CHAPTER 10 **BRX DO-MORE! DESIGNER**

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Overview

The BRX Platform is a Micro PLC system that uses the Do-more! Designer Software version 2.0 or newer (ADC part number DM-PGMSW). The Do-more! Designer programming software package (downloadable for free) was developed as a powerful, flexible and easy to use controls design tool.

The programming GUI features a user-friendly fillin-the-blank design for editing ladder logic, making complex operations such as PID and motion control easy to setup while minimizing programming time. A built-in simulator allows testing of your program design without requiring any additional external hardware. This will help to reduce programming errors prior to critical live application startups.

Easy to use troubleshooting tools allow you to actually see what is going on in your logic, from single stepping through the program one scan at a time to monitoring multiple elements during verification of correct program execution.



For the DirectLOGIC users that want to use the

BRX Do-more! MPU for projects originally written in DirectSOFT, Do-more! Designer software has a built-in DirectLOGIC migration tool that will greatly reduce the time to migrate a DirectSOFT program into Do-more! Designer.

This chapter focuses on installing the Do-more! Designer software, establishing a connection to a BRX MPU, writing a simple ladder logic program and downloading it to the MPU. This should help get you familiarized with the software and get started utilizing one of the most powerful PLC's on the market.

Before You Begin...

Wiring Tools and Hardware

The tools and hardware shown below may be required to connect your power supply to your BRX MPU





AC Power Cord (Not available from Automationdirect.com)

Programming Connection Options

The BRX MPU allows several built-in programming interface options. Choose from one of the following suggested communication methods for this short step-by-step introduction to the BRX platform. You should have at least one of these programming options ready and available.

- Ethernet port (built-in), just connect a cable
- Serial port: Using the 3-pin serial connection on the MPU



Ethernet Cable



Serial Cable ZL-DB9F-CBL-2P

POM Slot Programming Options

- USB POM and cable assembly(below)
- Ethernet POM and cable (right)
- RS-232 serial POM (RJ12 or 3-pin) (lower right)



BX-PGM-CBL Programming Cable Assembly



Ethernet POM Module with Cable



RS-232 Serial POM (RJ12) Module with Cable



RS-232 Serial POM (3-pin) Module with Cable

BRX Do-more! Designer System Requirements

Do-more! Designer Windows-based programming software (CD-ROM or web download) works with a variety of Windows® operating systems listed below.

Do-more! Designer software can connect to the BRX system using one of the following specifications. More detailed specifications and options are listed later in this chapter.

BRX Do-more is compatible with any of these PC operating systems:

- Windows[®] 10
- Windows[®] 8.1 64 bit
- Windows[®] 8.1 32 bit
- Windows[®] 8 64 bit
- Windows[®] 8 32 bit
- Windows[®] 7 64 bit
- Windows[®] 7 32 bit
- Windows[®] Vista 64 bit
- Windows[®] Vista 32 bit

Hardware Requirements:

- HD Space: 140Mb
- Video: 1024x768 256 color (1280x720 true color recommended)



- 1GB RAM (3GB recommended)
- Other: Windows[®] 8 RT Edition is not supported.



NOTE: Ethernet POMs, USB and Serial Cables are sold separately. USB or Ethernet cable is also required for communications between PC and CPU.



Step 1: Install Do-more! Designer Software

Download the Do-more! Designer programming software (DM-PGMSW) from our website at http://support.automationdirect.com/products/domore.html, and launch the install procedure.

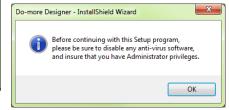
Do-more Designer - InstallShiel	d Wizard	If you
	Welcome to the InstallShield Wizard for Do-more Designer	you o BRX The f
<u> </u>	The InstallShield Wizard will install Do-more Designer on your computer. To continue, click Next.	scree of th
Do-more Designer	- InstallShield Wizard	×
	Welcome to the InstallShield Wizard for Do Designer The InstallShield Wizard will update the installed ver (0.09.104) of Do-more Designer to version 0.09.919: continue, click Next.	sion
	< Back Next > C	ancel

If you already have Do-more! Designer installed, you can just update to version 2.0 or newer to get BRX MPU support.

The first window that opens displays the *Welcome* screen seen here. If there are previous versions of the software already installed, this screen will

show the version number of the software being replaced as well as the one being installed. Click **Next** to continue.

An alert window will appear requesting that all anti-virus software be disabled and also reminding the user that administrative restrictions may exist.



The *License Agreement* window will be displayed next. Read over the agreement, select I accept the terms of the license agreement and click the Next button to continue.

The license agreement may be printed if desired. The **Print** function will print a pdf of the **License Agreement** document to your default printer.

Do-more Designer - InstallShield Wizard
License Agreement Please read the following license agreement carefully.
Do-more Designer License Agreement
BEFORE OPENING THIS PACKAGE AND USING THIS SOFTWARE YOU SHOULD CAREFULLY READ THIS AGREEMENT The enclosed computer software program (the "Software") is the property of Automationdirect.com, inc. or its suppliers. Before installing this package, carefully
read this Agreement. If you do not accept the terms and conditions of this Agreement, you should return the enclosed Software and any accompanying items (including any manuals, release notes, binders, etc.), unopened, to Automationdirect com for a full
I accept the terms of the license agreement Print I do not accept the terms of the license agreement InstallShield
< Back Next > Cancel

At this point the software will ask a little about you. Please fill in the user information requested on the *Customer Information* screen and click **Next** to continue.

At this stage, the software will ask which type of install you would like to perform. The *Setup Type* window seen below gives two options for installation type: **Complete** and **Custom**.

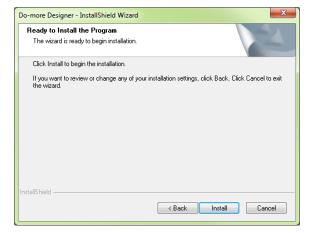
Do-more Designer - InstallShield Wizard
Customer Information
Please enter your information.
Please enter your name and the name of the company for which you work.
User Name:
ADC
Company Name:
InstallShield KBack Next > Cancel

Do-more Designe	er - InstallShield Wizard
Setup Type Select the set	up type to install.
Please select	a setup type.
Complete	All program features will be installed. (Requires the most disk space.)
Custom	Select which program features you want installed. Recommended for advanced users.
InstallShield ———	< Back Next> Cancel

Custom installation allows you to choose which program features to install, whereas **Complete** installation installs all of the program features available. The **Complete** installation is selected by default and is recommended for first-time users and for purposes of this primer. Click **Next** to continue.

The next window to appear is the *Ready to Install the Program* window. This window is an alert window, cautioning you that the program is about to be installed. If there are any changes that need to be made to the install settings do them now before continuing.

To review or change any of the previous installation selections, click **Back** to return to the appropriate window and make the change. If no changes are necessary click **Install** to begin the installation.



Do-more Designer - InstallShield Wizard	X
Do you want a Do-more Desig	iner shortcut on your DeskTop?
	Yes No

The pop-up shown here will allow you to choose to install a Do-more! Designer software desktop shortcut on your PC. Click **Yes** or **No** and continue with the installation.

Setup Status	A.
The InstallShield Wizard is installing Do-more Designer	
Installing Program Files	
C:\Do-more Designer\Bin\PrgExtDm.dll	
	Do-more Designer - InstallS

The software will now install the needed folders and files while the *Setup Status* window displays the installation progress status.

Once the installation has been successfully completed, the *InstallShield Wizard Complete* window below will open.

Your software is now installed and ready to use. The installation wizard can now be closed by clicking **Finish**.

Do-more Designer - InstallShie	ld Wizard
	InstallShield Wizard Complete The InstallShield Wizard has successfully installed Do-more Designer. Click Finish to exit the wizard. Yes, I want to view the Read Me file. Yes, I want to launch Do-more Designer now.
	< Back Finish Cancel



NOTE: By default the **Read Me File** and **Launch Do-more! Designer now** boxes are checked. Un-check either box should you choose not to view the Read Me file and not launch the software at this time.

Step 2: Launch the Do-more! Designer Software

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NOTE: For this step, ensure the BRX MPU is not powered up. Connection to your PC is in Step 3.

NOTE: There are many keyboard shortcuts available in the Do-more! Designer software. For a list of available short cuts (hot keys), view Help topic DMD0361.

After installing the Do-more! Designer software, launch the software by double clicking the desktop Do-more! Designer icon.

You can also launch the software from your PC *Start* menu or *All Programs* menu. If the software link is not embedded in the *Start* menu, use the path: *Start* > *All Programs* > *Do-more* > *Designer* x.x > *Do-more! Designer* x.x to launch the software.

