

# BRX Pluggable 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 5-pin serial port
- RS-232 RJ12 port
- RS-422 5-pin serial 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.



**NOTE:** Pluggable Option Modules cannot be installed in BRX Remote I/O modules (e.g., BX-DMIO, BX-MBIO, BX-EBC100).



**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 (RJ45)



**BX-P-ECOMEX**  
Ethernet Port



**BX-P-USB-B**  
USB Type B Port

## BRX Programmable Option Modules

Expansion Module Part No.	Price	Description
<b><u>BX-P-SER2-TERM</u></b>	\$12ag:	Non-isolated Serial port for communication via RS-232. Includes ESD protection and built-in surge protection.
<b><u>BX-P-SER2-TERMFC</u></b>	\$-4gi3:	Non-isolated Serial port for communication via RS-232, with flow control. Includes ESD protection and built-in surge protection.
<b><u>BX-P-SER4-TERM</u></b>	\$12ah:	Non-isolated Serial port for communication via RS-485. Includes ESD protection and built-in surge protection.
<b><u>BX-P-SER422-TERM</u></b>	\$-4gi4:	Non-isolated Serial port that can communicate via RS-422. Includes ESD protection and built-in surge protection.
<b><u>BX-P-SER2-RJ12</u></b>	\$;12af:	Non-isolated Serial port for communication via RS-232. Includes ESD protection and built-in surge protection.
<b><u>BX-P-ECOMLT</u></b>	\$-012aj:	Standard transformer isolated Ethernet port (1 Mbps throughput max) with built-in surge protection.
<b><u>BX-P-ECOMEX</u></b>	\$;04t?z:	General-purpose standard transformer isolated Ethernet port (10/100 Mbps) with built-in surge protection.
<b><u>BX-P-USB-B</u></b>	\$-12ai:	USB Type B Port for programming.

## General Specifications

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

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

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

## BRX POM Capabilities

	<b>BX-P-SER2-TERM</b>	<b>BX-P-SER2-TERMFC</b>	<b>BX-P-SER4-TERM</b>	<b>BX-P-SER422-TERM</b>	<b>BX-P-SER2-RJ12</b>	<b>BX-P-ECOMLT*</b>	<b>BX-P-ECOMEX</b>	<b>BX-P-USB-B</b>
<b>Monitoring &amp; Programming</b>	X	X	X	X	X	X	X	X
<b>Do-more! Protocol</b>	X	X	X	X	X	X	X	
<b>Modbus RTU Master</b>	X	X	X	X	X		X	
<b>Modbus RTU Slave</b>	X	X	X	X	X		X	
<b>Modbus TCP (Server)</b>						X	X	
<b>HTTP</b>							X	
<b>MQTT Client</b>							X	
<b>FTP</b>							X	
<b>EtherNet/IP</b>							X	
<b>Embedded Web Server: HTTP (Unsecure)</b>							X	
<b>K-Sequence (Slave)</b>	X	X	X	X	X	X	X	
<b>ASCII (In &amp; Out)</b>	X	X	X	X	X		X	
<b>Custom Protocols</b>	X	X	X	X			X	

\* Limited to 1 Mbps throughput max

# BRX Pluggable Option Modules (POM)

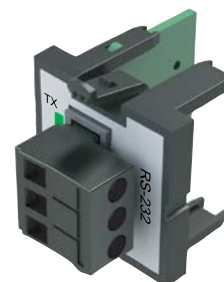
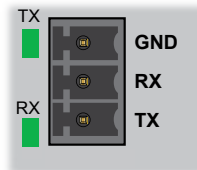
## BX-P-SER2-TERM

The RS-232 POM can be connected to the Do-more! Designer programming software, Modbus RTU master or slave devices,

**\$12ag:**

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

<b>Description</b>	Non-isolated Serial port that can communicate via RS-232. Includes ESD protection and built-in surge protection.
<b>Supported Protocols</b>	Do-more!™ Protocol (Default) Modbus RTU (Master & Slave) K-Sequence (Slave) ASCII (In & Out)
<b>Data Rates</b>	1200, 2400, 4800, 9600, 19200, 38400, 57600, and 115200 Baud
<b>Default Settings</b>	115200bps, No Parity, 8 Data Bits, 1 Stop Bit, Station #1
<b>Port Status LED</b>	Green LED is illuminated when active for TXD and RXD
<b>Port Type</b>	Removable 3-pin terminal strip 3.5 mm pitch
<b>RS-232 TX</b>	RS-232 Transmit output
<b>RS-232 RX</b>	RS-232 Receive input
<b>RS-232 GND</b>	Logic ground
<b>RS-232 Maximum Output Load (TXD/RTS)</b>	3kΩ, 1000pf
<b>RS-232 Minimum Output Voltage Swing</b>	±5V
<b>RS-232 Output Short Circuit Protection</b>	±15mA
<b>Cable Requirements</b>	RS-232 use P/N L19772-XXX from automationdirect.com
<b>Maximum Distance</b>	30 meters [100 feet]; 6 meters [20 feet] recommended maximum
<b>Replacement Connector</b>	ADC Part # <a href="#">BX-RTB03S</a>
<b>Hot Swappable</b>	Yes

## BX-RTB03S

**;\$128[:**

Replacement removable connector.



