

BRX-DM1-36ER

BRX MPU with Do-more! DM1 technology
 120 VAC required, serial port, microSD slot, Discrete Input: 20-point, sink / source, Discrete Output: 16-point, relay.

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

| Document Name | Edition/Revision | Date |
|---------------|------------------|----------|
| BX-DM1-36ER | 1st Ed. RevE | 9/8/2021 |

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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 CE Compliant EN61131-2* |
| Noise Immunity | NEMA ICS3-304 |
| EU Directive | See the "EU Directive" topic in the Help File |
| Weight | 488g (17.2 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 | 24.9W Max |
| Isolated User 24VDC Output | 24VDC @ 0.3A max, <1V P-P Ripple, Integrated self-resetting short circuit protection |
| Voltage Withstand (dielectric) | 1500VAC Power Inputs to Ground applied for 1 minute 1500VAC Ground to 24VDC applied for 1 minute |

CPU Specifications

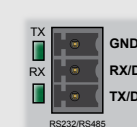
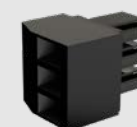
| | |
|---------------------------|---|
| Program Memory Type | FLASH memory |
| User Data Memory Type | Battery Backed RAM, User configurable |
| Pluggable Option Module | RS-232, RS-485, Ethernet 10/100 BASE-T (1Mbps throughput max), USB 2.0 Type B |
| Expansion Modules | 4 expansion modules max |
| Real Time Clock Accuracy | ±2.6s per day typical at 25°C ±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) |

Terminal Block Connection Options

| | |
|-----------------------|--|
| BX-RTB36 | Terminal Block Kit, 90-degree screw type, fits all BRX 36-point PLCs. Kit includes (12) 5-pin 5mm terminal blocks. |
| BX-RTB36-1 | Terminal Block Kit, 180-degree spring clamp type, fits all BRX 36-point PLCs. Kit includes (12) 5-pin 5mm terminal blocks. |
| ZL-BX-CBL15 | ZIPLink PLC I/O cable, 15-position terminal block to 24-pin connector, 24AWG. 0.5 meter (1.6 ft.) length, 4 required. |
| ZL-BX-CBL15-1 | ZIPLink PLC I/O cable, 15-position terminal block to 24-pin connector, 24AWG. 1 meter (3.3 ft.) length, 4 required. |
| ZL-BX-CBL15-2 | ZIPLink PLC I/O cable, 15-position terminal block to 24-pin connector, 24AWG. 2 meter (6.6 ft.) length, 4 required. |
| ZL-BX-CBL15-1P | ZIPLink PLC I/O cable, 15-position terminal block to pigtail connection, 24AWG. 1 meter (3.3 ft.) length, 4 required. |
| ZL-BX-CBL15-2P | ZIPLink PLC I/O cable, 15-position terminal block to pigtail connection, 24AWG. 2 meter (6.6 ft.) length, 4 required. |
| ZL-RTB20 | ZIPLink Two-Level Feedthrough Module. 20 pole, 35mm DIN mount, 4 required. |
| ZL-RTB20-1 | ZIPLink Three-Level Feedthrough Module. 20 pole, 35mm DIN mount, 4 required. |

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) Modbus RTU (Master & Slave) K-Sequence (Slave) 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 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+ |

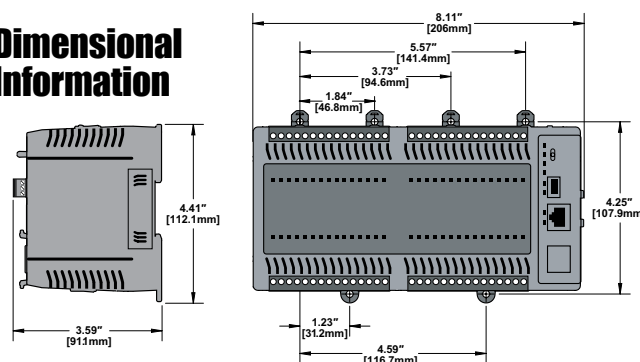
Removable connector included.

