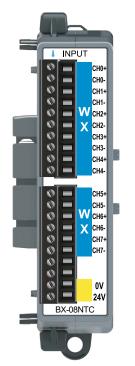
BX-08NTC Thermistor Input



BX-RTB10 Terminal Blocks Included. The BX-RTB10-1 or BX-RTB10-2 (purchased separately) can also be used.

BX-08NTC

\$269.00

Input Module 8-pt, Thermistor



NOTE: This device does not support **ZIP**Link Wiring Systems

Thermistor Input Specifications			
Input Channels	8 Single-ended		
Commons	0		
Resolution	16-bit, ±0.1°C or °F (up to 100Hz filter) See Data Range Specifications table		
Thermistor Input Ranges	2252: -40° to 150°C (-40° to 302°F) 10K-AN Type 3: -40° to 150°C (-40° to 302°F) 10K-CP Type 2: -40° to 150°C (-40° to 302°F) 5K: -40° to 150°C (-40° to 302°F) 3K: -40° to 150°C (-40° to 302°F) 1.8K: -40° to 150°C (-40° to 302°F)		
Thermistor Linearization	Automatic		
Excitation Current (all ranges)	10μA to 210μA autoscaling		
Accuracy vs. Temperature	±10PPM per °C (maximum)		
Full Scale Calibration	±1°C		
Offset Calibration Error	±1°C		
Linearity Error (end to end)	Nonlinear		
Maximum Inaccuracy	1°C @ 16.7 Hz, 2.5°C @ 470Hz		
Warm-up Time	30 minutes for ±1°C Repeatability		
Sample Duration	120ms @ 16.7 Hz, 4ms @ 470Hz		
All Channel Update Rate	2.2 s @ 16.7 Hz		
Open Circuit Detection Time	Within 2s @ 16.7 Hz		
Common Mode Rejection	100dB @ DC and 100dB @ 60Hz		
Absolute Maximum Ratings	Fault protected inputs to ±50V		
Conversion Method	Sigma-Delta		
Backplane Power Consumption	0.1 W		
External DC Power Required	Class 2 or LPS power supply 24VDC (±20%) 25mA		
Heat Dissipation	0.8 W		
Weight	98g (3.5 oz)		
Software Version Required (Do-more! Designer Programming Software)	2.3 or later		

Data Range Specifications				
Selection Description Raw Counts ¹				
2252	2252Ω thermistor			
10K-AN Type 3	10kΩ Type 3 (AN) thermistor			
10K-CP Type 2 10kΩ Type 2 (CP) thermistor		°C: -400 to 1500		
5K 5kΩ thermistor		°F: -400 to 3020		
3K	3kΩ thermistor			
1.8K	1.8 kΩ thermistor			

1. Temperatures have one implied decimal place (e.g., raw count of -400 is -40.0°).

IMPORTANT!

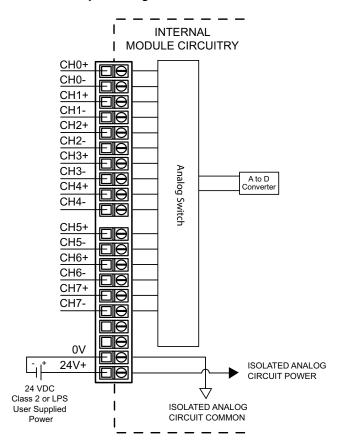
Hot-Swapping Information



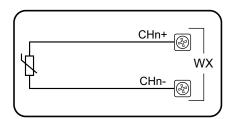
Note: This device cannot be Hot Swapped.

BX-08NTC Thermistor Input, continued

Thermistor Input Wiring



Thermistor Input Circuits



Overview

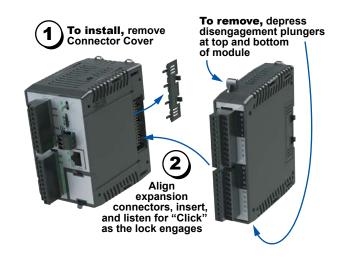
One of the unique features of the BRX platform is its ability to expand its capability to fit your application solution. One of the ways the BRX platform can do this is by using expansion modules that conveniently "snap-on" to the side of any BRX MPU. Once the expansion module has been snapped in place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

The analog expansion modules give you the ability to add analog I/O as needed and are identified as an analog input module, temperature input module, or analog output module. On the front panel of the analog I/O expansion modules, a color scheme and a

symbol are used to denote the module type.

