



## BX-DM1-18AR

BRX MPU with Do-more! DM1 technology  
120 VAC required, serial port, microSD slot, Discrete Input: 10-point, AC, Discrete Output: 8-point, relay.

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

| Document Name | Edition/Revision | Date      |
|---------------|------------------|-----------|
| BX-DM1-18AR   | 1st Ed. RevB     | 4/10/2017 |

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| 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<br>CE Compliant EN61131-2* |
| Noise Immunity         | NEMA ICS3-304   |
| EU Directive           | See the "EU Directive" topic in the Help File                           |
| Weight                 | 316g (11.2 oz)  |

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

| Power Supply Specifications        |   |
|------------------------------------|---|
| Nominal Voltage Rating             | 120–240 VAC   |
| Input Voltage Range (Tolerance)    | 85–264 VAC  |
| Rated Operating Frequency          | 47–63 Hz  |
| Maximum Input Power                | 40VA  |
| Cold Start Inrush Current          | 1.5A, 2ms   |
| Maximum Inrush Current (Hot Start) | 1.5A, 2ms   |
| Internal Input Fuse Protection     | Micro fuse 250V, 2A Non-replaceable   |
| Heat Dissipation                   | 8W Max  |
| Isolated User 24VDC Output         | 24VDC @ 0.3A max, <1V P-P Ripple,<br>Integrated self-resetting short circuit protection             |
| Voltage Withstand (dielectric)     | 1500VAC Power Inputs to Ground applied for 1 minute<br>1500VAC Ground to 24VDC applied for 1 minute |

| Terminal Block Connection Options |   |
|-----------------------------------|---|
| <b>BX-RTB18</b>                   | Terminal Block Kit, 90-degree screw type, Fits all BRX 18-point PLCs. Kit includes (3) 5-pin 5mm plugs, (2) 6-pin 5mm plugs, (1) 3-pin 5mm plugs.         |
| <b>BX-RTB18-1</b>                 | Terminal Block Kit, 180-degree spring clamp type, Fits all BRX 18-point PLCs. Kit includes (3) 5-pin 5mm plugs, (2) 6-pin 5mm plugs, (1) 3-pin 5mm plugs. |
| <b>ZL-BX-CBL15</b>                | ZIPLink PLC I/O cable, 15-position terminal block to 24-pin connector, 24AWG. 0.5 meter (1.6 ft.) length, 2 required.                                     |
| <b>ZL-BX-CBL15-1</b>              | ZIPLink PLC I/O cable, 15-position terminal block to 24-pin connector, 24AWG. 1 meter (3.3 ft.) length, 2 required.                                       |
| <b>ZL-BX-CBL15-2</b>              | ZIPLink PLC I/O cable, 15-position terminal block to 24-pin connector, 24AWG. 2 meter (6.6 ft.) length, 2 required.                                       |
| <b>ZL-BX-CBL15-1P</b>             | ZIPLink PLC I/O cable, 15-position terminal block to pigtail connection, 24AWG. 1 meter (3.3 ft.) length, 2 required.                                     |
| <b>ZL-BX-CBL15-2P</b>             | ZIPLink PLC I/O cable, 15-position terminal block to pigtail connection, 24AWG. 2 meter (6.6 ft.) length, 2 required.                                     |
| <b>ZL-RTB20</b>                   | ZIPLink Two-Level Feedthrough Module. 20 pole, 35mm DIN mount, 2 required.  |
| <b>ZL-RTB20-1</b>                 | ZIPLink Three-Level Feedthrough Module. 20 pole, 35mm DIN mount, 2 required.  |

| 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.   |

| 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         | 4 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  |
| Custom Label Window Size  | 0.75" x 2.25" (19mm x 57.2mm)   |

| 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 |

| Terminal Block Connector Specifications |                       |                         |  |
|---|-----------------------|-------------------------|--|
| Part Number                             | BX-RTB03S             | BX-RTB18                | BX-RTB18-1                             |
| Connector Type                          | Screw Type-90°        | Screw Type-90°          | Spring Clamp Type-180°                 |
| Wire Exit                               | 180°                  | 180°                    | 180°                                   |
| Pitch                                   | 3.5mm                 | 5.0mm                   | 5.0mm                                  |
| Screw Size                              | M2                    | M2.5                    | N/A                                    |
| Recommended Screw torque                | <1.77 lb-in (0.2 N·m) | < 3.98 lb-in (0.45 N·m) | N/A                                    |
| Screwdriver Blade Width                 | 2.5mm                 | 3.5mm                   | 3.5mm                                  |
| Wire Gauge (Single Wire)                | 28-16 AWG             | 28-12 AWG               | 28-14 AWG                              |
| Wire Gauge (Dual Wire)                  | 28-16 AWG             | 28-16 AWG               | 28-16 AWG (Dual Wire Ferrule Required) |
| Wire Strip Length                       | 0.24in (6mm)          | 0.3in (7.5mm)           | 0.37in (9.5mm)                         |
| Equiv. Dinkle part #                    | EC350V-03P-BK         | 5ESDV-0nP-BK*           | 5ESDSR-0nP-BK*                         |

