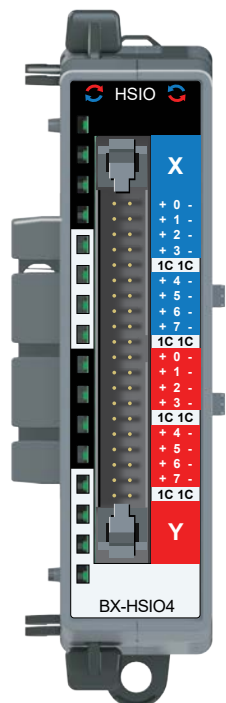# BX-HSIO4 High Speed Input/Output

BX-HSIO4
$259.00

8-pt Sinking/Sourcing Input,
8-pt Sinking/Sourcing Output

NOTE: This device requires *ZIP*Link Wiring Systems

NOTE: Cannot be used in Remote I/O Bases.

High Speed Input/Output Specifications	
High Speed Input Specifications	
Type	High Speed TTL Differential or Single Ended
Total Input Points per Module	8
Commons	1
Nominal Voltage Range	5VDC
Input Voltage Range	-5.5 to 5.5 VDC
Maximum Voltage	5.5 VDC
DC Frequency	0–2 MHz
Minimum Pulse Width	125ns
Input Impedance	694Ω @ 5VDC
Input Current (typical)	±7mA @ 5VDC
Maximum Input Current	10mA @ 5.5 VDC
ON Voltage Level	> +2.5 VDC differential
OFF Voltage Level	< +1.0 VDC differential
Hysteresis	50mV typical
Status Indicators	Logic Side, Green
OFF to ON Response	<125ns
ON to OFF Response	<125ns
High Speed Output Specifications	
Type	High Speed TTL Differential
Total Output Points per Module	8
Commons	1
Maximum Current per Common	160mA
Power Supply	Internal +5VDC
Maximum Voltage	5.5 VDC
Minimum Output Current	1µA
Maximum Load Current	20mA per Output
Maximum Leakage Current	±20µA
Differential Output Voltage	>3.0 VDC
Status Indicators	Logic Side, Green
OFF to ON Response	<125ns
ON to OFF Response	<125ns
Maximum Switching Frequency	2MHz
Overcurrent, Short Circuit Protection and Short to Ground	Protected
Overcurrent Trip Level	150mA maximum
Fuse Type	User-supplied external fuse
General	
Backplane Power Consumption	2.6 W
Heat Dissipation	3.0 W
Weight	85g (3oz)
Software Version Required	Do-more! Designer v2.8 or later

* Class 2 or LPS Power Supply required.

IMPORTANT! ⚠️

Hot-Swapping Information
Note: This device cannot be Hot Swapped.

BX-HSIO4 High Speed Input/Output, continued

ZIPLink Terminal Block Wiring Connections for BX-HSIO4

Wiring Connections for ZL-RTB40 Terminal Block																					
MODULE	LABELS																				LEVEL
BX-HSIO4	IN 0-	IN 1-	IN 2-	IN 3-	COM	IN 4-	IN 5-	IN 6-	IN 7-	COM	OUT 0-	OUT 1-	OUT 2-	OUT 3-	COM	OUT 4-	OUT 5-	OUT 6-	OUT 7-	COM	UPPER
	IN 0+	IN 1+	IN 2+	IN 3+	COM	IN 4+	IN 5+	IN 6+	IN 7+	COM	OUT 0+	OUT 1+	OUT 2+	OUT 3+	COM	OUT 4+	OUT 5+	OUT 6+	OUT 7+	COM	LOWER

TERMINAL BLOCK LABEL SHEET FOR ZIPLINK CABLE ZL-BX-CBL-40-xS

Wiring Connections for ZL-RTB40-1 Terminal Block																
MODULE	LABELS															LEVEL
BX-HSIO4	COM		COM		COM		COM		COM		COM		COM		COM	UPPER
	IN 0-	IN 1-	IN 2-	IN 3-	IN 4-	IN 5-	IN 6-	IN 7-	OUT 0-	OUT 1-	OUT 2-	OUT 3-	OUT 4-	OUT 5-	OUT 6-	OUT 7-	MIDDLE
	IN 0+	IN 1+	IN 2+	IN 3+	IN 4+	IN 5+	IN 6+	IN 7+	OUT 0+	OUT 1+	OUT 2+	OUT 3+	OUT 4+	OUT 5+	OUT 6+	OUT 7+	LOWER