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

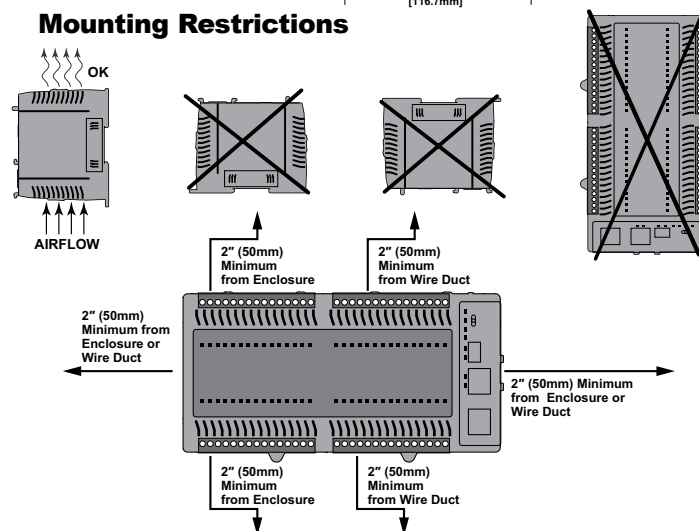
CPU Mode Switch Functions

| | |
|---------------|---|
| 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. |

Dimensional Information



Mounting Restrictions



Terminal Block Connector Specifications

| Part Number | BX-RTB03S | BX-RTB36 | BX-RTB36-1 |
|--------------------------|-----------------------|-------------------------|--|
| 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-05P-BK | 5ESDSR-05P-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 |
| ERR | Red | SD Card Installed and Not Mounted |
| | OFF | CPU is functioning normally |
| | Red | CPU Fatal Hardware Error or Software Watchdog Error |

Do-more BRX Manual available at
www.automationdirect.com/pn/doc/manual/BX-DM1-36ER



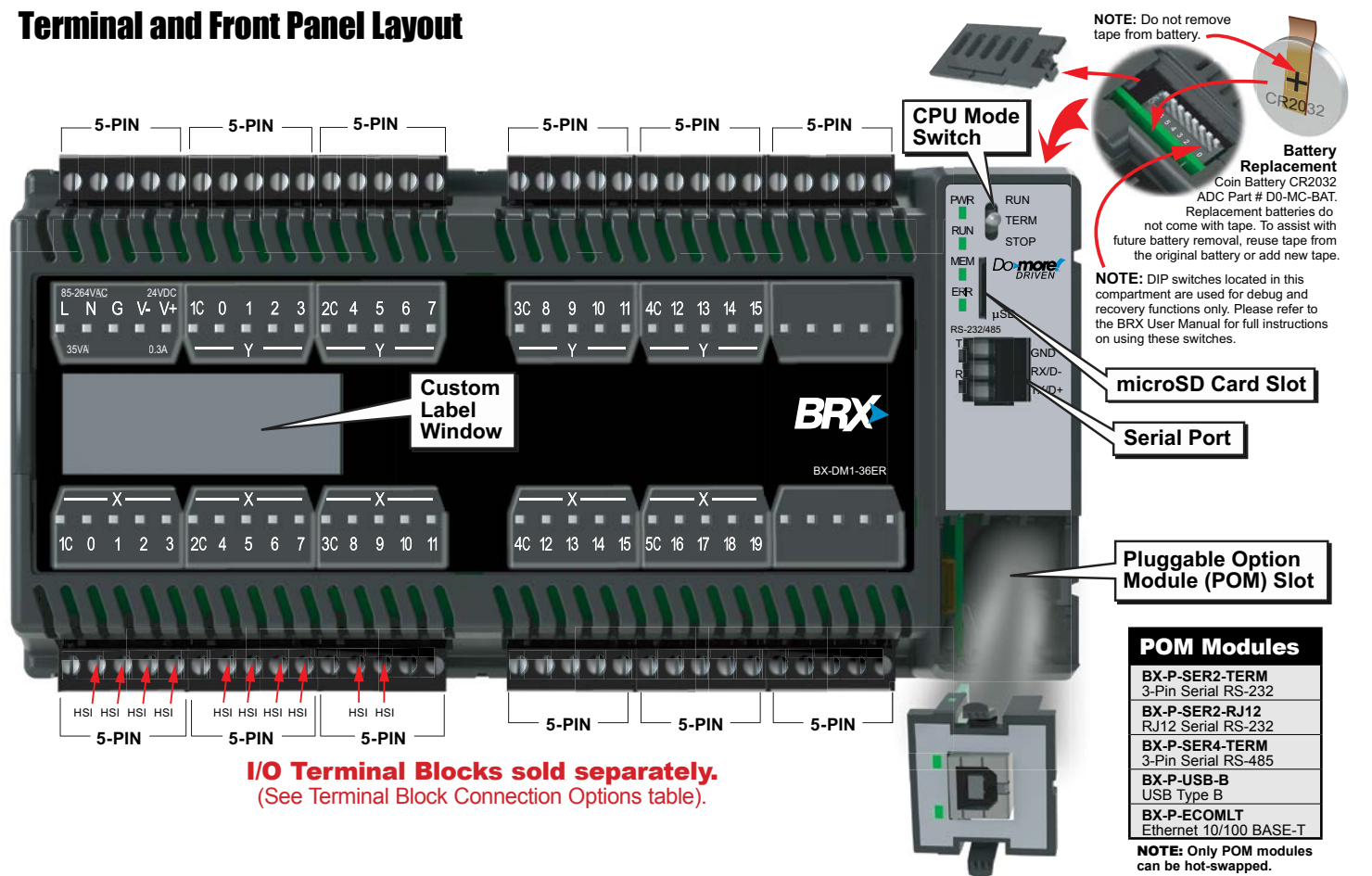
IMPORTANT!



