

PanelView Plus 7 Basics

Configuration & Programming in FactoryTalk View
Studio ME



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PanelView Plus 7 Standard Terminal Overview

PanelView Plus 7 Standard terminals are HMI (Human Machine Interface) devices. They are used to control and monitor devices connected to both CompactLogix 5370 series and ControlLogix 5570 series controllers through an EtherNet/IP network. Through the use of text and graphical displays, users can view the operating state of the machine or the process. Users can interact with PanelView using the touch screen input as well as through the use of a USB mouse/keyboard.

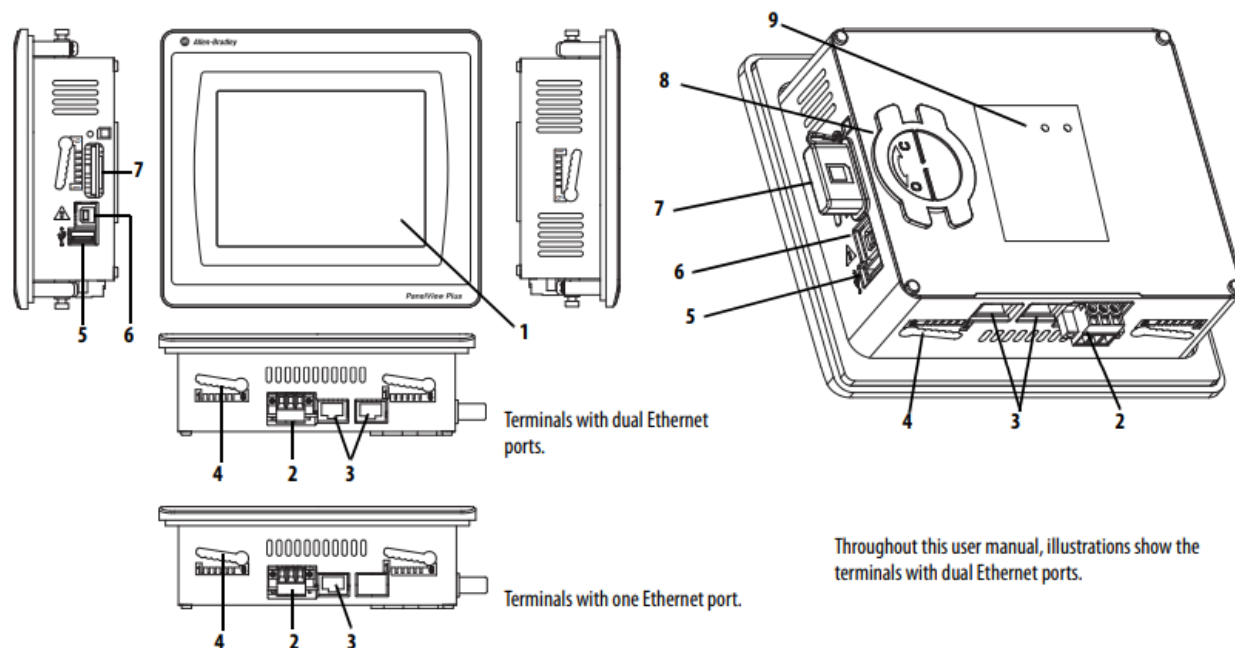
Features

PanelView Plus 7 Standard terminals include the following features:

- The connection of 1 ControlLogix 5570 Series or CompactLogix 5370 Series controller.
- Storage for up to 100 application screens.
- Up to 500 user defined alarms.
- Programming and application creation through the FactoryTalk View Machine Edition software.
- Ethernet communications in Linear, Ring, and Star topologies.
- Windows CE operating system for desktop access.
- PDF Viewer
- Standard screen sizes of 4in, 6in, 7in, 9in, 10in, 12in, and 15in.
- Widescreen sizes of 4in, 9in, and 12in.
- Available with or without Allen-Bradley branding.



Terminal Layout



Item	Feature	Description
1	Display/Touch Screen	TFT color graphic display with touch screen sizes of: 4.3in Widescreen Touch 5.7in Touch 6.5in Touch 9.0in Widescreen Touch 10.4in Touch 12.1in Widescreen Touch 15.0in Touch
2	Power	24VDC Range(18-30VDC) Non-isolated Power Input
3	Ethernet Port (1 or 2)	1 - 10/100Base-T Ethernet Port for Controller Communication 2 - 10/100Base-T Ethernet Port for Controller Communication
4	Mounting Slots	Panel Lever Mounting Locations. Number varies by Terminal Size
5	USB Host Port	1 - USB 2.0 Type A Port
6	USB Device Port	1 - USB 2.0 Type B Port
7	SD Card Slot & Cover	1 - SD Card Slot for External Storage
8	Battery	Battery Cover Provides Access to Lithium Battery for Replacement
9	Status Indicators	Status Indicators for Status & Fault Conditions



Operator Control

All PanelView Plus 7 terminals come standard with touch screen control and full color displays. The terminals use resistive touch screens that provide accurate, durable, and reliable control in commercial and industrial applications.

The terminal touch screen supports the following gestures:

- Tap – Quickly tap the on-screen target with a finger or stylus.
- Double Tap – Quickly double-tap the on-screen target with a finger or stylus.
- Drag – Touch the on-screen target with a finger or stylus and move across the screen.
- Extended Press – Touch and hold the on-screen target with a finger or stylus for several moments.

NOTE:

- *A plastic stylus must have a minimum tip size of 1.3mm to prevent damage to the terminal screen.*
- *Do not tap or press multiple targets simultaneously as it can result in an unintended result. Use one finger or stylus to complete the operation.*
- *The terminal will use a default virtual keyboard and numeric keypad for data entry.*

Applications

The PanelView Plus 7 Standard terminal applications are limited to the following:

- 1 ControlLogix 5570 Series or CompactLogix 5370 Series controller connection through RSLinx Enterprise.
- Maximum of 100 application screens.
- Maximum of 500 user defined alarms.
- Ethernet communications through RSLinx Enterprise.

Operating System & Desktop Access

The PanelView Plus 7 terminal comes standard with the Windows CE operating system. This operating system allows for third-party manufactures to run applications on the terminal as well as the following capabilities:

- PDF Reader/Viewer
- ActiveX Controls
- FTP Server (File Transfer Protocol)
- VNC Client and Server (Virtual Network Computing)

PanelView Plus 7 terminals allow for the Windows desktop to be enabled/disabled to users.

NOTE: *All terminals have the desktop access disabled when shipped*

Configuring desktop access will be covered later in the manual.



Start-up Options

When setting up a PanelView Plus 7 terminal, there are three startup actions available. The three startup options are:

- Launch a FactoryTalk View ME HMI Application
- Launch in Configuration Mode. This mode is used to adjust:
 - Terminal Settings
 - Load & Run Applications
 - Change Startup Options
 - Enable/Disable Desktop Access
- Launch Windows CE Desktop

NOTE: The PanelView Plus 7 terminals default state is to start-up in Configuration Mode. Changing this mode will be covered later in the manual.

Communication

PanelView Plus 7 terminals use an EtherNet/IP connection to communicate with ControlLogix 5570 series and CompactLogix 5370 series controllers.

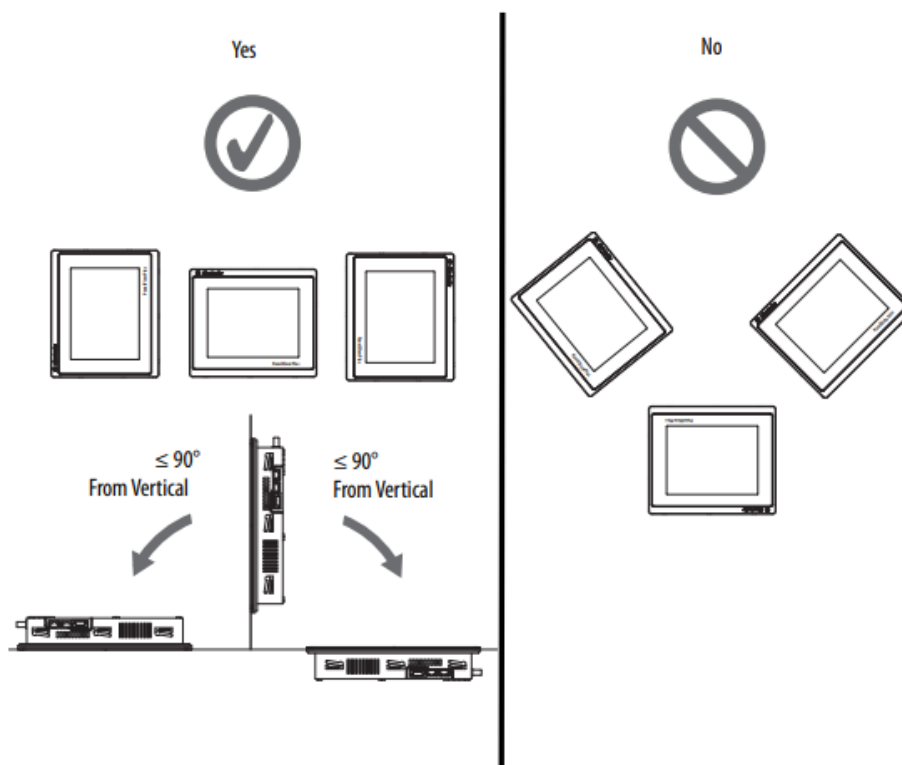


PanelView Plus 7 Terminal Installation

Mounting Considerations

When mounting a PanelView Plus 7 terminal, the following items should be considered:

- Terminals should be mounted on a vertical surface of a panel or enclosure, just under eye level.
- The terminal should be mounted at a height suitable for most users.
- The terminal should be mounted in an area with good lighting when possible.
- The terminal should not be exposed to direct sunlight.



Mounting Clearances

When mounting a terminal, it is important to plan for adequate space around the terminal inside the enclosure. The table to the right lists the minimum distance a terminal should have inside an enclosure. This distance allows for air to flow around the terminal.

Product Area	Min Clearance
Top	2in (51mm)
Bottom	2in (51mm)
Side	1in (25mm) Side Without SD Card 2in (51mm) Side With SD Card
Back	0in (0mm)

Note: Terminal must have an ambient air temperature of 32-131° F, to operate without risk of damage.



Dimensions for Panel Cutout

When ordered from the factory, PanelView Plus 7 terminals are shipped with a template included in the documentation. This template can be used to cut out the opening for the terminal.

The chart below lists the cutout size for all standard terminals.

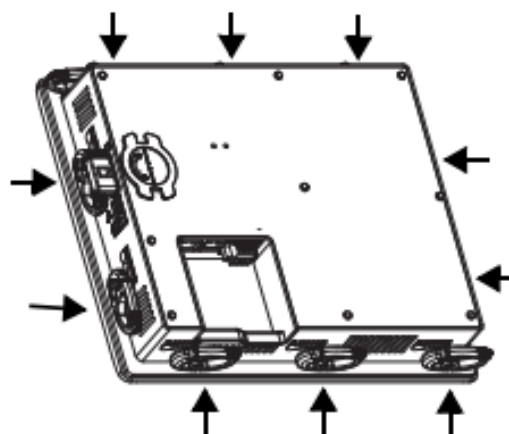
Terminal Size	Input Type	Height - in (mm)	Width - in (mm)
4.3in	Touch	3.62 (92)	4.61 (117)
5.7in	Touch	4.84 (123)	6.14 (156)
6.5in	Touch	5.59 (142)	7.24 (184)
9.0in	Touch	6.38 (162)	9.92 (252)
10.4in	Touch	8.82 (224)	10.59 (269)
12.1in	Touch	8.58 (218)	12.28 (312)
15.0in	Touch	11.42 (290)	13.90 (353)

Panel Mounting

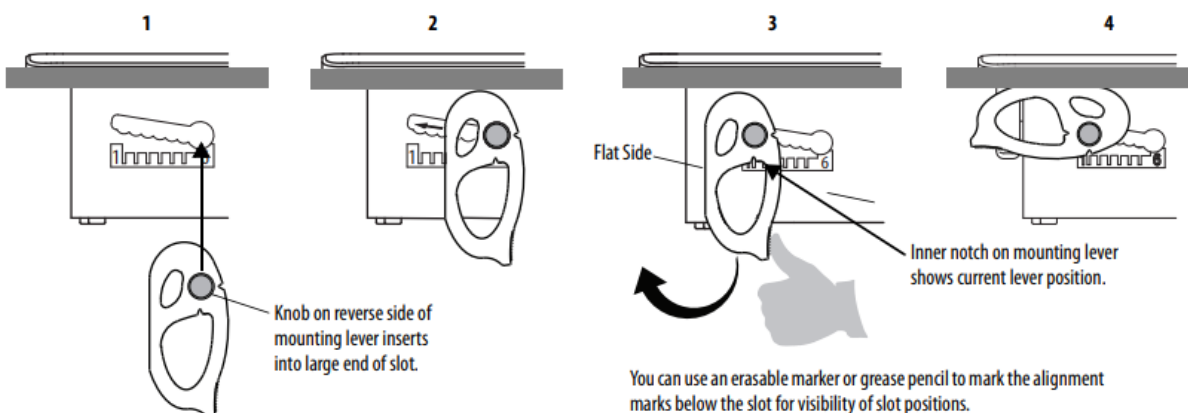
PanelView Plus 7 terminals are fastened to the enclosure through the use of mounting levers. These levers are inserted into several mounting locations on the terminal as shown below.

