BRX Pluggable Option Module (POM)

CHAPTER 6

In This Chapter...

Overview

BRX Do-more! MPUs have a slot available for the addition of a single BRX Pluggable Option Module (POM). The POM slot can be used to add a serial port, Ethernet port, USB port or any other POM modules that are available.

POM modules are hot swappable; this allows you to interchange different communication options while the system is running. For example you can configure the system to use the RJ45 Ethernet port POM to talk with a C-more panel. Then you can hot swap to the USB POM for programming. When you are done programming you can hot swap back to the Ethernet POM without needing to power cycle or reconfigure the system.

General Specifications

General specifications common to 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 B or topic DMD0331 in the Do-more! Designer software Help file.
Weight	7g (0.25 oz)

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

BX-P-SER2-TERM

RS-232 Port
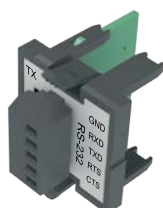
BX-P-SER2-TERMFC

RS-232 Port
w/Flow Control

BX-P-SER4-TERM

RS-485 Port

BX-P-SER422-TERM

RS-422 Port

BX-P-SER2-RJ12

RS-232 Port (RJ12)

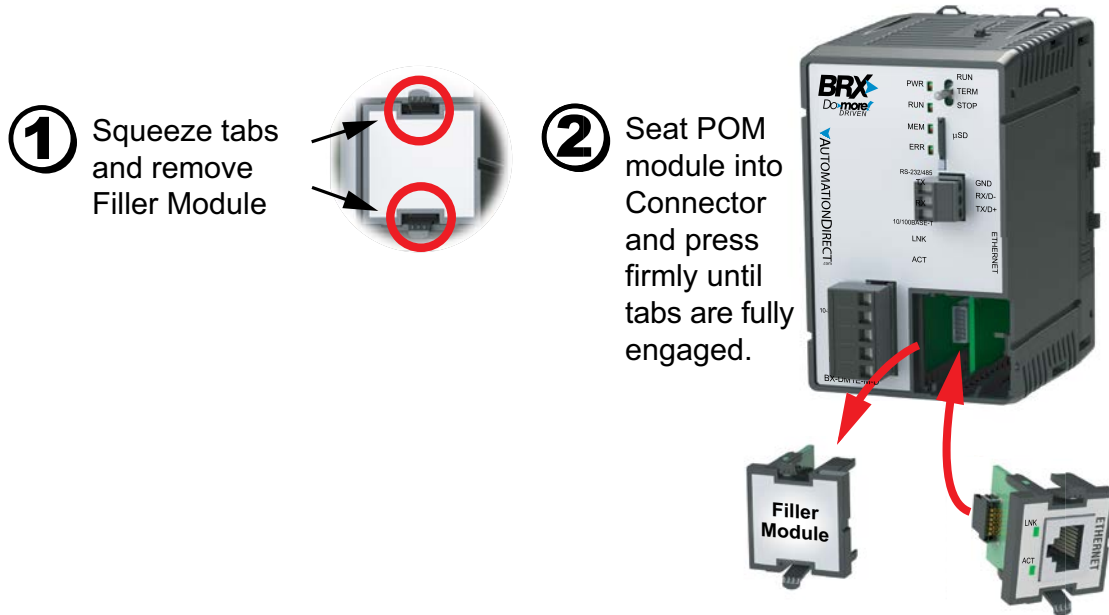**BX-P-ECOMLT**

Ethernet Port

(Any CPU)

BX-P-ECOMEX

Ethernet Port

(DM1E CPU Only)


BX-P-USB-B

USB Type B Port

Module Installation

The blank filler plate can be removed by squeezing in on the top and bottom tabs and pulling the module forward, away from the unit. To install the POM, orient the module so that the connector on the rear is on the left side, align the locking tabs on the top and bottom of the module, and gently guide the module into the opening until you hear it click, locking the module into place.

