| ations |
|---|
| 0° to 60°C (32° to 140°F) |
| -20° to 85°C (-4° to 185°F) |
| 5 to 95% (non-condensing) |
| No corrosive gases permitted |
| IEC60068-2-6 (Test Fc) |
| IEC60068-2-27 (Test Ea) |
| Open Equipment |
| UL61010-2 - UL File # E185989 Canada and USA |
| CE Compliant EN61131-2* |
| NEMA ICS3-304 |
| See the "EU Directive" topic in the Help File |
| 410g (14.5 oz) |
| |

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

| Power Supply Specific | ations |
|------------------------------------|--|
| Nominal Voltage Range* | 12–24 VDC |
| Input Voltage Range (Tolerance)* | 10–36 VDC |
| Maximum Input Voltage Ripple | <± 10% |
| Maximum Input Power | 30W |
| Cold Start Inrush Current | 5A, 2ms |
| Maximum Inrush Current (Hot Start) | 5A, 2ms |
| Internal Input Protection | Reverse Polarity Protection and Undervoltage |
| Heat Dissipation | 19.5W Max |
| Voltage Withstand (dielectric) | 1500VAC Power Inputs to Ground applied for 1 minute |
| | |

*Class 2 or LPS Power Supply required.



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

| Terminal Bl | ock Conne | ctor Specif | ications |
|-----------------------------|--------------------------|----------------------------|--|
| 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 |

| Indicator | Status | Description |
|-----------|--------|---|
| | OFF | Base Power OFF |
| PWR | Green | Base Power ON |
| | Yellow | Low Battery |
| | OFF | CPU is in STOP Mode |
| RUN | Green | CPU is in RUN Mode |
| | Yellow | Forces are Active |
| | OFF | No ROM Activity, No SD Card |
| MFM | 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 |
| ERR | Red | CPU Fatal Hardware Error or Software Watchdog Error |

| Built-in RS-232/4 | 185 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 |
| | |



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. |

Do-more BRX Manual available at www.automationdirect.com/pn/doc/ manual/BX-DM1-36ED2-D







BX-DM1-36ED2-D

BRX MPU with Do-more! DM1 technology 24 VDC required, serial port, microSD slot, Discrete Input: 20-point, sink / source, Discrete Output: 16-point, sourcing.

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

| Document Name | Edition/Revision | Date | | | |
|----------------|------------------|----------|--|--|--|
| BX-DM1-36ED2-D | 1st Ed. RevE | 9/8/2021 | | | |

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Hot-Swapping Information

Note: This device cannot be Hot Swapped.



| Discrete Input Sp | pecifications |
|-------------------------|--|
| Input Type | Sink/Source |
| Total Inputs per Module | 20 Total – 10 High Speed (X0X9)* 10 Standard (X10X19) *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 | Specifi | cations | |
|-------------------------------|---|--|--|
| Output Type | Sourcing | | |
| Total Outputs per Module | 16 Total – 8 High Speed (Y0Y7)* 8 Standard (Y8Y15) *All outputs may be used as standard outputs | | |
| Commons | 4 (4 points/ | common) Isolated | |
| Maximum Current per Common | 2A | | |
| Nominal Voltage Rating | 12–24 VDC | | |
| Operating Voltage Range | 5–36 VDC | | |
| Maximum Voltage | 36VDC | | |
| Minimum Output Current | 0.1mA @ 24VDC | | |
| Maximum Output Current | 0.5A per ou | tput, no derating over temperature range | |
| Maximum Leakage Current | 10µA | | |
| Maximum Switching | 1m cable | 250KHz | |
| Frequency | 10m cable | 100KHz | |
| Status Indicators | Logic Side, | Green | |

| Input Function | Inputs Required ¹ | | 10/ 10E | 18/ 18E | 36/ 36E | |
|------------------------------|---------------------------------|--|------------|------------|------------|--|
| | 1 | Up counters | | | | |
| High-Speed | 1 | Down counters | | | | |
| Counting Position Scaling | 2 | Up/Down counters | | | | |
| Frequency | 2 | Pulse/Direction (Bidirectional) counters | | | | |
| Interval Measurement | 2 | Quadrature (A and B) counters | Up to (3) | | | |
| | 3 | Quadrature (A and B with Z) counters | | | | |
| | 1 | Single Input (Edge) timers | | | | |
| | 2 | Dual Input (Dual Edge) timers | | | | |
| Duration Measurement | 1 | Single Input (Edge) timers | | | | |
| Table-Driven | | Programmable limit switches | | | | |
| Output(s) ² | | Preset tables | | | | |
| Interrupt(s) | 4 | Input interrupts | 1 | Jp to (| (4) | |
| | 0 | Timer interrupts | | | | |
| | 0 | Match register interrupts | | | | |

 Standard inputs may be used with high-speed functions, but at lower response frequencies of approximately 120Hz.

 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)

| High Speed Output (HSO) Functions | | | | | | | |
|--|---|---|------------|------------|----------|--|--|
| | Outputs Required ¹ | Function ² | 10/ 10E | 18/ 18E | 36 36 | | |
| | 0 | Virtual axis | 4 | 4 | 4 | | |
| | 2 | PTO linear step/direction outputs | 2 | 3 | 3 | | |
| Pulse Mode | 2 | PTO rotary clockwise/counter- clockwise (CW/CCW) outputs | 2 | 3 | 3 | | |
| | 2 | PTO quadrature (A and B) output | 2 | 3 | 3 | | |
| | 1 | PWM pulse width modulation outputs | 4 | 4 | 4 | | |
| Axis Profile | Axis Profile Relative/Absolute positioning, Velocity mode, Trapezoid, S-curve, Electronic gearing, Camming, Following, Homing, Jogging | | | | | | |
| 1. Standard outputs may be used for high-speed functions, but at lower response frequencies of | | | | | | | |

approximately 110Hz. Use of fead outputs is not recommended. 2. This is the total number of functions. A combination of high-speed outputs and standard out-

puts may be used **up to** this total.

