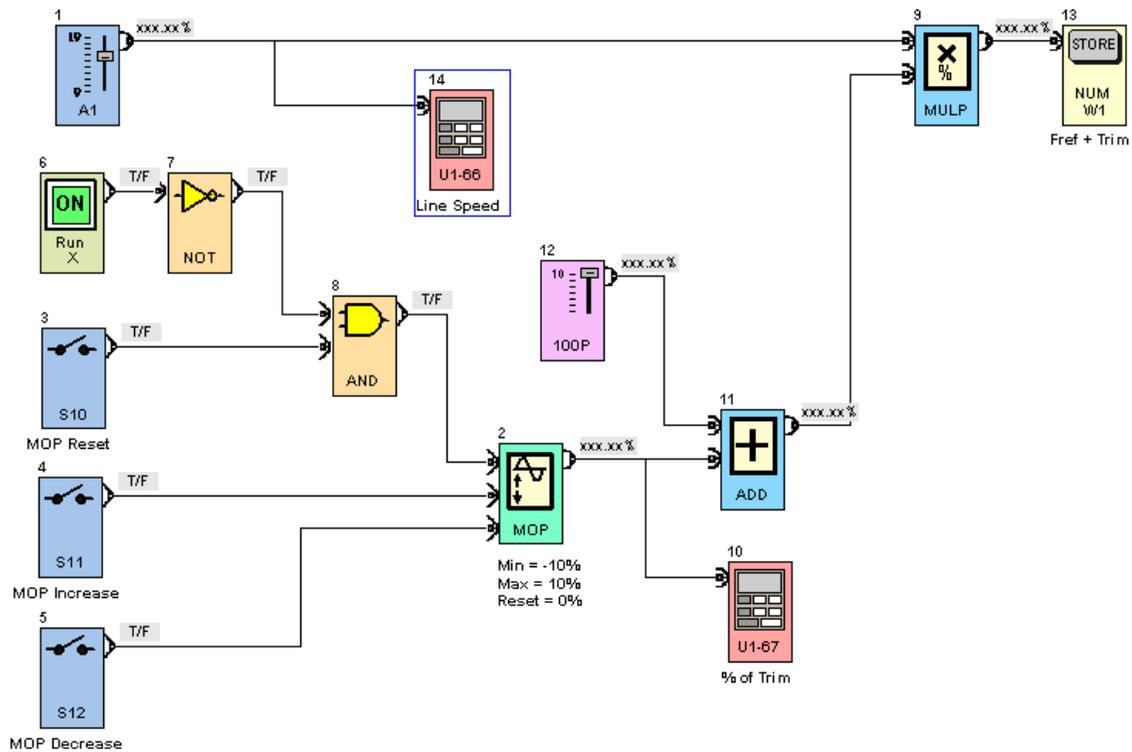


DriveWorksEZ Application Guide

For the DriveWorksEZ Standard Self-guided Video Training & DriveWorksEZ Pro Remote Demo



Document Number: TRM021-DWEZ-Selfguided

Version: 1.01

Date: 2/2/2017

Chapter 3

Exercise 1 – Simple Widget Machine Control:

1. *Create a new project called “Exercise 1” and include your name and company name with the Project.*
2. *Create a project page called “Page One”.*
3. *Use the blocks we have described so far to accomplish the following:*
 - *2 Digital Inputs (Terminals S6 & S7) Terminal S6 will be designated as “Run”, and terminal S7 will be designated as “Run Prohibit”. The drive will run ONLY if Terminal S6 is closed and Terminal S7 is open.*
 - *2 Analog inputs added together (Terminals A1 & A3) will become the frequency reference.*
4. *Successfully compile and download the project to a drive (if available).*
5. *Run the drive while monitoring with the DWEZ PC Tool.*
6. *Verify proper program operation before proceeding.*

Chapter 5

Exercise 2 - Trolley Car Control:

