



# FactoryTalk Optix Display Implementation Guidelines

Process Library 5.20

Process Library 5.30



**Allen-Bradley**

by ROCKWELL AUTOMATION

**User Manual**

Original Instructions

# Important User Information

Read this document and the documents listed in the additional resources section about installation, configuration, and operation of this equipment before you install, configure, operate, or maintain this product. Users are required to familiarize themselves with installation and wiring instructions in addition to requirements of all applicable codes, laws, and standards.

Activities including installation, adjustments, putting into service, use, assembly, disassembly, and maintenance are required to be carried out by suitably trained personnel in accordance with applicable code of practice.

If this equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

In no event will Rockwell Automation, Inc. be responsible or liable for indirect or consequential damages resulting from the use or application of this equipment.

The examples and diagrams in this manual are included solely for illustrative purposes. Because of the many variables and requirements associated with any particular installation, Rockwell Automation, Inc. cannot assume responsibility or liability for actual use based on the examples and diagrams.

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Throughout this manual, when necessary, we use notes to make you aware of safety considerations.



**WARNING:** Identifies information about practices or circumstances that can cause an explosion in a hazardous environment, which may lead to personal injury or death, property damage, or economic loss.



**ATTENTION:** Identifies information about practices or circumstances that can lead to personal injury or death, property damage, or economic loss. Attentions help you identify a hazard, avoid a hazard, and recognize the consequence.

**IMPORTANT** Identifies information that is critical for successful application and understanding of the product.

These labels may also be on or inside the equipment to provide specific precautions.



**SHOCK HAZARD:** Labels may be on or inside the equipment, for example, a drive or motor, to alert people that dangerous voltage may be present.



**BURN HAZARD:** Labels may be on or inside the equipment, for example, a drive or motor, to alert people that surfaces may reach dangerous temperatures.



**ARC FLASH HAZARD:** Labels may be on or inside the equipment, for example, a motor control center, to alert people to potential Arc Flash. Arc Flash will cause severe injury or death. Wear proper Personal Protective Equipment (PPE). Follow ALL Regulatory requirements for safe work practices and for Personal Protective Equipment (PPE).

The following icon may appear in the text of this document.



Identifies information that is useful and can help to make a process easier to do or easier to understand.

## FactoryTalk Optix Display Guidelines

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## About This Publication

This publication Describes the PlantPax® Add-On Instructions, and associated faceplates that are available in FactoryTalk Optix to develop applications.

## Download Firmware, AOP, EDS, and Other Files

Download firmware, associated files (such as AOP, EDS, and DTM), and access product release notes from the Product Compatibility and Download Center (PCDC) at [rok.auto/pcdc](http://rok.auto/pcdc).

When you update software or firmware revisions, we recommend that you verify the impact on performance and memory utilization before implementing the upgrade on the production system. For FactoryTalk® View or ControlLogix® platforms, we recommend that you review the release notes and verify the impact of the upgrade on performance and memory utilization.

You can also verify the compatibility of the upgrade with the installed software and operating systems in use on your PlantPax system. See the [Product Compatibility and Download Center](http://rok.auto/pcdc).

## Additional Resources

These documents contain additional information concerning related products from Rockwell Automation. You can view or download publications at [rok.auto/literature](http://rok.auto/literature).

Resource	Description
Selection Guide, publication <a href="#">PROCES-SG001</a>	Helps you understand the elements of the PlantPax system to make sure that you buy the proper components.
Template User Manual, publication <a href="#">9528-UM001</a>	Provides direction on how to install and deploy PlantPax virtual templates.
Configuration and Implementation User Manual, publication <a href="#">PROCES-UM100</a>	Provides system guidelines and instructions to assist with the development of your PlantPax system.
Rockwell Automation Sequencer Object, Publication <a href="#">PROCES-RM202</a>	Provides an overview of how to use the Rockwell Automation Sequencer Object. The manual includes a Sequencer programming demonstration, example, and configuration instructions.
PlantPax Faceplates for Process Controller Instructions, publication <a href="#">PROCES-RM203</a>	Describes the PlantPax Process instructions, and associated faceplates that are available to develop applications.
PlantPax Process Control Instructions, publication <a href="#">PROCES-RM215</a>	This manual provides a programmer with details about the available Process instruction set for a Logix-based Process controller.
Process Object parameters Spreadsheet, publication, <a href="#">PROCES-RD200</a>	Describes the PlantPax Process object parameters.
PlantPax Visualization Files, publication, <a href="#">PROCES-RD201</a>	Describes the visualization files that are required for the Library of Process Objects.
EtherNet/IP Network Devices User Manual, publication <a href="#">ENET-UM006</a>	Describes how to configure and use EtherNet/IP™ devices to communicate on the EtherNet/IP network.
Ethernet Reference Manual, publication <a href="#">ENET-RM002</a>	Describes basic Ethernet concepts, infrastructure components, and infrastructure features.
System Security Design Guidelines Reference Manual, publication <a href="#">SECURE-RM001</a>	Provides guidance on how to conduct security assessments, implement Rockwell Automation products in a secure system, harden the control system, manage user access, and dispose of equipment.
UL Standards Listing for Industrial Control Products, publication <a href="#">CMPNTS-SR002</a>	Assists original equipment manufacturers (OEMs) with construction of panels, to help ensure that they conform to the requirements of Underwriters Laboratories.
American Standards, Configurations, and Ratings: Introduction to Motor Circuit Design, publication <a href="#">IC-AT001</a>	Provides an overview of American motor circuit design based on methods that are outlined in the NEC.
Industrial Components Preventive Maintenance, Enclosures, and Contact Ratings Specifications, publication <a href="#">IC-TD002</a>	Provides a quick reference tool for Allen-Bradley® industrial automation controls and assemblies.
Safety Guidelines for the Application, Installation, and Maintenance of Solid-state Control, publication <a href="#">SGI-1.1</a>	Designed to harmonize with NEMA Standards Publication No. ICS 1.1-1987 and provides general guidelines for the application, installation, and maintenance of solid-state control in the form of individual devices or packaged assemblies incorporating solid-state components.
Industrial Automation Wiring and Grounding Guidelines, publication <a href="#">1770-4.1</a>	Provides general guidelines for installing a Rockwell Automation industrial system.
ProposalWorks™ configuration software, <a href="http://rok.auto/systemtools">rok.auto/systemtools</a>	Helps configure complete, valid catalog numbers and build complete quotes based on detailed product information.
Rockwell Automation Global SCCR tool, <a href="http://rok.auto/sccr">rok.auto/sccr</a>	Provides coordinated high-fault branch circuit solutions for motor starters, soft starters, and component drives.
Product Certifications website, <a href="http://rok.auto/certifications">rok.auto/certifications</a>	Provides declarations of conformity, certificates, and other certification details.

**Notes:**

## FactoryTalk Optix Display Guidelines

### FactoryTalk Optix

The following instructions have associated FactoryTalk® Optix™ visualization types: PDI, PDO, PD4SD, PAI, PAID, PAO, PDBC, PDOSE, PHLS, PPID, PMTR, PRT, PVSD, PVLV, PVLVS, PINTLK, PAH, PAIM, PFO, PLLS, PNPOS, PVLVMP, PRI, PPERM, raP\_Opr\_Area, raP\_Opr\_Unit, raP\_Opr\_EMGen, raP\_Opr\_EPGen, raP\_Tec\_ParRpt, raP\_Opr\_Prompt (Runtime only), raP\_Opr\_ExtddAlm, raP\_Dvc\_EH\_Flowmeter, raP\_Dvc\_EH\_Heartbeat, raP\_Dvc\_EH\_Sensor, and all Logix Diagnostic instructions.

For Process Library v5.20.03 release and later, Process Objects are available as a FactoryTalk Optix Library feature. They are added and used on a FactoryTalk Optix project in a similar way to other Rockwell Automation Libraries.

File Type Abbreviations	FactoryTalk Optix	Description
Window	UI\MainWindow Panels\MainLibraryObjects	The main window contains all graphical elements that are displayed at design time in FactoryTalk Optix Studio and at runtime in your FactoryTalk Optix Application.
Panels	UI\RockwellAutomationLibraries	Panels, commonly called faceplates, provide a common user interface
Graphic symbols	Graphic symbols may be found in the "Graphic Symbols" folder for an object.	Reusable and repeatable graphic content to be used on panels.
Images (.svg)	All image files are in the ProjectFiles\res folder in the template application.	Common icons that are used in the Panels for all Process Objects.

# Incorporating the Library HMI Files into your Project

For this release of FactoryTalk Optix, the provided Optix project must be used as the starting project.

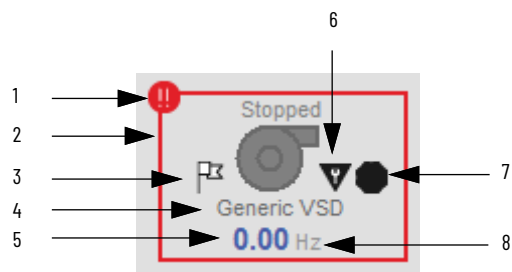
For the latest compatible software information and to download the Rockwell Automation Library, see the Product Compatibility and Download Center.

## Basic Attributes and Indicators

This section shows examples of visual indicators that are common for graphic symbols in the Rockwell Automation Library of Process Objects. Visual indicators are critical to the daily operation of a plant.

Common attributes of graphic symbols typically include:

- Status/quality/threshold indicator
- Maintenance bypass indicator
- Engineering units
- Label
- Command Source indicator (only for non-analog inputs)
- Alarm border that changes color and blinks on unacknowledged alarm
- Alarm indicator symbol that changes with the severity of an alarm

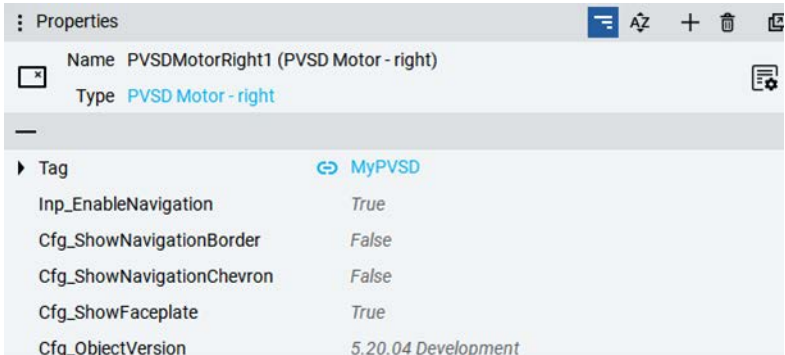


Item	Description
1	Alarm Indicator
2	Alarm Border
3	Command source indicator (In the example the flag indicates not in normal command source)
4	Label
5	Process Variable
6	Maintenance bypass indicator
7	Not Ready indicator
8	Engineering units

Each graphic object includes a touch field over it that opens the faceplate.

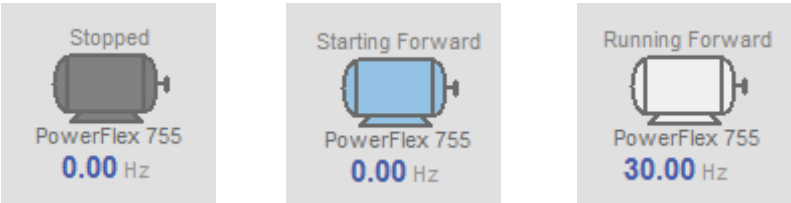
## Graphic Symbol Properties

The Graphic Symbol properties connect a graphic symbol instance to a controller instance and define the appearance of the symbol. When you add a graphic symbol to your display, you must specify the tags in the properties panel.



Variable	Value	Description
Tag	Use Dynamic link icon to select the tag.	Tag for the Graphic Symbol.
Inp_EnableNavigation	True	Set to false to turn off the navigation; set to true to turn on the navigation
Cfg_ShowNavigationBorder	False	If true, display the navigation border.
Cfg_ShowNavigationChevron	False	If true, display the navigation icon.
Cfg_ShowFaceplate	True	If true, display the Main Faceplate dialog; If false, display the Quick Faceplate dialog;

## State Indicators































The State Indicator text and the color change depending on the state of the drive. The indicators and colors are common across all Add-On Instructions. These indicators are applicable FactoryTalk View SE and FactoryTalk Optix applications.

Color	State
Dark Gray	Stopped, De-energized, Closed
Light Blue	Transitioning. examples: Starting, Jogging, Stopping, Opening, Closing, Moving
Light Blue	Horn
White	Running, Energized, Open



## Status Quality Indicators

One of these images appears on the graphic symbol when the described condition is true. These indicators are applicable FactoryTalk View SE and FactoryTalk Optix applications.





Image	Description	Image	Description
No symbol displayed	I/O communication and quality good, configuration valid		Accelerating
	Invalid Configuration		Decelerating
	Invalid Configuration <b>FactoryTalk Optix Only</b>		Value is being initialized
	Data quality bad / failure		Value has not changed (stuck)
	Data Quality degraded: uncertain, test, virtual, substitution, or out of specification		Value is being replaced
	Device not ready to operate		Input matches target
	The input or device has been disabled		input does not match target
	Alarm Inhibit (Suppressed or Bypassed)		Auto loop mode
	Device in loopback test		Manual loop mode
	At target speed		Cascade loop mode
	Speed ref limited to the minimum / maximum		Motor not controllable
	Value infinite or not a number		Process Variable within setpoint deadband (no control action occurs)
	value is being held at last good value		Raise Process Variable output that is energized
	Input Controlled Variable that is clamped to minimum / maximum		Lower Process Variable output that is energized
	Output Controlled Variable that is clamped to minimum / maximum	—	—



When the Invalid Configuration indicator appears, you can find what configuration setting is invalid by following the indicators. Select the graphic symbol to open the faceplate. The Invalid Configuration indicator appears next to the appropriate tab at the top of the faceplate to guide you to the configuration error. Once you navigate to the tab, the misconfiguration is flagged with this indicator.





## Threshold Indicators

These indicators show that the process variable has exceeded a threshold. These indicators are applicable FactoryTalk View SE and FactoryTalk Optix applications.

Image	Description
	High-high threshold exceeded
	High threshold exceeded
	Low threshold exceeded
	Low-low threshold exceeded

## Deviation Indicators

These indicators warn of exceeding the deviation limits. These indicators are applicable FactoryTalk View SE and FactoryTalk Optix applications.

Image	Description
	High-high deviation exceeded
	High deviation exceeded
	Low deviation exceeded
	Low-low deviation exceeded

## Command Source Indicators

The command source indicator displays by exception only. For example, if the device is operating normally, there is not an indicator. If the device is out of service (OoS), then the OoS indicator is displayed. These indicators are applicable FactoryTalk View SE and FactoryTalk Optix applications.

Command source indicators are not used for analog inputs.












Image	Description
No symbol displayed	Device is in normal command source operation
	Device is out of service
	Device is not in normal command source operation
	Device is in program command source operation
	Device is in program locked command source
	Device is in maintenance command source operation
	Device is in operator command source operation
	Device is in external command source operation

Image	Description
	Device is in operator locked command source operation
	Device is in override command source operation
	Device is in hand command source operation

## Maintenance Bypass Indicator

The maintenance bypass indicator appears to the right of the label to indicate that a maintenance bypass has been activated. The Maintenance bypass indicator also appears when the Substitute PV function is enabled. A Maintenance-entered value supersedes the 'live' process variable. These indicators are applicable FactoryTalk View SE and FactoryTalk Optix applications.

Image	Description
	A maintenance bypass is active
No symbol displayed	No maintenance bypass is active



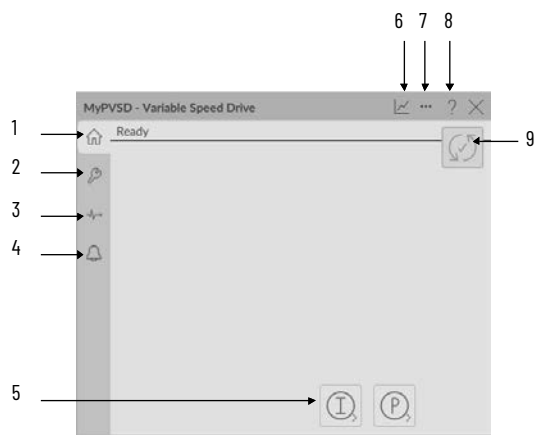
When the Maintenance bypass indicator appears, you can find what condition was bypassed by following the indicators. Select the graphic symbol to open the faceplate. The Maintenance bypass indicator appears next to the appropriate tab at the top of the faceplate to guide you to the bypass. Once you navigate to the tab, the bypassed item is flagged with this indicator.

Basic Faceplate Attributes

Faceplates consist of tabs, and each tab consists of one or more accordions. The Operator (Home) tab is displayed when the faceplate is initially opened. The faceplate provides the means for operators, maintenance personnel, engineers, and others to interact with an instruction instance, which includes a view of its status and values. Faceplates also manipulate an instruction through its commands and settings. Select the appropriate icon on the left of the faceplate to access a specific tab. This section provides an overview of the faceplate attributes that are common across the objects. More details are supplied in the individual section for each object.

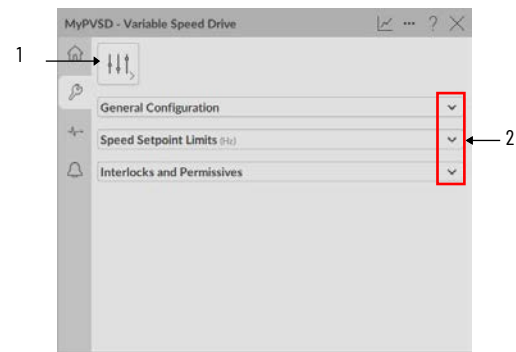
**IMPORTANT** The faceplates that are shown are FactoryTalk View SE faceplates. The FactoryTalk Optix faceplates contain the same basic attributes, but use accordions rather than multiple pages. In FactoryTalk Optix, the trend, help, and more information buttons are located in the faceplate title bar.

Operator Tab



Item	Action
1	Select to open the operator tab.
2	Select to open the maintenance tab.
3	Select to open the diagnostics tab.
4	Select to open the alarm tab.
5	If the object is configured to have permissive and interlock objects (for example, Cfg.HasPermObj (Fast or Slow) or Cfg.HasIntlkObj is true), the permissive and interlock indication become buttons. These buttons open the faceplates of the source objects that are used as a permissive or interlock. Often this is a PPERM or PINTLK instruction. If the object is not configured in this way, the permissive or interlock symbols are indicators only.
6	Select to open the trends tab.
7	Select to navigate to an object with more information.
8	Select to open the Help file.
9	Select to reset and acknowledge all alarms.

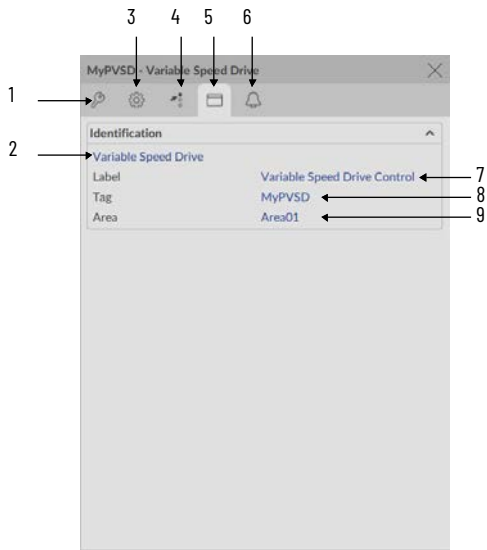
Maintenance Tab



Item	Description
1	Select to open Advanced Properties.
2	Select the dropdown arrows to open content blocks.



## Advanced Properties Tab

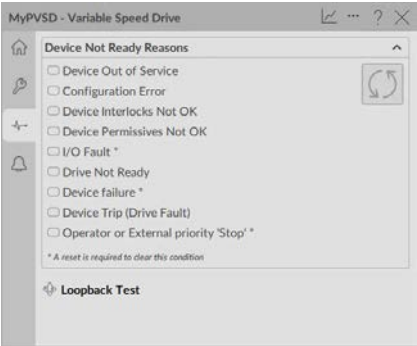


Item	Description
1	Select to open the Advanced Maintenance tab.
2	Device description that shows on the faceplate title bar.
3	Select to open the Advanced Engineering tab.
4	Select to open the Advanced Command Source tab.
5	Select to open the HMI Configuration tab.
6	Select to open the Advanced Alarm Configuration tab.
7	Label to show on the graphic symbol.
8	Tag name that shows on the faceplate.
9	Area name for security.

## Diagnostics Tab

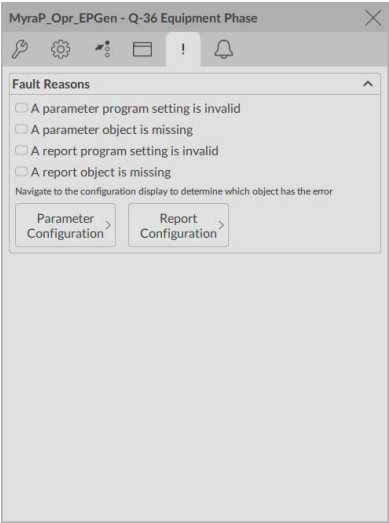
The Diagnostic tab provides indications that are helpful to diagnose or help prevent device problems. These problems can include specific reasons a device is 'Not Ready', device warnings and faults, warning and fault history, and predictive/preventive maintenance data.

The Diagnostics tab displays possible reasons for the device not being ready.



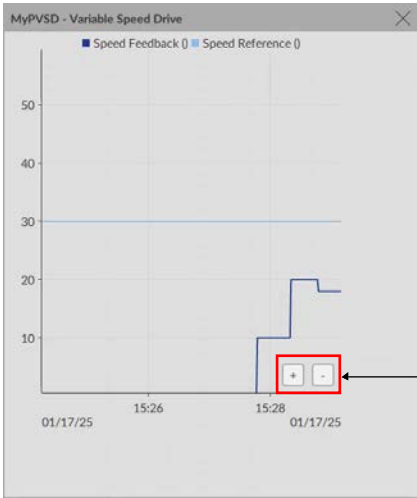
## Faults Tab

The faults tab contains specific reasons that the device is not ready.



## Trends Display

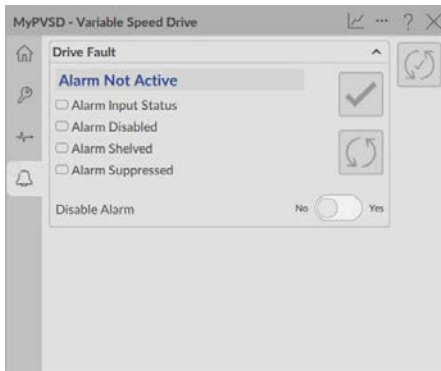
The Trends display shows trend charts of key device data over time. These faceplate trends provide a quick view of current device performance to supplement, but not replace, dedicated historical or live trend displays.



Item	Description
1	Select to zoom in/out.

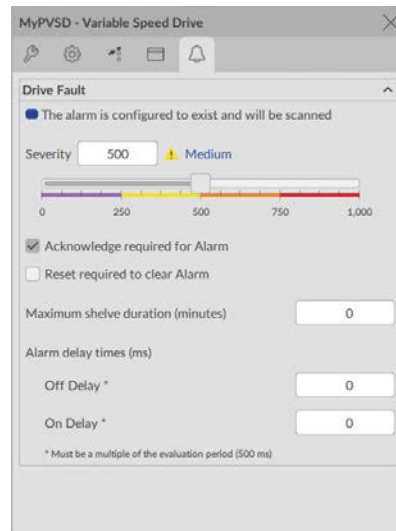
## Alarms Tab

The Alarms tab displays each configured alarm. The icon on the tab for the alarms page has an outline that changes color to show the current active alarm status.



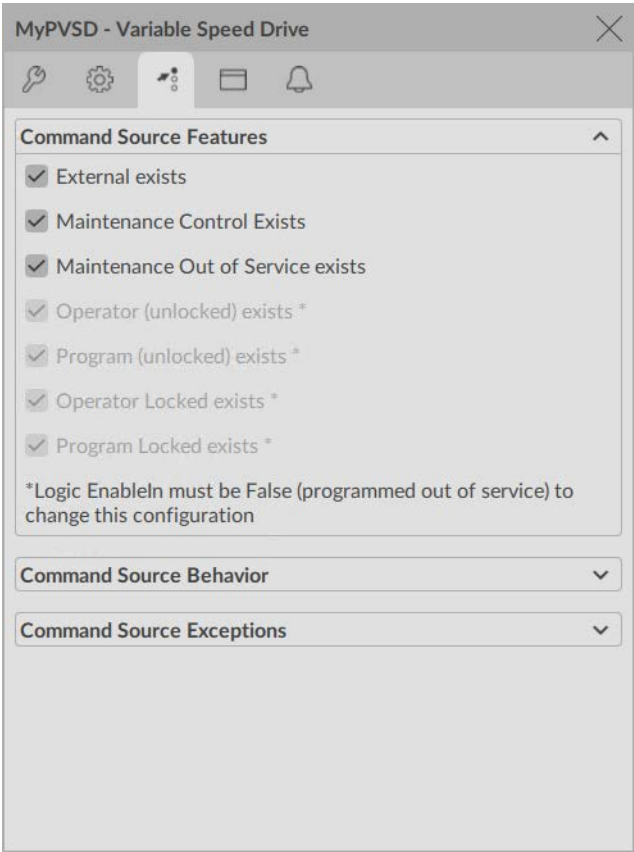
## Advanced Alarms Tab

The Advanced Alarm Configuration tab has settings that are common for all objects with alarms. Each alarm instance uses a common configuration widget to configure the alarm.



## Advanced Command Source Configuration Tab

The Command Source configuration tab has settings that are common for all objects with Command Source. The "Command Source Exceptions" area has different exceptions for each object that is specific to the objects commands and settings. See the following diagram for common attributes of the Command Source configuration tab.



## Help Button

Press the help button on the faceplates to access help specific to that faceplate. The help button can be used to access help files provided with the library download in a .pdf format.

See the following example:

### Variable Speed Drive Faceplate Help

#### Status Indicators

	Invalid configuration		Alarm Inhibit (Shelved or Disabled)
	Data quality bad / failure		Maintenance Bypass active
	Data quality degraded / uncertain		Virtual (Simulation or Test)
	Device not ready to operate		Accelerating
	At target Speed		Decelerating
	Speed reference limited		

#### Command Source Indicators

	Program		Program Locked
	Operator		Operator Locked
	External		Override
	Maintenance		Out of Service
	Hand (Local)		Source other than the normal Command Source selected

#### Interlocks and Permissives

	One or more conditions not OK
	Non-Bypassed conditions OK
	All conditions OK, Bypass Active
	All conditions OK

### Commands

	Start Drive Forward. Available in Operator or Maintenance Command Source		Stop Drive. Available in Operator or Maintenance Command Source
	Start Drive Reverse. Available in Operator or Maintenance Command Source		Jog Drive Forward. Available in Operator or Maintenance Command Source
	Jog Drive Reverse. Available in Operator or Maintenance Command Source		

### Navigation

	Show more information for this object
	Restart inhibit display
	Motor runtime display
	Show device specific information

### Alarms

#### I/O Fault Alarm

The I/O Fault Alarm is triggered when a controller hardware or communication fault is detected.

#### Interlock Trip Alarm

The Interlock Trip Alarm is triggered when an interlock condition causes the drive to stop.

#### Fail to Start and Fail to Stop Alarm

These alarms trigger when the drive fails to Start or Stop within the time specified on the Maintenance Configuration Tab.

#### Drive Fault Alarm

The Drive Fault Alarm occurs when a drive fault is received from the drive.

### Alarm Icons

	Urgent		High		Medium
	Low		Out of Alarm Ack Required		

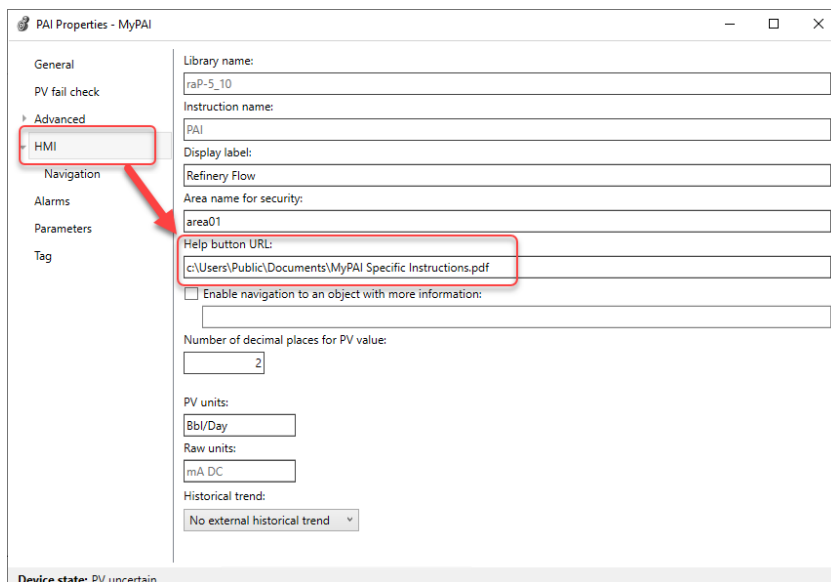
### Alarm Commands

	Acknowledge Alarm. This command acknowledges an alarm that has been configured with "Ack Required".
	Acknowledge and Reset all alarms for an object. This acknowledges all active alarms and resets all alarms that have been configured with "Reset Required".

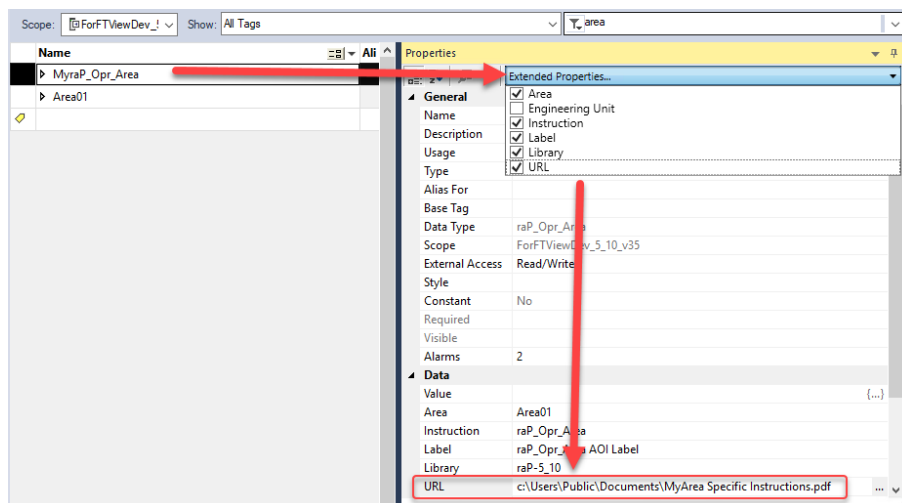
### Alarm States

	Alarm Suppressed (inhibited by logic)
	Alarm Disabled (by user)
	Alarm Shelved (logged but not annunciated)

To use a specific URL with the help button for an object, open the object's dialog box in Logix Designer. Select the "HMI" tab and input the URL under "Help button URL:"



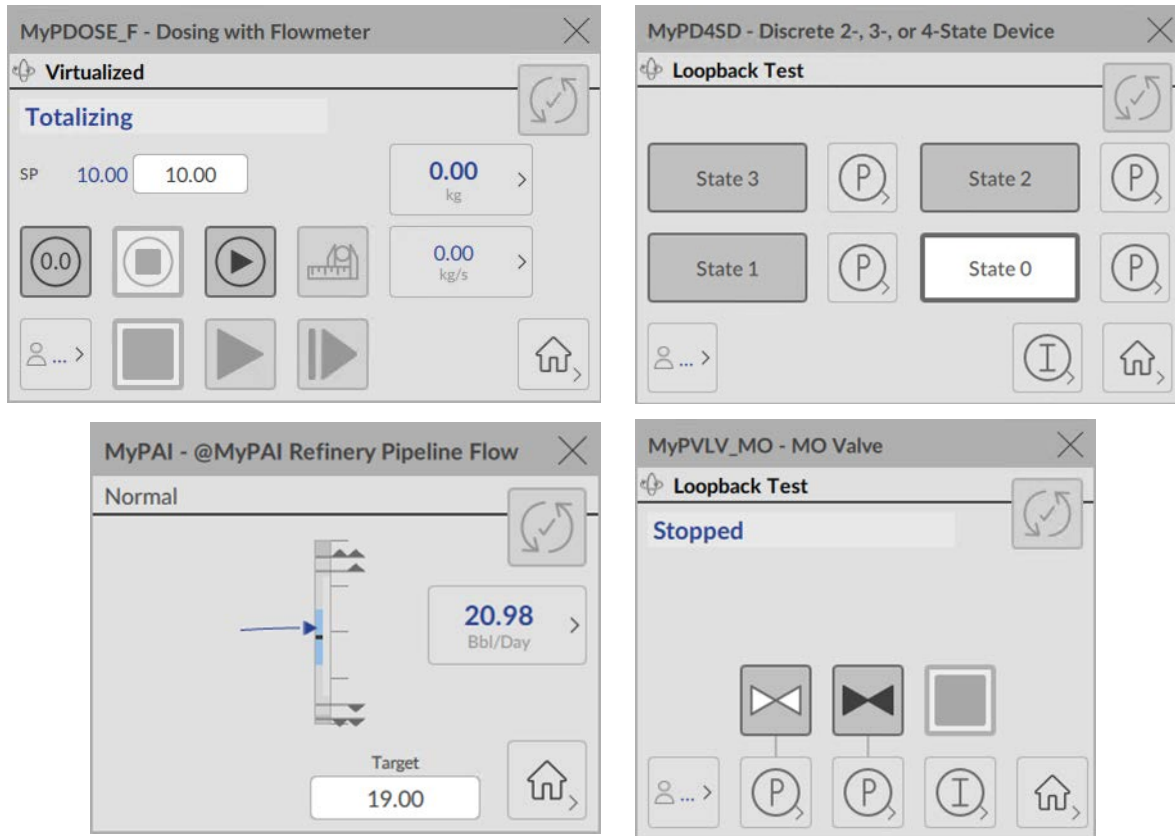
For a library object that is an Add-On Instruction, find the object base tag in the controller tags. Select the tag and review the properties panel. The extended tag property "URL" can be updated here.



The URL can be any file path or web URL. If the Help button URL is left blank, the button defaults to using the Help files provided with the library download.

## Quick Display Interaction

A Quick Display is a simplified faceplate that is designed for the Operator role and includes the most common actions that are required by an operator. From the Quick Display, select the Home button to navigate to the faceplate for full access for operation, maintenance, and configuration. All other buttons function the same as on the main faceplate. The following figures show examples of quick displays.



## Studio 5000 Logix Designer Project Configuration

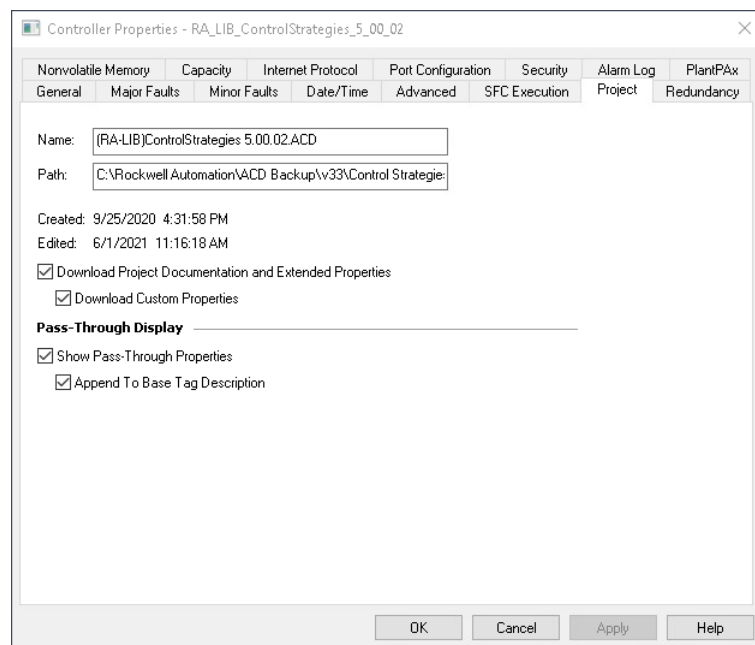
The Library of Process Objects 5.0 and later uses the Extended Tag Properties feature inside Studio 5000 Logix Designer®. When configuring your Studio 5000 Logix Designer project file, the following boxes must be checked (checked by default):

- Download Project Documentation and Extended Properties
- Download Custom Properties
- Show Pass-Through Properties
- Append To Base Tag Description

Note: Configuring the properties (.@Library, .@Instruction, .@Area, and .@Labels) incorrectly results in empty values that cause an error when calling up the relevant HMI faceplate.

### IMPORTANT

The pass-through feature of extended tag properties is only compatible with FactoryTalk View SE. The Pass-Through feature of Extended Tag Properties is not compatible with FactoryTalk Optix. If using FactoryTalk Optix faceplates, all extended tag properties **MUST** be entered directly or errors will be present.



## Bulk Edit Translated Content

To edit multiple text strings (rather than opening the properties for each object in your program), use the PlantPAx® Configuration Tool.

1. Open the PlantPAx Configuration Tool, and if necessary, add the controller for your project.
2. Select the controller and select Export Tag Meta Data to Logix Localization File.
3. Name the export file and select the files that you want to export.
4. Select Use language template values if tag properties not configured.



There are default values in the tag properties for tags in the Control Strategies. These are typical text strings to translate.

Export Controller Tag Meta Data to Logix Localization File

Controller: RA\_LIB\_CS\_5\_00\_03

Localization File to Save As:  
 C:\ProgramData\Rockwell Automation\PlantPAx Configuration Tools for Tags, Alarms, and Historian\6.6.1.01\Export tags.txt

Save As...

Localization Languages

Key: French (France) [fr-FR]

Localize To:

x	Language	ID
<input type="checkbox"/>	Korean (Korea)	ko-KR
<input checked="" type="checkbox"/>	Portuguese (Brazil)	pt-BR
<input type="checkbox"/>	Spanish (Spain)	es-ES

Add...

Export Options

☒ Include all meta data template properties that can be localized

☐ Include only meta data templates properties with blank template values (useful for exporting user-configured strings)

☐ Include only meta data templates properties with non-blank template values (useful for exporting predefined static strings)

☐ Include configured tag properties not in template.

☒ Use language template values if tag properties not configured.

Edit Meta Data Templates...

Tags to Export

☐ Include Array Tags

☐ Include Atomic Data Types

☐ Exclude Alias Tags and InOut Program Parameter Tags

☒ Use all controller tags with meta data type templates

☐ Use selected tags...

Add Tags... Remove Tags...

Export Cancel Help

## 5. Select Export

The exported data opens in an Excel® spreadsheet. Adjust the columns widths to see the data. There is one column for each language that you selected. Enter the translated content for each tag property and language.

To import the translated content, open the controller project in the Logix Designer application and select Tools > Documentation Languages > Import and select the spreadsheet file with the translated strings.

# PlantPax Process Library User Guide for FactoryTalk Optix

More information on FactoryTalk Optix can be found online at [FactoryTalk Optix Help](#).

The PlantPax Process Library User Guide for FactoryTalk Optix is a comprehensive set of pre-engineered, reusable process control objects designed for Rockwell Automation's PlantPax distributed control system. It facilitates rapid development of process automation projects by providing standardized instructions, HMI faceplates, and control strategies for a wide range of process applications.

The PlantPax Process Library for FactoryTalk Optix is typically designated as 'raP\_<Version>\_Libraries'. For illustration purposes in the following sections, 'raP\_5\_20\_Libraries' will be used as an example. Similar steps apply for 'raP\_5\_30\_Libraries'.

## NetLogic Security Warning in FactoryTalk Optix

When you open a FactoryTalk Optix project and attempt to start Runtime for the first time, the system displays a "NetLogic security warning" pop-up. This warning appears because your project's NetLogic C# code references certain .NET assemblies or third-party components that impact your project's security.

### What is shown in the warning?

- A list of referenced .NET assemblies and third-party assemblies that are considered security-critical.
- Standard .NET assemblies: System.IO, System.Reflection (generally referenced).

System.IO and System.Reflection are required for basic file operations and reflection functionality, such as the NetLogic raSDK1\_NL\_NavUsingTag.cs provided by PlantPax Process Library for navigation functionality. These standard .NET assemblies are listed in the warning for every project that is using PlantPax Process Library.

- E-Signature related third-party assemblies (if your project contains E-Signature NetLogic).

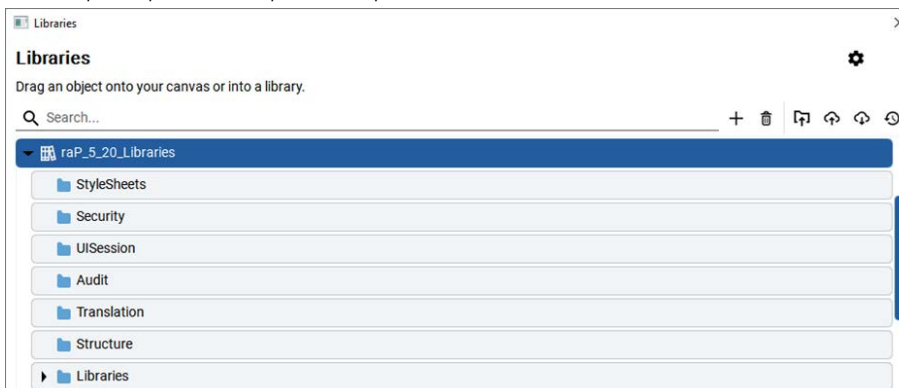
In addition, the warning may mention four other assemblies (NPOI, NPOI.OOXML, NPOI.OpenXml4Net, NPOI.OpenXmlFormats). These assemblies are used by Audit\_NetLogic related to E-Signature functionalities that are provided by PlantPax Process Library.

(For more information about how to configure E-Signature, See [FactoryTalk Optix E-Signature User Guide on page 331](#))

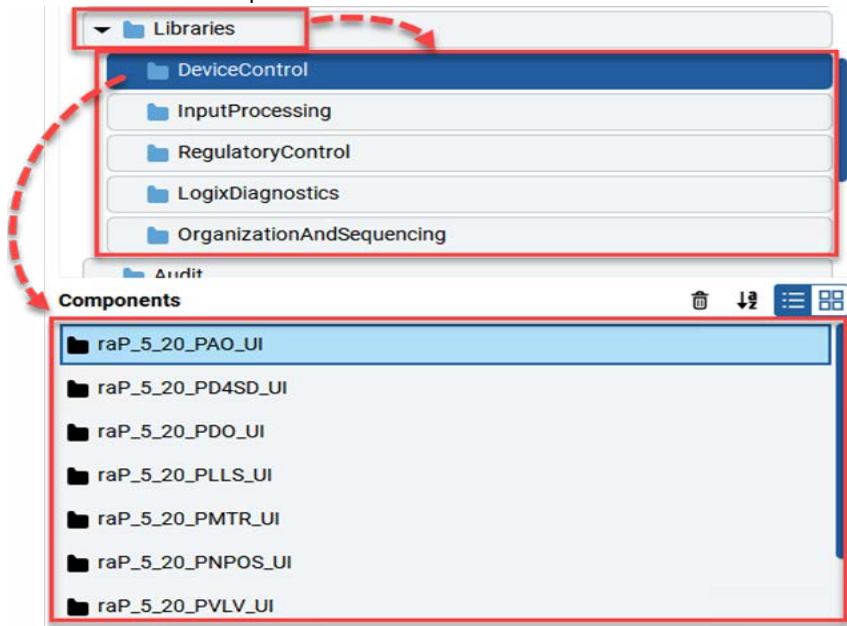
This warning is designed by FactoryTalk Optix to keep you informed about components that may affect your application's security at runtime or when deploying. You may choose to trust the above-mentioned assemblies and prevent this warning from appearing again.

## Library Composition and Structure

The raP\_<version>\_Libraries directory comprises seven distinct folders: StyleSheets, Security, UI\_Session, Audit, Translation, Structure, and Libraries.



The 'Libraries' folder contains six subfolders, each of which houses several HMI objects associated with various faceplates.



The following table shows the hierarchy of the Library.

Folder	Subfolder(s)	Objects
Structure	RockwellAutomationLibraries	
Libraries	DeviceControl	raP_<Version>_PAO_UI
		raP_<Version>_PD4SD_UI
		raP_<Version>_PDO_UI
		raP_<Version>_PLLS_UI
		raP_<Version>_PMTR_UI
		raP_<Version>_PNPOS_UI
		raP_<Version>_PVLV_UI
		raP_<Version>_PVLVMP_UI
		raP_<Version>_PVSD_UI
	InputProcessing	raP_<Version>_PAH_UI
		raP_<Version>_PAI_UI
		raP_<Version>_PAID_UI
		raP_<Version>_PAIM_UI
		raP_<Version>_PDI_UI
		raP_<Version>_PPTC_UI
		raP_<Version>_PTST_UI
	RegulatoryControl	raP_<Version>_PDBC_UI
		raP_<Version>_PDOSE_UI
		raP_<Version>_PFO_UI
		raP_<Version>_PHLS_UI
	LogixDiagnostics	raP_<Version>_raP_Dvc_LgxChangeDet_UI
		raP_<Version>_raP_Dvc_LgxCPU_5x80_UI
		raP_<Version>_raP_Dvc_LgxRedun_UI
		raP_<Version>_raP_Dvc_LgxModuleS
		raP_<Version>_raP_Dvc_LgxTaskMo
	OrganizationAndSequencing	raP_<Version>_raP_Opr_Area_UI
		raP_<Version>_raP_Opr_EMGen_UI
		raP_<Version>_raP_Opr_EPGen_UI
		raP_<Version>_raP_Opr_Prompt_UI
		raP_<Version>_raP_Opr_Unit_UI
		raP_<Version>_raP_Tec_ParRpt_UI
		raP_<Version>_raP_Opr_Seq_UI
		raP_<Version>_raP_Opr_VSM_UI
		raP_<Version>_raP_UDT_Opr_Bus_UI
		raP_<Version>_raP_Opr_OrgView_UI
	PremierIntegration	raP_<Version>_raP_Dvc_EH_Flowmeter_UI
		raP_<Version>_raP_Dvc_EH_Heartbeat_UI
		raP_<Version>_raP_Dvc_EH_Sensor_UI
		raP_<Version>_raP_Dvc_AP_PALink_UI
		raP_<Version>_raP_Dvc_AP_FFLink_UI
Security	Groups UserTypes	
StyleSheets	StyleSheets	

Folder	Subfolder(s)	Objects
Translations	Translation_NetLogic Translations	
UISession	raC_Libraries raP_ProjectSettings	
Audit	Audit	SigningWorkflow HMI objects SigningEventLogger AuditLogger
	Audit_NetLogic dg_AuditLogging dg_ESigLogging	

## Configuring Your Project with the Library

### Library Location

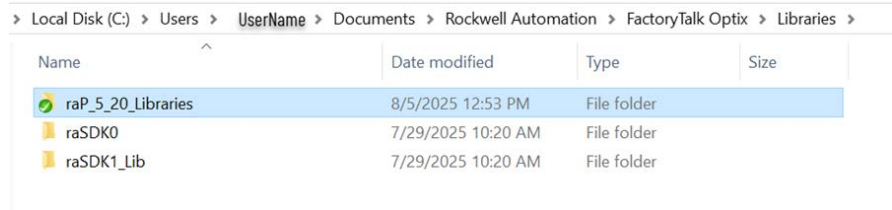
Once downloaded, place the raP\_<Version>\_Libraries folder in your local FactoryTalk Optix project's Libraries directory. This is automated using the included CopytoFTOptixLibrary.cmd.

#### IMPORTANT

Running CopytoFTOptixLibrary.cmd overwrites any existing PlantPAx Process Library with the same name in the local FactoryTalk Optix Libraries directory.

If the existing library has been customized or is used by any projects, it is recommended to back it up before running this script.

For example: C:\Users\<User>\Documents\Rockwell Automation\FactoryTalk Optix\Libraries

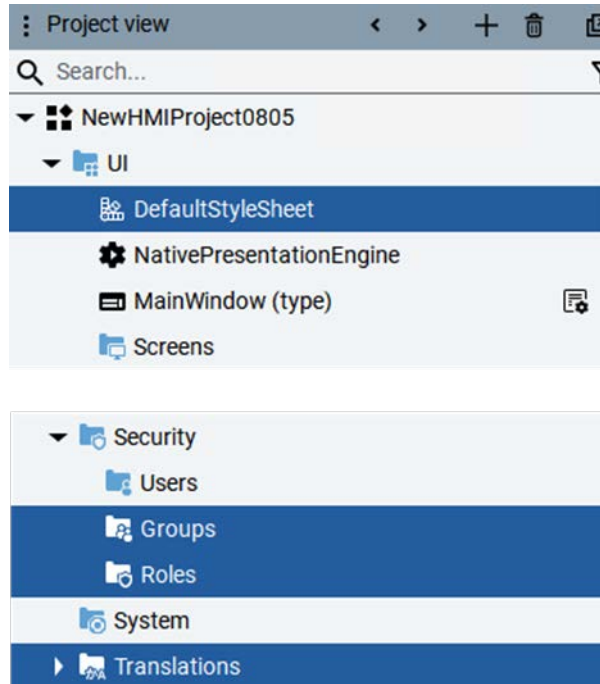


Name	Date modified	Type	Size
raP_5_20_Libraries	8/5/2025 12:53 PM	File folder	
raSDK0	7/29/2025 10:20 AM	File folder	
raSDK1_Lib	7/29/2025 10:20 AM	File folder	

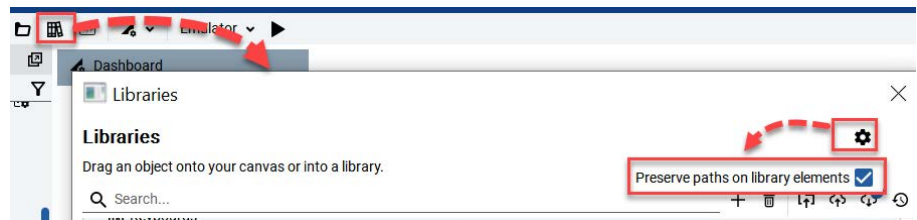
## Create a New Project

1. Open FactoryTalk Optix Studio and create a default project.
2. Delete below default objects in the new project:
  - 'DefaultStyleSheet' in 'UI' folder,
  - 'Groups' and 'Roles' in 'Security' folder,

- 'Translations' folder.

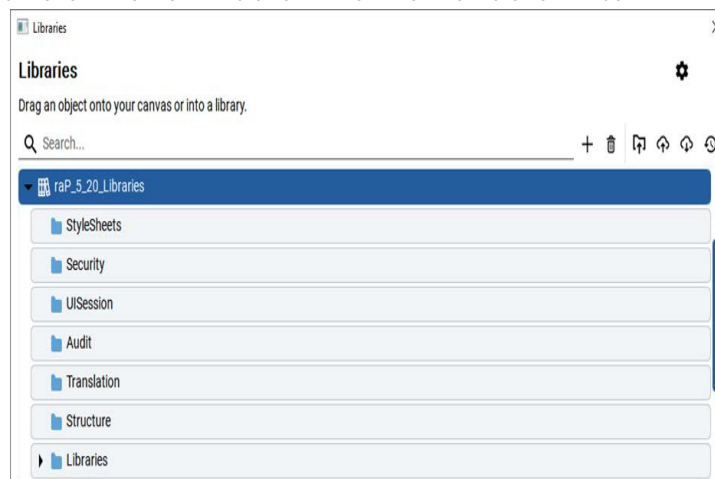


3. Click the Template Libraries button from the top menu and open the configuration of Libraries window. Check 'Preserve paths on library elements' checkbox.