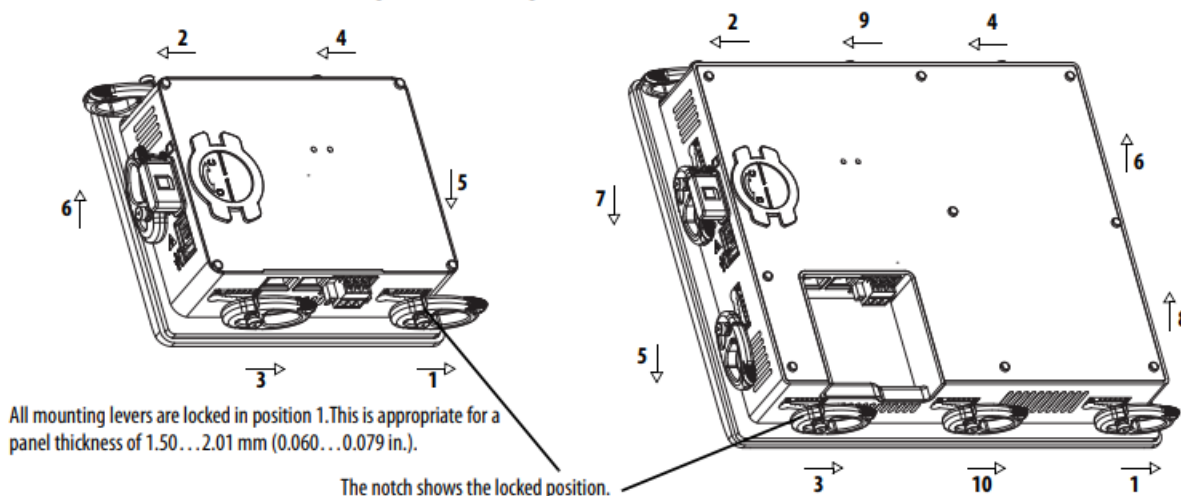
To secure the terminal, slide the mounting lever to a position that is one or two notches greater than the final lock position.

Follow the steps below to secure the terminal to the panel.



NOTE: Panel lever mounting locations vary by terminal size





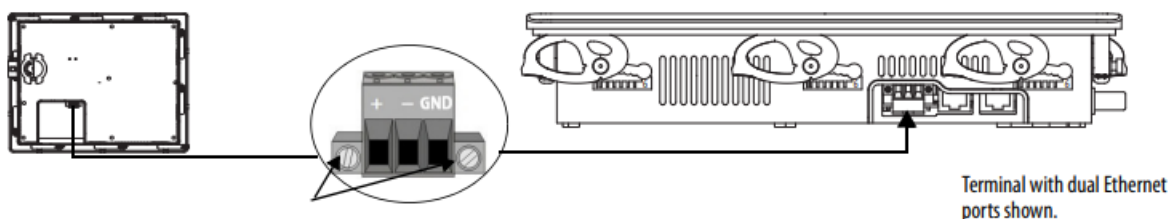
Power Terminal Block

PanelView Plus 7 terminals use a 3-pin terminal block for the 24VDC power connection. This terminal block can be removed to help with the installation, wiring, and maintenance of the terminal.

NOTE: DO NOT connect or disconnect the power terminal while the power is on. This can result in injury to the user and damage to the PanelView Plus 7 terminal.

Follow the steps below to remove the power terminal block.

1. Loosen the two screws that secure the power terminal to the panel.



2. Gently remove the power terminal block from the connector.
3. At this time, the power terminal block can be wired, or maintenance can be performed on the PanelView Plus 7 terminal.

NOTE: On some PanelView Plus 7 terminals, the power terminal block must be removed to mount or remove the panel.

Follow the steps below to reinstall the power terminal block.

1. Press the power terminal block into the connector until seated.
2. Tighten the two screws that secure the power terminal to the panel.



Supplying Power to the Terminal

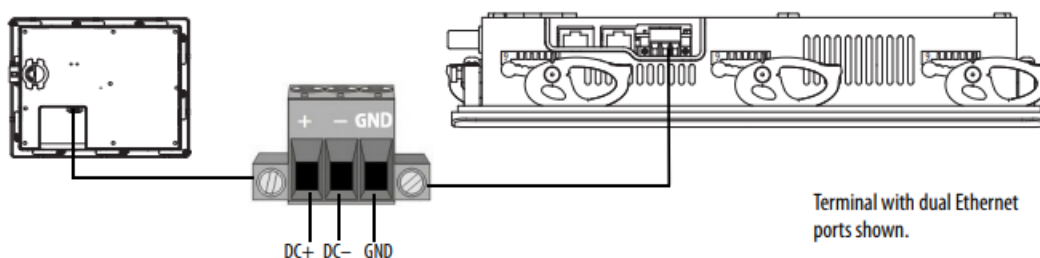
The PanelView Plus 7 terminals are powered by a 24VDC non-isolated power supply.

The power rating for the terminals include:

- 24VDC nominal voltage of (18-30VDC)
- 35W max power (1.46A at 24VDC)

Wiring the PanelView Plus 7 Terminal for Power.

1. Install the DC+, DC-, and GND wires to the marked terminals of the power terminal block.



NOTE: The power supply is internally protected against reverse polarity. Connecting DC+ or DC- to the earth ground terminal can damage the terminal. Connecting AC power, or more than 30V DC, can also damage the terminal.

2. Apply power to the terminal.

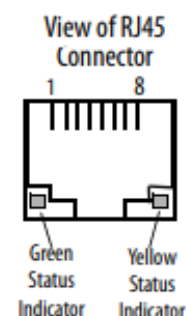
Network Connection

The PanelView Plus 7 terminal has one or two Ethernet ports, depending on the model, to connect to controllers on an EtherNet/IP network. This is done using CAT5, CAT5E, or CAT6 Ethernet cable with RJ45 connectors.

NOTE: Terminals can have up to two Ethernet ports, but only one device IP address. The maximum Ethernet cable that can be used for connection without repeaters is 100m (328ft).

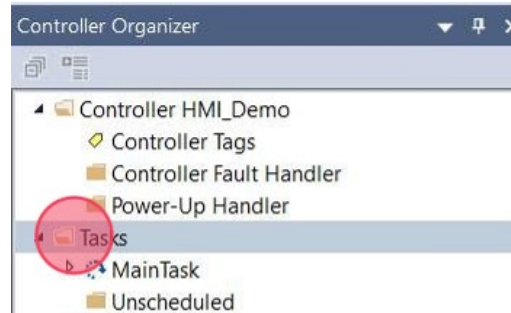
Ethernet Port Indicators

Indicator	Color	Description
Link Integrity	Green	On, when link is present.
Activity	Yellow	Blinks when activity is detected on Ethernet Link.



Lab 2.4 - Adding Routines and Logic to the Logix Designer Project

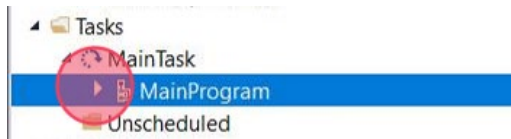
1. Open the **Tasks** folder by clicking the arrow.



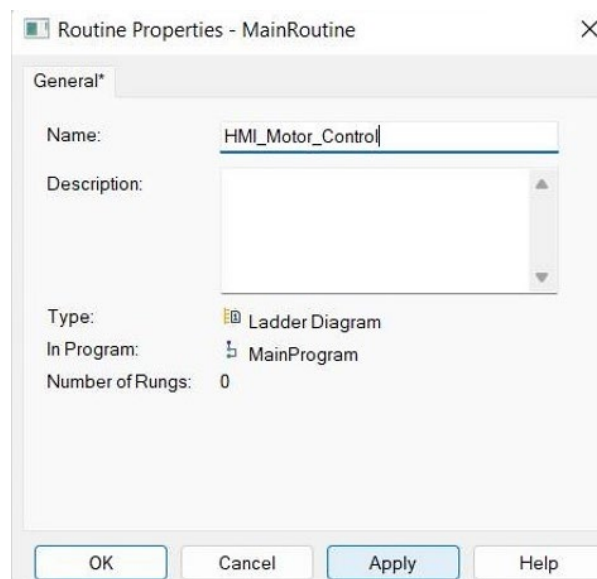
2. Open the **MainTask** group by clicking the arrow.



3. Open the **MainProgram** group by clicking the arrow.



4. Right-click **MainRoutine** and click **Properties**.
5. In the **Routine Properties** menu, rename the **MainRoutine**, **HMI_Motor_Control**. Click **Apply** then **OK** to confirm the change.



6. Notice the name of the **MainRoutine** has been changed in the **Controller Organizer**.

Note: The MainRoutine is signified by the ladder icon with the number 1.



7. To add additional routines, Right-Click **MainProgram**, followed by **Add > New Routine**.

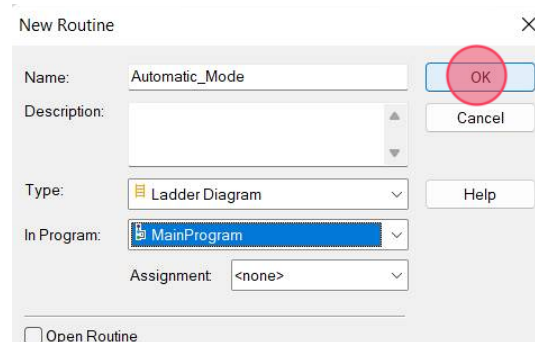


8. Configure the **New Routine** window with the setup below.

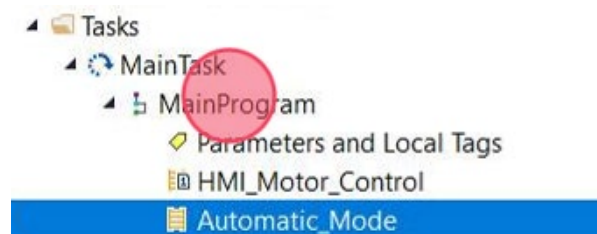
Name: **Automatic_Mode**

Type: **Ladder Diagram**

In Program: **MainProgram**

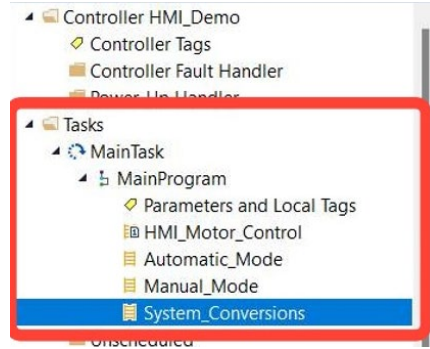


9. Click **OK** to create the new routine. The new routine will now be displayed in the **Controller Organizer** under the **MainProgram** section.