When Do-more! Designer runs for the first time it goes to the *Start Page* (area with 'brick' wallpaper) and the *Tip of the Day* pop-up comes up by default. This feature can be disabled by un-checking the *Show tips at startup* box in the lower left corner. Select **Close** on the



Tip of the Day pop-up when you are finished viewing the tips.



When the **Close** button on the *Tip of the Day* pop-up is pressed, the *Select Project* window comes up. Here you will select which project to work with - New Offline Project, New Online Project, or Browse (for a project not listed). If you have worked on current projects, they will appear below in the *Recent Project* list. As this is your initial install your window will be empty.

			ew Online Project	- V	Browse	
r select a recen	t Disk Project		Click togg	c on a column he gle ascending/de	eader to sort by that co escending. Shift+click fo	lumn. Click header again to r multi-column sorting.
Project	Folder	Last Opened 🛛 🗸	Link	Link Info	Description	PLC
atchData One	. <proj>\New Projects</proj>	2016-11-10(Thu) 12:57:38				DM-SIM
atchData1.DMD	<pre><proj>\Examples\Do-more Si.</proj></pre>	2016-11-02(Wed) 13:10:46	MySim	Ethernet	on Local Port	DM-SIM

Press the **Close** button. The *Launchpad* area (on left side of window) is displayed with the *Startup Page* selected.



From the Start Page, you can select from any of 5 short videos that demonstrate how to use the software and explain how the Do-more! technology works.



- Video 1: "Welcome", welcomes you to the Do-more! Designer Software. This video familiarizes you with the BRX environment showing you how to connect to a BRX MPU, open a project, etc.
- Video 2: "Quick Start", walks you through writing and documenting a simple program and downloading it to the BRX MPU.
- Video 3: "Troubleshooting", introduces you to and shows you how to use the troubleshooting and debugging tools built in to the Do-more! Designer software.
- Video 4: "Architecture", explains how the Do-more ! Technology works. Understanding the Do-more Technology allows you to take advantage of the built-in features allowing you to create projects easier and decreasing the amount of programming time needed.
- Video 5: "Helpful Hints", covers some of the most common BRX MPU programming challenges and explains how easily Do-more! Designer can help with these challenges.

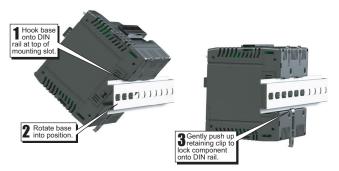
The Video Search & Download Utility opens a search window and download screen.

Step 3: Prepare the Hardware

The "Installation and Wiring" chapter for the BRX MPU contains detailed information for your specific model.

The following summary explains the basic steps needed to get the BRX MPU ready to establish a link so you can program and run a project.

- 1. Installing the BRX MPU on DIN rail:
 - A. Hook rear upper tabs over flange of DIN rail.
 - B. Rotate the unit down toward the DIN rail, pressing firmly until the BRX MPU snaps securely to the DIN rail.



- 2. There are three ways to connect to the BRX MPU for programming:
 - A. Using the USB POM with a USB programming cable.
 - B. Using Ethernet cable with built-in Ethernet port.
 - C. Using RJ12 Serial POM module and RJ12 programming cable or via the built-in 3-pin serial port connector with user supplied cabling.

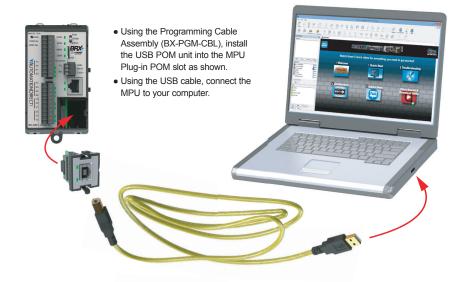
Examples of each connection type are shown on the following pages.



NOTE: All communication connections between the BRX MPU and PC should be completed prior to launching Do-more! Designer software.

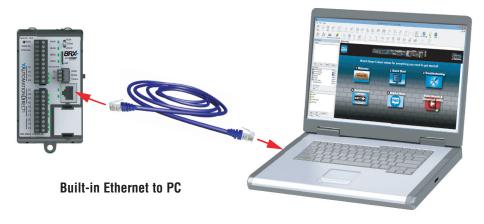
A. Connect BRX USB to Computer Using Programming Cable

For USB connectivity the BX-PGM-CBL assembly is required. This assembly includes one USB POM module (BX-P-USB-B) and one 6ft USB-A to USB-B cable (USB-CBL-AB6).

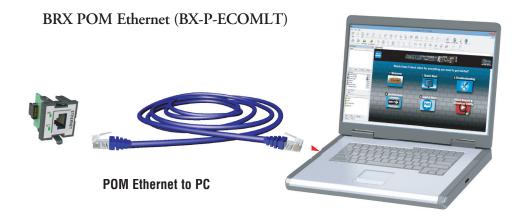


B. Connect BRX Ethernet to Computer Ethernet

There are two options for connecting the BRX via Ethernet to a PC. One option is to use the built-in Ethernet port and connect to the PC via a Cat5 Ethernet cable. An alternate connection is available by using the optional Ethernet POM (BX-P-ECOMLT) module that plugs into the POM slot on the MPU. Both Ethernet options support 10/100Base-T via the RJ45 port. The Ethernet port supports Auto-Crossover, which allows the use of a Cat5 patch or crossover cable.





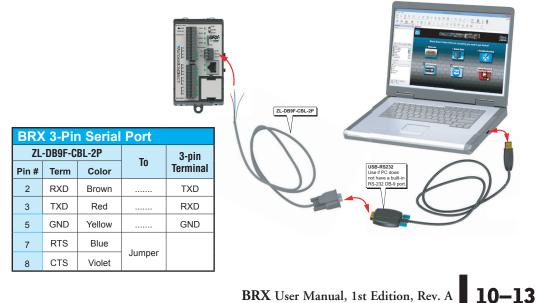


C. Connect BRX Built-in Serial Port BRX POM serial port to Computer Serial or USB Port

It is possible to connect to the BRX using the CPUs built-in serial port or by installing the BRX POM serial port, BX-P-SER2-RJ12.

BRX Built-in Serial Port.

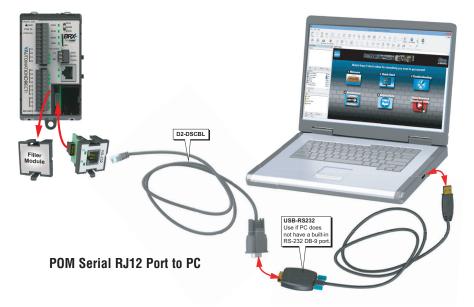
There are two options to consider for connecting the BRX built-in serial port to a PC. The first option uses a ZL-DB9F-CBL-2P to a PC USB port using a USB to Serial adapter (USB-RS232, as shown below). If the PC has a 9-pin serial port connection, you don't need to use the USB to Serial adapter. The second option (not shown) is to use a user built cable to connect the built-in 3-pin serial port to the PC serial port or USB to Serial adapter.



Serial RS-232 to PC

BRX POM Serial Port

The BRX Serial POM (BX-P-SER2-RJ12) can connect to a PC by using the D2-DSCBL programming cable. The 9-pin connection of the D2-DSCBL cable can be connected to a serial port on a PC or to a USB to Serial adapter (USB-RS232, as shown below).

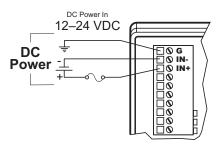


Step 4: Apply Power to the PLC



WARNING: Minimize the risk of electrical shock, personal injury, or equipment damage. Always disconnect the system power before installing or removing any system component.

Once all of the power wiring has been completed and verified, connect the appropriate voltage source to the power supply and power up the system. The BRX MPU will perform a self-evaluation once power is applied.



The following summary explains the basic steps needed to get the BRX MPU ready to establish a link for programming and running a project.

NOTE: Please see Chapter 1 for the power wiring diagram corresponding to your specific BRX MPU.

Step 5: Establish PC to BRX MPU Communications

The BRX MPU should now be powered up and the programming cable connected.



NOTE: The following example assumes that you are using the USB POM.



The first time the BRX USB POM is connected to your PC, you should see a message on your PC indicating that the driver for the USB device was successfully loaded:

When the USB connection is made, Do-more! Designer detects the USB POM and (a) creates a new link, shown in the (b) *Links* window of *Launchpad* area.

From the *Links* window (b) you can open, edit, or create a new link manually. You can also delete a link or get link information. For this exercise, we will work with the link that was generated automatically when the USB POM was inserted.



- 1. We are now ready to go online with the MPU. In the (a) *Links* section of the (b) *Launchpad*, select the (c) USB link; in this example it is called BX-DM1E-X 00:3A. Click on (d) **Open** button.
- 2. Once connected to the MPU, you may encounter the initialization screen shown below. This will appear on first initialization of a new MPU. Select **Set PLC Clock** to set the clock in the new MPU to be synchronized with your PC clock.

