## Analog Universal Current/Voltage Sinking Output Specifications

| Module Part Number | BX-2AD2DA-3 | BX-4AD4DA-3 |
|---|---|---|
| Outputs per Module | 2 | 4 |
| Commons | 1 | 1 |
| Signal Resolution | 16-bit at ±10V or ±20ma | |
| Output Type (Voltage) | Voltage outputs sourcing/sinking at 10mA (example 10V @ 1kΩ load). | |
| Output Type (Current) | Current Sinking/Sourcing up to 5V | |
| Output Value in Fault Mode | 0V or 0mA (Unipolar or Bipolar) | |
| Minimum Voltage Load Impedance | 1kΩ | |
| Allowed Load Type | Grounded | |
| Maximum Continuous Overload | Indefinitely | |
| Maximum Current Load Impedance | 500Ω | |
| All Channel Update Rate | 1.0 ms | |
| Maximum Inaccuracy | ±0.1% of HW full scale (65 counts) | |
| Maximum Full Scale Calibration Error | ±0.1% of HW full scale (65 counts) | |
| Conversion Method | Amplified Divide-by-2 Resistor String | |
| Linearity Error (end to end) | ±0.1% of HW full scale (65 counts) | |
| Output Stability and Repeatability | ±0.02% of HW full scale (12 counts) after 10 minute warmup | |
| Output Settling Time | 10μs | |
| Channel to Backplane Isolation | 1800VAC applied for one second | |
| Channel to Channel Isolation | None | |
| Loop Fusing (External) | Fast-acting 0.032A recommended | |

## General Specifications

| Operating Temperature | 0° to 60°C (32° to 140°F) | |
|---|---|---|
| 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 | |
| Agency Approvals | UL61010-2-201 file E185989, Canada & USA CE (Safety: EN61010-2-201 and Immunity: EN61131-2: 2007) | |
| Noise Immunity | NEMA ICS3-304 | |
| EU Directive | See the "EU Directive" topic in the BRX Help File. | |
| Weight | 98g (3.5 oz) | |
| Heat Dissipation | **BX-2AD2DA-3** | **BX-4AD4DA-3** |
| | 2.5W | 3.75W |
| Backplane Power Consumption (Max) | 2.5W | 4.0W |
| Software Version Required | Do-more! Designer Version 2.7, or later. | |

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



# AUTOMATIONDIRECT.com
## BRX Expansion Module
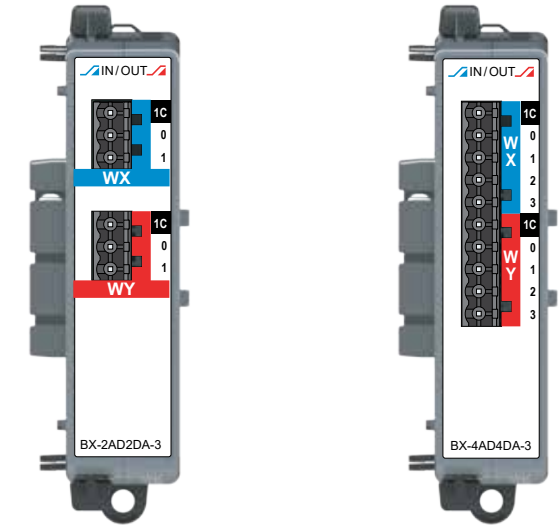
## BX-2AD2DA-3
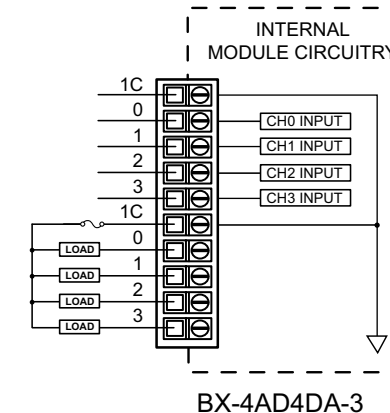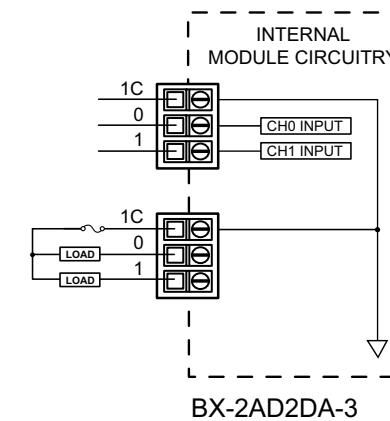**Analog Combo Expansion Module**
2-ch, ±20mA or ±10V

## BX-4AD4DA-3
**Analog Combo Expansion Module**
4-ch, ±20mA or ±10V

**I/O Terminal Blocks sold separately.** (See Connector Options Spec. table inside.)

## Analog Universal Current/Voltage Sinking Input Specifications

| Module Part Number | BX-2AD2DA-3 | BX-4AD4DA-3 |
|---|---|---|
| Inputs per Module | 2 | 4 |
| Commons | 1 | 1 |
| Module Signal Input Range | 0–20mA, 4–20mA (Default), ±20 ±10 VDC, ±5 VDC, 0–5 VDC, 0–10 VDC | |
| Signal Resolution | 16-bit at ±10V or ±20ma | |
| Input Impedance (Current) | 249Ω | |
| Input Impedance (Voltage) | 100KΩ | |
| All Channel Update Rate | 1.2ms | |
| Over Current Circuit Detection Time | < 1second | |
| Maximum Continuous Overload | ±40mA current mode, ±20V voltage mode | |
| Sample Duration Time | 1.2ms | |
| Hardware Filter Characteristics | Active Low Pass, −3dB @ 1kHz | |
| Conversion Method | Delta Sigma | |
| Linearity Error (end to end) | ±0.1% of HW Full Scale (65 counts) | |
| Input Stability and Repeatability (after 10 min. warmup) | ±0.02% of HW Full Scale (13 counts) | |
| Full Scale Calibration Error | ±0.1% of HW Full Scale (65 counts) | |
| Offset Calibration Error | ±0.05% of HW Full Scale (32 counts) | |
| Accuracy vs. Temperature | ±25PPM/ºC maximum | |
| Maximum Inaccuracy | 0.2% of HW Full Scale (130 counts) | |
| Maximum Crosstalk | 1 count | |
| Channel to Backplane Isolation | 1800VAC applied for one second | |
| Channel to Channel Isolation | None | |
| Loop Fusing (External) | Fast-acting 0.032A recommended | |



BX-2AD2DA-3



BX-4AD4DA-3

Do-more BRX Manual available at
https://www.automationdirect.com/static/manuals/brxuserm/brxuserm.html

## IMPORTANT!

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

| Document Name | Edition/Revision | Date |
|---|---|---|
| BX-xADxDA-3 | 1st Ed. RevA | 11/3/2020 |

## Output Wiring

### Analog Current Source Output Circuit



mA Load — .032A *Fuse — WYx / 1C — WY
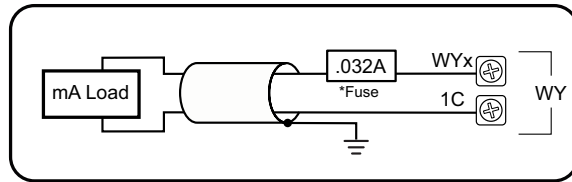
### Analog Voltage Output Circuit



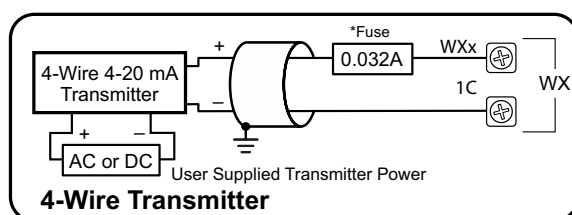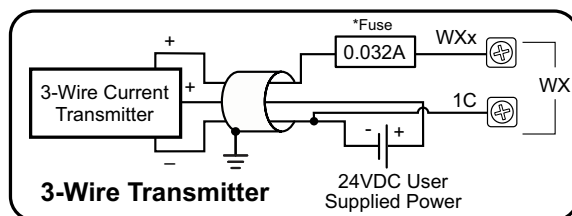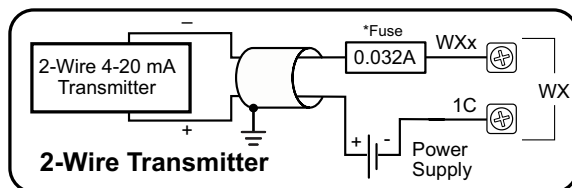VDC Load — .032A *Fuse — WYx / 1C — WY
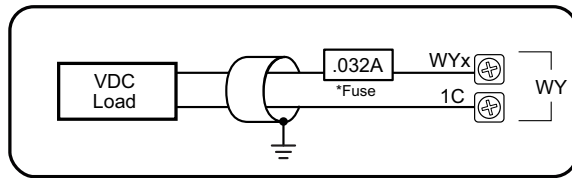
NOTE: Shield should be connected only at one end, to ground at the source device.

*An Edison S500-32-R 0.032A fast-acting fuse is recommended for all analog voltage inputs, analog outputs, and current loops.
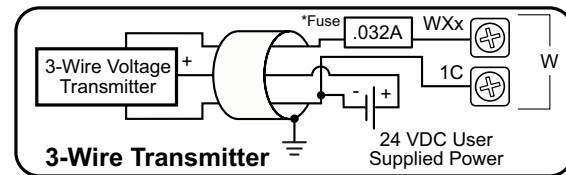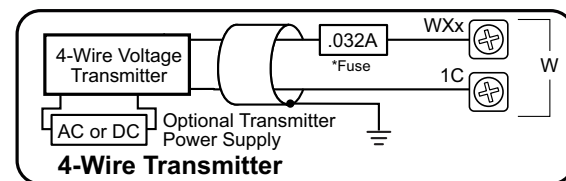
## Input Wiring

### Analog Current Sinking Input Circuits



2-Wire 4-20 mA Transmitter — *Fuse 0.032A — WXx / 1C — WX — Power Supply

**2-Wire Transmitter**



3-Wire Current Transmitter — *Fuse 0.032A — WXx / 1C — WX — 24VDC User Supplied Power

**3-Wire Transmitter**



4-Wire 4-20 mA Transmitter — *Fuse 0.032A — WXx / 1C — WX — AC or DC — User Supplied Transmitter Power

**4-Wire Transmitter**

*NOTE: An Edison S500-32-R 0.032A fast-acting fuse is recommended for all analog voltage inputs, analog outputs, and current loops.

### Analog Voltage Input Circuits



4-Wire Voltage Transmitter — .032A *Fuse — WXx / 1C — W — AC or DC Optional Transmitter Power Supply

**4-Wire Transmitter**



3-Wire Voltage Transmitter — *Fuse .032A — WXx / 1C — W — 24 VDC User Supplied Power

**3-Wire Transmitter**

## Connector Options — 8 point

| | |
|---|---|
| **BX-RTB08** | Terminal Block Kit, 90-degree screw type. For use with BRX 5-point, 8-point, and 12-point expansion modules. Kit includes (3) 5-pin 5mm plugs. |
| **BX-RTB08-1** | Terminal Block Kit, 180-degree spring clamp type. For use with BRX 5-point, 8-point, and 12-point expansion modules. Kit includes (3) 5-pin 5mm plugs. |
| **BX-RTB08-2** | Terminal Block Kit, 180-degree screw type. For use with BRX 5-point, 8-point, and 12-point expansion modules. Kit includes (3) 5-pin 5mm plugs. |
| **ZL-BXEM-CBL10** | *ZIP*Link PLC I/O cable, 10-position terminal block to 24-pin connector, 24AWG, cable length 0.5meter (1.6ft). For use with 8-point BRX expansion modules. |
| **ZL-BXEM-CBL10-1** | *ZIP*Link PLC I/O cable, 10-position terminal block to 24-pin connector, 24AWG, cable length 1meter (3.3ft). For use with 8-point BRX expansion modules. |
| **ZL-BXEM-CBL10-2** | *ZIP*Link PLC I/O cable, 10-position terminal block to 24-pin connector, 24AWG, cable length 2meter (6.6ft). For use with 8-point BRX expansion modules. |
| **ZL-BXEM-CBL10-1P** | *ZIP*Link PLC I/O cable, 10-position terminal block to pigtail connection, 24AWG, cable length 1meter (3.3ft). For use with 8-point BRX expansion modules. |
| **ZL-BXEM-CBL10-2P** | *ZIP*Link PLC I/O cable, 10-position terminal block to pigtail connection, 24AWG, cable length 2meter (6.6ft). For use with 8-point BRX expansion modules. |
| **ZL-RTB20** | *ZIP*Link Two Level Feedthrough Module, 20-pole, 35mm, DIN mount. |
| **ZL-RTB20-1** | *ZIP*Link Three Level Feedthrough Module, 20-pole, 35mm, DIN mount. |

Note: *ZIP*LinkConnectors are not available for the BX-2AD2DA-3 expansion module.
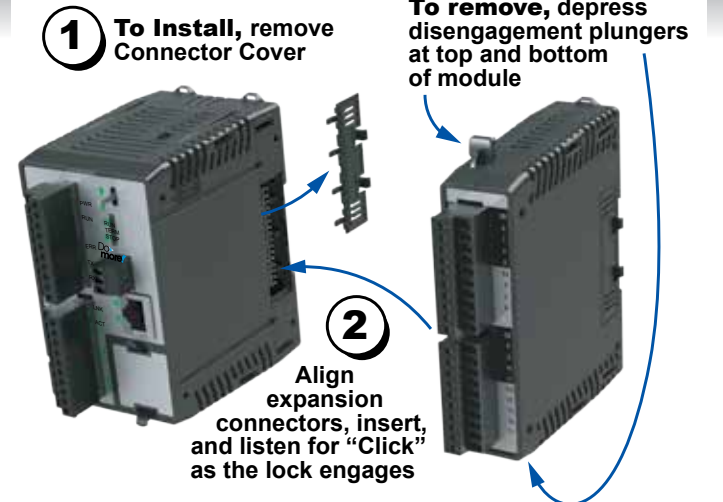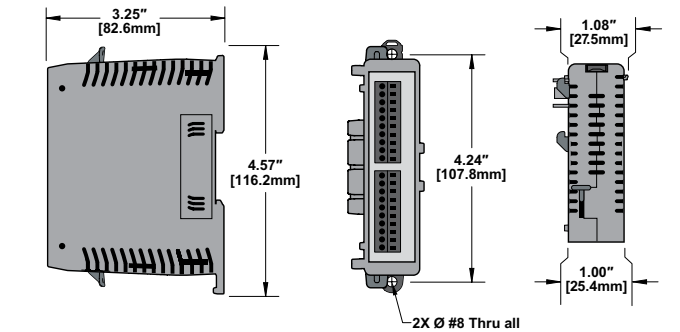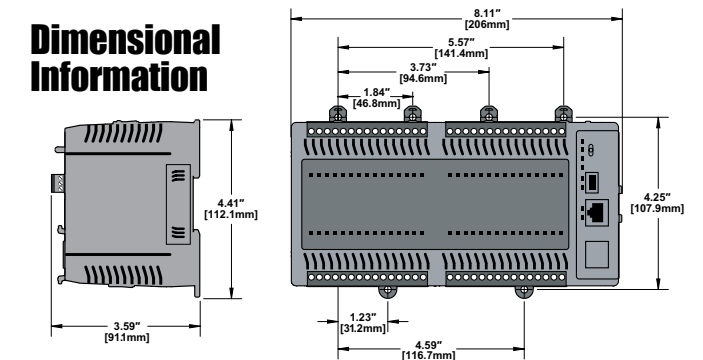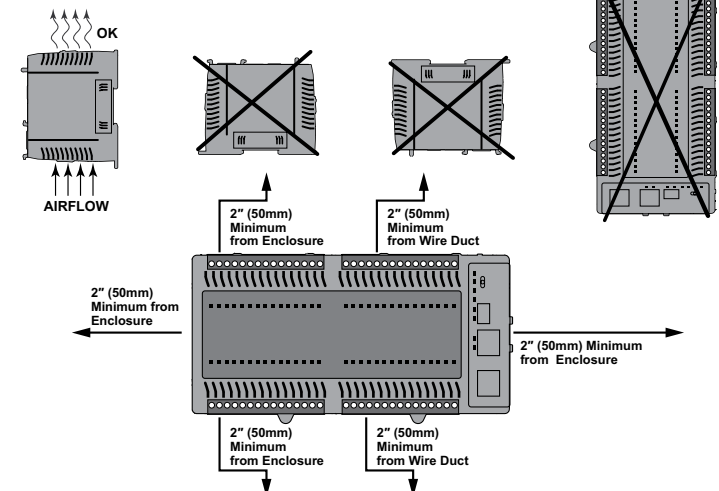
## 2 & 4 point Terminal Block Connector Specifications

| | | | |
|---|---|---|---|
| **BX-2AD2DA-3** | BX-RTB03 | BX-RTB03-1 | BX-RTB03-2 |
| **BX-4AD4DA-3** | BX-RTB05 | BX-RTB05-1 | BX-RTB05-2 |
| Connector Type | Screw Type-90° | Spring Clamp Type-180° | Screw Type-180° |
| Wire Exit | 180° | 180° | 180° |
| Pitch | 5.0mm | 5.0mm | 5.0mm |
| Screw Size | M2.5 | N/A | M2.5 |
| Recommended Screw torque | < 3.98 lb·in (0.45 N·m) | N/A | < 3.98 lb·in (0.45 N·m) |
| Screwdriver Blade Width | 3.5mm | 3.5mm | 3.5mm |
| Wire Gauge (Single Wire) | 28-12 AWG | 28-14 AWG | 28-12 AWG |
| Wire Gauge (Two Wires) | 28-16 AWG | 28-16 AWG (Dual Wire Ferrule Required) | 28-16 AWG |
| Wire Strip Length | 0.3in (7.5mm) | 0.37in (9.5mm) | 0.3in (7.5mm) |
| **Equivalent Dinkle part numbers** | | | |
| BX-2AD2DA-3 | 5ESDV-03P-BK | 5ESDSR-03P-BK | 5ESDF-03P |
| BX-4AD4DA-3 | 5ESDV-05P-BK | 5ESDSR-05P-BK | 5ESDF-05P-BK |

## Module Installation



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

## Dimensional Information



3.25" [82.6mm]
4.57" [116.2mm]
1.08" [27.5mm]
4.24" [107.8mm]
1.00" [25.4mm]
2X Ø #8 Thru all

## Dimensional Information



8.11" [206mm]
5.57" [141.4mm]
3.73" [94.6mm]
1.84" [46.8mm]
4.41" [112.1mm]
4.25" [107.9mm]
3.59" [91.1mm]
1.23" [31.2mm]
4.59" [116.7mm]

## Mounting Restrictions



OK
AIRFLOW
2" (50mm) Minimum from Enclosure
2" (50mm) Minimum from Wire Duct
2" (50mm) Minimum from Enclosure
2" (50mm) Minimum from Enclosure
2" (50mm) Minimum from Enclosure
2" (50mm) Minimum from Wire Duct
2" (50mm) Minimum from Enclosure