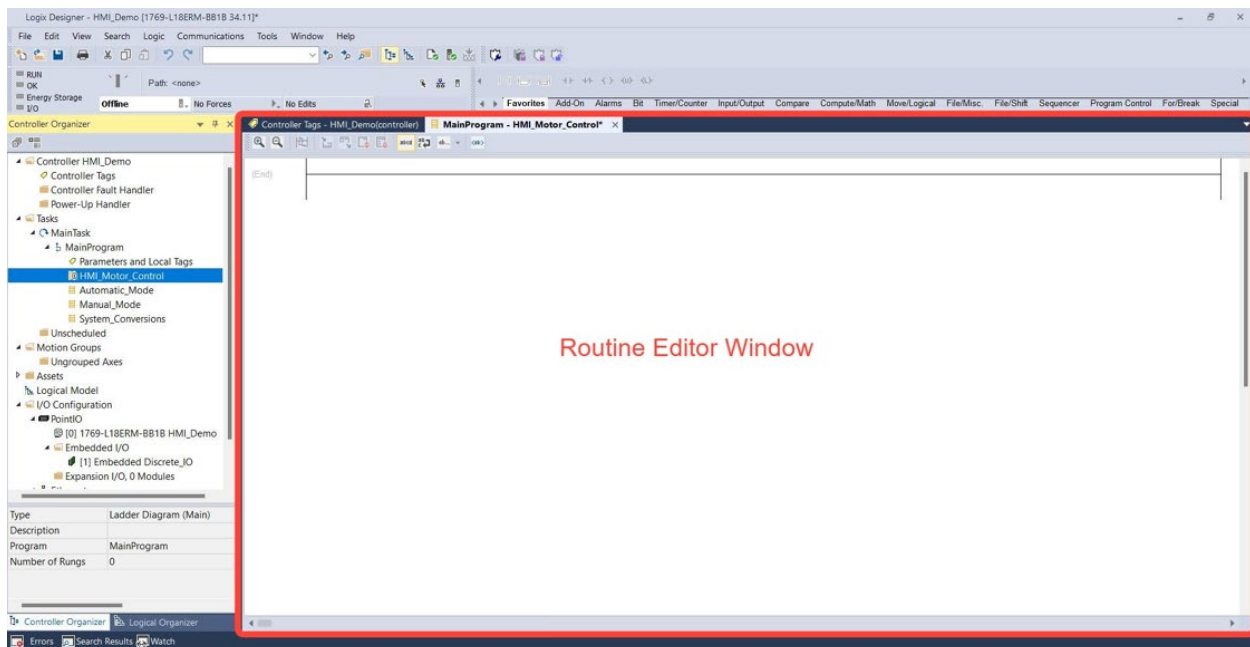


10. Repeat steps 7-9 to add the following routines:

- Manual_Mode
- System_Conversions

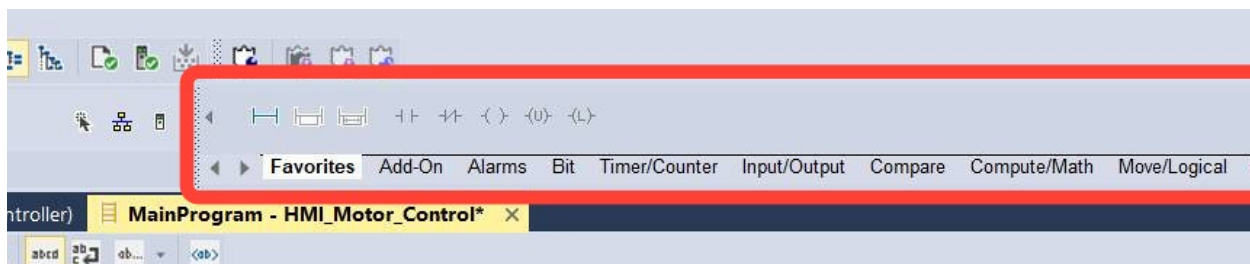


11. To start adding logic to the project, Double-Click **HMI_Motor_Control**. The **Routine Editor Window** will display.



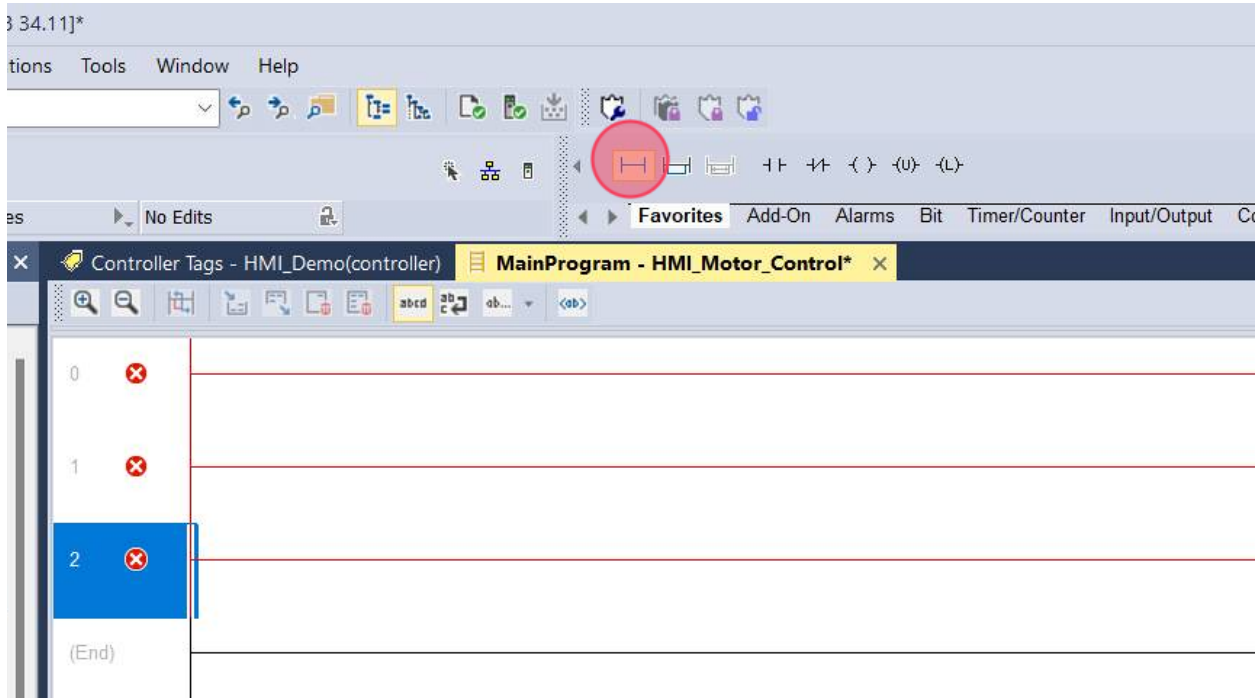
12. Click the **Language Element Toolbar** to select logical elements for programming.

NOTE: If the Language Element Tool bar cannot be selected, click the Routine Editor Window and try again.

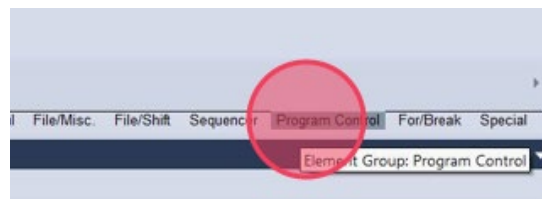


13. Under **Favorites** in the Language Element Toolbar, click the **Rung** button. Add 4 blank rungs to the project.

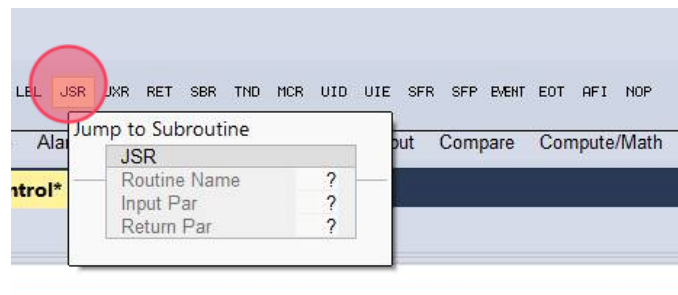
NOTE: The Rung labeled (End) is not used and does not count towards the 4 rungs.



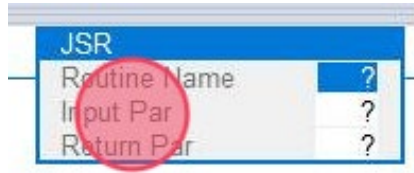
14. Click the **Program Control** tab in the Language Element Toolbar.



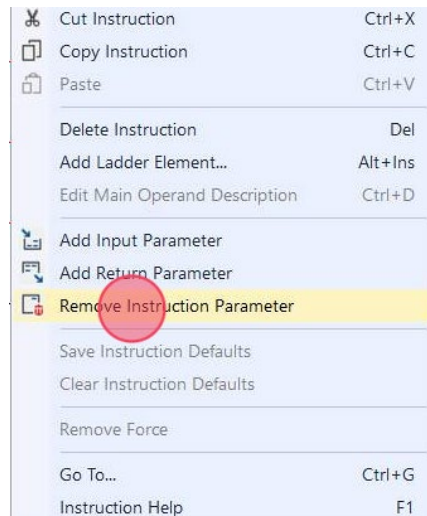
15. Click **JSR** instruction and add it to the first rung. This is accomplished by dragging the element to the desired rung.



16. In the newly created JSR, Right-click **Input Par**.

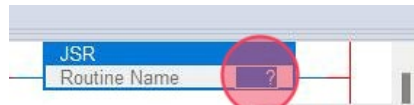


17. Click **Remove Instruction Parameter**.



18. Repeat Steps 16 & 17 to remove **Return Par**.

19. Under **Routine Name** on the JSR, Click [?].



20. Type **System_Conversions** and hit **Enter**.

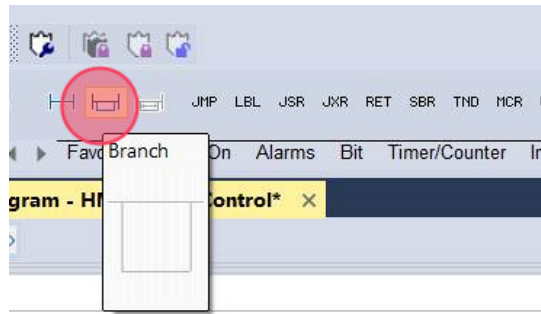
21. The first rung is now complete. Repeat steps 14-20 to add the follow JSR instructions:

- **Automatic_Mode**
- **Manual_Mode**

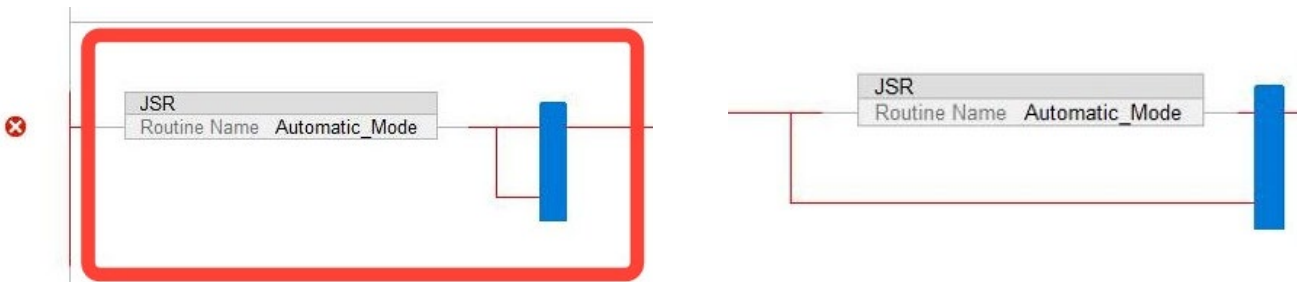
22. The routine should now look like the example below.