	Do-more controller that has been cleared, needs to have its internal, et PLC Occk button to set the Current Time, the Time Zone and nt option.
	Set PLC Clock
Dont show this again.	CEack Next > Cancel

The Set PLC Clock option allows you to set the internal, real-time clock of the BRX MPU. The Set PLC Clock window has options for (b) Timezone and (a) Daylight Saving Time adjustments. Select (c) Set to PC's current time settings... then select (d) Set PLC Clock and Exit.

Clock Settings	PLC Clock Notes:
© Set to PC's current time settings	Do-more CPUs store time internally in UTC, but adjust
11/11/2016 06:39:49	for local time using a timezone adjustment specified in minutes.
UTC -5:00 (-300 minutes)	Do-more CPUs adjust local time for Daylight Savings
Daylight Savings Time : OFF	Time, but this is only done manually, to avoid conflict with widely varying laws.
C Set to manual settings	Time zone can be adjusted at runtime by changing the
Date: 2/26/1970 👻	system variable \$TimeZone (DST384). Remember that the timezone is specified in minutes relative to UTC.
Time: 12:44:57 PM	For example: US Eastern Standard is UTC - 300 minutes, so \$TimeZone would be -300.
Timezone: 0 in minutes	Daylight Savings Time can be adjusted at runtime through the system variable \$SummerTime (ST768). Setting it to 'true' automatically adds 1 hour to the
🔲 Daylight Savings Time (+1 Hr)	local time.
Read PLC Settings	
O Set PLC Clock and Exit	Cancel

Open	Save	New	Backup	Dashbo
1	2	1	5	Alle
Read PLC	Write PLC	New	Online [)o-more/Sii
Launchpad	b			
Projects:	0			
	Do-more Sim			.DMD
New Proje	ts\βatchDat	a One.d	md	
Open	New	De	move	Folders
			nove	rolders
Applications				
Do-mor				A DBWi
	e Simulator			BRX (
Do-mor				
NetEdit				205 0
IPConfi PEN-				Term
Do-mor	e version aner1 5.ini			Visit /
T DMLoar				Host
				_
- I				+
Run				
Links: (2				
MySin	1			
BX-DI	11E-x 00:3A	\bigcirc		
		\mathbf{U}	,	
(D)				
W				
Open	Edit	Nev	v Link	
Delete	Info			
100				

File View Help

4. The option for **Setup System Configuration** appears next (below). This allows you to configure parameters of the BRX MPU, such as onboard communication port configuration, I/O configuration (i.e. high-speed), and mapping. Select **Setup System Configuration**.

system configuration when it is button to display the current sy operations: * configure the CPU's onboa * configure the I/O System * configure the Modules that	t require additional setup information t allow access to the CPU's ports and to any specialty I/O Modules
	Setup System Configuration
Don't show this again.	< Back Finish Cancel

5. The *System Configuration* window appears next with the (a) *CPU Configuration* selected by default. This window and those indexed in the (b) *Configuration Entries* tree on left, expose many of the system operating parameters for your MPU. For purposes of this introduction we will accept the default settings. Click (c) **OK**.

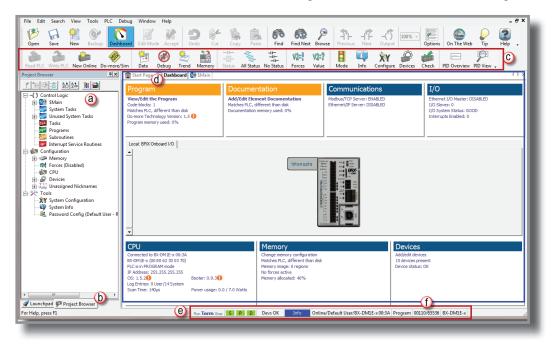
PU Configuration	- Serial Port Configuration	- Internal Ethernet Port Configuration	Ethernet I/O Master
BRX Local I/O Master BRX Onboard I/O odule Configuration(s)	Protocol (© Do-more Protocol (For Programming, HMIs, etc)	IP: 255.255.255 Net Mask: 255.255.255 Configure	CPUs with an internal Ethernet port can use that port to connect to compatible Ethernet I/O slave devices.
evice Configuration O Mappings emory Configuration	C K Sequence Server (Emulates DirectLogic PLCs) C Modbus RTU Server	CPUs with Ethernet can enable a second programming connection on a different UDP port number.	Enable Ethernet I/O Master Modbus/TCP Server Configuration
	' (Slave) C Modbus RTU Client (Master)	UDP Port Number: 5000 0x1388	Do-more CPUs equipped with Ethernet ports can provide a Modbus/TCP Server.
	Program Control C (Uses STREAMIN/STREAMOUT for ASCII and Custom Protocols)	, TimeSync Configuration	Server can support a maximum of 16 concurrent sessions. Use the fewest required concurrent sessions to reduce scan time and improve scan consistency.
	Change @IntSerial Device Settings	Do-more CPUs equipped with Ethernet ports can automatically synchronize their internal docks. Select:	Enable Modbus/TCP Server
	(* RS232 (Pin1:0V, Pin2:RX, Pin3:TX) (* RS485 (Pin1:0V, Pin2:D+, Pin3:D-) (* RS485 (Pin1:0V, Pin2:D+, Pin3:D-) (*)	Disable' to turn off this feature 'Client' to listen for TimeSync messages 'Server' to broadcast TimeSync messages 'Alternate' for a client that reverts to server if server is offline.	Maximum Concurrent Sessions: 4 1 - 16 Client Inactivity Timeout: 60 seconds TCP Port Number: 502 (502 is default)
	POM Configuration	For servers or alternates, you may specify the time in minutes between updates.	EtherNet/IP Explicit Message Server
	Setup POM	Client Cserver Update Interval:	CPUs with an Ethernet port can provide an EtherNet/IP Explicit Message Server that provides unconnected explicit messaging (UCMM) access to Do-more memories.
	Sets the initial timeout value. Value can be changed at runtime by modifying DST23 (\$WatchdogTimeVal).	C Alternate 60 min	Enable EtherNet/IP Server
	The valid range is 50-65535 ms. Default Timeout: 1000 ms		Etherweight Settings
		Cancel Help	

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The Setup System Configuration box reappears. Select Finish button to move to next step.

Setup System Configuration	system configuration when it is powen button to display the current system c operations: configure the CPU's onboard port configure the I/O System configure the Modules that require	
	Se	tup System Configuration
☐ Don't show this again < Back Cancel	Don't show this again.	< Back Finish Cancel

6. The *Project Browser* (a, b), including the *Dashboard* (d), will open with the online toolbar (c) active. Notice the status bar indications (e, bottom of window) show the MPU type, memory usage, communication status, errors, and mode, etc. Hovering your mouse over the status bar (e) will highlight the items that are selectable. If you select one of the items, a new window will open with real-time data and available options.



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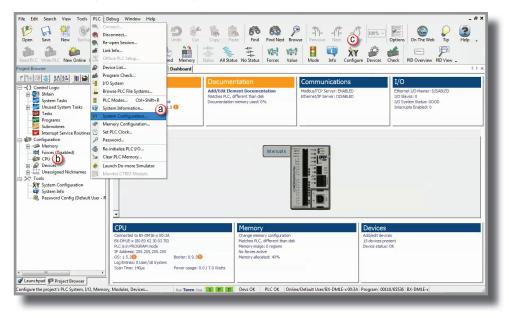
For example, the System Information window seen below, opens after selecting the memory usage values (f) in the status bar. This information and much more can be accessed by way of the Dashboard, a new addition to the Do-more! Designer software.

	Memory Usage	CPU Version Information
LC Type: BX-DM1E-x Number: 00 E0 62 30 03 70	Max Program: 65536	Do-more: 1.5.0 Update
Number: 00 E0 62 30 03 70	Program Used: 0	OS: 1.5.2*
	Max Documentation: 1048576	Booter: 0.9.3 * Update
eyswitch: TERM	Documentation Used: 0	FPGA: 1.3
.C Mode: Program	System Clock	Hardware: 1B
Times n: 140 us Reset	Date: 11/11/2016 Time: 08:49:08	Use Live Update to get Firmware
9: 140 us	Time Zone: UTC -5:00 DST: OFF	Program Version Information
x: 496 us Reset	Set	Do-more: 1.0.0
and IP Configuration		Show Do-more Technology Versions
dule ID: 0	IP Address: 255.255.255.255	
Name: H1-DM1x	Subnet Mask: 255.255.255.255	
scription: Do-more PLC!	Gateway: 0.0.0.0	
	Set Node and IP Configuration	
	OK Hel	

Step 6: Verify Hardware Configuration

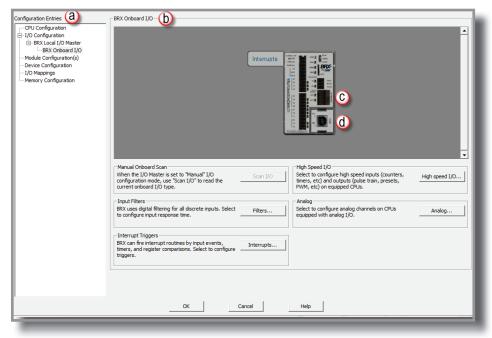
Next we will verify the hardware configuration. The BRX series has an auto discover feature that will automatically detect installed I/O modules. You can access the System Configuration in three ways:

- 1. By selecting (a) PLC > System Configuration
- By double clicking on the (b) CPU link under the Configuration tab in the Project Browser
- 3. By clicking the (c) X/Y Configure icon on the project toolbar.