1. *Create a new project called "Exercise 2" and include your name and company name with the Project.*
2. *Create a project page called "Over travel Control".*
3. *Use the blocks we have described so far to accomplish the following:*
 - *1 Analog input (Terminal A1) will become the speed reference.*
 - *2 Digital inputs (Terminals S1 & S2) will become Fwd & Rev run*
 - *2 Digital inputs (Terminals S6 & S7) will become N.C. Over travel Switches.*
 - *When the "FWD Over travel" switch is "tripped" only reverse operation will be allowed.*
 - *When the "REV Over travel" switch is "tripped" only forward operation will be allowed.*
 - *1 Digital output (Terminal M5-M6) will close whenever either over travel switch is "tripped".*
4. *Successfully compile and download the project to the demo unit.*
5. *Run the demo unit from the Virtual I/O while monitoring the status of the M3-M4 output with the DWEZ PC Tool.*
6. *Verify proper program operation before proceeding.*

Chapter 6

Exercise 3 – Follower Reference:

1. Create a new project called "Exercise 3" and include your name and company name with the Project.
 2. Create a project page called "Follower Ref".
 3. Use the blocks we have described so far to accomplish the following:
 - Generate a frequency reference for another drive that will follow this drive's motor speed with a +/- trim (draw).
 - Frequency reference for follower should be based off of MOTOR SPEED.
 - Trim amount should be entered via a parameter.
 - EXAMPLE: Motor speed = 50%, Trim = -10% -> Frequency reference = 45%
 - Frequency reference should always be POSITIVE regardless of master motor direction.
 - Frequency reference should be sent to several places at once: An Analog output, a pulse train output (MP), scaling: $f_{max} = 10\text{kHz}$, and a keypad monitor.
 - There should be one monitor displaying master motor speed.
- NOTE:** Keep in mind that both motor speed and trim amount can be bi-polar. Select proper parameters and monitors.
4. Successfully compile and download the project to the A1000 demo unit.
 5. Run the demo unit from the switch box (Virtual I/O) while monitoring the status follower frequency reference with the DWEZ PC Tool.
 6. Verify proper program operation before proceeding.

Chapter 7

DWEZ Pro Story – Tank Level Control:

1. *Create a new project called “Tank Level” and include your name and company name with the Project.*
2. *Create a project page called “VFD Motor”.*
3. *Use DWEZ function blocks to accomplish the following:*
 - *Control the speed of a pump that is filling a large tank using the DWEZ-PI controller.*
 - *Ultra-sonic sensor above tank (0-10 VDC).*
 - *Noisy signal, due to “waves” in tank, filtering of feedback required.*
 - *Tank level settable via parameter.*
 - *Minimum motor speed settable via parameter.*
 - *Monitors for Tank Level & PI Error, and Drive output speed.*

Chapter 7

DWEZ Pro Story - 2-Motor Tank Level Control:

1. *On the existing project called "Tank Level" ...*
2. *Create a new project page called "Line-Started Motor"*
 - *Digital output that starts line-started motor*
 - *Start conditions: VFD at max freq. & liquid level below a settable parameter for a settable amount of time.*
 - *Stop Conditions: Drive not running, or liquid level above settable parameter for a settable amount of time.*

NOTE: *Some changes to the original "Tank Level" project may be required.*

Certification Test

Class

DriveWorksEZ Self-guided Video Training, TRM021-DWEZ-Selfguided

Taking the Certification Test

Each question has **only one correct answer**. Please record all answers on the answer sheet. All questions are equally weighted. A passing score is 90% (1 wrong)

Returning the Certification Test

Option 1: Fax the answer sheet (following page) to **Yaskawa Technical Training Services** at (847) 887-7185.

Option 2: E-mail the answers to all questions to training@yaskawa.com. Be sure to include all of the contact information listed on the answer sheet.

Receiving Your Score

Scores will be e-mailed to the student.



Answer Sheet:

- | | | | |
|----|-------|-----|-------|
| 1. | _____ | 6. | _____ |
| 2. | _____ | 7. | _____ |
| 3. | _____ | 8. | _____ |
| 4. | _____ | 9. | _____ |
| 5. | _____ | 10. | _____ |

Contact Information:

Name: _____ Title: _____
Company: _____ Email: _____
Address: _____
Phone Number: _____ Cell number: _____
Supervisor's Name/ Title: _____
Test Date: _____

Class Information:

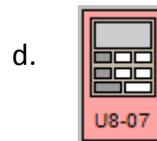
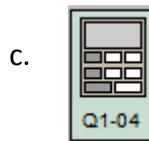
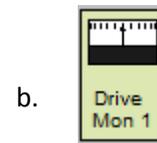
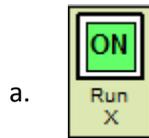
Class Name: DriveWorksEZ Self-guided Video Training