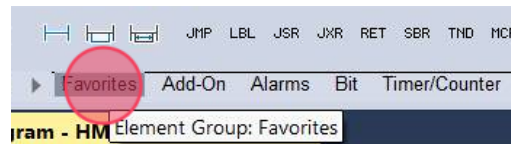
23. Select the **Branch** element from the **Language Element Toolbar**.



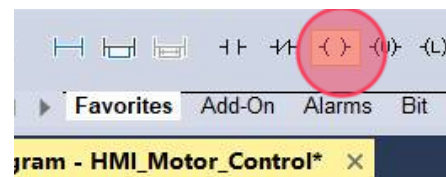
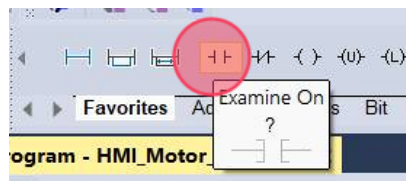
24. Place the Branch behind the **Automatic_Mode JSR**. By clicking the blue box on the Branch, drag the Branch so it surrounds the JSR.



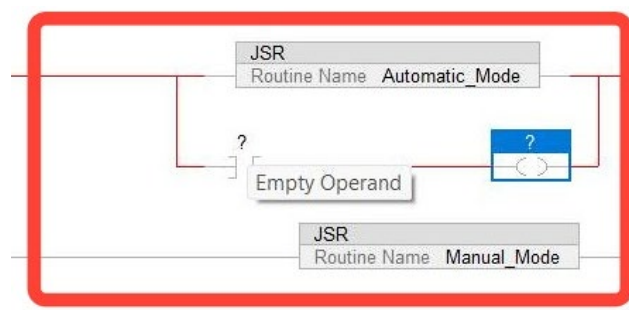
25. In the **Language Element Toolbar**, click the **Favorites** tab.



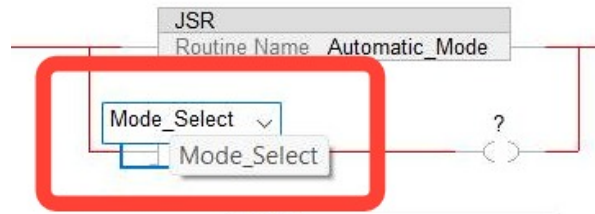
26. Click the **Examine On (XIC)** instruction and drag it to the newly created branch. Repeat this step with the **Output Energize (OTE)** instruction.



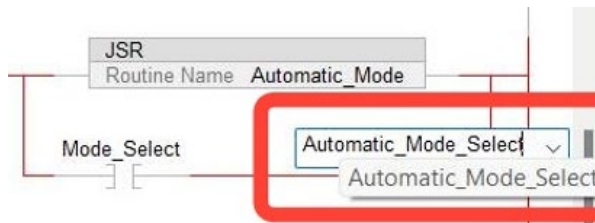
27. The instructions should be configured as shown. If the orientation is incorrect, drag the instructions to the correct position.



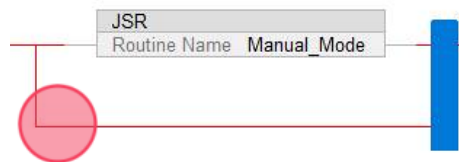
28. Click the [?] on the **XIC** instruction and type **Mode_Select**, followed by **Enter**.



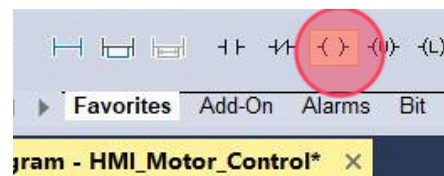
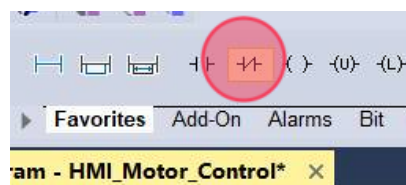
29. Click the [?] on the **OTE** instruction and type **Automatic_Mode_Select**, followed by **Enter**.



30. Select the **Branch** element from the Language Element Toolbar and place the **Branch** around the **Manual_Mode** JSR.



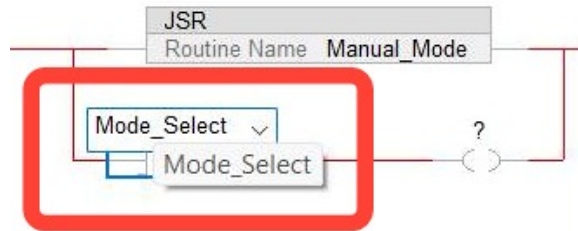
31. Click the **Examine Off (XIO)** instruction and drag it to the newly created branch. Repeat this step with the **Output Energize (OTE)** instruction.



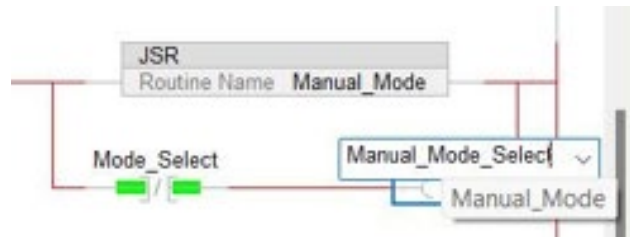
32. The instructions should be configured as shown. If the orientation is incorrect, drag the instructions to the correct position.



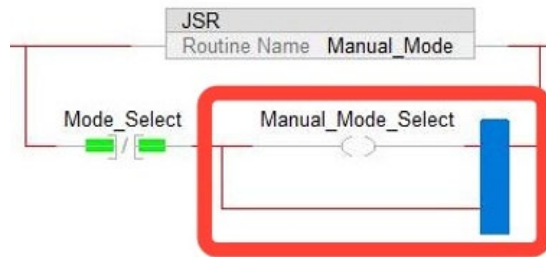
33. Click the [?] on the **XIC** instruction and type **Mode_Select**, followed by **Enter**.



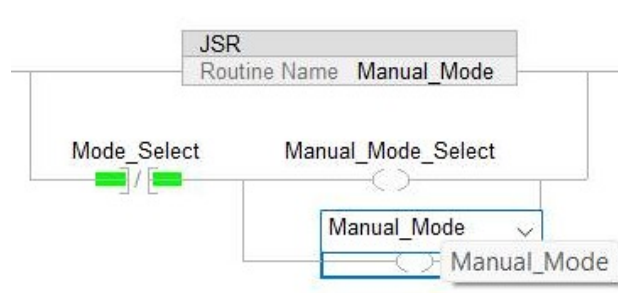
34. Click the [?] on the **OTE** instruction and type **Manual_Mode_Select**, followed by **Enter**.



35. Select the **Branch** element from the Language Element Toolbar and place the **Branch** around the **Manual_Mode_Select** instruction.



36. Add an **OTE** instruction to the newly created branch. Once added, Click the [?] on the **OTE** instruction and type **Manual_Mode**, followed by **Enter**.



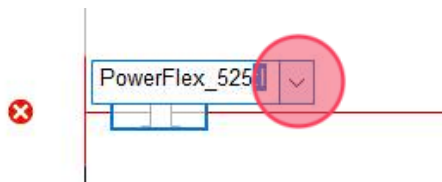
37. Select **Rung 3** from the Routine Editor Window.



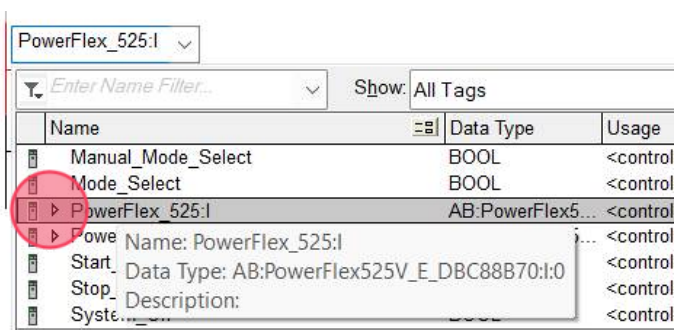
38. Click the **Examine On (XIC)** instruction and drag it to **Rung 3**. Repeat this step with the **Output Energize (OTE)** instruction.

39. Click the [?] on the **XIC** instruction and type **PowerFlex_525**.

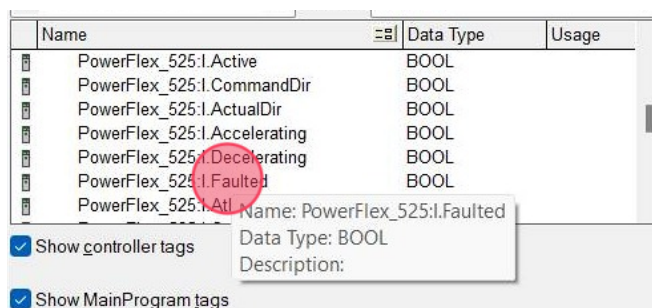
40. Click the drop-down arrow in the selection box to expand the menu.



41. Open the **PowerFlex_525** Input tags by clicking the arrow.

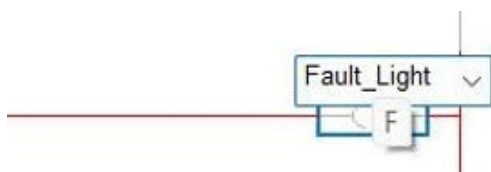


42. Select **PowerFlex_525:I.Faulted**

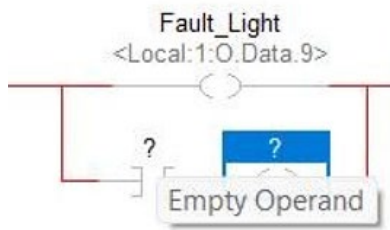


43. Hit the **Enter** key twice.

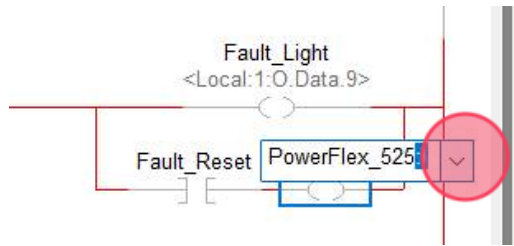
44. Click the [?] on the **OTE** instruction and type **Fault_Light**, followed by **Enter**.



45. Add a Branch around the **Fault_Light** OTE instruction. Include a **XIC & OTE** instruction on the branch.



46. Click the [?] on the **XIC** instruction and type **Fault_Reset**, followed by **Enter**.
47. Click the [?] on the **OTE** instruction and type **PowerFlex_525**.
48. Click the drop-down arrow in the selection box to expand the menu.