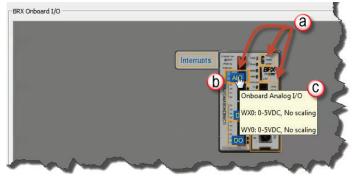
10

On the left side of the System Configuration window is an index of topics titled (a) *Configuration Entries*. The (b) *BRX Onboard I/O* allows you to view the modules the software has detected. For this example, we are working with a BX-DM1E-10ER3 MPU and no expansion I/O. This unit has a built-in (c) Ethernet port and a (d) USB POM plugged in which show up in the overview graphic.



The (a) BRX Onboard I/O graphic area is interactive, like the system *Dashboard*, and as you hover and move across the image (b) "orange" boxes will appear and display information about the highlighted section.

Also if the highlighted be section can configured you can click in the highlighted area and a configuration screen will pop up. For example hovering over (b) the built-in analog I/O hot spot, a pop up will display information on how the analog I/O is configured.



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After the hardware configuration is verified, select (a) the *I/O Mappings* option in the *Configuration Entries* index. This option will display (b) the assigned addresses for the available I/O, as seen below.

PU Configuration	Slot	Mod ID	Mod Description	Slot I/O	X Map	Y Map	WX Map	WY Map					
O Configuration	🗐 0 - E	0 - BRX Local I/O Master ()											
BRX Onboard I/O													
lodule Configuration(s)		0 - BRX Onboard I/O - Right Click to edit base's default map addresses (X0, Y0, WX0) 0 96 BX-10ER3-D 6X/4Y/1WX/1WY X0-7 Y0-7 WX0-0 WY0-0											
evice Configuration		1 *Empty*	DX-10EK3-D	08/41/108/10	1 20-1	10-7	W//0-0	1010-0					
lemory Configuration		2 *Empty*	b	Edit Base's Default Map Addr	24224	23							
				Specify the default address for automatically mapping. This allo a specific I/O range without hav each module.	ws mapping a base	to							
				Master: 0 - BRX Local I/O Mas	ter	_							
				Base: 0 - BRX Onboard I/O		_							
				(C) X Starting Address:	x0 •								
				Y Starting Address:	Y0 •								
				WX Starting Address:	WX0 •								
				WY Starting Address:	WY0 •								
				\square									
	Mapping	Mode		ОК	Cancel								
			PLC automatically assigns	Automatically assigned a	ddresses are		es that exceed me	mory config are					
	_	-	sses to each slot.	shown in gray.		shown in l	bold red.						
			u may enter the desired as for one or more slots.	Manually assigned addre black.	sses are snown in	Clear man	ual entry to retur	n it to auto.					
	G 44	to C Manua	Clear Manual Entrie	Map range overlaps are shown in red.	errors, and are								
	- AU	ito s Mariua											
			ок	Cancel He									

These (c) X (discrete input), Y (discrete output), WX (analog input) and WY (analog output) addresses are automatically assigned by Do-more! Designer. You have the option to manually configure these addresses by selecting (d) *Manual* in the Mapping Mode section at the bottom of the window or by right clicking (g) *BRX Onboard I/O*. Change default starting address in (e) *Edit Base's Default Map Addresses* dialog box. Click (f) **OK** when completed to close *Edit Base's Default Map Addresses* dialog box.

The (a) *Manual Mode Instructions* section, also found at the bottom of the window, details the various color indications associated with this mode.

		<u>a</u>	
	Mapping Mode	Manual Mode Instructions	
	In "Auto" mode, the PLC automatically assigns image register addresses to each slot.	Automatically assigned addresses are shown in gray.	Map values that exceed memory config are shown in bold red.
	In "Manual" mode, you may enter the desired image register address for one or more slots.	Manually assigned addresses are shown in black.	Clear manual entry to return it to auto.
	Auto C Manual Clear Manual Entries	Map range overlaps are errors, and are shown in red.	
1	Ю ок	Cancel Help	

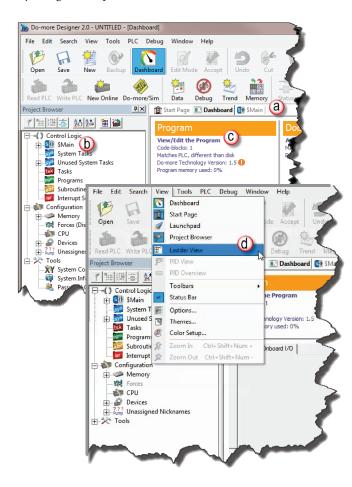
Once the hardware and mapping is configured and verified, click (b) **OK** to return to the main screen, displaying the *Dashboard* and the *Project Browser*.

Step 7: Create a Ladder Logic Program

In order to create a ladder logic program, you will need to be in **Edit Mode**. All programs start with a default *\$Main* code block. We will be adding our ladder logic to this code block.

We can get to the *\$Main* code block four different ways:

- 1. By selecting the (a) \$Main navigation tab.
- 2. By double clicking on the (b) *\$Main* option under the *Control Logic* section of the *Project Browser.*
- 3. By selecting (c) View/Edit the Program under the Program section of the Dashboard.
- 4. By using the drop-down menu (d) View > Ladder View, as seen below.

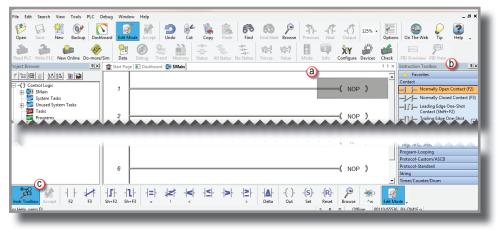


When in (a, b) *Edit Mode*, the ladder palette toolbar (c) and all of the ladder (d) *Instruction Toolbox* options will become active. The cursor will be positioned on (e) Rung #1 and highlighted.

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Read PLC Write PLC New Online Do-more		
Project Browser 9	🟦 Start Page 🔳 Dashboard 🚯 SMain 4 🗠	× Instruction Toolbox (D) 🔍
「 ※ (説 本) <u>なんた</u> 第 論 □() Control Logic □() SMain 	(NOP)	Favorites Contact Normally Open Contact (F2) Normally Closed Contact (F3)
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Configuration Memory Arres Arres CPU	3 (NOP)	Analog/Process CTRIO Date/Time/Calendar Ethernet
Devices Construction Devices Construction Construction System Configuration	4 (NOP)	Ethemet File System Hardware/Device High Speed/Axis
System Info	5 (NOP)	Math Misc/Data Manipulation Program Control Program-Looping
	6 (NOP)	Protocol-Custom/ASCII Protocol-Standard String Timer/Counter/Drum
Instr Toolbox For Help, press F1		Mode - 536 BX-DMLE-x
and the second		

Rung #1

Place the cursor box in the (a) NOP position on Rung #1. If the (b) *Instruction Toolbox* is not open, click on the (c) *Instruction Toolbox* button from the ladder palette toolbar.





Now, you are ready to begin entering the example ladder logic.

Click on the section heading (a) Timers/Counters/Drums and (b) double click or drag/drop the TMR instruction.

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Read PIC: Write PLC New Online Do-more/	Sim Data Debug Trend Memory	All Status All Status No Status Forces Value Ma		PID Overview PD View
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- 🥶 System Info - 😹 Password Config	5	Proviet/rithounes partnersy the text Prove the rithouse "Other watches" Proviet and the second seco	(NOP)	String Timer/Counter/Drum ⓐ DRUM - Timed/Event/Timed-Event ▲ Drum FREQCNT - Frequency Counter FREQTMR - Frecuency Timer
	6	Rolikol Unasel Profilestused	(NOP)	OFFDTMR - Off Delay Timer ONDTMR - On Delay Timer RSTCT - Reset Counter RSTT - Reset Timer TMR - Timer
	7		(NOP)	TMRA - Accumulating Timer TMRADOWN - Accumulating Down Timer TMRAG - Global Accumulating Timer TMRAG - Global Accumulating Timer
HTO Instri Toolbox For Help, press F1	 } } Sh+F2 Sh+F3 = 1 <	+≤+ +>+ +≥+ +▲+ -(.)(.) → Delta Out S	S) (R) P (M) (d) (d) (d) (d) (d) (d) (d) (d) (d) (d	BX-DM1E-x

Or you can type "T" while the cursor is on the (c) NOP position and select TMR from the drop down menu, then press **Enter**.