Analog modules are available with current inputs or outputs, unipolar/bipolar voltage inputs or outputs, thermocouple inputs, RTD inputs and thermistor inputs. Input/output combination modules are also available.

With the exception of temperature input modules, the modules ship without wiring terminals. This allows you to select the termination style that best fits your application. Several wiring options are available, including screw terminal connectors, spring clamp terminal connectors and pre-wired **ZIP**Link cable solutions.



Hot-Swapping Information

Note: This device cannot be Hot Swapped.

General Specifications

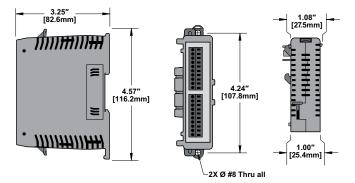
All BRX analog input and output modules and temperature input modules have the same general specifications listed in the table below.

General Specifications			
Storage Temperature	-20° to 70°C (-4° to 158°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 (unless otherwise noted on individual module specifications)	UL 61010-1 and UL 61010-2-201 File E139594, Canada and USA CE (EN 61131-2 EMC, EN 61010-1 and EN 61010-2-201 Safety)		

Operating	Temperature I	Range
Operating Temperature	0° to 45°C (32° to 113°F)	0° to 60°C (32° to 140°F)
Module	Module R	evision*
BX-08AD-1		
BX-08AD-2B	Rev A	Rev B
BX-04THM	(Prior to May 2018)	(After May 2018)
BX-08DA-1		
BX-08DA-2B	Rev B (Prior to May 2018)	Rev C (After May 2018)
All other Analog and Temperature Expansion Module part numbers	N/A	Rev A (After May 2018)

^{*} Module Revision can be found in the last letter (last or second-to-last character) of the module serial number.

Dimensions

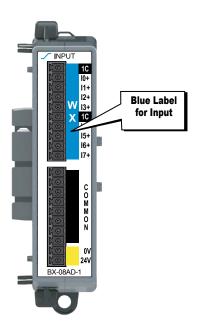




NOTE: When removing an expansion module, make sure there is room for the module to slide away from the system. Failure to do so will result in difficulty removing the module.

Analog Input Modules

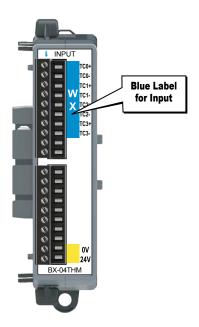
Nine (9) analog input modules are available, with current or voltage inputs. Analog input module faceplates have a blue terminal bar to distinguish them as inputs, with symbols \checkmark or \checkmark to signify current or voltage, respectively.



Analog Input Modules					
Part Number	Points	Input Type	Resolution	Price	
BX-04ADM-1	4	Current Sink 0–20 mA, 4–20 mA	14-bit	\$182.00	
BX-04AD-1	4			\$230.00	
BX-08AD-1	8	Current Sink 0–20 mA, 4–20 mA	16-bit	\$255.00	
BX-16AD-1	16	0 20 1101, 4 20 1101		\$363.00	
BX-04AD-2B	4	Voltage	16-bit	\$230.00	
BX-08AD-2B	8	± 10VDC, ± 5VDC,		\$255.00	
BX-16AD-2B	16	0–5 VDC, 0–10 VDC		\$363.00	
BX-04AD-3	4	Current Sink 0–20mA, 4–20mA	16 hit	\$182.00	
BX-08AD-3	8	Voltage ±10VDC, ±5VDC, 0–5VDC, 0–10VDC	16-bit	\$212.00	

Temperature Input Module

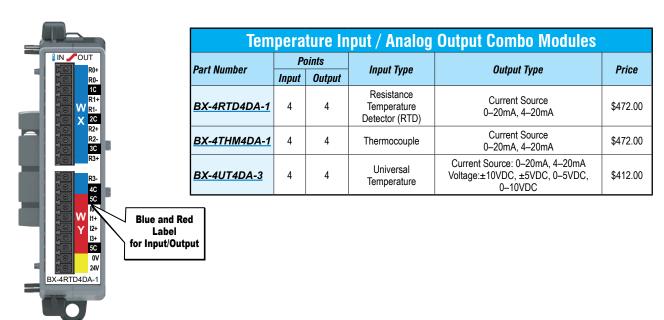
Six (6) temperature input modules are available, with thermocouple, RTD, and/or thermistor inputs. The thermocouple input modules can also be configured for millivolt-level voltage inputs, and the RTD input module can also be configured for resistance input. Temperature module faceplates have a blue terminal bar to distinguish them as inputs, and \$\\$\$ symbol to signify temperature.