49. Open the **PowerFlex_525** Output tags by clicking the arrow.

Enter Name Filter...		Show:	All Tags
Name	Data Type	Usage	
Manual_Mode_Select	BOOL	<control	
Mode_Select	BOOL	<control	
PowerFlex_525:I	AB:PowerFlex5...	<control	
PowerFlex_525:O	AB:PowerFlex5...	<control	
Name: PowerFlex_525:O			
Data Type: AB:PowerFlex525V_E_EE004E7C:O:0			
Description:			
☒ Show controller tags			

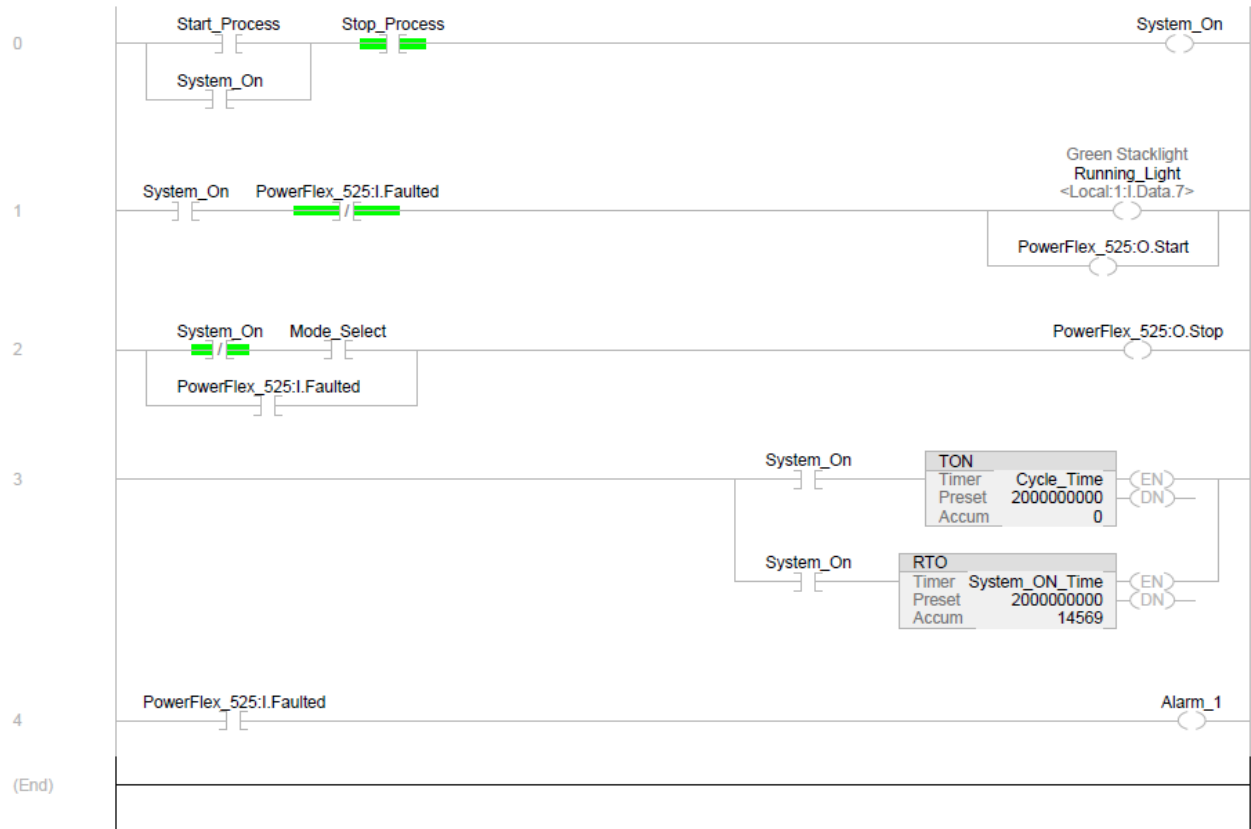
50. Select **PowerFlex_525:O.ClearFaults**.

Enter Name Filter...		Show:	All Tags
Name	Data Type	Usage	
PowerFlex_525:O.Stop	BOOL		
PowerFlex_525:O.Start	BOOL		
PowerFlex_525:O.Jog	BOOL		
PowerFlex_525:O.ClearFaults	BOOL		
PowerFlex_525:O.Forward			
PowerFlex_525:O.Reverse			
PowerFlex_525:O.Forward			
Name: PowerFlex_525:O.ClearFaults			
Data Type: BOOL			
Description:			
☒ Show controller tags			

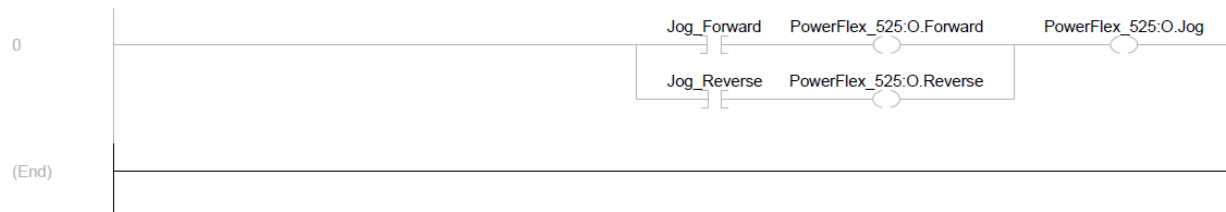
51. Hit the **Enter** key twice.



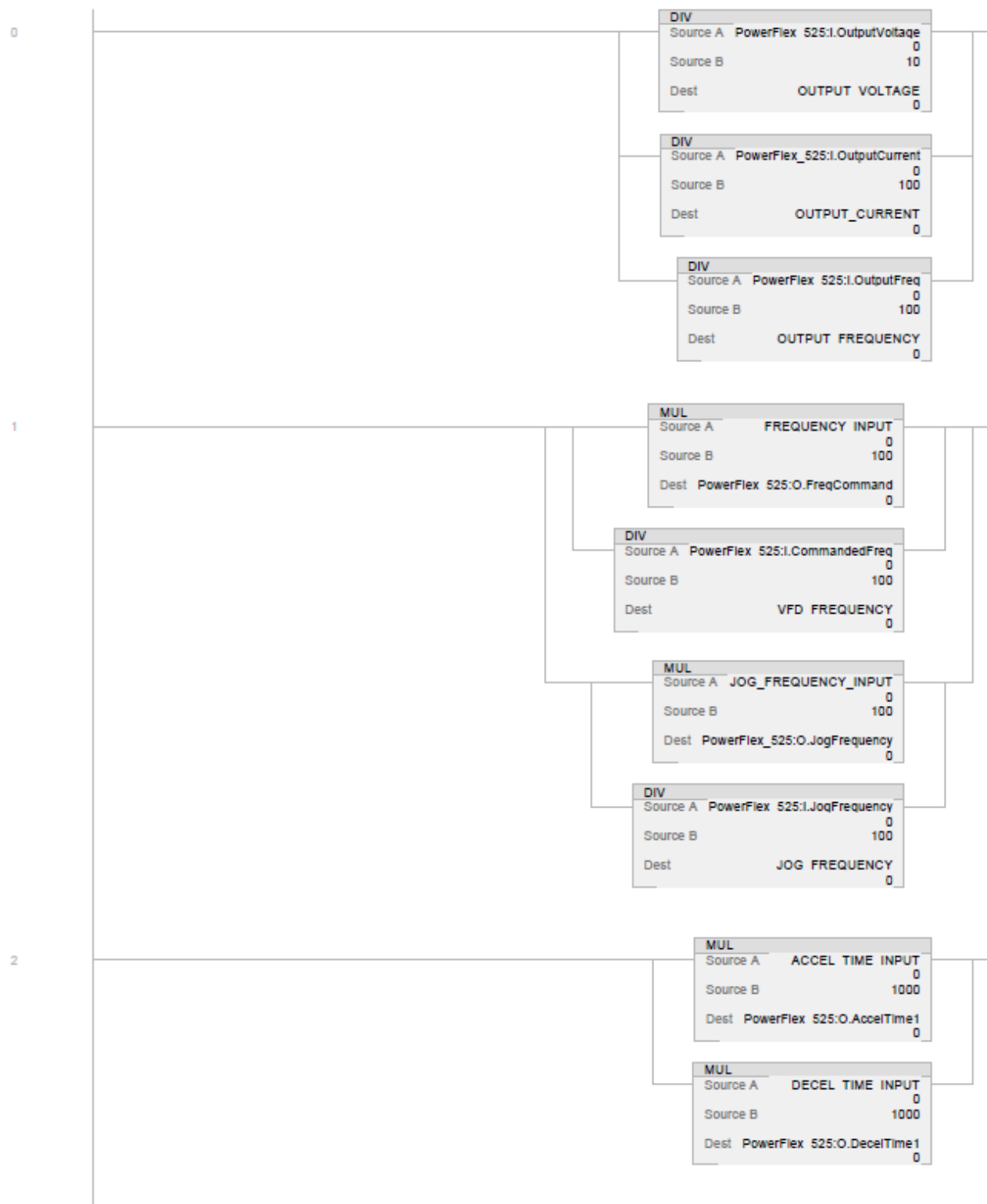
52. Open the **Automatic_Mode** routine and complete the logic shown below.

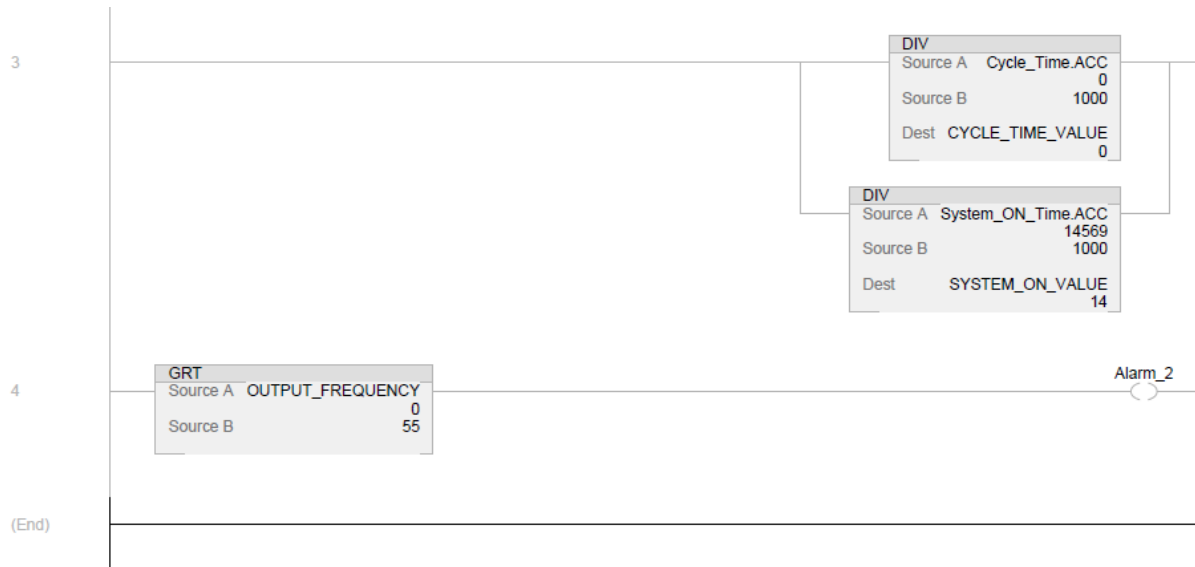


53. Open the **Manual_Mode** routine and complete the logic shown below.



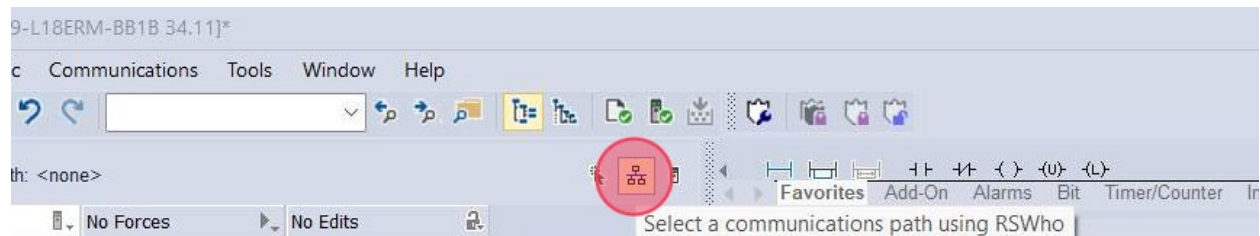
54. Open the **System_Conversions** routine and complete the logic shown below.