TERMINAL BLOCK LABEL SHEET FOR ZIPLINK CABLE ZL-BX-CBL-40-xS
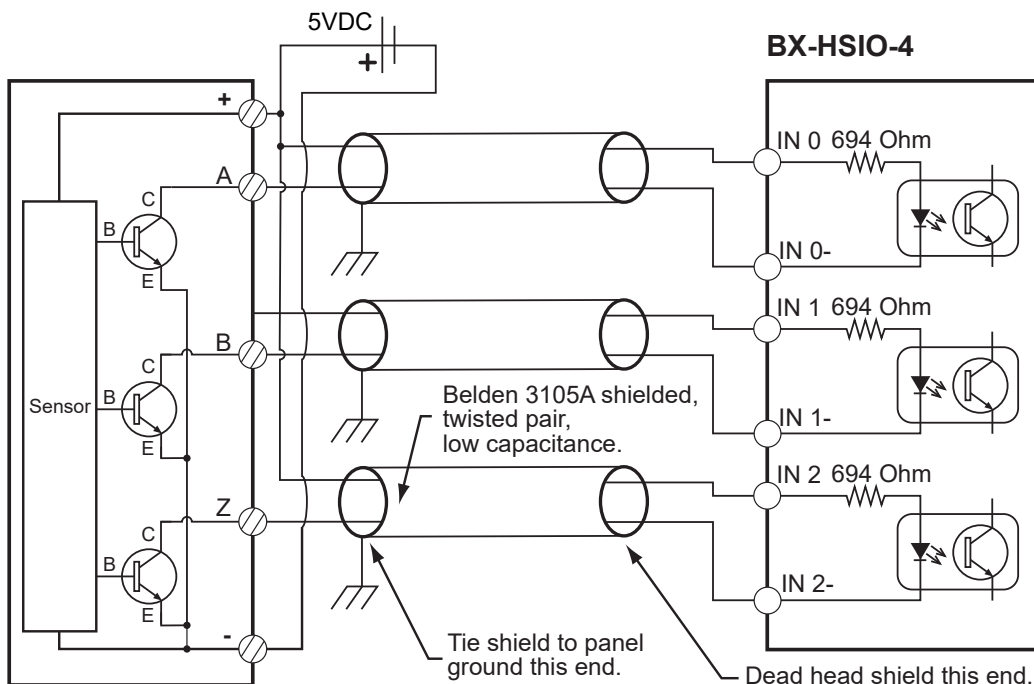
Differential 5V Encoder Input to BX-HSIO4

