire Gauge (Dual Wire)	28-16 AWG	28-16 AWG	30-20 AWG (Dual Wire Ferrule Required)	30-18 AWG
Wire Strip Length	0.24in (6mm)	0.24in (6mm)	0.35in (9mm)	0.26in (6.5mm)
Equiv. Dinkle part #	EC350V-03P-BK	EC381V-10P-BK	ESC381V-10-BK	EC381F-10P-BK

CPU Status Indicators		
Indicator	Status	Description
PWR	OFF	Base Power OFF
	Green	Base Power ON
	Yellow	Low Battery
RUN	OFF	CPU is in STOP Mode
	Green	CPU is in RUN Mode
	Yellow	Forces are Active
MEM	OFF	No ROM Activity, No SD Card
	Yellow	ROM Activity (Flash or SD Card)
	Green	SD Card Installed and Mounted
ERR	Red	SD Card Installed and Not Mounted
	OFF	CPU is functioning normally
	Red	CPU Fatal Hardware Error or Software Watchdog Error

Built-in Ethernet Specifications	
Port Name	ETHERNET
Description	Standard transformer isolated Ethernet port with built-in surge protection.
Transfer Rate	10Mbps (Yellow LED) and 100Mbps (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), HTTP SMTP (Email), SNTP (Time Server) TCP/IP, UDP/IP (Raw packet) MQTT
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

Do-more BRX Manual available at  
<http://www.automationdirect.com/pn/doc/manual/BX-DM1E-10AR3-D>