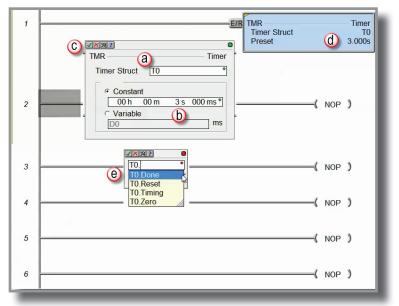
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TCPLISTEN	
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TDOPLS	
TDOPRESET	
TIMEPROP	
TMR	N
TMRA	45
TMRADOWN	
TMRAG	
TMRDOWN	
TOBCD	

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Once the TMR is selected, a Timer dialog box appears.

- 1. Set the (a) *Timer Struct* to T0
- 2. Enter 03 into the (b) Preset Constant Value for the seconds (s) preset.
- 3. Click on the (c) green checkmark in the upper left corner to accept.

After clicking the checkmark, Rung #1 should show the (d) T0 timer (TMR) instruction with a **Preset** of 3.000 seconds. A user variable can be assigned to the **Preset** value if needed, to allow the timer preset to be set from an external source.



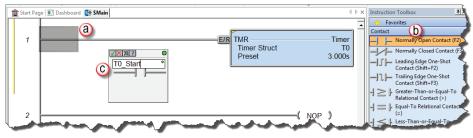
Since a Timer is a structure, it has predefined elements associated with it, such as "Tx.Acc" (accumulated time), "Tx.Done" (the completion bit) and "Tx.Timing" (the timer is enabled and timing).

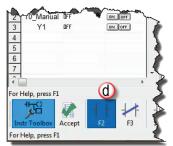
Therefore, if **T0**. (the "period" must be used to open drop-down list) is entered into any contact name, the Auto-Complete feature of Do-more! Designer will display all applicable bit (Boolean) selections available for that structure. Selecting (e) the *T0.Done* element, as seen above, will assign this element to the contact and the contact name will be **T0.Done**.

This feature works for all structures including: timers, counters, PID loops and strings. Many system data types such as, \$Main and \$FirstScan, as well as user-created devices like ECOM, CTRIO, or SERIO modules also use the Auto-Complete feature. See the Do-more! Designer Help file topic DMD0327 for more information on structure members.

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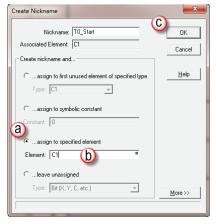
Place the cursor in the (a) leftmost column of rung #1. Type the nickname *T0_Start* at the (a) cursor position. The (c) Normally Open contact instruction (b) will be used by default as the nickname is entered. Press Enter.



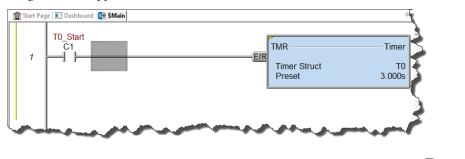


Another option is to select the (d) Normally Open Contact instruction from the Ladder Palette Bar (F2 Hot Key) or (b) double-clicking or drag/drop from the Instruction Toolbox, enter *T0_Start* for the name, and click the (c) green checkmark in the upper left corner.

Either method will open the Create Nickname dialog seen here (Right). Select (a) the option ... *assign to specified element*, (b) type the desired memory bit for this contact (C1), and select (c) **OK** to accept.



Rung #1 should appear as shown below.



With the cursor in the position to the (a) right of contact T0_Start, begin drawing a branch circuit. Under the *Edit* drop-down menu, select *Wire*, then select (b) *Down*. Notice the shortcuts that are available for wire drawing. The wire could also be drawn using the shortcut: (c) *Ctrl+Down Arrow*. The (d) wire should now appear in your ladder.

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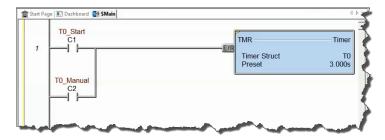
NOTE: There are also Delete Wire options in the Edit drop down menu that are used to erase any wires not needed.

Place the (a) cursor in the space to the left of the new line and select another normally open contact.

Type in the nickname (b) T0_Manual and (c) assign bit C2. Select (d) OK to accept.

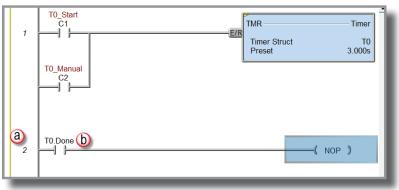
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		Create Nickname
l		Associated Element: C2 Cancel
2		Create nickname and
3		Type: T
Ŭ		Constant 0
4		C assign to specified element Element: C2 C 1 •
5		Cleave unassigned Type: Bit (X, Y, C, etc.)
6		(NOP) -

Rung #1 should look like this:



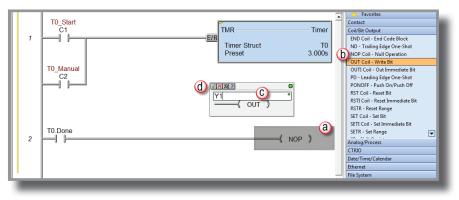
Rung #2

Place a normally open contact in the first position of (a) Rung #2. This contact will be tied to the Done bit of timer T0. Therefore, the name for this (b) contact should be entered as "T0. Done". There should be no Create Nickname dialog box as seen with the earlier normally open contacts.

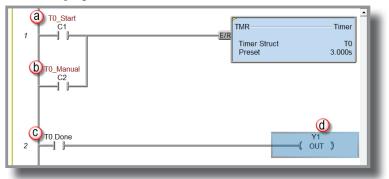


Lastly, you will need to add an **Out** coil to the end of Rung #2. Place the (a) cursor at the end of the rung highlighting NOP and either select **Out** from the Ladder Palette Bar, or type "OUT" and select the OUT instruction from the drop down menu. Another option is to (b) select the OUT instruction from the Instruction Toolbox under the Coil/Bit Output section.

Next, choose which bit will be tied to this coil. Tie this (c) coil to the physical output Y1 by typing "Y1" and clicking the (d) checkmark.

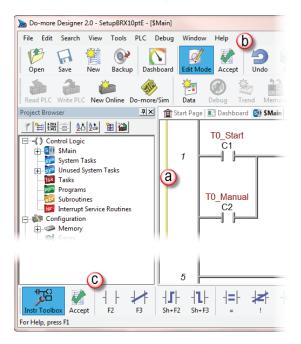


The ladder program should now look like this:



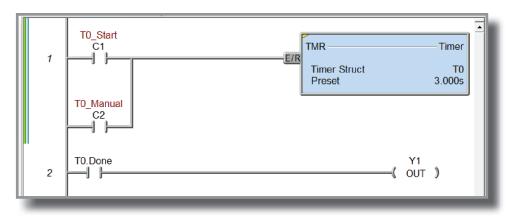
When either the (a) T0_Start or (b) T0_Manual contact is energized, the timer will begin timing. When it times out, contact (c) T0_Done will energize and the (d) output coil Y1 will turn on. Note that an END instruction is not required.

The (a) yellow bar in the left margin signifies logic that has not been accepted. So once you have verified your logic, click the (b) Accept button in the *Project Toolbar* or the (c) *Ladder Palette Bar* to accept the changes.



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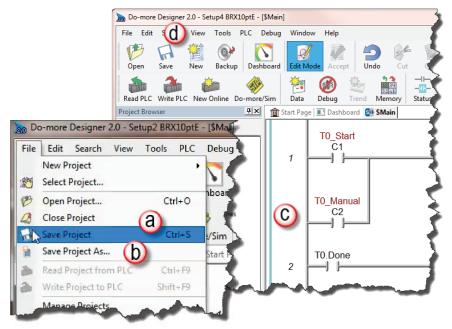
After selecting "Accept", the yellow bar should be replaced by green and blue bars (left margin). The green bar means the project has been accepted but not saved. The blue bar (only appears when online) means the project has not been downloaded to the MPU.



Step 8: Save Project

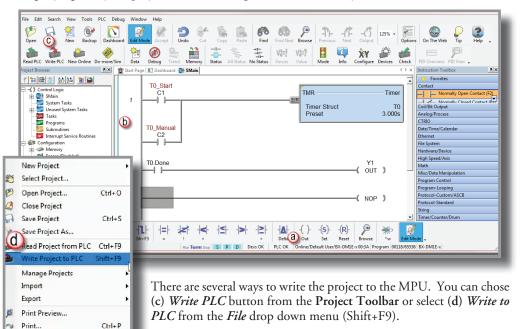
Save the project by selecting (a) Save Project from the File drop down menu (Ctrl+S), or save the file under a different name or in a different location by selecting the (b) Save Project As... option. You can also save the project by selecting the (d) SAVE icon on the Project Toolbar.