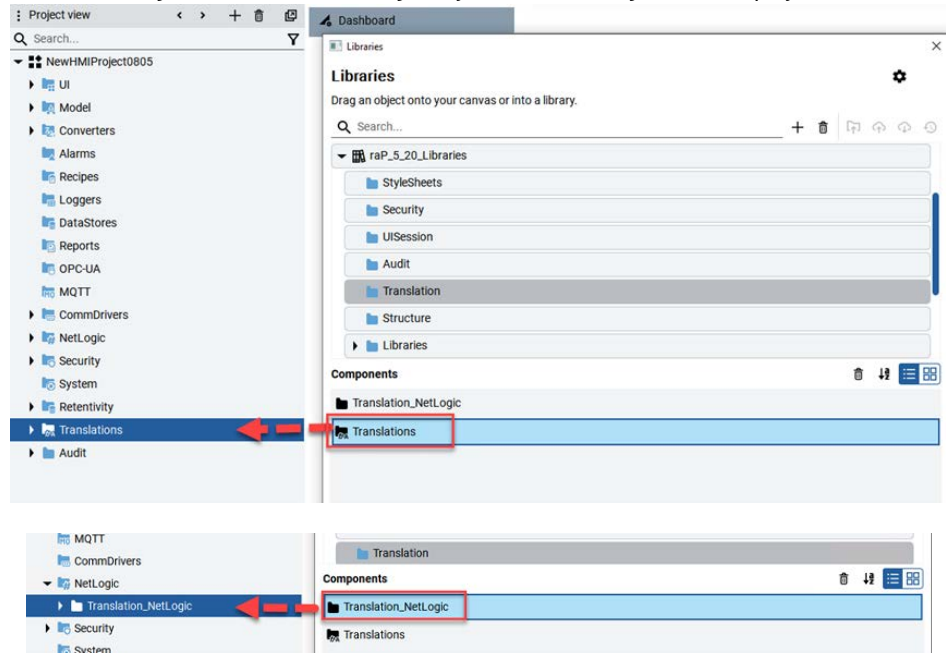


## Organize the Project Structure

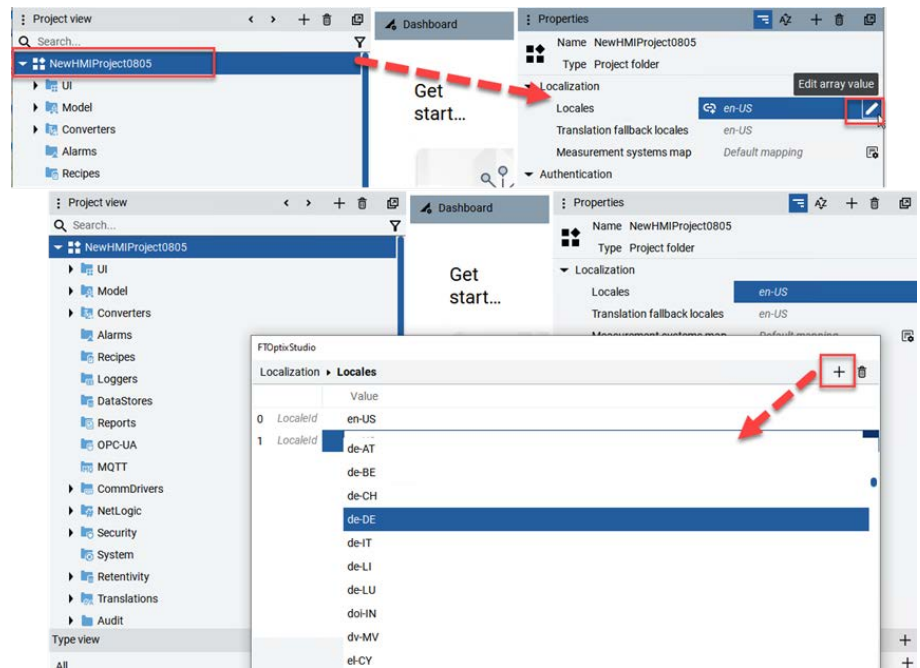
1. Find the raP\_<Version>\_Libraries in the list of the Libraries window.



- From the 'Translation' library folder, drag the 'Translations' object to the project canvas and drag the 'Translation\_NetLogic' object to the 'NetLogic' folder in project view.



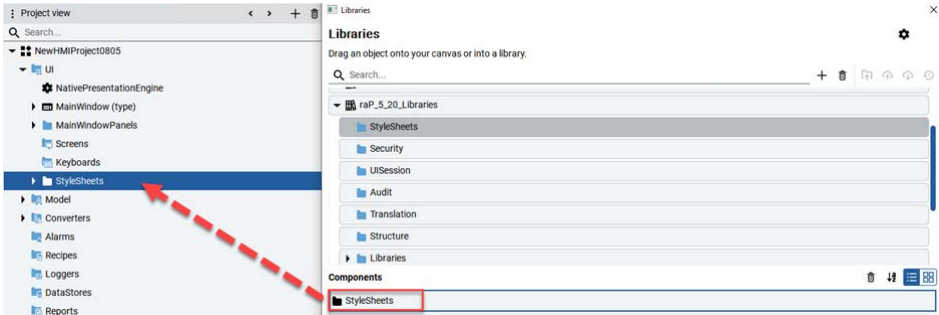
**Note:** To enable multilingual display in FactoryTalk Optix Runtime, you must manually add the desired languages under 'Localization->Locales' within the project canvas Properties. Otherwise, only English is available.



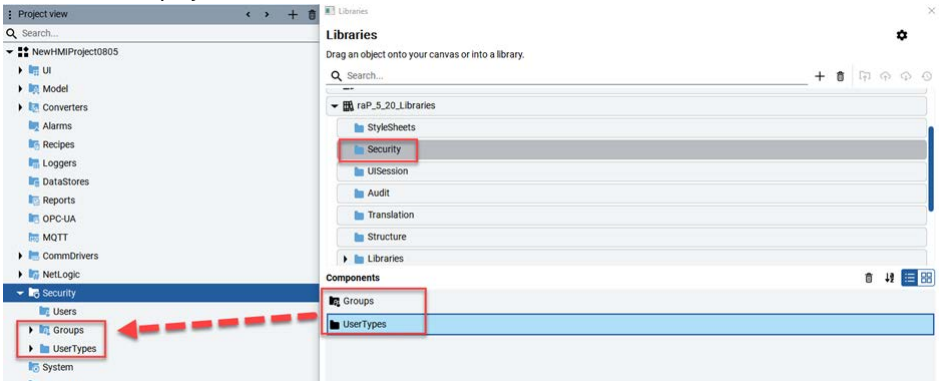
Process Library faceplates support up to eight languages:

FTOptixStudio		
Localization ▸ Locales		
		Value
0	LocaleId	en-US
1	LocaleId	it-IT
2	LocaleId	zh-CN
3	LocaleId	de-DE
4	LocaleId	ko-KR
5	LocaleId	fr-FR
6	LocaleId	pt-BR
7	LocaleId	es-ES
<div>Apply Cancel Open in tab</div>		

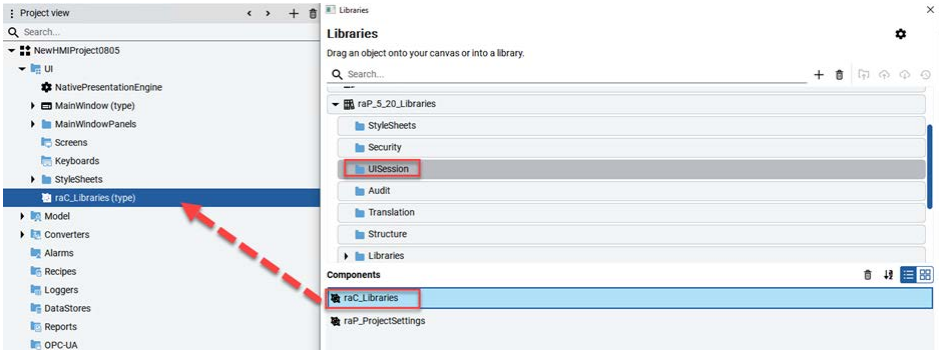
3. From the 'StyleSheets' library folder, drag the 'Stylesheets' object into 'UI' folder in project view.



4. From the 'Security' library folder, drag the 'UserTypes' and 'Groups' objects into 'Security' folder in project view.

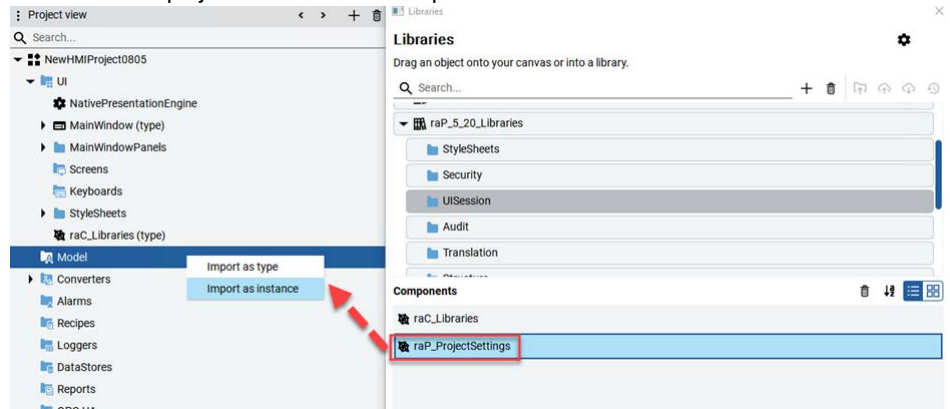


5. From the 'UISession' library folder, drag the 'raC\_Libraries' object into 'UI' folder in project view.

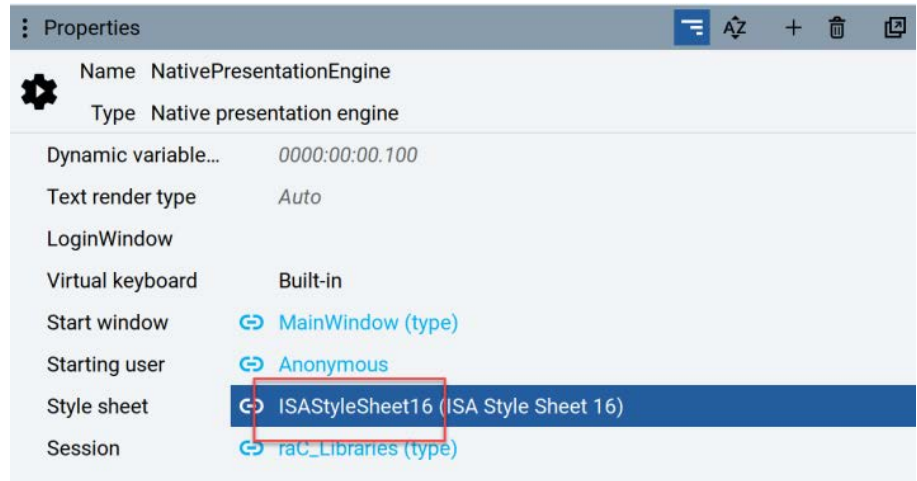




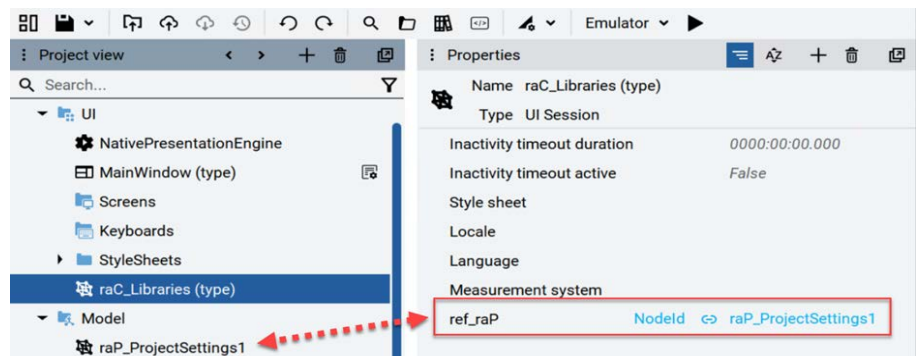
6. From the 'UISession' library folder, drag the 'raP\_ProjectSettings' object into the 'Model' folder in project view and select 'Import as instance'.



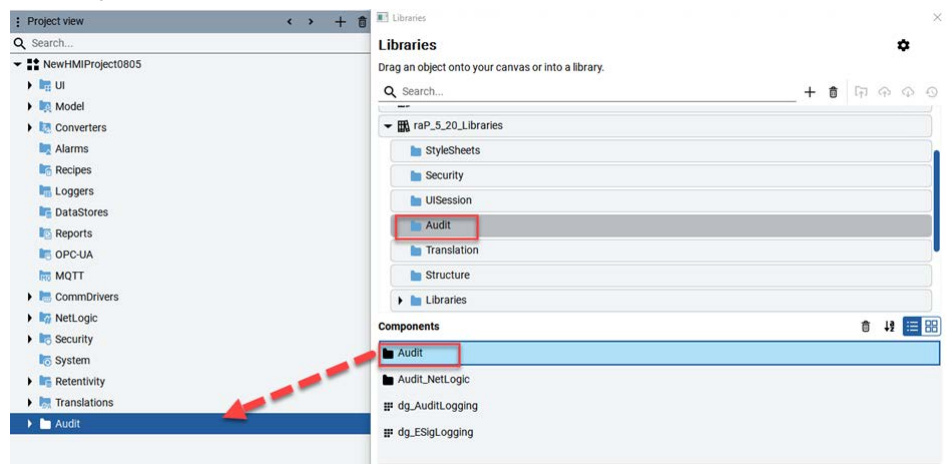
7. Configure the project.
  - a. Open NativePresentationEngine and update the properties as follows:
    - Virtual keyboard: 'Built-in'
    - Style sheet: 'ISASheet16 (ISA Style Sheet 16)'
    - Session: 'raC\_Libraries'



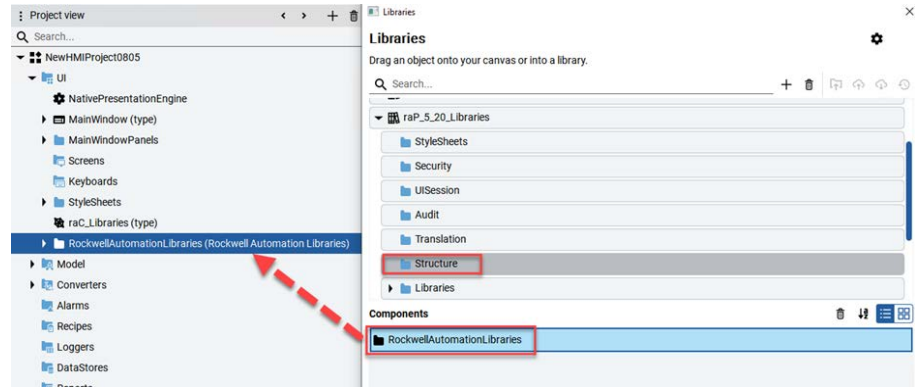
- b. Select 'raC\_Libraries' and modify the 'ref\_raP' option link to 'raP\_ProjectSettings1'.



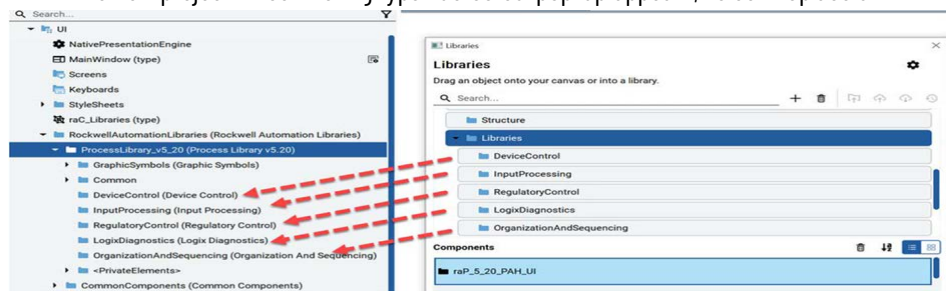
8. From the 'Audit' library folder, drag the 'Audit' object to the project canvas in the project view.



9. From the 'Structure' library folder, drag the 'RockwellAutomationLibraries' object to the 'UI' folder in project view.



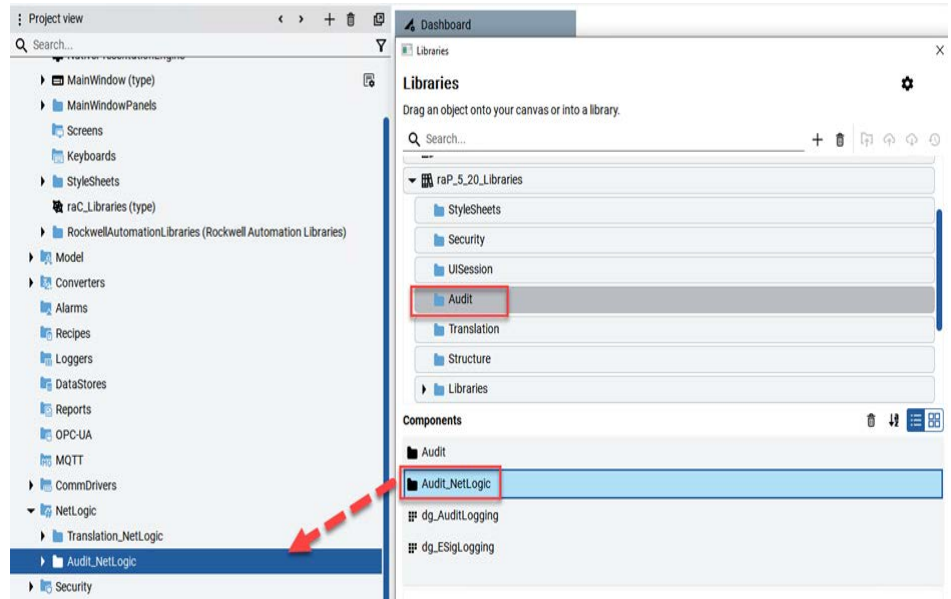
10. From the 'Libraries' library folder, drag each faceplate object from the subfolders to the corresponding subfolders of 'UI\RockwellAutomationLibraries\ProcessLibrary\_v5\_20' in the new project. If 'Conflicting types detected' pop-up appears, select 'Replace all'.



**Note:** There is a specified order for dragging the faceplates for the subfolders that are listed below:

- In 'PremierIntegration' library folder, drag 'raP\_5\_20\_raP\_Dvc\_EH\_Heartbeat\_UI' to corresponding folder in the project view before 'raP\_5\_20\_raP\_Dvc\_EH\_Flowmeter\_UI' and 'raP\_5\_20\_raP\_Dvc\_EH\_Sensor\_UI'. (EH\_Heartbeat is used by the other EH objects, so it must be brought into the project before 'raP\_5\_20\_raP\_Dvc\_EH\_Flowmeter\_UI' and 'raP\_5\_20\_raP\_Dvc\_EH\_Sensor\_UI'.)
- In 'OrganizationAndSequencing' library folder, drag 'raP\_5\_20\_raP\_Opr\_Prompt\_UI', 'raP\_5\_20\_raP\_Tec\_ParRpt\_UI', and 'raP\_5\_20\_raP\_Opr\_VSM\_UI' to the corresponding folder in the project view first. (Prompt, ParRpt, and VSM are used by the other 'OrganizationAndSequencing' objects, so they must be brought in before Sequencer, Area, Unit, EMGen, and EPGen.)

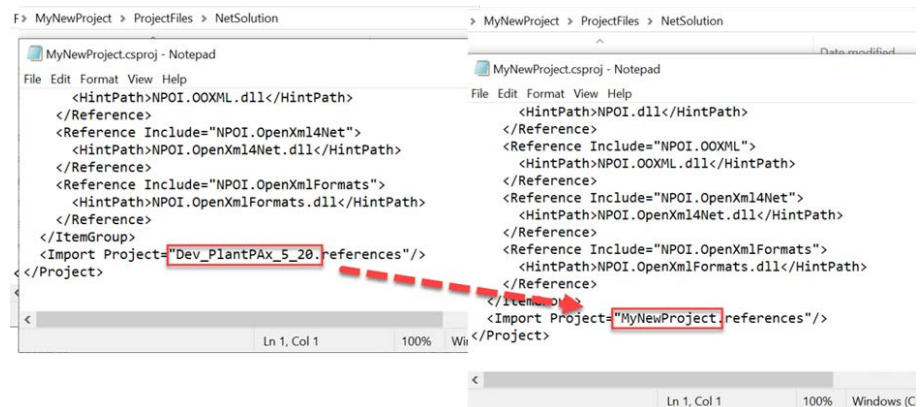
11. From the 'Audit' library folder, drag the 'Audit\_NetLogic' object to 'NetLogic' folder in project view. A warning message (the warning is expected) occurs upon completion in FactoryTalk Optix Studio Output message box, stating 'User .NET solution failed to build'.



12. Save and close the project.
13. Copy the 'ESignature' folder, 'Help' folder, and 'AlarmDetails' folder from 'C:\Users\<User>\Documents\Rockwell Automation\FactoryTalk Optix\Libraries\raP\_<Version>\_Libraries\ProjectFiles\res' to '<Project path>\ProjectsFiles\res' folder.

## Configure E-Signature

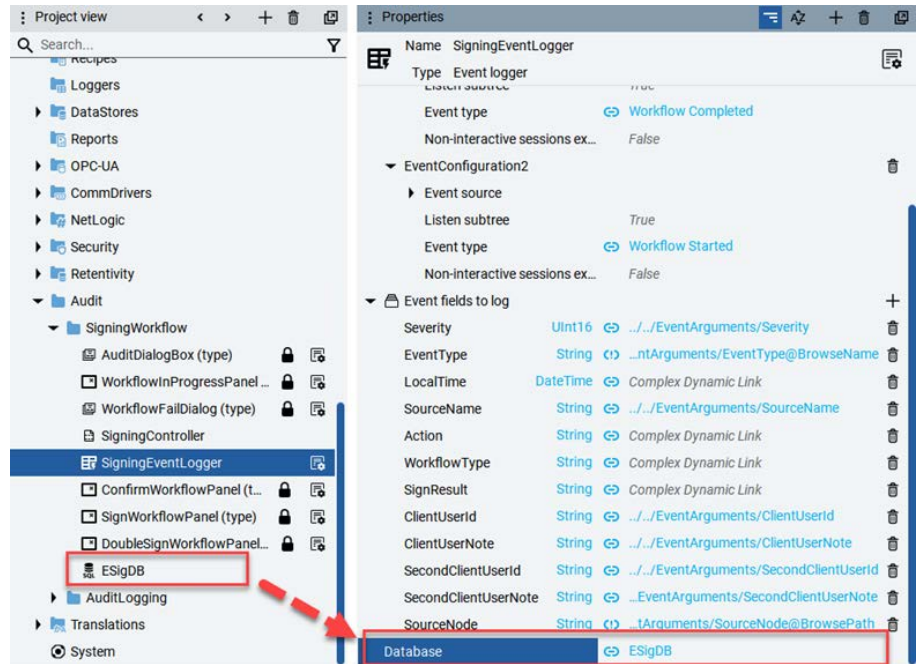
1. Double-click 'CopyESignatureNetLogicConfigToProject.cmd' in '<ProjectPath>\ProjectFiles\res\ESignature' and follow the prompts to complete the operation.
2. In '<ProjectPath>\ProjectsFiles\NetSolution', open the <ProjectName>.csproj file and modify the project name in the last line to match actual <ProjectName>. Once completed, save the changes and close the file.



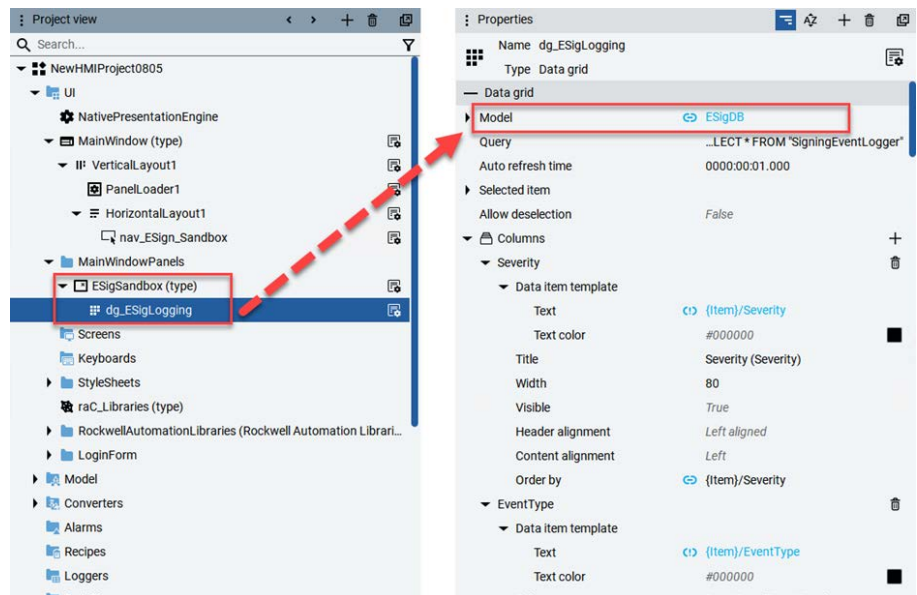
3. Follow [FactoryTalk Optix E-Signature User Guide on page 331](#) to configure E-Signature for each object.

## Configure E-Signature Logging

1. Open the new HMI project in FactoryTalk Optix Studio.
2. Under 'Audit -> SigningWorkflow' folder, create a Database (either an Embedded Database or an ODBC Database) for E-Signature logging. For illustration purposes, we proceed with creating an Embedded Database named ESigDB.
3. In Properties of SigningEventLogger, make sure that Database is set to ESigDB.



4. Under 'UI' folder, create a panel for DataGrid (for example, named 'ESigSandbox').
5. Drag the DataGrid dg\_ESigLogging from the raP\_<Version>.Libraries to panel 'ESigSandbox'. Ensure that Model is set to ESigDB. The columns on the grid can be customized based on the event fields that are defined in the SigningEventLogger.

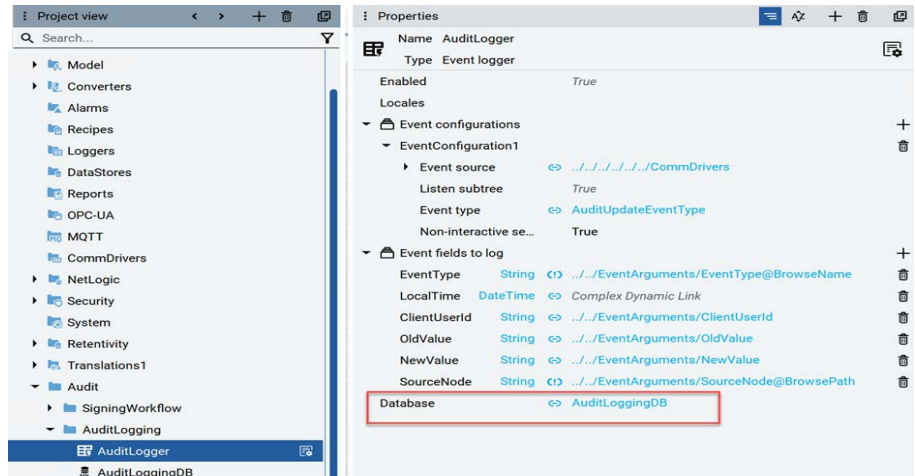


**Note:** For more detailed information about E-Signature configuration, see [FactoryTalk Optix E-Signature User Guide on page 331](#).

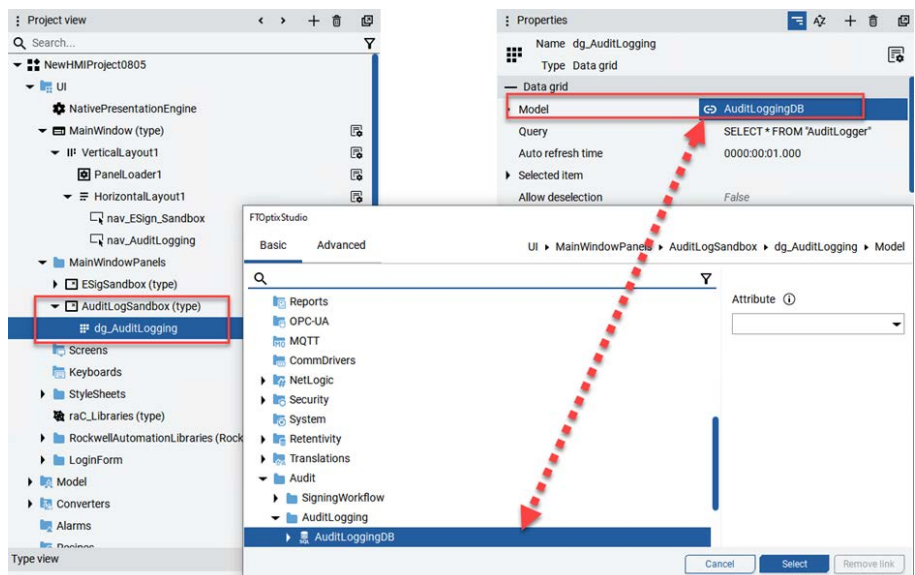
## Configure FactoryTalk Optix Audit Logging

If you need AuditLogging for your project, add an AuditLogging display to your HMI project. The following steps explain how to build the display using the AuditLogging elements in the PlantPax Process Library.

1. Under 'Audit -> AuditLogging' folder in project view, create a Database (either an Embedded Database or an ODBC Database). For example, an Embedded Database that is named 'AuditLoggingDB' may be used.
2. Navigate to 'Audit -> AuditLogging -> AuditLogger' Properties view, configure:
  - Set Database to 'AuditLoggingDB'



3. Under 'UI' folder, create a panel for DataGrid (for example, named 'AuditLogSandbox').
4. From the 'Audit' library folder, drag the 'dg\_AuditLogging' object to panel 'AuditLogSandbox' in project view.
5. Select 'dg\_AuditLogging' in project view, and link Model to 'AuditLoggingDB' in its Properties.





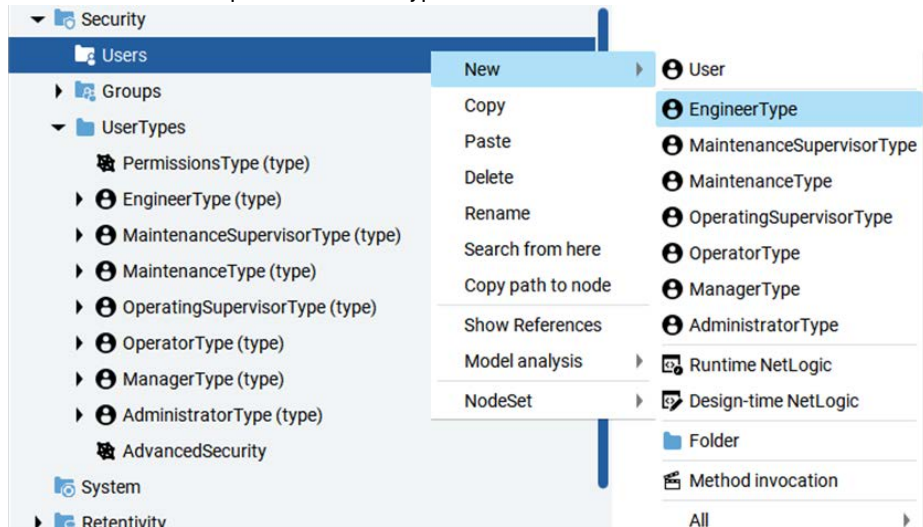
## FactoryTalk Optix Security Groups

Security groups are configured to ensure that users have the proper access to specific HMI functionality.

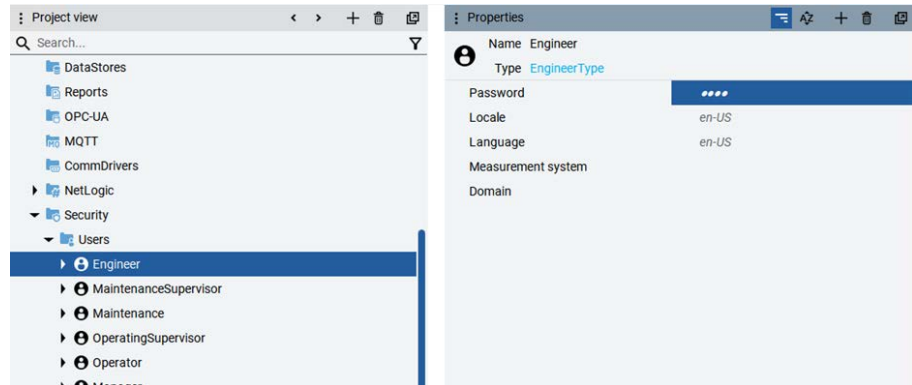
Open your NewHMIPProject, and expand 'Security' folder, PlantPax Process Library provides default settings in Groups and User Types.

The following steps explain how to configure Security Groups using the settings provided by PlantPax Process Library.

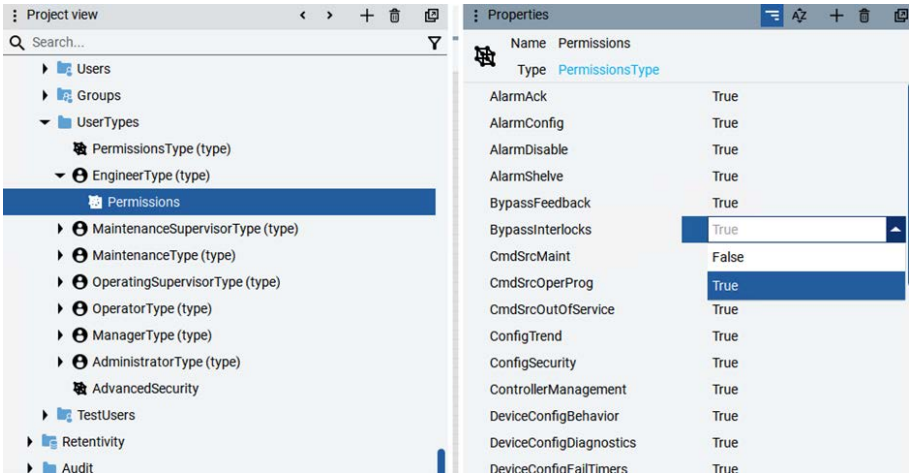
1. Expand the Security folder and right-click the Users folder and select "New". Create users based on pre-defined UserTypes.



2. Set the password for each user.

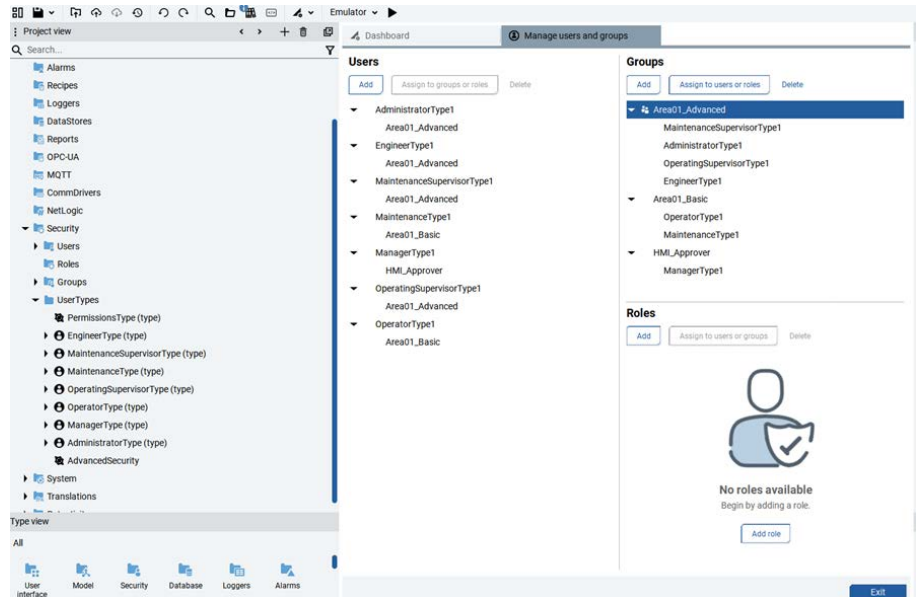


3. (Optional) Users with the necessary assigned permissions, such as engineers and administrators, can edit a user's Permissions file to modify the default permission settings.

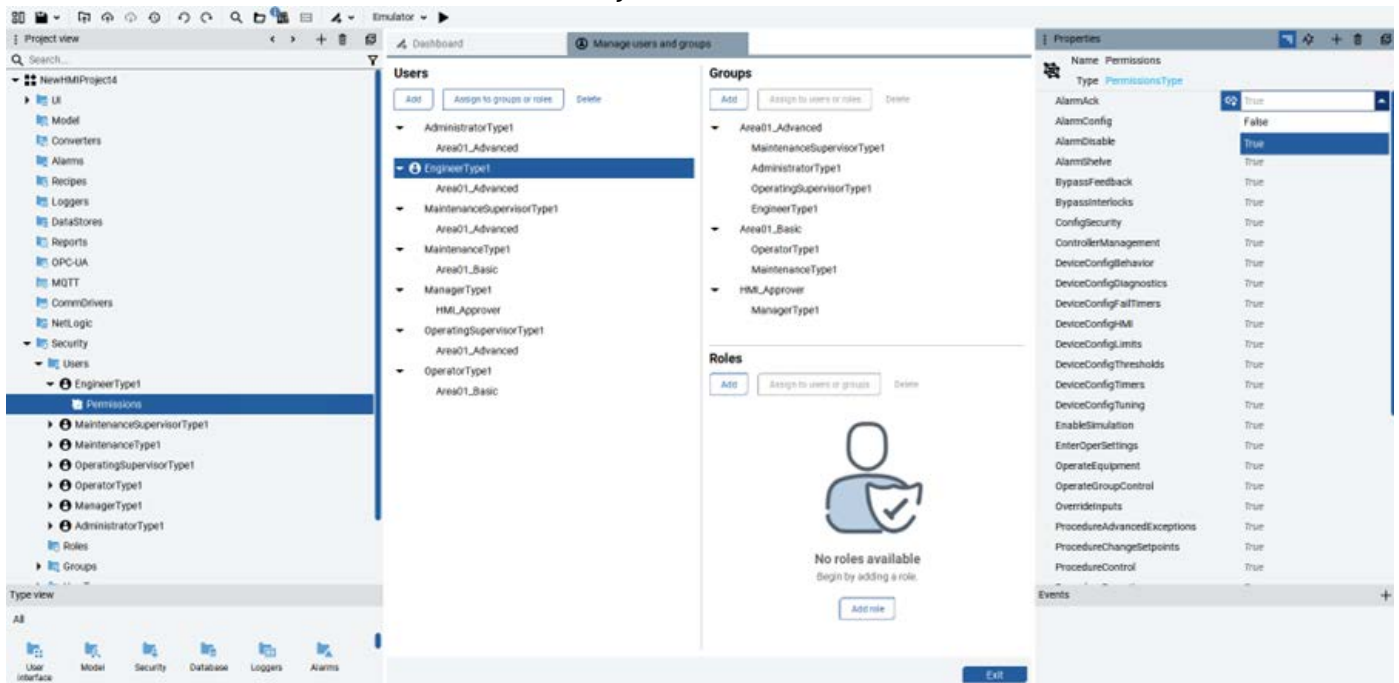




4. Assign the users to groups.
  - a. Select Manage users and groups from the Dashboard.
  - b. Select an item in Groups, and select Assign groups to users or roles. Assign the selected group to corresponding users.



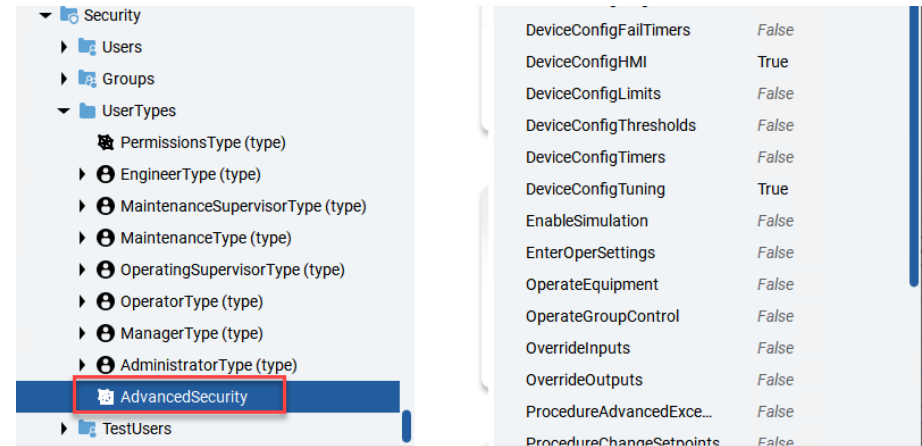
- c. (Optional) Users with the necessary assigned permissions, such as engineers and administrators, can edit a user's Permissions file to modify the default permission settings.



In the pre-configured PlantPax Security group, \_Advanced permission includes the \_Basic permission.

Item	Description
_Basic	Users in this group are allowed basic HMI functionality for this area. This typically includes most Commands Source Control and Manual Operation functions. The AdvancedSecurity permission marked as False.
_Advanced	Users in this group are allowed advanced HMI functionality for this area. This typically includes maintenance and configuration functionality. The AdvancedSecurity permission marked as True.

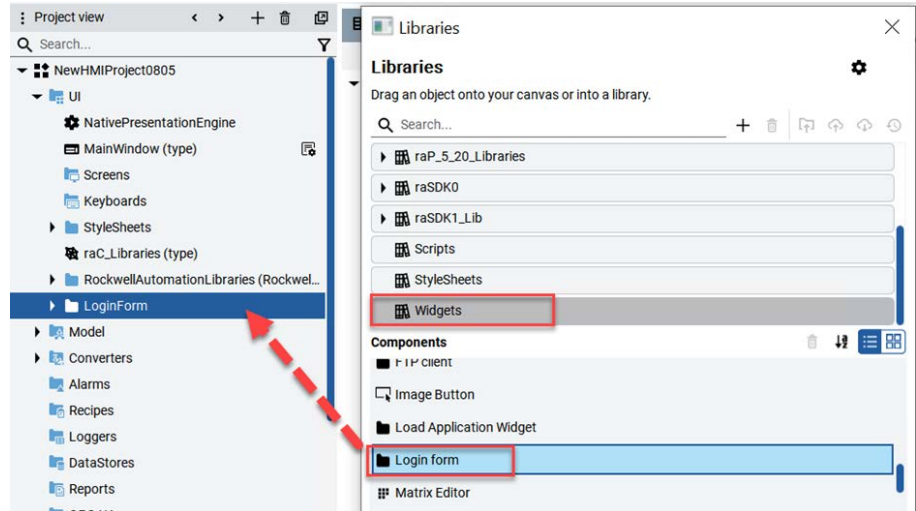
The object 'AdvancedSecurity' in 'Security\UserTypes' folder determines which permissions are Advanced.



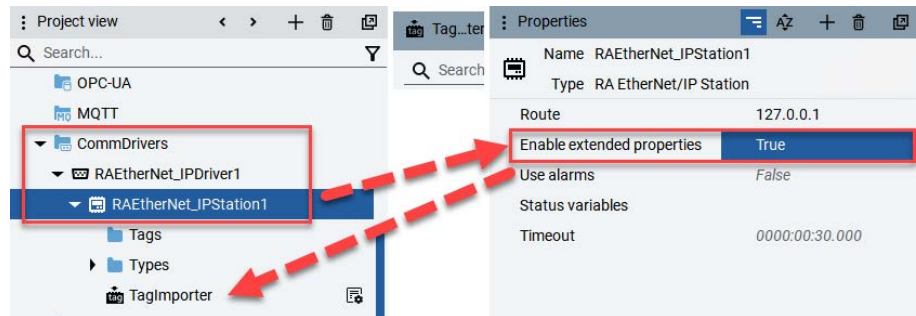
## Add Login Options and Graphic Symbols

Before starting Runtime for your project, add login options and graphic symbols to your HMI project. The following steps explain how to add these objects using the elements in the PlantPax Process Library.

1. Click the Widgets library from the library list, drag the 'Login Form' object to the 'UI' folder in project view.

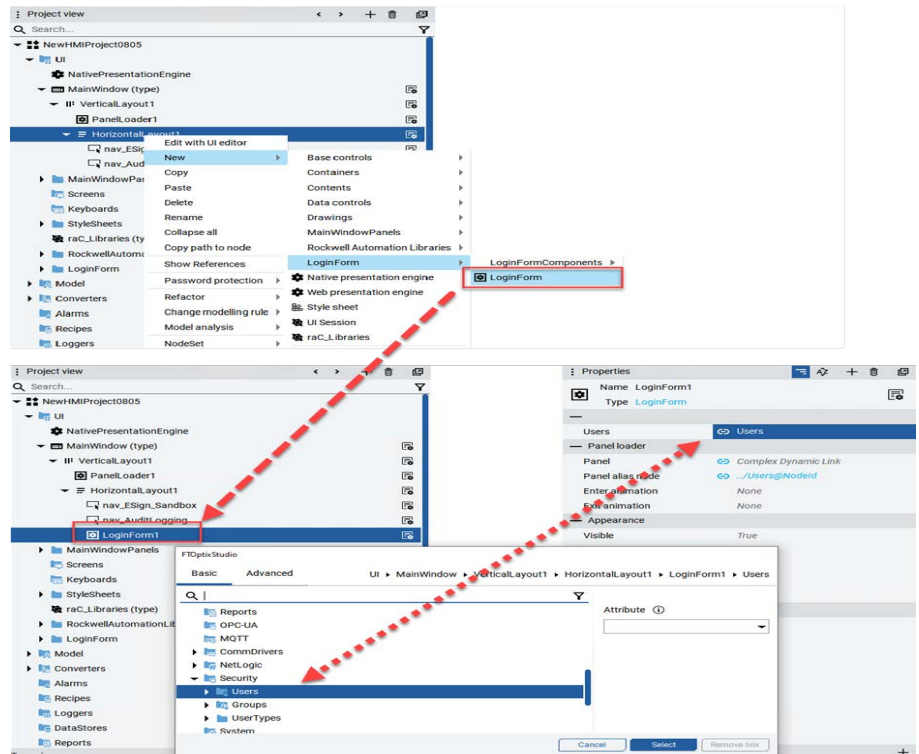


2. Configure the CommDrivers and import tags. Ensure to set 'Enable extended properties' to 'True' in the Properties of selected Station before importing tags into FactoryTalk Optix.

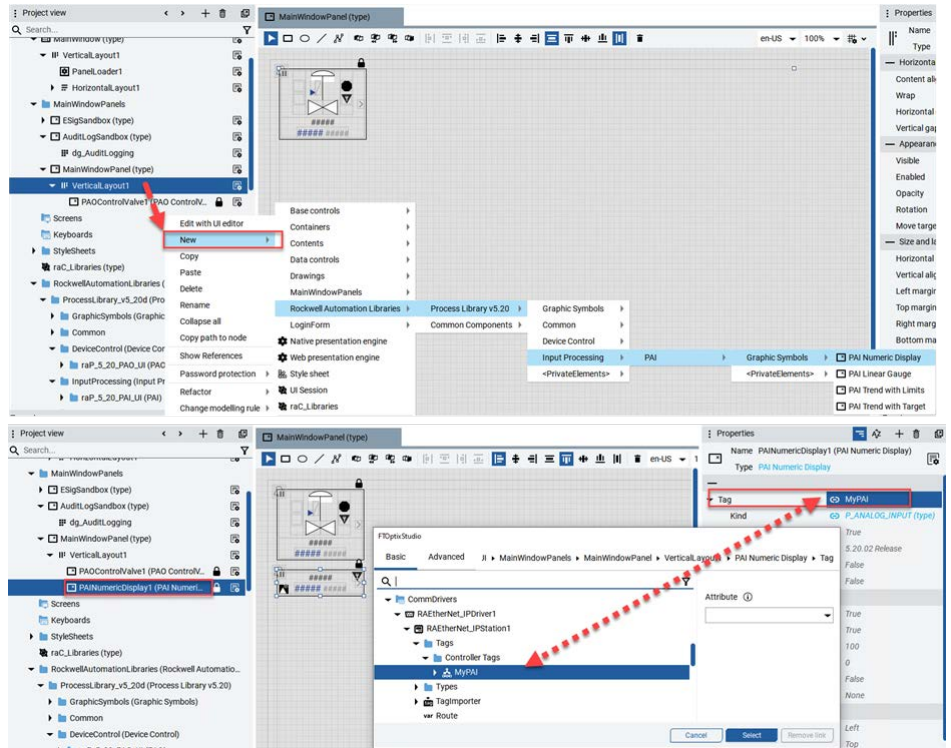


**Note:** For more information about how to configure CommDrivers in FactoryTalk Optix, see the 'Import controller variables' section on the [FactoryTalk Optix Help](#) page.

### 3. Create a LoginForm instance on MainWindow and bind Security/Users to Users variable.




### 4. Create a Graphic Symbol instance on MainWindow and configure its Tag before running Emulator.

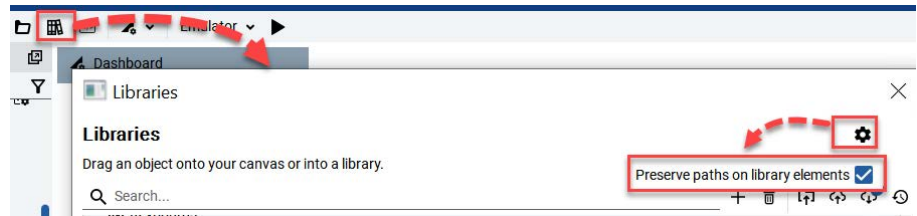


## Modify an Existing Project

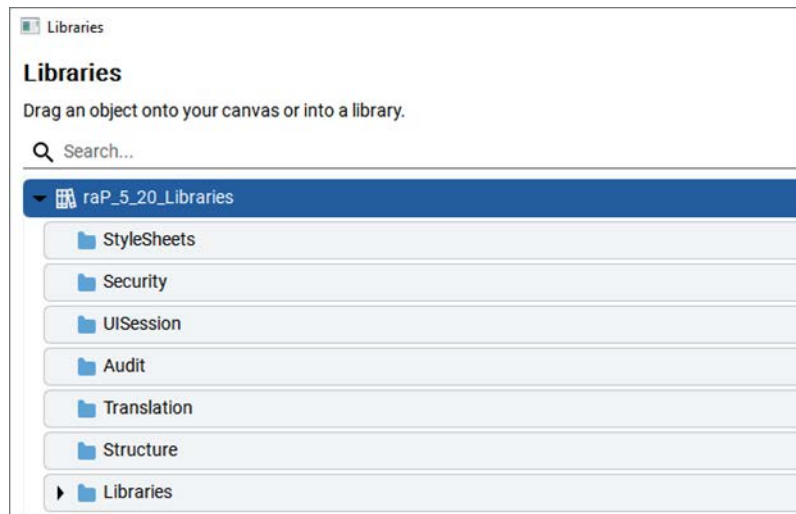
**IMPORTANT** Before integrating the Process Library into an existing FactoryTalk Optix project, it is strongly recommended to back up the current project.

### Update 'NetLogic' folder

1. Open an existing FactoryTalk Optix project. Click the Template Libraries  button from the top menu and open the configuration of Libraries window. Check 'Preserve paths on library elements' checkbox.



2. Find the raP\_<Version>\_Libraries in the list of the Libraries window.



3. From the 'Translation' library folder, drag the 'Translation\_NetLogic' object to 'NetLogic' folder in project view.



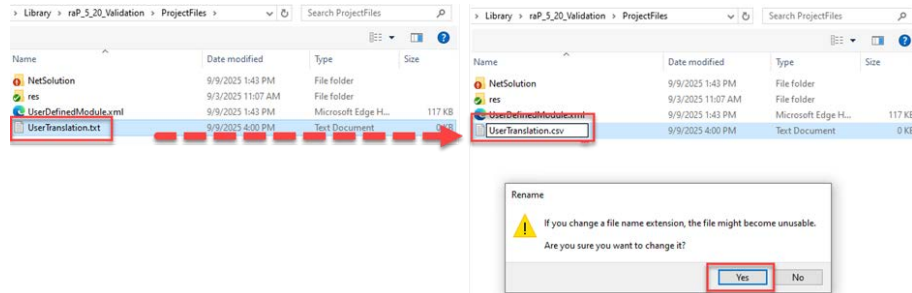
## Update Translations

### Keep Existing Translations

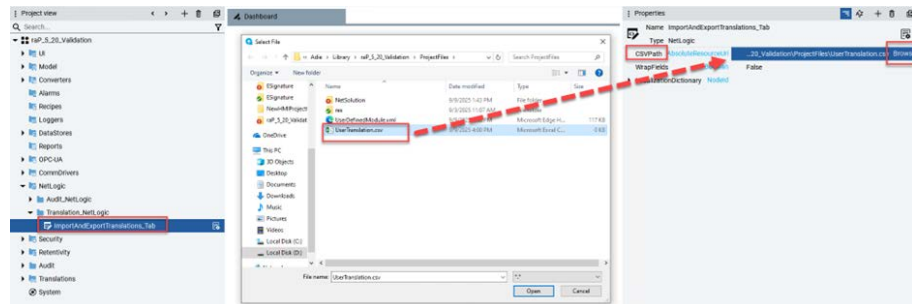
The 'Translation\_NetLogic' enables the export of existing translations from the project and the import of backup translations into the project via tab-delimited files.

For users who have existing custom translations in the project and wish to retain them:

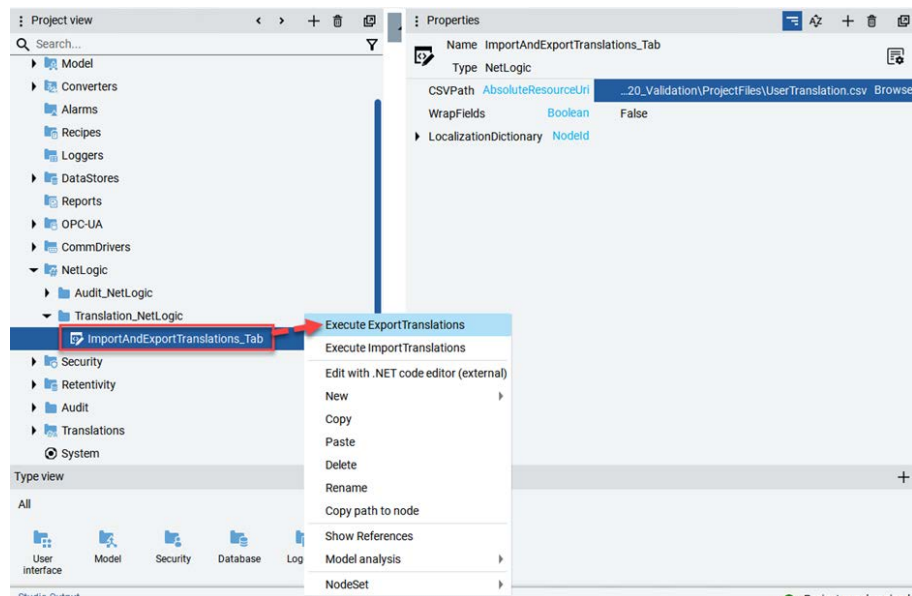
1. Create a text file (named 'UserTranslation.txt' for example). Modify the file name extensions to '.csv' (in this case it should be 'UserTranslation.csv').