Temperature Input Modules				
Part Number Points Input Type				
BX-04THM	4	Thermocouple	\$241.00	
BX-08THM	BX-08THM 8 Thermocouple			
BX-06RTD 6 RTD		RTD	\$255.00	
BX-08NTC 8 Thermistor		Thermistor	\$269.00	
<u>BX-04UT</u>	BX-04UT 4 Universal Temperature (Thermocouple, RTD, Thermistor supported)			
<u>BX-08UT</u>	6	Universal Temperature (Thermocouple, RTD, Thermistor supported)	\$235.00	

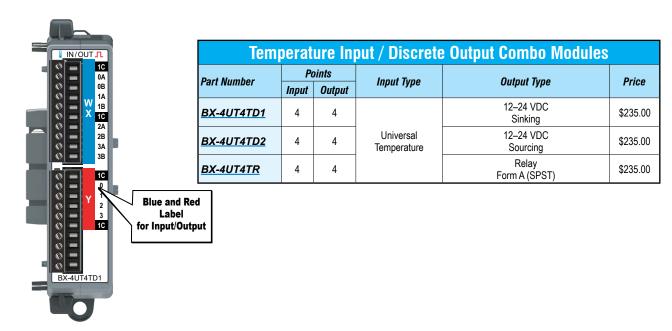
Temperature/Analog Combo Module

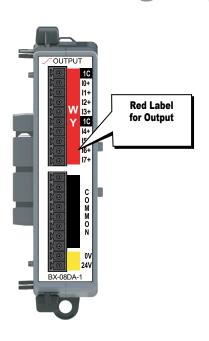
Three (3) combination modules are available, with thermocouple, RTD or universal temperature inputs and current sourcing outputs. The thermocouple input modules can also be configured for millivolt-level voltage inputs, and the RTD input module can also be configured for resistance input. The Input/Output faceplate terminal bar is in blue and red, making it easy to distinguish between inputs and outputs, and the \$\mathbb{\gen}\$ and \$\sqrt{\sqrt}\$ symbols signify temperature and current, respectively.



Temperature/Discrete Combo Module

Three (3) combination modules are available with universal temperature inputs and DC sinking, sourcing or relay outputs. The thermocouple inputs can also be configured for millivolt-level voltage inputs, and the RTD inputs can also be configured for resistance input. The Input/Output faceplate terminal bar is in blue and red, making it easy to distinguish between inputs and outputs, and the \$ and \$ symbols signify temperature and discrete signals, respectively.

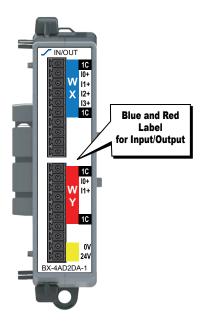




Analog Output Modules

Six (6) analog output modules are available, in current and voltage outputs. Analog output module faceplates have a red terminal bar to distinguish them as outputs, with symbols
or to signify current or voltage, respectively.

Analog Output Modules				
Part Number	Points	Output Type	Price	
BX-04DA-1	4	Current Source	\$269.00	
BX-08DA-1	8	0–20 mA, 4–20 mA	\$350.00	
BX-04DA-2B	4	Voltage	\$269.00	
BX-08DA-2B	8	± 10VDC, ± 5VDC, 0–5 VDC, 0–10 VDC	\$350.00	
BX-04DA-3	4	Current Source 0–20mA, 4–20mA	\$231.00	
BX-08DA-3	8	Voltage ±10VDC, ±5VDC, 0–5VDC, 0–10VDC	\$294.00	



Analog Combo Input / Output Modules

Six (6) analog input/output combo modules are available with current or voltage inputs and outputs. The Input/Output faceplate terminal bar is in blue and red, making it easy to distinguish between inputs and outputs. Symbols anal asignify current and voltage, respectively.

