

INTRODUCTION: BRX PLATFORM



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BRX Introduction

Purpose of this Manual

The hardware user manual provides information that will help you install, set up, program, troubleshoot, and maintain your BRX platform. The user manual also includes information that is critical to the safety of the personnel who will install and use the controller, and to the integrity of machinery, processes, and equipment controlled by the BRX Micro PLC Unit (MPU).

The manual also includes important information about power and signal wiring, mounting of the BRX MPU, and configuring the BRX MPU system.

About Getting Started

If you are familiar with programmable controllers in general, then following the simple steps in this manual may be all you require to start being productive using a BRX Do-more! MPU system. After you have completed the steps, your BRX MPU will be running the ladder logic project that you programmed.

Online Help Files and Other Documentation

BRX Do-more! Designer programming software is available as a download from our website. Please see the Do-more! Designer Software Getting Started Guide (DMD-GSG-M) for help on installation and usage of the software.

See <http://support.automationdirect.com/products/domore.html>.

The Do-more! Designer software includes researchable online help topics covering all aspects of the software, instruction set, module setup, and communications.

In addition, each BRX MPU, I/O expansion module and Pluggable Option Module (POM) module ships with an insert document containing technical data and installation instructions.

Technical Support

We have an extensive library of free online videos that cover a vast array of technical topics. Follow this link: <https://www.automationdirect.com/videos/tutorials>, and chose the “In-depth Product Tutorials” tab for product specific videos.

If you cannot find the solution to your particular situation, or, if for any reason you need additional technical assistance, our technical support group is glad to work with you in answering your questions. Please contact us at:

By Telephone: 770-844-4200

(Mon.-Fri., 9:00 a.m. to 6:00 p.m. E.T.)

On the Web: <http://support.automationdirect.com>

We also encourage you to visit our web site where you can find technical and non-technical information about our products and our company.

Visit us at <https://www.automationdirect.com/>

Conventions Used



When you see the "note pad" icon in the left-hand margin, the paragraph to its immediate right will be a special note. Notes represent information that may make your work quicker or more efficient. The word **NOTE:** in boldface will mark the beginning of the text.




When you see the "exclamation point" icon in the left-hand margin, the paragraph to its immediate right will be a warning. This information could prevent injury, loss of property, or even death in extreme cases. Any warning in this manual should be regarded as critical information that should be read in its entirety. The word **WARNING** in boldface will mark the beginning of the text.

Key Topics for Each Chapter

The beginning of each chapter will list the key topics that can be found in that chapter.

**BRX GENERAL
INSTALLATION AND
WIRING GUIDELINES**



In This Chapter...

Safety Guidelines	1-2
Introduction to the BRX Mechanical Design	1-5
Dimensions and Installation	1-6
Mounting Guidelines	1-9
Wiring Guidelines	1-14
I/O Module Wiring Options	
System Wiring Strategies	

BRX 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 4 unique MPU form factors that provide for a strong system design to fit your application requirements precisely while keeping the cost of the system to a minimum. Shown below are the four unique Micro PLC form factors.



BRX ME
No Built-In I/O
Ethernet Port



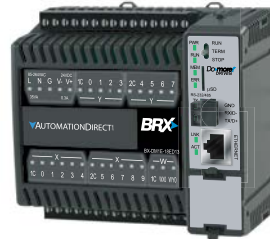
BRX 10
10 Discrete I/O
No Analog I/O
No Ethernet Port



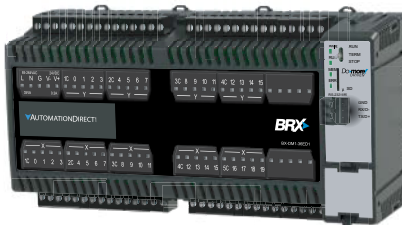
BRX 10E
10 Discrete I/O
2 Analog I/O
Ethernet Port



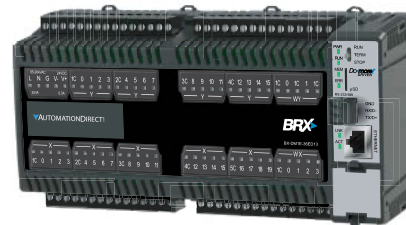
BRX 18
18 Discrete I/O
No Analog I/O
No Ethernet Port



BRX 18E
18 Discrete I/O
2 Analog I/O
Ethernet Port



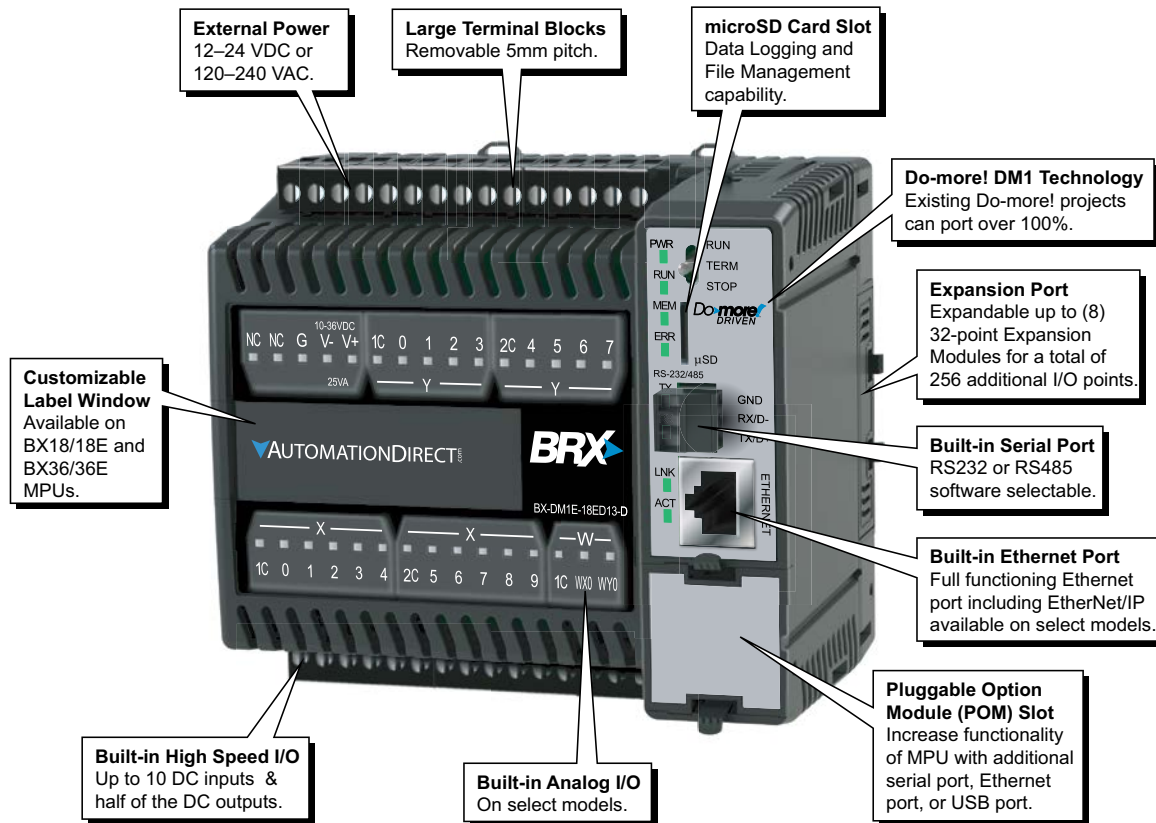
BRX 36
36 Discrete I/O
No Analog I/O
No Ethernet Port



BRX 36E
36 Discrete I/O
6 Analog I/O
Ethernet Port

BRX Platform

Below is a quick look at some of the standard features available on the BRX Platform.



The BRX platform allows you to choose from various communications ports. All BRX MPU models have a built-in RS232/485 (software-selectable) serial port. However, an RJ45 Ethernet port (10/100Mbps) 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. In addition, all BRX MPUs have an extra plug-in slot that allows for additional user-selected communications port. These optional communications ports are called Pluggable Option Modules (POMs) and are available in 3-pin serial RS232, RJ12 serial RS232, 5-pin RS232, 5-pin RS422, 3-pin serial RS485, USB and Ethernet versions. Simply choose the extra port you want, plug it in and go.

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 is an extremely versatile modular system that you can customize to your specific controller needs. BRX has four distinct form factors, built-in high-speed I/O, motion control, an interchangeable communications port, on-board analog I/O, and many I/O expansion modules from which to choose. The BRX MPU platform allows you to build the ideal controller for your application that delivers the quality and reliability you expect at an unexpectedly lower cost.

FREE, fully-functional Do-more! Designer programming software was developed to be powerful, flexible and easy to use. The user-friendly, fill-in-the-blank software design makes complex operations like PID and motion control a cinch. It is available to download online whenever you choose, as often as you'd like. Take it for a spin or start your project immediately, there are never any licensing fees or service charges.

User Manual Layout

This BRX user manual is intended to be used as a reference manual for the BRX hardware. It is laid out into 3 sections as follows:

Installation, Wiring and Specifications

- Chapter 1: General Installation and Wiring Guidelines
- Chapter 2: BX ME Wiring
- Chapter 3: BX 10/10E Wiring
- Chapter 4: BX 18/18E Wiring
- Chapter 5: BX 36/36E Wiring
- Chapter 6: BRX Pluggable Option Module (POM)
- Chapter 7: BRX Digital I/O Expansion Modules
- Chapter 8: BRX Analog I/O Expansion Modules
- Chapter 9: BRX Motion Control, Communications & Specialty Expansion Modules

Programming and Software

- Chapter 10: BRX Do-more! CPU Specifications
- Chapter 11: BRX Do-more! Motion Control and High-speed I/O
- Chapter 12: BRX Do-more! Serial Communications
- Chapter 13: BRX Do-more! Ethernet Communications
- Chapter 14: BRX Remote I/O: BX-DMIO, BX-EBC100 & GS-EDRV100
- Chapter 15: BX-MBIO Modbus I/O Controller

Maintenance and Troubleshooting

- Appendix A: BRX Do-more! Maintenance and Troubleshooting
- Appendix B: EU Directives
- Appendix C: BRX MPU Power Budgeting
- Appendix D: Error Codes and System Locations
- Appendix E: NetEdit—Ethernet Setup Utility for HOST Automation Products
- Appendix F: Tips and Tricks
- Appendix G: Online Resources