## 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 |
| Weight | 186g (6.6 oz) |

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

## Power Supply Specifications

| | |
|---|---|
| Nominal Voltage Range* | 12–24 VDC |
| Input Voltage Range (Tolerance)* | 10–36 VDC |
| Maximum Input Voltage Ripple | <+/- 10% |
| Maximum Input Power | 14W |
| Cold Start Inrush Current | 5A, 2ms |
| Maximum Inrush Current (Hot Start) | 5A, 2ms |
| Internal Input Protection | Reverse Polarity Protection and Undervoltage |
| Heat Dissipation | 8.7W Max |
| Voltage Withstand (dielectric) | 1500VAC Power Inputs to Ground applied for 1 minute |

*Class 2 or LPS Power Supply required.

## CPU Specifications

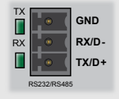
| | |
|---|---|
| Program Memory Type | FLASH memory |
| User Data Memory Type | Battery Backed RAM, User configurable |
| Pluggable Option Module | RS-232, RS-485, Ethernet 10/100 BASE-T (1Mbps throughput max), USB 2.0 Type B |
| Expansion Modules | 2 expansion modules max |
| Real Time Clock Accuracy | ±2.6s per day typical at 25°C<br>±8s per day max at 60°C |
| Programming Software | Do-more Designer – Ver. 2.0 or higher |
| Programming Cable Options | BX-PGM-CBL |

## Terminal Block Connection Options

| | |
|---|---|
| **BX-RTB10** | Terminal Block Kit, 90-degree screw type, Fits all BRX 10-point PLCs and 16 point Expansion I/O Modules. Kit includes (2) 10-pin 3.8mm plugs. |
| **BX-RTB10-1** | Terminal Block Kit, 180-degree spring clamp type, Fits all BRX 10-point PLCs and 16 point Expansion I/O Modules. Kit includes (2) 10-pin 3.8mm plugs. |
| **BX-RTB10-2** | Terminal Block Kit, 180-degree screw type, Fits all BRX 10-point PLCs and 16 point Expansion I/O Modules. Kit includes (2) 10-pin 3.8mm plugs. |
| **ZL-BX-CBL20** | ***ZIP***Link PLC I/O cable, 20-position terminal block to 24-pin connector, 24AWG, cable length 0.5meter (1.6ft). |
| **ZL-BX-CBL20-1** | ***ZIP***Link PLC I/O cable, 20-position terminal block to 24-pin connector, 24AWG, cable length 1meter (3.3ft). |
| **ZL-BX-CBL20-2** | ***ZIP***Link PLC I/O cable, 20-position terminal block to 24-pin connector, 24AWG, cable length 2meter (6.6ft). |
| **ZL-BX-CBL20-1P** | ***ZIP***Link PLC I/O cable, 20-position terminal block to pigtail connection, 24AWG, cable length 1meter (3.3ft). |
| **ZL-BX-CBL20-2P** | ***ZIP***Link PLC I/O cable, 20-position terminal block to pigtail connection, 24AWG, cable length 2meter (6.6ft). |
| **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. |

## Built-in RS-232/485 Port Specifications

| | |
|---|---|
| Port Name | RS-232/RS-485 Serial Port |
| Description* | Non-isolated serial port that can communicate via RS-232 or RS-485 (software selectable). Includes ESD protection and built-in surge protection. |
| Supported Protocols | Do-more Protocol (Default)<br>Modbus RTU (Master & Slave)<br>K-Sequence (Slave)<br>ASCII (In & Out) |
| Data Rates | 1200, 2400, 4800, 9600, 19200, 38400, 57600, and 115200 |
| Default Settings | RS-232, 115200 bps, No Parity, 8 Data Bits, 1 Stop Bit, Station #1 |
| Port Type | 3-pin terminal strip 3.5mm pitch |
| Port Status LED | Green LED is illuminated when active for TXD and RXD |
| RS-485 Station Addresses | 1-247 |
| Cable Recommendations | RS-232 use L19772-XXX from AutomationDirect.com<br>RS-485 use L19827-XXX from AutomationDirect.com |
| Replacement Connector | ADC Part # BX-RTB03S |




| Pinout | RS232 | RS485 |
|---|---|---|
| 1 | GND | GND |
| 2 | RX | D- |
| 3 | TX | D+ |

Removable connector included.

* NOTE: When using RS-485, a terminator resistor is built-in and software selectable.

