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 Rating	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	3.2W Max
Voltage Withstand (dielectric)	1500VAC Power Inputs to Ground applied for 1 minute

CPU Specifications

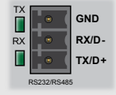
Program Memory Type	FLASH memory
User Data Memory Type	Battery Backed RAM, User configurable
Pluggable Option Module	RS-232, RS-485, Ethernet 10/100 BASE-T (1Mbps throughput max), USB 2.0 Type B
Expansion Modules	2 expansion modules max
Real Time Clock Accuracy	±2.6s per day typical at 25°C ±8s per day max at 60°C
Programming Software	Do-more Designer – Ver. 2.0 or higher
Programming Cable Options	BX-PGM-CBL

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
	Red	SD Card Installed and Not Mounted
ERR	OFF	CPU is functioning normally
	Red	CPU Fatal Hardware Error or Software Watchdog Error

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	RXD	D-
3	TXD	D+

Removable connector included.

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

AUTOMATIONDIRECT.com

BRX Do-more DRIVEN

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. RevA	4/11/2017

Terminal Block Connection Options

BX-RTB10	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.
BX-RTB10-1	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.
BX-RTB10-2	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.
ZL-BX-CBL20	***ZIP***Link PLC I/O cable, 20-position terminal block to 24-pin connector, 24AWG, cable length 0.5meter (1.6ft).
ZL-BX-CBL20-1	***ZIP***Link PLC I/O cable, 20-position terminal block to 24-pin connector, 24AWG, cable length 1meter (3.3ft).
ZL-BX-CBL20-2	***ZIP***Link PLC I/O cable, 20-position terminal block to 24-pin connector, 24AWG, cable length 2meter (6.6ft).
ZL-BX-CBL20-1P	***ZIP***Link PLC I/O cable, 20-position terminal block to pigtail connection, 24AWG, cable length 1meter (3.3ft).
ZL-BX-CBL20-2P	***ZIP***Link PLC I/O cable, 20-position terminal block to pigtail connection, 24AWG, cable length 2meter (6.6ft).
ZL-RTB20	***ZIP***Link Two Level Feedthrough Module, 20-pole, 35mm, DIN mount.
ZL-RTB20-1	***ZIP***Link Three Level Feedthrough Module, 20-pole, 35mm, DIN mount.

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

microSD Specifications

Port Name	microSD Card Slot			
Description	Standard microSD socket for data logging / file management			
Maximum Card Capacity	32GB			
Transfer Rate (ADATA microSDHC Class 4 memory card)	Mbps	Minimum	Typical	Maximum
	Read	14.3	14.4	14.6
	Write	4.8	4.9	5.1
Port Status LED	Green LED is illuminated when card is inserted/detected			
Optional microSD Card	ADC Part # MICSD-16G			

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) 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

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

WARNING: To minimize the risk of potential safety problems, you should follow all applicable local and national codes that regulate the installation and operation of your equipment. These codes vary from area to area and it is your responsibility to determine which codes should be followed, and to verify that the equipment, installation, and operation are in compliance with the latest revision of these codes.

Equipment damage or serious injury to personnel can result from the failure to follow all applicable codes and standards. We do not guarantee the products described in this publication are suitable for your particular application, nor do we assume any responsibility for your product design, installation, or operation.

If you have any questions concerning the installation or operation of this equipment, or if you need additional information, please call Technical Support at 770-844-4200.

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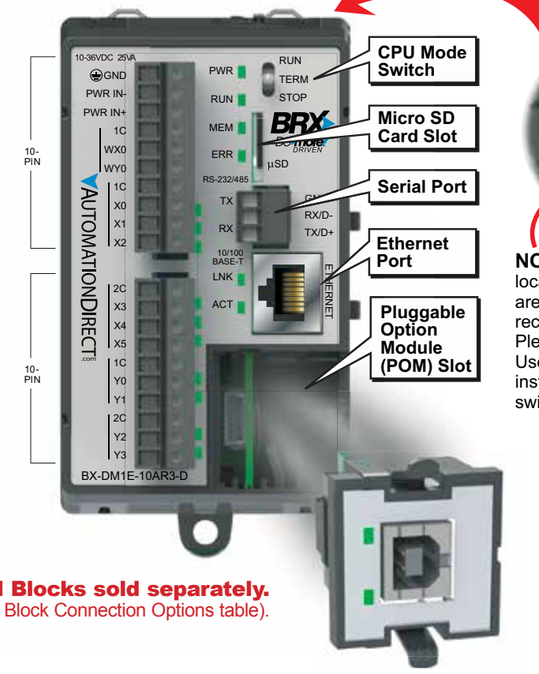
IMPORTANT!

Hot-Swapping Information

Note: This device cannot be Hot Swapped.