Once you save the project, the green bar on the left side of the ladder will disappear and the blue bar (c) will remain, meaning you have successfully saved the project to disk, but not yet downloaded to the MPU.



Step 9: Write Project to the BRX MPU

Now that you have created the example ladder logic program, you can write the program to the MPU. As a quick review, (a) check the status bar at the bottom of \$Main window to verify you are Online with the MPU. Also notice the (b) blue bar to the left of the ladder logic program signifying that your project has been Accepted and Saved and you are online with the MPU.



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Properties 1 Setup4 BRX10ptE.dmd 2 Setup3 BRX10ptE.dmd 3 SetupBRX10ptE.dmd 4 Setup2 BRX10ptE.dmd

Exit

Print All...

Print Setup...

When the **Write PLC** button is selected and the MPU is in program mode, the *Download Project to PLC* pop-up window seen here appears.

Download Project to PLC			
Portions of the project to be downloaded into the PLC			
Program Sys Config Doc	Memory Image		
Force download of Program, System Configuration, and Documentation Database	Download Memory Image Data Check All Regions		
	Uncheck All Regions Memory Image Manager		
Download Project to PLC			
Download Project in RUN Mode (Runtime Edit)			
Switch to RUN mode after download completes			
When in PROGRAM mode, do not bother showing this dialog next time (during this session), NEVER downloading any Memory Image			
OK Cancel Help (F1)			

When the BRX MPU is in (a) Program mode and you click on the (b) **OK** button, the project is written to the MPU. When the download is complete, the MPU remains in program mode. In this window, you can select (c) to switch the MPU to **RUN** mode after the download is complete.

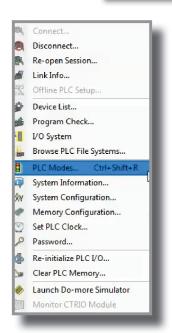
You can also select (d) not to display the *Download Project to PLC* window if the MPU is in program mode, keeping in mind that selecting this option will not download any Memory Image. Please view the Do-more! Designer HELP topics for details on the features available in the *Download Project to PLC* window.

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NOTE: It is good practice to verify that the process you are controlling can be interrupted before downloading a project to the MPU.

If you do not select the option to *Switch to RUN mode after the download completes*, you can switch to RUN mode manually several ways:

- Click on the MODE icon on the Project Toolbar
- Select PLC Modes from the PLC drop down menu or use the shortcut, Ctrl+Shift+R.



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Mode

Info

125% -

Output

Configure Devices

Options

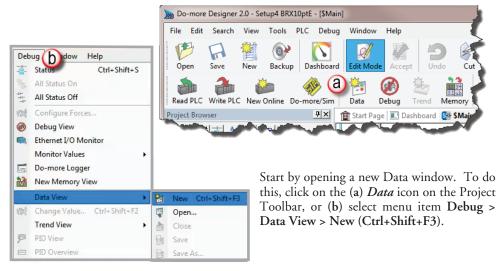
Check

• Click on (a) *Program* in the Status bar. This will bring up the *Select PLC Mode* pop-up where you can change the PLC mode by selecting the (b) **Run** radio button.

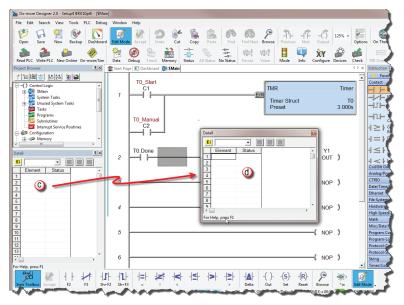
-A- -()- -(S)- -(R)- -(S)- -(R)- -(R)- <td< th=""><th>Set PLC Mode</th></td<>	Set PLC Mode
	DK Cancel Hep

Step 10: Testing Project Using Data View

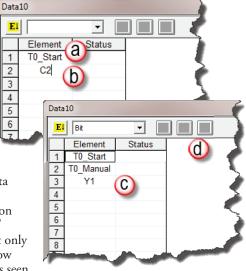
With the project successfully downloaded to the MPU and the unit in RUN mode, you can now test the function of the ladder program using the Data View tool.



The **Data View** window shown below (c) will open. This window will open in the project browser section of the programming window but it can be (d) relocated anywhere on the screen by clicking the title bar and dragging it to a new location.



Now enter the elements that you wish to monitor. On line one type "C1" under the Element column and press Enter. You will see the C1 change to the (a) nickname associated with it, T0_Start. On line two (b) type the element "C2" (T0_Manual) and on line three (c) type "Y1". Notice the three icons (d) at the top right in the data window are grayed out. This will change in the next step.



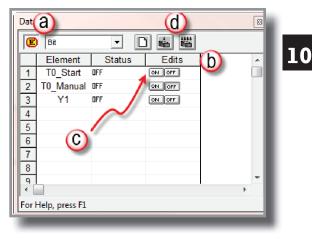
With the ladder elements entered into the Data View window, you now need to activate their status. To do so, (a) click the *All Status* icon on the **Project Toolbar**, or (b) select *Debug* > *All Status On*. The *All Status On* option will not only activate (c) the *Status* of the **Data View** window but also the status of the (d) ladder program as seen below. The timer structure now shows the status of its structure elements, including the accumulated value.

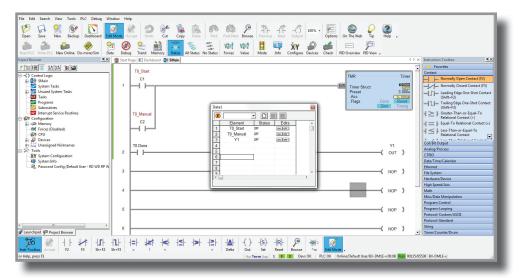
noject Browser	All Status O Configure F Debug View Ethernet I/C Monitor Val Do-more Lo New Memo Data View	Ctrl+Shift+S n ff Monitor ues ugger ny View ue Ctrl+Shift+F2	Copy Paste All Status (a)	÷÷÷	V2=! V2= Forces Valu	Previous	Info Configure	2 6	ons O k PID × Instr
	₹ ₽ × 2	T0.Done					¥1	т)	Coil, Ana CTR Date Ethe File

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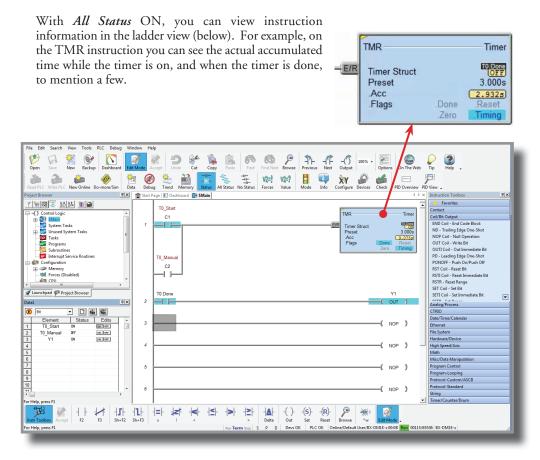
The next step is to enable edits within the Data View window. To do this, click the (a) yellow box with the Efound in the top left corner of the Data View window. The (b) Edits column is now added to the Data View window.

The Edits column allows you to make changes to the current values of the elements listed. T0_Start's current value is OFF. Double-click the (c) ON button under the Edits column. The (d) Write Current Edit and the Writes All Edits buttons will appear at the top of the window. The buttons will write individual or all edits, respectively, made in the Data View window to the MPU.





Click the *Write Current Edit* to PLC button and confirm it. This will write the new value to T0_Start. Once T0_Start changes to an ON state, the timer (T0) will begin to time and quickly reach the preset. As soon as the preset has been met the done bit, T0.Done, will turn ON causing output Y1 to also turn ON, as seen on the following page. Now write an OFF to T0_Start and watch as the timer and Y1 reset.



Congratulations, you have now programmed, downloaded, and tested a ladder logic program for the BRX Do-more MPU. Feel free to experiment with a program of your own and please remember that the software Help file is an essential tool to use when programming your controller.

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Do-more Designer Software and Firmware Updates

There will be times when an update is available for the BRX firmware or the Do-more Designer programming software. The Do-more! Designer software makes it very easy to download the updated files.

By default, checking for updates is done automatically each time Do-more! Designer is started. Do-more! Designer will check for updates to the programming software, the Help file content, Start Page content, new firmware for BRX Do-more and Do-more! controllers and new firmware for CTRIO(2) modules. An Internet connection is required to perform the check and to download the updates.