Class Number: TRM021-DWEZ-Selfguided

Version: 1.01

QUESTIONS

1. To receive DriveWorks EZ Standard you must fill out a form on Yaskawa.com.
 - a. True
 - b. False
2. What is DriveWorks EZ?
 - a. A programming tool used to initialize, monitor, and program drives
 - b. A function block tool which allows the creation of custom logic
 - c. A SCADA software for monitoring multiple drives/devices on a network
3. Digital function blocks include...
 - a. AND, NAND, NOR, and XOR Gates
 - b. ADD, SUB, MULT, and DIV Blocks
 - c. LT, LE, EQ, and GE Functions
 - d. TRUE, FALSE, and percentage constants
4. What block would be used to provide a custom DWEZ parameter to be changed through the keypad?



5. What is the quickest way to find out what the function of a given DWEZ block is?
 - a. Check the DWEZ Technical Manual
 - b. Right-click on that block and click "Block Help"
 - c. Call Tech Support
 - d. Open the DWEZ help file and scroll through all blocks
6. All of the drives digital and analog I/O is available for use in the DWEZ software.
 - a. True
 - b. False
7. In order for the MP terminals to work with a DWEZ monitor which parameter must be set?
 - a. H1-01
 - b. H3-06
 - c. H6-06
 - d. H3-09

8. What is the primary benefit of a subroutine?
- a. It makes the DWEZ program more effective
 - b. Subroutine connections are only counted once ,no matter how many times its used
 - c. It makes the program look clean
9. What parameter enables/disables DWEZ in the drive?
- a. A1-07
 - b. A1-03
 - c. A1-04
 - d. R2-D2
10. Select the correct truth table for an AND gate

a.

Input 1	Input 2	Output
0	0	1
1	0	1
0	1	1
1	1	0

b.

Input 1	Input 2	Output
0	0	0
1	0	1
0	1	1
1	1	1

c.

Input 1	Input 2	Output
0	0	0
1	0	0
0	1	0
1	1	1

Optional – To Get DWEZ Pro

DriveWorksEZ Pro

After learning the features and functions of DriveWorksEZ Standard from this self-guided learning program, you may feel it is adequate for your application. If not, you can obtain a more advanced copy of the software called DriveWorksEZ Pro. The difference between the two versions is shown here.

Programming	A1000/U1000 DWEZ Standard	V1000 DWEZ Standard	A1000/U1000 DWEZ Pro	V1000 DWEZ Pro
Number of available blocks	129	119	231	204
Number of block connections	20	20	100	50
Function types	5 numeric, 5 logic	5 numeric, 5 logic	20 numeric, 20 logic	10 numeric, 10 logic
Drive data	All commands, monitors, and parameters			

Requirements to obtain a DriveWorksEZ Pro License

To obtain a copy of DriveWorksEZ Pro, the following requirements must be fulfilled:

- 1.) Contact and receive approval from your Local Yaskawa America, Distributor
- 2.) Your Local Distributor must contact and receive approval from their Yaskawa America, Regional Sales Engineer
- 3.) Submit the DriveWorksEZ Pro Application form to training@yaskawa.com
- 4.) Receive a copy of the DriveWorksEZ Pro Application Guide from Yaskawa America, Technical Training Services
- 5.) Successfully complete Chapter 8 of the DriveWorksEZ Pro Self-guided Video Training and pass the certification test

If you are unsure of your Local Yaskawa America Distributor, please enter your zip code into this locator tool.

<https://www.yaskawa.com/support-training/support/sales-search>

DriveWorksEZ Pro License Application Form

Date: _____

Provide Your Contact Information:

Name: _____ Title: _____

Company: _____ Email: _____

Address: _____

Phone Number: _____ Cell number: _____

Distributor Approval

I have contacted my local Yaskawa America, Distributor and received their approval.

Distributor Name: _____

Distributor Approver's Name: _____ Phone: _____

Yaskawa America Approval

My local Distributor has contacted their Yaskawa America, Regional Sales Engineer and received his approval.

Yaskawa Regional Sales Engineer Name: _____

Returning This Application Form

Email the completed application to training@yaskawa.com