**BX-RTB03S**

### BX-RTB03S Connector Specifications

Part Number	<a href="#">BX-RTB03S</a>
Connector Type	Screw type
Wire Exit	90-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

# BRX Pluggable Option Modules (POM)

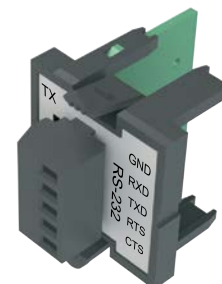
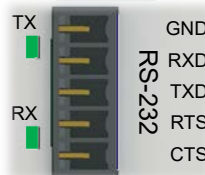
## BX-P-SER2-TERMFC

The RS-232 POM can be connected to the Do-more! Designer programming software, Modbus RTU master or slave devices,

## \$-4gi3:

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

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

## BX-RTB05S

## \$;4gh!:

Replacement removable connector.



### BX-RTB05S Connector Specifications

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

# BRX Pluggable Option Modules (POM)

## BX-P-SER422-TERM

The RS-422 POM can be connected to the Do-more! Designer programming software, Modbus RTU master devices, DirectLogic

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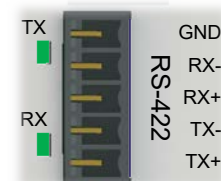
PLCs via K-Sequence protocol, as well as devices that send or receive non-sequenced ASCII strings or characters.



Removable Connector Included

BX-P-SER422-TERM Specifications	
<b>Description</b>	Non-isolated Serial port that can communicate via RS-422. Includes ESD protection and built-in surge protection.
<b>Supported Protocols</b>	Do-more!™ Protocol (Default) Modbus RTU (Master & Slave) K-Sequence (Slave) ASCII (In & Out)
<b>Data Rates</b>	1200, 2400, 4800, 9600, 19200, 38400, 57600, and 115200 Baud
<b>Default Settings</b>	115200bps, No Parity, 8 Data Bits, 1 Stop Bit, Station #1
<b>Port Status LED</b>	Green LED is illuminated when active for TXD and RXD
<b>Port Type</b>	Removable 5-pin terminal strip 3.5 mm pitch
<b>Station Addresses</b>	1–247
<b>TX-/RX-</b>	RS-422 Transceiver low
<b>TX+/RX+</b>	RS-422 Transceiver high
<b>GND</b>	Logic ground
<b>Input Impedance</b>	96kΩ
<b>Maximum Load</b>	50 transceivers, 19kΩ each, 120Ω termination
<b>Output Short Circuit Protection</b>	±250mA, thermal shutdown protection
<b>Minimum Differential Output Voltage</b>	2.0 VDC with 54Ω load
<b>Maximum Common Mode Voltage</b>	-7.5 to 12.5 VDC
<b>Fail Safe Inputs</b>	Logic high input state if inputs are unconnected
<b>Electrostatic Discharge Protection</b>	±15kV human body, ±6kV contact discharge per IEC61000-4-2
<b>Cable Requirements</b>	RS-422 use P/N L19853-XXX from automationdirect.com
<b>Maximum Distance</b>	1000 meters [3280 feet] recommended maximum
<b>Replacement Connector</b>	ADC Part # BX-RTB05S
<b>Hot Swappable</b>	Yes
<b>Software Version Required</b>	Do-more! Designer version 2.7 or later

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



## BX-RTB05S

## \$;4gh!:

Replacement removable connector.



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

# BRX Pluggable Option Modules (POM)

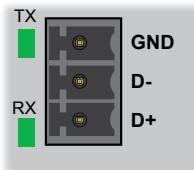
## BX-P-SER4-TERM

**\$12ah:**

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

<b>Description</b>	Non-isolated Serial port that can communicate via RS-485. Includes ESD protection and built-in surge protection.
<b>Supported Protocols</b>	Do-more!™ Protocol (Default) Modbus RTU (Master & Slave) K-Sequence (Slave) ASCII (in & Out)
<b>Data Rates</b>	1200, 2400, 4800, 9600, 19200, 38400, 57600, and 115200 baud
<b>Default Settings</b>	115200bps, No Parity, 8 Data Bits, 1 Stop Bit, Station #1, Termination resistor OFF
<b>Port Status LED</b>	Green LED is illuminated when active for TXD and RXD
<b>Port Type</b>	Removable 3-pin terminal strip 3.5 mm pitch
<b>RS-485 Station Addresses</b>	1-247
<b>RS-485 D+</b>	RS-485 transceiver high
<b>RS-485 D-</b>	RS-485 transceiver low
<b>RS-485 GND</b>	Logic ground
<b>RS-485 Input Impedance</b>	19kΩ
<b>RS-485 Maximum Load</b>	50 transceivers, 19kΩ each, 120Ω termination
<b>RS-485 Output Short Circuit Protection</b>	±250mA, thermal shut-down protection
<b>RS-485 Electrostatic Discharge Protection</b>	±8kV per IEC1000-4-2
<b>RS-485 Electrical Fast Transient Protection</b>	±2kV per IEC1000-4-4
<b>RS-485 Minimum Differential Output Voltage</b>	1.5 V with 60Ω load
<b>RS-485 Fail Safe Inputs</b>	Logic high input state if inputs are unconnected
<b>RS-485 Maximum Common Mode Voltage</b>	-7.5 V to 12.5 V
<b>Cable Requirements</b>	RS-232 use P/N L19772-XXX from automationdirect.com
<b>Maximum Distance</b>	30 meters [100 feet]; 6 meters [20 foot] recommended maximum
<b>Replacement Connector</b>	ADC Part # <a href="#">BX-RTB03S</a>
<b>Hot Swappable</b>	Yes