Updates				x
	Your software and firmware an	e up to date!		
Product	Туре	Your Version	Latest Version	
1				
		Download	Selected	Close

When updates are available, the user is notified through this dialog:

The automatic check can be disabled by opening the View -> Options menu, select the Global tab and uncheck the "Automatically Check for Updates on Startup" selection.

Options				~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
Data View	Doc Editor	Global	Ladder	Memory
Default View Dashboard Ladder View Launchpad	- Default Docking Po O Dock on Left		listory Generation Rate	
Start Page	C Dock on Right		Disable generation of	of Edit-History
 ✓ Display Toolbar Text ✓ Display Nicknames ✓ Automatically run Intii after clearing PLC ⊂ Automatically run Proi after successful Acce F9 - Element Selection When F9 kay hit in an Element Editor field, lau © Element Bicker Dia C Element Bicker Dia ⊂ Element Nicker Dia ⊂ Element Se Double-Click in Element Se 	gram Check pt Rungs Fool Preference nch: log jalog election Tool on	Automatically che Start Page Content Eearn to Do-more Do-more logo Do-more on the Blank Page		art Page

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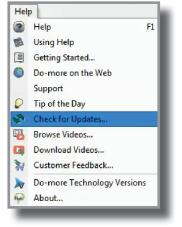
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To manually check for software or firmware updates, go to HELP -> Check for Updates.

Do-more Designer Help Topic DMD0310 provides detailed information on downloading the programming software updates, firmware updates, Do-more Designer Help System updates, and HTML/Documentation updates.

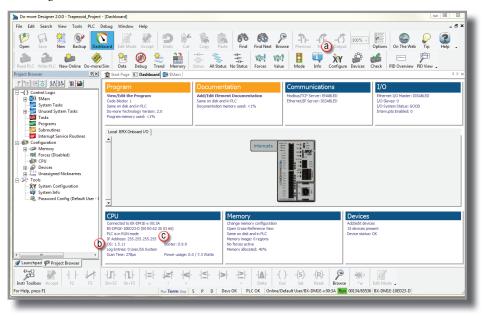
Updating the Firmware

NOTE: Downloading the firmware files does not automatically update the firmware of the connected BRX PLC. You must use the available tools to update the Operating System and the Gate Array and Loader. The available tools will indicate when the firmware is not up to date in the controller.



There are three ways to access the dialogs needed to update the Operating System and the Booter/Loader.

The first method is by using the (a) Info icon on the online toolbar. A second method is by selecting the (b) OS or (c) Booter links under the CPU section of the Dashboard.



The third method is through the menu, PLC -> Update Firmware.

When you select the Info icon on the online toolbar, the *System Information* utility (below) comes up. To update the controller firmware, use the section under *CPU Version Information*.

General Information System Status Eve Type	ent Logs Memory Usage	-CPU Version Information
PLC Type: BX-DM1E-x	Max Program: 65536	
Serial Number: 00 E0 62 30 03 66		Update
	Program Used: 132	OS: 1.5.11
Mode	Max Documentation: 104857	6 Booter: 0.9.9 Update
Keyswitch: TERM	Documentation Used: 596	FPGA: 1.5
PLC Mode: Run		Hardware: 1B
Scan Times	System Clock	Use Live Update to get Firmware
Min: 277 us Reset	Date: 12/12/2016 Time: 08:14:	
Avg: 278 us	Time Zone: UTC -5:00 DST: OF	F Program Version Information
Max: 972 us Reset	Set	Do-more: 2.0.0
Node and IP Configuration		Show Do-more Technology Versions
Module ID: 0	IP Address: 255.255.255.2	255
Name: H1-DM1x	Subnet Mask: 255.255.255.2	255
Do-more PLC!	Gateway: 0.0.0.0	

The CPU section displays the following information:

- **Do-more:** The current version of the instruction set in the controller.
- OS: The current version of the operation system in the controller.
- **Booter:** The current version of boot loader in the controller.
- **FPGA:** The current version of the Gate Array code in the controller.
- Hardware: The current revision of the controller hardware.

NOTE: An Asterisk (*) next to any of the numbers means that there is an update available for that particular portion of the firmware.





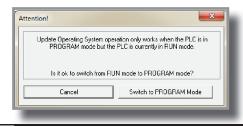
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• Click the **Update** button (a) adjacent to the Do-more & OS display to open the Update Operating System dialog.

Attention!	×
	eration only works when the PLC is in PLC is currently in RUN mode.
Is it ok to switch from RUN	I mode to PROGRAM mode?
Cancel	Switch to PROGRAM Mode



• Click the **Update** button (b) adjacent to the Booter & FPGA display to open the Update Gate Array and Loader dialog.



NOTE: If both the Booter and OS need updating, it is recommended to do both updates.

NOTE: DIP switch #3 (on MPU) is used to Enable/Disable the ability to update the firmware in the controller. This DIP switch must be OFF to allow Do-more Designer to update the operating system or the gate array. Please review Do-more Designer Help topic DMD0266 for information on the on-board dipswitches.

The dialog shown below is displayed when you use the OS or Booter link under the CPU section of the Dashboard or you use the menu PLC -> Update Firmware.

The Update Firmware dialog has the necessary tools to download new firmware files from

Operating System	Booter
OS in your PLC: 1.5.11	Booter in your PLC: 0.9.9
Newest OS on your computer: 1.5.11 ?	Newest booter on your computer: 0.9.9
Update PLC Operating System	Update PLC Booter
Check for New Firmware	Close

the Web and update the connected Do-more CPU.

The *Operating System* and *Booter* sections show the version currently running in the attached Do-more CPU and the latest versions of the firmware and boot loader files that have been downloaded to this PC.

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Click (a) **Check for New Firmware** (previous graphic). The *Live Update* tool comes up, which allows you to see if there is a newer firmware available, and if so to download the updated files. The *Live Update* tool is discussed later in this chapter.

Clicking (b) Update PLC Operating System (previous graphic) opens the Update Operating System dialog that shows detailed information about the attached CPU's operating system and Do-more Technology versions and selects the latest Operating System firmware file based on the connected Do-more CPU. The Update Operating System dialog is discussed later in this chapter.

Clicking (c) **Update PLC Booter** (previous graphic) opens the *Update Gate Array and Loader* dialog that shows detailed information about the attached CPU's Gate Array and Boot Loader versions and selects the latest Boot Loader firmware file based on the connected Do-more CPU. The *Update Gate Array and Loader* dialog is discussed later in this chapter.

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NOTE: If both the Booter and OS need updating, it is recommended to do both updates.

Live Update

NOTE: DIP switch #3 (on MPU) is used to Enable/Disable the ability to update the firmware in the controller. This DIP switch must be OFF to allow Do-more Designer to update the operating system or the gate array. Please review Do-more Designer Help topic DMD0266 for information on the on-board dipswitches.

Click the **Use Live Update to get Firmware** button to open the Live Update dialog. Live Update will utilize the Internet connection to check for new firmware files for the Do-more controllers and the CTRIO modules, then download any new files to the appropriate Bin\Images\< Device > folders.

-CPU Version In	formation -		N
Do-more:	2.0.0		
OS:	1.5.11	Update	
Booter:	0.9.9		
FPGA:	1.5	Update	2
Hardware:	1B		12
Use Live Up	odate to get	Firmware	ł
Program Versio	n Informatio	n	1
Do-more:	2.0.0		2
Show Do-mor	e Technolo	gy Versions	5

Click the **Go!** button to check for updated firmware files.

Click the **OK** button to close the Live Update dialog.

-	_	-	- 1
-	_	_	- 1
-	-	-	- 1
-		_	- 1
-			- 1

NOTE: Live Update requires a functional Internet connection to work. Make sure the Internet connection is active before running Live Update.

down	for the latest firmware for load them to the images d	Do-more controllers and irectory.
Prior to continuing ple	ease make sure your interr	net connection is active.
V	/hen you are ready, press	Go!"
	Update complete!	
odate complete!		
Go!		Stop
Go!		Stop

Update Operating System

When the dialog opens it will read the OS Version and Do-more versions from the currently connected controller, and from the latest operating system firmware file.

date Opera	ting System	×
	ready to update your PLC, pleas ' to continue. The most up-to-da	se select the desired operating system file, and ate file is pre-selected for you.
appens, Do-r his is normal,	nore Designer will report commun	e PLC will reboot itself automatically. When that nications errors since it cannot talk to the PLC. errors once the reboot is finished. After that, you pleted successfully!
Current Ope	OS Version: 1.5.11	Do-more Technology 2.0.0 Version:
New Operat	ng System Information	
OS File: Description:		ges\BX-DM1x\bxdm1x_1_5_11.os
Description	OS Version: 1.5.11	Do-more Technology 2.0.0 Version:
-Update Stat	us	
Current	Operation: Downloading image	to PLC RAM
Operation	Progress:	
	Update!	Cancel
_		

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Current Operating System Information

OS Version - the current version of the operation system in the controller

Do-more Version - the current version of the instruction set in the controller

New Operating System Information

OS File - the most up-to-date operating system firmware file in the default firmware folder

Select... - opens a *File Open* dialog to select an operating system firmware file. Operating System firmware files typically have the following form: "H2DM1x_<major>_<minor>_
build>.os"

Description - the current version information from the selected file

OS Version - the current version of the operation system in the selected file

Do-more Version - the current version of the instruction set in the selected file

Click the **Update!** button to begin the update progress. The last phase of updating the operating system is a reboot of the Do-more controller. While the controller is rebooting, the normal communication updates will fail, and the Link indicator on the Status bar will turn red. Once the controller has successfully rebooted, normal communication updates will automatically resume, and the Link indicator will return to normal.