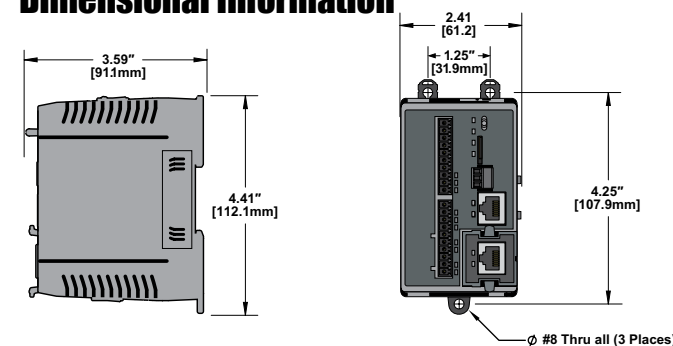
**IMPORTANT!**



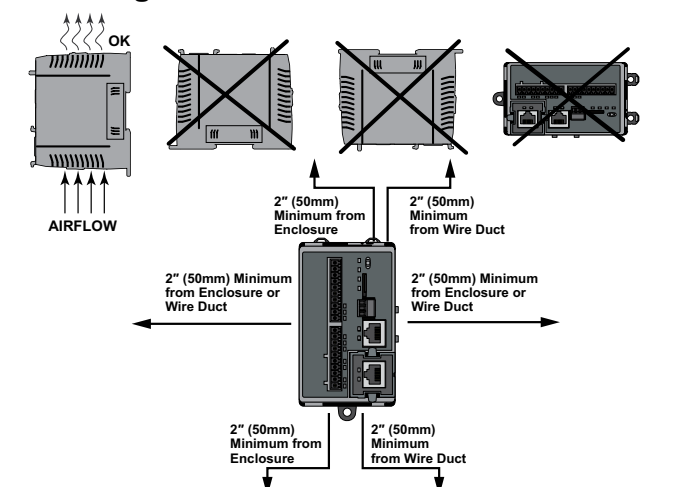
**Hot-Swapping Information**

**Note: This device cannot be Hot Swapped.**

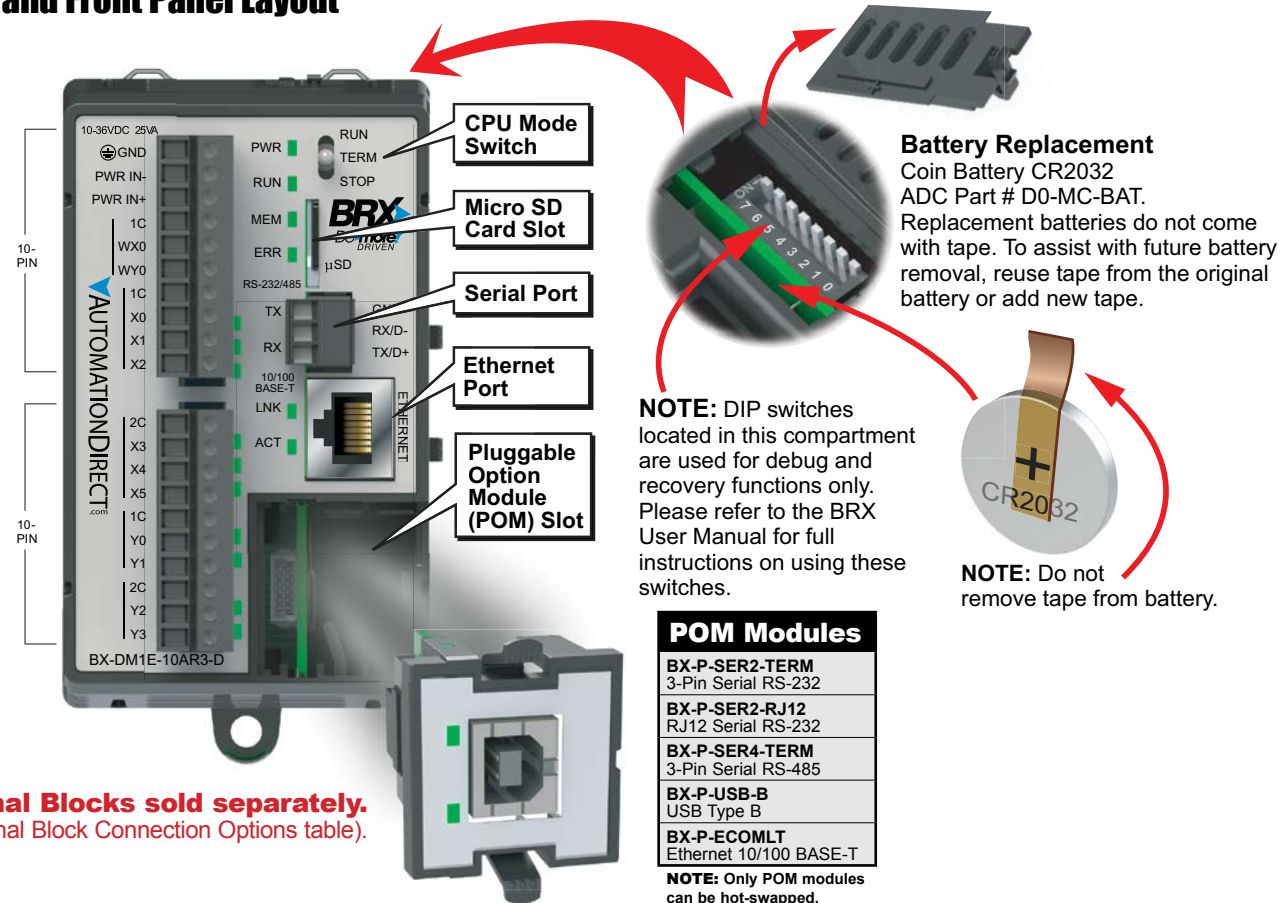
**Dimensional Information**



**Mounting Restrictions**



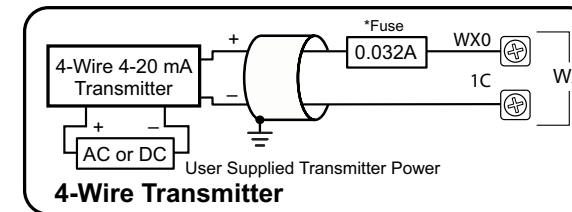
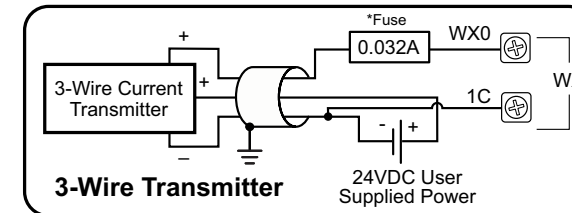
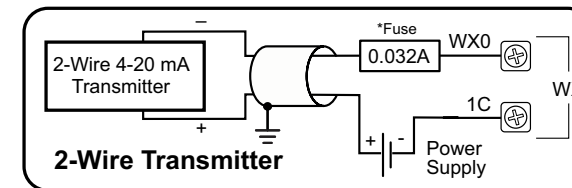
## Terminal and Front Panel Layout