## BX-RTB03S

**;\$128[:**

Replacement removable connector.



**BX-RTB03S**

### BX-RTB03S Connector Specifications

<b>Part Number</b>	BX-RTB03S
<b>Connector Type</b>	Screw type
<b>Wire Exit</b>	90-degree
<b>Pitch</b>	3.5 mm
<b>Screw Size</b>	M2
<b>Recommended Screw Torque</b>	<1.77 lb-in [0.2 N·m]
<b>Screwdriver Blade Width</b>	2.5 mm
<b>Wire Gauge (Single Wire)</b>	28-16 AWG
<b>Wire Gauge (Two Wires)</b>	28-16 AWG
<b>Wire Strip Length</b>	0.24 in [6mm]
<b>Equiv. Dinkle part #</b>	EC350V-03P-BK

# BRX Pluggable Option Modules (POM)

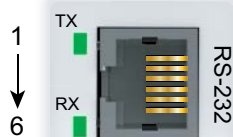
## BX-P-SER2-RJ12

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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.

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)



6-pin RJ12 Female Modular Connector



## BX-P-SER2-RJ12 Specifications

<b>Description</b>	Non-isolated Serial port that can communicate via RS-232 Includes ESD protection and built-in surge protection.
<b>Supported Protocols</b>	Do-more!™ Protocol (Default) Modbus RTU (Master & Slave) K-Sequence (Slave) ASCII (In & Out)
<b>Data Rates</b>	1200, 2400, 4800, 9600, 19200, 38400, 57600, and 115200 Baud
<b>Default Settings</b>	115200bps, No Parity, 8 Data Bits, 1 Stop Bit, Station #1
<b>Port Status LED</b>	Green LED is illuminated when active for TXD and RXD
<b>Port Type</b>	RJ12 - 6P6C
<b>RS-232 Maximum Output Load (TXD/RTS)</b>	3kΩ, 1000pf
<b>RS-232 Minimum Output Voltage Swing</b>	±5V
<b>RS-232 Output Short Circuit Protection</b>	±15mA
<b>Cable Requirements</b>	RS-232 use P/N L19772-XXX from automationdirect.com
<b>Maximum Distance</b>	30 meters [100 feet]; 6 meters [20 foot] recommended maximum
<b>Replacement Connector</b>	N/A
<b>Hot Swappable</b>	Yes

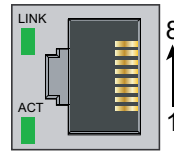


# BRX Pluggable Option Modules (POM)

## BX-P-ECOMLT \$-012aj:

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



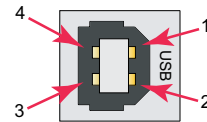
### BX-P-ECOMLT Specifications

<b>Description</b>	Standard transformer isolated Ethernet port with built-in surge protection.
<b>Transfer Rate</b>	1 Mbps throughput max
<b>Port Status LED</b>	LINK LED is solid when network is established. ACT LED flashes when port is active.
<b>Supported Protocols</b>	Do-more! Protocol (Server) Modbus TCP (Server) K-sequence (Server) Programming/Monitoring
<b>Cable Recommendation</b>	C5E-STxxx-xx from AutomationDirect.com
<b>Port Type</b>	RJ45, Category 5, Auto Crossover
<b>Ethernet Port Numbers:</b>	
Do-more! Protocol	28784, UDP
Modbus	502, TCP
K-sequence	28784, UDP
Programming/Monitoring	28784, UDP
<b>Hot Swappable</b>	Yes

## BX-P-USB-B \$-12ai:

The USB POM can only be connected to the Do-more! Designer programming software.

Pin #	Signal
1	+5
2	-Data
3	+Data
4	GND



Mating face of USB type B female



### BX-P-USB-B Specifications

<b>Description</b>	USB Type B Port for programming.
<b>USB Specification Version</b>	USB 2.0
<b>Port Status LED</b>	LED flashes when port is active
<b>Cable Recommendation</b>	USB-CBL-ABxx from AutomationDirect.com
<b>Hot Swappable</b>	Yes

# BRX Pluggable Option Modules (POM)

## BX-P-ECOMEX

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The Ethernet EX POM provides a general-purpose Ethernet interface that can be connected to devices using a wide range of protocols.



**NOTE:** This POM device must be used with a DM1E CPU and reside on a different subnet than the built-in Ethernet port.



### BX-P-ECOMEX Specifications

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

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