2. Navigate to 'NetLogic\Translation\_NetLogic\ImportAndExportTranslations\_Tab' in the existing project.
3. In the Properties, browse the 'CSVPPath' to the path of 'UserTranslation.csv'.



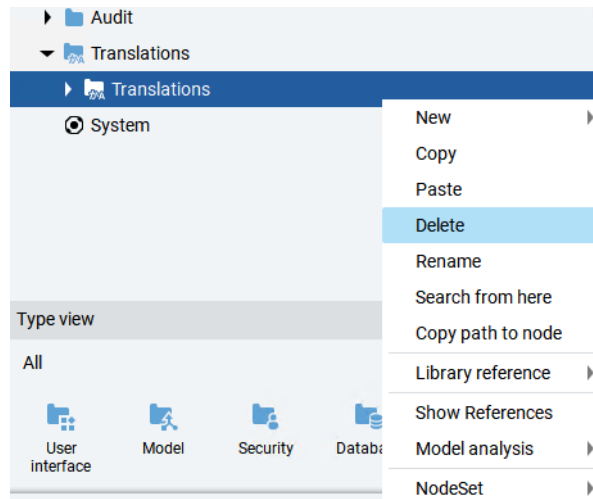
4. Right-click on the 'ImportAndExportTranslations\_Tab' NetLogic and select 'Execute ExportTranslations'.



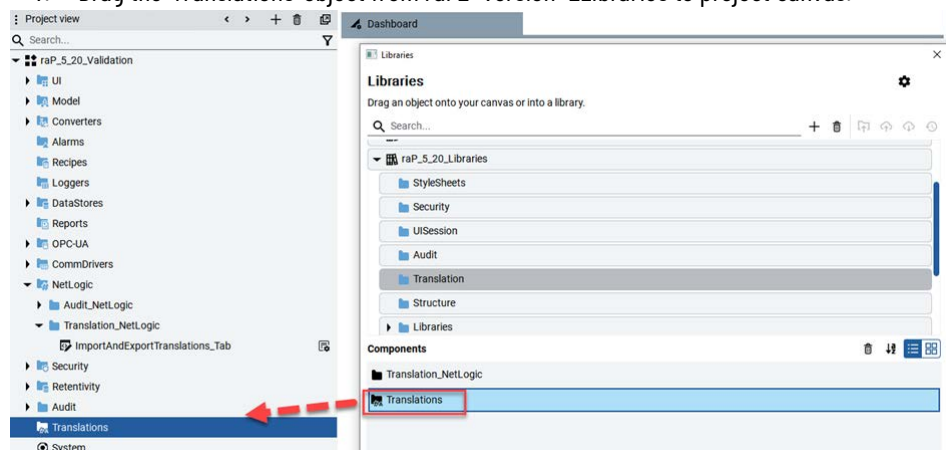
Upon completion, a message appears in Studio Output, stating 'Translations successfully exported to "<your path>UserTranslations.csv"



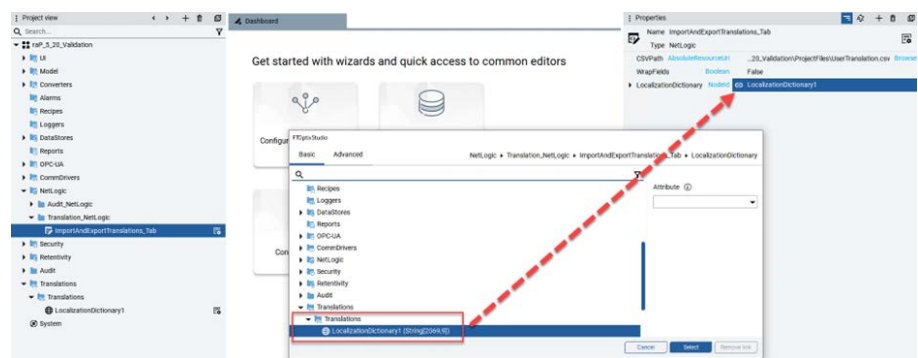
5. Copy and paste the file 'UserTranslations.csv' as a backup to a desired location.
6. Delete 'Translations' folder in existing project.



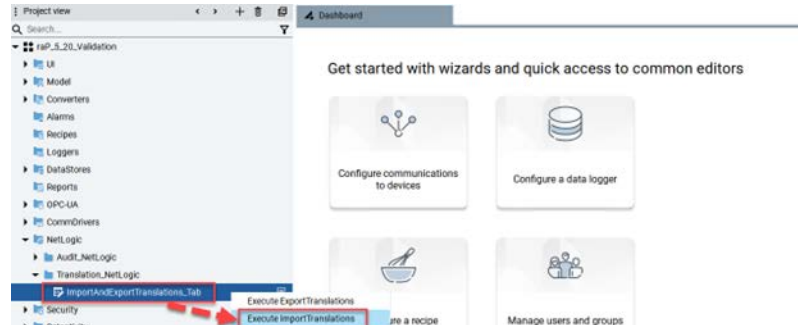
7. Drag the 'Translations' object from raP\_<Version>\_Libraries to project canvas.



8. Back to the Properties of 'ImportAndExportTranslations\_Tab' NetLogic. Select the new LocalizationDictionary1 as LocalizationDictionary.



- Browse the 'CSVPath' of 'ImportAndExportTranslations\_Tab' to the path of 'UserTranslations.csv', right-click it and select 'Execute ImportTranslations'.



- If there are other locales in 'UserTranslations.csv' than LocalizationDictionary1, 'New locales added' window pops up. Click 'Yes' to keep them.

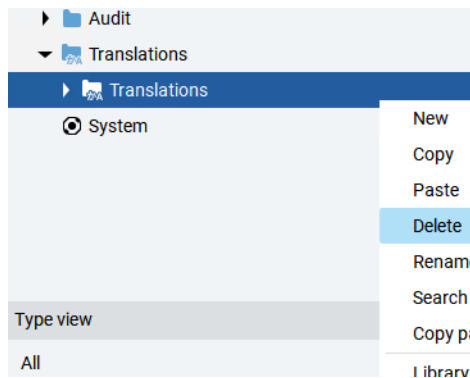


Keys included in the CSV file will replace the corresponding ones in the LocalizationDictionary1 after being imported by the NetLogic, and the keys are not included in the CSV file will remain same as pre-defined in the LocalizationDictionary1.

## No Custom Translations

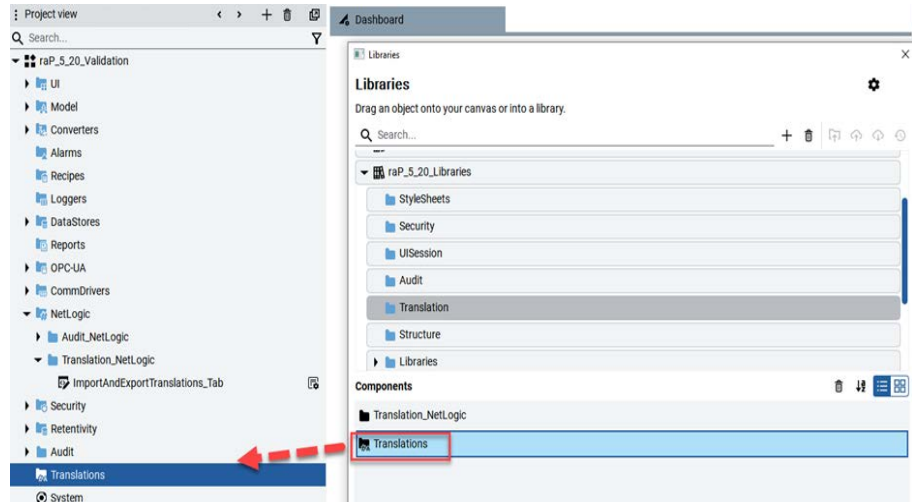
For users who don't have their own translations, use the following steps to update translations.

- Delete 'Translations' folder in existing project.

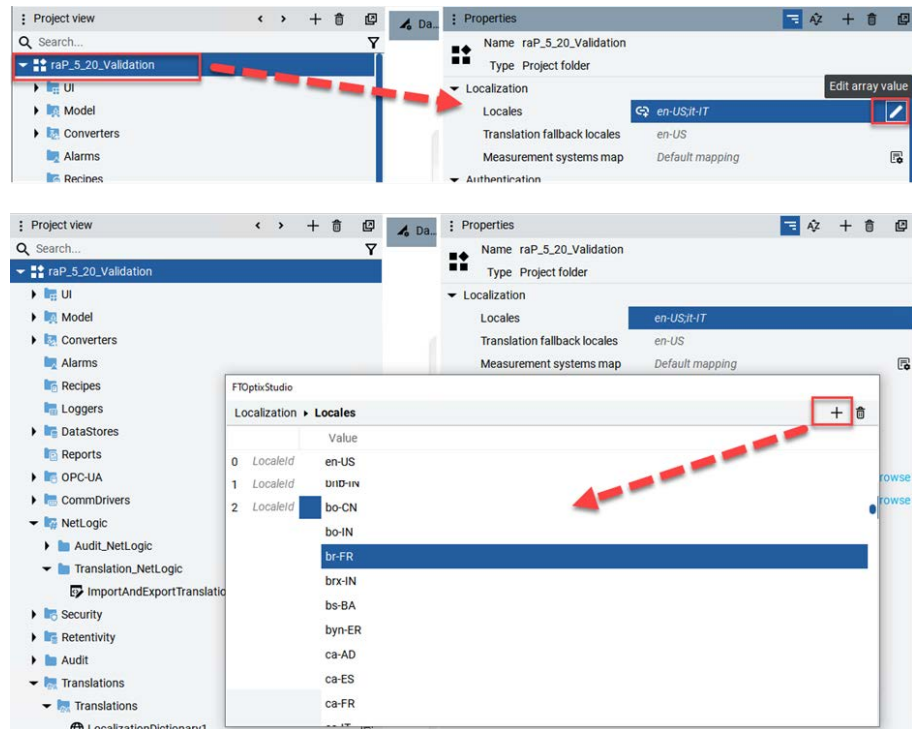




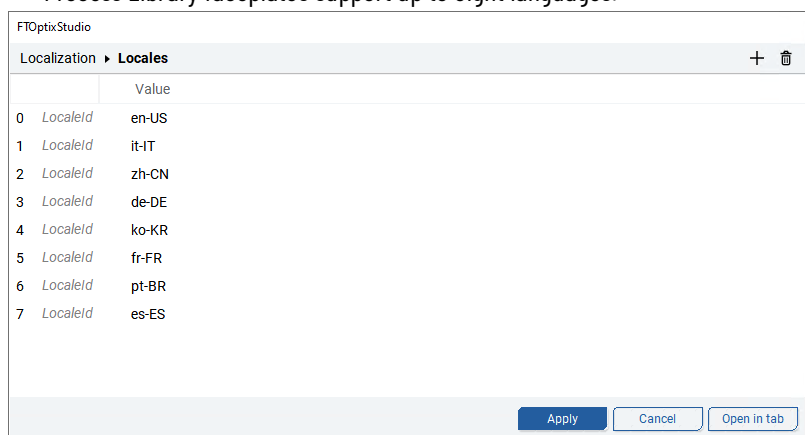
- From the 'Translation' library folder, drag the 'Translations' object to project canvas in existing project.



- Add Locales in the project to enable localizations display for Runtime.

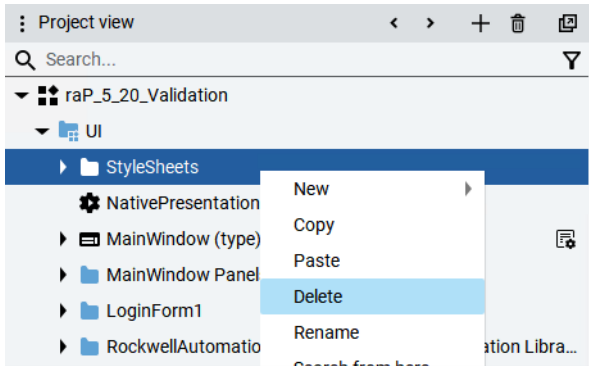


Process Library faceplates support up to eight languages:

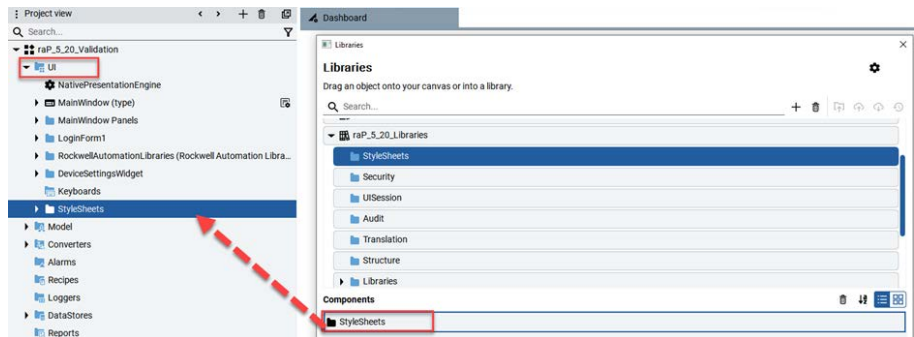


## Update 'Stylesheets' Folder

1. Delete 'StyleSheets' folder under 'UI' folder in the existing project.

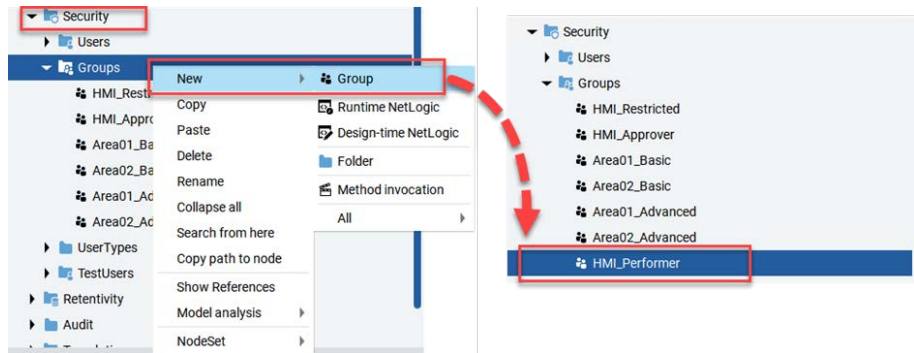


2. From the 'StyleSheets' library folder, drag the 'Stylesheets' object into 'UI' folder in project view.



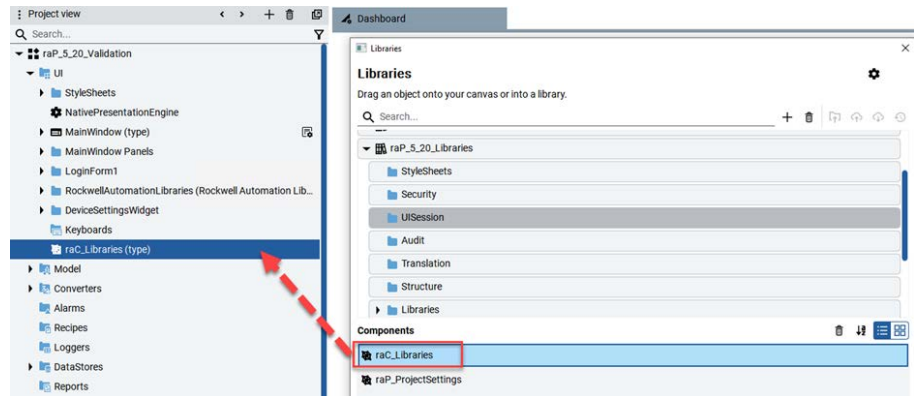
## Update Security Folder

1. In the existing project, right-click on 'Groups' folder under 'Security' folder, select 'New->Group' and rename the new group with 'HMI\_Performer'.

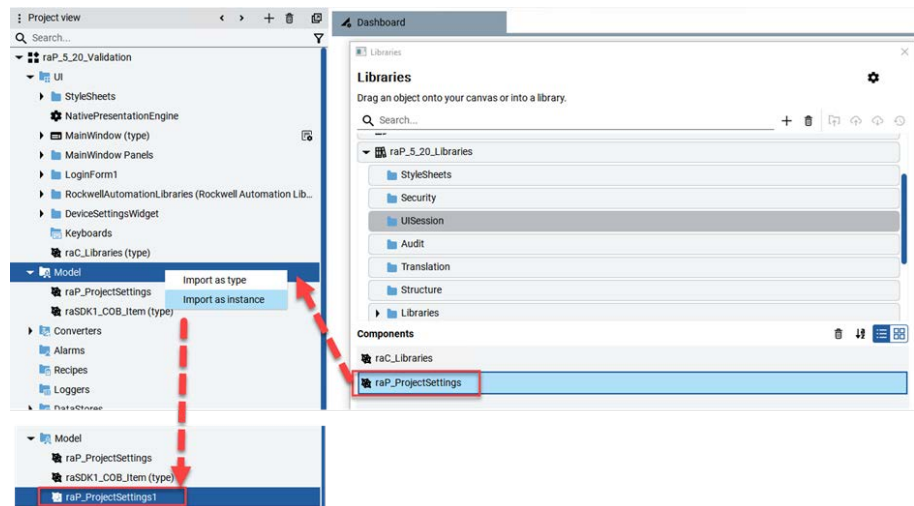


## UI Session Binding

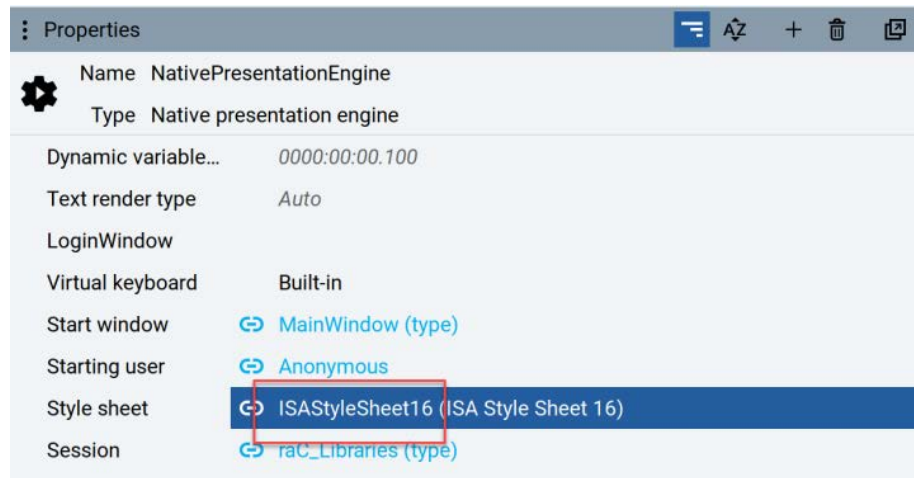
1. From the 'UISession' library folder, drag the 'raC\_Libraries' object into 'UI' folder of the existing project.



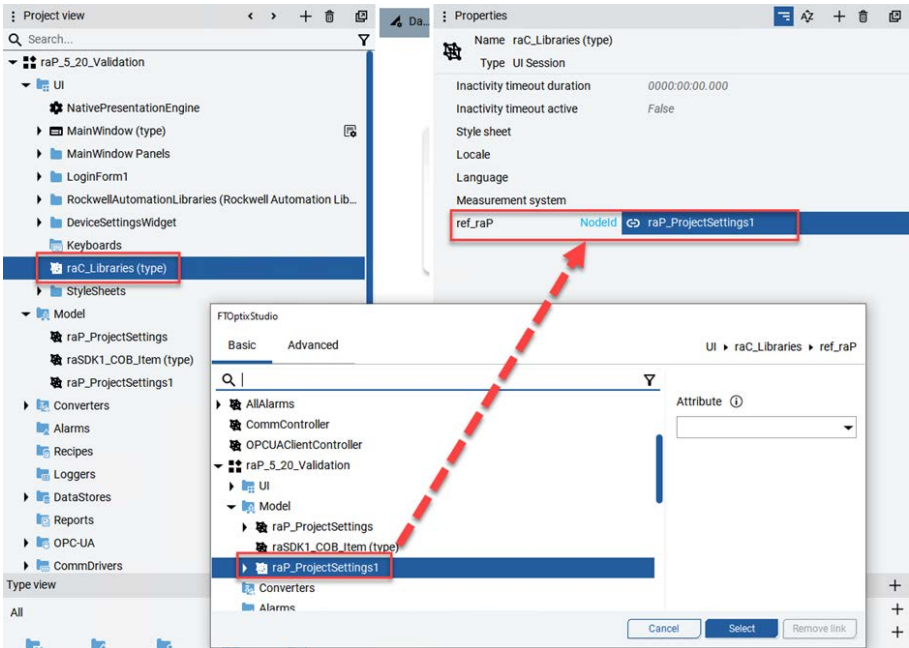
2. From the 'UISession' library folder, drag the 'raP\_ProjectSettings' object into 'Model' folder in project view and select 'Import as instance'. A 'raP\_ProjectSettings1' object is created under 'Model' folder.



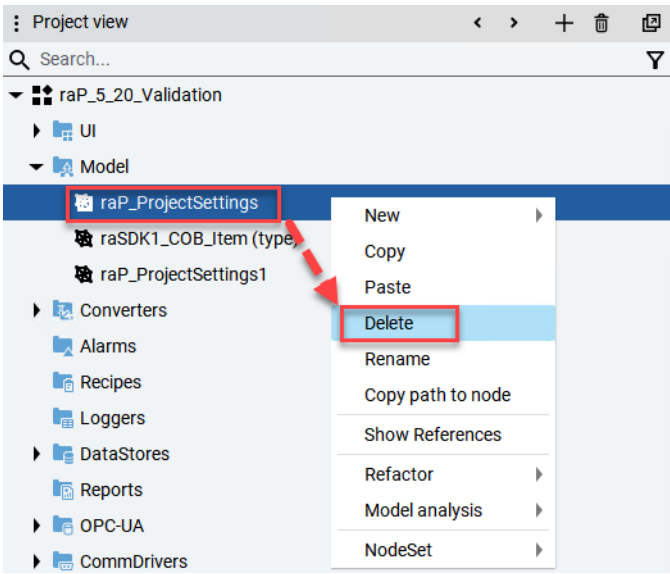
3. Open NativePresentationEngine and update the properties as follows:
  - Style sheet: 'ISASheet16 (ISA Style Sheet 16)'
  - Session: 'raC\_Libraries'



4. Select 'raC\_Libraries' and modify the 'ref\_raP' option link to 'raP\_ProjectSettings1'.

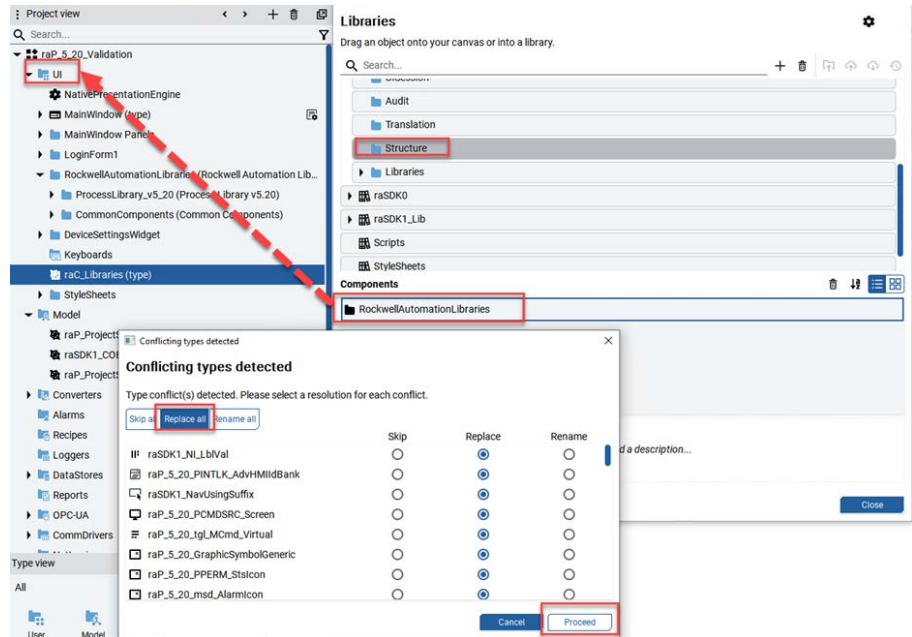


5. Delete 'raP\_ProjectSettings' in the 'Model' folder.

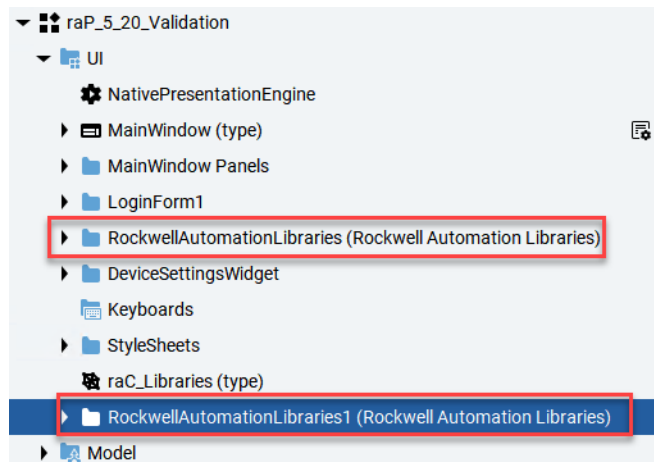


## Update Process Library HMI Objects

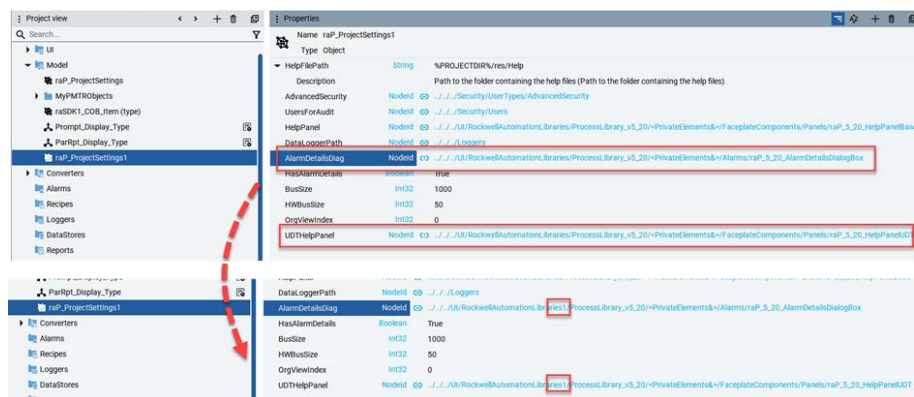
1. From the 'Structure' library folder, drag the 'RockwellAutomationLibraries' object to 'UI' folder in the existing project. If 'Conflicting types detected' window pops up, select 'Replace all' to proceed.



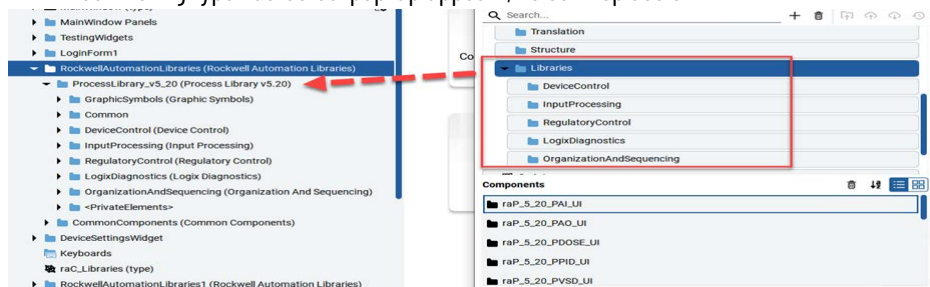
The existing items in 'RockwellAutomationLibraries' in existing project will be updated. And any new objects from the Library will be added in a new created folder 'RockwellAutomationLibraries1'.



2. Select 'raP\_ProjectSettings1' under 'Model' folder in the project and focus on its Properties. Modify the Library name in the dynamic links of 'AlarmDetailDiag' and 'UDTHelpPanel' from 'RockwellAutomationLibraries' to 'RockwellAutomationLibraries1'.



3. From the 'Libraries' library folder, drag each faceplate object from the subfolders to 'UI\RockwellAutomationLibraries1\ProcessLibrary\_v5.20' in the existing project. If 'Conflicting types detected' pop-up appears, select 'Replace all'.



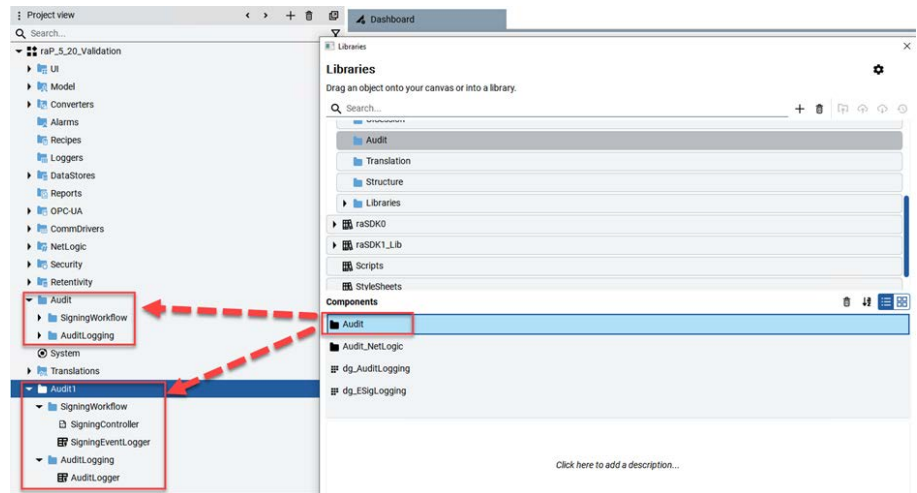
## IMPORTANT

There is a specified order for dragging the faceplates for the subfolders.

- In the 'PremierIntegration' library folder, drag 'raP\_5.20\_raP\_Dvc\_EH\_Heartbeat\_UI' to the corresponding folder in the project view before 'raP\_5.20\_raP\_Dvc\_EH\_Flowmeter\_UI' and 'raP\_5.20\_raP\_Dvc\_EH\_Sensor\_UI'. (EH\_Heartbeat is only used by the other EH objects, so it must be brought into the project before 'raP\_5.20\_raP\_Dvc\_EH\_Flowmeter\_UI' and 'raP\_5.20\_raP\_Dvc\_EH\_Sensor\_UI'.)
- In 'OrganizationAndSequencing' library folder, drag 'raP\_5.20\_raP\_Opr\_Prompt\_UI', 'raP\_5.20\_raP\_Tec\_ParRpt\_UI', and 'raP\_5.20\_raP\_Opr\_VSM\_UI' to the corresponding folder in the project view first. (Prompt, ParRpt, and VSM are used by the other 'OrganizationAndSequencing' objects, so they must be brought in before Sequencer, Area, Unit, EMGen, and EPGen.)

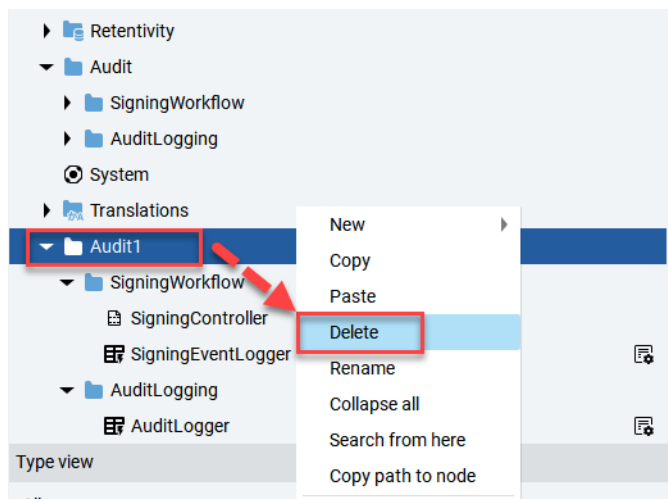
## Update 'Audit' Folder

1. From the 'Audit' library folder, drag the 'Audit' object to project canvas in existing project. If 'Conflicting types detected' pop-up appears, select 'Replace all' to proceed.



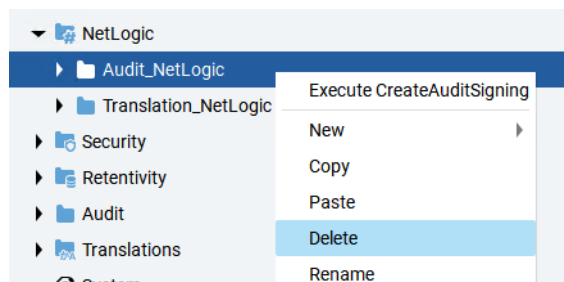
Items in 'Audit' folder of the existing project are updated, and a new folder 'Audit1' is created automatically.

2. Delete 'Audit1' folder.



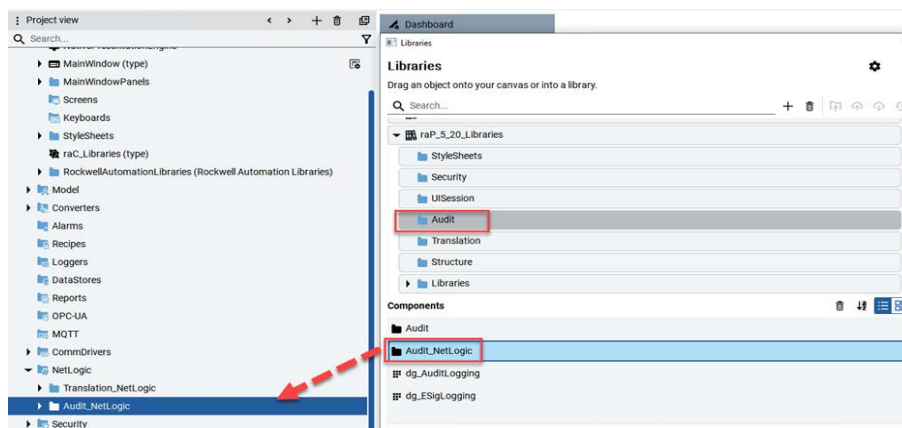
## Configure E-Signature

1. Delete the 'Audit\_NetLogic' folder under 'NetLogic' folder in the existing project.

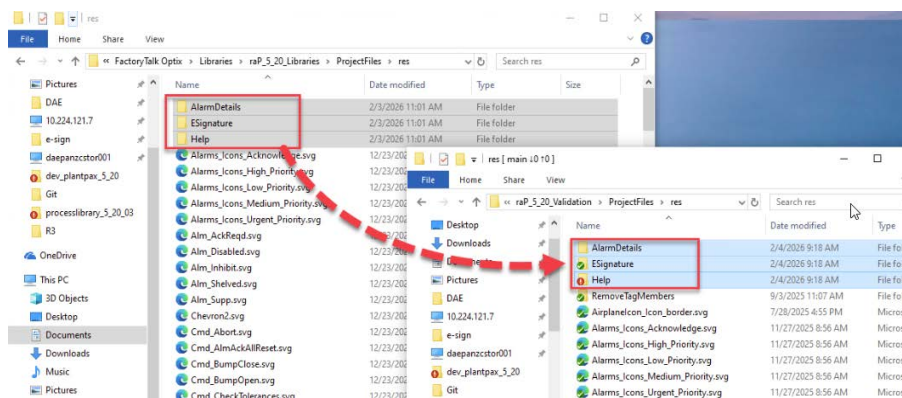




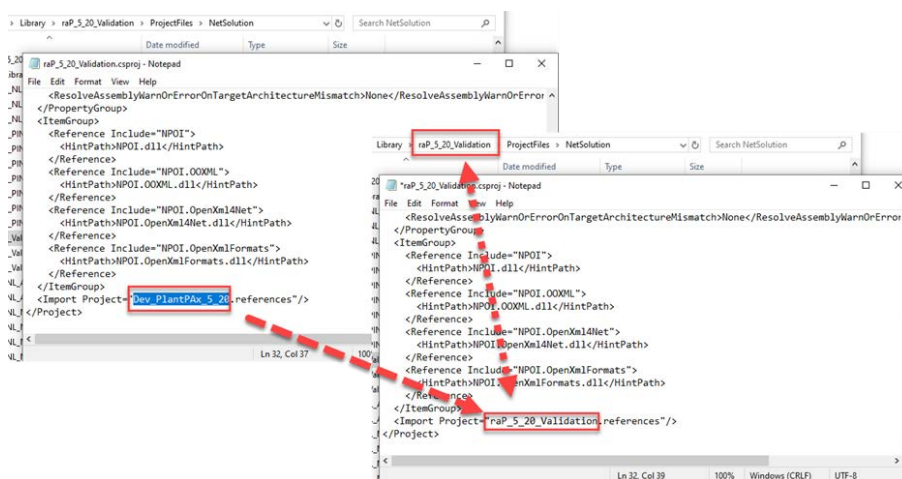
- From the 'Audit' library folder, drag the 'Audit\_NetLogic' object to 'NetLogic' folder in project view.



- Save and close the project.
- Copy 'ESignature' folder, 'Alarm Details' folder, and 'Help' folder from 'C:\Users\<User>\Documents\Rockwell Automation\FactoryTalk Optix\Libraries\raP\_<Version>\_Libraries\ProjectFiles\res' to '<ProjectPath>\ProjectsFiles\res' folder.

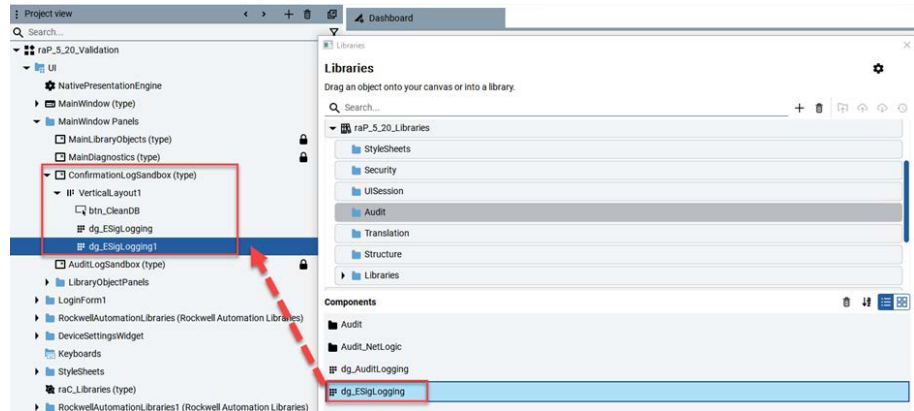


- Select 'Replace the files in the destination' to update all files under these folders.
- Double-click 'CopyESignatureNetLogicConfigToProject.cmd' in '<ProjectPath>\ProjectsFiles\res\ESignature' and follow the prompts to complete the operation.
- In '<ProjectPath>\ProjectsFiles\NetSolution', open the <ProjectName>.csproj file and modify the project name in the last line to match actual <ProjectName>. Once completed, save the changes and close the file.

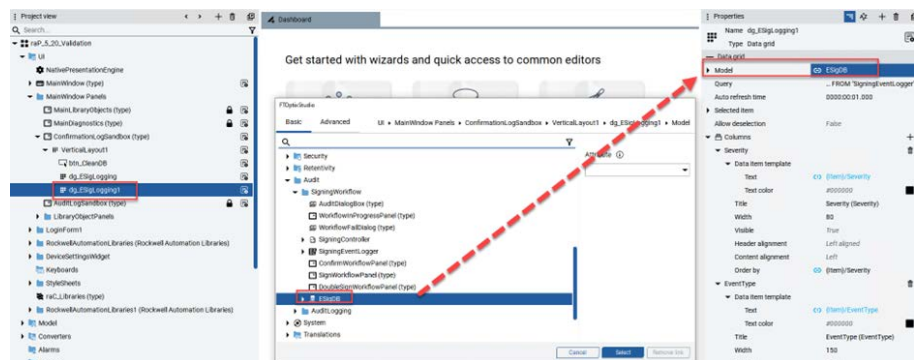




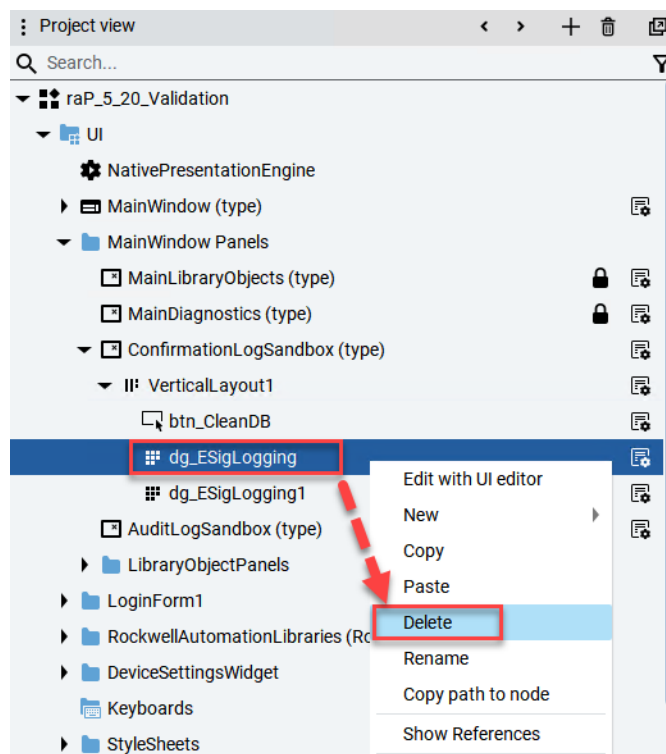
8. Reopen this project in FactoryTalk Optix.
9. Configure E-Signature Logging:
  - a. Drag the Data grid dg\_ESigLogging from the raP\_<Version>\_Libraries to panel 'ConfirmationLogSandbox' in the existing project. A 'dg\_ESigLogging' object is created.



- b. Link 'Model' in 'dg\_ESigLogging1' Properties to the database of E-Signature 'ESigDB'.



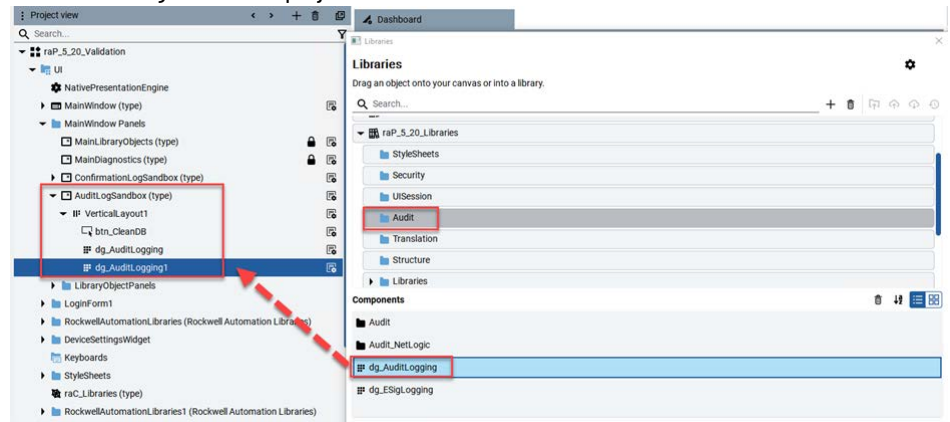
- c. Delete 'dg\_ESigLogging'.



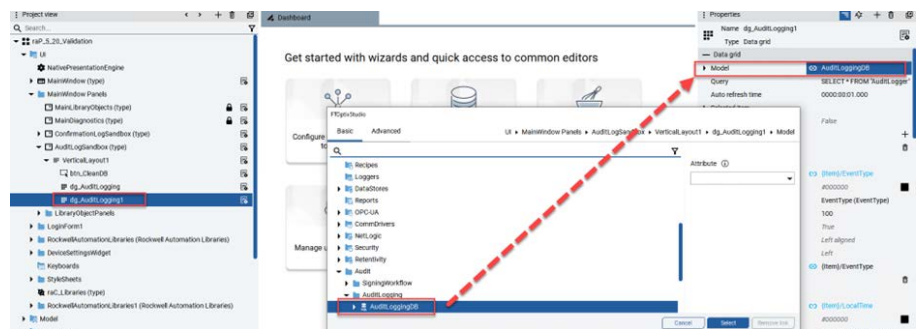
## Configure AuditLogging

If you need AuditLogging for your project, add an AuditLogging display to your HMI project. The following steps explain how to build the display using the AuditLogging elements in the PlantPax Process Library.

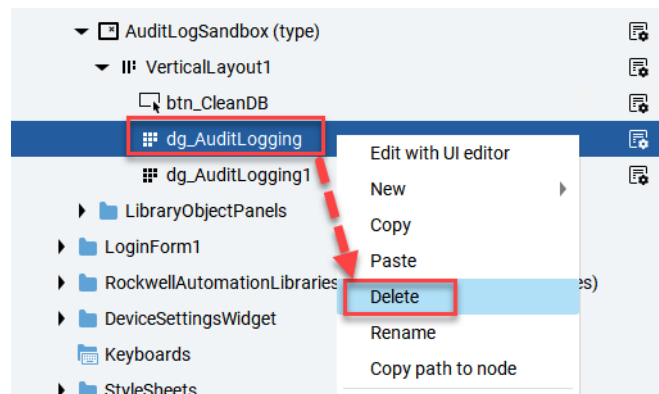
1. From the 'Audit' library folder, drag the 'dg\_AuditLogging' object to panel 'AuditLogSandbox' in project view.



2. Select 'dg\_AuditLogging' in project view, and link Model to 'AuditLoggingDB' in its Properties.



3. Delete 'dg\_AuditLogging'.



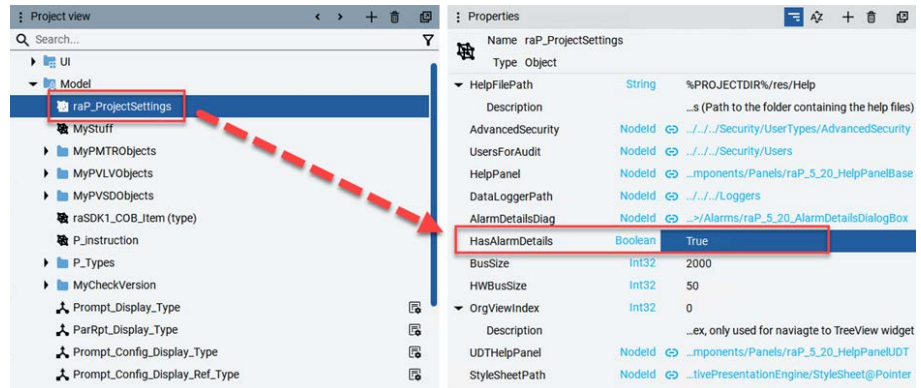
## Configure Alarm Details

This section explains the steps and rules for configuring the Alarm Details in FactoryTalk Optix. Alarm Details are defined using HTML files and are displayed at Runtime to provide users with detailed alarm-related information.

### Configure the Project for Alarms

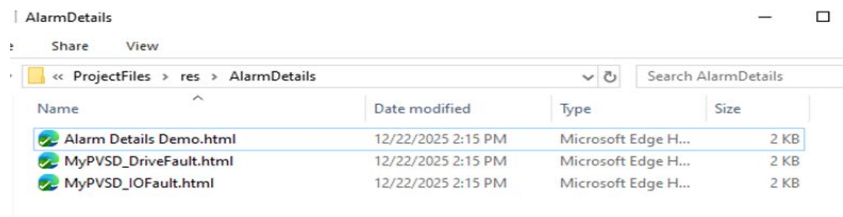
The 'HasAlarmDetails' variable is set to 'True' by default, which enables the Alarm Details button on the faceplate. Use the following steps to confirm or enable the Alarm Details button in your project.

1. Open your FactoryTalk Optix project and navigate to 'Model > raP\_ProjectSettings' in the Project view.
2. Adjust the 'HasAlarmDetails' variable as necessary so that the 'HasAlarmDetails' variable is set to 'True'. If it is set to 'False', the Alarm Details button is not displayed on the faceplate.



## Customize the Alarm Details (HTML) Files

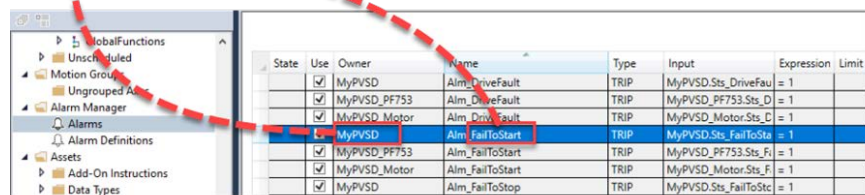
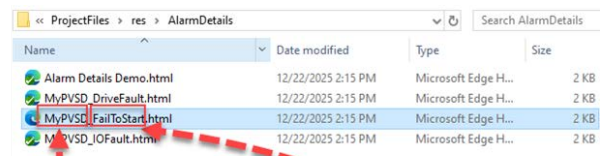
The Process Library provides Alarm Details template files in HTML format under directory '<Project path>\ProjectFiles\res\AlarmDetails'.



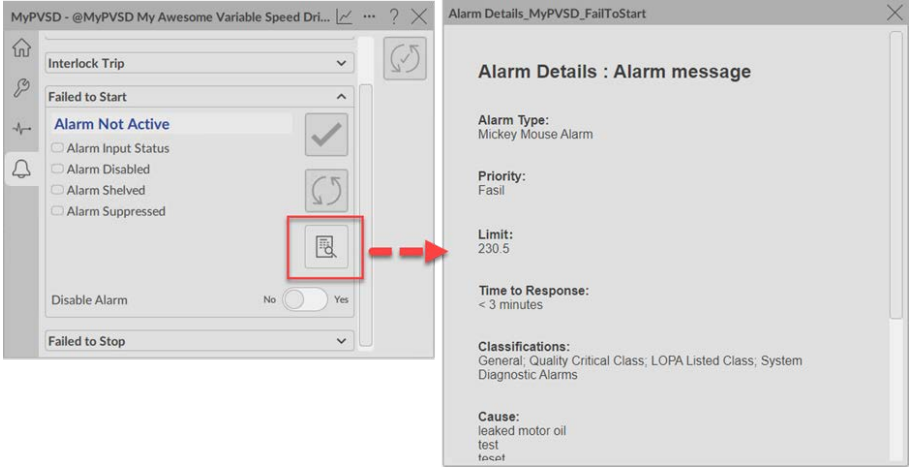
Use the following steps to customize Alarm Details for a specific alarm. In this example, you create the alarm details file for Alm\_FailToStart of a PVSD instance named MyPVSD. Repeat this procedure as needed for all alarms.

1. Open the 'Alarm Details Demo.html' file and modify the content for the target Alarm (for example, Alm\_FailToStart of PVSD).
2. Save the customized HTML file to the same directory as the template files.
3. Rename the HTML file according to the following naming convention: '<Tag name>\_<Alarm suffix>.html'.

For example, for Alm\_FailToStart of a PVSD instance that is named MyPVSD, the HTML file must be named 'MyPVSD\_FailToStart.html'.



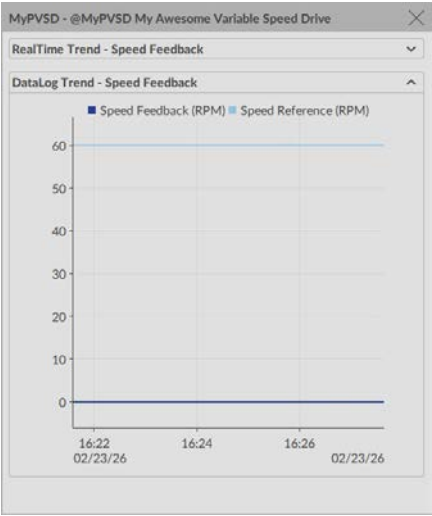
- Restart Runtime for the project. The customized Alarm Details file can be opened after clicking the Alarm Details button on the corresponding alarm page.



If a valid HTML file is not found when the Alarm Details button is clicked, a default page is displayed with the following message: 'Unable to display Alarm Details. Check that the following file exists: <Tag name>\_<Alarm suffix>.html'.

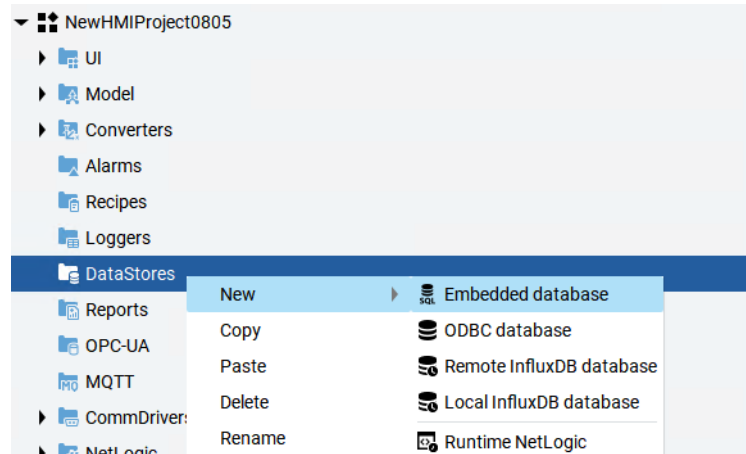
### Configure Data Log Trend

The Data Log Trend provides a visual representation of time-based data that is collected by the data logger. It allows you to view the values of selected variables in a trend chart. This feature is typically used to monitor changes, identify patterns, and review recorded data during system operation.