To prevent damage to 5V inputs,
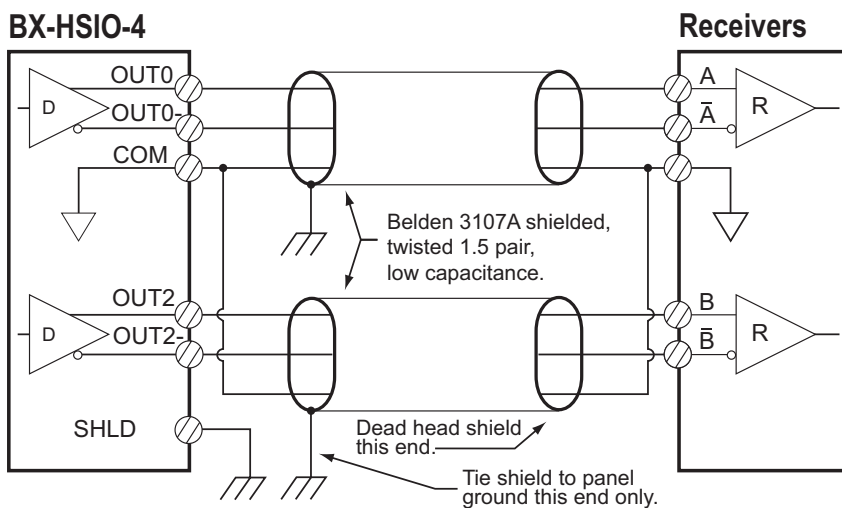do not exceed 6.8V or 30 mA on inputs
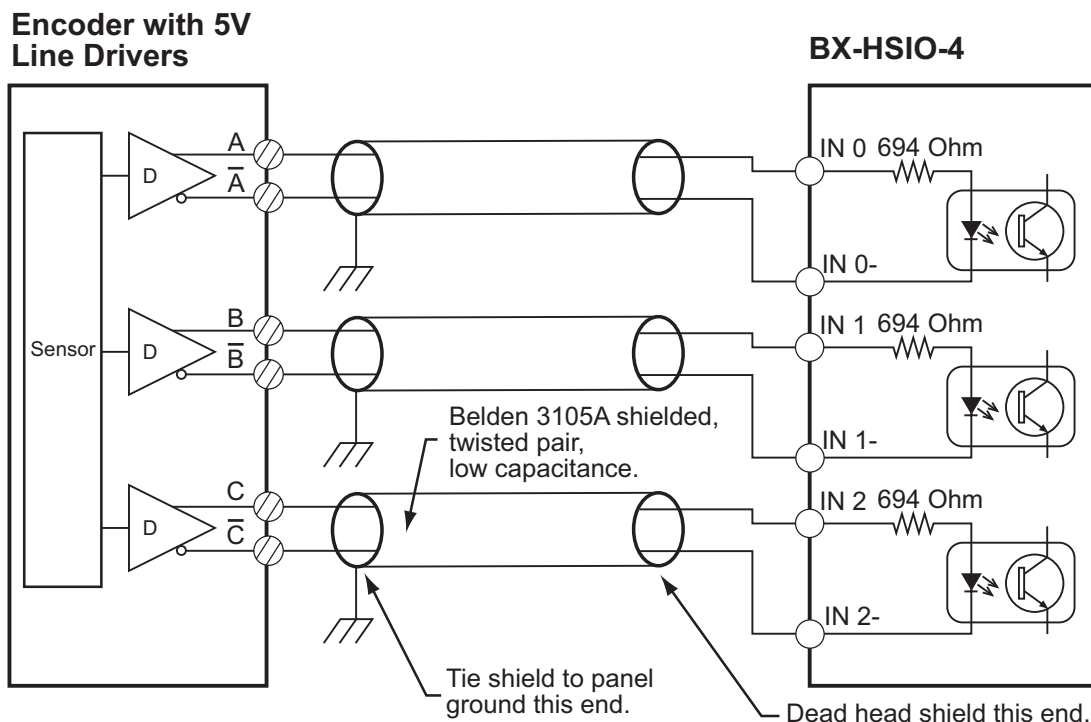
BX-HSIO4 High Speed Input/Output, continued
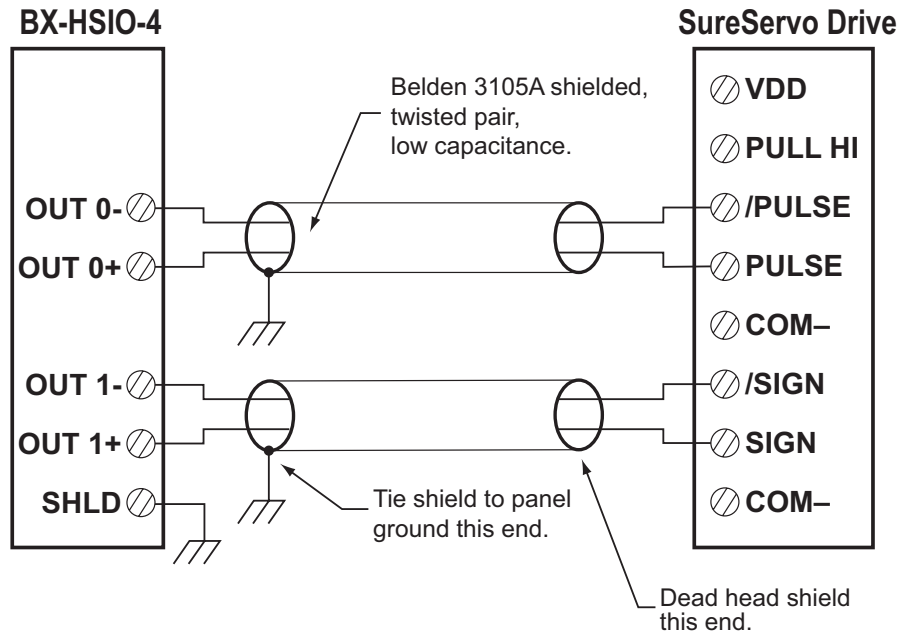
Single-Ended 5V Encoder Input to BX-HSIO4
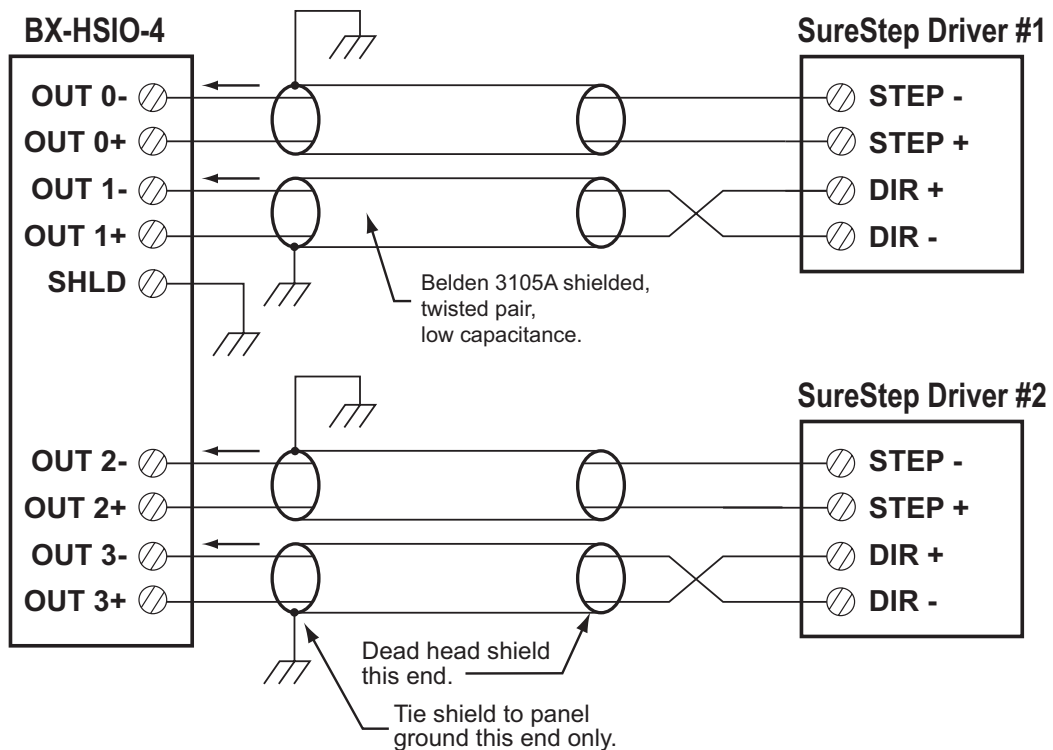

Line Driver Pulse Output from BX-HSIO4

BX-HSIO4 to SureServo

BX-HSIO-4

SureServo Drive

Belden 3105A shielded, twisted pair, low capacitance.

BX-HSIO-4	SureServo Drive
	VDD
	PULL HI
OUT 0-	/PULSE
OUT 0+	PULSE
	COM–
OUT 1-	/SIGN
OUT 1+	SIGN
SHLD	COM–

Tie shield to panel ground this end.

Dead head shield this end.

BX-HSIO4 to SureStep

BX-HSIO-4

SureStep Driver #1

BX-HSIO-4	SureStep Driver #1
OUT 0-	STEP -
OUT 0+	STEP +
OUT 1-	DIR +
OUT 1+	DIR -
SHLD	

Belden 3105A shielded, twisted pair, low capacitance.

SureStep Driver #2

BX-HSIO-4	SureStep Driver #2
OUT 2-	STEP -
OUT 2+	STEP +
OUT 3-	DIR +
OUT 3+	DIR -

Dead head shield this end.

Tie shield to panel ground this end only.

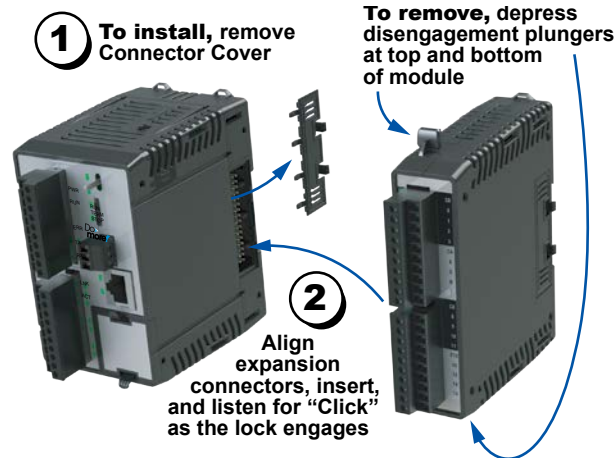# BRX Motion Control, Communications and Specialty Expansion Modules

Overview

One of the unique features of the BRX platform is its ability to expand its capability to fit your application solution. One of the ways the BRX platform can do this is by using expansion modules that conveniently "snap on" to the side of any BRX MPU. Once the expansion module has been snapped into place and is added to the project, it instantly adds I/O to the MPU with little to no additional setup required.