① Squeeze tabs and remove Filler Module

② Seat POM module into Connector and press firmly until tabs are fully engaged.
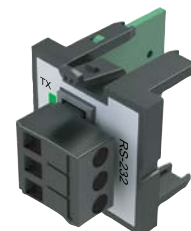
Filler Module

BX-P-SER2-TERM

This RS-232 POM can be connected to the Do-more! Designer programming software, Modbus RTU master or slave devices, DirectLogic PLCs via K-Sequence protocol, as well as devices that send or receive non-sequenced ASCII strings or characters.
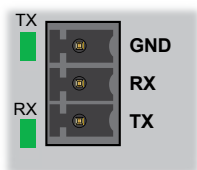
Pinout	RS232
1	GND
2	RX
3	TX

Removable Connector Included

BX-P-SER2-TERM Specifications

Description	Non-isolated Serial port that can communicate via RS-232. Includes ESD protection and built-in surge protection.
Supported Protocols	Do-more!™ Protocol (Slave) (Default) Modbus RTU (Master & Slave) K-Sequence (Slave) ASCII (In & Out)
Data Rates	1200, 2400, 4800, 9600, 19200, 38400, 57600, and 115200 Baud
Default Settings	115200bps, No Parity, 8 Data Bits, 1 Stop Bit, Station #1
Port Status LED	Green LED is illuminated when active for TXD and RXD
Port Type	Removable 3-pin terminal strip 3.5 mm pitch
RS-232 TX	RS-232 Transmit output
RS-232 RX	RS-232 Receive input
RS-232 GND	Logic ground
RS-232 Maximum Output Load (TXD/RTS)	3kΩ, 1000pf
RS-232 Minimum Output Voltage Swing	±5V
RS-232 Output Short Circuit Protection	±15mA
Cable Requirements	RS-232 use P/N L19772-XXX from automationdirect.com
Maximum Distance	6 meters (20 foot) recommended maximum
Replacement Connector	ADC Part # BX-RTB03S
Hot Swappable	Yes
Software Version Required	Do-more! Designer version 2.0 or later

BX-RTB03S Connector Specifications

Part Number	BX-RTB03S
Connector Type	Screw type
Wire Exit	180 degree
Pitch	3.5 mm
Screw Size	M2
Recommended Screw Torque	<1.77 lb·in (0.2 N·m)
Screwdriver Blade Width	2.5 mm
Wire Gauge (Single Wire)	28–16 AWG
Wire Gauge (Two Wires)	28–16 AWG
Wire Strip Length	0.24 in (6mm)
Equiv. Dinkle part #	EC350V-03P-BK

Removable Connector Included

BX-P-SER2-TERMFC

This RS-232 POM can be connected to the Do-more! Designer programming software, Modbus RTU master devices, DirectLogic PLCs via K-Sequence protocol, as well as devices that send or receive non-sequenced ASCII strings or characters.

Pinout	RS232
1	GND
2	RXD
3	TXD
4	RTS
5	CTS

Removable Connector Included

BX-P-SER2-TERMFC Specifications

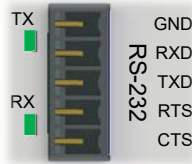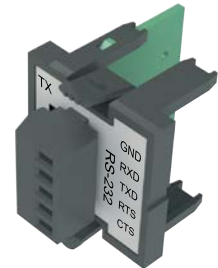|	
Description	Non-isolated Serial port that can communicate via RS-232. Includes ESD protection and built-in surge protection.
Supported Protocols	Do-more!™ Protocol (Slave) (Default) Modbus RTU (Master & Slave) K-Sequence (Slave) ASCII (In & Out)
Data Rates	1200, 2400, 4800, 9600, 19200, 38400, 57600, and 115200 Baud
Default Settings	115200bps, No Parity, 8 Data Bits, 1 Stop Bit
Port Status LED	Green LED is illuminated when active for TXD and RXD
Port Type	Removable 5-pin terminal strip 3.5 mm pitch
RS-232 TX	RS-232 Transmit output
RS-232 RX	RS-232 Receive input
RS-232 GND	Logic ground
RS-232 CTS	RS-232 Clear to Send input
RS-232 RTS	RS-232 Request to Send input
RS-232 Maximum Output Load (TXD/RTS)	3kΩ, 1000pf
RS-232 Minimum Output Voltage Swing	±5V
RS-232 Output Short Circuit Protection	±15mA
Cable Requirements	RS-232 use P/N L19853-XXX from automationdirect.com
Maximum Distance	6 meters (20 foot) recommended maximum
Replacement Connector	ADC Part # BX-RTB05S
Hot Swappable	Yes
Software Version Required	Do-more! Designer version 2.7 or later

BX-RTB05S Connector Specifications

Part Number	BX-RTB05S
Connector Type	Screw type
Wire Exit	180 degree
Pitch	3.5 mm
Screw Size	M2
Recommended Screw Torque	<1.77 lb·in (0.2 N·m)
Screwdriver Blade Width	2.5 mm
Wire Gauge (Single Wire)	28–16 AWG
Wire Gauge (Two Wires)	28–16 AWG
Wire Strip Length	0.24 in (6mm)
Equiv. Dinkle part #	EC350V-05P-BK

Removable Connector Included

BX-P-SER422-TERM

The RS-422 POM can be connected to the Do-more! Designer programming software, Modbus RTU master devices, DirectLogic PLCs via K-Sequence protocol, as well as devices that send or receive non-sequenced ASCII strings or characters.