\*NOTE: n=(3) 3-terminal, (5) 5-terminal, or (6) for 6-terminal

| microSD Specifications                              |  |         |         |         |
|---|--|---------|---------|---------|
| Port Name   | microSD Card Slot  |         |         |         |
| Description   | Standard microSD socket for data logging / file management |         |         |         |
| Maximum Card Capacity                               | 32GB   |         |         |         |
| Transfer Rate (ADATA microSDHC Class 4 memory card) | Mbps   | Minimum | Typical | Maximum |
|   | Read   |         | 14.3    | 14.4    |
| Write   |  | 4.8     | 4.9     | 5.1     |
| Port Status LED                                     | Green LED is illuminated when card is inserted/detected    |         |         |         |
| Optional microSD Card                               | ADC Part # MICSD-16G                                       |         |         |         |

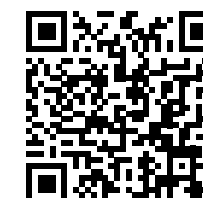
| Built-in RS-232/485 Port Specifications |  |
|---|--|
| Port Name                               | RS-232/RS-485 Serial Port  |
| Description*                            | Non-isolated serial port that can communicate via RS-232 or RS-485 (software selectable). Includes ESD protection and built-in surge 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      | RXD   | D-    |
| 3      | TXD   | D+    |

Removable connector included.

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

Do-more BRX Manual available at [www.automationdirect.com/pn/doc/manual/BX-DM1-18AR](http://www.automationdirect.com/pn/doc/manual/BX-DM1-18AR)

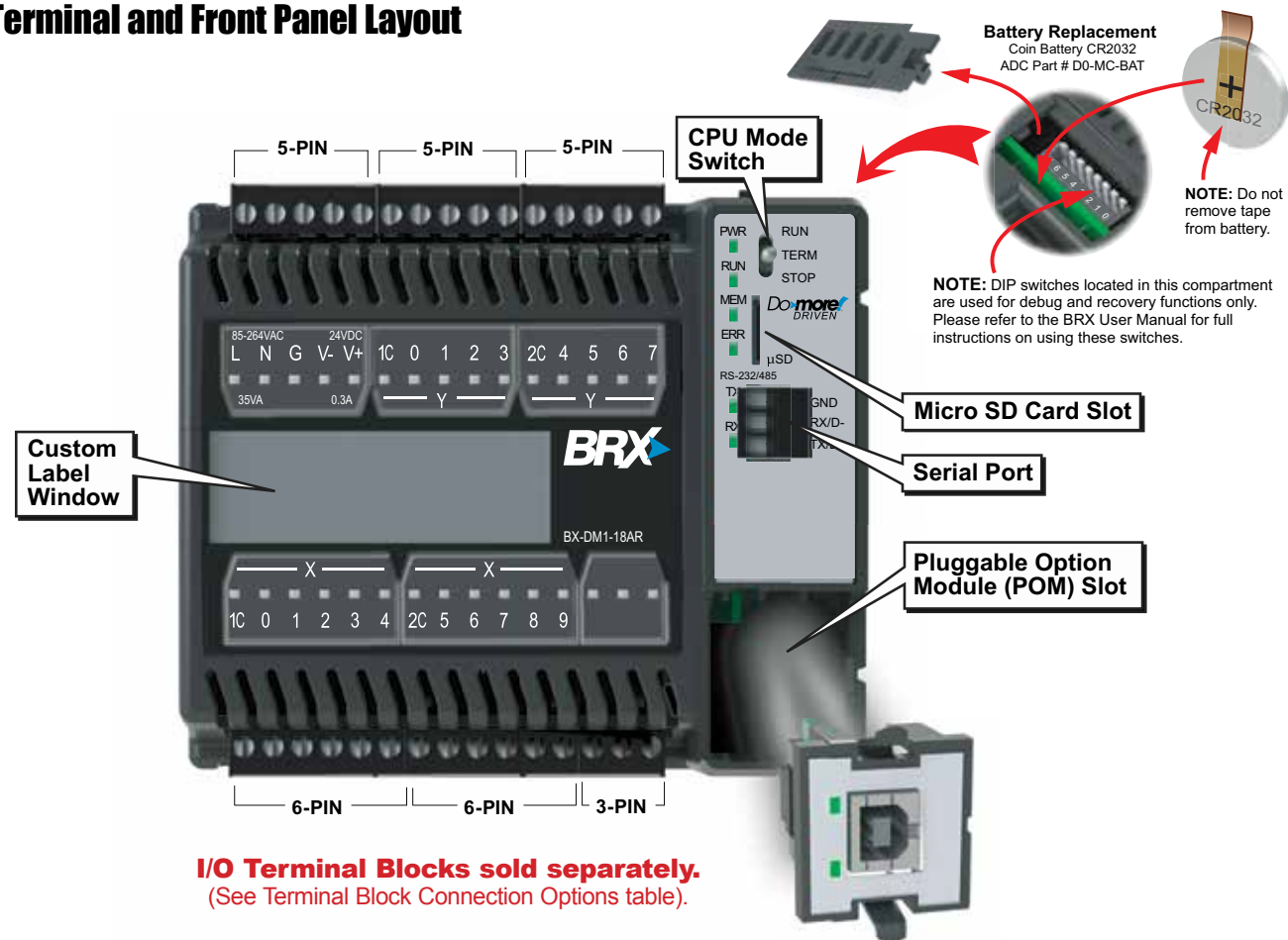


**IMPORTANT!**



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

## Terminal and Front Panel Layout



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

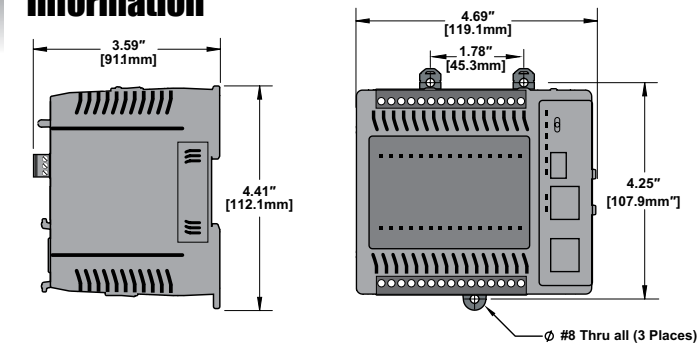
### Discrete Input Specifications

|                         |                              |
|-------------------------|------------------------------|
| Input Type              | AC                           |
| Total Inputs per Module | 10 Standard                  |
| Commons                 | 2 (5 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            |

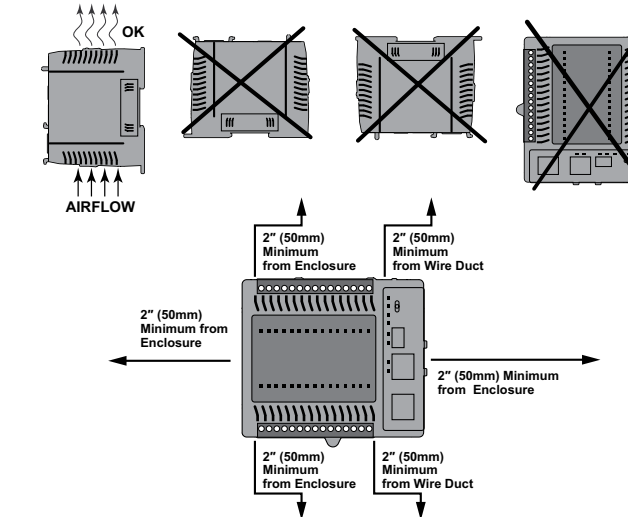
### Discrete Output Specifications

|                             |  |
|-----------------------------|--|
| Output Type                 | Relay Form A (SPST)                    |
| Total Outputs per Module    | 8 Relay                                |
| Commons                     | 2 (4 points/common) Isolated           |
| Maximum current per common  | 8A                                     |
| Nominal Voltage Ratings     | 5–48 VDC, 24–240 VAC                   |
| Output Voltage Range        | 5–60 VDC, 18–264 VAC                   |
| Maximum Voltage             | 60VDC, 264VAC                          |
| Minimum Output Current      | 0.1mA @ 24VDC                          |
| Maximum Output Current      | 2A                                     |
| Maximum Leakage Current     | 1μA (DC), 300μA (AC) due to RC snubber |
| Maximum Switching Frequency | 10Hz                                   |
| Status Indicators           | Logic Side, Green                      |

## Dimensional Information

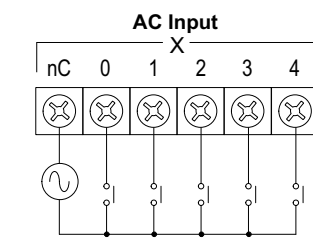


## Mounting Restrictions

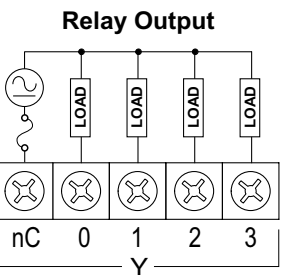


## I/O Wiring

### Discrete Input Wiring



### Discrete Output Wiring



### Supply Power Wiring

