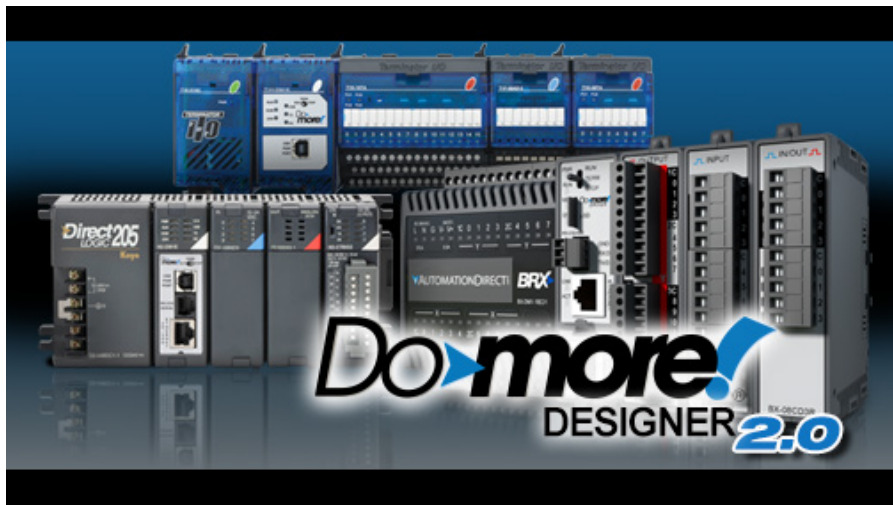


Do-more! Designer Programming Software

Do-more Designer (Part No. DM-PGMSW)

Do-more! Designer is a full-featured programming software. Do-more Designer is a free download from AutomationDirect.

com. A CD-ROM version is also available for purchase for \$10.00.



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 your PLC system using one of the following specifications. More detailed specifications can be found in the User Manual and Do-more! Designer software online Help files.

Do-more! Designer 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:

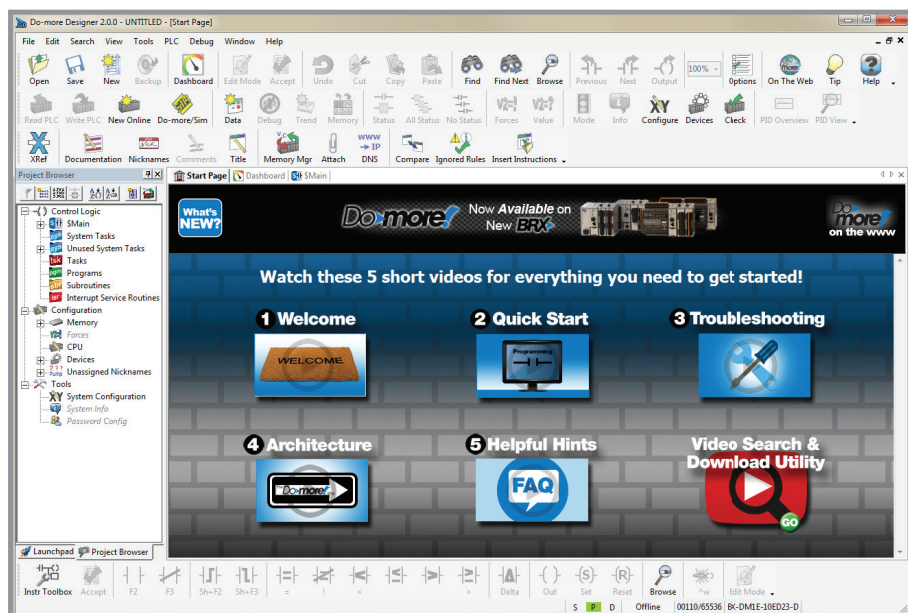
- HD Space: 140Mb
- Video: 1024x768 256 color (1280x720 true color recommended)
- 1GHz, single core CPU (2GHz, multi-core recommended)
- 1GB RAM (3GB recommended)
- Other: Windows® 8 RT Edition is not supported.



Do-more! Designer Overview

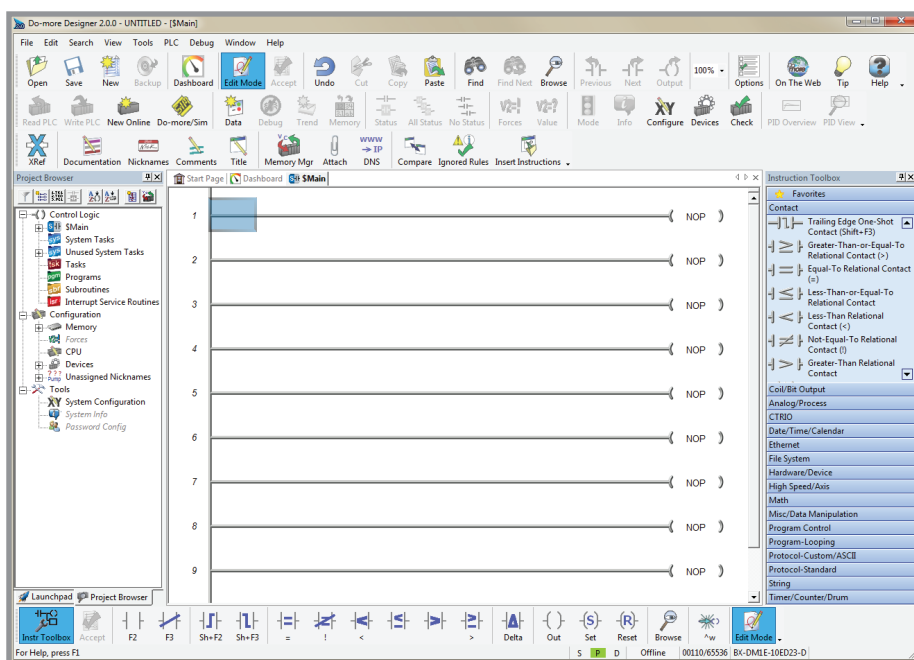
Start Page

When the software is started, the Start Page is displayed. This page contains a Launchpad with Projects, Applications and Links windows. It also contains shortcuts to important help file topics and the Do-more Simulator.



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



Do-more! Designer Overview

Do-more! Designer Features

Do-more! Designer has the following main features:

- Supports the Do-more PLC instruction set
- Project Browser (Window to organize the user project)
- Data View (Interface to monitor and edit PLC data in a list)
- Trend View (Interface to monitor PLC data with trend graphs)
- PID View (Interface to monitor and tune the individual PID control loop)
- PID Overview (Interface to monitor multiple PID control loops)
- Debug View (Interface to debug the ladder programs)

When Do-more! Designer is installed on your PC, the following tools are also installed:

- Do-more Simulator (Offline simulator of ladder program execution and PID control)
- Do-more Logger (Software tool to log PLC data)
- ERM Workbench (Configuration tool for the ERM modules)
- NetEdit 3 (Configuration tool for the ECOM/EBC Ethernet modules)

Programming Cables

The Do-more! Designer Software supports RS-232, USB and Ethernet protocols for programming and monitoring. Cables for these ports are listed below and can be purchased at Automationdirect.com.

USB Cables (USB 2.0, Type A-B connectors):

- USB-CBL-AB3 (3 ft.)
- USB-CBL-AB6 (6 ft.)
- USB-CBL-AB10 (10 ft.)
- USB-CBL-AB15 (15 ft.)

RS232 Serial Cable

- D2-DSCBL (12 ft. 9-pin D-sub to RJ12 connector)

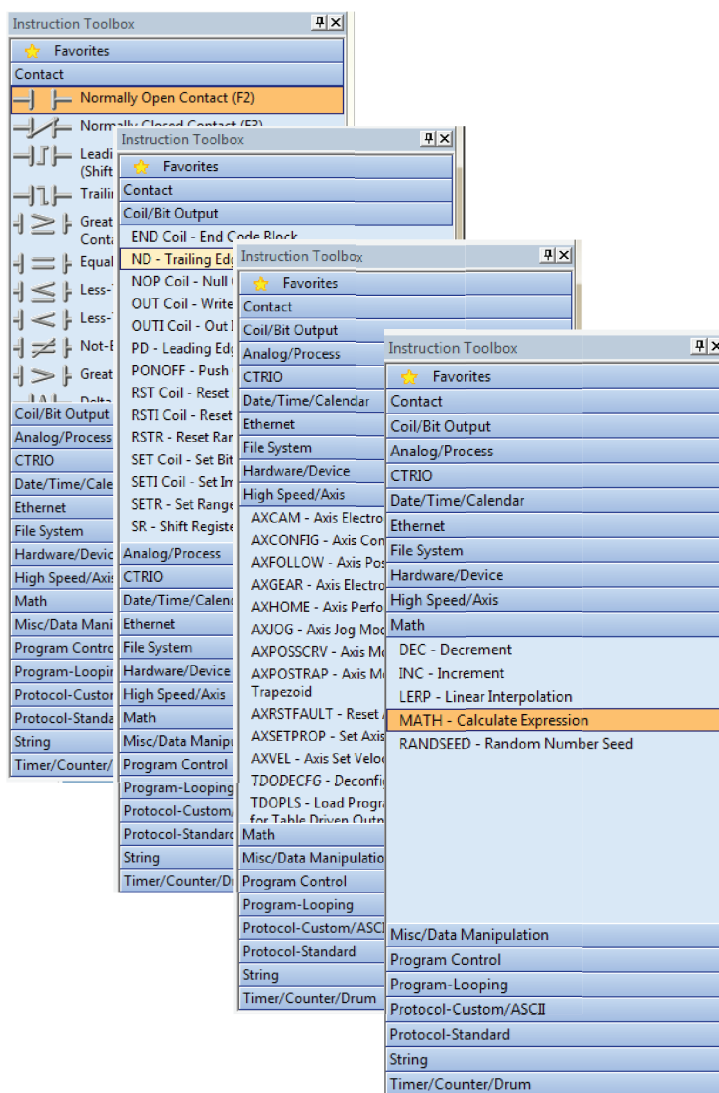
Ethernet Cables (Cat5e)

Automationdirect.com sells many Ethernet patch cables in various colors and lengths. Please check the Cables section in this catalog for further details.

Do-more! Designer Overview

Do-more PLC Instruction Set

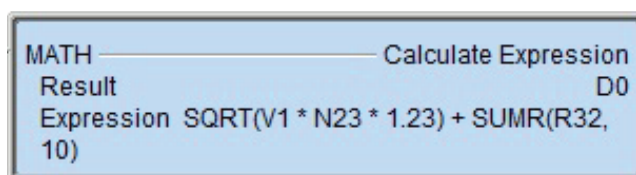
The Instruction Toolbox was developed specifically for the new Do-more! Designer. The Instruction Toolbox allows one-click access to all available instructions.



You may see some similarities to the DirectLOGIC PLC instruction set. However, the instruction set for the new Do-more! is more advanced and intuitive. A good example is the MATH instruction. Now, just one MATH instruction covers all math operations and also allows you to mix different data types in one expression.

There are over 60 operators and functions available with the MATH instruction.

NOTE: To learn more about the MATH instruction, please refer to the Do-more! Designer help topic 'MATH – Calculate Expression'.



Operators

+, -, *, /, %, **, <, <=, ==, !=, >=, >, &&, ||, &, |, ^, <<, >>, >>>, ~, !

Functions

ABS, ACOS, ASIN, ATAN, AVGR, COS, COUNTIFEQ, COUNTIFNE, COUNTIFGE, COUNTIFGT, COUNTIFLE, COUNTIFLT, DEG, E, FRAC, IF, LN, LOG, MAXR, MAX, MINR, MIN, NOW, PI, RAD, RANDINT, RANDREAL, REF, ROUND, SIN, SQRT, STDEV, STDEVPR, SUMIFEQ, SUMIFNE, SUMIFGE, SUMIFGT, SUMIFLE, SUMIFLT, SUMR, TAN, TICKms, TICKus, TOINT, TOREAL, TRUNC

Do-more! Designer Overview

Data Types

Do-more! Designer supports the following seven primary data types:

- Bit (0 or 1)
- Unsigned Byte (0 to 255)
- Signed Byte (-128 to 127)
- Unsigned Word (0 to 65,535)
- Signed Word (-32,768 to 32,767)
- Signed DWord (-2,147,483,648 to 2,147,483,647)
- Real (-3.4028235E+038 to 3.4028235E+038)

Data Structures

Do-more! Designer supports data structures as additional data types. Structures use the familiar PC programming organization of “dot notation”. All available elements of a structure are shown in this format. The following data structures are currently available:

- Timer Structure
- Counter Structure
- String Structure
- PID Structure
- Date/Time Structure
- Task Structure
- Rampsoak Structure
- Program Structure
- DeviceRef Structure
- Drum Structure
- Stream Structure
- SIM_Process Structure
- Server Structure
- Peerlink Structure
- I/O_Master Structure
- Eth_IO_Master Structure
- GS Drive Structure
- Packet Structure

The data structure is a set of data. For instance, a Timer structure (Timer Struct) has the following set of data:

- Acc (Accumulated Time, Signed DWord)
- Done (Bit)
- Zero (Bit)
- Timing (Bit)
- Reset (Bit)

When you use a timer instruction (TMR), a Timer structure is assigned to the instruction. If you select 'T0', you can access the above data with dot notation. For instance, to access the accumulated time (Acc), enter 'T0.Acc'. To access the Done bit, enter 'T0.Done'.

Memory Addressing

With Do-more!, each memory address type has its own specific data type. Here are some examples:

- V (Unsigned Word)
- N (Signed Word)
- D (Signed DWord)
- R (Real)

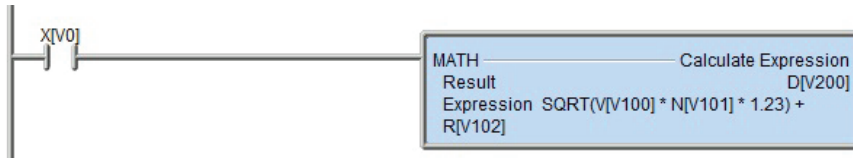
If you see address 'V123' in the ladder program, the memory address always stores an Unsigned Word value. With this memory addressing method, it becomes easier to read and write the ladder programs.

Although most of the memory addressing is decimal, the memory addresses DLX, DLY, DLC and DLV use octal. These four memory address types can be used to exchange data with BRX or DirectLOGIC PLCs, which use octal memory addressing.

Do-more! Designer Overview

Array Addressing

The Do-more! Designer supports one-dimensional array addressing with all memory addresses. A V-memory address must be used as the index for an array. With Do-more! the following ladder program is valid.



Note: In this example, V0, V100, V101, V102 and V200 are indices.

Code-block, Program and Task

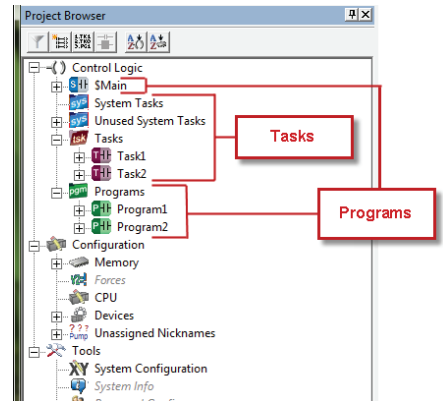
One Do-more project can consist of more than one ladder program. Each ladder program is called a 'Code-block'. Do-more! supports two types of code-blocks, Program and Task:

Program

Programs are code-blocks that run based on an event using the RUN instruction. They can be self-terminating or never terminate. Stage programming is only supported inside Program code-blocks.

Task

Tasks are code-blocks that are enabled and disabled using the ENTASK instruction. The ENTASK instruction allows you to specify an interval to execute the task's logic with a millisecond resolution or to execute a single time on a leading edge input.



Stages

The Do-more! Designer supports Stages. You can use Stages only in the Program code-blocks. (They are not available in the Task code-blocks.) Do-more! supports the following instructions for Stage Programming¹:

- SG (Stage)
- JMP (Jump To Stage)²
- JMPI (Index Jump)
- SGSET (Enable Stage)
- SGRST (Disable Stage)
- SGRSTR (Disable Range of Stages)
- SGCONVRG (Converge Multiple Stages to SG)
- SGDIVRG (Jump to Multiple Stages)



1 There is no ISG (Initial Stage) instruction in Do-more!; the first stage in the Program code-block becomes the initial stage automatically.

2 Many asynchronous instructions can directly initiate a Jump to Stage.