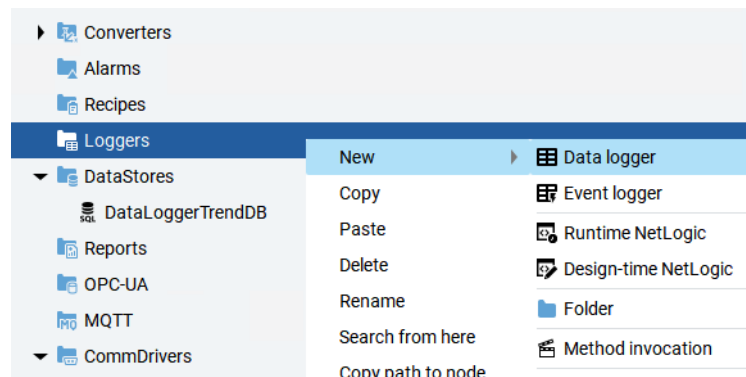


Before starting Runtime in FactoryTalk Optix, use the following steps and rules below to configure Data Log Trend. In this example, an Embedded database that is named 'DataLoggerTrendDB' is created under the 'DataStores' folder.

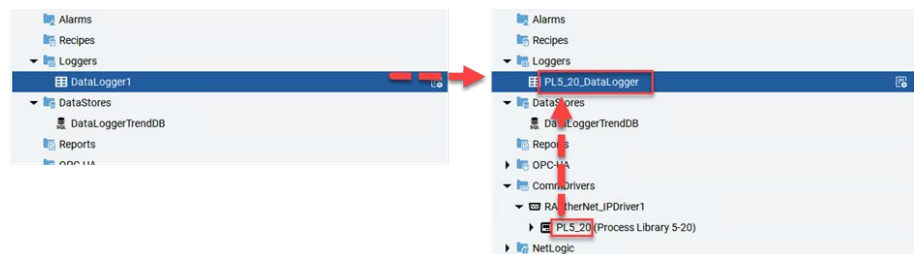
1. Open your FactoryTalk Optix project and create a database under 'DataStores' folder (in this example, the Embedded database is named 'DataLoggerTrendDB').



2. Create a Data logger under 'Loggers' folder.

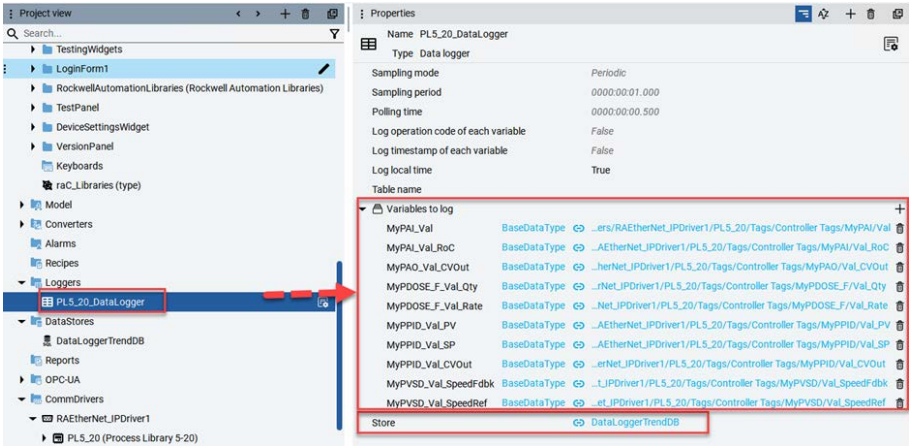


3. Rename the created Data logger to '<Station Name>\_DataLogger'.



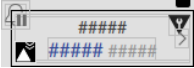
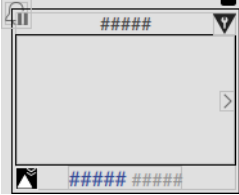
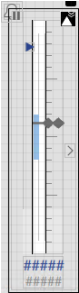
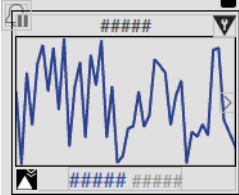
4. Configure the Data logger:
  - Store: link it to the database created in step 1 (in this example it's DataLoggerTrendDB).

- Variables to log: add all variables that are used in Data Log Trend following the naming rule '<Tag Name>\_<Tag Member Name>' (for example, MyPVSD\_Val\_SpeedRef) and link each variable to the corresponding tag under CommDrivers.



Process Analog Input (PAI)

Graphic Symbols

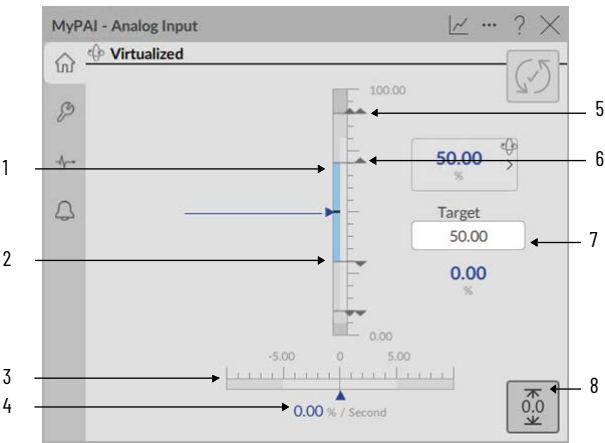
FactoryTalk Optix Graphic Symbol	Description
<div>raP_5_xx_PAI_GS</div> 	Standard analog-input graphic symbol
<div>raP_5_xx_PAI_TrendWTarget</div> 	This graphic symbol includes a trend with target lines.
<div>raP_5_xx_PAI_GS.LinearGauge</div> 	<p>A moving triangle indicates the process variable. The graphic display includes limits that are displayed with filled bars plus a cyan target range (for deviations).</p> <p>The FactoryTalk Optix graphic symbol has optional configuration to show or hide the target and the capture area</p>
<div>raP_5_xx_PAI_TrendWLimits</div> 	<p>Trend of process variable that includes limits (high-high, high, low, and low-low) plus a light gray capture area. Includes alarm indication.</p> <p>The FactoryTalk Optix graphic symbol includes optional configuration to show or hide the capture area.</p>



# FactoryTalk Optix Faceplates

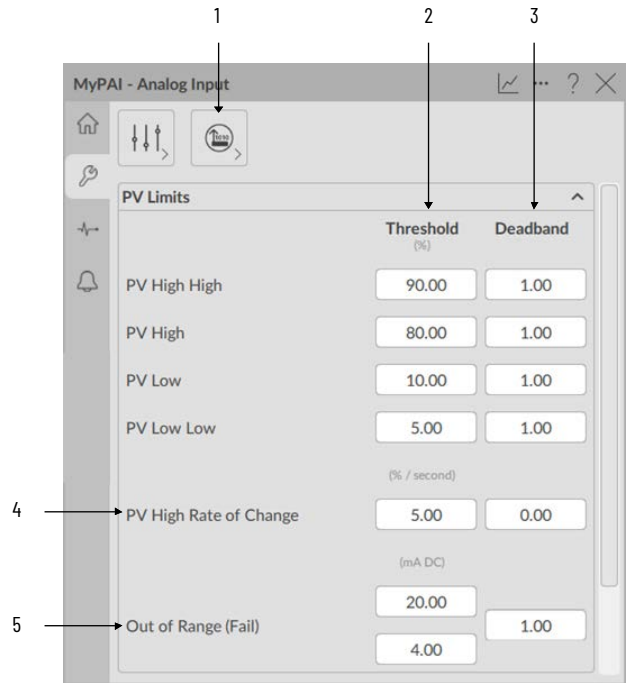
There are basic faceplate attributes that are common across all instructions. The Trends tab, Diagnostics tab, and Alarms tab all have the same basic functionality and are not described in this section. See [Basic Faceplate Attributes on page 24](#).

## Operator Tab



Item	Description
1	High Deviation limit: the label background that changes color based on alarm severity when exceeded.
2	Low Deviation limit: the label background that changes color based on alarm severity when exceeded.
3	The rate of change bar graph (visible if Rate of Change calculations is enabled on the engineering tab).
4	The rate of change value (visible if Rate of Change calculations is enabled on the engineering tab).
5	Control High-High limit
6	Control High limit
7	Process Variable target
8	Reset Rate of Change value to zero

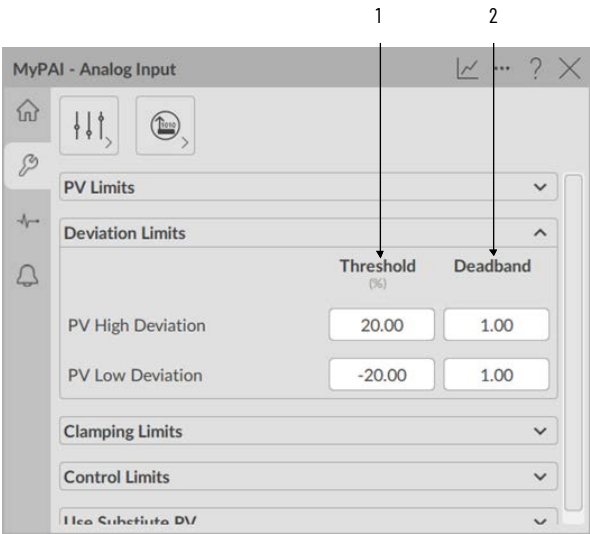
## Maintenance Tab - PV Limits



Item	Description
1	Select to display smart device object. See <a href="#">Process Analog HART (PAH)</a> section.
2	Enter the threshold (trip point) for analog input alarms.
3	Enter the deadband (hysteresis) that applies to each limit. Deadband helps prevent a noisy signal from generating numerous spurious alarms. Example: If the High alarm limit is 90.0 and the High alarm deadband is 5, once the signal rises above 90.0 and generates a High alarm. The signal must fall below 85.0 (90.0 minus 5.0) for the alarm to clear.
4	Process variable high rate of change threshold value. There is an alarm that is associated with this configuration. The deadband can be configured in the advanced maintenance settings.
5	Out of Range (Fail) low and high threshold values.

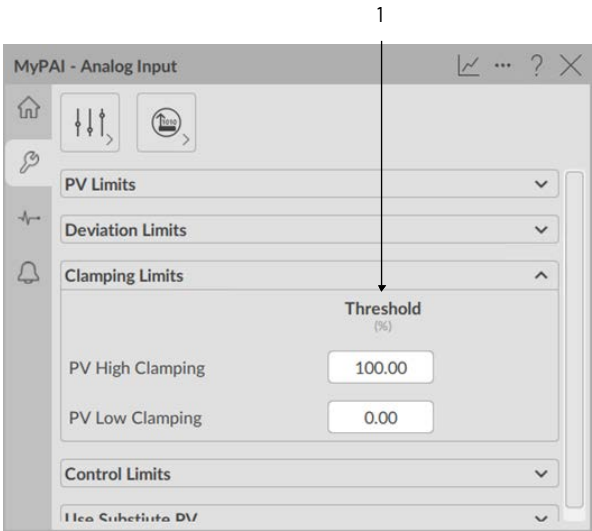


### Maintenance Tab - Deviation Limits



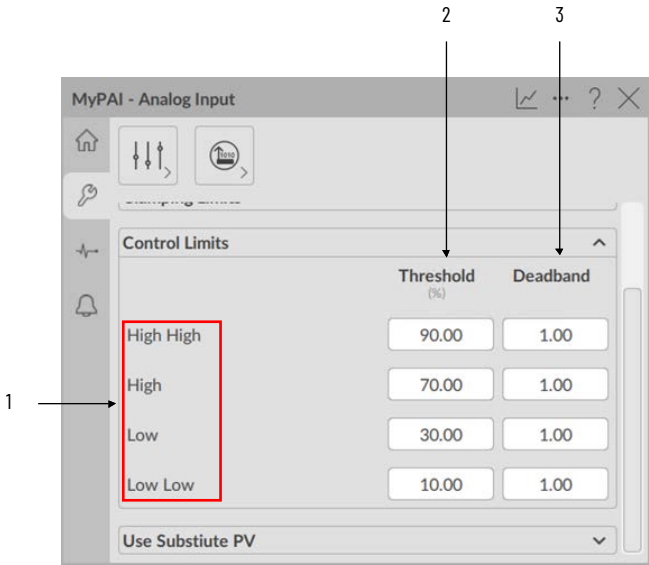
Item	Description
1	Process variable deviation low and high threshold values.
2	Deadband associated with each threshold. Enter the deadband (hysteresis) that is applied to each limit.

### Maintenance Tab - Clamping Limits



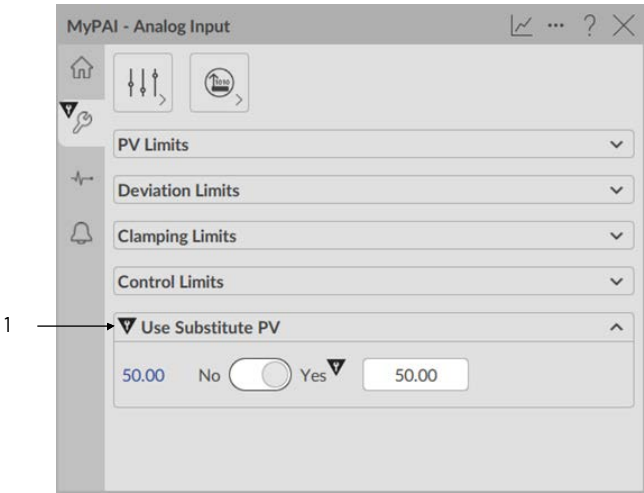
Item	Description
1	Process variable clamping low and high threshold values. Any process variable below the low value or above the high value will be held at the low or high value respectively.

Maintenance Tab - Control Limits



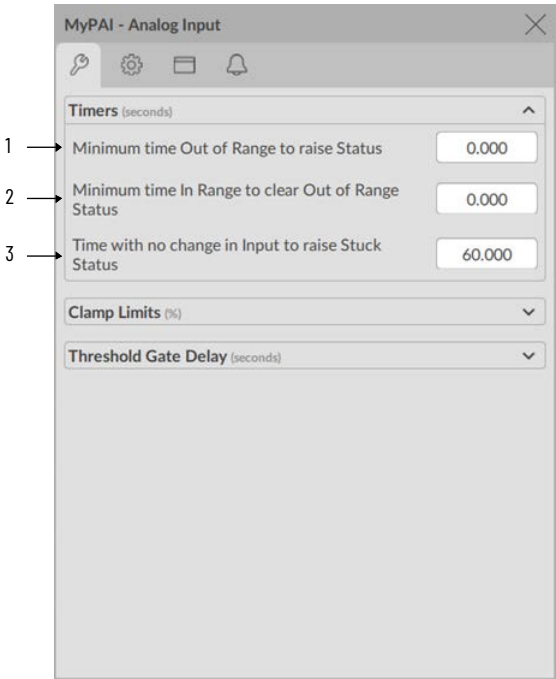
Item	Description
1	Process variable control condition high high, high, low, and low low threshold values.
2	Process variable deviation low and high threshold values.
3	Deadband associated with each threshold. Enter the deadband (hysteresis) that is applied to each limit.

Maintenance Tab - Use Substitute PV



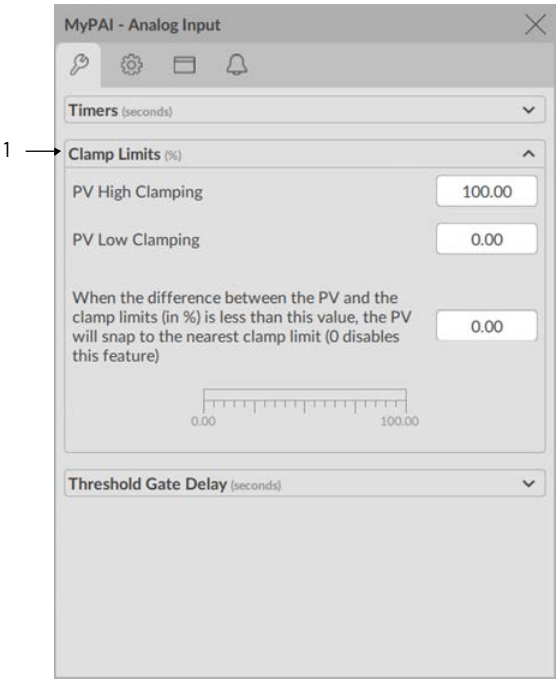
Item	Description
1	Use Substitute PV: Select to input a substitute process variable.

### Advanced Maintenance Tab - Timers



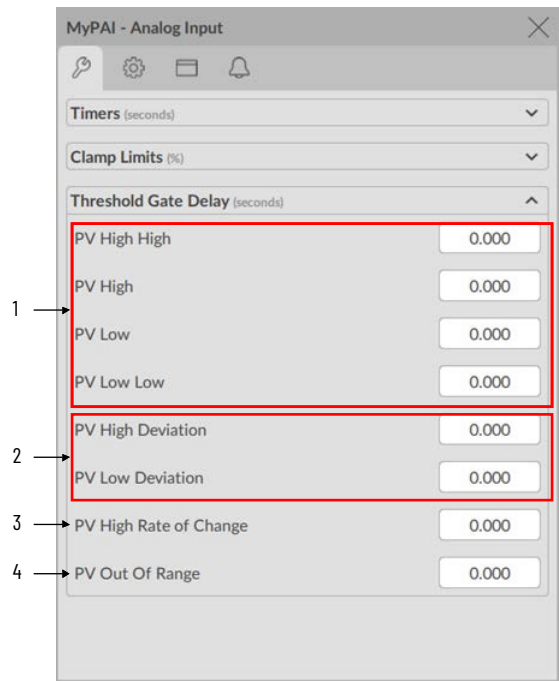
Item	Description
1	Enter the amount of time the input must stay within the range thresholds (with deadband) to clear the Out of Range (fail) condition. The off-delay time is used to help prevent a chattering fail detection on a noisy signal near a range threshold.
2	Enter the amount of time the input must stay beyond a range threshold to cause an Out of Range (fail) condition. The on-delay time is used to avoid an unnecessary fail detection when the input only momentarily exceeds the threshold.
3	Enter the amount of time the input must remain unchanged to trigger a stuck input condition. A value of zero means that the input must change every instruction scan to avoid a stuck input condition. Enter a large value to disable stuck input detection.

### Advanced Maintenance Tab - Clamp Limits



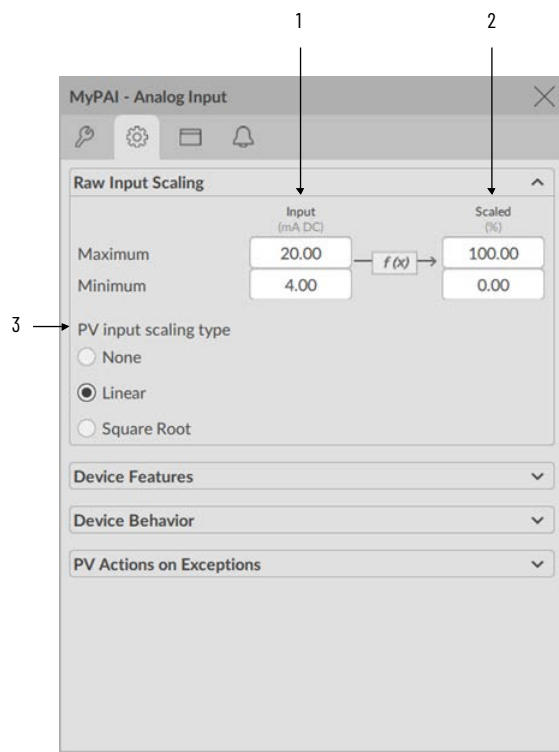
Item	Description
1	Process variable clamping configuration. This includes the clamping low and high threshold values and the clamping deadband.

Advanced Maintenance Tab - Threshold Gate Delay



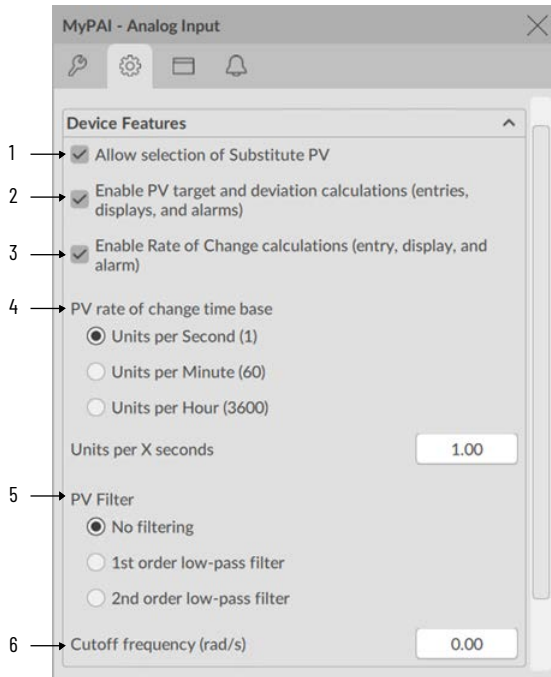
Item	Description
1	Process variable high high, high, low, and low low threshold gate delay (seconds).
2	Process variable high and low deviation threshold gate delay (seconds).
3	Process variable high rate of change threshold gate delay (seconds).
4	Process variable out of range threshold gate delay (seconds).

Advanced Engineering Tab - Raw Input Scaling



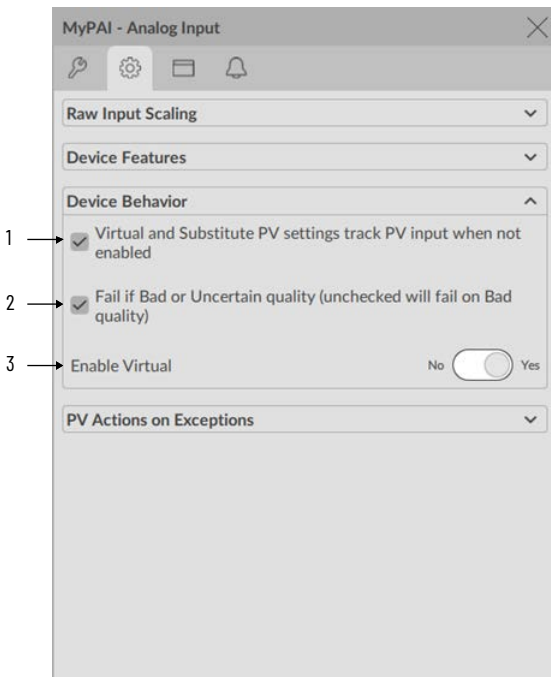
Item	Description
1	Input (unscaled) minimum and maximum. These parameters must be set to the range of the signal that is connected to the Process Variable Input. The raw minimum default is 0.0 and the raw maximum default is 100.0. Example: If your input card provides a signal from 4.0...20.0mA, set Cfg_InpRawMin to 4.0 and Cfg_InpRawMax to 20.0. The raw minimum/maximum and engineering units minimum/maximum are used for scaling to engineering units.
2	EU minimum and maximum for scaling. These parameters must be set to match the Process Variable range of the input signal that is connected to Inp_PV. The Process Variable engineering units minimum default is 0.0 and the Process Variable engineering units maximum is 100.0. Example: If your input card provides a signal from 4...20 mA that represents -50...+250 °C, set Cfg_PVEUMIN to -50.0 and Cfg_PVEUMax to 250.0. The raw minimum/maximum and Process Variable engineering units minimum/ maximum are used for scaling to engineering units.
3	PV scaling type selection. Square root can be configured for differential pressure applications.

## Advanced Engineering Tab - Device Features



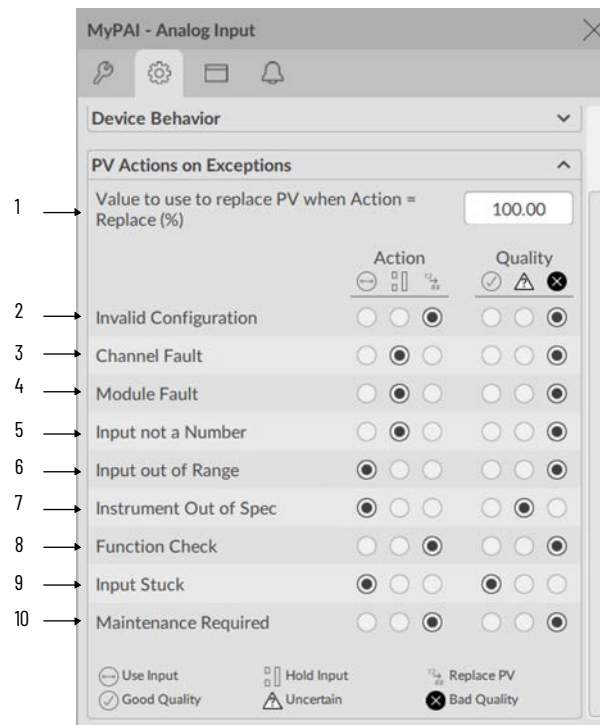
Item	Description
1	Process variable substitution is allowed or not allowed. The substitute PV allows for an entry of the PV from the HMI, which overrides the read PV.
2	Select to enable process variable target calculations, display, and alarms.
3	Select to enable Rate of Change target calculations, display, and alarms.
4	Process variable rate of change configuration.
5	Filter configuration: no filter, 1st order, 2nd order.
6	Filter cutoff frequency (rad/s).

## Advanced Engineering Tab - Device Behavior



Item	Description
1	Configure if the virtual and substitute process variables track the active process variable.
2	Configure if object fails on uncertain signal quality.
3	Enable or disable virtual mode.

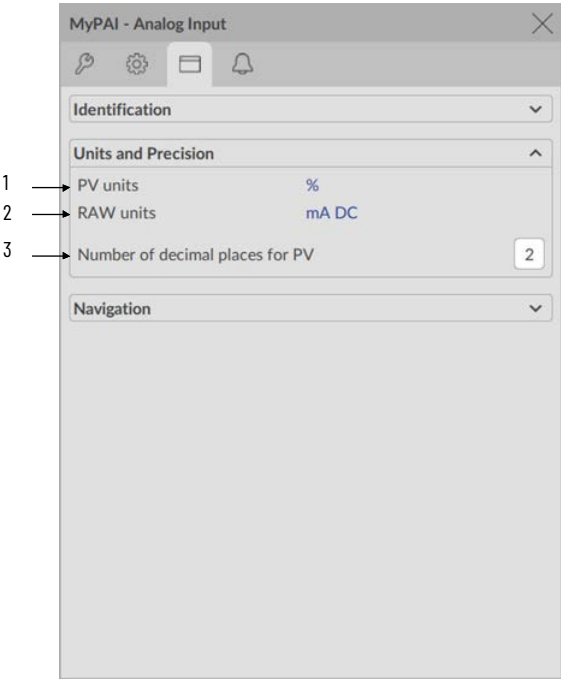
## Advanced Engineering Tab - PV Actions on Exceptions



Item	Description	Item	Description
1	Process variable replacement value for when the action is "Replace". There are multiple action configurations. For example, if the Channel Fault action is configured to "Replace", this replace value is used in the event of a channel fault.	6	<p>Action:</p> <p>When the input is out of range:</p> <p>Use the input to determine value</p> <p>Hold value at its last good value</p> <p>Set value by using Cfg_PVReplaceVal</p> <p>Quality:</p> <p>When the input is out of range:</p> <p>Set Sts_PVGood</p> <p>Set Sts_PVUncertain</p> <p>Set Sts_PVBad</p>
2	<p>Action:</p> <p>When the configuration is not valid:</p> <p>Use the input to determine value</p> <p>Hold value at its last good value</p> <p>Set value by using Cfg_PVReplaceVal</p> <p>Quality:</p> <p>When the configuration is not valid:</p> <p>Set Sts_PVGood</p> <p>Set Sts_PVUncertain</p> <p>Set Sts_PVBad</p>	7	<p>Action:</p> <p>When the input is out of spec:</p> <p>Use the input to determine value</p> <p>Hold value at its last good value</p> <p>Set value by using Cfg_PVReplaceVal</p> <p>Quality:</p> <p>When the input is out of spec:</p> <p>Set Sts_PVGood</p> <p>Set Sts_PVUncertain</p> <p>Set Sts_PVBad</p>
3	<p>Action:</p> <p>When there is a channel fault:</p> <p>Use the input to determine value</p> <p>Hold value at its last good value</p> <p>Set value by using Cfg_PVReplaceVal</p> <p>Quality:</p> <p>When there is a channel fault:</p> <p>Set Sts_PVGood</p> <p>Set Sts_PVUncertain</p> <p>Set Sts_PVBad</p>	8	<p>Action:</p> <p>When Inp_FuncCheck is set:</p> <p>Use the input to determine value</p> <p>Hold value at its last good value</p> <p>Set value by using Cfg_PVReplaceVal</p> <p>Quality:</p> <p>When Inp_FuncCheck is set:</p> <p>Set Sts_PVGood</p> <p>Set Sts_PVUncertain</p> <p>Set Sts_PVBad</p>

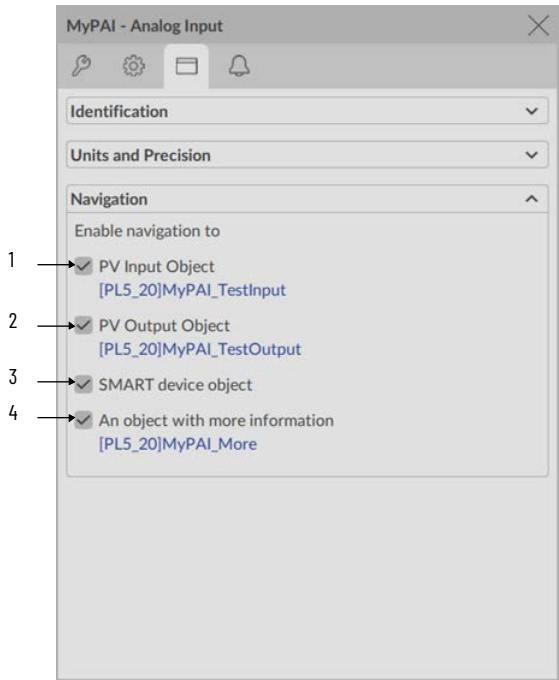
Item	Description	Item	Description
4	Action: When there is a module fault: Use the input to determine value Hold value at its last good value Set value by using Cfg_PVReplaceVal  Quality: When there is a module fault: Set Sts_PVGood Set Sts_PVUncertain Set Sts_PVBad	9	Action: When the input is stuck (no change): Use the input to determine value Hold value at its last good value Set value by using Cfg_PVReplaceVal  Quality: When the input is stuck (no change): Set Sts_PVGood Set Sts_PVUncertain Set Sts_PVBad
5	Action: When the input is not a number: Use the input to determine value Hold value at its last good value Set value by using Cfg_PVReplaceVal  Quality: When the input is not a number: Set Sts_PVGood Set Sts_PVUncertain Set Sts_PVBad	10	Action: When Inp_MaintReqd is set: Use the input to determine value Hold value at its last good value Set value by using Cfg_PVReplaceVal  Quality: When Inp_MaintReqd is set: Set Sts_PVGood Set Sts_PVUncertain Set Sts_PVBad

Advanced HMI Configuration Tab - Units and Precision



Item	Description
1	Display the engineering units for PV values.
2	Display the engineering units for RAW values.
3	Set the number of decimal places for the Process Variable.

## Advanced HMI Configuration Tab - Navigation



Item	Description
1	Select to enable navigation to an upstream analog input object.
2	Select to enable navigation to a downstream analog input object.
3	Select to allow navigation to SMART device object.
4	Select to enable navigation to an object with more information (Cfg_HasMoreObj is set to true.) This can be configured to navigate to an object backing tag or a UDT tag that has Instruction and Library defined.



# Process Analog HART (PAH)

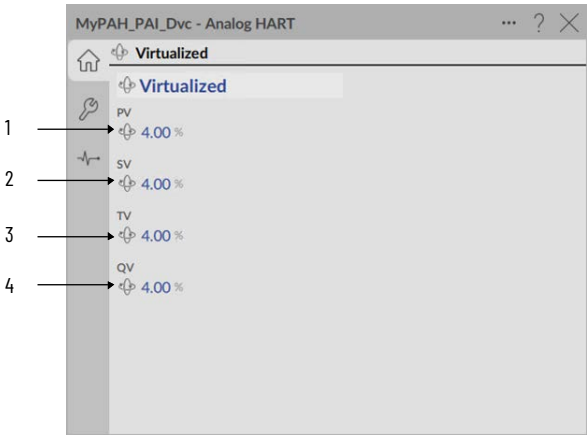
## Graphic Symbols

FactoryTalk Optix Graphic Symbol	Description
raP_5_xx_GS_SmartDevice	

## FactoryTalk Optix Faceplates

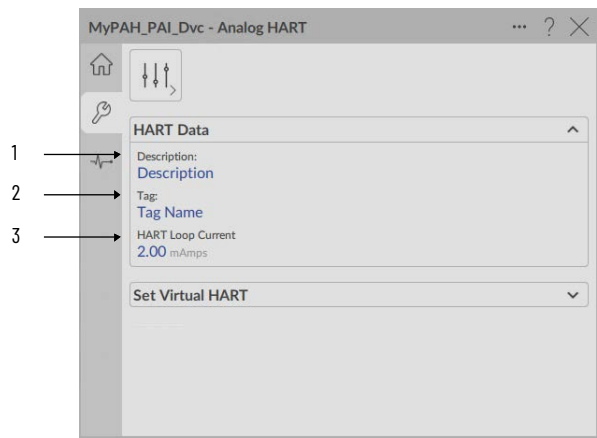
There are basic faceplate attributes that are common across all instructions. The Trends tab, Diagnostics tab, and Alarms tab all have the same basic functionality and are not described in this section. See [Basic Faceplate Attributes on page 24](#).

## Smart Device Operator



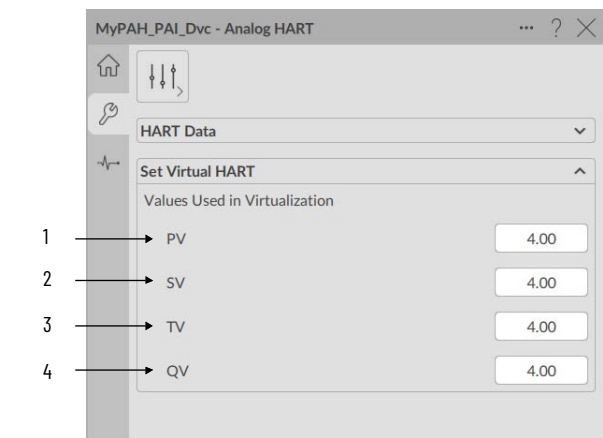
Item	Description
1	Show Process Variable for the HART PV.
2	Show Process Variable for the HART SV.
3	Show Process Variable for the HART TV.
4	Show Process Variable for the HART QV.

### Smart Device Maintenance Tab - HART Data



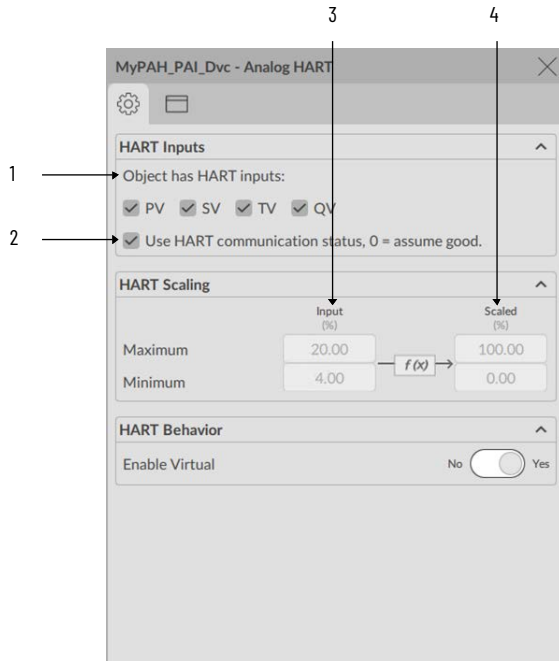
Item	Description
1	Display the description for the device.
2	Display the tag name for the device.
3	Display digital HART value for loop current in milliamps.

### Smart Device Maintenance Tab - Set Virtual HART



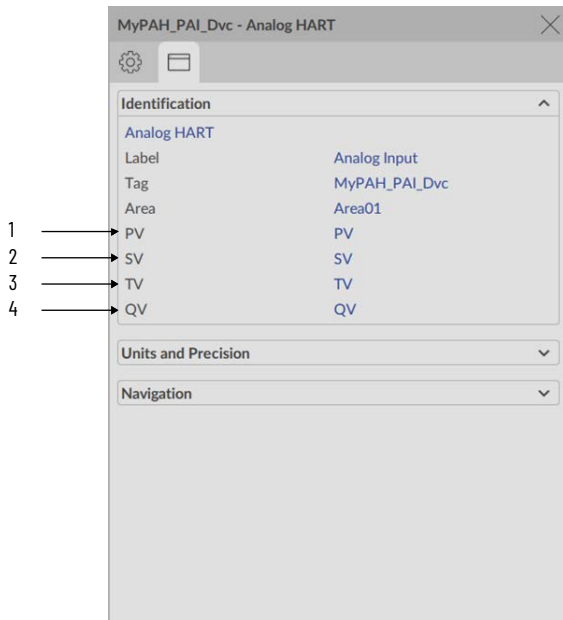
Item	Description
1	Input virtual Process Variable for the HART PV.
2	Input virtual Process Variable for the HART SV.
3	Input virtual Process Variable for the HART TV.
4	Input virtual Process Variable for the HART QV.

## Smart Device Advanced Engineering Tab



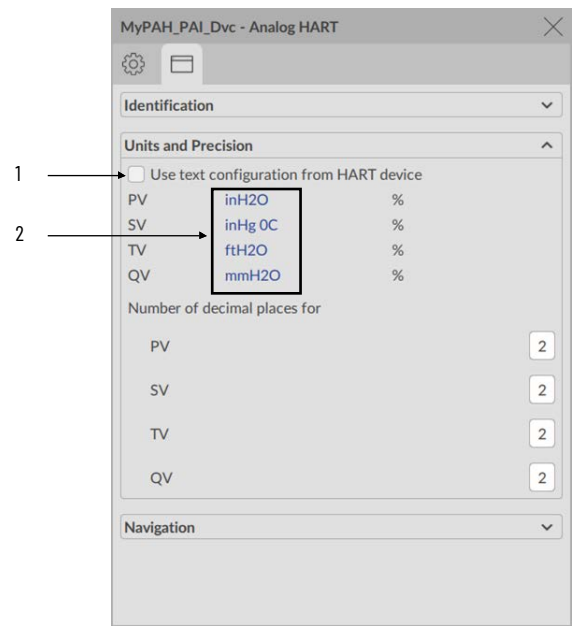
Item	Description
1	Select to display the digital variables' (PV, SV, TV, QV) status as received via HART. Clear this checkbox to disable automatic updating of HART device information.
2	Select to use HART communication status to generate SrcQ, 0 - assume good.
3	Display analog input unscaled signal maximum, minimum, and units from HART module (in module units).
4	Display analog input scaled signal maximum, minimum, and units from HART module (in module units).

## Smart Device Advanced HMI Configuration Tab - Identification



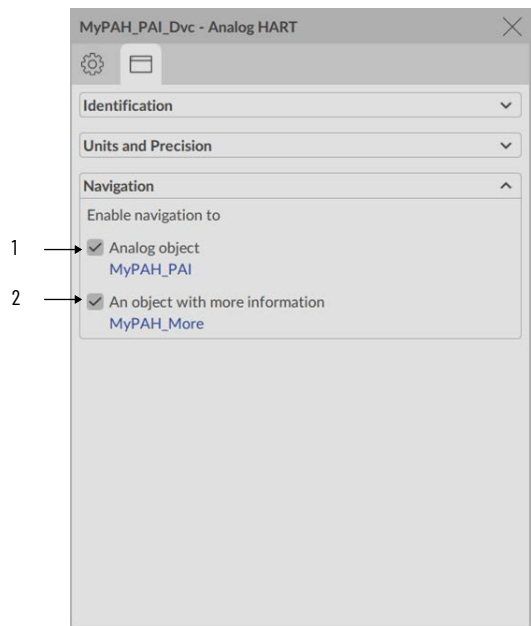
Item	Description
1	Display name for PV.
2	Display name for SV.
3	Display name for TV.
4	Display name for QV.

Smart Device Advanced HMI Configuration Tab - Units and Precision



Item	Description
1	Select to display text received from HART device, 0 = use extended properties for text.
2	Display the text to display the units of measure for variable HART PV, SV, TV, and QV.

Smart Device Advanced HMI Configuration Tab - Navigation

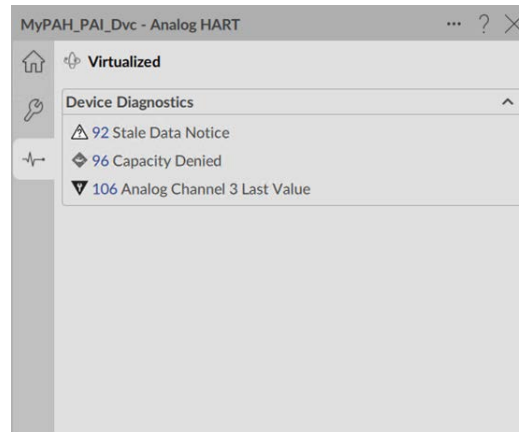


Item	Description
1	Select to enable navigation to an analog object (Cfg_HasNav is set to true.) This can be configured to navigate to an object backing tag or a UDT tag that has Instruction and Library defined.
2	Select to enable navigation to an object with more information (Cfg_HasMoreObj is set to true.) This can be configured to navigate to an object backing tag or a UDT tag that has Instruction and Library defined.

## Smart Device Diagnostics

The Diagnostic tab provides indications that are helpful to diagnose or help prevent device problems. These problems can include specific reasons a device is 'Not Ready', device warnings and faults, warning and fault history, and predictive/preventive maintenance data.

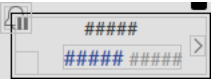

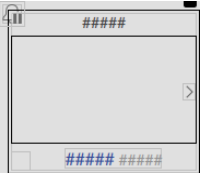
The Diagnostics tab displays possible reasons for the device not being ready.



## Notes:

# Process Dual Sensor Analog Input (PAID)

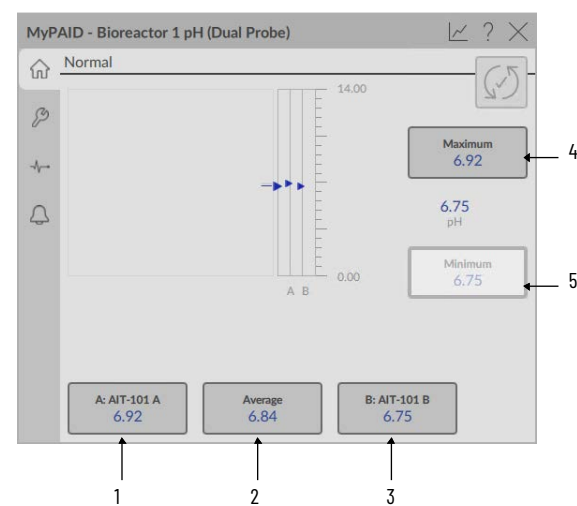
## Graphic Symbols

FactoryTalk Optix Graphic Symbol	Description
<div>raP_5_xx_PAID_GS</div> 	Standard analog-input graphic symbol
<div>raP_5_xx_PAID_GS_LinearGauge</div> 	Process Variable indicated by a moving triangle. The graphic display includes limits that are displayed with filled bars.
<div>raP_5_xx_PAID_GS_Trend</div> 	Analog input with a trend of the Process Variable and limits (highhigh, high, low, and low-low).

# FactoryTalk Optix Faceplates

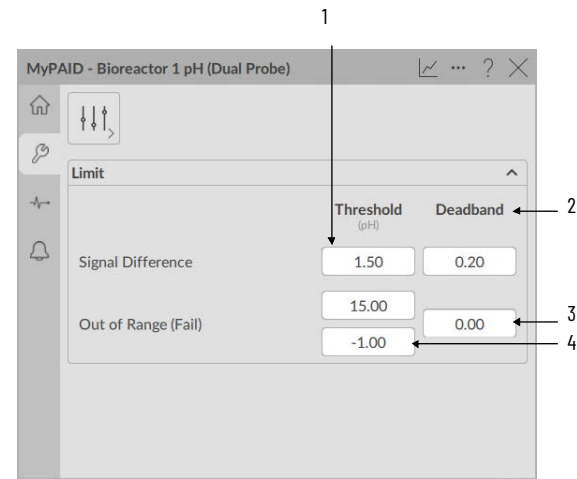
There are basic faceplate attributes that are common across all instructions. The Trends tab, Diagnostics tab, and Alarms tab all have the same basic functionality and are not described in this section. See [Basic Faceplate Attributes on page 24](#).

## Operator Tab



Item	Description
1	Select Sensor A Input Process Variable.
2	Select the average of Sensor A and Sensor B Input Process Variables.
3	Select Sensor B Input Process Variable.
4	Select the maximum of Sensor A and Sensor B Input Process Variable.
5	Select the minimum of Sensor A and Sensor B Input Process Variable.

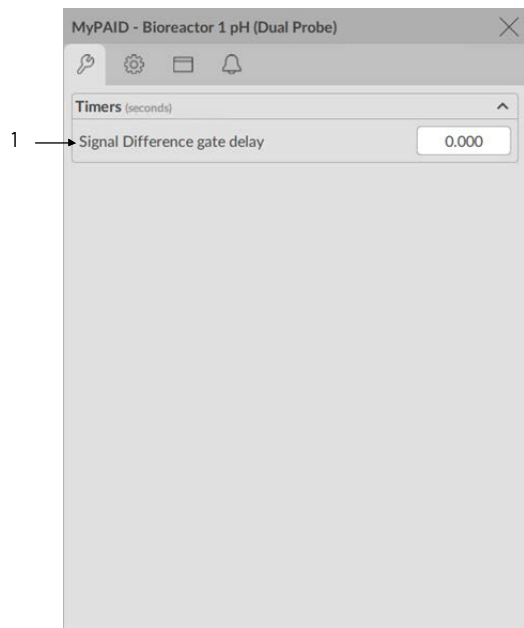
## Maintenance Tab



Item	Description
1	Process variable high/low signal difference threshold. Enter the threshold (trip point) for analog input alarms.
2	Process variable high/low signal difference deadband. Enter the deadband (hysteresis) that is applied to the alarm limit. Deadband helps prevent a noisy signal from generating numerous spurious alarms. <b>Example:</b> If the High alarm limit is 90.0 and the High alarm deadband is 5, once the signal rises above 90.0 and generates a High alarm. The signal must fall below 85.0 (90.0 minus 5.0) for the alarm to clear.
3	Process variable fail deadband. Enter the deadband (hysteresis) that is applied to each alarm limit. Deadband helps prevent a noisy signal from generating numerous spurious alarms. <b>Example:</b> If the High alarm limit is 90.0 and the High alarm deadband is 5, once the signal rises above 90.0 and generates a High alarm. The signal must fall below 85.0 (90.0 minus 5.0) for the alarm to clear.
4	Process variable fail threshold in raw units.

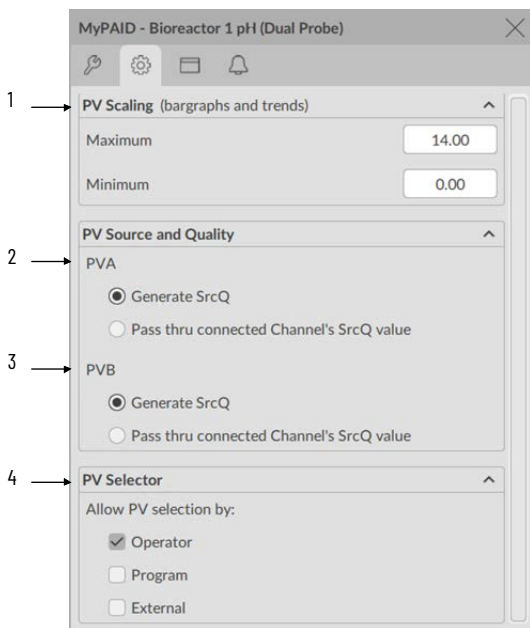


## Advanced Maintenance Tab



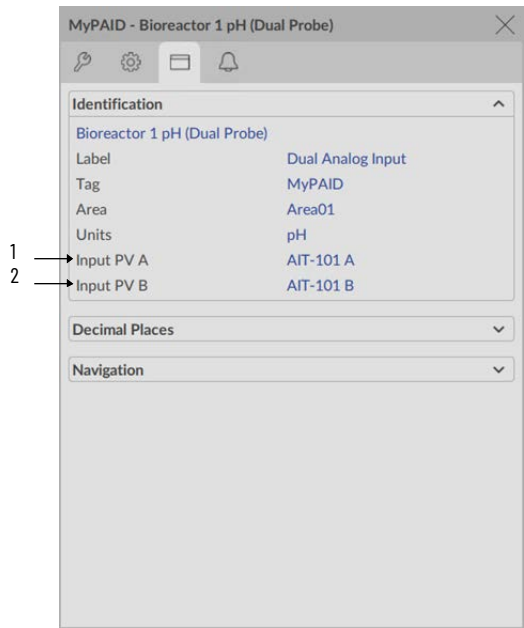
Item	Description
1	Configure the signal difference gate delay (seconds), which is the time after the gate input activates before the threshold detection is enabled

## Advanced Engineering Tab



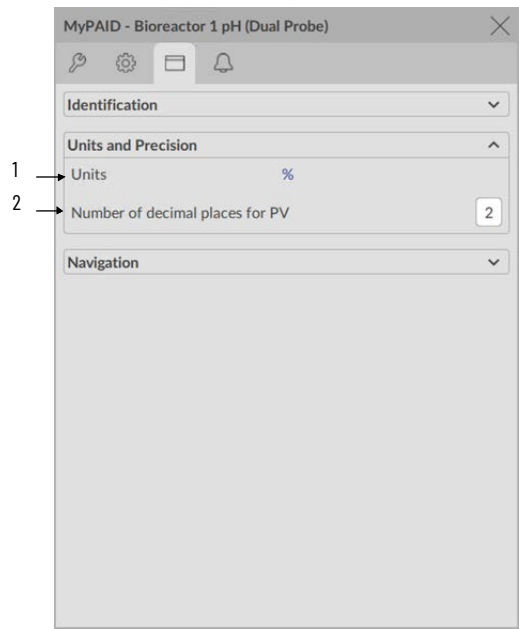
Item	Description
1	Minimum and maximum scale for the process variable on the trend.
2	<p>PV Source and Quality Input A</p> <p><b>Generate SrcQ:</b> This instruction determines the Process Variable quality using Inp_PVBad, Inp_PVUncertain, and the PV value (out of range, infinite or not a number)</p> <p><b>Pass thru connected Channel's SrcQ value:</b> This instruction uses the Source and Quality (SrcQ) value that is provided by an upstream object (such as PAI) via Inp_PVSrcQ to determine the PV source and quality.</p>
3	<p>PV Source and Quality Input B</p> <p><b>Generate SrcQ:</b> This instruction determines the Process Variable quality using Inp_PVBad, Inp_PVUncertain, and the PV value (out of range, infinite or not a number)</p> <p><b>Pass thru connected Channel's SrcQ value:</b> This instruction uses the Source and Quality (SrcQ) value that is provided by an upstream object (such as PAI) via Inp_PVSrcQ to determine the PV source and quality.</p>
4	Allows any combination of the operator, program, or external sources to select the active process variable.

### HMI Configuration Tab - Identification



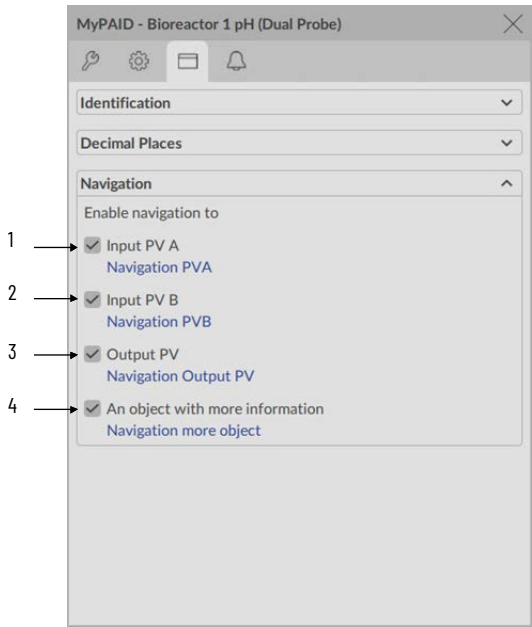
Item	Description
1	Name for Input Tag A to show on the faceplate.
2	Name for Input Tag B to show on the faceplate.