Click the **Cancel** button to exit without updating the operating system.

Update Gate Array and Loader



WARNING! There is no fail-safe for the Gate Array and Loader update, which means, if the update process begins and then fails, ** DO NOT TURN OFF THE POWER**, keep trying the update process until it is successful. If you turn off the power without a successful update the controller must be sent back to the factory for repair (use the 'H/W Repair (RMA)' link at www.hosteng.com to request an RMA number for a Do-more CPU that fails to update the Gate Array and Loader).

	nere is no fail-safe FPGA and Loader image. If the update enters the ROM update ls, **DO NOT TURN OFF THE POWER** until successfully completing an update!
	ready to update your PLC, please select the desired image file, and press ontinue. The most up-to-date file is pre-selected for you.
Current Gal	e Array and Loader Information
	Booter Version: 0.9.9 Gate Array Version: 1.5
Descrip <mark>ti</mark> on	BX-DM1[E] Gate Array v1.5 and Loader v0.9.9 Booter Version: 0.9.9 Gate Array Version: 1.5
Update Sta	lus
Current	Operation: Downloading gate array image to PLC RAM
Operatio	n Progress:
	Update! Cancel

When the dialog opens it will read the Gate Array Version and Boot Loader version from the currently connected controller and from the latest Gate Array firmware file.

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Current Gate Array and Loader Information

Booter Version - the current version of Boot Loader in the controller

Gate Array Version - the current version of the Gate Array code in the controller

New Gate Array and Loader Information

GA File - the most up-to-date Gate Array firmware file in the default firmware folder

Select... - opens a *File Open* dialog to select a Gate Array firmware file. Gate Array files firmware file typically have the following form: "H2DM1x_<major>_<minor>_<build>.ga"

Description - the current version information from the selected file

Booter Version - the current version of Boot Loader in the selected file

Gate Array Version - the current version of the Gate Array code in the selected file

Click the **Update!** button to begin the update progress. When the Gate Array and Loader update is complete, you will see the following window with instructions to power cycle the PLC.

Success!	×
Gate array and loader updat	e complete!
Please power cycle the PLC	to load the new image.
	В ок

Click the **Cancel** (previous graphic) button to exit without updating the Gate Array and Loader.

DASHBOARD

The Do-more Designer Dashboard is a graphical representation of the PLC system. It is used to assist in the configuration of the various components of the system as well as for monitoring and troubleshooting after it is up and running. The following pages will be a quick overview on how to use the Dashboard. Please reference Do-more Designer Help topic DMD0415 for more detailed information.

	Documentation	Communications	I/O
w/Edit the Program le-blocks: 1 iches PLC, different than disk	Add/Edit Element Documentation Matches PLC, different than disk Documentation memory used	Modbus/TCP Server: DISABLED Ethernet/IP Server: DISABLED	Ethernet I/O Master: DISABLED T/O Slaves: 0
rore Technology Version: 2.0 () ram memory used: 0%		mmunications	I/O
I: BRX Onboard I/O	Mode	net/IP Server: ENABLER	Ethernet I/O Maste I/O System Status;
	þ a		Modbus/TCP Server is enabled. to configure it.
	Memory	-	vices

The dashboard is divided horizontally into three sections, top, center and bottom sections. The top and bottom sections consist of distinct panes each of which contain related items with current status of each. These entries (a) are also mouse-over links; as you move your mouse over an entry it will highlight in red and a pop-up text box will appear with more detailed information. Left click a link to open a dialog that addresses the configuration of that entry, or opens a monitor tool for that entry.

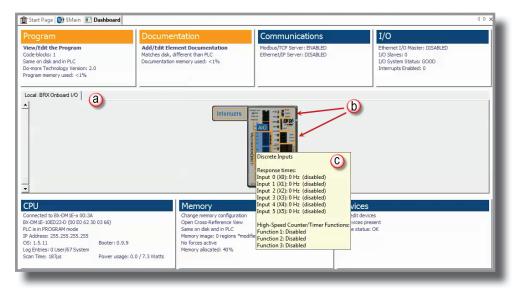
Entries (b) that have an orange (!) next to them indicate items that need your attention. For example, an orange (!) adjacent to the "OS: x.y.z" item in the CPU section indicates the firmware in the CPU is older than the firmware you have downloaded to this PC. Click the link to open the firmware update tool.

Some entries will have their text displayed with a yellow background to indicate the item is generating a warning message that may need your attention. For example, if you have Forces enabled and one or more items are currently being Forced to a value, the Memory section will display the "x forces active" text with a yellow background. Click this link to open the Configure Forces dialog to see what elements are being forced.

Some entries will have their text displayed with a red background to indicate the item is generating a warning message that may need your attention. For example, if an I/O module is reporting an error, the I/O section will display the "I/O System Status" text with a red background. Click this link to open the I/O System View to see an overview of the entire I/O system and locate the module that is reporting an error.

The center section contains a series of tabbed (a) graphical representations of the PLC system components. The leftmost (top) selection is the local CPU. There is an additional tab created for each Ethernet Remote I/O Slave. Any time the mouse cursor is in the center section (b) orange outlines (known as hotspots) will appear on the sections of the PLC system to indicate there is status information available for that area or configuration that can be performed.

Hovering the mouse cursor over any of the hot spots will display a popup that shows the current status of the item in that hotspot. For example, hovering over the DI hotspot (c) will display information on the response times configured for the discrete inputs and, if the unit supports high speed inputs, it will display how the high speed Counter/Timer functions are configured.



Left-clicking on the hot spot will display a popup menu that contains links specific to the configuration tools and information displays for that item. For example, left clicking on the **AIO** (analog I/O) hotspot, displays links to view onboard analog I/O values in Data View and a link to configure the analog I/O, as shown below.

Program	Docume		Communications	I/O
View/Edit the Program Code-blocks: 1 Same on disk and in PLC Do-more Technology Version: 2.0 Program memory used: <1%	Matches disk,	ment Documentation different than PLC n memory used: <1%	Modbus/TCP Server: ENABLED Ethernet/IP Server: DISABLED See onboard I/O in Data View Configure analog I/O	Ethernet I/O Master: DISABLED I/O Slaves: 0 I/O System Status: GOOD Interrupts Enabled: 0
Local: BRX Onboard I/O				
-				
✓		Memory	Devic	res

Right-clicking on the MPU or an expansion module will display a list of operations that can be performed on that module. For example, right-clicking on the MPU (below) gives the option to Change CPU Type, Connect to PLC, or Disconnect from PLC. The options will vary depending on the MPU family and module type.

Program	Docume	ntation	Communications	I/O
View/Edit the Program Code-blocks: 1 Same on disk and in PLC Do-more Technology Version: 2. Program memory used: <1%	Matches disk, Documentation		fodbus/TCP Server: ENABLED thernet/IP Server: DISABLED	Ethernet I/O Master: DISABLED I/O Slaves: 0 I/O System Status: GOOD Interrupts Enabled: 0
Local: BRX Onboard I/O				
v		The second secon	Change CPU Type Connect to PLC Disconnect from PLC	
CPU		Memory	De	vices
Connected to BX-DM1E-x 00:3A	0 3 66)	Change memory configuration Open Cross-Reference View Same on disk and in PLC Memory image: 0 regions *modified*	15 de	edit devices evices present ze status: OK

Help File

Accessing the Help File

The software Help file is available as a quick reference or detailed guide to the many features and capabilities of the Do-more! Designer software. This provides comprehensive support for you as a user of not only the BRX Platform but also the whole Do-more product family.

There are three ways to access the Help File:

- 1. Select the Help File icon from the Project Toolbar.
- 2. Choose Help from the Help menu drop down.
- 3. Use the shortcut F1 or press the (?) button or the Help button on the dialog that you need help with.



Notes: