

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
BRX System Power Budget	2.6 W
Heat Dissipation	3.0 W
Weight	85g (3 oz)
Software Version	Do-more! Designer 2.8 or later

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

Input Specifications	
Input Type	High Speed TTL Differential or Single Ended
Total Inputs per Module	8
Commons	1
Nominal Voltage Rating	5VDC
Input Voltage Range	-5.5 - 5.5 VDC
Maximum Voltage	5.5 VDC
DC Frequency	0 - 2MHz
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

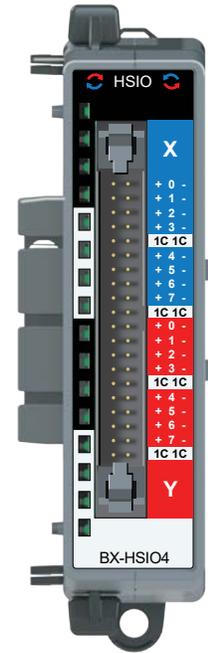
Output Specifications	
Output Type	High Speed TTL Differential or Single Ended
Total Outputs per Module	8
Commons	1
Maximum Current per Common	160mA
Nominal Voltage Rating	5VDC
Operating Voltage Range	2.5 - 5.5V DC
Maximum Voltage	5.5 VDC
Minimum Output Current	1µA
Maximum Output Current	20mA per output
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	0 - 2MHz
Overcurrent, Short Circuit Protection and Short to Ground	Protected
Overcurrent Trip Level	150mA Max
Fuse Type	User-supplied external fuse

# BX-HSIO4 Differential Outputs

## High Speed Input/Output Module

In: 8-pt  
2.5-5VDC  
Sink/Source

Out: 8-pt  
2.5-5VDC  
Sinking



**ZIPLink Connections system required for this module.**  
(See Terminal Block Connection Options tables).

**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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Do-more! BRX Manual available at [www.automationdirect.com/pn/doc/manual/BX-HSIO4](http://www.automationdirect.com/pn/doc/manual/BX-HSIO4)



### IMPORTANT!



#### Hot-Swapping Information

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

Document Name	Edition/Revision	Date
BX-HSIO4	1st Ed. RevA	9/9/2021

## High Speed Input (HSI) Functions

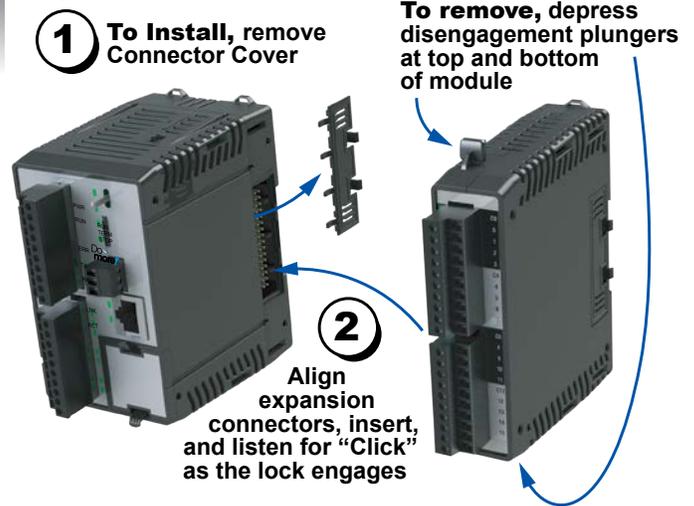
Input Function	Inputs Required		BX-HSIO4
High-Speed Counting Position Scaling Frequency Measurement	1	Up counters	Up to (4)
	1	Down counters	
	2	Up/Down counters	
	2	Pulse/Direction (Bidirectional) counters	
	2	Quadrature (A and B) counters	
Interval Measurement	3	Quadrature (A and B with Z) counters	Up to (4)
	1	Single Input (Edge) timers	
Duration Measurement	2	Dual Input (Dual Edge) timers	Up to (4)
	1	Single Input (Edge) timers	
Table-Driven Output(s) <sup>1</sup>		Programmable limit switches	Up to (4)
		Preset tables	
Interrupt(s)	1	Input interrupts	Up to (4)
		Timer interrupts	
		Match register interrupts	

1. Table Driven Output(s) are triggered by an Axis Position or a high-speed counter/timer accumulator value. It requires the selection of 1 discrete output.

## High Speed Output (HSO) Functions

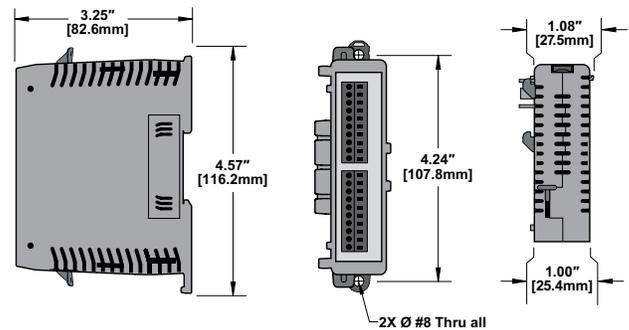
	Outputs Required	Function	BX-HSIO4
Pulse Mode	0	Virtual axis	Up to (4)
	2	PTO linear step/direction outputs	Up to (3)
	2	PTO rotary clockwise/counter-clockwise (CW/CCW) outputs	
	2	PTO quadrature (A and B) output	
	1	PWM pulse width modulation outputs	Up to (4)
Axis Profile		Relative/Absolute positioning, Velocity mode, Trapezoid, S-curve, Electronic gearing, Camming, Following, Homing, Jogging	

## Module Installation



## Dimensional Information

Note: Drawings are for reference only. Shown without terminal blocks.



MODULE	LABELS FOR ZL-RTB40																			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

MODULE	LABELS FOR ZL-RTB40-1															LEVEL	
BX-HSIO4	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

## Connector Options – 32 point

ZL-BX-CBL-40-S	ZIPLink PLC I/O cable, 40-pin connector to 40-pin connector, 90-degree connector angle, 1.6ft/0.5m cable length.
ZL-BX-CBL-40-1S	ZIPLink PLC I/O cable, 40-pin connector to 40-pin connector, 90-degree connector angle, 3.2ft/1m cable length.
ZL-RTB40	ZIPLink Two Level Feedthrough Module, 40-pole, 35mm, DIN mount.
ZL-RTB40-1	ZIPLink Three Level Feedthrough Module, 40-pole, 35mm, DIN mount.