### HMI Configuration Tab - Units and Precision



Item	Description
1	Display the text of the units for the Process Variable.
2	Set the number of decimal places for the Process Variable.

## HMI Configuration Tab - Navigation

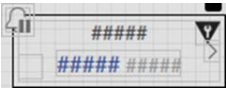

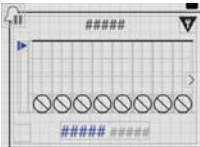

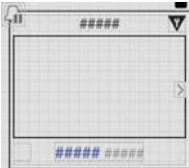


Item	Description
1	Select to enable navigation to an upstream analog input object. The tagname to navigate to is shown in the box under the label.
2	Select to enable navigation to an upstream analog input object. The tagname to navigate to is shown in the box under the label.
3	Select to enable to a downstream analog input object. The tagname to navigate to is shown in the box under the label.
4	Select to enable navigation to an object with more information (Cfg.HasMoreObj is set to true.) This can be configured to navigate to an object backing tag or a UDT tag that has Instruction and Library defined.

**Notes:**

Process Multi Sensor Analog Input (PAIM)

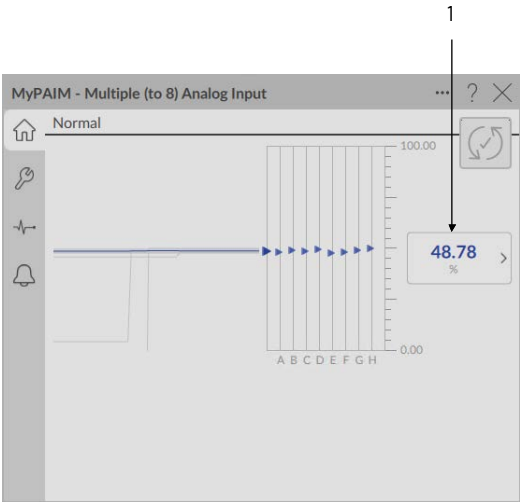
Graphic Symbols

FactoryTalk Optix Graphic Symbol	Description
<div>raP_5_xx_PAIM_GS</div> 	Standard analog-input graphic symbol.
<div>raP_5_xx_PAIM_GS_AH_Vertical</div> 	The object displays eight inputs (A-H), with each input a moving line on a horizontal axis. The graphic display includes indicators for disabled and rejected inputs.
<div>raP_5_xx_PAIM_GS_AH_Horizontal</div> 	The object displays eight inputs (A-H), with each input a moving line on a vertical axis. The graphic display includes indicators for disabled and rejected inputs.
<div>raP_5_xx_PAIM_GS_LinearGauge</div> 	Process Variable indicated by a moving triangle. The graphic display includes limits that are displayed with filled bars.
<div>raP_5_xx_PAIM_GS_Trend</div> 	Analog input with a trend of the Process Variable and limits (highhigh, high, low, and low-low).

# FactoryTalk Optix Faceplates

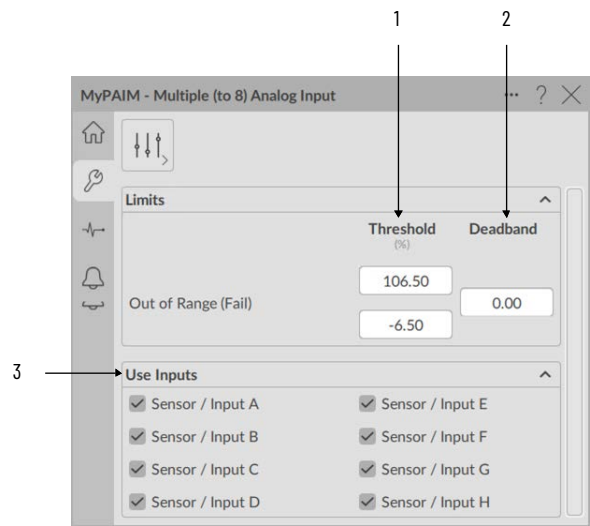
There are basic faceplate attributes that are common across all instructions. The Trends tab, Diagnostics tab, and Alarms tab all have the same basic functionality and are not described in this section. See [Basic Faceplate Attributes on page 24](#).

## Operator Tab



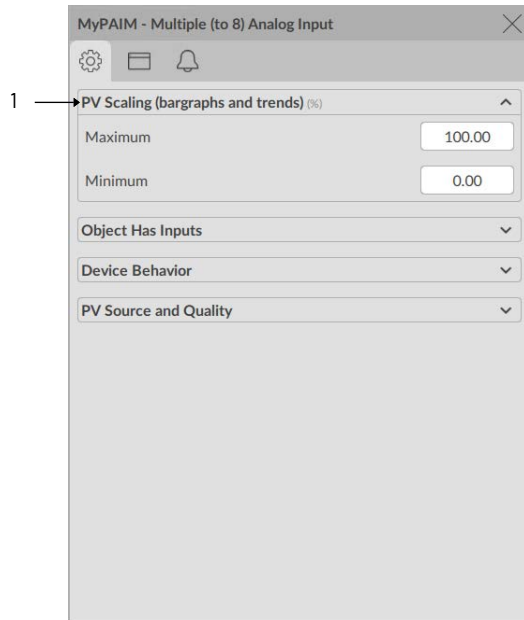
Item	Description
1	Process Variable

## Maintenance Tab



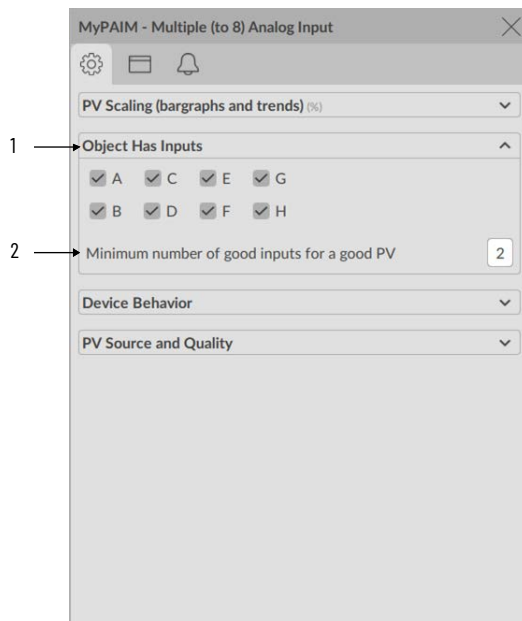
Item	Description
1	Failure status high/low threshold.
2	Failure status Deadband.
3	Sensor Inputs. Select: <ul style="list-style-type: none"><li>• ON if the corresponding input is to be used to calculate the final Process Variable (average or median).</li><li>• OFF to exclude the corresponding input from the Process Variable calculation. This configuration is typically used to exclude a particular input when it is taken out of service for maintenance. If the PAIM instruction has a Process Variable but is not using it, the Maintenance Bypass Indicator is displayed.</li></ul>

## Advanced Engineering Tab - PV Scaling



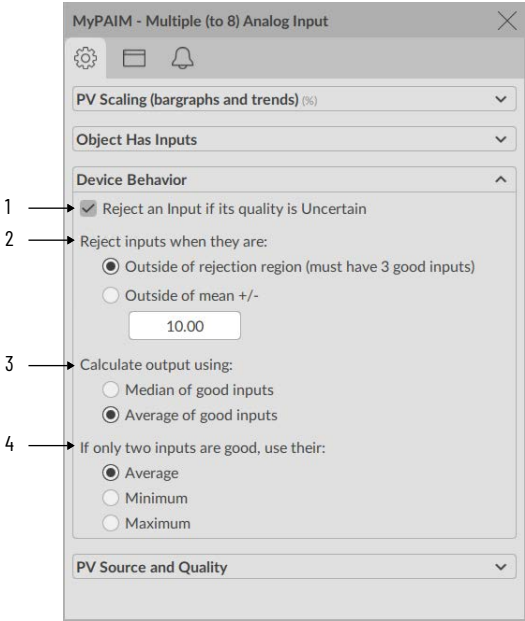
Item	Description
1	Minimum and maximum scale for the process variable on the trend.

## Advanced Engineering Tab - Object Has Inputs



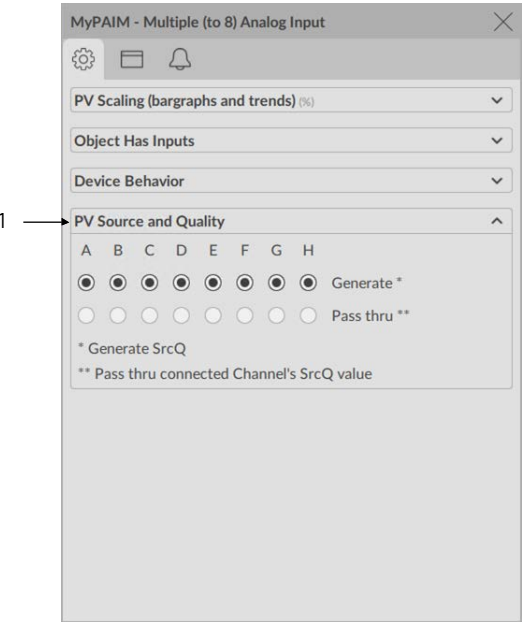
Item	Description
1	Select to set this parameter: <ul style="list-style-type: none"> <li>ON, if the corresponding Process Variable Input is to be used to calculate final Process Variable (average or median)</li> <li>OFF, to exclude the corresponding Process Variable Input from the Process Variable calculation TIP: This configuration determines whether a particular input is intended to be wired and used. See the Maintenance tab for functions to take an input out of service for maintenance temporarily.</li> </ul>
2	Enter the number of selected inputs that must have a good source quality to result in a good Process Variable.

Advanced Engineering Tab - Device Behavior



Item	Description
1	Select to set this parameter to one of the following: <ul style="list-style-type: none"> <li>ON, an input that is flagged as uncertain is rejected and not used to calculate the final Process Variable.</li> <li>OFF, an input that is flagged as uncertain is not rejected and is still used to calculate the final Process Variable. The flag causes the final Process Variable to be flagged as uncertain (default).</li> </ul>
2	Select: <ul style="list-style-type: none"> <li>'Outside of rejection region' to reject an input that is more than two standard deviations from the mean.</li> <li>'Outside of mean +/-' to reject an input that deviates from the mean by more than the value entered. Value is in PV engineering units.</li> </ul> <p><b>IMPORTANT:</b> At least four inputs must be used for the 'Outside of rejection region' selection to be meaningful.</p>
3	Select: <ul style="list-style-type: none"> <li>'Average of good inputs' - the calculated final Process Variable is the average (arithmetic mean) of the good (non-rejected) Process Variable inputs.</li> <li>'Median of good inputs' - the calculated final Process Variable is the median (central value) of the good (non-rejected) Process Variable inputs (default). The average is the sum of values that are divided by the number of values. The median is the value of the item in the middle. If there are an even number of items, the median is the average of the two central values.</li> </ul>
4	Select one of the options to determine the output calculation when there are only two unrejected inputs.

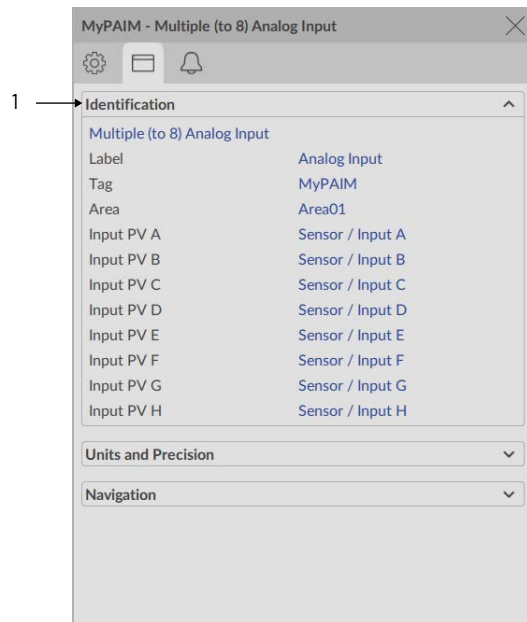
Advanced Engineering Tab - PV Source and Quality



Item	Description
1	Select either generate or pass thru source quality for each channel. If the channel is configured to pass thru, the PV source quality will not be impacted by that channel source quality.

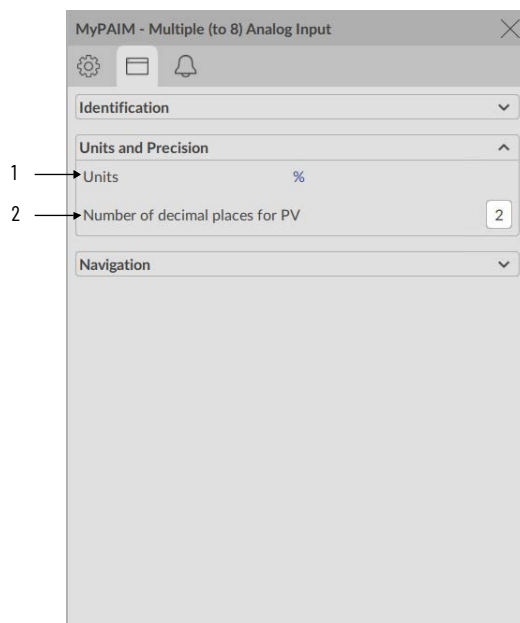


## Advanced HMI Configuration Tab - Identification



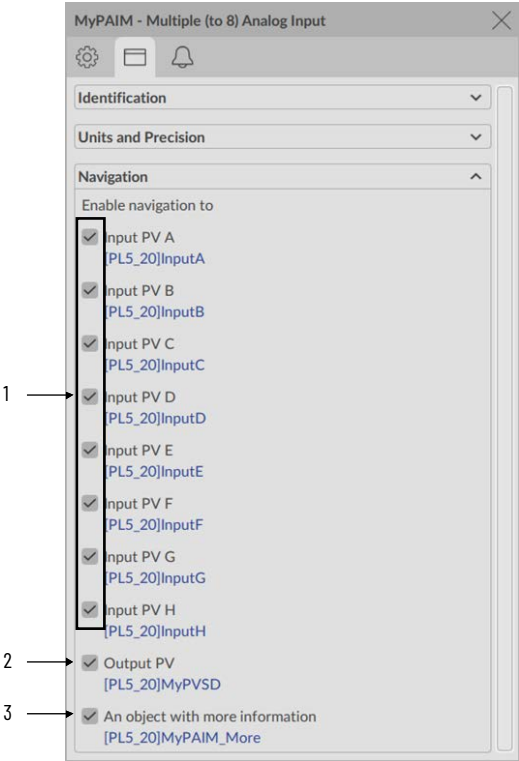
Item	Description
1	Display the Input tag names.

## Advanced HMI Configuration Tab - Units and Precision



Item	Description
1	Display the unit measurements.
2	Enter the number of decimal places for the Process Variable.

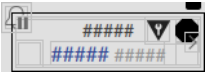
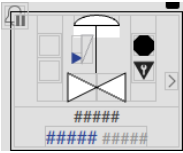
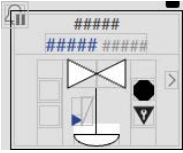
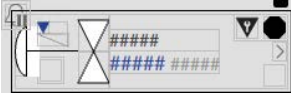
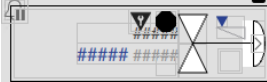
### Advanced HMI Configuration Tab - Navigation



Item	Description
1	Select to enable navigation to the objects for each input.
2	Select to enable navigation to an output PV object.
3	Select to enable navigation to an object with more information (Cfg_HasMoreObj is set to true.) This can be configured to navigate to an object backing tag or a UDT tag that has Instruction and Library defined.

# Process Analog Output (PAO)

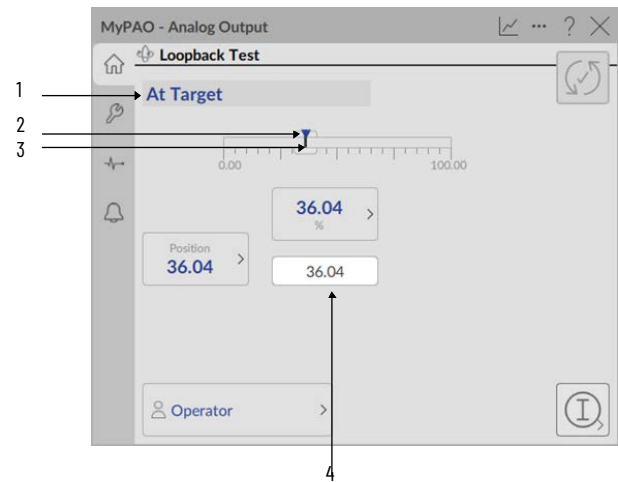
## Graphic Symbols

FactoryTalk Optix Graphic Symbol	Description
<div>raP_5_xx_PAO_GS_Analog_Output</div> 	Standard analog-output graphic symbol.
<div>raP_5_xx_PAO_GS_ControlValve</div> 	Normal controlled valve symbol for horizontal pipe.
<div>raP_5_xx_PAO_GS_ControlValve_B</div> 	Inverted controlled valve symbol for horizontal pipe.
<div>raP_5_xx_PAO_GS_ControlValve_L</div> 	Controlled valve symbol for vertical pipe (pipe to the left.)
<div>raP_5_xx_PAO_GS_ControlValve_R</div> 	Controlled valve symbol for vertical pipe (pipe to the right).

# FactoryTalk Optix Faceplates

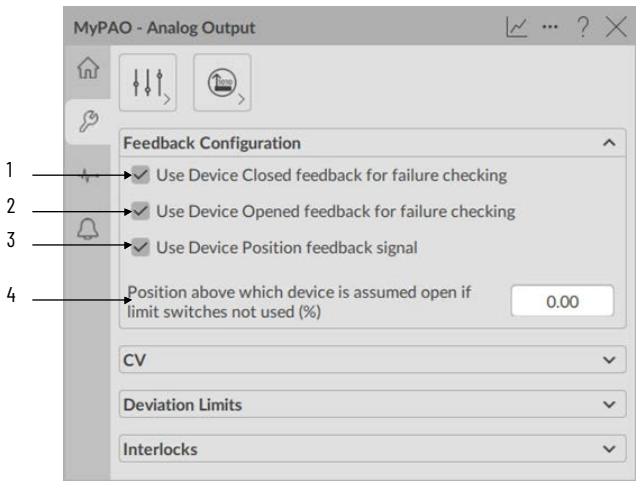
There are basic faceplate attributes that are common across all instructions. The Trends tab, Diagnostics tab, and Alarms tab all have the same basic functionality and are not described in this section. See [Basic Faceplate Attributes on page 24](#).

## Operator Tab



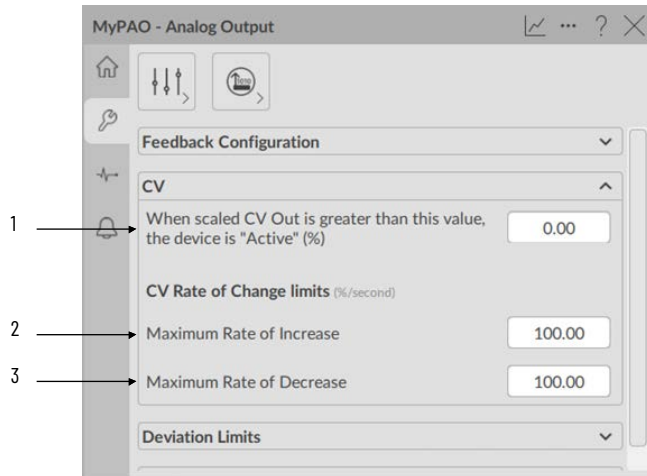
Item	Description
1	Analog Output State (At Target, Ramping Down, Ramping Up, Clamped at Min, Clamped at Max, or Disabled).
2	Control Variable.
3	Control Variable target.
4	Enter to change the Controlled Variable output value.

## Maintenance Tab - Feedback Configuration



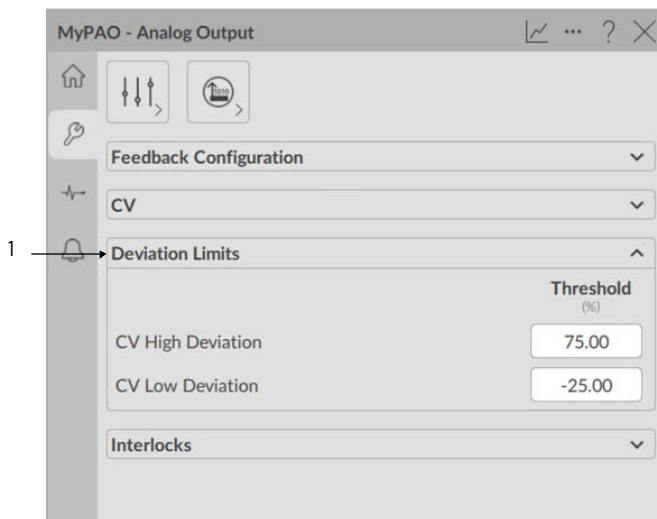
Item	Description
1	Select box to indicate that a closed limit switch will be used for feedback reference. Uncheck if a reference is not used.
2	Select box to indicate that an opened limit switch will be used for feedback reference. Uncheck if a reference is not used.
3	Select box to indicate that a position feedback will be used for feedback reference. Uncheck if a reference is not used.
4	Enter the position (PV value) above which the device (valve) is assumed to be open if the feedback from Opened limit switch is not used.

## Maintenance Tab - CV



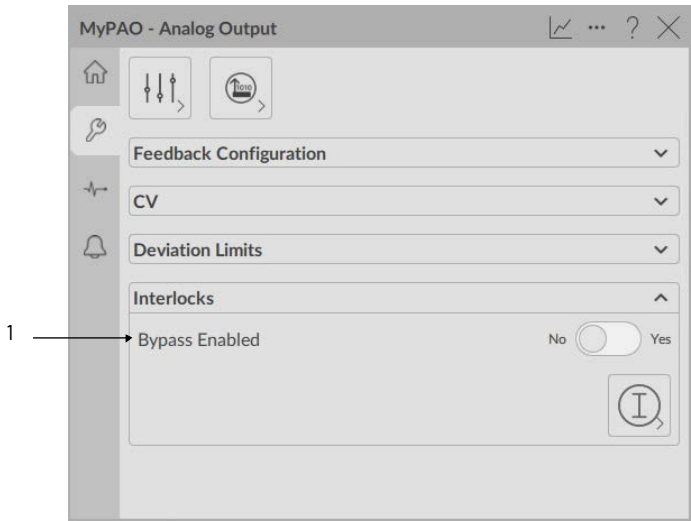
Item	Description
1	Enter the CV active value. When Val_CVOut is greater than this value (CV engineering units) set Sts_Active (for HMI).
2	Enter the values for the maximum rate of change for increasing CV.
3	Enter the values for the maximum rate of change for decreasing CV.

## Maintenance Tab - Deviation Limits



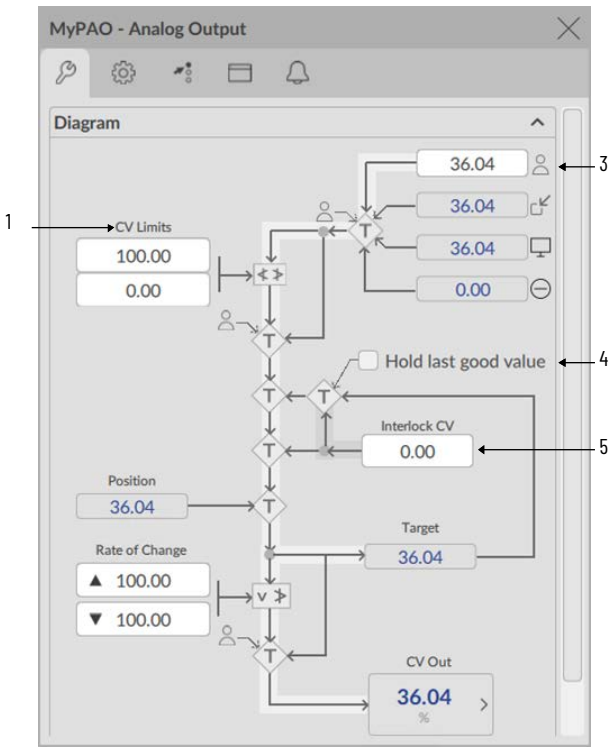
Item	Description
1	Enter the Control Variable deviation low and high threshold values.

Maintenance Tab - Interlocks



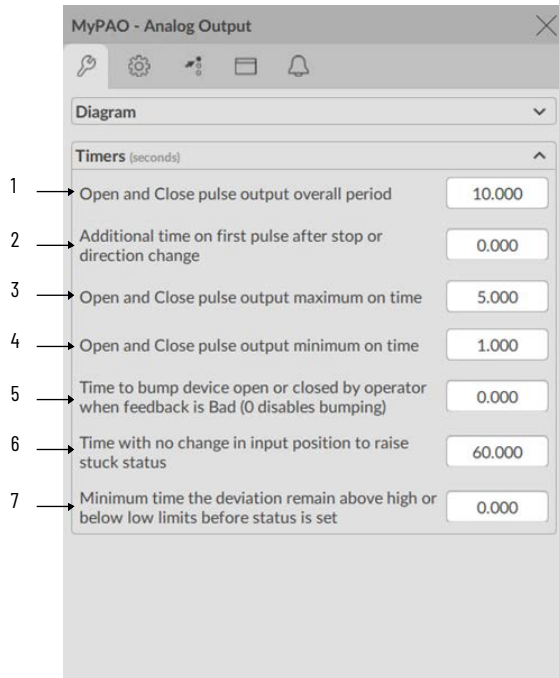
Item	Description
1	Select Yes to bypass checking of bypassable interlocks and permissives. Select No to enable checking of all interlocks and permissives.

Advanced Maintenance Tab - Diagram



Item	Description
1	Controlled Variable clamp limits. Enter the clamping limits for the Controlled Variable in engineering units. Clamp limits are enforced in Operator and Program command sources only.
2	Enter the maximum allowed value for the Rate of Change Limit in engineering units per second. A value of zero allows any rate of change to be input by the Program or Operator.
3	Enter the Operator command source Controlled Variable Target in engineering units. This entry is available in Operator command source and Maintenance command source.
4	Select and the Controlled Variable holds at the last good value when an Interlock trips or an I/O Fault occurs. Clear this checkbox and the Controlled Variable goes to the Interlock Controlled Variable value when an Interlock trips or an I/O Fault occurs.
5	Enter the interlock target Controlled Variable in engineering units. This value is used for the Controlled Variable when interlocked or on an I/O Fault, but only if Hold Last Good Value is not selected.

## Advanced Maintenance Tab - Timers



MyPAO - Analog Output

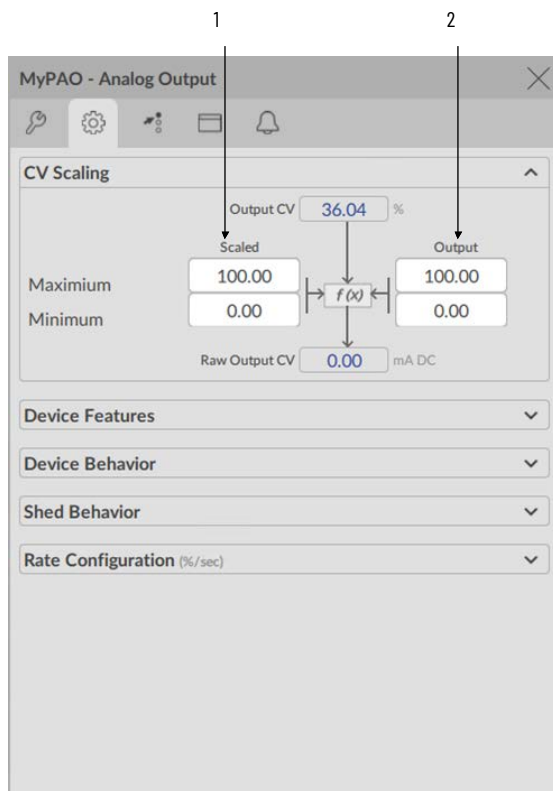
Diagram

Timers (seconds)

- Open and Close pulse output overall period: 10.000
- Additional time on first pulse after stop or direction change: 0.000
- Open and Close pulse output maximum on time: 5.000
- Open and Close pulse output minimum on time: 1.000
- Time to bump device open or closed by operator when feedback is Bad (0 disables bumping): 0.000
- Time with no change in input position to raise stuck status: 60.000
- Minimum time the deviation remain above high or below low limits before status is set: 0.000

Item	Description
1	Enter the overall period for the open and close cycles. The open and close cycles consist of a pulsed output and an idle time. If the total cycle time is 10 seconds and the maximum output time is 5 seconds, the cycle is 5 seconds of pulsed output and 5 seconds of idle. The pulse cycles are only used if pulse outputs are enabled.
2	Enter the additional time to be added to the first pulse of an open or close action.
3	Maximum time the open or close pulse output is enabled during each cycle.
4	Minimum time the open or close pulse output is enabled during each cycle.
5	Enter the value for time the output is bumped for open or closed bump command by the operator. When enabled, this is a one-time bump of the requested output.
6	Enter the value for the stuck alarm. When this time is reached without position change, the status changes to stuck.
7	Enter value for the gate of the deviation alarm. If deviation is above the high limit or below the low limit for this time, the deviation status is raised.

## Advanced Engineering Tab - CV Scaling



MyPAO - Analog Output

CV Scaling

Output CV: 36.04 %

Scaled: Maximum 100.00, Minimum 0.00

Output: Maximum 100.00, Minimum 0.00

Raw Output CV: 0.00 mA DC

Device Features

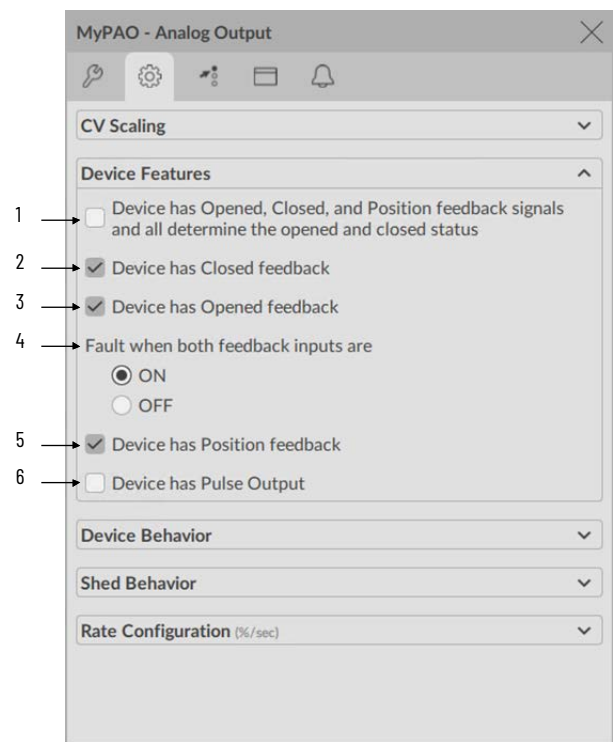
Device Behavior

Shed Behavior

Rate Configuration (%/sec)

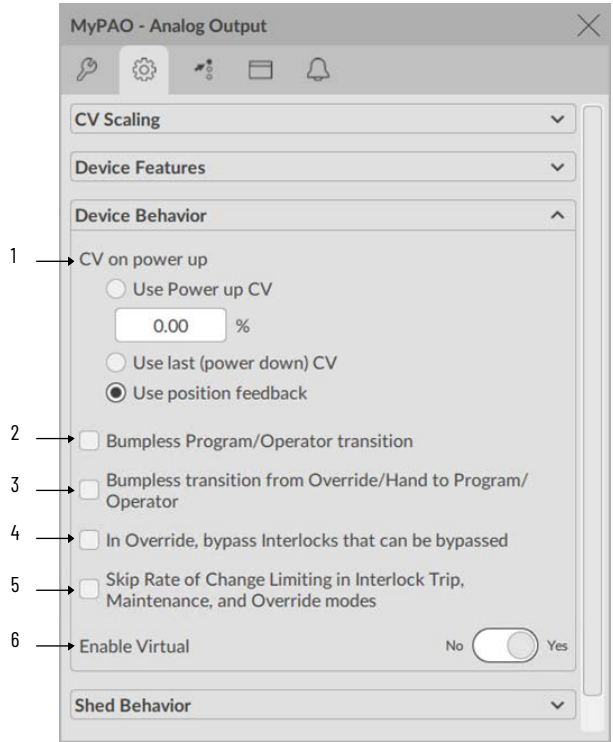
Item	Description
1	Enter values for the maximum and minimum scaled (engineering units) scaling ranges.
2	Enter values for the maximum and minimum output (Raw) scaling ranges.

Advanced Engineering Tab - Device Features



Item	Description
1	Select whether this method is used for opened and closed status. This is a cross-check between the position and the opened/closed feedback.
2	Select whether the valve has closed feedback or not.
3	Select whether the valve has opened feedback or not.
4	Select whether the valve will fault when the opened and closed feedback inputs are both ON or when they are both off.
5	Select whether the valve has position feedback (%) or not.
6	Select whether the valve has a pulsed output for opening and closing.

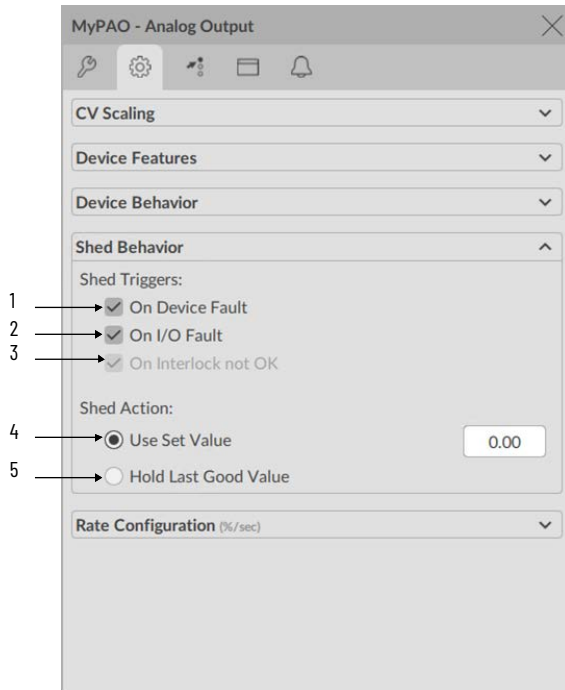
Advanced Engineering Tab - Device Behavior



Item	Description
1	Select what method is used to determine the CV on power-up. If use power-up CV is selected, enter the value for the initial CV used on power-up. Position feedback must be enabled to use the position feedback power-up method.
2	When selected, the operator settings track the program settings when the command source is Program, and program settings track the operator settings when the command source is Operator. Transition between command sources is bumpless. When not selected, the operator settings and program settings retain their values regardless of command source. When the command source is changed, the value of a limit can change, such as from the Program-set value to the Operator-set value.
3	When selected, the Program and Operator Settings of the CV track the output CV when the command source is Hand or Override.
4	Select while in Override command source to bypass Interlocks that can be bypassed.
5	Select to have the CV immediately go to its target value or configured Interlock CV value when an Interlock trips or the instruction is placed in Maintenance or Override command source. Clear this checkbox to have the CV always use rate of change limiting (ramping) of the CV output.
6	Select yes to enable Virtual.

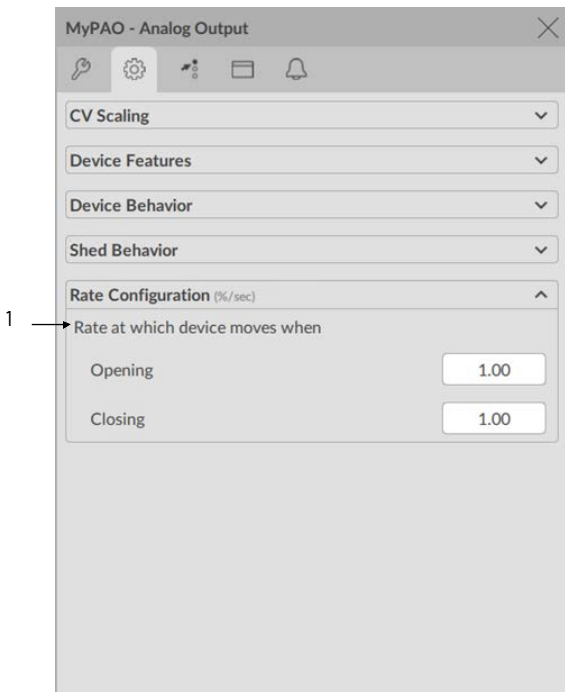


## Advanced Engineering Tab - Shed Behavior



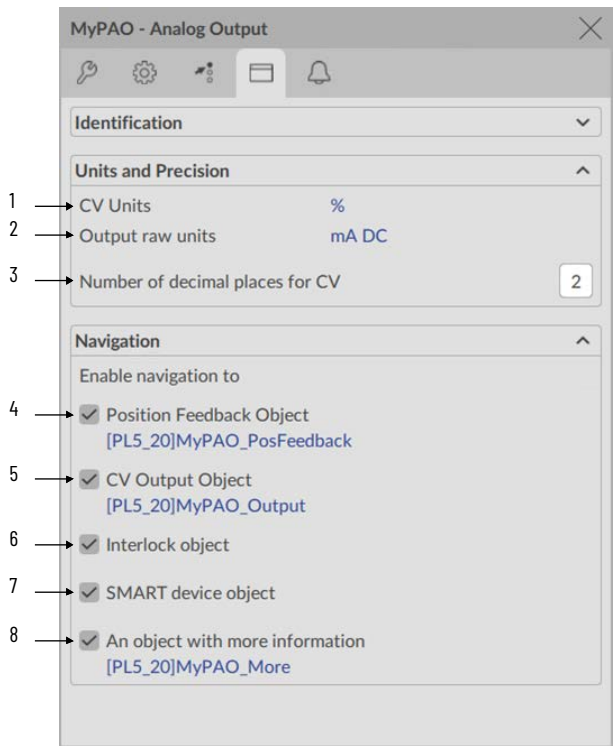
Item	Description
1	Select to shed if a Device Fault is detected.
2	Select to shed if an I/O Fault is detected.
3	The device always sheds on Interlock not OK. This item cannot be unchecked. It is displayed as a reminder that Interlock not OK always triggers a shed.
4	Select this option to set the analog output to the configured shed set value when a condition configured as a shed trigger occurs.
5	Select this option to hold the analog output at its last good value when a condition configured as a shed trigger occurs.

## Advanced Engineering Tab - Rate Configuration



Item	Description
1	Enter the rate (%/sec) at which the valve moves during opening and closing.


## Advanced HMI Configuration Tab



Item	Description
1	Display the engineering units for CV values.
2	Display the engineering units for Output raw values.
3	Set the number of decimal places for the Control Variable.
4	Select to enable navigation to the faceplate for the Process object that is providing the position feedback for this object (Inp_PosFdbk).
5	Select to enable navigation to the faceplate for the Process object that is providing the CV for this object (PSet_CV).
6	Select if an interlock object is connected to Inp_IntlkOK. The Interlock indicator becomes a button that opens the interlock faceplate. <b>IMPORTANT:</b> The name of the Interlock object in the controller must be the name of the object with the suffix '_Intlk_O'. For example, if your PAO object has the name 'AOut123', then its Interlock object must be named 'AOut123_Intlk_O'.
7	Select to enable navigation to a SMART device object.
8	Select to enable navigation to an object with more information (Cfg_HasMoreObj is set to true.) This can be configured to navigate to an object backing tag or a UDT tag that has Instruction and Library defined.

# Process Boolean Logic (PBL)

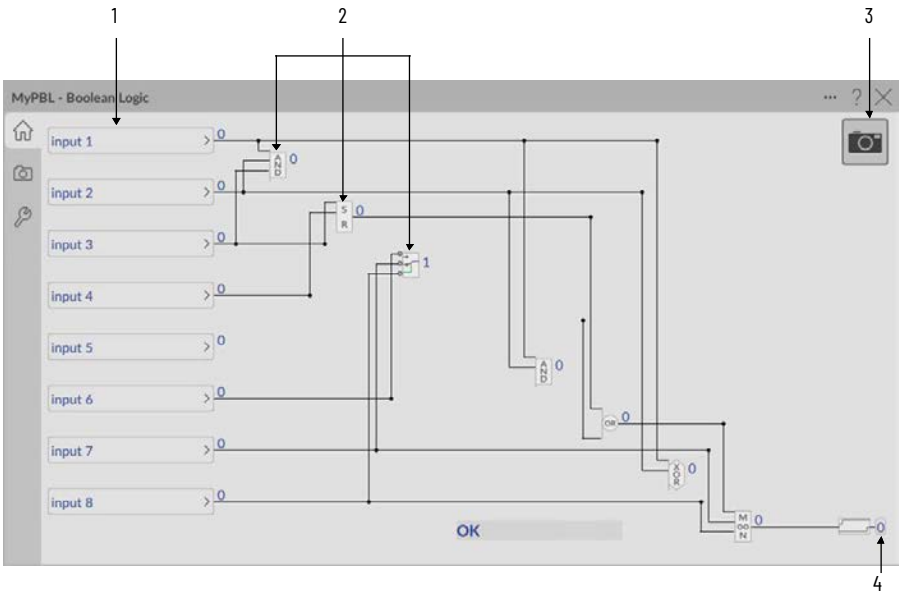
## Graphic Symbols

FactoryTalk Optix Graphic Symbol	Description
	Standard PBL object. Displays Boolean output status and alarming. Opens faceplate.

## FactoryTalk Optix Faceplates

There are basic faceplate attributes that are common across all instructions. The Trends tab, Diagnostics tab, and Alarms tab all have the same basic functionality and are not described in this section. See [Basic Faceplate Attributes on page 24](#).

## Operator Tab



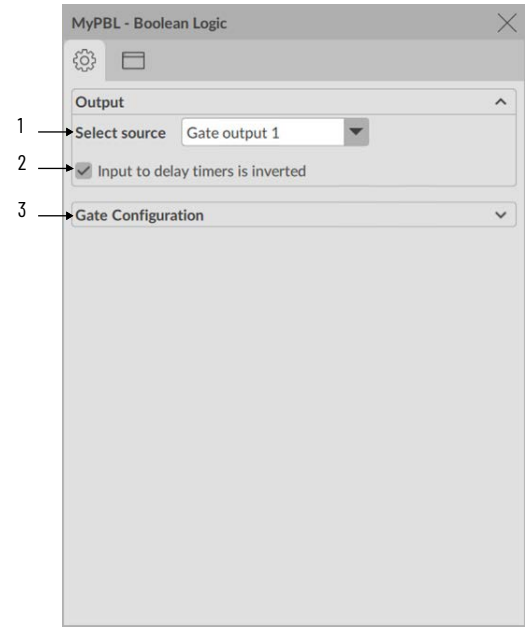
Item	Description
1	Input Name: Select to navigate to the Input object faceplate.
2	Gates: Select one of the gates to access the Gate Configuration display for that gate.
3	Select to take a snapshot of the current state. <b>IMPORTANT:</b> When you take a snapshot, the View Snapshot tab is automatically displayed.
4	Boolean value that displays the final output of the PBL object.

Maintenance Tab



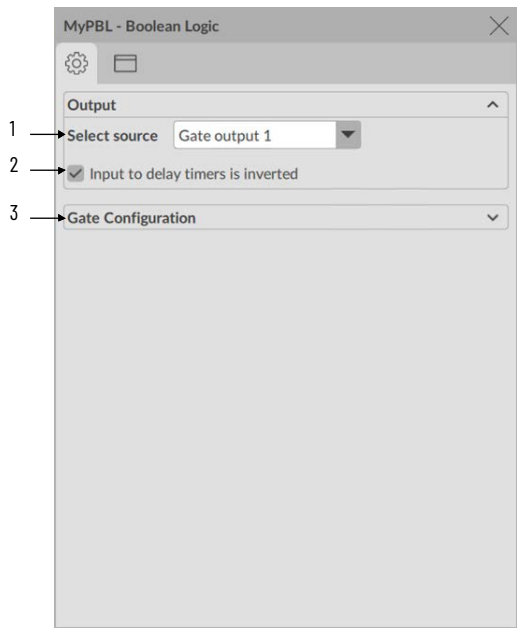
Item	Description
1	Enter a value for the off-delay time and the on-delay time.
2	Select to generate a time stamp whenever a snapshot triggers.
3	Select to allow a new snapshot to be triggered without a reset of the previous snapshot.
4	Select to trigger a snapshot when the designated condition is met.

Advanced Engineering Tab - Output



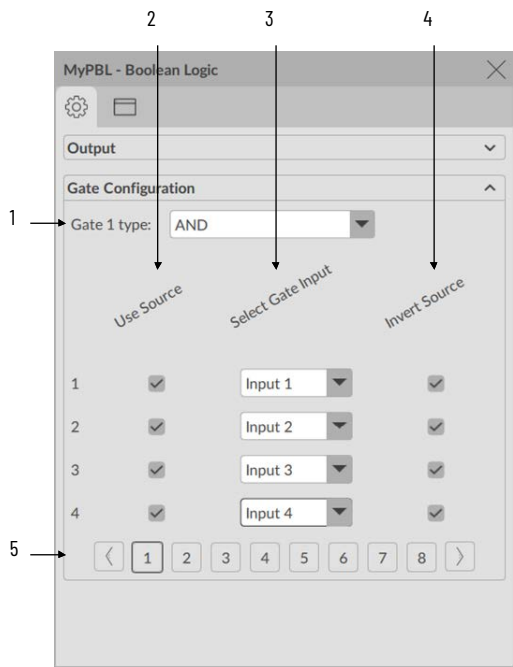
Item	Description
1	Select to open the faceplate to select the output source.
2	Select to invert the selected output before it is passed to the output delay timers
3	Select to open the Gate Configuration faceplate.

Advanced Engineering Tab - Output



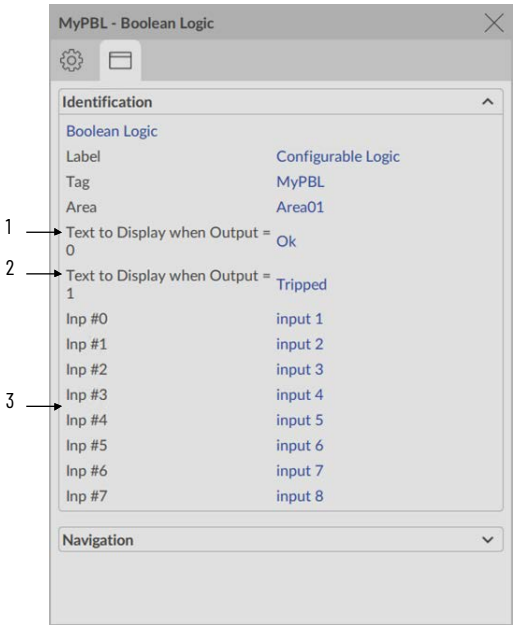
Item	Description
1	Select to open the faceplate to select the output source.
2	Select to invert the selected output before it is passed to the output delay timers
3	Select to open the Gate Configuration faceplate.

Advanced Engineering Tab - Gate Configuration



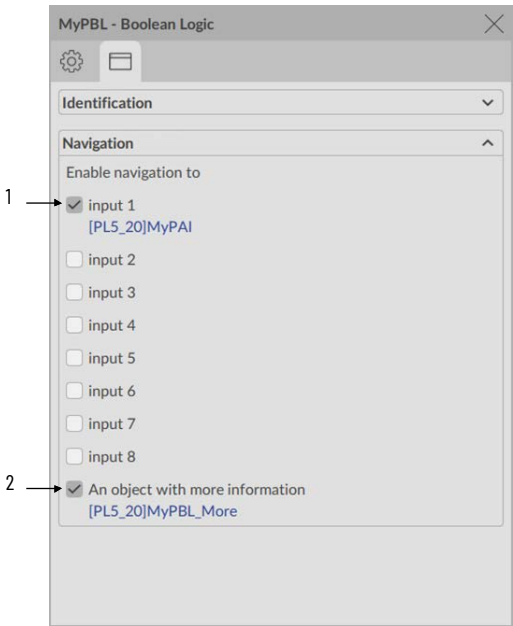
Item	Description
1	Select to select a gate type.
2	Select to select which inputs of the gate are enabled (1...4).
3	Select the inputs for the gate.
4	Select to invert the source that enters the gate.
5	Select to select which gate being configured.

### Advanced HMI Tab - Identification



Item	Description
1	Enter the text to display on the faceplate when output = 0.
2	Enter the text to display on the faceplate when output = 1.
3	Enter a description for each input.

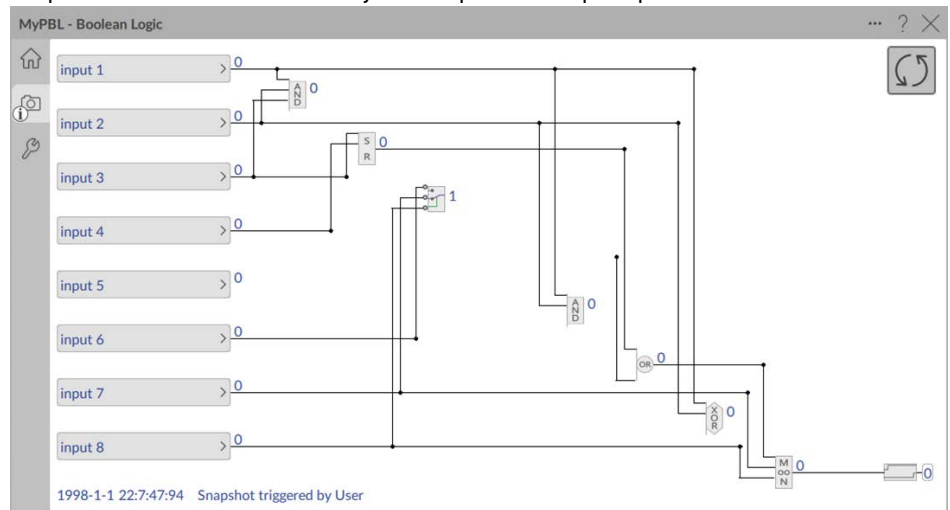
### Advanced HMI Tab - Navigation



Item	Description
1	Select to enable navigation to input object.
2	Select to enable navigation to an object with more information.

## View Snapshot

The View Snapshot tab shows an image of the Operator faceplate when the snapshot was taken. The background of the display turns from gray to white to indicate capture. The View Snapshot has the same functionality as the operator faceplate plus a Reset button.



**Notes:**











## Process Command Source (PCMDSRC)

The PCMDSRC (Command Source) Instruction is used to provide selection of the command source (owner) of an instruction or control strategy. This instruction excludes Graphic Symbols.

The command source indicator displays by exception only. For example, if the device is operating normally, there is not an indicator. If the device is out of service (OoS), then the OoS indicator is displayed.

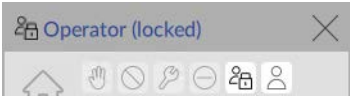
Command source indicators are not used for analog inputs.

Image	Description
	Device is out of service
	Device is not in normal command source operation
	Device is in program command source operation
	Device is in maintenance command source operation
	Device is in operator command source operation
	Device is in override command source operation
	Device is in local command source operation
	Device is in external command source operation

## Command Source Hierarchy Bar




The Command Source Hierarchy Bar shows the sources that have been requested. These sources have a white background color. The leftmost source that is highlighted is the active command source.

In the example that follows, the current command source is Operator Locked. When Operator Locked is released, the default command source is Operator. The small black triangle in the upper left corner of the operator indicator indicates the normal command source.



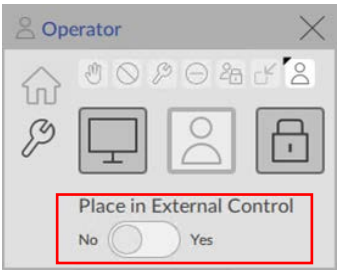
## Operator Buttons

The Operator Lock buttons on device faceplates are used to lock and unlock Operator command source. The buttons also show the current command source status.

Image	Description
	Select to request Operator command source.
	Select to lock in Operator command source. The program cannot take control.
	Select to request Program command source.



## External Control

There is a slider on the operator page that allows the operator to place the device in External Control.



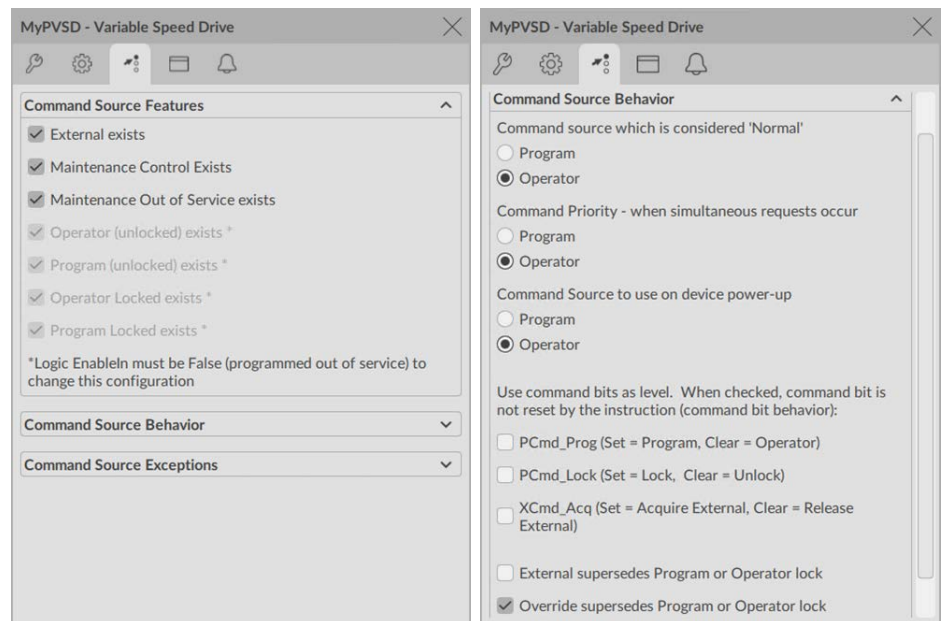
## Maintenance Buttons

The maintenance buttons on device faceplates are used to request and release Maintenance command source.

Image	Description
	Select to acquire Maintenance command source.
	Select to release Maintenance command source.

## Advanced Properties



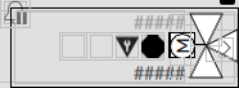




Select the Advanced CmdSrc tab from the faceplate to access the Advanced Properties. You can configure the settings for additional command sources.


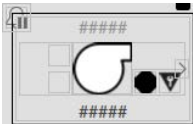
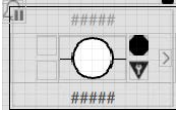
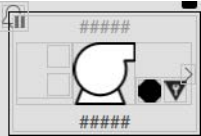



**Notes:**

## Discrete 2, 3, 4-state Device (PD4SD)

### Graphic Symbols

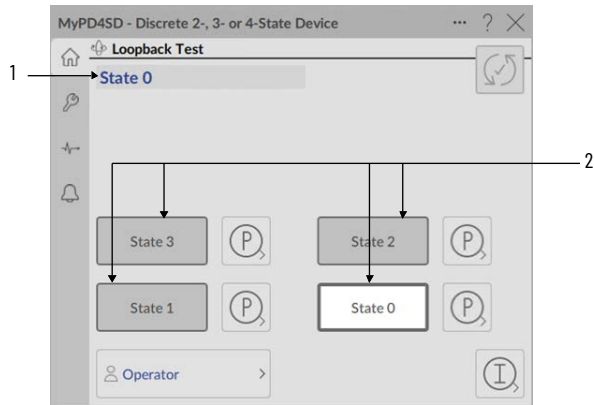
FactoryTalk Optix Graphic Symbol	Description
<p>raP_5_xx_PD4SD_GS_4Way</p> 	<p>Three/Four-Way Valve. The Three/Four-way Valve parameters define the inlet and output ports of the valve:</p> <ul style="list-style-type: none"> <li>No. 110 - Top port open state</li> <li>No. 111 - Right port open state</li> <li>No. 112 - Bottom port open state</li> <li>No. 113 - Left port open state</li> </ul> <ul style="list-style-type: none"> <li>0 = Inlet (always shown as open)</li> <li>1 = Open when Val.Sts = 1 (state 0)</li> <li>2 = Open when Val.Sts = 2 (state 1)</li> <li>3 = Open when Val.Sts = 3 (state 2)</li> <li>4 = Open when Val.Sts = 4 (state 3)</li> </ul>
<p>raP_5_xx_PD4SD_GS_3Way_L</p>  <p>raP_5_xx_PD4SD_GS_3Way_R</p>  <p>raP_5_xx_PD4SD_GS_3Way_B</p>  <p>raP_5_xx_PD4SD_GS_3Way_T</p> 	<p>Two-Way Solenoid-operated Diverter Valve in different positions: right, left, bottom, and top. Parameters define the Inlet and output ports of the Two-way Solenoid-operated Diverter Valve.</p> <p>The FactoryTalk Optix 3-way valve graphic symbols can be configured to have either a Solenoid Actuator or a Motor Operated Actuator. The ports are configurable to represent an arc valve or a diverter valve.</p>
<p>raP_5_xx_PD4SD_GS_Diverter_L</p>  <p>raP_5_xx_PD4SD_GS_Diverter_R</p> 	<p>Two Way Diverter Valve in open top-left and open top-right positions. The Two-way Diverter Valve parameters define the state of the valve:</p> <ul style="list-style-type: none"> <li>State 0: Open top left</li> <li>State 1: Open top right</li> <li>State 2: —</li> <li>State 3: —</li> </ul>

FactoryTalk Optix Graphic Symbol	Description
<div>raP_5_xx_PD4SD_GS_Motor_Rt</div> 	Motors in different positions: right, up, and down.
<div>raP_5_xx_PD4SD_GS_Blower_Rt</div> 	Blowers in different positions: right, left, up, and down.
<div>raP_5_xx_PD4SD_GS_Inline_Motor</div> 	Inline Motors in different positions: up, left, down, and right.
<div>raP_5_xx_PD4SD_GS_Pumps_Rt</div> 	Pumps in different positions: right, left, and up.
<div>raP_5_xx_PD4SD_GS_Agitator</div> 	Agitator in down position.

## FactoryTalk Optix Faceplates

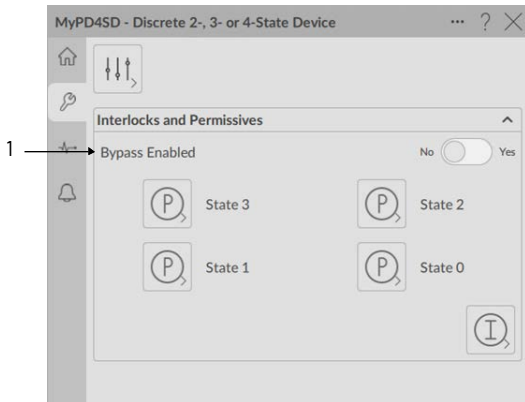
There are basic faceplate attributes that are common across all instructions. The Trends tab, Diagnostics tab, and Alarms tab all have the same basic functionality and are not described in this section. See [Basic Faceplate Attributes on page 24](#).

### Operator Tab



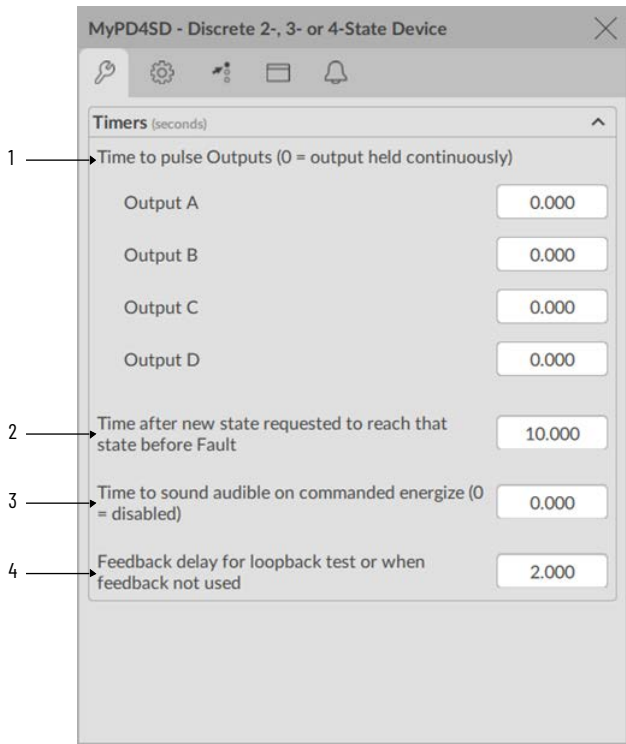
Item	Description
1	Device state indicator
2	Move to state command buttons

### Maintenance Tab



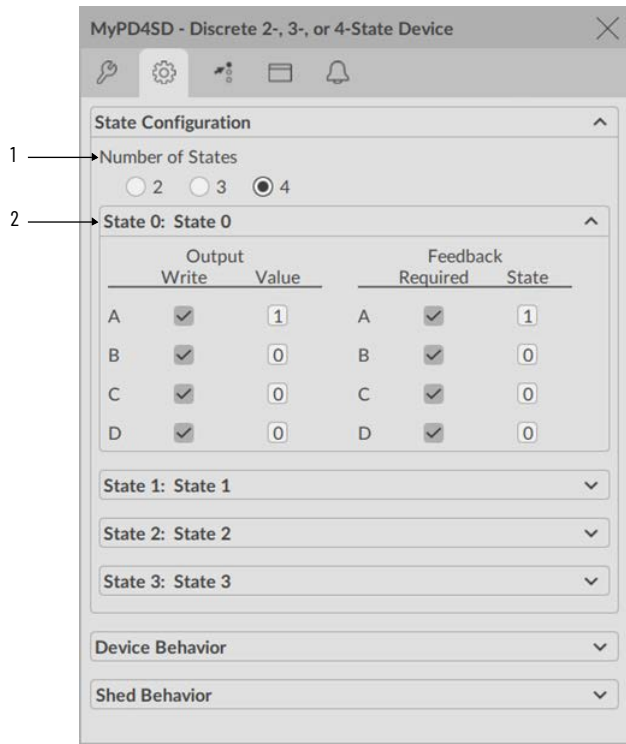
Item	Description
1	Select yes to bypass checking of interlocks and permissives that can be bypassed.

Advanced Maintenance Tab



Item	Description
1	Enter a value (0...2,147,483.647) to indicate the time (seconds) to energize outputs to the device to be sure that they are latched in. (0 = output held continuously)
2	Enter a value (0...2,147,483.647) to indicate the time (seconds) to allow the device to reach the commanded state before issuing a fault.
3	Enter a value (0...2,147,483.647) to indicate the time (seconds) that the audible sounds when there is a commanded State change.
4	Enter a value (0...2,147,483.647) to indicate the time (seconds) to indicate the delay to echo back reaching the state when in virtual.

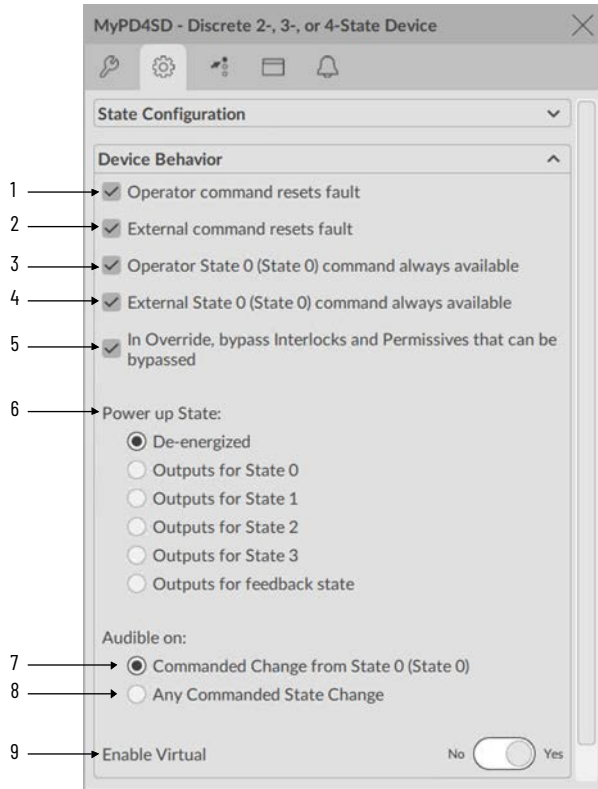
Advanced Engineering Tab - State Configuration



Item	Description
1	Select the number of states.
2	Left to Right: <ul style="list-style-type: none"><li>Set output parameters for a state (Cfg_bSt[x]OutWrite, and Cfg_bSt[x]OutState). They determine how outputs are written to command to the state.</li><li>Set feedback parameters for a state (Cfg_bSt[x]FdbkCheck, and Cfg_bSt[x]FcbkState). They determine how the state is interpreted from the input values.</li></ul>

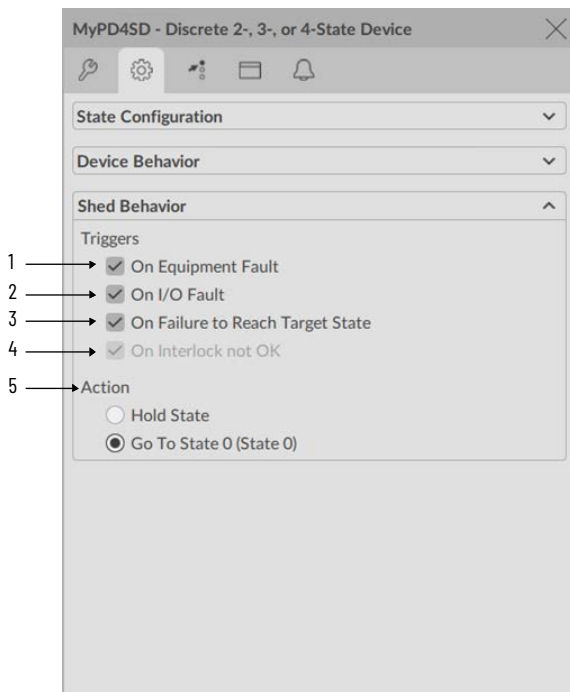


## Advanced Engineering Tab - Device Behavior



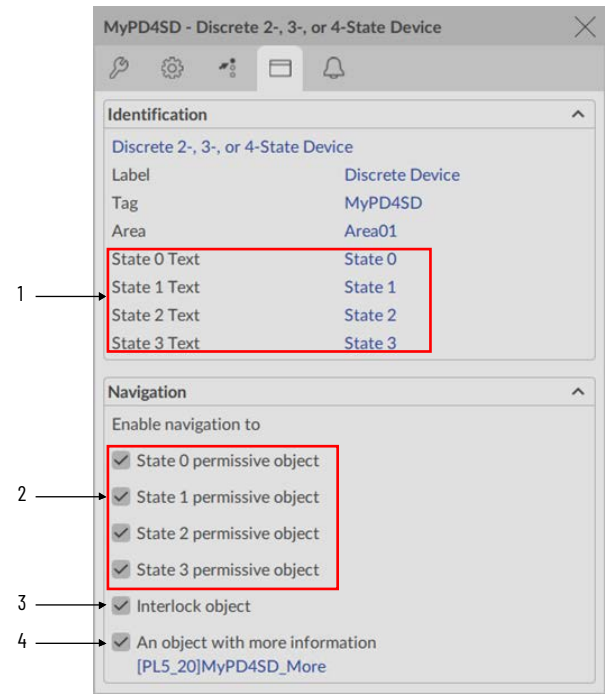
Item	Description
1	Select to reset a fault upon a new operator command.
2	Select to reset a fault upon a new external command.
3	Select (= 1) to make Operator State 0 (OCmd_St0) available in any command source. Clear this checkbox (= 0) to make Operator State 0 (OCmd_St0) available only in Operator or Maintenance command source.
4	Select (= 1) to make External State 0 (XCmd_St0) available in any command source. Clear this checkbox (= 0) to make External State 0 (XCmd_St0) available only in External command source.
5	Select to bypass permissives and interlocks in Override command source.
6	Select the state that the instruction goes to on power-up or on controller PROG -> RUN transition: <ul style="list-style-type: none"> <li>De-energized - Set all outputs off (de-energized);</li> <li>Outputs for State 0 - Drive outputs to State 0 (as if a State 0 command had been issued);</li> <li>Outputs for State 1 - Drive outputs to State 1</li> <li>Outputs for State 2 - Drive outputs to State 2</li> <li>Outputs for State 3 - Drive outputs to State 3</li> <li>Outputs for feedback state - Align the instruction state with the device feedback (as if the block were in Hand on first scan).</li> </ul>
7	Select to sound an audible on a commanded stage from State 0.
8	Select to sound an audible on a commanded stage from any State.
9	Select yes to enable virtual.

## Advanced Engineering Tab - Shed Behavior



Item	Description
1	Select to shed if a Device Fault is detected.
2	Select to shed if an I/O Fault is detected.
3	Select to shed if target state is not reached.
4	The device always sheds on Interlock not OK. This item cannot be unchecked. It is displayed as a reminder that Interlock not OK always triggers a shed.
5	Select to determine whether you hold position or go to state 0 upon a shed condition.

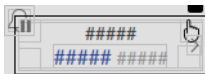
Advanced HMI Configuration Tab



Item	Description
1	Display the text to describe the state.
2	Check if the corresponding State object is used with this device. This check changes the Permissive Indicator to a button that accesses the Permissive faceplate. IMPORTANT: The name of the Permissives object in the controller must be the name of the object with the suffix '_Perm#', where '#' is the permissive number (0...3) For example, if your PD4SD object has the name 'D4SD123', then its Permissives object must be named 'D4SD123_Perm0'.
3	Select if an interlock object is connected to Inp_Intlk. This check changes the interlock indicator on the Operator tab to a button that opens the interlocks faceplate. IMPORTANT: The name of the Interlock object in the controller must be the name of the object with the suffix '_Intlk'. For example, if your PD4SD object has the name 'D4SD123', then its Interlock object must be named 'D4SD123_Intlk'.
4	Select to enable navigation to an object with more information (Cfg_HasMoreObj is set to true.) You configure the tagname of the object that you want to navigate to in the extended tag property "Cfg_HasMoreObj.@Navigation". It uses the .@Library and .@Instruction extended tag properties to display the objects faceplate.

## Process Deadband Controller (PDBC)

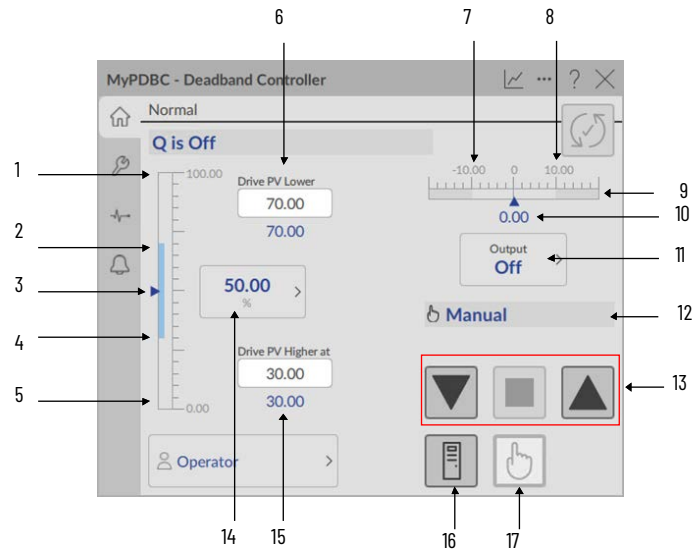
### Graphic Symbols

FactoryTalk Optix Graphic Symbol	Description
raP_5_xx_PDBC_GS 	Standard deadband controller graphic symbol.

### FactoryTalk Optix Faceplates

There are basic faceplate attributes that are common across all instructions. The Trends tab, Diagnostics tab, and Alarms tab all have the same basic functionality and are not described in this section. See [Basic Faceplate Attributes on page 24](#).

Operator Tab



Item	Description
1	PV EU maximum
2	Drive PV Lower Value
3	Current PV Value
4	Drive PV Higher Value
5	PV EU minimum
6	Drive PV Lower Limit
7	High Rate of Change Decreasing Limit
8	High Rate of Change Increasing Limit
9	Rate of Change Indicator
10	Current Rate of Change
11	Controlled Variable Indicator
12	Auto/Manual Mode Indicator
13	Drive PV buttons. From left to right: drive PV lower, don't drive PV, drive PV higher
14	Current PV Value
15	Drive PV Higher Limit
16	Auto Mode Command Button
17	Manual Mode Command Button

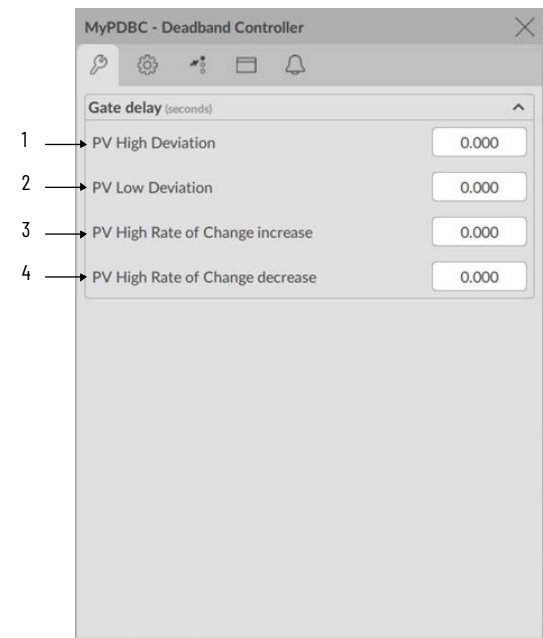
## Maintenance Tab - PV Limits

Item	Description
1	Enter the value of the PV at which the output turns off and PV starts to decrease.
2	Enter the value of the PV at which the output turns on and PV starts to increase.
3	Enter the number that is used to establish the high deviation limit. When the PV reaches this limit, a High Deviation alarm is generated. EXAMPLE: In the examples, the Lower setpoint is 67 and the PV Hi Dev Status is 5. We add 67 and 5 to get the high deviation limit of 72.
4	Enter the number that is used to establish the low deviation limit. When the PV reaches this limit, a Low Deviation alarm is generated. EXAMPLE: In the examples, the Raise setpoint is 30 and the PV Lo Dev Status is - 5. We add 30 and -5 to get the low deviation limit of 25.
5	Enter a number that is the size of the deadband for the Lower output (below Lower limit).
6	Enter a number that is the size of the deadband for the Raise output (above Raise limit).
7	Enter the number that PV must decrease to reset a High Deviation alarm. EXAMPLE: The high deviation limit is 72 and the deadband is 1. The PV must decrease 1 unit to 71 to reset the High Deviation alarm. IMPORTANT: The deadband can be set so that the PV must decrease below the Lower setpoint before the High Deviation alarm is reset. For example, the deadband can be set to 10 so that the PV must decrease to 62 to reset the alarm.
8	Enter the number that PV must increase to reset a Low Deviation alarm. EXAMPLE: The low deviation limit is 30 and the deadband is 1. The PV must increase 1 unit to 26 to reset the Low Deviation alarm. IMPORTANT: The deadband can be set so that the PV must increase above the Raise setpoint before the Low Deviation alarm is reset. For example, the deadband can be set to 10 so that the PV must decrease to 35 to reset the alarm.

## Maintenance Tab - RoC Limits

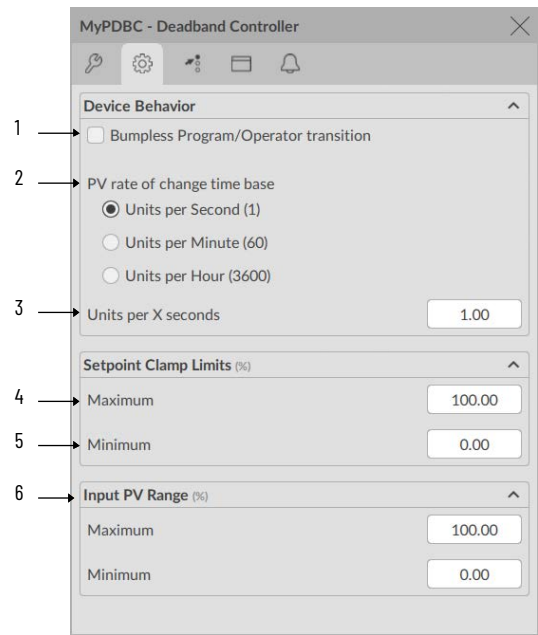
Item	Description
1	Enter the number to set the high Rate of Change (increase) limit. When the Rate of Change reaches this level, a Hi Rate of Increase alarm is generated.
2	Enter the number to set the high Rate of Change (decrease) limit. When the Rate of Change reaches this level, a Hi Rate of Decrease alarm is generated.
3	Enter the number that the Rate of Change must increase to reset a Hi Rate of Increase alarm.
4	Enter the number that the Rate of Change must decrease to reset a Hi Rate of Decrease alarm.

Advanced Maintenance Tab



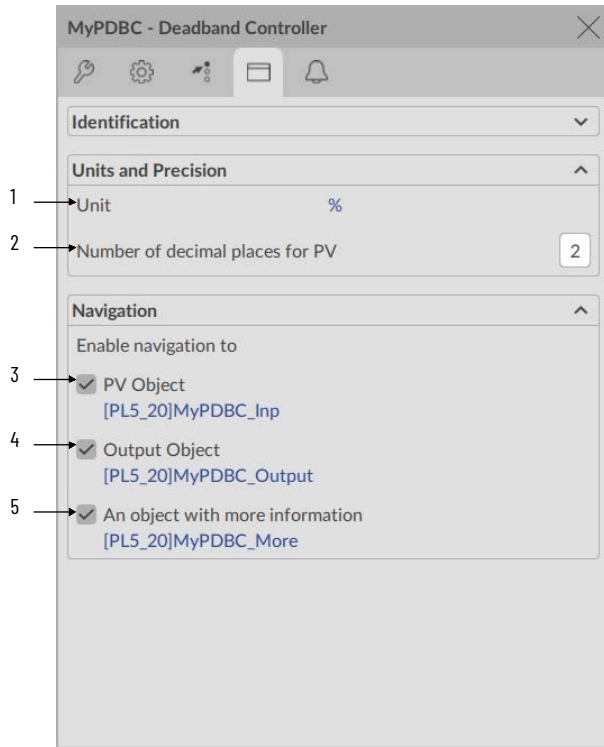
Item	Description
1	Enter the Process Variable high deviation gate delay (seconds).
2	Enter the Process Variable low deviation gate delay (seconds).
3	Enter the Process Variable high rate of change increase gate delays (seconds).
4	Enter the Process Variable high rate of change decrease gate delays (seconds).

Advanced Engineering Tab



Item	Description
1	Select, the operator settings track the program settings when mode is Program, and program settings track the operator settings when the mode is Operator. Transition between modes is bumpless. Clear the checkbox, this instruction does not modify the operator settings and program settings. The operator settings and program settings retain their values regardless of mode. When the mode is changed, the value of a limit can change, such as from the Program-set value to the Operator-set value.
2	Select the PV rate of change time base used.
3	Enter the number of units per x seconds, where x equals the number of seconds selected for the PV rate of change time base.
4	Enter the upper setpoint clamp limit.
5	Enter the lower setpoint clamp limit.
6	Minimum and maximum values for PV input. These values are reflected on the PV bar graph on the Operator tab and the graph on the Trends tab.

## Advanced HMI Configuration Tab



Item	Description
1	Display the text of the engineering units for the PV.
2	Enter the number of decimal places that are used for the PV.
3	Select to enable navigation to the PV object.
4	Select to enable navigation to the output object.
5	Select to enable navigation to an object with more information (Cfg_HasMoreObj is set to true.) This can be configured to navigate to an object backing tag or a UDT tag that has Instruction and Library defined.

## Notes:



# Process Discrete Input (PDI)

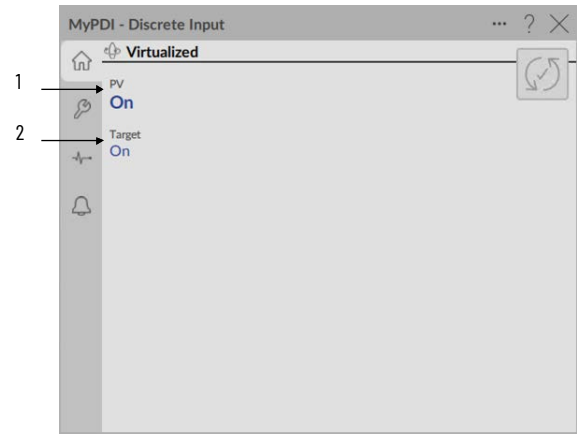
## Graphic Symbols

FactoryTalk Optix Graphic Symbol	Description
raP_5_xx_PDI_GS	Global object with label.  In FactoryTalk Optix, this graphics symbol can be configured to show or hide the label.
raP_5_xx_PDI_GS_CircleWLbl	Global object with indicator and label.  In FactoryTalk Optix, this graphics symbol can be configured to show or hide the label.

## FactoryTalk Optix Faceplates

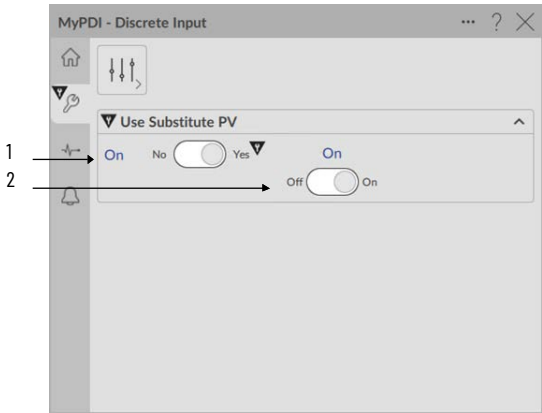
There are basic faceplate attributes that are common across all instructions. The Trends tab, Diagnostics tab, and Alarms tab all have the same basic functionality and are not described in this section. See [Basic Faceplate Attributes on page 24](#).

## Operator Tab



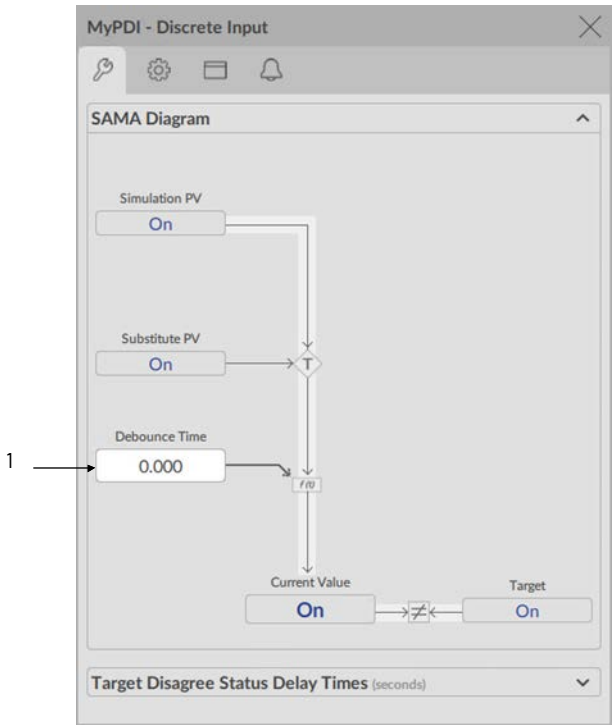
Item	Description
1	Current Process Variable
2	Target Process Variable

## Maintenance Tab



Item	Description
1	Select to enable the use of the Substitute Process Variable.
2	Select to choose Process Variable to be used.

## Advanced Maintenance Tab - SAMA Diagram



Item	Description
1	Minimum time the Process Variable must maintain the state, in seconds.

## Advanced Maintenance Tab - Target Disagree Status Delay Timers

MyPDI - Discrete Input

SAMA Diagram

Target Disagree Status Delay Timers (seconds)

1 → Gate delay 0.000

2 → Off delay 0.000

3 → On delay 0.000

Item	Description
1	Enter a value of the target disagree gate delay time.
2	Enter the value of the target disagree off delay time.
3	Enter the value of the target disagree on delay time.

## Advanced Engineering Tab

MyPDI - Discrete Input

Device Features

1 → ☒ Allow selection of Substitute PV

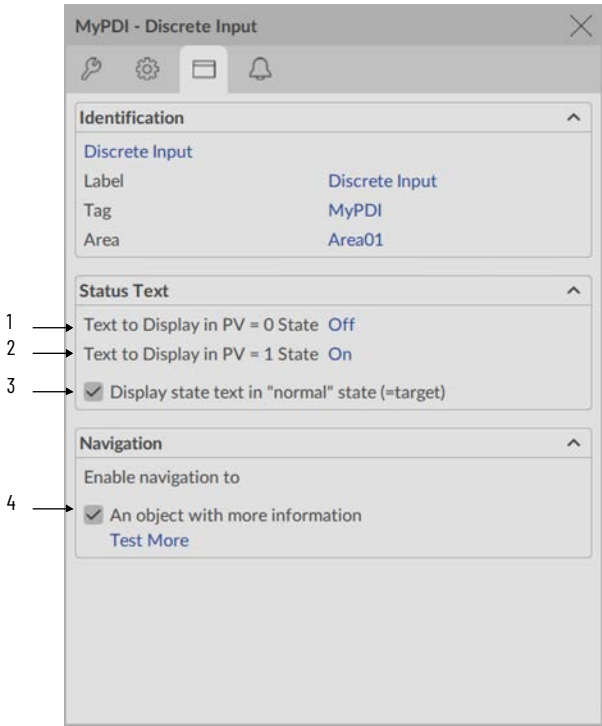
Device Behavior

2 → ☐ Substitute PV tracks input target

3 → Enable Virtual No ☒ Yes

Item	Description
1	Select to enable the substitute Process Variable feature.
2	Select to allow the substitute PV to track the input target value, rather than using the maintenance substitute PV value.
3	Select yes to enable Virtual.

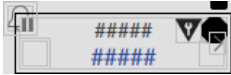
## Advanced HMI Configuration Tab



Item	Description
1	Name for Text to display in PV 0 State.
2	Name for Text to display in PV 1 State.
3	Select to display state text in normal state
4	Select to enable navigation to an object with more information (Cfg_HasMoreObj is set to true.) This can be configured to navigate to an object backing tag or a UDT tag that has Instruction and Library defined.

# Process Discrete Output (PDO)

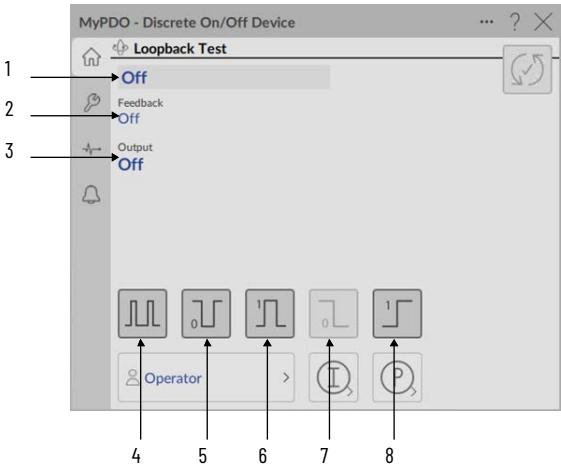
## Graphic Symbols

FactoryTalk Optix Graphic Symbol	Description
raP_5_xx_PDO_GS	
	Digital (2-state) device Graphic Symbol for use on overview and detail displays.

## FactoryTalk Optix Faceplates

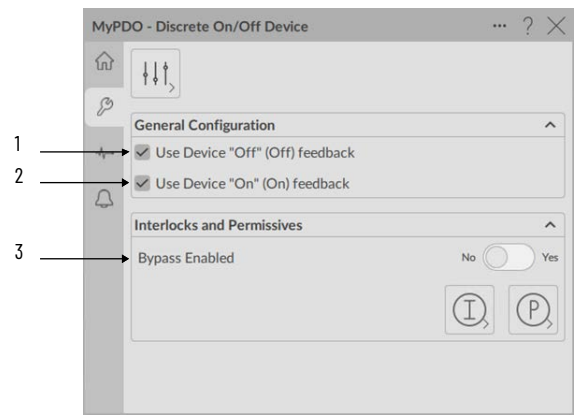
There are basic faceplate attributes that are common across all instructions. The Trends tab, Diagnostics tab, and Alarms tab all have the same basic functionality and are not described in this section. See [Basic Faceplate Attributes on page 24](#).

## Operator Tab



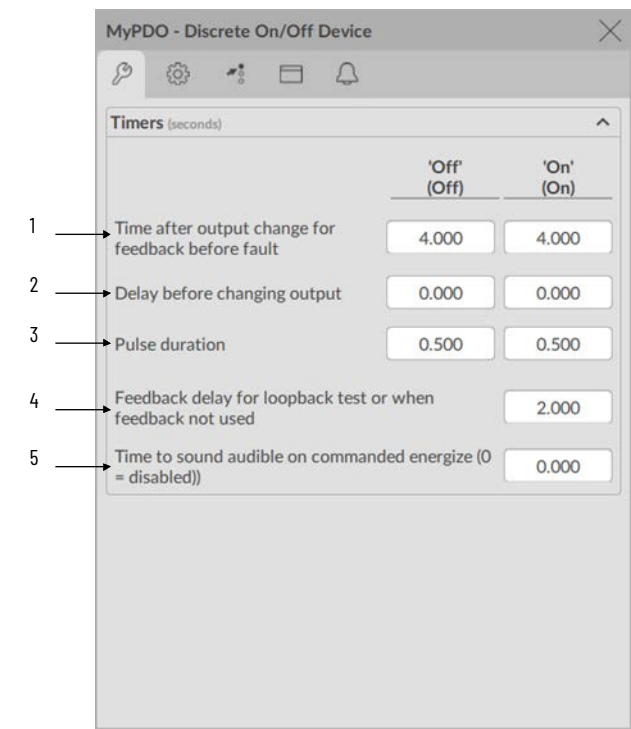
Item	Description
1	Device state indicator
2	Feedback indicator
3	Discrete output indicator
4	Continuous Pulse Button
5	Single Pulse 'Off' Button
6	Single Pulse 'On' Button
7	Output 'Off' Button
8	Output 'On' Button

### Maintenance Tab



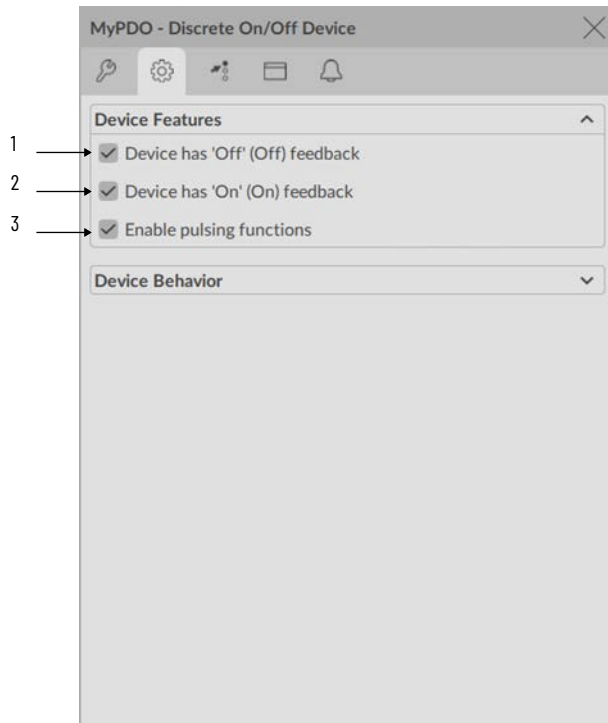
Item	Description
1	Select to inform the instruction that the Off feedback from the device should be used to verify that the device reached its target state when the output is off. If the command source is Hand and the instruction is in Physical, the Off feedback is tracked for bumpless transfer from Hand to another command source.
2	Select to inform the instruction that the On feedback from the device should be used to verify that the device reached its target state when the output is on. If the command source is Hand and the instruction is in Physical, the On feedback is tracked for bumpless transfer from Hand to another command source.
3	Select if bypassable interlocks and permissives are bypassed.

### Advanced Maintenance Tab



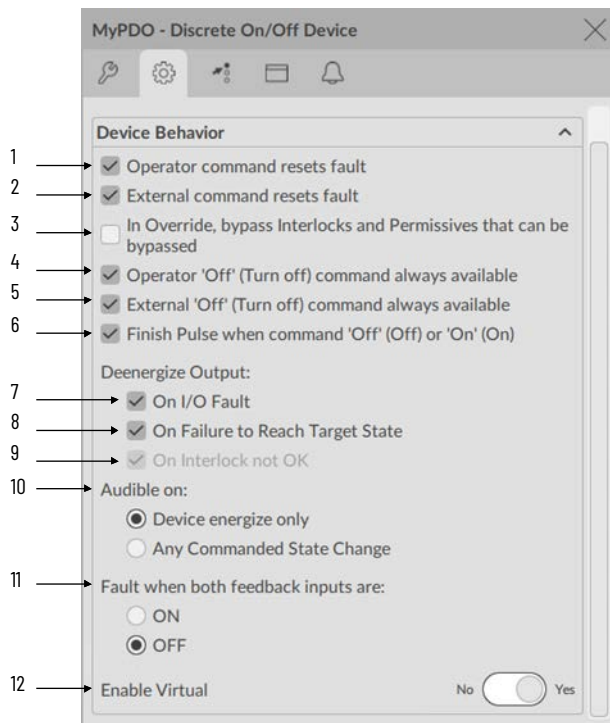
Item	Description
1	Left to Right: <ul style="list-style-type: none"><li>Enter the amount of time to allow for the device to get feedback for the Off setting before setting a fault.</li><li>Enter the amount of time to allow for the device to get feedback for the On setting before setting a fault.</li></ul>
2	Left to Right: <ul style="list-style-type: none"><li>Enter the amount of time before the output deactivates.</li><li>Enter the amount of time before the output activates.</li></ul>
3	Left to Right: <ul style="list-style-type: none"><li>Enter the amount of time to trigger a pulse when the device deactivates.</li><li>Enter the amount of time to trigger a pulse when the device activates.</li></ul>
4	Sets the time delay (in seconds) for the On or Off status to be echoed back when Virtual is enabled or when On and Off feedback is not used.
5	Enter the amount of time the audible output will be held on when enabled.

## Advanced Engineering Tab - Device Features



Item	Description
1	Select to configure the instruction to use Off feedback signals from the device.
2	Select to configure the instruction to use On feedback signals from the device.
3	Select to enable the pulsing functions.

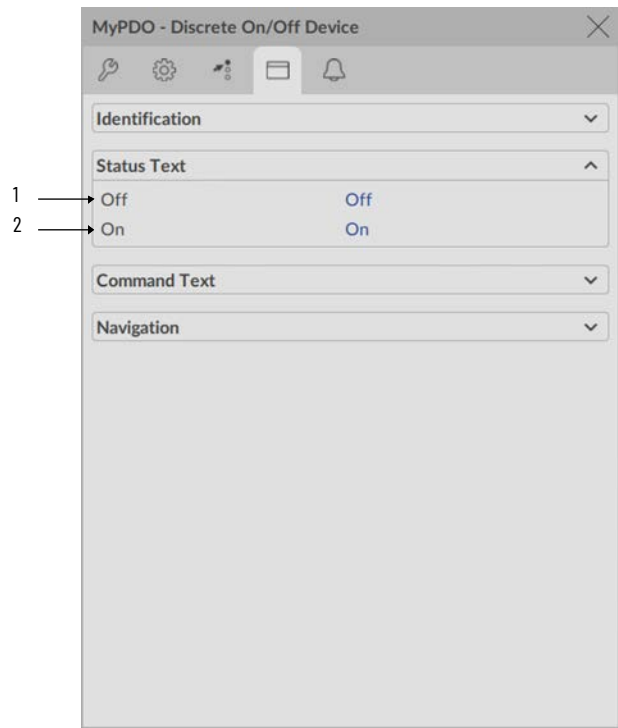
## Advanced Engineering Tab - Device Behavior



Item	Description
1	Select to reset a fault upon an operator command. Clear this checkbox to reset faults by using only the reset code.
2	Select to reset a fault upon an external command. Clear this checkbox to reset faults by using only the reset code.
3	Select if bypassable interlocks and permissives are bypassed in override command source.
4	Select to make the Operator Off command available in any command source. Clear this checkbox to make the Operator Off command available only in Operator or Maintenance command source.
5	Select to make the External Off command available in any command source. Clear this checkbox to make the External Off command available only in Operator or Maintenance command source.
6	Select to finish pulse when commanded ON or OFF
7	Select to de-energize the output to the device and return the device to its fail position, when an I/O Fault condition occurs. Clear this checkbox to keep the output to the device in its current stat on an I/O Fault condition. <b>IMPORTANT:</b> If a condition is configured to shed the device to the Off state on a fault, a reset is required to clear the shed fault. This reset commands the device to a state other than Off.
8	Select to de-energize the output to the device, return it to its fail position, when a Position Fail condition occurs. Clear this checkbox to keep the output to the device in its current state (keep trying) on a Position Fail condition. <b>IMPORTANT:</b> If a condition is configured to shed the device to the Off state on a fault, a reset is required to clear the shed fault. This reset commands the device to a state other than Off.
9	The device outputs are always de-energized on an Interlock Trip. This item cannot be unchecked. It is displayed as a reminder that the Interlock Trip function always de-energizes the device.

Item	Description
10	Select the setting for when the audible output of the object is on.
11	Select to Enable fault when both feedback inputs are either ON or OFF
12	Select yes to enable Virtual.

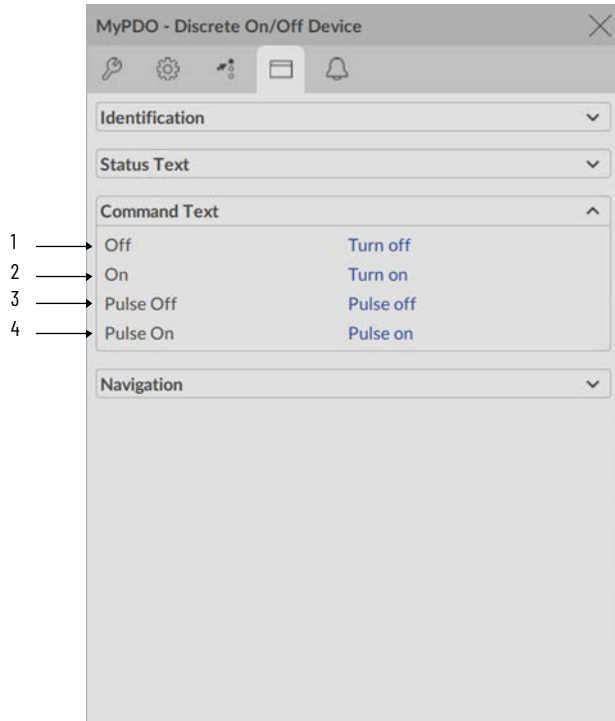
Advanced HMI Configuration Tab - Status Text



Item	Description
1	Display the text for Off (0) state.
2	Displays the text for On (1) state.

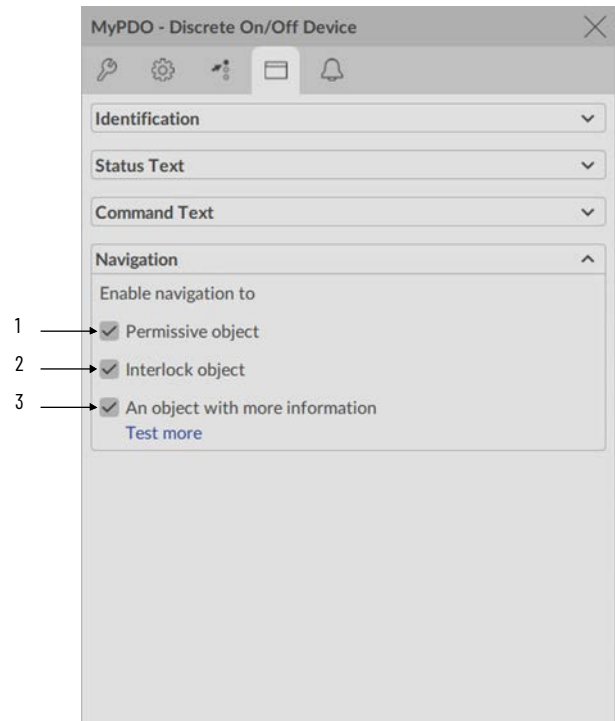


## Advanced HMI Configuration Tab - Command Text



Item	Description
1	Name for text to display for the off command.
2	Name for text to display for the on command.
3	Name for text to display for the pulse off command.
4	Name for text to display for the pulse on command.

## Advanced HMI Configuration Tab - Navigation

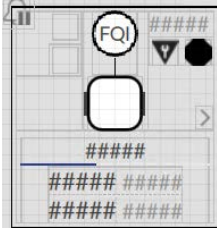
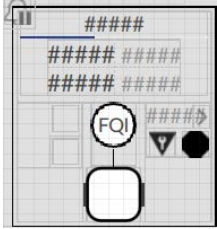

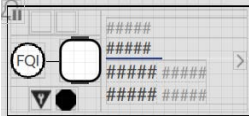


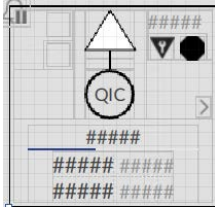
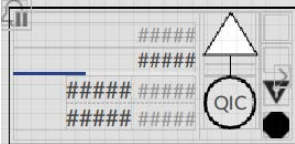
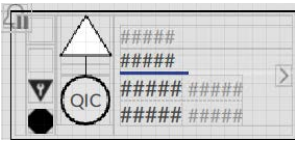
Item	Description
1	Select to enable navigation to the permissive object.
2	Select to enable navigation to the interlock object.
3	Select whether there is navigation to an additional object or not. If selected, enter the object name in the value. Navigation to an object with more information is enabled if Cfg_HasMoreObj is set to true. You configure the tag name of the object that you want to navigate to in the extended tag property "Cfg_HasMoreObj.@Navigation".

**Notes:**

## Process Dosing (PDOSE)

### Graphic Symbols

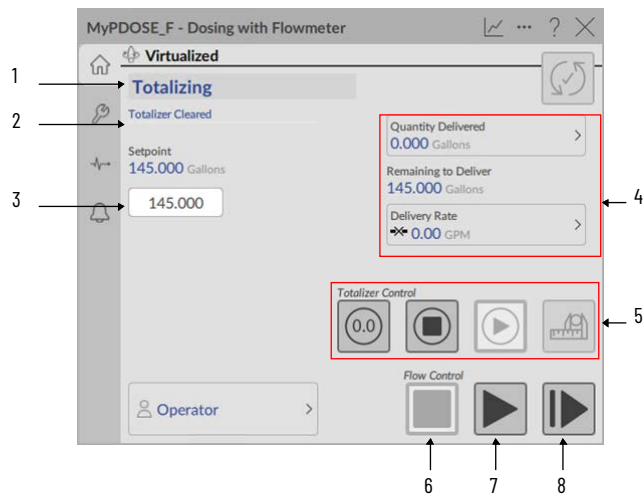
FactoryTalk Optix Graphic Symbol	Description
raP_5_xx_PDOSE_GS.FlowMeter_T  	Vertical Orientation Top
raP_5_xx_PDOSE_GS.FlowMeter_B  	Vertical Orientation Bottom
raP_5_xx_PDOSE_GS.FlowMeter_R  	Horizontal Orientation Right
raP_5_xx_PDOSE_GS.FlowMeter_L  	Horizontal Orientation Left

FactoryTalk Optix Graphic Symbol	Description
<div>raP_5_xx_PDOSE_GS_Weigh_Scale_T</div> 	Vertical orientation up.
<div>raP_5_xx_PDOSE_GS_Weigh_R</div> 	Horizontal orientation right.
<div>raP_5_xx_PDOSE_GS_Weigh_L</div> 	Horizontal orientation left.

## FactoryTalk Optix Faceplates

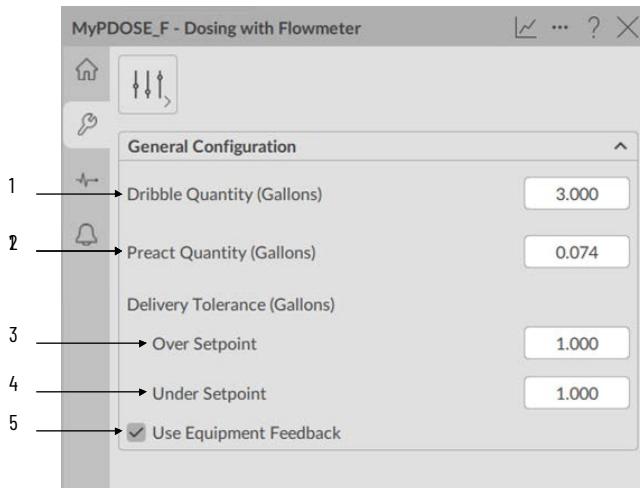
There are basic faceplate attributes that are common across all instructions. The Trends tab, Diagnostics tab, and Alarms tab all have the same basic functionality and are not described in this section. See [Basic Faceplate Attributes on page 24](#).

### Operator Tab



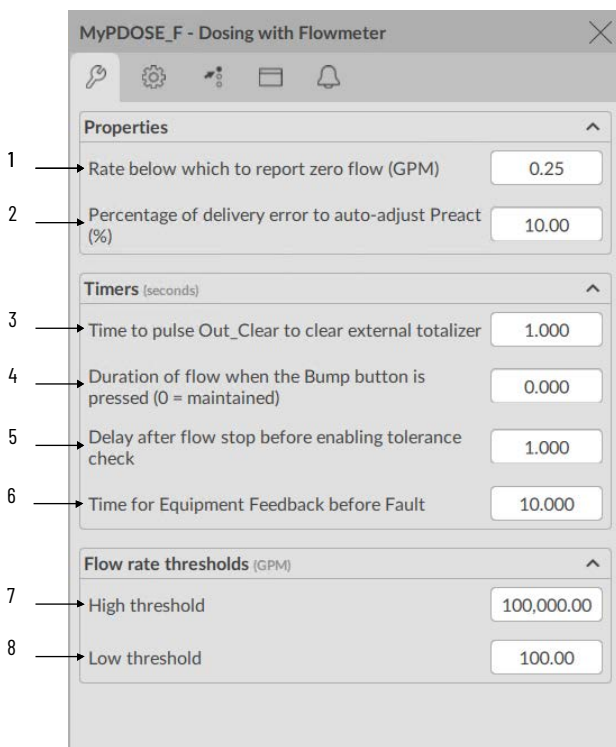
Item	Description
1	Dosing Equipment Commanded State.
2	Delivery Progress Bar.
3	Configure the quantity to deliver.
4	Delivery progress.
5	Totalizer Control (from left to right) <ul style="list-style-type: none"><li>• Select to clear the totalized quantity.</li><li>• Select to stop the Totalizer.</li><li>• Select to start the Totalizer.</li><li>• Select to check tolerances.</li></ul>
6	Select to stop the Totalizer flow.
7	Select to start the Totalizer flow.
8	Select to bump the Totalizer flow.

## Maintenance Tab



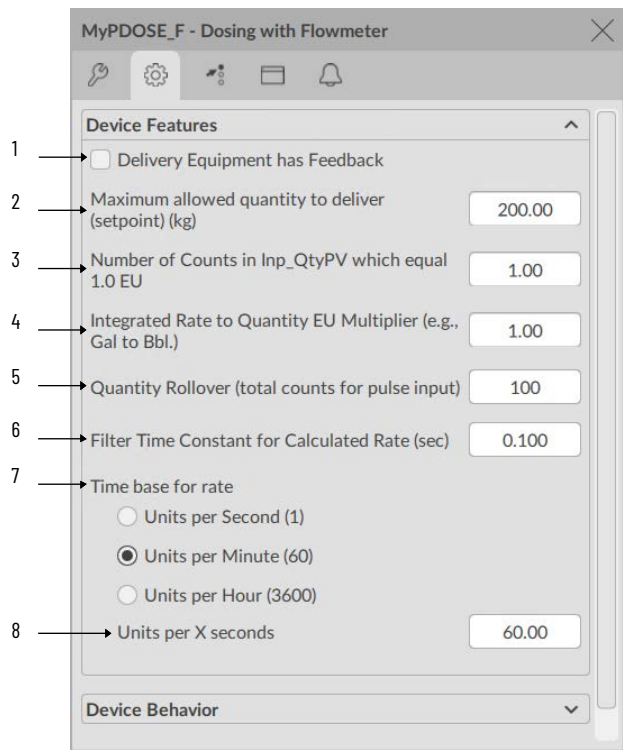
Item	Description
1	Configure the quantity before the end of delivery, when a switch to a reduced flow rate (dribble) for finer control of the final quantity is made.
2	Configure the quantity before reaching the Setpoint Quantity when a command the delivery equipment to stop to allow equipment to react. The preact quantity helps prevent overshooting the delivery Setpoint.
3	Enter the quantity by which delivery can exceed the setpoint. If the delivered quantity is more than the setpoint plus this value, a tolerance check shows over tolerance.
4	Enter the quantity by which delivery can fall short of the setpoint. If the delivered quantity is less than the setpoint minus this value, a tolerance check shows under tolerance.
5	Select whether there is equipment feedback or not. The equipment provides run (dribble if used) and stop feedback.

## Advanced Maintenance Tab



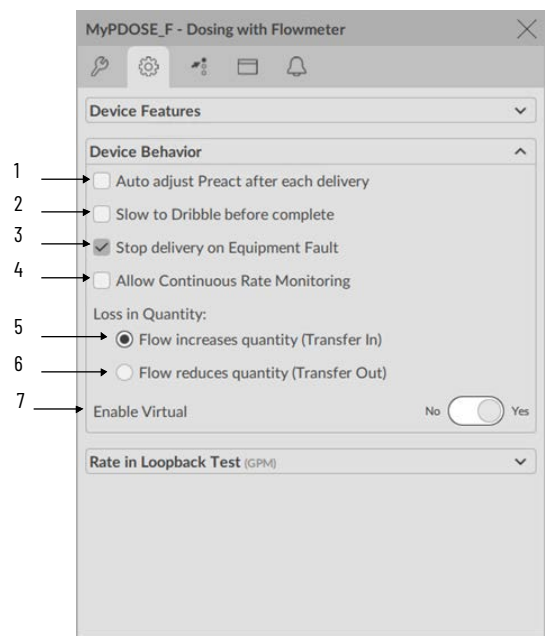
Item	Description
1	Enter a value so that when the flow rate is less than this value, it is treated as zero. This value helps prevent totalizing the transmitter error when flow is stopped.
2	Enter the percentage of delivery error. When the delivery tolerance is checked, if no bump has occurred and if the delivery is in tolerance, the error (difference between delivery setpoint and actual delivery) is multiplied by this percentage and applied to the preact. The preact self-tunes and learns the correct value of the preact over time.
3	Configure the Time (in seconds) to Pulse the Clear Output to clear an external totalizer, such as one in an intelligent flowmeter.
4	Enter the amount of time to command the controlled equipment to run flow when the bump command button is pressed. If this value is set to zero, Bump is treated like a Jog: flow starts when the button is pressed and stops when the button is released. If this value is greater than zero, flow is bumped for the configured time.
5	Enter the amount of time in seconds after flow is stopped for the scale reading to settle before a tolerance check can be commanded.
6	Enter the maximum allowed feedback time. If equipment feedback is being used, the instruction allows this much time after commanding the equipment for feedback to show the equipment in the commanded state before raising a fault status.
7	Enter the flow high threshold. This is the limit for flow alarming.
8	Enter the flow low threshold. This is the limit for flow alarming.

Advanced Engineering Tab - Device Features



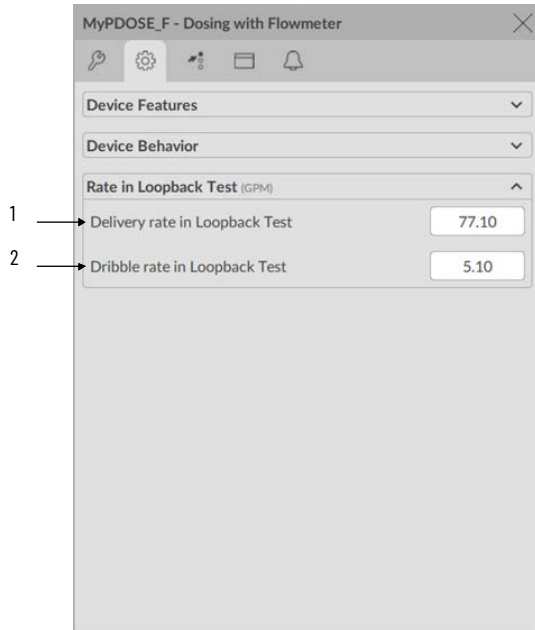
Item	Description
1	Select if the controlled equipment provides feedback of its running, dribbling, and stopped status to this instruction. This instruction checks that the equipment is performing the commanded function and provides a status (and optional alarm) if the equipment fails to respond as commanded within a configurable time. <b>IMPORTANT:</b> The feedback fault time is configured on the Advanced Maintenance tab. Clear this checkbox if the controlled equipment does not provide feedback of its status. The instruction assumes that the equipment is performing the commanded function and no equipment failure-to-respond checks occur.
2	Enter the maximum allowed quantity to deliver. The quantity setpoint is clamped not to exceed this value.
3	Enter the number of counts in Inp_QtyPV that equal one engineering unit of quantity delivered. This value is used with pulse output flowmeters and a pulse input I/O card.
4	Enter the rate to quantity engineering units multiplier. This value is used if the input is in one unit of measure, such as gallons per minute, and the total is in another that requires conversion above and beyond time units, such as barrels.
5	Enter the quantity rollover. This value is used when a quantity or pulse count input rolls over to zero at some value, such as 999,999 counts.
6	Enter the filter time constant for calculated rate.
7	Select the time base for rate.
8	Enter the number of units per x seconds, where x equals the number of seconds selected for the time base for rate.

Advanced Engineering Tab - Device Behavior



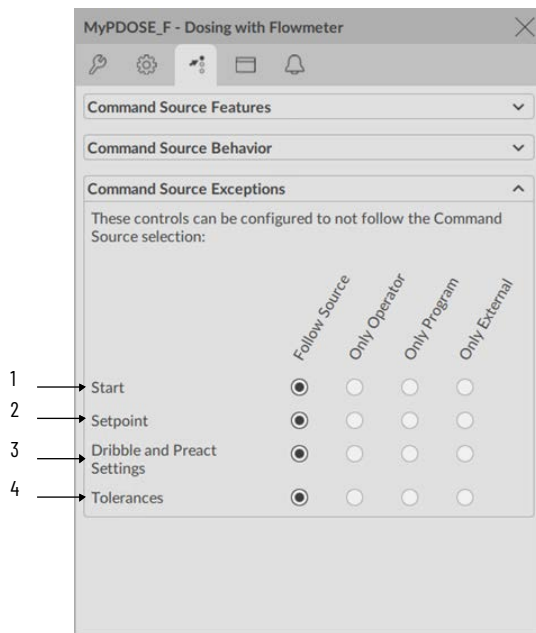
Item	Description
1	Select to adjust the Preact automatically based on the actual versus setpoint Quantity after each successful delivery. Clear this checkbox to leave the Preact as entered.
2	Select to command the equipment to a slower Dribble rate as delivery nears completion to improve the accuracy of Quantity delivered.
3	Select if you want the dosing instruction to attempt to stop the controlled equipment if an equipment fault is reported (Inp_CtrldEquipFault) or detected (via feedbacks). Clear this checkbox if you want the dosing instruction to keep performing its current function, even if an equipment fault occurs.
4	Select to allow continuous rate monitoring.
5	Select to designate as a Transfer In instance.
6	Select to designate as a Transfer Out instance.
7	Select yes to enable virtual.

## Advanced Engineering Tab - Rate in Loopback Test



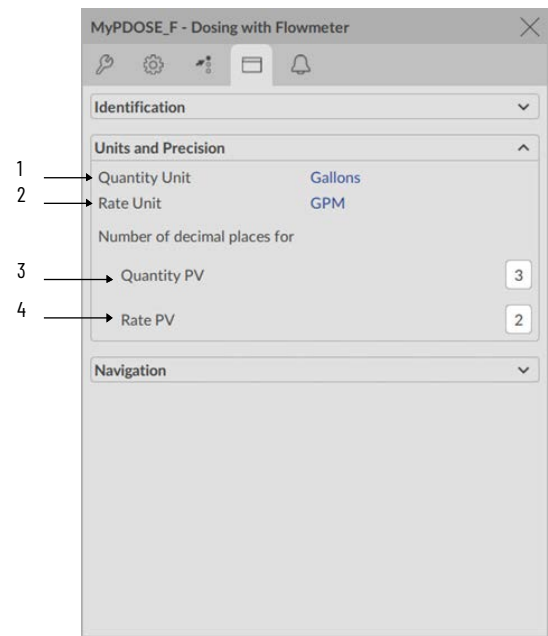
Item	Description
1	Enter the normal running delivery rate that is used when the instruction is in virtual.
2	Enter the dribble (slow) delivery rate that is used when the instruction is in virtual.

## Advanced CmdSrc Tab - Command Source Exceptions



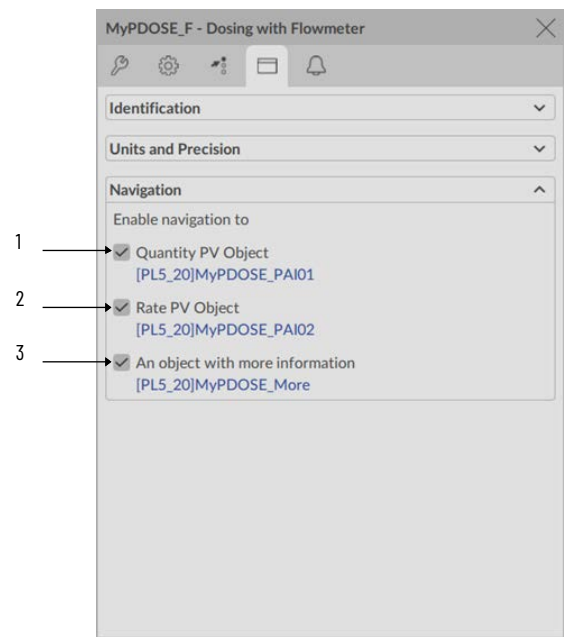
Item	Description
1	Select to keep control of dosing Start and Stop commands with the Operator, Program, External, or Follow the Source.
2	Select to keep control of the Setpoint quantity setting with the Operator, Program, External, or Follow the Source.
3	Select to keep control of the Dribble and Preact quantity settings with the Operator, Program, External, or Follow the Source.
4	Select to keep control of the high and low Tolerance settings with the Operator, Program, External, or Follow the Source.

### Advanced HMI Configuration Tab - Units and Precision



Item	Description
1	Display unit for Quantity delivered.
2	Display unit for Rate of delivery.
3	Enter in the number of decimal places that are displayed for the Quantity Process Variable.
4	Enter in the number of decimal places that are displayed for the Rate Process Variable.

### Advanced HMI Configuration Tab - Navigation





Item	Description
1	Select to enable navigation to a Quantity PV object.
2	Select to enable navigation to a Rate PV object.
3	Select to enable navigation to an object with more information (Cfg_HasMoreObj is set to true.) This can be configured to navigate to an object backing tag or a UDT tag that has Instruction and Library defined.



## Process Analog Fanout (PFO)

### Graphic Symbols

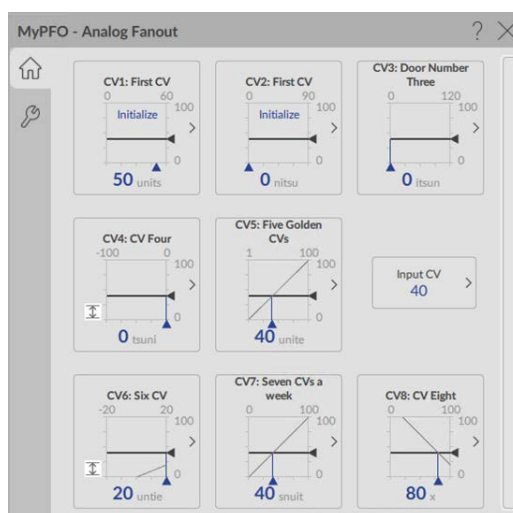
FactoryTalk Optix Graphic Symbol	Description
raP_5_xx_PFO_GS 	PFO graphic symbol
raP_5_xx_PFO_GS_Large 	PFO graphic symbol (Large)

### FactoryTalk Optix Faceplates

There are basic faceplate attributes that are common across all instructions. The Trends tab, Diagnostics tab, and Alarms tab all have the same basic functionality and are not described in this section. See [Basic Faceplate Attributes on page 24](#).

### Operator Tab

The Faceplate initially opens to the Operator (Home) tab. From here, an operator can monitor the device status and manually operate the device when it is in Operator mode. If outputs 6, 7, and 8 are used by the instruction (in other words, if Cfg\_HasCV6... Cfg\_HasCV8 are 1), the Home tab has a second page that displays the information



## Maintenance Tab

The screenshot shows the 'MyPFO - Analog Fanout' control panel. At the top, there is a 'Rate of Change Limit (%/sec)' slider set to 0.00. Below this is a section titled 'Output CV Calculations' which displays a table of calculations for eight channels (CV1 to CV8). Each row shows a 'Ratio' value, a multiplier of 40.00, an 'Offset' value, and the resulting output value.

	Ratio		Offset	
CV1	2.00	x 40.00 +	-100.00	= -20.00
CV2	0.00	x 40.00 +	0.00	= 0.00
CV3	0.00	x 40.00 +	0.00	= 0.00
CV4	100.00	x 40.00 +	0.00	= 4,000.00
CV5	1.00	x 40.00 +	0.00	= 40.00
CV6	1.00	x 40.00 +	0.00	= 40.00
CV7	1.00	x 40.00 +	0.00	= 40.00
CV8	-1.00	x 40.00 +	120.00	= 80.00

Item	Description
1	Enter a value that sets the ratio to calculate each individual output. This value either sets the operator ratio (for example, OSet_CVIRatio) or the configuration ratio (for example, Cfg_CVIRatio) depending on the ratio source selection.
2	Enter a value that sets the offset to calculate each individual output. This value either sets the operator offset (for example, OSet_CVIOffset) or the configuration offset (for example, Cfg_CVIOffset) depending on the ratio source selection.
3	Operator setting for the Input CV rate of change limit (increasing or decreasing). If Cfg_MaxCVRoC = 0.0, then this parameter can be set to zero, which means the rate of change is not limited.

## Advanced Engineering Tab - Output CV Configuration

The screenshot shows the 'MyPFO - Analog Fanout' configuration window. At the top, there are four numbered arrows pointing to specific UI elements: 1 points to the gear icon (Settings), 2 points to the output CV configuration table, 3 points to the 'Minimum (EU)' column header, and 4 points to the 'TakeupRate (EU/sec)' column header. The table lists eight output CVs (CV1 to CV8) with their respective minimum, maximum, and takeup rate values. CV1 has a minimum of 0.00, maximum of 60.00, and takeup rate of 0.00. CV2 has a minimum of 0.00, maximum of 90.00, and takeup rate of 0.00. CV3 has a minimum of 0.00, maximum of 120.00, and takeup rate of 0.00. CV4 has a minimum of -100.00, maximum of 0.00, and takeup rate of 100.00. CV5 has a minimum of 1.00, maximum of 100.00, and takeup rate of 0.50. CV6 has a minimum of -20.00, maximum of 20.00, and takeup rate of 0.00. CV7 has a minimum of 0.00, maximum of 100.00, and takeup rate of 1.00. CV8 has a minimum of 0.00, maximum of 100.00, and takeup rate of 1.00. At the bottom, there are two expandable sections: 'Clamp Limits (%)' and 'Display Limits (%)', both currently collapsed.

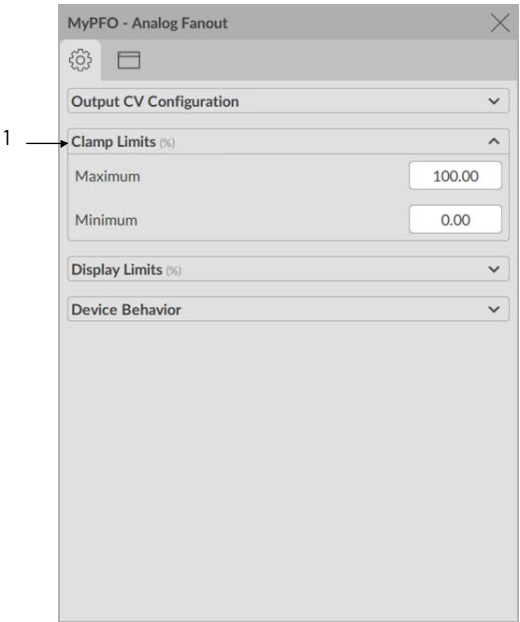
Has CV	Minimum (EU)	Maximum (EU)	TakeupRate (EU/sec)
CV1	0.00	60.00	0.00
<input checked="" type="checkbox"/> CV2	0.00	90.00	0.00
<input checked="" type="checkbox"/> CV3	0.00	120.00	0.00
<input checked="" type="checkbox"/> CV4	-100.00	0.00	100.00
<input checked="" type="checkbox"/> CV5	1.00	100.00	0.50
<input checked="" type="checkbox"/> CV6	-20.00	20.00	0.00
<input checked="" type="checkbox"/> CV7	0.00	100.00	1.00
<input checked="" type="checkbox"/> CV8	0.00	100.00	1.00

Clamp Limits (%)

Display Limits (%)

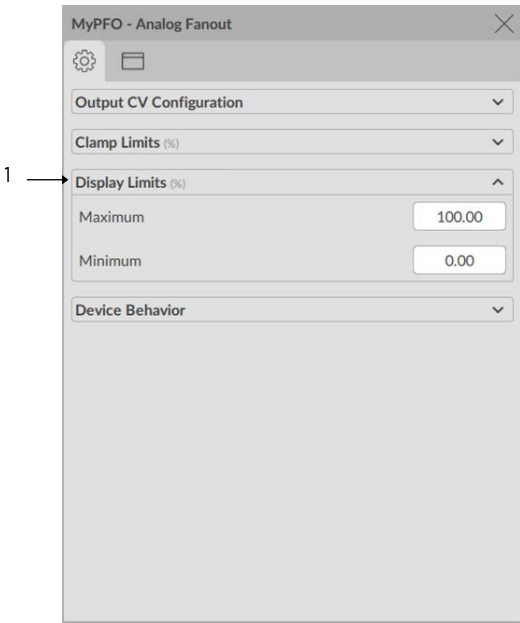
Item	Description
1	Select to enable use of the corresponding output.
2	Enter a value for the minimum value to be used to clamp CV (in engineering units).
3	Enter a value for the maximum value to be used to clamp CV (in engineering units).
4	Enter a rate that the CV is to change to a calculated value after initialization to provide bumpless transfer from initialization.

### Advanced Engineering Tab - Clamp Limits



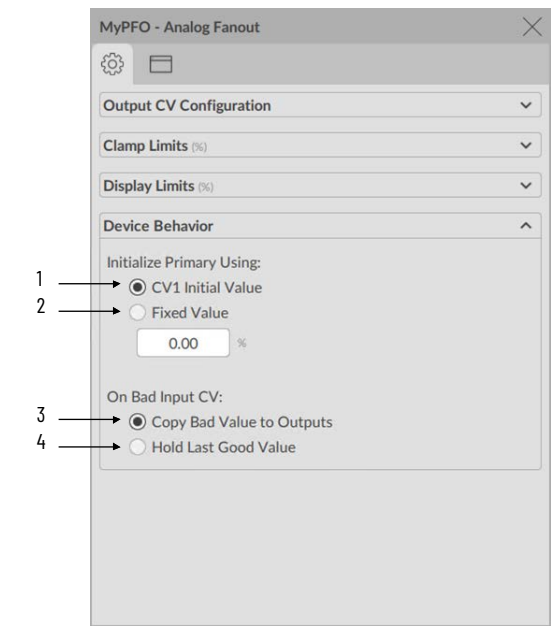
Item	Description
1	Enter values to set the limits to use to clamp the CV.

### Advanced Engineering Tab - Display Limits



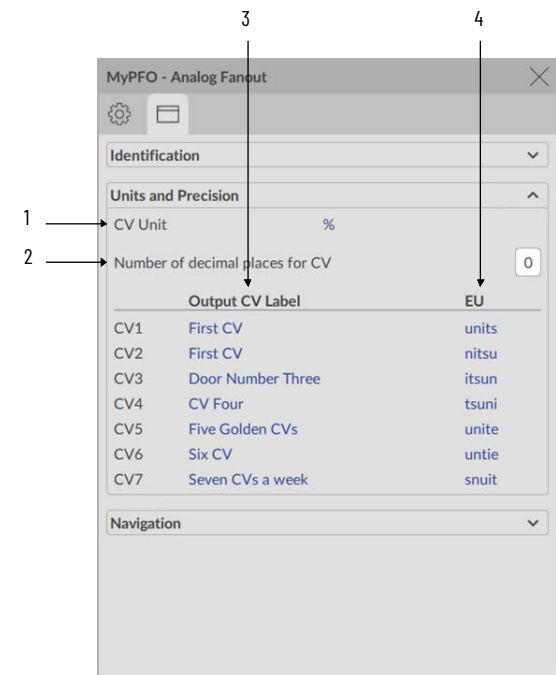
Item	Description
1	Enter values to set the limits to display for the CV.

Advanced Engineering Tab - Device Behavior



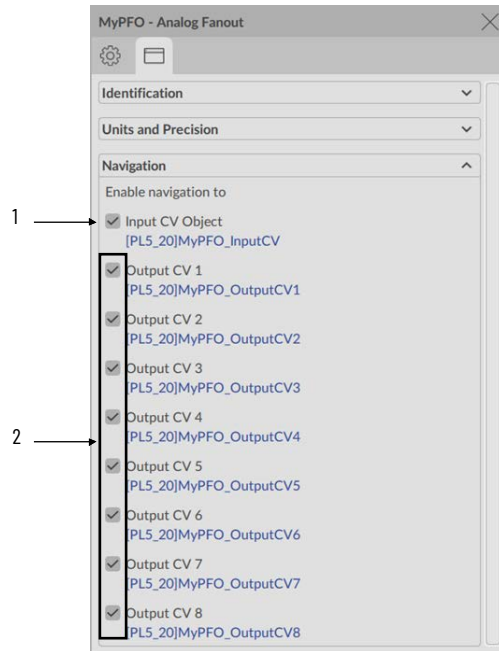
Item	Description
1	Select to use the CV1 initialization value (Inp_CV1InitVal) to set the initialization output (Out_CVInitializationVal) when initialization is requested.
2	Select to use a fixed value (Cfg_FixedInitVal) to set the initialization output (Out_CVInitializationVal) when initialization is requested. Enter a value to set the initialization value (Out_CVInitializationVal) if initialization is requested and a fixed value option is selected.
3	Select to pass through the bad value.
4	Select to hold last good value.

Advanced HMI Configuration Tab - Units and Precision



Item	Description
1	Display the units that are used with the CV.
2	Enter the number of decimal places to be shown for CV.
3	Display the description of the output name.
4	Display the CV engineering units to use for display.

## Advanced HMI Configuration Tab - Navigation




Item	Description
1	Select to permit navigation to an input CV object faceplate for which you typed a tag name.
2	Select to permit navigation to an output CV object faceplate for which you typed a tag name.

**Notes:**

## Process High or Low Selector (PHLS)

### Graphic Symbols

FactoryTalk Optix Graphic Symbol	Description
raP_5_xx_PHLS_GS 	Standard High or Low Selector graphic symbol.

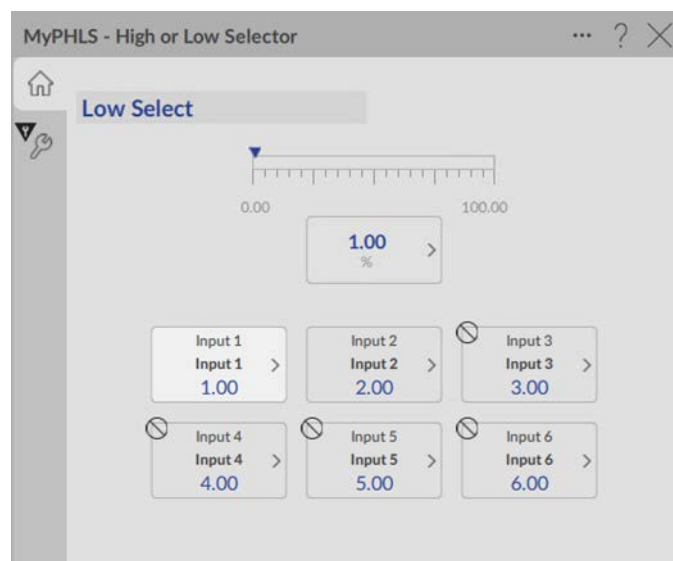
### FactoryTalk Optix Faceplates

This object has no Trends, Diagnostics, or Alarms tabs.

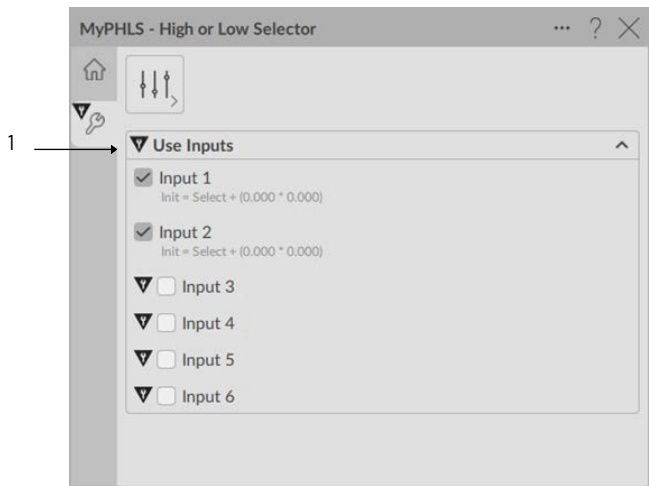
### Operator Tab

The Operator tab shows the following information:

- Current operation (High or Low Select)
- Currently selected input (white highlight)
- Bar graph for clamp limits from minimum to maximum plus Output CV indicator
- Input CV values and Output CV value

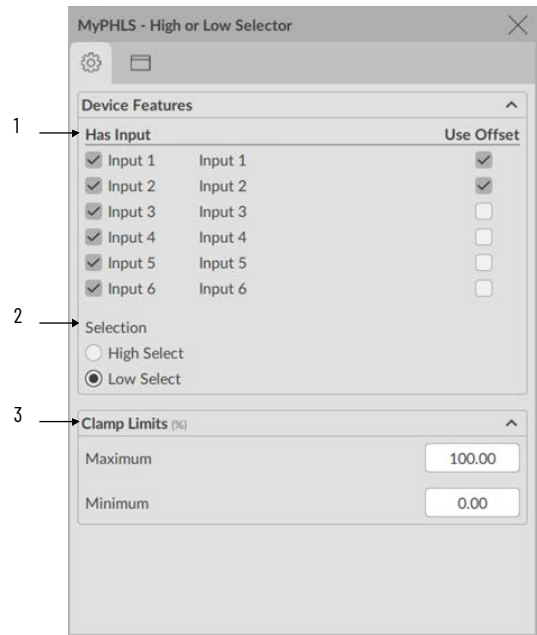


## Maintenance Tab



Item	Description
1	Select to use a CV input. Clear a checkbox not to use the input and put the instruction in Maintenance Bypass.

## Advanced Engineering Tab



Item	Description
1	Left to Right: <ul style="list-style-type: none"><li>Select 'Has Input' (CV1...CV6) where an input is connected.</li><li>Select a 'Use Offset' (CV1...CV6) to include the Kp*E offset in initialization calculation.</li></ul>
2	Select High Select to select the highest input CV value to pass to the output. Select Low Select to select the lowest input CV value to pass to the output.
3	Enter in the minimum and maximum to set the range for the selected input CV. If the selected input CV is below the minimum, it is clamped to the minimum value. If the selected input CV is above the maximum, it is clamped to the maximum value.

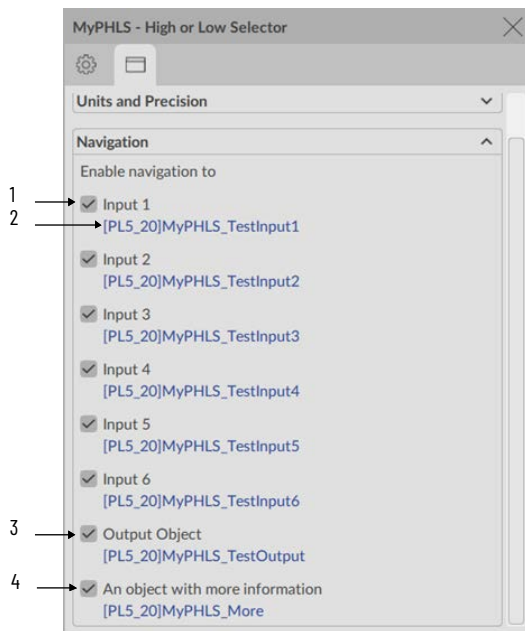


## Advanced HMI Configuration Tab - Units and Precision



Item	Description
1	The engineering units for display on the HMI. Percent (%) is the default.
2	Enter in the number of decimal places that are displayed for the CV.

## Advanced HMI Configuration Tab - Navigation




Item	Description
1	Select an input (CV1...CV6) or the Output CV to allow navigation to a specified object.
2	Display the tag name for the corresponding input (CV1...CV6) or Output CV.
3	Select to enable navigation to an output object.
4	Select to enable navigation to an object with more information (Cfg_HasMoreObj is set to true.) This can be configured to navigate to an object backing tag or a UDT tag that has Instruction and Library defined.







## Process Interlock (PINTLK)

### Graphic Symbols

FactoryTalk Optix Graphic Symbol	Description
raP_5_xx_PINTLK_GS 	Standard Interlock Graphic Symbol.

### Interlock States

Item	Description
	Not ready to run or energize. One or more interlock conditions are not OK.
	Ready to run or energize. One or more conditions that can be bypassed are not OK, but these conditions are bypassed. All conditions that cannot be bypassed are OK.
	Ready to run or energize. All interlock conditions are OK.
	Ready to run or energize, and all interlock conditions are OK, conditions that can be bypassed are being bypassed and the equipment is not shut down.

# FactoryTalk Optix Faceplates

If Interlock Banks are used, all interlock banks are shown on one faceplate.

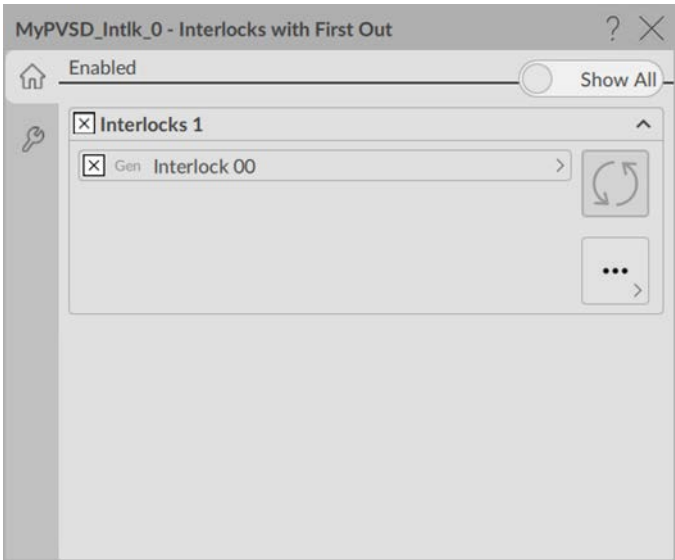
## Operator Tab

The Faceplate initially opens to the Operator (Home) Tab. From here, an operator can monitor the device status.

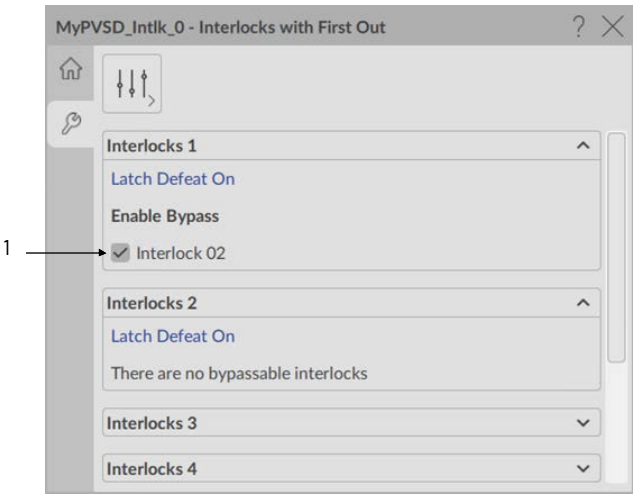
The Operator tab shows the following information:

- Interlock bypass status indicator (Enabled, Bypassed)
- Each configured interlock along with the current state of the interlock

If navigation is enabled, Select a condition to open the faceplate of the object that is associated with the condition.

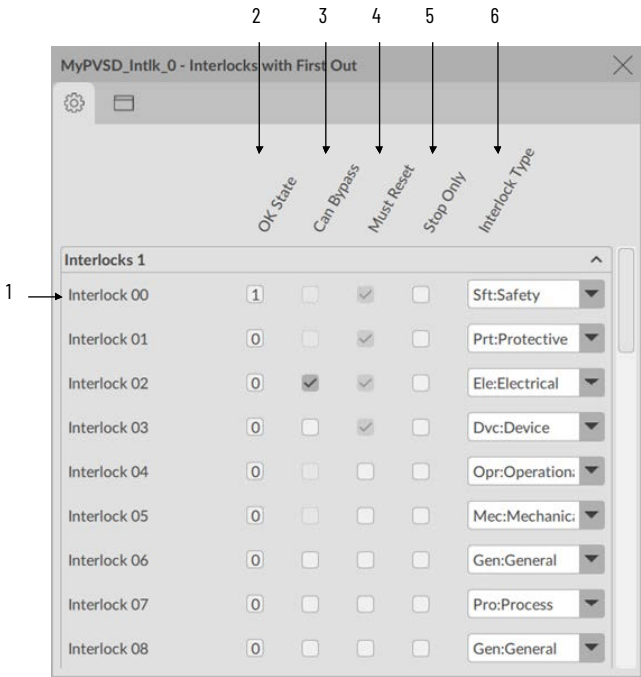


## Maintenance Tab



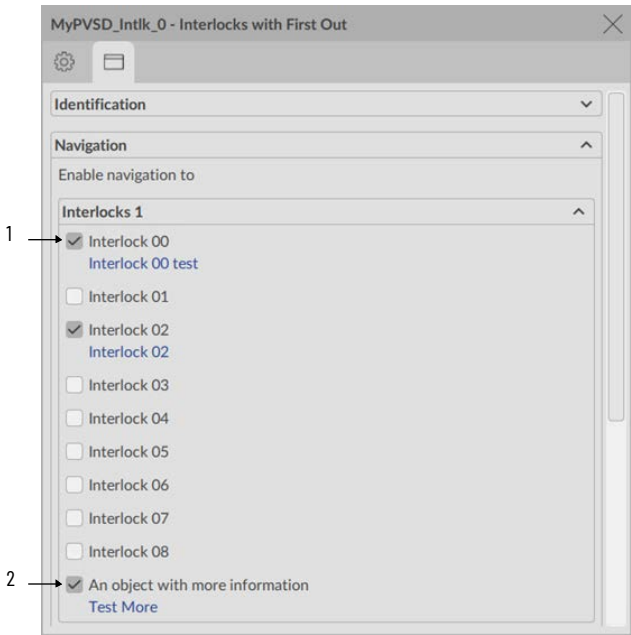
Item	Description
1	Select an interlock condition that can be bypassed, one that has a white checkbox, to enable bypass of that individual interlock.

Advanced Engineering Tab



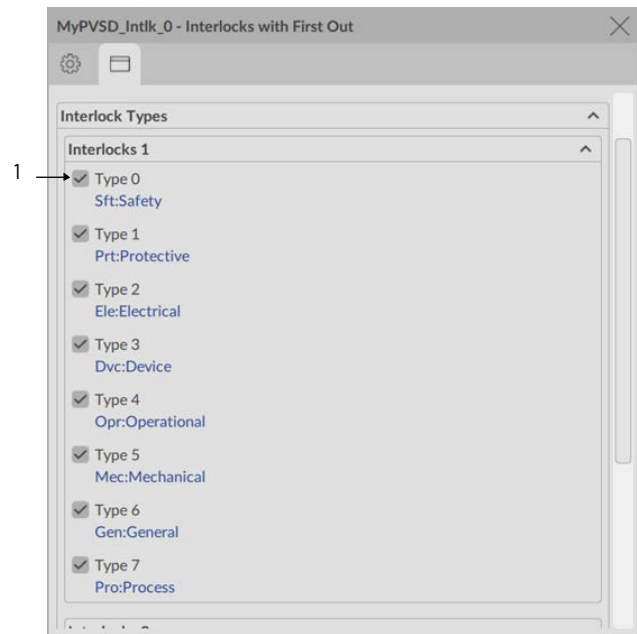
Item	Description
1	The text description of each interlock condition used. Only the interlocks with text entered appear on the Operator tab of the faceplate.
2	Selects the state of the corresponding interlock that is the OK to Run state.
3	Select to indicate that the corresponding interlock can be bypassed.
4	Select to indicate that the corresponding interlock is latched and must be reset.
5	Select to configure the interlock for stop only. The object (motor) the interlock object is associated trips when if this specific interlock is not OK, but it will not alarm.
6	Select to define the interlock type. The display opens to select an available interlock type that was defined in the HMI Configuration. <div></div>

Advanced HMI Configuration Tab - Navigation



Item	Description
1	Select to allow navigation to interlock input objects.
2	Select to enable navigation to an object with more information (Cfg_HasMoreObj is set to true.) This can be configured to navigate to an object backing tag or a UDT tag that has Instruction and Library defined.

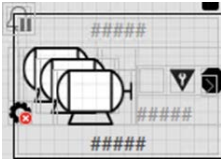
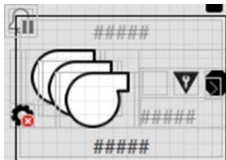

## Advanced HMI Configuration Tab - Interlock Types



Item	Description
1	Select to enable the interlock type that can be defined in the Engineering tab. There are eight types that are configurable. The first three letters define the short name type followed by ':' and then the full type description.

# Process Lead/Lag/Standby Motor Group (PLLS)

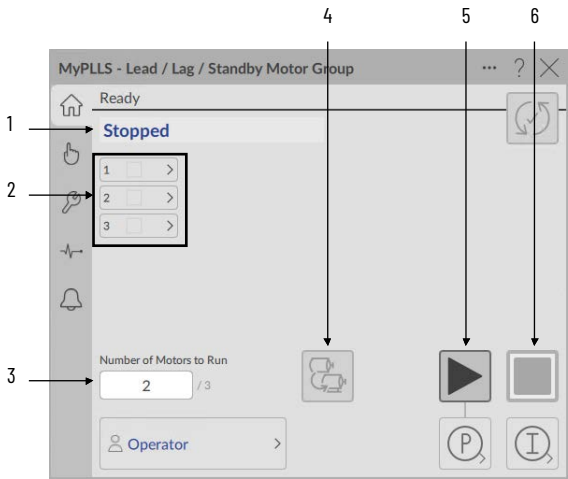
## Graphic Symbols

FactoryTalk Optix Graphic Symbol	Description
<div>raP_5_xx.PLLS_GS_Motors</div> 	A group of motors.
<div>raP_5_xx.PLLS_GS_Blowers</div> 	A group of blowers.
<div>raP_5_xx.PLLS_GS_Pumps</div> 	A group of pumps

# FactoryTalk Optix Faceplates

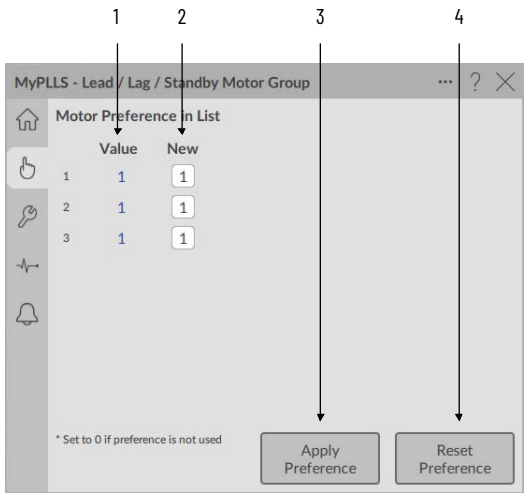
There are basic faceplate attributes that are common across all instructions. The Trends tab, Diagnostics tab, and Alarms tab all have the same basic functionality and are not described in this section. See [Basic Faceplate Attributes on page 24](#).

## Operator Tab



Item	Description
1	Motor state indicator.
2	Individual motor state indicators.
3	Enter a number between 0 and the maximum demand to indicate the number of motors to run.
4	Select to rotate motor assignments. The lead motor is demoted to the end of the list. Motors are started or stopped to satisfy Number of Motors to Run.
5	Select to start group.
6	Select to stop group. IMPORTANT: Motors stop in reverse order of starting unless First Started is First Stopped on the engineering tab is checked.

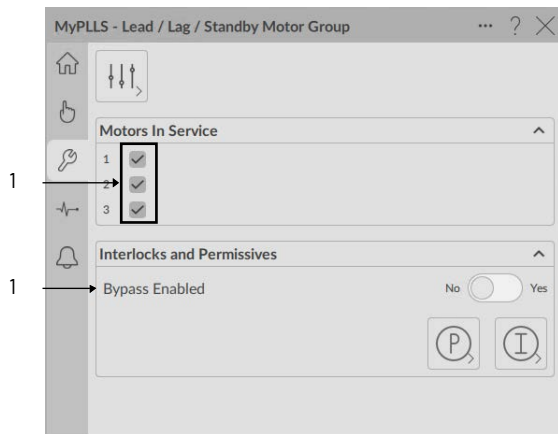
## Manual Mode



Item	Description
1	Displays the current preference for a motor.
2	Enter new preference value. The preference value determines the precedence when starting motors.
3	Apply the values in the new column to the preference values.
4	Reset preferences to previous.

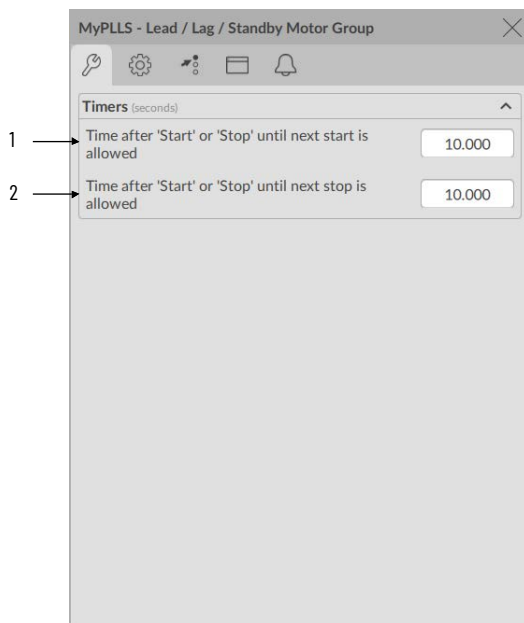


## Maintenance Tab



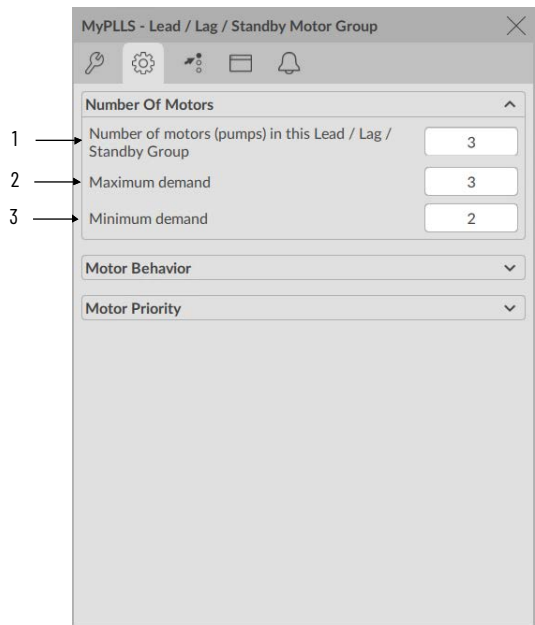
Item	Description
1	Select to place a motor in service (not in maintenance bypass). Clear the checkbox to place a motor out of service (maintenance bypass)
2	Select Yes to bypass checking of bypassable interlocks and permissives. Select No to enable checking of all interlocks and permissives.

## Advanced Maintenance Tab



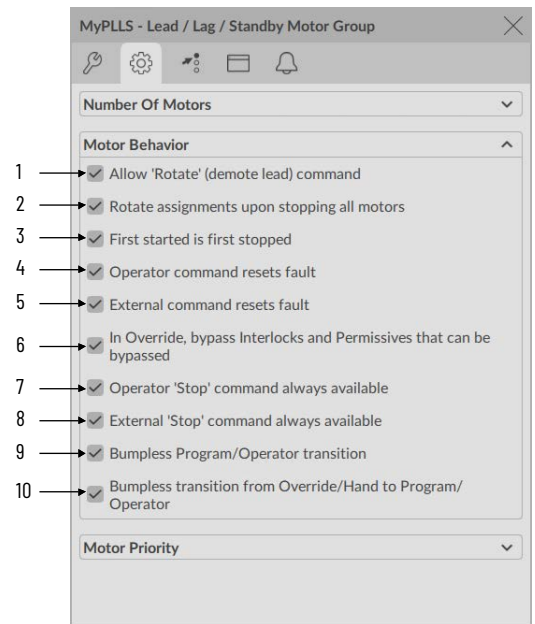
Item	Description
1	Enter the number of seconds after a start or stop that the next start is allowed.
2	Enter the number of seconds after a start or stop that the next stop is allowed.

Advanced Engineering Tab - Number Of Motors



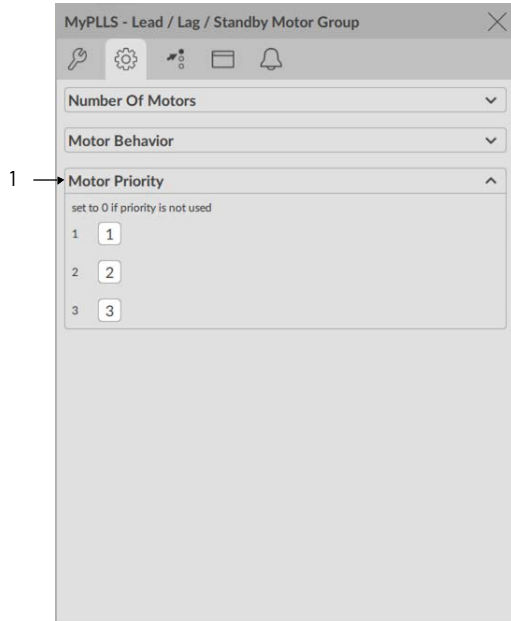
Item	Description
1	Enter the number of motors (2...30) in the group.
2	Enter the highest number of motors that can be running.
3	Enter the lowest number of motors that can be running.

Advanced Engineering Tab - Motor Behavior



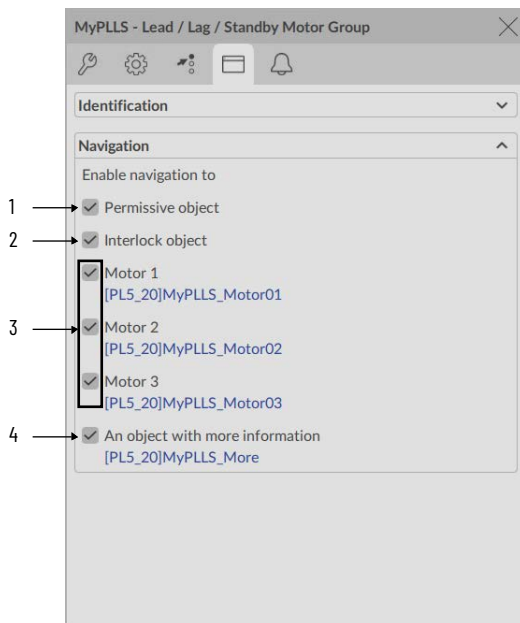
Item	Description
1	Select to allow the Rotate command to rotate motor assignments.
2	Select to rotate the lead motor to the end of list upon stopping all motors.
3	Select so that the first motor that is started is the first motor that is stopped.
4	Select to allow the Operator Start or Stop command to reset any previous faults (Interlock Trip), then start or stop the group. Clear this checkbox to reset faults by using only the reset commands.
5	Select to allow the External Start or Stop command to reset any previous faults (Interlock Trip), then start or stop the group. Clear this checkbox to reset faults by using only the reset commands.
6	Select to bypass interlocks and permissives that are bypassable when in Override command source.
7	Select (= 1) so that the OCmd.Stop has priority and is accepted at any time. If the Command Source is not Operator or Maintenance, the motor or drive requires a reset. Clear this checkbox (= 0) so that the OCmd.Stop works only in Operator or Maintenance command source.
8	Select (= 1) so that the XCmd.Stop has priority and is accepted at any time. If the Command Source is not External, the motor or drive requires a reset. Clear this checkbox (= 0) so that the XCmd.Stop only works when the command source is External.
9	Select to have Program settings (such as Speed Reference) track Operator settings in Operator command source, and have Operator settings track Program settings in Program command source.
10	Select to have Program and Operator Speed Reference track the Override Speed Reference in Override command source or the actual speed in Hand command source.

## Advanced Engineering Tab - Motor Priority



Item	Description
1	Enter the start priority within the list of the motors selected. Motors start in order of priority (0...31) and the higher numbers start first.

## Advanced HMI Configuration Tab

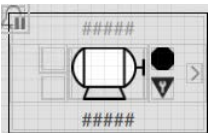
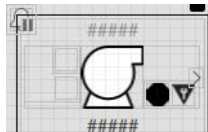
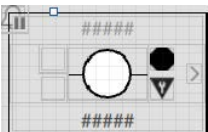
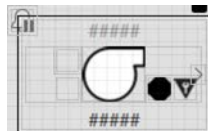



Item	Description
1	Select if a Permissive object is used with this motor. This check changes the Permissive indicator to a clickable button to open the Permissive faceplate. <b>IMPORTANT:</b> The name of the Permissive object in the controller must be the name of the object with the suffix '_Perm'. For example, if your PLLS object has the name 'LLS123', then its Permissive object must be named 'LLS123_Perm'.
2	Select if an Interlock object is used with this group. Checking this box changes the Interlock indicator to a clickable button to open the Interlock faceplate. <b>IMPORTANT:</b> The name of the Interlock object in the controller must be the object name with the suffix '_Intlk'. For example, if your PLLS object has the name 'LLS123', then its Interlock object must be named 'LLS123_Intlk'.
3	Select to allow navigation to motor objects. Additional pages are available if configured for more than 8 motors.
4	Select to enable navigation to an object with more information (Cfg_HasMoreObj is set to true.) This can be configured to navigate to an object backing tag or a UDT tag that has Instruction and Library defined.