## CPU Mode Switch Functions

| | |
|---|---|
| RUN position | CPU is forced into RUN Mode if no errors are encountered. |
| TERM position | RUN, PROGRAM and DEBUG modes are available. In this position, the mode of operation can be changed through the Do-more Designer Software. |
| STOP position | CPU is forced into STOP Mode. |

AUTOMATIONDIRECT.com

BRX Do-more DRIVEN

# BX-DM1-10AR-D

**BRX MPU with Do-more! DM1 technology**

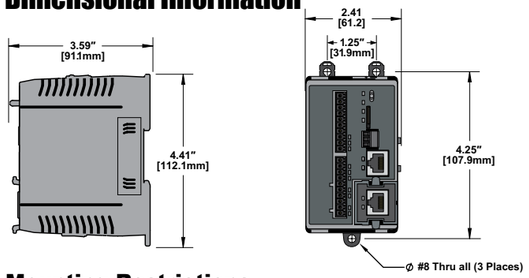
24 VDC required, serial port, microSD slot, Discrete Input: 6-point, AC, Discrete Output: 4-point, relay.

**I/O Terminal Blocks sold separately.**
(See Terminal Block Connection Options table).

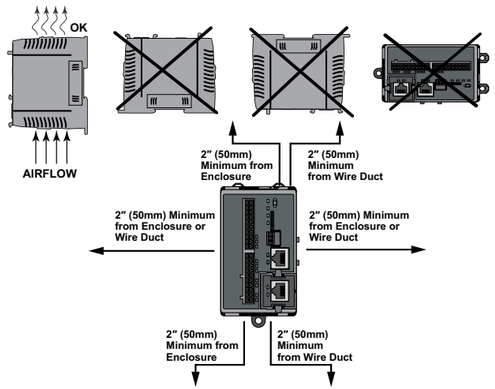
| Document Name | Edition/Revision | Date |
|---|---|---|
| BX-DM1-10AR-D | 1st Ed. RevD | 9/8/2021 |

Copyright 2021, AutomationDirect.com Incorporated/All Rights Reserved Worldwide.

## Dimensional Information




## Mounting Restrictions




## Terminal Block Connector Specifications

| Part Number | BX-RTB03S | BX-RTB10 | BX-RTB10-1 | BX-RTB10-2 |
|---|---|---|---|---|
| Connector Type | Screw Type-90° | Screw Type-90° | Spring Clamp Type-180° | Screw Type-180° |
| Wire Exit | 180° | 180° | 180° | 180° |
| Pitch | 3.5mm | 3.81mm | 3.81mm | 3.81mm |
| Screw Size | M2 | M2 | N/A | M2 |
| Recommended Screw torque | <1.77 lb·in (0.2 N·m) | <1.77 lb·in (0.2 N·m) | N/A | <1.77 lb·in (0.2 N·m) |
| Screwdriver Blade Width | 2.5mm | 2.5mm | 2.5mm | 2.5mm |
| Wire Gauge (Single Wire) | 28-16 AWG | 28-16 AWG | 28-18 AWG | 30-16 AWG |
| Wire Gauge (Dual Wire) | 28-16 AWG | 28-16 AWG | 30-20 AWG (Dual Wire Ferrule Required) | 30-18 AWG |
| Wire Strip Length | 0.24in (6mm) | 0.24in (6mm) | 0.35in (9mm) | 0.26in (6.5mm) |
| Equiv. Dinkle part # | EC350V-03P-BK | EC381V-10P-BK | ESC381V-10-BK | EC381F-10P-BK |

## CPU Status Indicators

| Indicator | Status | Description |
|---|---|---|
| PWR | OFF | Base Power OFF |
| | Green | Base Power ON |
| | Yellow | Low Battery |
| RUN | OFF | CPU is in STOP Mode |
| | Green | CPU is in RUN Mode |
| | Yellow | Forces are Active |
| MEM | OFF | No ROM Activity, No SD Card |
| | Yellow | ROM Activity (Flash or SD Card) |
| | Green | SD Card Installed and Mounted |
| | Red | SD Card Installed and Not Mounted |
| ERR | OFF | CPU is functioning normally |
| | Red | CPU Fatal Hardware Error or Software Watchdog Error |

**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.

This publication is based on information that was available at the time it was printed. At AutomationDirect.com® we constantly strive to improve our products and services, so we reserve the right to make changes to the products and/or publications at any time without notice and without any obligation. This publication may also discuss features that may not be available in certain revisions of the product.

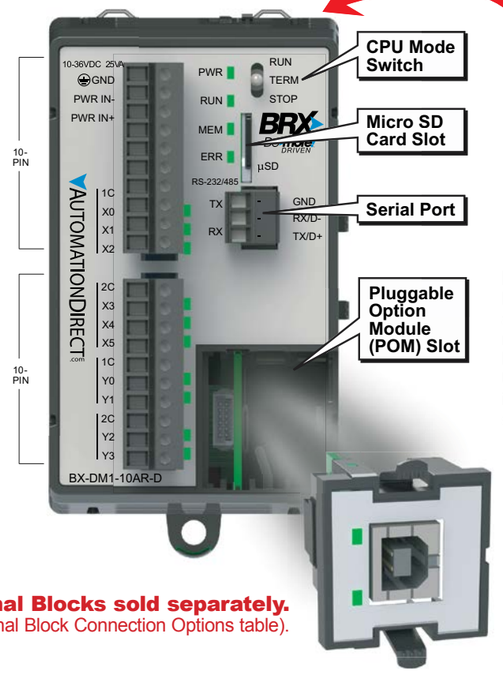
Do-more BRX Manual available at http://www.automationdirect.com/pn/doc/manual/BX-DM1-10AR-D

**IMPORTANT!**

**Hot-Swapping Information**

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

# Terminal and Front Panel Layout

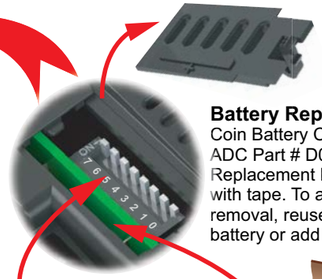



**CPU Mode Switch**

**Micro SD Card Slot**

**Serial Port**

**Pluggable Option Module (POM) Slot**




**Battery Replacement**
Coin Battery CR2032
ADC Part # D0-MC-BAT.
Replacement batteries do not come with tape. To assist with future battery removal, reuse tape from the original battery or add new tape.

**NOTE:** Do not remove tape from battery.

**NOTE:** DIP switches located in this compartment are used for debug and recovery functions only. Please refer to the BRX User Manual for full instructions on using these switches.

**I/O Terminal Blocks sold separately.**
(See Terminal Block Connection Options table).

| POM Modules |
|---|
| **BX-P-SER2-TERM**<br>3-Pin Serial RS-232 |
| **BX-P-SER2-RJ12**<br>RJ12 Serial RS-232 |
| **BX-P-SER4-TERM**<br>3-Pin Serial RS-485 |
| **BX-P-USB-B**<br>USB Type B |
| **BX-P-ECOMLT**<br>Ethernet 10/100 BASE-T |

**NOTE: Only POM modules can be hot-swapped.**

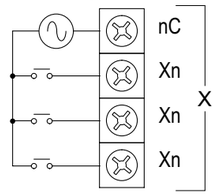
| Discrete Input Specifications | |
|---|---|
| Input Type | AC |
| Total Inputs per Module | 6 Standard |
| Commons | 2 (3 points/common) Isolated |
| Nominal Voltage Rating | 120–240 VAC |
| Input Voltage Range | 85–264 VAC |
| Maximum Voltage | 264 VAC RMS |
| AC Frequency | 47–63 Hz |
| Input Current (typical) | 9mA @ 120VAC, 13mA @ 220VAC |
| Input Impedance | 15kΩ |
| ON Voltage Level | > 85 VAC |
| OFF Voltage Level | < 40 VAC |
| Status Indicators | Logic Side, Green |

| Discrete Output Specifications | |
|---|---|
| Output Type | Relay Form A (SPST) |
| Total Outputs per Module | 4 Relay |
| Commons | 2 (2 points/common) Isolated |
| Maximum current per common | 4A |
| Nominal Voltage Ratings | 12–48 VDC, 24–240 VAC |
| Operating Voltage Range | 5–60 VDC, 5–264 VAC |
| Maximum Voltage | 60VDC, 264VAC |
| Minimum Output Current | 0.1mA @ 24VAC/DC |
| Maximum Output Current | 2A |
| Maximum Leakage Current | 1µA (DC), 300µA (AC) due to RC snubber |
| Maximum Switching Frequency | 10Hz |
| Status Indicators | Logic Side, Green |

# I/O Wiring

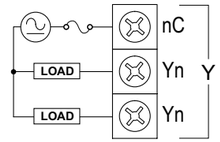
## Discrete Input Wiring

**AC Input**

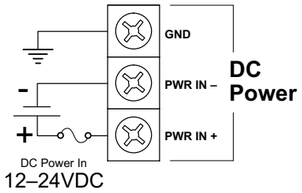



## Discrete Output Wiring

**Relay Output**




## Supply Power Wiring




Class 2 or LPS User Supplied Power