The specialty expansion modules give you the ability to add additional high-speed I/O or serial communications as needed. On the front panel of the expansion modules a color scheme and a symbol are used to denote the module type.

High-speed I/O modules have 8-point sinking/sourcing inputs and are available with 8-point sinking or sourcing outputs, all with switching frequencies up to 250kHz. The serial communications modules have 4 serial ports.

The high-speed I/O modules ship without wiring terminals. This allows you to select the termination style that best suits your application. Several wiring options are available, including screw terminal connectors and spring clamp terminal connectors. The serial communications modules ship with a terminal connector installed in each port.


① To install, remove Connector Cover

To remove, depress disengagement plungers at top and bottom of module

② Align expansion connectors, insert, and listen for "Click" as the lock engages

Hot-Swapping Information
Note: This device cannot be Hot Swapped.

General Specifications

All BRX high-speed input/output modules and serial communications modules have the same general specifications 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
Noise Immunity	NEMA ICS3-304
EU Directive	See the "EU Directive" topic in the BRX Help File
Agency Approvals	UL 61010-2 File E185989, Canada and USA, CE Compliant EN61131-2

Dimensions

3.25" [82.6mm]

4.57" [116.2mm]

4.24" [107.8mm]

1.08" [27.5mm]

1.00" [25.4mm]

2X Ø #8 Thru all
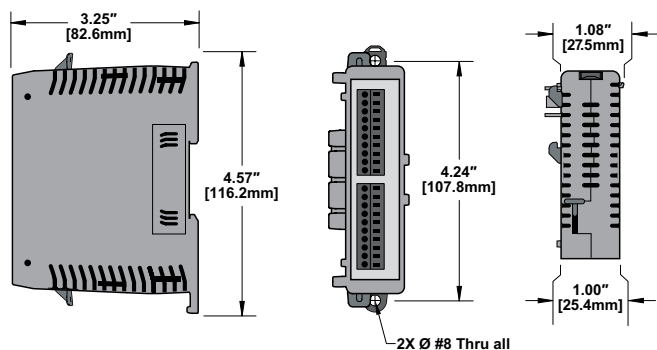
NOTE: When removing an expansion module make sure there is room for the module to slide away from the system. Failure to do so will result in difficulty removing the module.

BRX Motion Control, Communications and Specialty Expansion Modules

Blue Label for Input

Red Label for Output

BX-HSIO4

BX-HSIO2
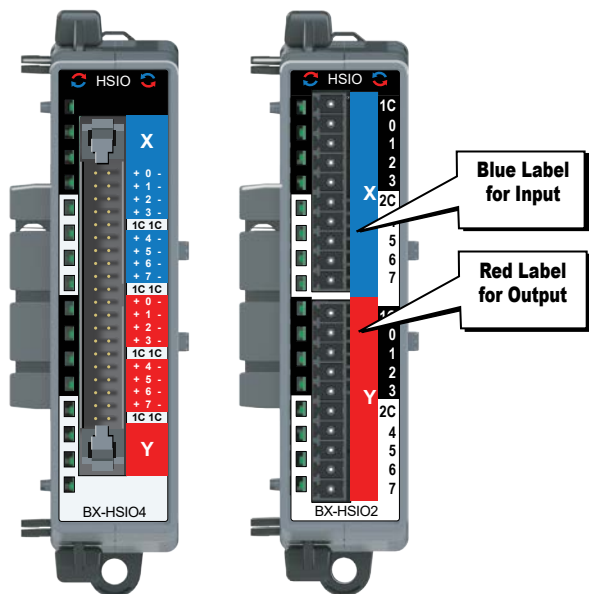
High-speed Input/Output Modules

Three (3) high-speed input/output modules are available, with eight inputs and eight outputs each. High-speed I/O module faceplates have blue and red terminal bar sections to distinguish input and output terminals, respectively, and have the ⟳ symbol to signify high-speed I/O.

High-Speed Input/Output Modules				
Part Number	Input Points	Output Points	Output Type	Switching Speed	Price
BX-HSIO1	8	8	12–24 VDC Sinking	Up to 250kHz	$229.00
BX-HSIO2	8	8	12–24 VDC Sourcing	Up to 250kHz	$229.00
BX-HSIO4	8	8	2.5–5 VDC Sinking/Sourcing	Up to 2MHz	$259.00
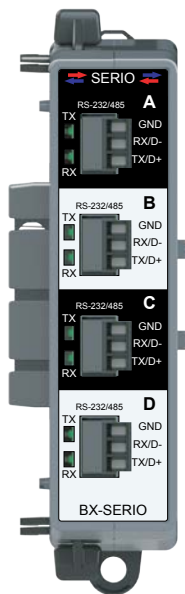
Serial Communications Module

Three (3) serial communications modules are available, with four serial ports each. Serial communications module faceplates have black and white terminal sections to distinguish serial terminals, and have the ⇆ symbol to signify serial I/O.

BX-SERIO

Serial Communications Module			
Part Number	Ports	Port Type	Price
BX-SERIO	4	RS-232 / RS-485	$208.00
BX-SERIO-2	4	RS-232 with Flow Control	$204.00
BX-SERIO-4	4	RS-422	$188.00

Expansion Module Support by Controller	
Controller Type	# Expansion Modules
BX-DM1E-M	8
BX-DM1-10	2
BX-DM1E-10	2
BX-DM1-18	4
BX-DM1E-18	8
BX-DM1-36	4
BX-DM1E-36	8
BX-DMIO*	8
BX-EBC100*	8
BX-MBIO*	8

* Remote I/O controllers do not support Motion Control and Communications Modules.

BRX - Programmable Controller tBRX-168

BRX Wiring Termination Options

16-Point BRX Discrete Expansion Module *ZIP*Link Selector					
Expansion Module Part No.	ZIPLink Module	ZIPLink Module Part No.	Qty Needed	ZIPLink Cable Part No.*	Qty Needed
BX-16ND3	Sensor	ZL-LTB16-24-1	1	ZL-BXEM-CBL20 ZL-BXEM-CBL20-1 ZL-BXEM-CBL20-2	1
	Feedthrough	ZL-RTB20 (Standard) OR ZL-RTB20-1 (Compact)	1		
BX-16NF3	Feedthrough				
BX-16NA					
BX-16NB					
BX-16TD1	Feedthrough				
	Relay (Sourcing)	ZL-RRL16-24-1, ZL-RRL16W-24-1, ZL-RRL16F-24-1, ZL-RRL16HDF-24-1	1		
BX-16TD2	Relay (Sinking)	ZL-RRL16-24-2, ZL-RRL16W-24-2, ZL-RRL16F-24-2, ZL-RRL16HDF-24-2	1		
	Feedthrough				
BX-16TF2	Feedthrough	ZL-RTB20 (Standard) OR ZL-RTB20-1 (Compact)	1		
BX-16TR**					
BX-16TRZ**					
BX-16CD3D1					
BX-16CD3D2					
BX-16CF3F2					

* Select cable length: Blank = 0.5 m, -1 = 1.0m, -2 = 2.0m.
  Available pigtail cables: ZL-BXEM-CBL20-1P = 1.0 m, ZL-BXEM-CBL20-2P = 2.0 m.
** The relay outputs are derated not to exceed 2A per common when used with the *ZIP*Link wiring system.

32-Point BRX Discrete Expansion Module *ZIP*Link Selector					
Expansion Module Part No.	ZIPLink Module	ZIPLink Module Part No.	Qty Needed	ZIPLink Cable Part No.*	Qty Needed
BX-32ND3	Sensor	ZL-LTB32-24-1	1	ZL-D24-CBL40 ZL-D24-CBL40-1 ZL-D24-CBL40-2	1
	Feedthrough	ZL-RTB40 (Standard) OR ZL-RTB40-1 (Compact)	1		
BX-32TD1	Feedthrough				
BX-32TD2					

* Select cable length: Blank = 0.5 m, -1 = 1.0m, -2 = 2.0m.
  Available pigtail cables: ZL-D24-CBL40-1P = 1.0 m, ZL-D24-CBL40-2P = 2.0 m.
  Suffix -X indicates 45° cable connector angle. Non -X indicates 180° cable connector angle.

16-Point BRX High Speed Expansion Module *ZIP*Link Selector					
Expansion Module Part No.	ZIPLink Module	ZIPLink Module Part No.	Qty Needed	ZIPLink Cable Part No.*	Qty Needed
BX-HSIO4	Feedthrough	ZL-RTB40 (Standard) OR ZL-RTB40-1 (Compact)	1	ZL-BX-CBL40-S ZL-BX-CBL40-1S	1