Pinout	RS422
1	GND
2	RX-
3	RX+
4	TX-
5	TX+

Removable Connector Included

BX-P-SER422-TERM Specifications

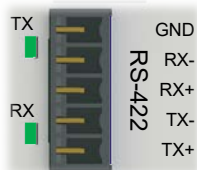|	
Description	Non-isolated Serial port that can communicate via RS-422. Includes ESD protection and built-in surge protection.
Supported Protocols	Do-more!™ Protocol (Slave) (Default) Modbus RTU (Master & Slave) K-Sequence (Slave) ASCII (In & Out)
Data Rates	1200, 2400, 4800, 9600, 19200, 38400, 57600, and 115200 Baud
Default Settings	115200bps, No Parity, 8 Data Bits, 1 Stop Bit, Station #1
Port Status LED	Green LED is illuminated when active for TXD and RXD
Port Type	Removable 5-pin terminal strip 3.5 mm pitch
Station Addresses	1–247
TX-/RX-	RS-422 Transceiver low
TX+/RX+	RS-422 Transceiver high
GND	Logic ground
Input Impedance	96kΩ
Maximum Load	50 transceivers, 19kΩ each, 120Ω termination
Output Short Circuit Protection	±250mA, thermal shutdown protection
Minimum Differential Output Voltage	2.0 VDC with 54Ω load
Maximum Common Mode Voltage	-7.5 to 12.5 VDC
Fail Safe Inputs	Logic high input state if inputs are unconnected
Electrostatic Discharge Protection	±15kV human body, ±6kV contact discharge per IEC61000-4-2
Cable Requirements	RS-422 use P/N L19853-XXX from automationdirect.com
Maximum Distance	1000 meters (3280 feet) recommended maximum
Replacement Connector	ADC Part # BX-RTB05S
Hot Swappable	Yes
Software Version Required	Do-more! Designer version 2.7 or later

BX-RTB05S Connector Specifications

Part Number	BX-RTB05S
Connector Type	Screw type
Wire Exit	180 degree
Pitch	3.5 mm
Screw Size	M2
Recommended Screw Torque	<1.77 lb·in (0.2 N·m)
Screwdriver Blade Width	2.5 mm
Wire Gauge (Single Wire)	28–16 AWG
Wire Gauge (Two Wires)	28–16 AWG
Wire Strip Length	0.24 in (6mm)
Equiv. Dinkle part #	EC350V-05P-BK

Removable Connector Included

BX-P-SER4-TERM

The RS-485 POM can be connected to the Do-more! Designer programming software, Modbus RTU master or slave devices, DirectLogic PLCs via K-Sequence protocol, as well as devices that send or receive non-sequenced ASCII strings or characters.

Pinout	RS485
1	GND
2	D-
3	D+

Removable Connector Included

BX-P-SER4-TERM Specifications

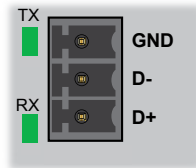|	
Description	Non-isolated Serial port that can communicate via RS-485. Includes ESD protection and built-in surge protection. Includes internal biasing to be a true failsafe receiver while maintaining EIA/TIA-485 compatibility.
Supported Protocols	Do-more!™ Protocol (Slave) (Default) Modbus RTU (Master & Slave) K-Sequence (Slave) ASCII (In & Out)
Data Rates	1200, 2400, 4800, 9600, 19200, 38400, 57600, and 115200 baud
Default Settings	115200bps, No Parity, 8 Data Bits, 1 Stop Bit, Station #1, Termination resistor OFF
Port Status LED	Green LED is illuminated when active for TXD and RXD
Port Type	Removable 3-pin terminal strip, 3.5 mm pitch
RS-485 Station Addresses	1–247
RS-485 D+	RS-485 transceiver high
RS-485 D-	RS-485 transceiver low
RS-485 GND	Logic ground
RS-485 Input Impedance	19kΩ
RS-485 Maximum Load	50 transceivers, 19kΩ each, DIP switch selectable 120Ω termination resistor
RS-485 Output Short Circuit Protection	±250mA, thermal shut-down protection
RS-485 Electrostatic Discharge Protection	±8kV per IEC1000-4-2
RS-485 Electrical Fast Transient Protection	±2kV per IEC1000-4-4
RS-485 Minimum Differential Output Voltage	1.5 V with 60Ω load
RS-485 Fail Safe Inputs	Logic high input state if inputs are unconnected
RS-485 Maximum Common Mode Voltage	-7.5 V to 12.5 V
Cable Requirements	RS-485 use P/N L19954-XXX from automationdirect.com
Maximum Distance	1000 meters (3280 feet)
Replacement Connector	ADC Part # BX-RTB03S
Hot Swappable	Yes
Software Version Required	Do-more! Designer version 2.0 or later