Analog Combo Input / Output Modules					
Part Number	Points		Innut Tuna	Outnot Tuna	Price
rai i Nullibei	Input	Output	Input Type	Output Type	Pilce
BX-2AD2DA-1	2	2	Current Sink	Current Source	\$309.00
BX-4AD2DA-1	4	2	0–20mA, 4–20mA	0-20mA, 4-20mA	\$378.00
BX-2AD2DA-2B	2	2	Voltage	Voltage	\$309.00
BX-4AD2DA-2B	4	2	±10VDC, ±5VDC, 0–5VDC, 0–10VDC	±10VDC, ±5VDC, 0–5VDC, 0–10VDC	\$378.00
BX-2AD2DA-3	2	2	Current Source 0–20mA, 4–20mA	Current Source 0–20mA, 4–20mA	\$269.00
BX-4AD4DA-3	4	4	Voltage ±10VDC, ±5VDC, 0–5VDC, 0–10VDC	Voltage ±10VDC, ±5VDC, 0–5VDC, 0–10VDC	\$330.00

Expansion Module Support by Controller			
Controller Type # Expansion Module			
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 Wiring Termination Options

Terminal Block Connectors

The terminal block connectors are provided in kits of multiple connectors that are ordered as a single part number. There are 2 different types of kits to choose from; one kit for the five (5), eight (8) and 12-point discrete, and one

kit for the analog modules and 16-point discrete modules. The five (5), eight (8) and 12-point discrete module kits each have (3) 5-pin 5mm connectors. The 8-point modules will use only 2 of the 5-pin connectors.

The five (5) and 12-point modules will use all three connectors. The analog and 16-point digital module kits include (2) 10-pin 3.81 mm connectors.

Terminal Block Connectors, 5, 8 and 12-Point Discrete Modules

Terminal Block Kits for 5-point, 8-point and 12-point Expansion Modules



BX-RTB08 (Kit - 3 pieces)



BX-RTB08-1 (Kit - 3 pieces)



BX-RTB08-2 (Kit - 3 pieces)

Terminal B	lock Specificati	ons 5-, 8- & 12-	Point Type
Part Number Single Block Set of 3 Blocks	BX-RTB05 BX-RTB08	BX-RTB05-1 BX-RTB08-1	BX-RTB05-2 BX-RTB08-2
Price (Single Block)	\$8.50	\$7.00	\$8.00
Price (Kit)	\$15.00	\$14.50	\$15.00
Connector Type	Screw Type - 90-degree	Spring Clamp Type - 180-degree	Screw Type - 180-degree
Wire Exit	180-degree	180-degree	180-degree
Pitch	5.0 mm	5.0 mm	5.0 mm
Screw Size	M2.5	N/A	M2.5
Screw Torque Recommended	< 3.98 lb·in (0.45 N·m)	N/A	< 3.98 lb·in (0.45 N·m)
Screwdriver Blade Width	3.5 mm	3.5 mm	3.5 mm
Wire Gauge (Single Wire)	28–12 AWG	28–14 AWG	28–12 AWG
Wire Gauge (Dual Wire)	28–16 AWG	28–16 AWG (Dual Wire Ferrule Required)	28–16 AWG
Wire Strip Length	0.3 in (7.5 mm)	0.37 in (9.5 mm)	0.3 in (7.5 mm)
Equiv. Dinkle P/N	5ESDV-05P-BK	5ESDSR-05P-BK	5ESDF-05P-BK

Terminal Block Connectors, Analog Modules and 16-Point Discrete Modules

Terminal Block Kits for Analog and 16-point Discrete Expansion Modules



BX-RTB10 (Kit - 2 pieces)



BX-RTB10-1 (Kit - 2 pieces)



BX-RTB10-2 (Kit - 2 pieces)

Terminal Block Specifications 16-Point Type					
Part Number	<u>BX-RTB10</u>	<u>BX-RTB10-1</u>	BX-RTB10-2		
Price (Kit)	\$21.50	\$24.00	\$22.50		
Connector Type	Screw Type 90-degree	Spring Clamp Type 180-degree	Screw Type 180-degree		
Wire Exit	180-degree	180-degree	180-degree		
Pitch	3.81 mm	3.81 mm	3.81 mm		
Screw Size	M2	N/A	M2		
Screw Torque Recommended	<1.77 lb∙in (0.2 N·m)	N/A	<1.77 lb·in (0.2 N·m)		
Screwdriver Blade Width	2.5 mm	2.5 mm	2.5 mm		
Wire Gauge (Single Wire)	28–16 AWG	26–18 AWG	30–16 AWG		
Wire Gauge (Dual Wire)	28–18 AWG	30–20 AWG (Dual Wire Ferrule Required)	30–18 AWG		
Wire Strip Length	0.24 in (6mm)	0.35 in (9mm)	0.26 in (6.5 mm)		
Equiv. Dinkle P/N	EC381V-10P-BK	ESC381V-10-BK	EC381F-10P-BK		



NOTE: BX-RTB10 terminal blocks are included with Temperature Input modules.