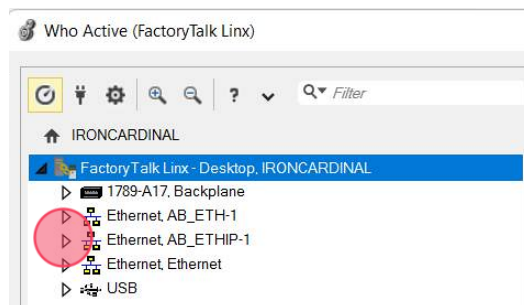


Lab 2.5 - Going ONLINE With a Logix Controller

1. Click the **Communications Path** icon.



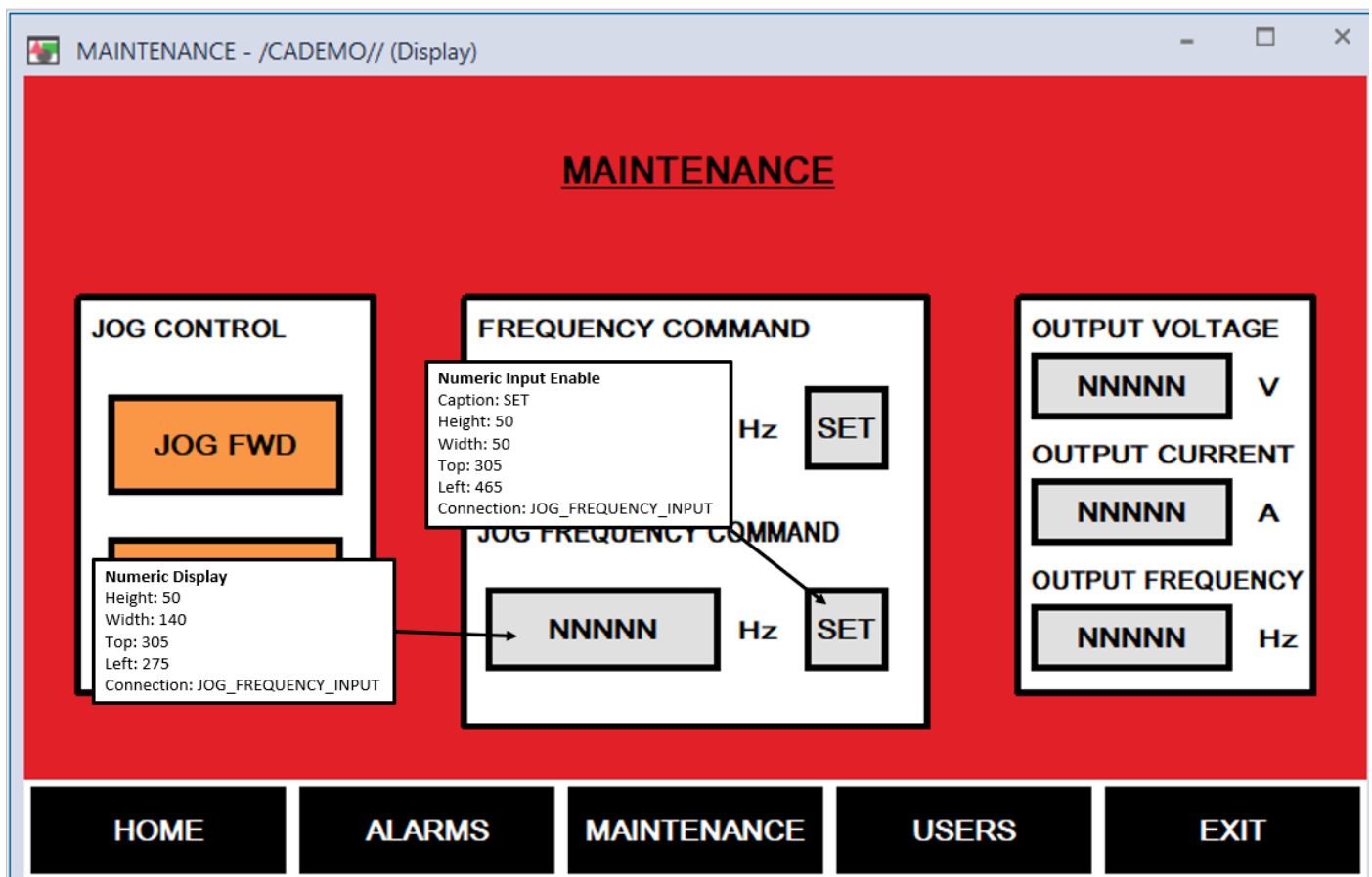
2. Expand the Ethernet Driver created earlier in the guide. For this example, select **Ethernet, AB_ETHIP-1**.



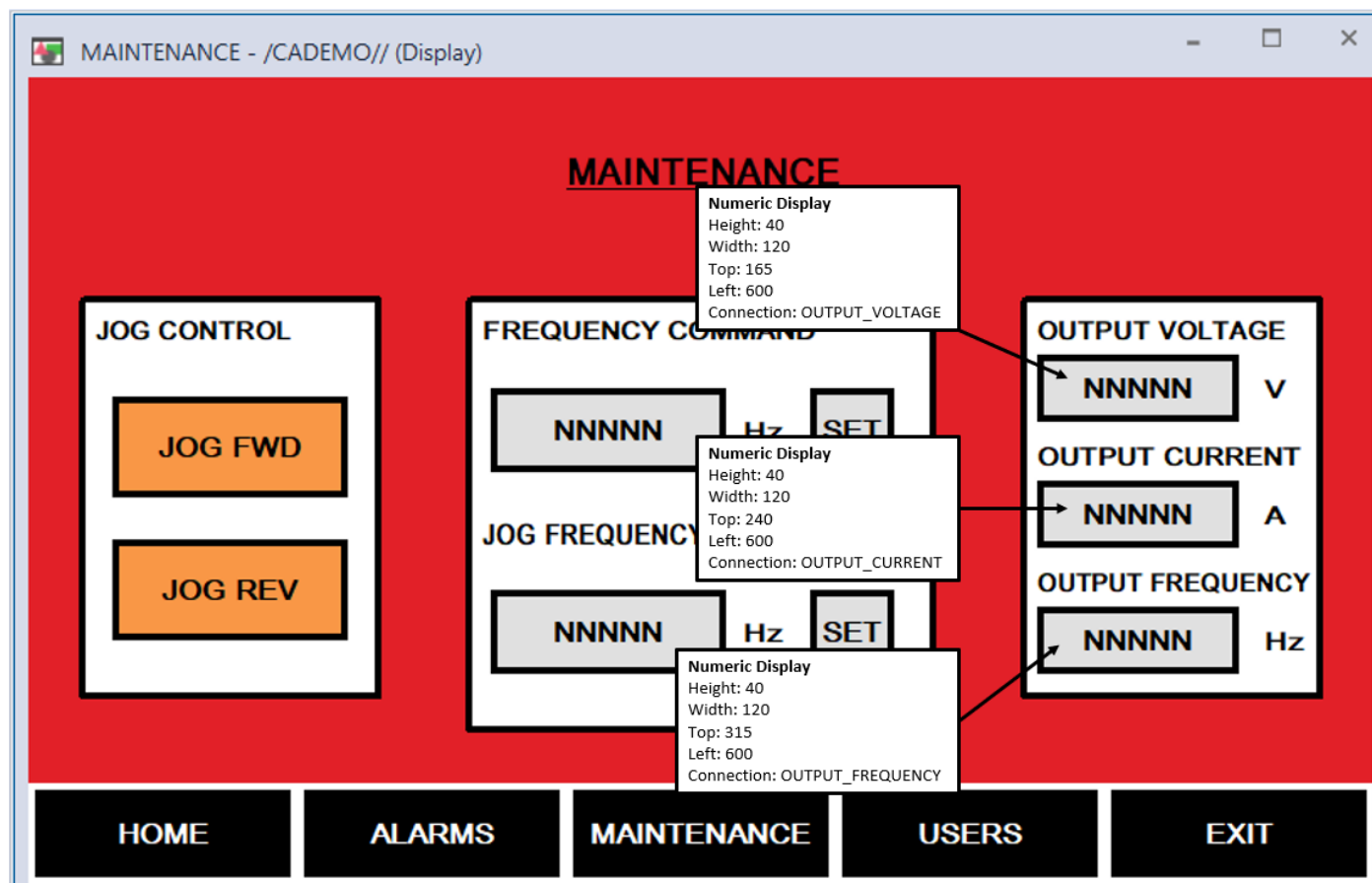
16. Click the **Edit Display** button to end the test.
17. Click **Save**.

Lab 9.4 – Finishing the MAINTENANCE Display

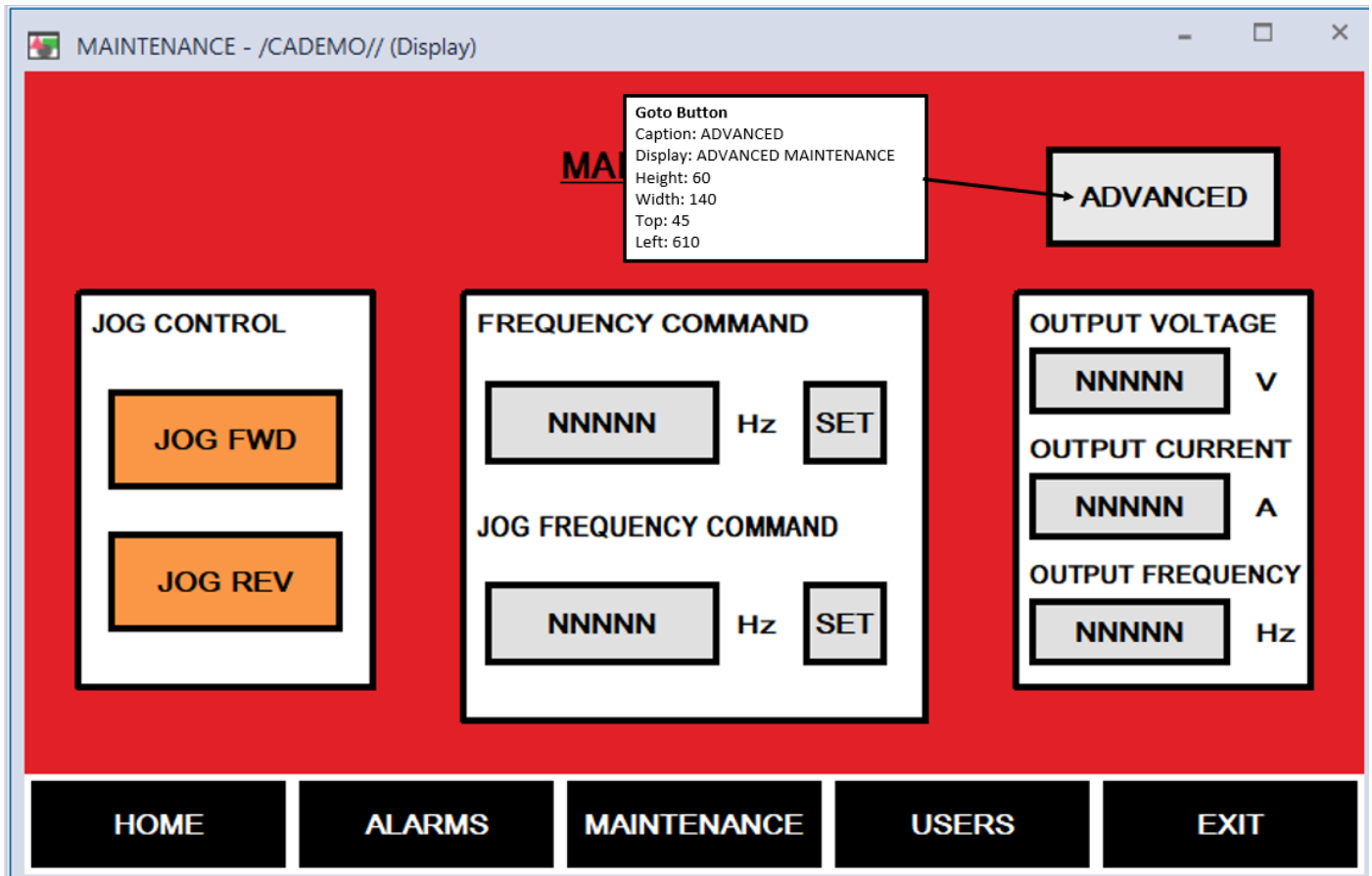
1. Open the MAINTENANCE display.
2. Add an additional **Numeric Input** and **Numeric Input Enable** to the display to match the following image.



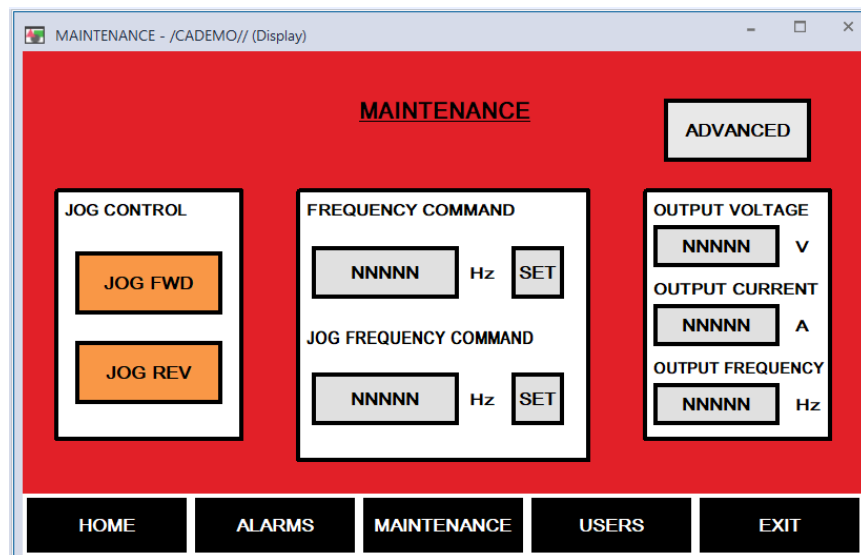
3. Add three additional **Numeric Displays** to the display to match the following image.



4. Add a **Goto** button to the display to match the following image.



5. The **MAINTENANCE** display should now look like the screen below.



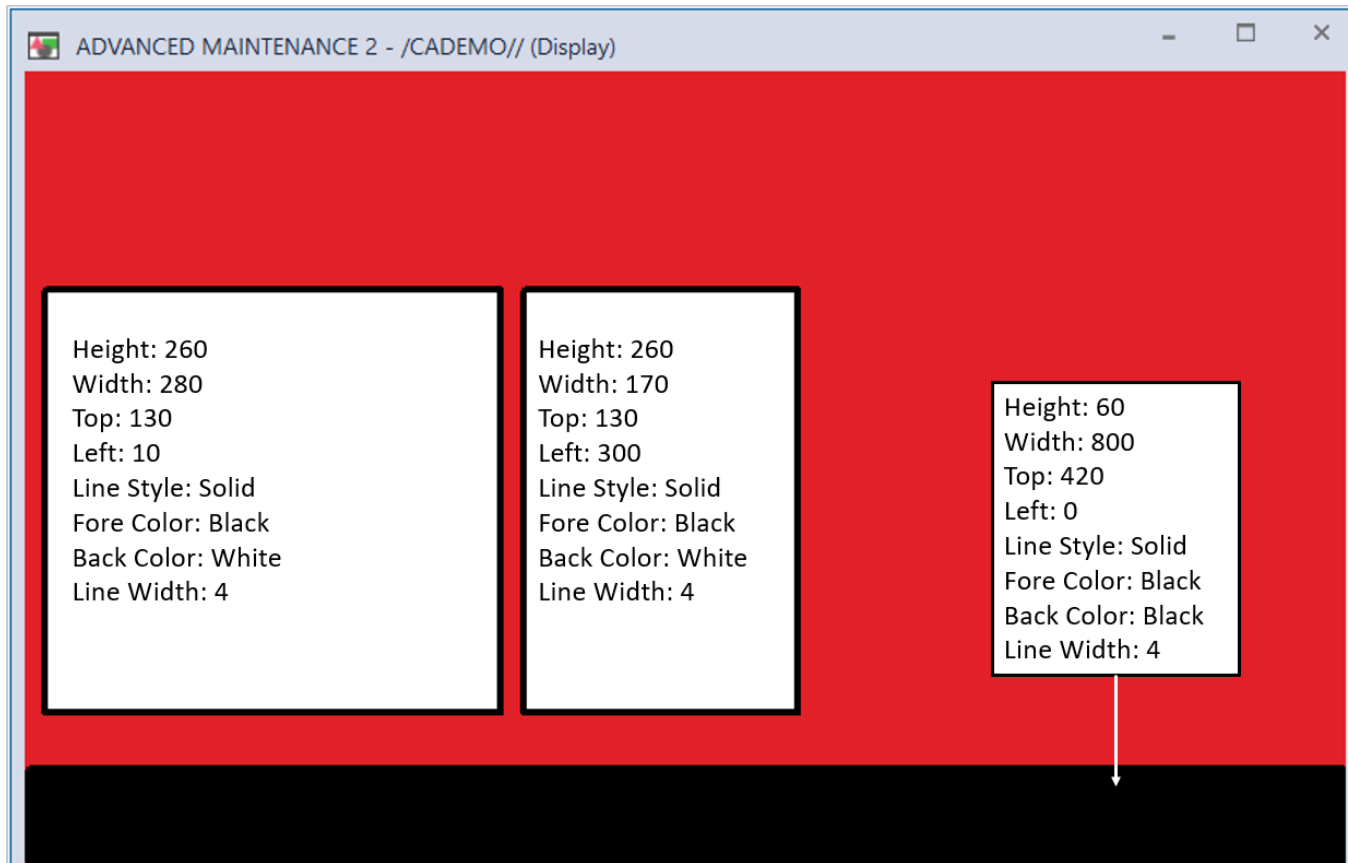
6. Click **Save**.



Lab 10: Creating an Advanced Maintenance Display

Lab 10.1 – Display Setup

1. Open the **ADVANCED MAINTENANCE** display.
2. Draw three **Rectangles** on the display to match the following image. To access the Drawing menu, Click **Object > Drawing > Rectangle**.

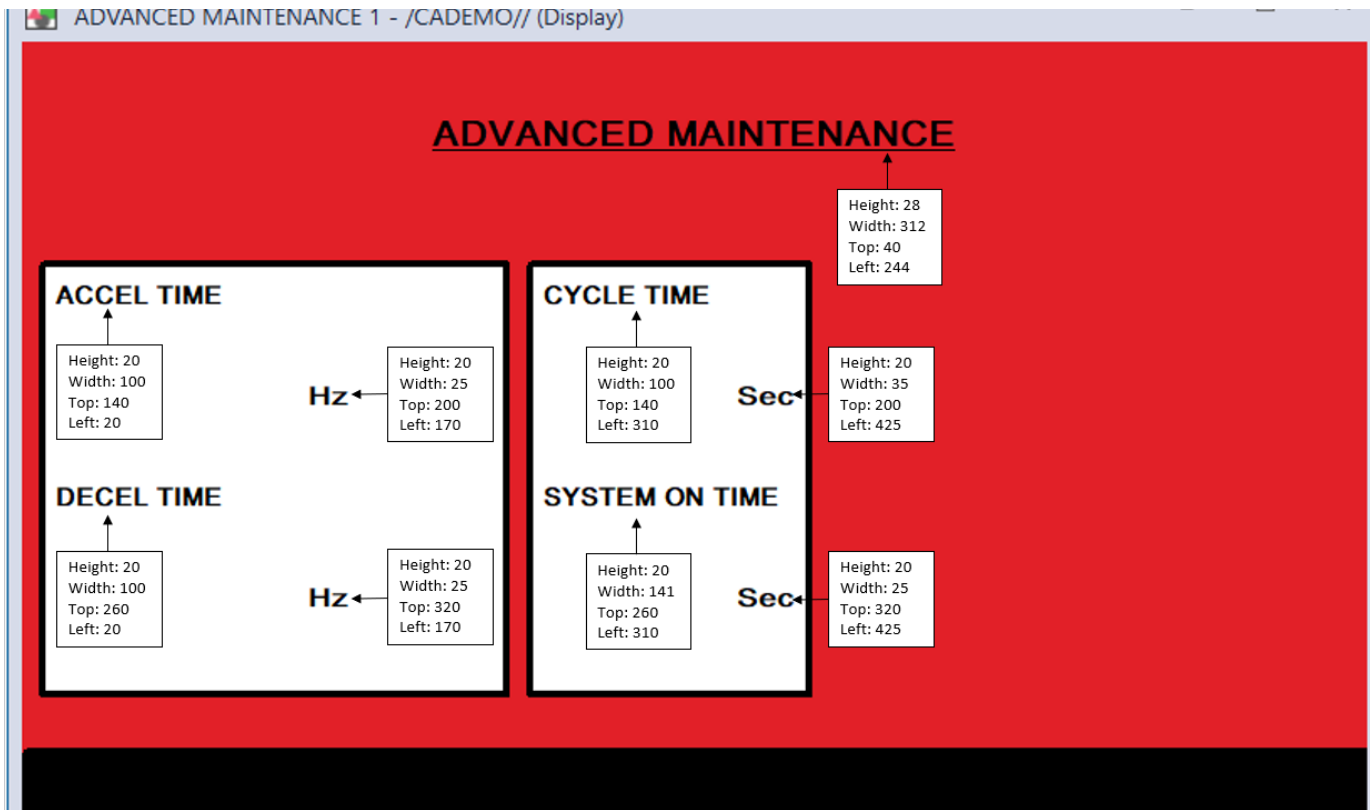


3. Add **Text** to the display to match the following image. To access **Text**, Click **Object > Drawing > Text**. All text besides the title should match the configuration below. The title uses size 16 font.