BX-RTB03S Connector Specifications

Part Number	BX-RTB03S
Connector Type	Screw type
Wire Exit	180 degree
Pitch	3.5 mm
Screw Size	M2
Recommended Screw Torque	<1.77 lb·in (0.2 N·m)
Screwdriver Blade Width	2.5 mm
Wire Gauge (Single Wire)	28–16 AWG
Wire Gauge (Two Wires)	28–16 AWG
Wire Strip Length	0.24 in (6mm)
Equiv. Dinkle part #	EC350V-03P-BK

Removable Connector Included

BX-P-SER2-RJ12

The RS-232 RJ12 POM can be connected to the Do-more! Designer programming software, Modbus RTU master or slave devices, DirectLogic PLCs via K-Sequence protocol, as well as devices that send or receive non-sequenced ASCII strings or characters.
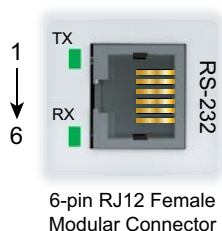
6-pin RJ12 Female
Modular Connector

Pin #	Signal	
1	0V	Power (-) connection (GND)
2	5V	Power (+) connection (220mA max)
3	RXD	Receive Data (RS-232)
4	TXD	Transmit Data (RS-232)
5	RTS	Request to Send (RS-232)
6	CTS	Clear to Send (RS-232)

BX-P-SER2-RJ12 Specifications	
Description	Non-isolated Serial port that can communicate via RS-232. Includes ESD protection and built-in surge protection.
Supported Protocols	Do-more!™ Protocol (Slave) (Default) Modbus RTU (Master & Slave) K-Sequence (Slave) ASCII (In & Out)
Data Rates	1200, 2400, 4800, 9600, 19200, 38400, 57600, and 115200 Baud
Default Settings	115200bps, No Parity, 8 Data Bits, 1 Stop Bit, Station #1
Port Status LED	Green LED is illuminated when active for TXD and RXD
Port Type	RJ12 - 6P6C
RS-232 Maximum Output Load (TXD/RTS)	3kΩ, 1000pf
RS-232 Minimum Output Voltage Swing	±5V
RS-232 Output Short Circuit Protection	±15mA
Cable Requirements	Recommend AutomationDirect.com cable D2-DSCBL (with USB-RS232-1) or EA-MG-PGM-CBL
Maximum Distance	6 meters (20 feet), maximum recommended distance
Replacement Connector	N/A
Hot Swappable	Yes
Software Version Required	Do-more! Designer version 2.0 or later

BX-P-ECOMLT

The Ethernet LT POM can be connected to the Do-more! Designer programming software or HMI's that support the Do-more!, Modbus, or K-sequence protocol. This POM functions only as a server device.
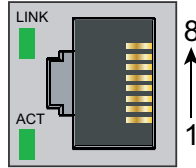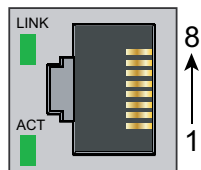
Pin #	Signal
1	TXD+ Transmit Data
2	TXD- Transmit Data
3	RXD+ Receive Data
4	N/C
5	N/C
6	RXD- Receive Data
7	N/C
8	N/C

BX-P-ECOMLT Specifications	
Description	Standard transformer isolated Ethernet port with built-in surge protection.
Transfer Rate	1 Mbps throughput max
Port Status LED[1]	LINK LED is solid when network link is established. ACT LED flashes when port is active.
Supported Protocols	Do-more! Protocol (Server) Modbus (Server) K-sequence (Server) Programming/Monitoring
Cable Recommendation	C5E-STxxx-xx from AutomationDirect.com
Maximum Distance	100 meters (328 feet)
Port Type	RJ45, Category 5, Auto Crossover