Hot-Swapping Information

Note: This device cannot be Hot Swapped.

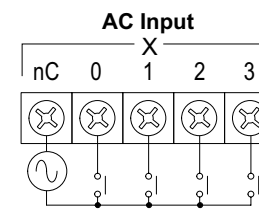
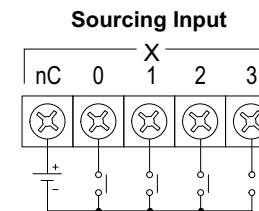
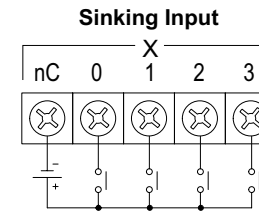
Terminal and Front Panel Layout



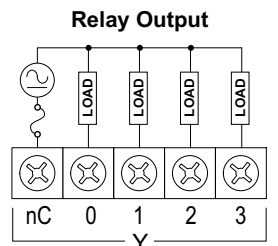
I/O Terminal Blocks sold separately.
(See Terminal Block Connection Options table).

I/O Wiring

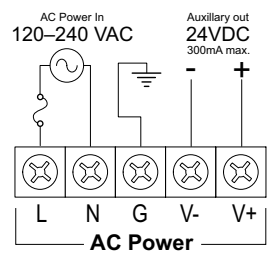
Discrete Input Wiring



Discrete Output Wiring



Supply Power Wiring



Discrete Input Specifications

| Input Type | Sink/Source |
|-------------------------|--|
| Total Inputs per Module | 20 Total – 10 High Speed (X0..X9)* 10 Standard (X10..X19) *All inputs may be used as standard inputs |
| Commons | 5 (4 points/common) Isolated |
| Nominal Voltage Rating | 12–24 VAC/DC |
| Input Voltage Range | 9–30 VAC/DC |
| Maximum Voltage | 30 VAC/DC |
| DC Frequency | 0–250kHz - High Speed |
| Minimum Pulse Width | 0.5 µs - High Speed |
| AC Frequency | 47–63 Hz (60–240Hz filter must be set in software for AC operation) |
| Input Impedance | 3kΩ @ 24VDC |
| Input Current (typical) | 6mA @ 24 VAC/DC |
| Maximum Input Current | 12mA @ 30 VAC/DC |
| Maximum OFF Current | 2.0 mA |
| ON Voltage Level | > 9.0 VAC/VDC |
| OFF Voltage Level | < 2.0 VAC/VDC |
| Status Indicators | Logic Side, Green |

Discrete Output Specifications

| Output Type | Relay Form A (SPST) |
|-----------------------------|--|
| Total Outputs per Module | 16 Relay |
| Commons | 4 (4 points/common) Isolated |
| Maximum current per common | 8A |
| 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 |

High Speed Input (HSI) Functions

| Input Function | Inputs Required ¹ | | 10/ 10E | 18/ 18E | 36/ 36E |
|--|------------------------------|--|------------|------------|------------|
| High-Speed Counting Position Scaling Frequency Measurement | 1 | Up counters | Up to (3) | | |
| | 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) ² | | Programmable limit switches | Up to (4) | | |
| | | Preset tables | | | |
| Interrupt(s) | 4 | Input interrupts | Up to (4) | | |
| | 0 | Timer interrupts | | | |
| | 0 | Match register interrupts | | | |

1. Standard inputs may be used with high-speed functions, but at lower response frequencies of approximately 120Hz.
2. 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. (see HSO Note 1 below)