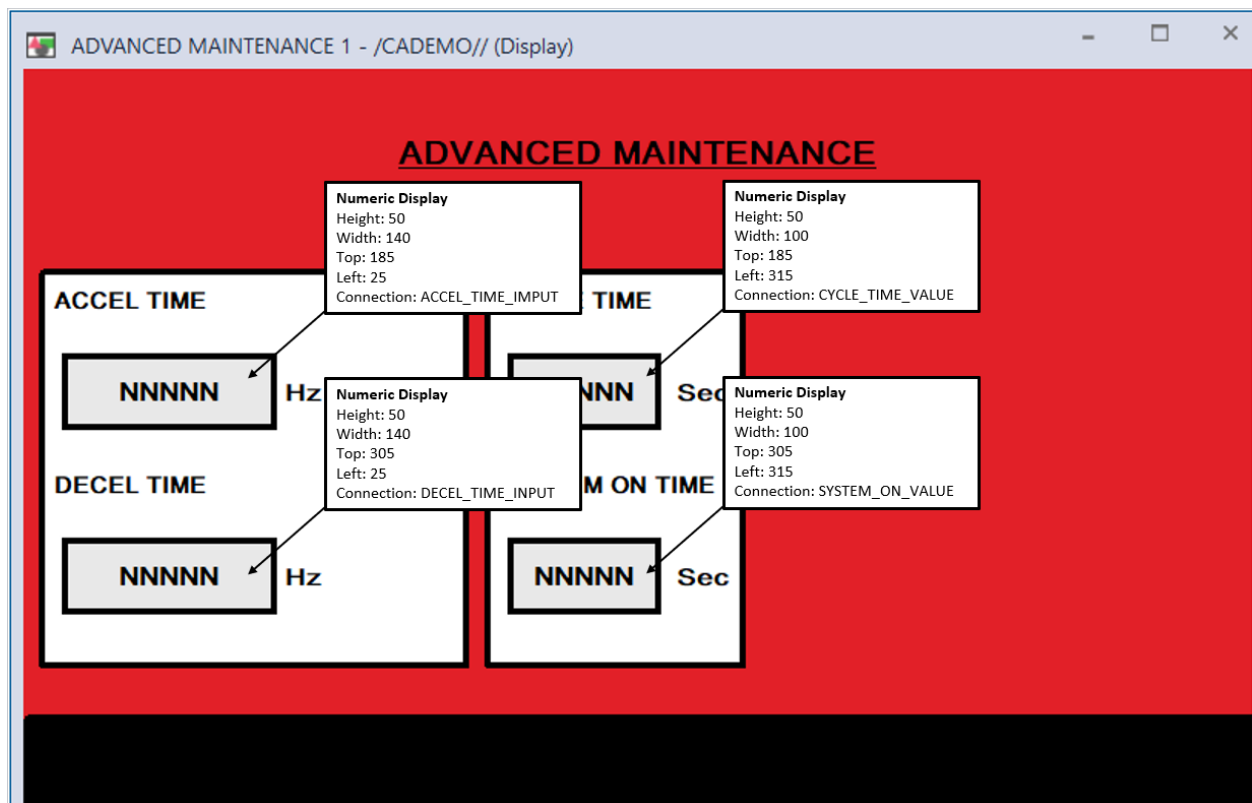
Font: Arial Unicode
Size: 11
BOLD: Yes

Back Color: Black
Fore Color: Black

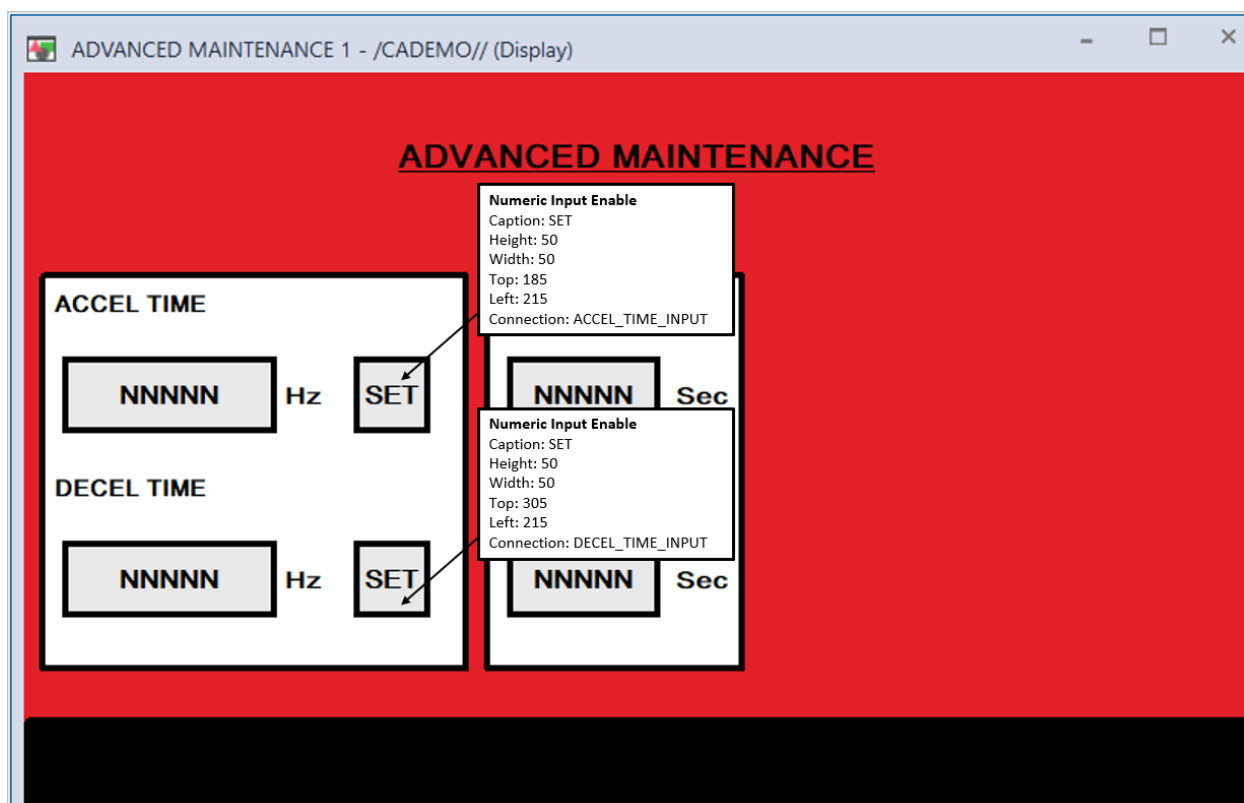




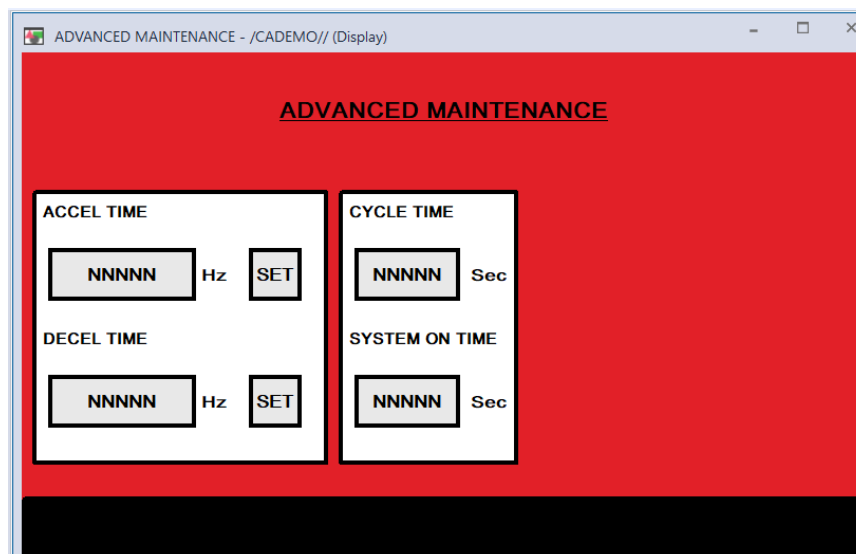
4. Add four **Numeric Displays** to match the following image.



5. Add two **Numeric Input Enables** to match the following image.



6. The **ADVANCED MAINTENANCE** display should now look like the screen below.

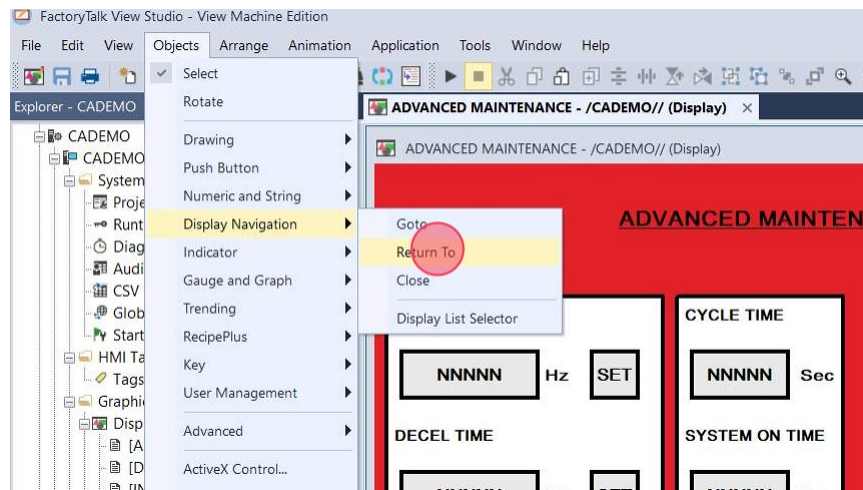


7. Click **Save**.



Lab 10.2 – Adding a Return To Button

1. Open the **ADVANCED MAINTENANCE** display.
2. Add a **Return To** button to the **ADVANCED MAINTENANCE** screen by clicking **Object > Display Navigation > Return To**. **Return To** buttons allow users the ability to return to the last display visited.



3. Click the **ADVANCED MAINTENANCE** display and draw a **Return To** button on the display. The size, shape, and location of the button does not matter at this time.
4. In the **General** tab of the **Return to Display Button Properties** menu, configure the button as shown below.

Border Style: Line

Border Width: 4

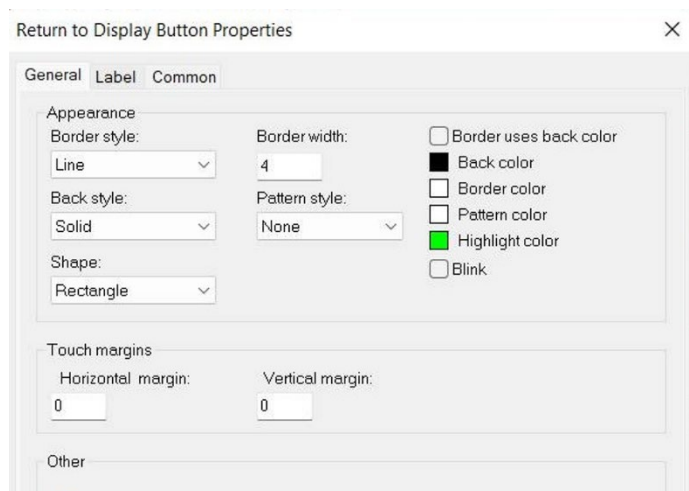
Border Uses Back Color: Unchecked

Back Style: Solid

Shape: Rectangle

Back Color: Black

Border Color: White



5. In the **Label** tab of the **Return to Display Button Properties** menu, configure the button as shown below.

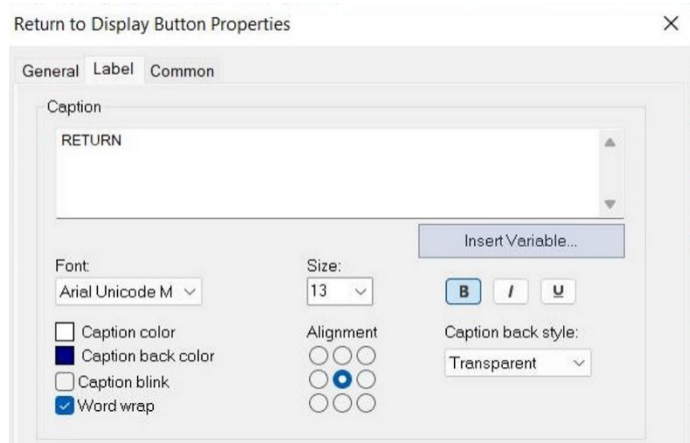
Caption: RETURN

Font: Arial Unicode

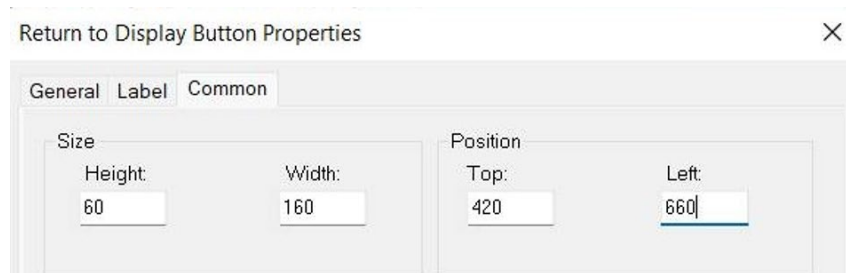
Size: 13

BOLD: Yes

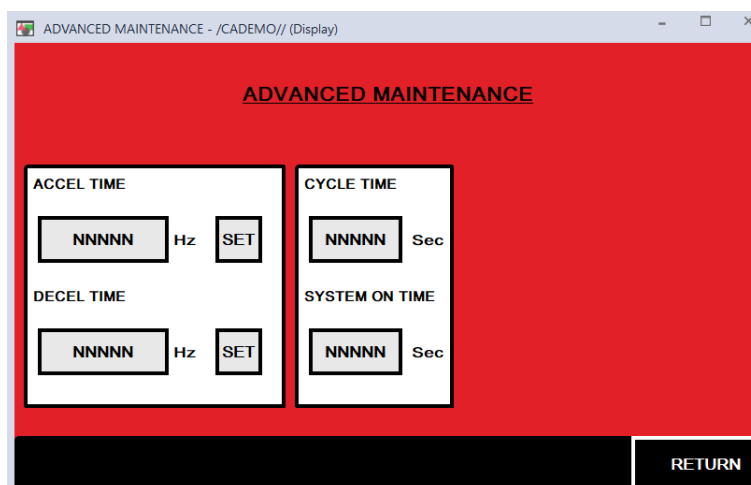
Caption Color: White



6. In the **Common** tab of the **Return to Display Button Properties** menu, configure the button as shown below.



7. Click **Apply** then **OK**.
8. The **ADVANCED MAINTENANCE** display should now look like the screen below.



8. Click **Save**.



Notes



Cardinal Automation, LLC



About Us

Cardinal Automation, LLC was created by former university instructors and industry professionals to provide custom automation training and equipment to meet the needs of your program.

Cardinal Automation, LLC is committed to providing a quality training platform to those looking to expand their knowledge in industrial automation.

- Our courses offer a concise curriculum taught online and in-person through step-by-step guides to teach real-world industrial equipment.
- We provide custom training options to assist the employees in your facility.
- The automation trainers we build are constructed with industrial grade components that will bridge the gap to industry.

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