Ethernet Port Numbers:
    Do-more! Slave Protocol
    Modbus TCP Slave
    K-sequence Slave
    Programming/Monitoring
	
	28784, UDP
	502, TCP
	28784, UDP
	28784, UDP

Hot Swappable	Yes
Software Version Required	Do-more! Designer version 2.0 or later

1. Link LED will Blink when no cable is attached, showing that the POM has a connection to the CPU and is waiting for a working link.

BX-P-ECOMEX

The Ethernet EX POM provides a general-purpose Ethernet interface that can be connected to devices using a wide range of protocols, as shown in the table below.

| Pin #	Signal
1	TXD+ Transmit Data
2	TXD- Transmit Data
3	RXD+ Receive Data
4	N/C
5	N/C
6	RXD- Receive Data
7	N/C
8	N/C

NOTE: *The BX-P-ECOMEX POM can be installed in the DM1E CPUs only. It must be configured via Do-more! Designer software, and* **must be on a different subnet than the built-in Ethernet port***.*

BX-P-ECOMEX Specifications

Description	Standard transformer isolated Ethernet port with built-in surge protection.
Transfer Rate	10/100 Mbps
Port Status LED*	LINK LED is solid when network link is established. ACT LED flashes when port is active.
Supported Protocols	SMTP(Email) FTP (Client) Do-more! Ethernet I/O MQTT / MQTTS HTTP / HTTPS Embedded Web Server: HTTP (Unsecure) EtherNet/IP: Explicit/Implicit Messaging, Scanner/Adapter SNTP (Time Server) TCP/IP (Raw Packet) Modbus TCP/IP (Client & Server) DHCP
Cable Recommendation	C5E-STxxx-xx from AutomationDirect.com
Maximum Distance	100 meters (328 feet)
Port Type	RJ45, Category 5, Auto Crossover
Ethernet Port Numbers:	Peerlink 28784 UDP Do-more! Protocol (Client, Server) 28784 UDP Modbus TCP (Client, Server) 502 TCP HOST Ethernet Protocol (Client, Server) 28784 UDP EtherNet/IP: Explicit/Implicit Messaging Scanner/Adapter 44818 TCP SMTP (Email) 25 TCP Ethernet Remote I/O 28784 UDP HTTP, HTTPS 80, 443 TCP Embedded Web Server: HTTP (Unsecure) 80 TCP MQTT, MQTTS 1883, 8883 TCP SNTP (Time Server) 123 TCP TCP Raw Packet User defined TCP UDP Raw Packet User defined UDP FTP (Client) 20, 21 TCP
Hot Swappable	Yes
Software Version Required	Do-more! Designer version 2.8 or later (version 2.10 or later required for EtherNet/IP Implicit Messaging)

* Link LED will Blink when no cable is attached, showing that the POM has a connection to the CPU and is waiting for a working link.

BX-P-USB-B

The USB POM can only be connected to the Do-more! Designer programming software. This POM functions only as a programming interface.

Pin #	Signal
1	+5VDC
2	-Data
3	+Data
4	GND
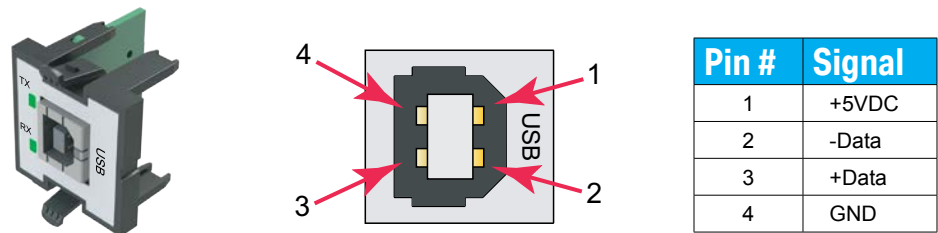
BX-P-USB-B Specifications	
Description	USB Type B Port that can be utilized for programming.
USB Specification Version	USB 2.0
Port Status LED	LED flashes when port is active
Cable Recommendation	USB-CBL-ABxx from AutomationDirect.com
Hot Swappable	Yes
Software Version Required	Do-more! Designer version 2.0 or later