**I/O Terminal Blocks sold separately.**  
(See Terminal Block Connection Options table).

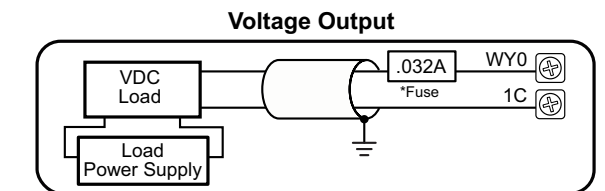
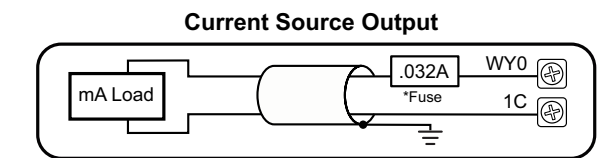
POM Modules	
<b>BX-P-SER2-TERM</b>	3-Pin Serial RS-232
<b>BX-P-SER2-RJ12</b>	RJ12 Serial RS-232
<b>BX-P-SER4-TERM</b>	3-Pin Serial RS-485
<b>BX-P-USB-B</b>	USB Type B
<b>BX-P-ECOMLT</b>	Ethernet 10/100 BASE-T
<b>NOTE: Only POM modules can be hot-swapped.</b>	

## Analog Current Sinking Input Circuits

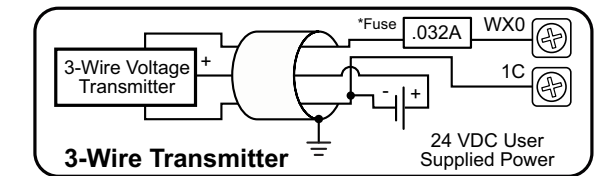
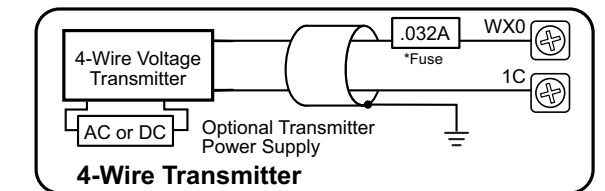


\*NOTE: An Edison S500-32-R 0.032A fast-acting fuse is recommended for all analog voltage inputs, analog outputs, and current loops.

## Analog Output Wiring



## Analog Voltage Input Circuits



## Discrete Input Specifications

Input Type	AC
Total Inputs per Module	6 Standard
Commons	2 (3 points/common) Isolated
Nominal Voltage Rating	120–240 VAC
Input Voltage Range	85–264 VAC
Maximum Voltage	264 VAC RMS
AC Frequency	47–63 Hz
Input Current (typical)	9mA @ 120VAC, 13mA @ 220VAC
Input Impedance	15kΩ
ON Voltage Level	> 9.0 VAC/VDC
OFF Voltage Level	< 2.0 VAC/VDC
ON Voltage Level	> 85 VAC
OFF Voltage Level	< 40 VAC
Status Indicators	Logic Side, Green

## 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	12–48 VDC, 24–240 VAC
Operating Voltage Range	5–60 VDC, 5–264 VAC
Maximum Voltage	60VDC, 264VAC
Minimum Output Current	0.1mA @ 24VAC/DC
Maximum Output Current	2A
Maximum Leakage Current	1μA (DC), 300μA (AC) due to RC snubber
Maximum Switching Frequency	10Hz
Status Indicators	Logic Side, Green

## Analog Input Specifications

Inputs per Module	1
Input Voltage Range*	Software Selectable ±10V, ±5V, 0-10V, 0-5V
Input Current Range*	Software Selectable ±20mA, 4-20 mA
Resolution	16 bit @ ± 10V, ± 20mA
Conversion Time	1.2 ms
Input Impedance Voltage Modes	100kΩ
Input Impedance Current Modes	249Ω

\*Software selectable per channel.

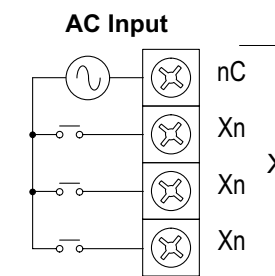
## Analog Output Specifications

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

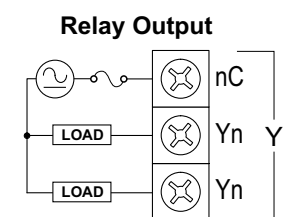
\*Software selectable per channel.

## I/O Wiring

### Discrete Input Wiring



### Discrete Output Wiring



## Supply Power Wiring

