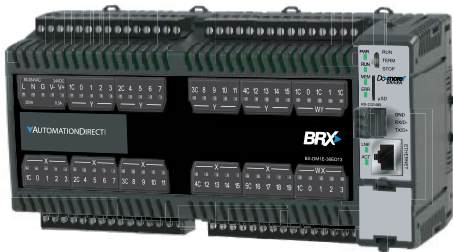


# BRX Micro PLC Overview

The BRX platform is a very versatile modular Micro PLC system that combines powerful features in a compact, standalone footprint. The BRX platform is designed to be used as a standalone controller or can be expanded using a wide variety of expansion modules that easily snap onto the side of any BRX Micro PLC Unit (MPU) creating a sturdy and rugged PLC platform.

The foundation of the platform consists of four unique MPU form factors that provide for a strong system design to fit your application requirements while keeping the cost of the system to a minimum. Shown below are the four unique Micro PLC form factors.



**Largest MPU with  
36 I/O built in**

14 different configurations from  
which to choose



**Mid-range MPU with  
18 I/O built in**

14 different configurations from  
which to choose



**Smaller MPU with  
10 I/O built in**

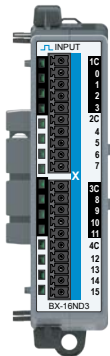
8 different configurations from  
which to choose



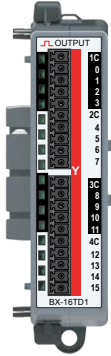
**Smallest MPU with  
No built-in I/O**

2 configurations from which  
to choose

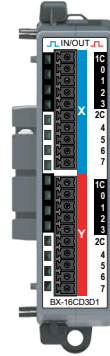
## Discrete Input Modules



Thirteen (13) discrete input modules are available in various DC and AC voltage ranges. Available in 8, 12, 16 and 32 I/O point modules.

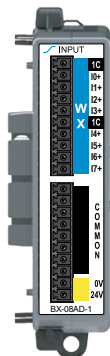


Eighteen (18) discrete output modules are available in DC sinking, DC sourcing, AC voltage and Relay type outputs. Available in 5, 8, 12, 16 and 32 I/O point modules.

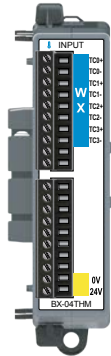


Six (6) discrete input/output combo modules are available with DC sink/source inputs and sink/source/relay outputs. Available in 8, 12 and 16 I/O point modules.

## Analog Input Modules

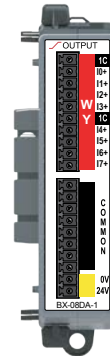


Nine (9) analog input modules are available, with current or voltage inputs. Available with 4, 8 and 16 inputs.



Six (6) temperature input modules are available, with thermocouple, RTD, thermistor or universal inputs. The thermocouple modules can also be configured for millivolt-level voltage inputs. The RTD module can also be configured for resistance inputs.

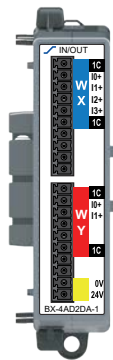
Three (3) temperature input/analog output combination modules and three (3) temperature input/discrete output combination modules are available.



Six (6) analog output modules are available, with current or voltage outputs. Available with 4 and 8 outputs.

# BRX Micro PLC Overview

## Analog Combo Input/Output Modules



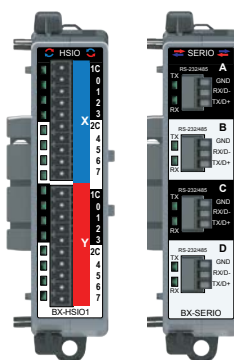
Six (6) analog input/output combo modules are available, with voltage inputs/voltage outputs, current sinking inputs/current sourcing outputs and universal inputs/outputs.

## Active Filling Module



One (1) active filling module is available, which can be configured to reserve physical and address space for any other module.

## Motion Control and Communications Modules



Three (3) high-speed I/O modules are available, with 8-point sinking/sourcing inputs and a choice of 8-point sinking, sourcing or sinking/sourcing outputs. Switching frequencies of up to 250kHz or up to 2MHz are available.

Three (3) serial communications modules are available, with RS-232, RS-422 and RS-485 serial ports.

## BRX Pluggable Option Modules (POM)

All BRX Do-more! CPUs have a built-in slot for a user-selected Pluggable Option Module (POM). The POM option slot can be

used to add a serial port, Ethernet port, USB port or any other POM modules that are available.



**BRX-P-SER2-TERM**  
RS-232 Port



**BRX-P-SER2-TERMFC**  
RS-232 Port  
w/Flow Control



**BRX-P-SER4-TERM**  
RS-485 Port



**BRX-P-SER422-TERM**  
RS-422 Port



**BRX-P-SER2-RJ12**  
RS-232 Port (RJ12)



**BRX-P-ECOMLT**  
Ethernet Port  
(Any CPU)



**BRX-P-ECOMEX**  
Ethernet Port  
(DM1E CPU Only)



**BRX-P-USB-B**  
USB Type B Port

## BRX Remote I/O Controllers

BRX Remote I/O Controllers allow up to eight discrete, analog or temperature I/O expansion modules to be remotely connected per controller.

Do-more! Ethernet Remote I/O, Host Ethernet Remote I/O, Modbus RTU and Modbus TCP protocols are available.



**BRX-DMIO-M**



**BRX-EBC100-M**



**BRX-MBIO-M**

# BRX Micro PLC Overview

The BRX platform enables you to choose from various communications ports. All BRX MPU models have a built-in RS232C/485 (software-selectable) serial port. However, an RJ45 Ethernet port (10/100 Mbps) is provided on select units. With support for EtherNet/IP, Modbus TCP, Modbus RTU, ASCII, K-sequence (DirectLOGIC users) and custom protocols, the BRX MPU platform provides supreme

versatility for any application. BRX hardware is built to last and is engineered, assembled and supported right here in America; designed and fabricated by industrial automation veterans with hardware facilities in Tennessee and Florida. The compact modular architecture results in an outstanding controller package, with high performance, a small footprint, at a very low cost. The BRX

platform has built-in high-speed I/O, motion control, on-board analog I/O, and many other features that enable you to build the ideal controller for your application. Below is a quick look at some of the standard features available on the BRX Platform.



| General Specifications       |                                               |
|------------------------------|-----------------------------------------------|
| <b>Operating Temperature</b> | 0° to 60°C [32° to 140°F]                     |
| <b>Storage Temperature</b>   | -20° to 85°C [-4° to 185°F]                   |
| <b>Humidity</b>              | 5 to 95% (non-condensing)                     |
| <b>Environmental Air</b>     | No corrosive gases permitted                  |
| <b>Vibration</b>             | IEC60068-2-6 (Test Fc)                        |
| <b>Shock</b>                 | IEC60068-2-27 (Test Ea)                       |
| <b>Enclosure Type</b>        | Open Equipment                                |
| <b>Agency Approvals</b>      | UL61010-2 - UL File # E185989 Canada and USA  |
|                              | CE Compliant EN61131-2*                       |
| <b>Noise Immunity</b>        | NEMA ICS3-304                                 |
| <b>EU Directive</b>          | See the "EU Directive" topic in the Help File |

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



## 2 Year Warranty

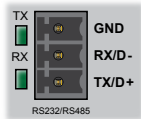
All BRX PLCs are covered under a 2- year warranty.

# BRX Micro PLC Overview

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

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

Removable connector included.



| Pinout | RS232 | RS485 |
|--------|-------|-------|
| 1      | GND   | GND   |
| 2      | RXD   | D-    |
| 3      | TXD   | D+    |

\*When using RS-485 a termination resistor is available and is software selectable.

## CPU Status Indicators

| Indicator  | Status | Description                                         |
|------------|--------|-----------------------------------------------------|
| <b>PWR</b> | OFF    | Base Power OFF                                      |
|            | Green  | Base Power ON                                       |
|            | Yellow | Low Battery                                         |
| <b>RUN</b> | OFF    | CPU is in STOP Mode                                 |
|            | Green  | CPU is in RUN Mode                                  |
|            | Yellow | Forces are Active                                   |
| <b>MEM</b> | 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                   |
| <b>ERR</b> | OFF    | CPU is functioning normally                         |
|            | Red    | CPU Fatal Hardware Error or Software Watchdog Error |

## CPU Mode Switch

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



## microSD Specifications

|                                                           |                                                             |         |         |         |
|-----------------------------------------------------------|-------------------------------------------------------------|---------|---------|---------|
| Port Name                                                 | microSD Card Slot                                           |         |         |         |
| Description                                               | Standard microSD socket for data logging or file read/write |         |         |         |
| Maximum Card Capacity                                     | 32GB                                                        |         |         |         |
| Transfer Rate<br>(ADATA microSDHC<br>Class 4 memory card) | Mbps                                                        | Minimum | Typical | Maximum |
|                                                           | Read                                                        | 14.3    | 14.4    | 14.6    |
|                                                           | 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                                        |         |         |         |



| Pin | SD      |
|-----|---------|
| 1   | DAT2    |
| 2   | CD/DAT3 |
| 3   | CMD     |
| 4   | VDD     |
| 5   | CLK     |
| 6   | VSS     |
| 7   | DAT0    |
| 8   | DAT1    |

## AC Power Supply Specifications

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

## DC Power Supply Specifications

|                                           |                                                     |
|-------------------------------------------|-----------------------------------------------------|
| <b>Nominal Voltage Rating</b>             | 12-24 VDC                                           |
| <b>Input Voltage Range (Tolerance)</b>    | 10-36 VDC                                           |
| <b>Maximum Input Voltage Ripple</b>       | <± 10%                                              |
| <b>Maximum Input Power</b>                | 30W (14W for BX 10/10E MPUs)                        |
| <b>Cold Start Inrush Current</b>          | 5A, 2ms                                             |
| <b>Maximum Inrush Current (Hot Start)</b> | 5A, 2ms                                             |
| <b>Internal Input Protection</b>          | Reverse Polarity Protection and Undervoltage        |
| <b>Voltage Withstand (dielectric)</b>     | 1500VAC Power Inputs to Ground applied for 1 minute |