Terminal and Front Panel Layout



CPU Mode Switch

Micro SD Card Slot

Serial Port

Ethernet Port

Pluggable Option Module (POM) Slot

NOTE: DIP switches located in this compartment are used for debug and recovery functions only. Please refer to the BRX User Manual for full instructions on using these switches.

Battery Replacement
Coin Battery CR2032
ADC Part # D0-MC-BAT

NOTE: Do not remove tape from battery.

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

POM Modules
BX-P-SER2-TERM 3-Pin Serial RS-232
BX-P-SER2-RJ12 RJ12 Serial RS-232
BX-P-SER4-TERM 3-Pin Serial RS-485
BX-P-USB-B USB Type B
BX-P-ECOMLT Ethernet 10/100 BASE-T

NOTE: Only POM modules can be hot-swapped.

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	5–48 VDC, 24–240 VAC
Output Voltage Range	5–60 VDC, 18–264 VAC
Maximum Voltage	60VDC, 264VAC
Minimum Output Current	0.1mA @ 24VDC
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	220kΩ
Input Impedance Current Modes	249Ω

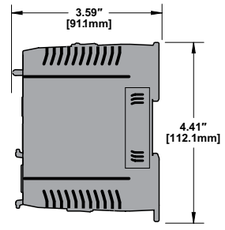
*Software selectable per channel.

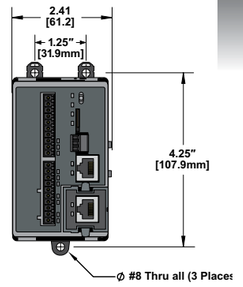
Analog Output Specifications

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
Conversion Time	< 1ms
Resolution	16 bit @ ± 10V, ± 20mA

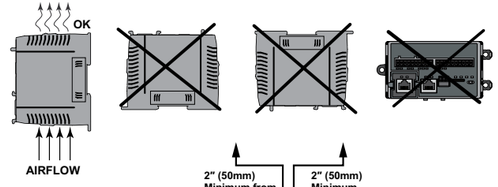
*Software selectable per channel.

Dimensional Information





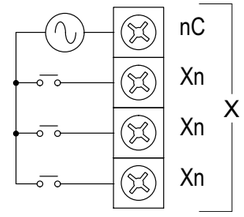
Mounting Restrictions



I/O Wiring

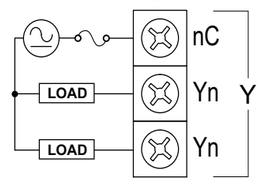
Discrete Input Wiring

AC Input

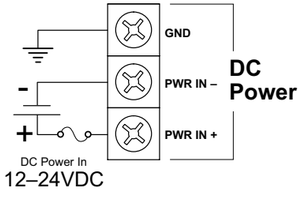


Discrete Output Wiring

Relay Output

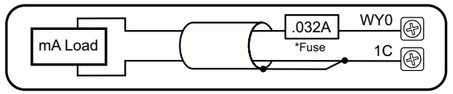


Supply Power Wiring

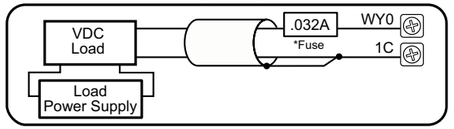


Analog Output Wiring

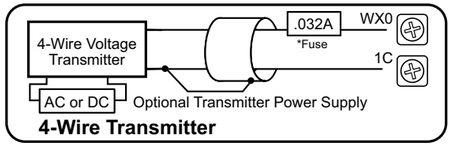
Current Source Output

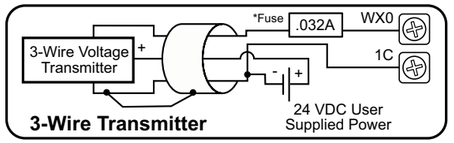


Voltage Output

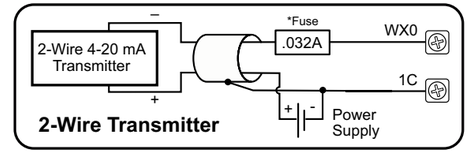


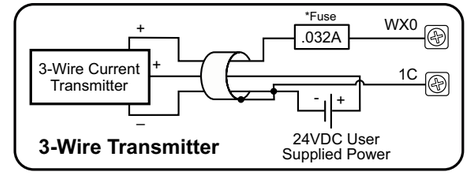
Analog Voltage Input Circuits

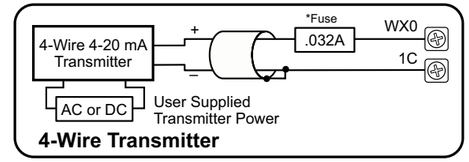




Analog Current Sinking Input Circuits







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