## Notes:

## Process Motor (Power Discrete) (PMTR)

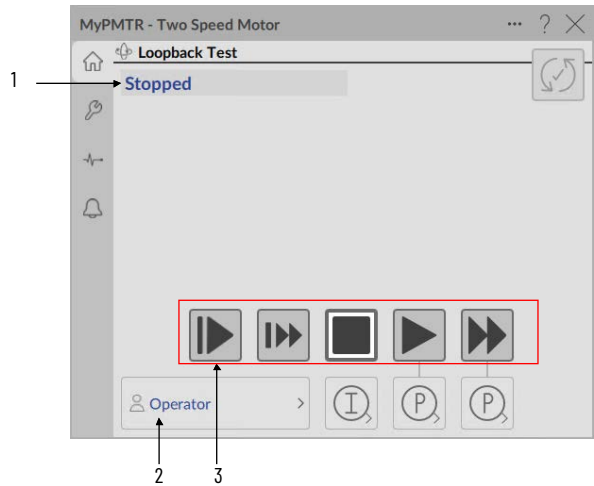
### Graphic Symbols








FactoryTalk Optix Graphic Symbol	Description
raP_5_xx_PMTR_GS_Motor_R 	Motors operate in different positions: right, up, and down.
raP_5_xx_PMTR_GS_Pumps 	Pumps operate in several positions: right, left, and up
raP_5_xx_PMTR_GS_Inline_Motor 	Inline motors operate in several positions: up, left, down, and right.
raP_5_xx_PMTR_GS_Blowers 	Blowers operate in different positions: right, left, up, and down.
raP_5_xx_PMTR_GS_Agitator 	Agitator that is shown as a Graphic Symbol

# FactoryTalk Optix Faceplates

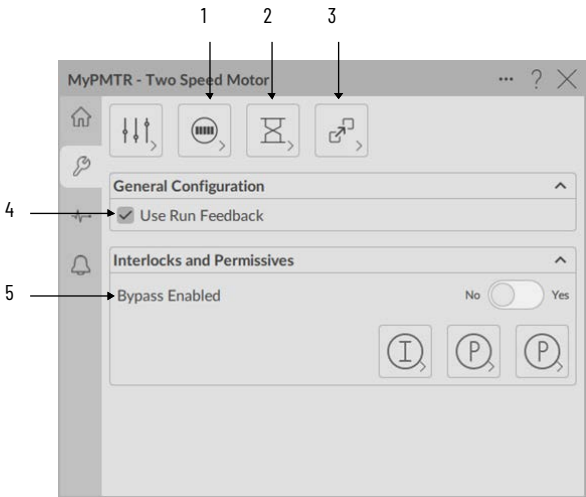
There are basic faceplate attributes that are common across all instructions. The Trends tab, Diagnostics tab, and Alarms tab all have the same basic functionality and are not described in this section. See [Basic Faceplate Attributes on page 24](#).

## Operator Tab



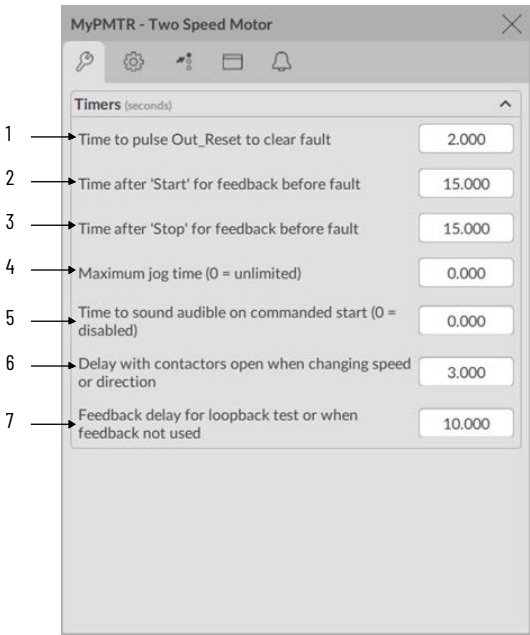
Item	Description
1	Motor state (stopping, stopped, starting, or running)
2	Current command source (Program, Operator, Override, Maintenance, or Hand)
3	Motor command buttons. The buttons and locations change based on the motor configuration.
	 Start Forward Speed 1
	 Start Forward Speed 2
	 Jog Forward Speed 1
	 Jog Forward Speed 2
	 Stop
	 Start Reverse.
	 Jog Reverse.

Maintenance Tab



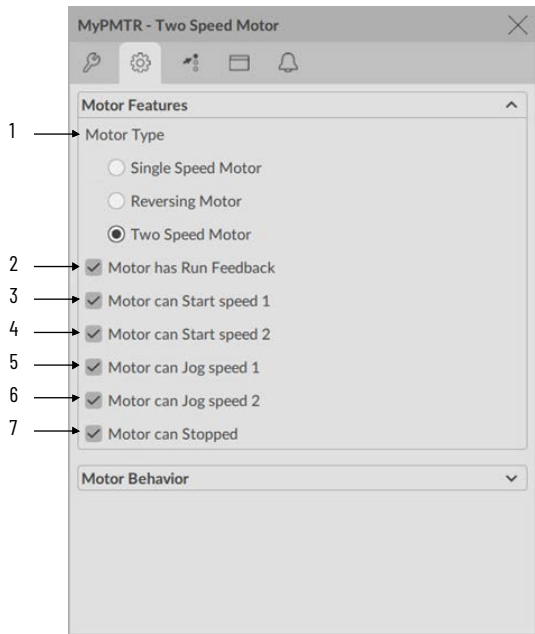
Item	Description
1	Select to open the runtime faceplate. IMPORTANT: This option is only available if 'Enable navigation to run time object' on the HMI Configuration tab is checked.
2	Select to open the Restart Inhibit faceplate. IMPORTANT: This option is only available if 'Enable navigation to restart inhibit object' on the HMI Configuration tab is checked.
3	Select to open the device object faceplate. IMPORTANT: This option is only available if 'Enable navigation to device object' on the HMI Configuration tab is checked.
4	Select to use Run Feedback.
5	Select Yes to bypass checking of bypassable interlocks and permissives. Select No to enable checking of all interlocks and permissives.

Advanced Maintenance Tab



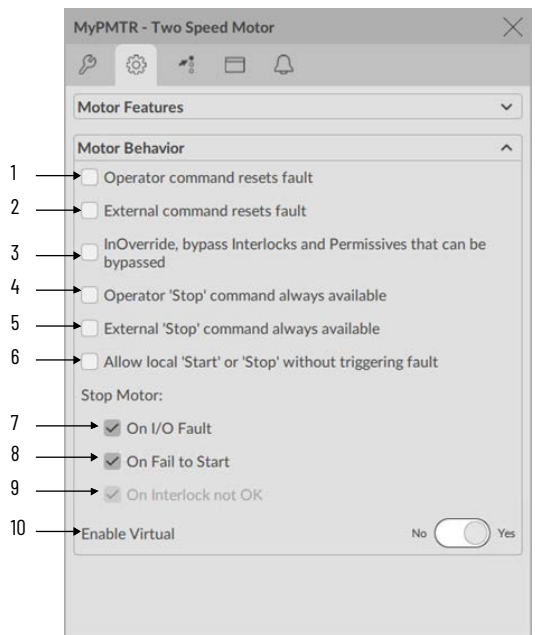
Item	Description
1	Enter the time for the reset output to be pulsed.
2	Enter the time to allow the run feedback to show that the motor has started before raising a fail to start alarm.
3	Enter the time to allow the run feedback to show that the motor has stopped before raising a Fail to Stop alarm.
4	Enter the maximum time to allow the motor to jog. Enter zero to allow unlimited jog time.
5	Enter the amount of time to sound the audible alarm when the motor starts.
6	Enter the time delay between when the run output has turned off for one speed and when it is turned on for the other speed.
7	Enter the time delay (in seconds) for the running or stopped status to be echoed back when the virtual is enabled or when run feedback is not used.

### Advanced Engineering Tab - Motor Features



Item	Description
1	Select the motor type.
2	Select if the motor provides run feedback to Inp_1RunFdbkData and Inp_2RunFdbkData. Clear this checkbox if there is no run feedback. IMPORTANT: This check places the device in Maintenance Bypass unless 'Use Run Feedback' on the Maintenance tab is checked.
3	Select to allow the motor to start at speed 1.
4	Select to allow the motor to start at speed 2.
5	Select to allow the motor to be jogged.
6	Select to allow the motor to jog at speed 2.
7	Select to allow the motor to be stopped.

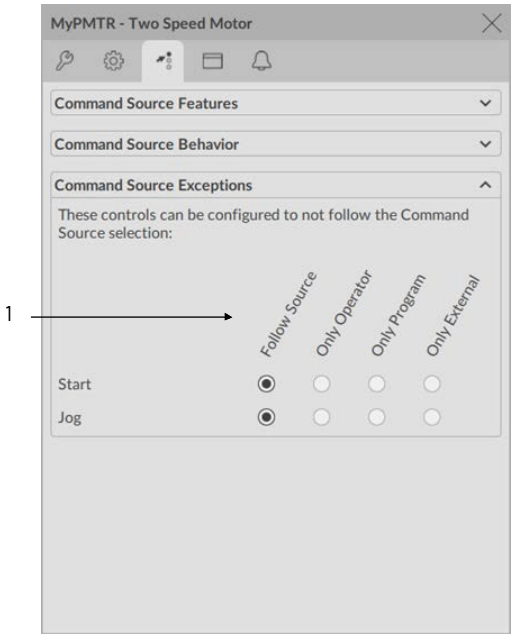
### Advanced Engineering Tab - Motor Behavior



Item	Description
1	Select to allow the Operator commands for Start or Stop to reset any previous faults (I/O fault, Fail to Start, Fail to Stop, Interlock Trip). Then start or stop motor. Clear this checkbox to reset faults only using the reset commands.
2	Select to allow the External commands for Start or Stop to reset any previous faults (I/O fault, Fail to Start, Fail to Stop, Interlock Trip). Then start or stop motor. Clear this checkbox to reset faults only using the reset commands.
3	Select to bypass bypassable interlocks and permissives in Override command source.
4	Select to have the Operator Stop command available in any command source. Clear this checkbox to have the Operator Stop command available only in the Operator and Maintenance command sources.
5	Select to have the External Stop command available in any command source. Clear this checkbox to have the External Stop command available only in the Operator and Maintenance command sources.
6	Select to allow the motor to be started or stopped locally without triggering a Fail to start or Fail to stop when not executing a start or stop command. Clear this checkbox to raise a Fail to start or Fail to stop status on an uncommanded start or stop.
7	Select to stop the motor if an I/O fault is detected. Clear this checkbox to show only the I/O fault status/alarm and not stop the motor if an I/O fault is detected.
8	Select to stop the motor if a fail to Start fault is detected. Clear this checkbox to show only the Fail to Start status/alarm and not stop the motor if a fail to Start fault is detected.
9	The motor always stops on interlock not OK. This item cannot be cleared. It is displayed as a reminder that the interlock function always stops the motor.
10	Select 'Yes' to enable virtual.

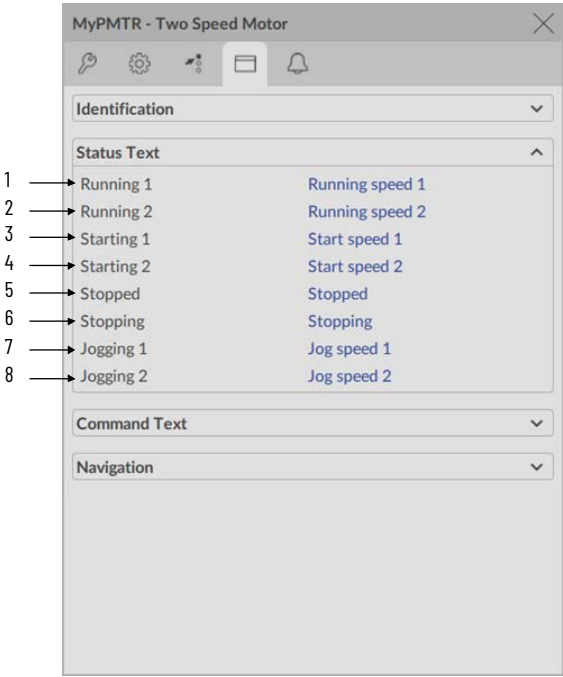


Advanced Command SourceTab - Command Source Exceptions



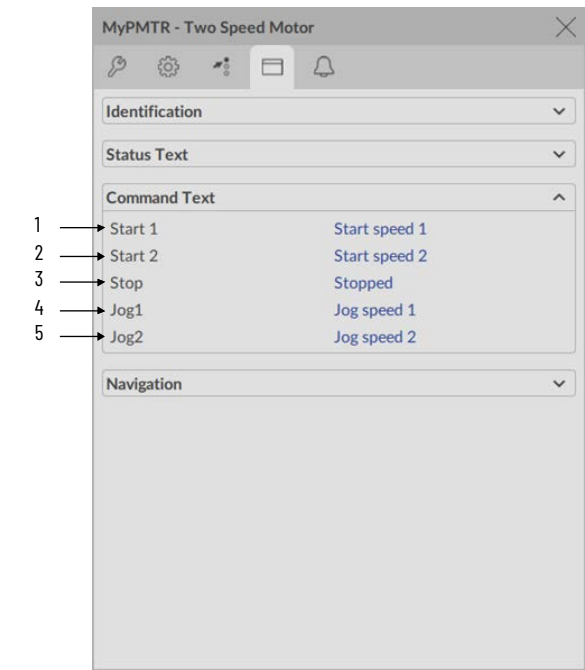
Item	Description
1	Select one of the four options to determine the source of each command (start and jog). If any option but "Follow Source" is selected, then that source will be the only source allowed for that command.

Advanced HMI Configuration Tab - Status Text



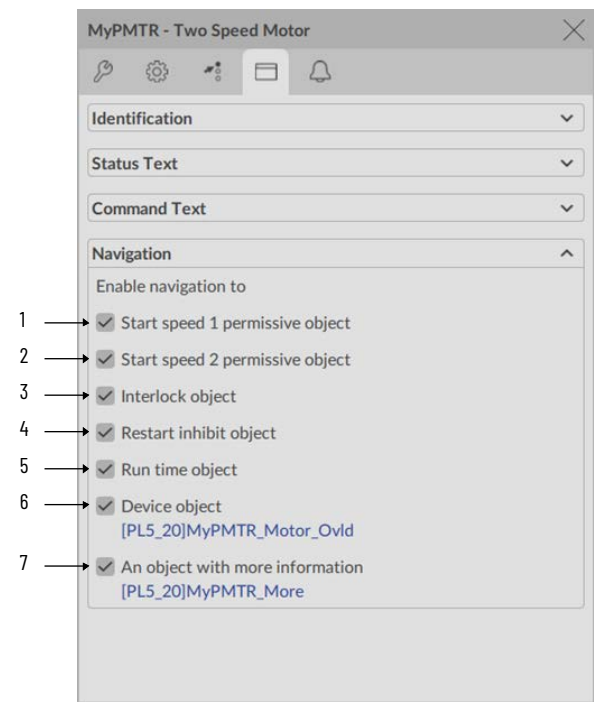
Item	Description
1	Display the text when the motor is running at speed 1.
2	Display the text when the motor is running at speed 2.
3	Display the text when the motor is starting at speed 1.
4	Display the text when the motor is starting at speed 2.
5	Display the text when the motor is stopped.
6	Display the text when the motor is stopping.
7	Display the text when the motor is jogging at speed 1.
8	Display the text when the motor is jogging at speed 2.

### Advanced HMI Configuration Tab - Command Text



Item	Description
1	Display the label for the command of starting at speed 1.
2	Display the label for the command of starting at speed 2.
3	Display the label for the command of stopping.
4	Display the label for the command of jogging at speed 1.
5	Display the label for the command of jogging at speed 2.


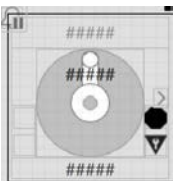

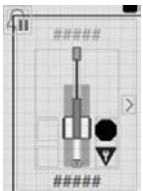
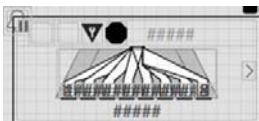

### Advanced HMI Configuration Tab - Navigation



Item	Description
1	Select if Start Speed 1 permissive object is used with this motor. For 2 Speed Motors, speed 1 is Slow and Speed 2 is Fast. For Reversing Motors, speed 1 is Forward and Speed 2 is Reverse. <b>IMPORTANT:</b> The name of the Permissive object in the controller must be the name of the object with the suffix '_1Perm'. For example, if your PMTR object has the name 'Motor123', then its Start Speed 1 object must be named 'Motor123_1Perm'.
2	Select if Start Speed 2 permissive object is used with this motor. For 2 Speed Motors, speed 1 is Slow and Speed 2 is Fast. For Reversing Motors, speed 1 is Forward and Speed 2 is Reverse. <b>IMPORTANT:</b> The name of the Permissive object in the controller must be the name of the object with the suffix '_2Perm'. For example, if your PMTR object has the name 'Motor123', then its Permissive object must be named 'Motor123_2Perm'.
3	Select if an interlock object is used with this motor. <b>IMPORTANT:</b> The name of the Interlock object in the controller must be the name of the object with the suffix '_Intlk_0'. For example, if your PMTR object has the name 'Motor123', then its Interlock object must be named 'Motor123_Intlk_0'.
4	Select if a restart inhibit object is used with this motor. <b>IMPORTANT:</b> The name of the Restart Inhibit object in the controller must be the name of the object with the suffix '_ResInh'. For example, if your PMTR object has the name 'Motor123', then its Restart Inhibit object must be named 'Motor123_ResInh'.
5	Select if a run time object is used with this motor. <b>IMPORTANT:</b> The name of the Run Time object in the controller must be the name of the object with the suffix '_RunTime'. For example, if your PMTR object has the name 'Motor123', then its Run Time object must be named 'Motor123_RunTime'.
6	Select to allow navigation to the device object.
7	Select to enable navigation to an object with more information (Cfg_HasMoreObj is set to true.) This can be configured to navigate to an object backing tag or a UDT tag that has Instruction and Library defined.

## n-Position Device (PNPOS)

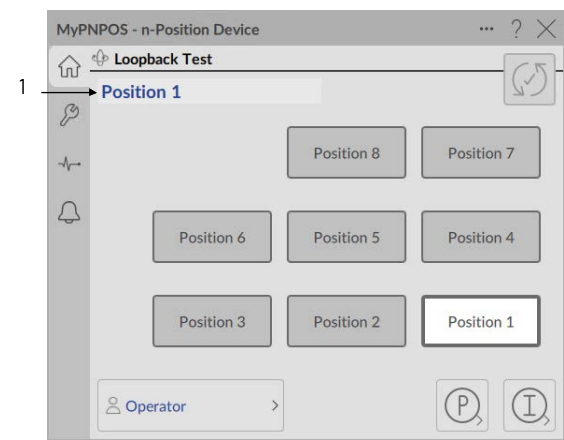
### Graphic Symbols

FactoryTalk Optix Graphic Symbol	Description
PNPOS_GS_SelectorValve 	<p>These Graphic Symbols are used for routing one flow path to many vertically. These elements show all 3, 4, 6, or 8 ports and unused ports are not hidden.</p> <p>For FactoryTalk Optix, there is only one graphic symbol. The number of ports that are shown change dynamically based on the configuration in the controller.</p>
PNPOS_GS_RotaryValve 	<p>These Graphic Symbols are used for rotary selection from one port to many ports. Only the ports that are enabled are displayed. For example, if you configure the PnPos instruction with five positions, ports 6, 7, and 8 are not displayed.</p> <p>For FactoryTalk Optix, there is only one graphic symbol. The number of ports that are shown change dynamically based on the configuration in the controller.</p>
PNPOS_GS_SlideGate_H 	<p>These Graphic Symbols show a linear multi-position device. The symbol is animated to show the position that is based on the number of positions configured.</p>
PNPOS_GS_SlideGate_V 	
PNPOS_GS_nPosValve 	<p>These Graphic Symbols are similar to those elements shown on the first page of this table, but ports that aren't configured are not displayed.</p> <p>For FactoryTalk Optix, there is only one graphic symbol. The number of ports that are shown change dynamically based on the configuration in the controller.</p>
PNPOS_GS_GeneralStatus 	

# FactoryTalk Optix Faceplates

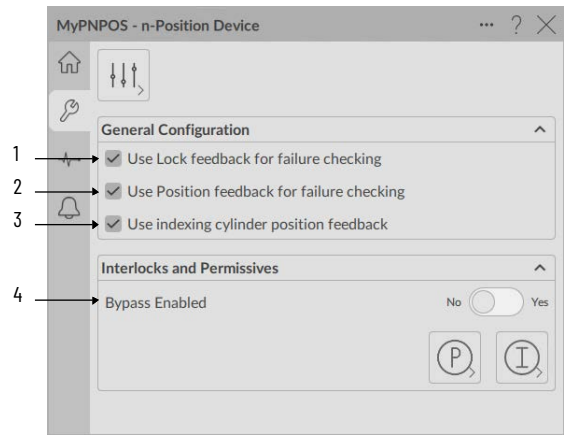
There are basic faceplate attributes that are common across all instructions. The Trends tab, Diagnostics tab, and Alarms tab all have the same basic functionality and are not described in this section. See [Basic Faceplate Attributes on page 24](#).

## Operator Tab



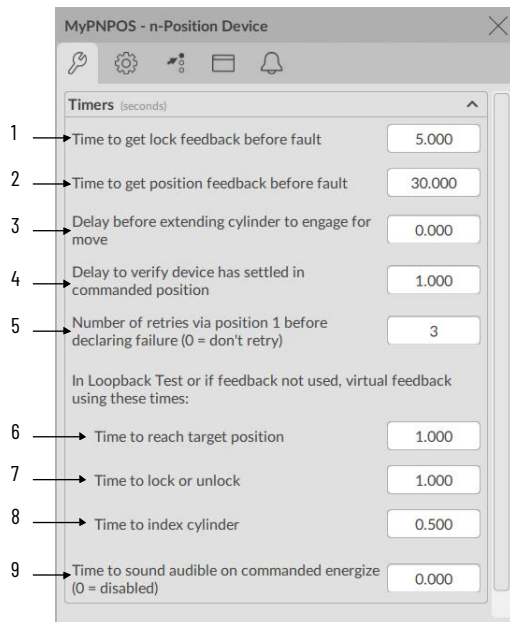
Item	Description
1	Current device position

## Maintenance Tab



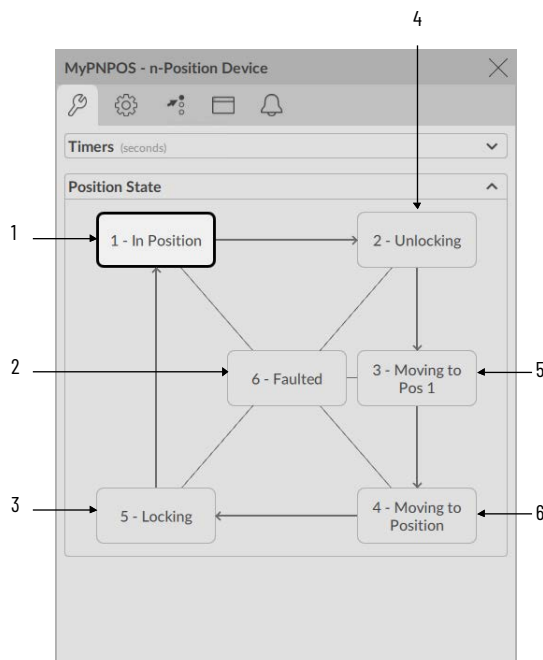
Item	Description
1	Select to use Lock feedback for failure checking.
2	Select to use Position feedback for failure checking.
3	Select to use indexing cylinder position feedback.
4	Select yes to bypass checking of interlocks and permissives that can be bypassed.

## Advanced Maintenance Tab - Timers



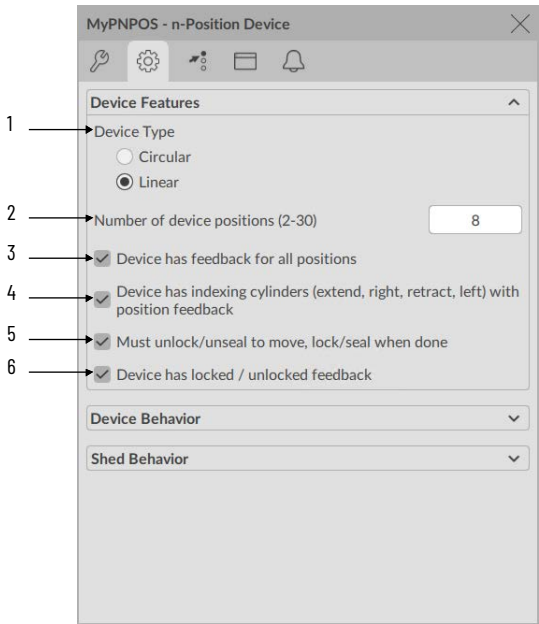
Item	Description
1	Enter a value (0...2,147,483) that indicates the maximum time that is allowed for lock feedback before a fault.
2	Enter a value (0...2,147,483) that indicates the maximum time that is allowed for the device to be in position before a fault.
3	Enter a value (0...2,147,483) that indicates the time delay before engaging a cylinder move.
4	Enter a value (0...2,147,483) that indicates the delay time to verify that a device is in a commanded position.
5	Enter a value (0...2,147,483) to indicate the number of retries for a device in Position 1 before a fault is set.
6	Enter the time (0...2,147,483) to reach a target position in virtual.
7	Enter the time (0...2,147,483) to lock/unlock with the device in virtual.
8	Enter the time (0...2,147,483) to simulate index cylinder feedback in virtual.
9	Enter the time (in seconds) that the audible sounds when there is a commanded State change.

## Advanced Maintenance Tab - Position State



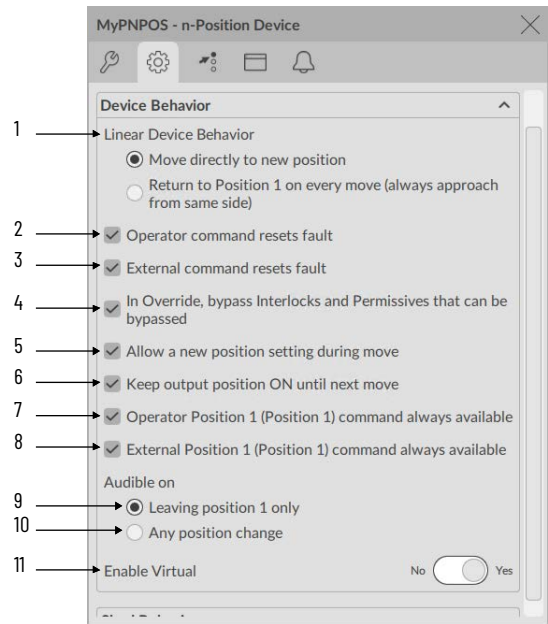
Item	Description
1	This state is highlighted whenever the device is in the position that it was last commanded.
2	This state is highlighted if the device feedback fails to confirm that the device is unlocked, moved to position, or locked as requested within the configured failure times.
3	This state is displayed only if the device is configured with a lock or seal that must be unlocked or unsealed to move. This state is highlighted when the device has reached its commanded position and has been commanded to lock, but locked feedback has not been received yet.
4	This state is displayed only if the device is configured with a lock or seal that must be unlocked or unsealed to move. This state is highlighted when the device has been commanded to unlock, but unlocked feedback has not been received yet.
5	When the Cfg_ViaPos01 is True. This state is highlighted when the device is being moved to its commanded position, but that position feedback has not been received yet.
6	This state is highlighted when the device is being moved to its commanded position, but that position feedback has not been received yet.

Advanced Engineering Tab - Device Features



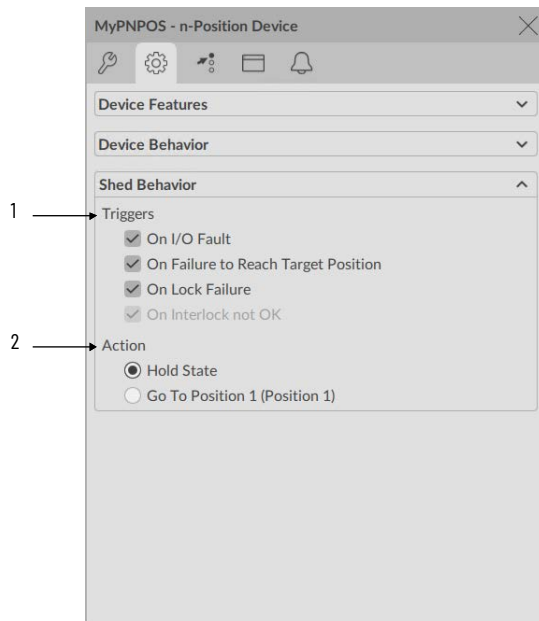
Item	Description
1	Select circular or linear for the device type
2	Enter the number of device positions (2...30).
3	Select to enable device feedback for all positions.
4	Select to enable indexing cylinders with position feedback.
5	Select if the device must be unlocked to move and locked when the move is complete.
6	Select if the device has locked / unlocked feedback

Advanced Engineer Tab - Device Behavior



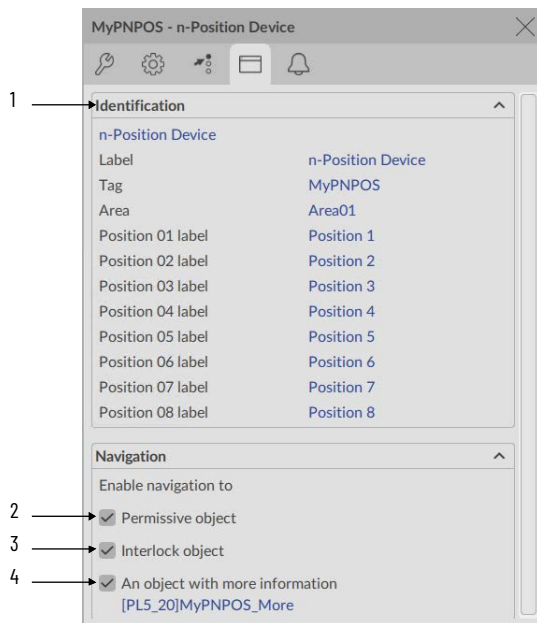
Item	Description
1	For Circular, select either clockwise only or clockwise or counterclockwise. For Linear, select whether the device returns to Position 1 for every move or moves directly to the target position.
2	Select to reset a fault on a new Operator command.
3	Select to reset a fault on a new External command.
4	Select to bypass permissives and interlocks in Override command source.
5	Select to enable a new position command to be received and processed while a move is in progress.
6	Select to keep a position output On until the next move.
7	Select to have Position 1 command always available to Operator control.
8	Select to have Position 1 command always available to External control.
9	Select to sound an audible on a commanded move from Position 1.
10	Select to sound an audible on a commanded move from any State.
11	Select yes to enable virtual

## Advanced Engineering Tab - Shed Behavior



Item	Description
1	Select to enable whether an I/O Fault, Failure to Reach Position, or Lock Failure is considered a shed condition.  The device always sheds on an Interlock Trip. This item cannot be unchecked. It is displayed as a reminder that the Interlock Trip function always triggers a shed.  If a condition causes the device to shed, a reset is required to operate the device.
2	Select to determine whether the device holds the hold position or goes to position 1 upon a shed condition.

## Advanced HMI Configuration Tab



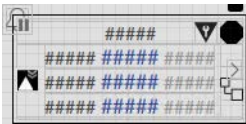
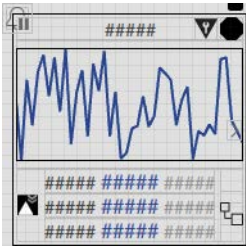
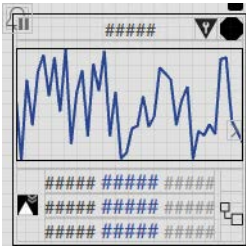
Item	Description
1	Name is displayed for each device position that is based on the number of positions.
2	Select to indicate that a permissive object is connected to the permissive inputs of this object. <b>IMPORTANT:</b> The name of the Permissives object in the controller must be the name of the object with the suffix '_Perm'. For example, if your PNPOS object has the name 'nPos123', then its Permissives object must be named 'nPos123_Perm'
3	Select to indicate that an interlock object is connected to the interlock inputs of this object. <b>IMPORTANT:</b> The name of the Interlock object in the controller must be the name of the object with the suffix '_Intlk'. For example, if your PNPOS object has the name 'nPos123', then its Interlock object must be named 'nPos123_Intlk'
4	Select to enable navigation to an object with more information (Cfg_HasMoreObj is set to true.) You configure the tag name of the object that you want to navigate to in the extended tag property "Cfg_HasMoreObj.@Navigation". It uses the .@Library and .@Instruction extended tag properties to display the objects faceplate.

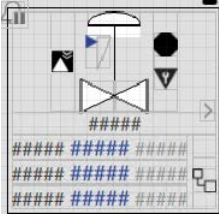
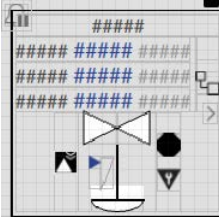
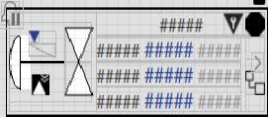
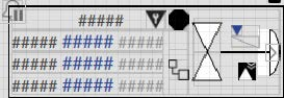





# Process Proportional + Integral + Derivative (PPID)

## Graphic Symbols

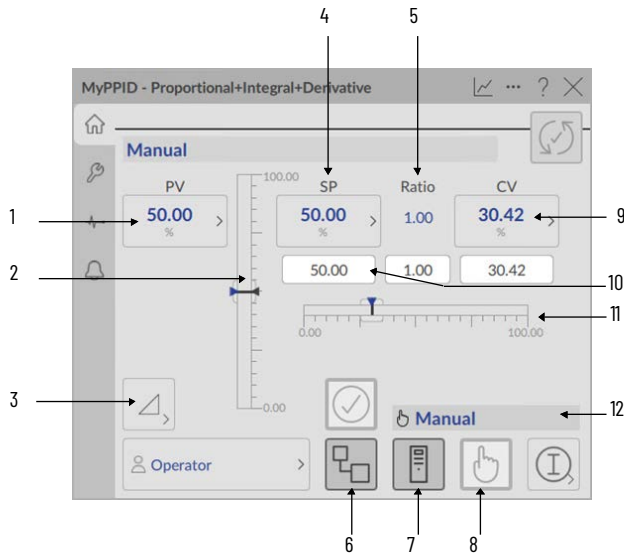
FactoryTalk Optix Graphic Symbol	Description
<div>raP_5_xx_PPID_GS</div> 	<p>Graphic Symbol with PV and CV numeric displays.</p> <p>The FactoryTalk Optix graphic symbol can be configured to show or hide the SP, PV, or CV.</p>
<div>raP_5_xx_PPID_GS_TrendScaledByPV</div> 	<p>Graphic Symbol with PV and CV numeric displays and a trend display that plots SP, PV, High, and Low Deviations. The trend is scaled to PV EU Min and Max.</p> <p>The FactoryTalk Optix graphic symbol can be configured to show or hide the SP, PV, or CV.</p>
<div>raP_5_xx_PPID_GS_TrendWTarget</div> 	<p>Graphic Symbol with PV and CV numeric displays and a trend display that plots SP, PV, High, and Low Deviations. The trend is scaled by using the High and Low Deviations.</p> <p>The FactoryTalk Optix graphic symbol can be configured to show or hide the SP, PV, or CV.</p>

FactoryTalk Optix Graphic Symbol	Description
<div>raP_5.xx_PPID_GS_ControlValve_T</div> 	<p>Proportional Valve Graphic Symbol with PV, CV, and Setpoint numeric displays.</p> <p>The Optix graphic symbol can be configured to show or hide the SP, PV, or CV.</p>
<div>raP_5.xx_PPID_GS_ControlValve_B</div> 	
<div>raP_5.xx_PPID_GS_ControlValve_L</div> 	
<div>raP_5.xx_PPID_GS_ControlValve_R</div> 	
<div>raP_5.xx_PPID_GS_LinearGauge</div> 	<p>Bar indicator with PV and SP moving triangles. Includes displayed limits. Alarm indication.</p>

## FactoryTalk Optix Faceplates

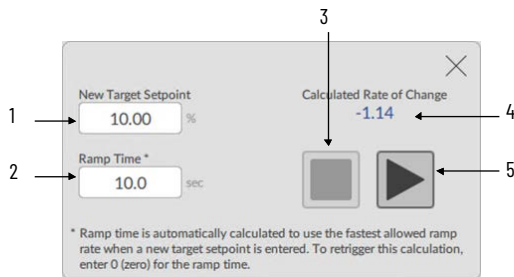
There are basic faceplate attributes that are common across all instructions. The Trends tab, Diagnostics tab, and Alarms tab all have the same basic functionality and are not described in this section. See [Basic Faceplate Attributes on page 24](#).

### Operator Tab



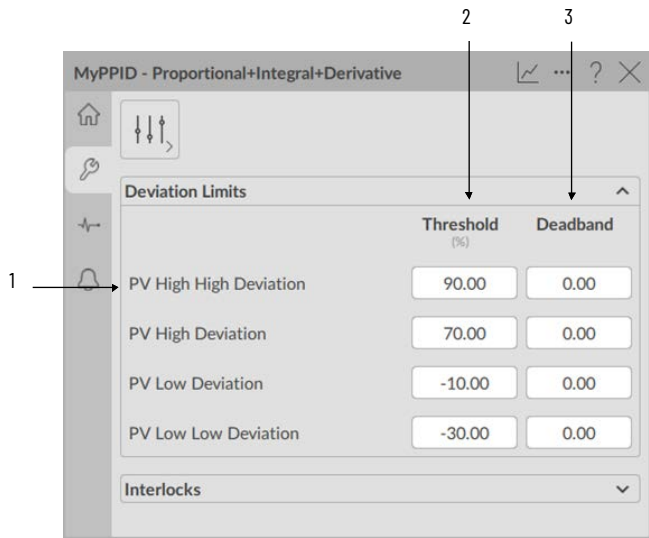
Item	Description
1	Current Process Variable (PV).
2	Bar graph for the current Process Variable.
3	Select to open the ramp wizard display.
4	Current Setpoint (SP).
5	Current Ratio (Ratio) if Cfg_HasCasc is true and Cfg_HasRatio is true.
6	Cascade loop mode.
7	Auto loop mode.
8	Manual loop mode
9	Current Control Variable (CV).
10	Enter a value for the loop setpoint. IMPORTANT: This value can be entered only when the instruction command source is Operator and the Loop mode is Automatic or Manual.
11	Bar graph for the current Control Variable.
12	Loop mode indicator.

### Ramp Wizard



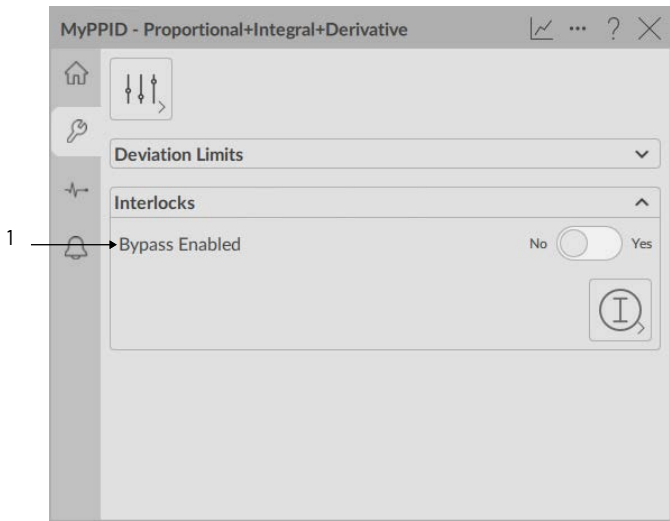
Item	Description
1	Enter new target setpoint.
2	Ramp Time
3	Stop setpoint ramping.
4	Calculated rate of change.
5	Start setpoint ramping.

### Maintenance Tab - Deviation Limits



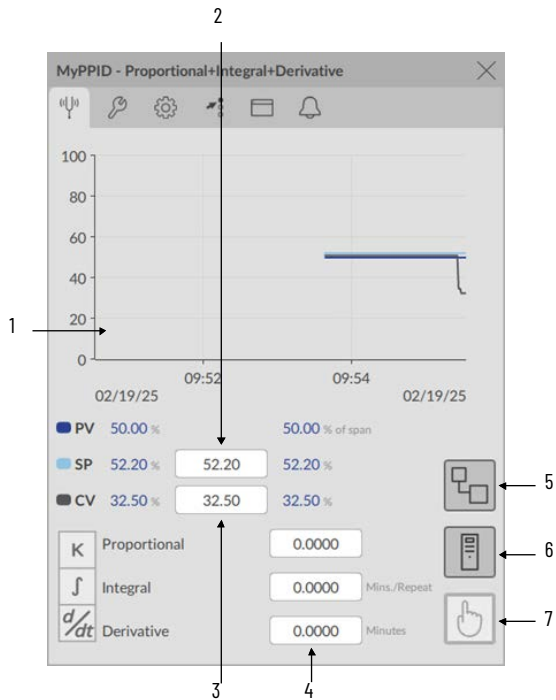
Item	Description
1	Threshold Name
2	Enter the threshold (trip point) for analog input alarms.
3	Enter the deadband (hysteresis) that applies to each alarm limit. Deadband helps prevent a noisy signal from generating numerous spurious alarms. Example: If the High alarm limit is 90.0 and the High alarm deadband is 5, once the signal rises above 90.0 and generates a High alarm. The signal must fall below 85.0 (90.0 minus 5.0) for the alarm to clear.

### Maintenance Tab - Interlocks



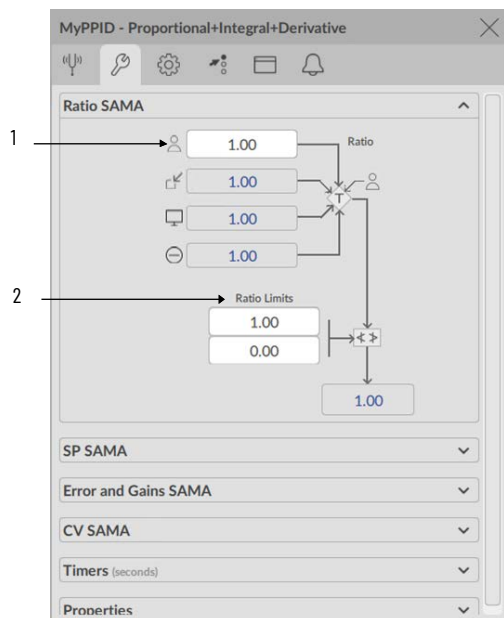
Item	Description
1	Select Yes to bypass checking of bypassable interlocks and permissives. Select No to enable checking of all interlocks and permissives.

## Advanced Tuning Tab



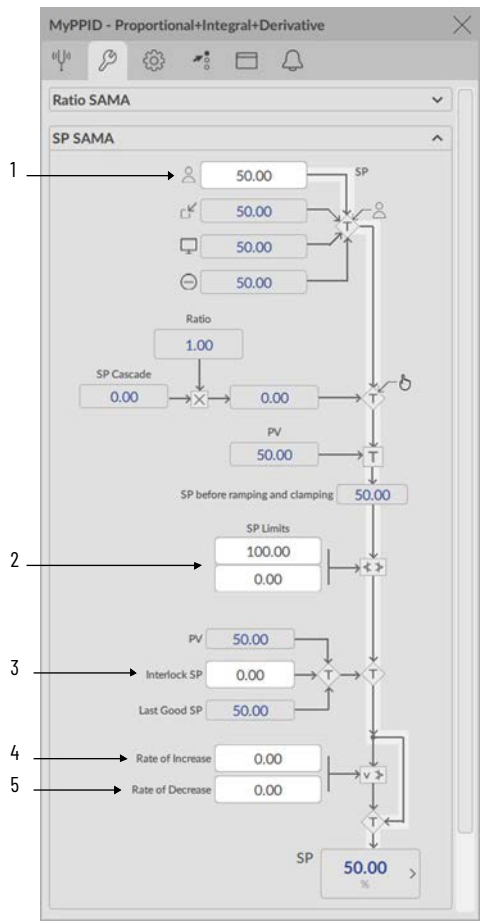
Item	Description
1	Trend display for Process Variable, Setpoint, and Controlled Variable.
2	Setpoint data entry.
3	Control variable data entry.
4	Tuning constant entries.
5	Cascade loop mode.
6	Auto loop mode.
7	Manual loop mode.

## Advanced Maintenance Tab - Ratio SAMA



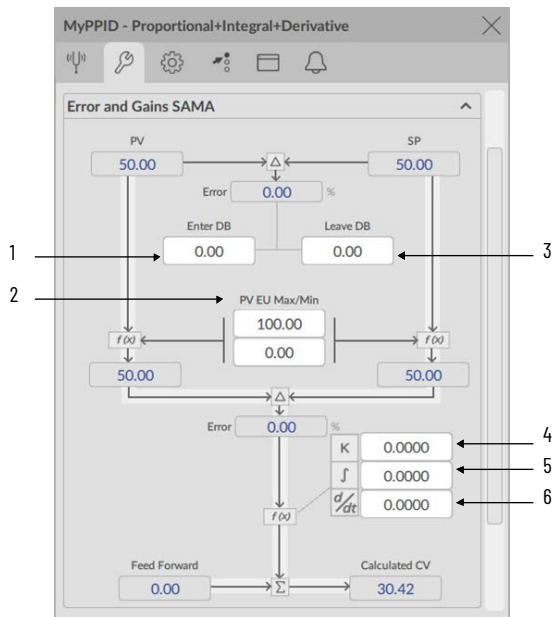
Item	Description
1	Enter the Operator ratio.
2	Enter the maximum and minimum limits for the ratio.

Advanced Maintenance Tab - SP SAMA



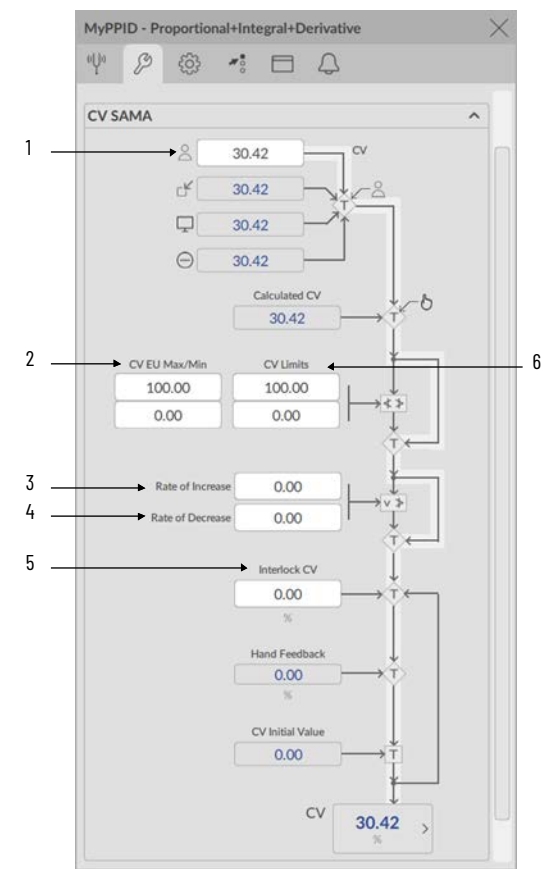
Item	Description
1	Enter the Operator Setpoint for the Operator Loop mode.
2	Enter the minimum and maximum limits for the setpoint.
3	Enter the interlock setpoint.
4	Enter the setpoint rate of increase.
5	Enter the setpoint rate of decrease.

## Advanced Maintenance Tab - Error and Gains SAMA



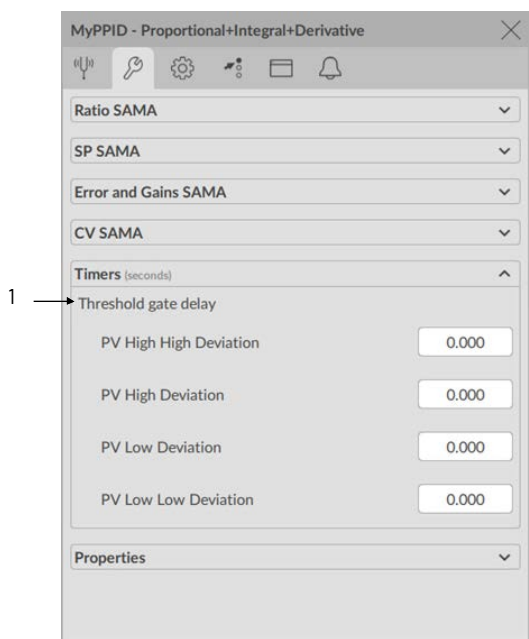
Item	Description
1	Enter the value for the zero-crossing deadband (in PV engineering units). When the loop error is less than the zero-crossing deadband, the loop output does not change.
2	Enter the maximum and minimum values of the PV range (span) (in PV engineering units). The maximum value must be greater than the minimum.
3	Enter the value for the deviation deadband threshold for the PV going away from the setpoint. The PID continues updating the CV when the PV leaves deadband.
4	<p>Gains: Proportional</p> <p>This value depends on the setting of Cfg_Dependent.</p> <p>If Cfg_Dependent = 1 (dependent gains, the default), Enter the Controller Gain (unitless). This gain is applied to the Proportional, Integral, and Derivative terms.</p> <p>If Cfg_Dependent = 0 (independent gains), Enter the Proportional Gain (unitless). This gain is applied to the Proportional term only.</p> <p>A value of zero in either case disables the Proportional term of the controller. Negative values are not valid.</p>
5	<p>Gains: Integral</p> <p>This value depends on the setting of Cfg_Dependent.</p> <p>If Cfg_Dependent = 1 (dependent gains, the default), Enter the Integral Time Constant (minutes pre-repeat).</p> <p>If Cfg_Dependent = 0 (independent gains), Enter the Integral Gain (1/minutes).</p> <p>A value of zero in either case disables the Integral term of the controller. Negative values are not valid.</p>
6	<p>Gains: Derivative</p> <p>This value depends on the setting of Cfg_Dependent.</p> <p>If Cfg_Dependent = 1 (dependent gains, the default), Enter the Derivative Time Constant (minutes).</p> <p>If Cfg_Dependent = 0 (independent gains), Enter the Derivative Gain (minutes).</p> <p>A value of zero in either case disables the Derivative term of the controller. Negative values are not valid.</p>

Advanced Maintenance Tab - CV SAMA



Item	Description
1	Enter the operator CV (when the PID is in manual mode).
2	Enter the minimum and maximum CV engineering units. These are used for scaling the output.
3	Enter the values for the maximum rate of change for increasing CV.
4	Enter the values for the maximum rate of change for decreasing CV.
5	Enter the value in percent to output as the CV when an Interlock input is not OK. The CV is held at this value until the interlock inputs are OK (subject to interlock bypassing).
6	Enter the maximum allowed value of the CV in percent. The CV output is clamped not to exceed the entered value. This value must be less than or equal to 100.0 and greater than the CV Low Limit.  Enter the minimum allowed value of the CV in percent. The CV output is clamped not to go below the entered value. This value must be greater than or equal to 0.0 and less than the CV High Limit.

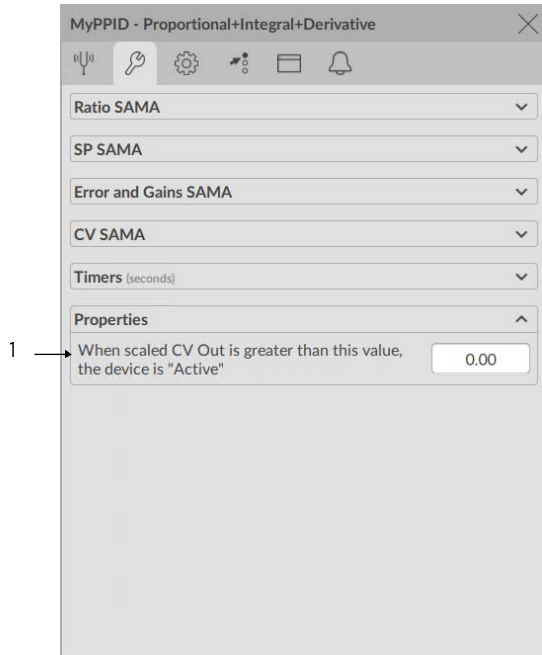
Advanced Maintenance Tab - Timers



Item	Description
1	Process variable high high, high, low, and low low deviation threshold gate delay (seconds).

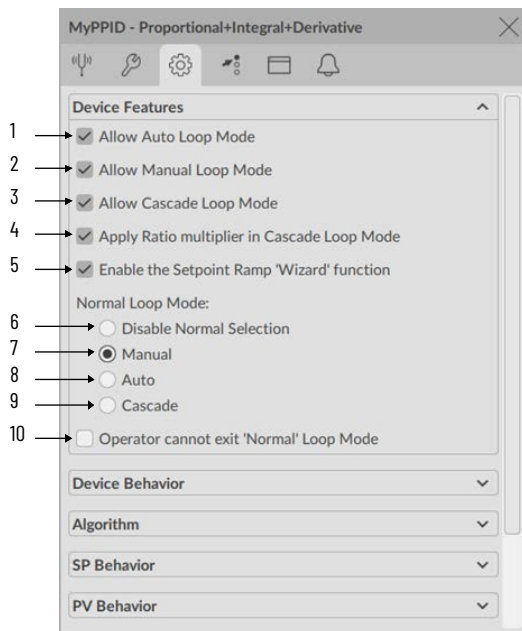


## Advanced Maintenance Tab - Properties



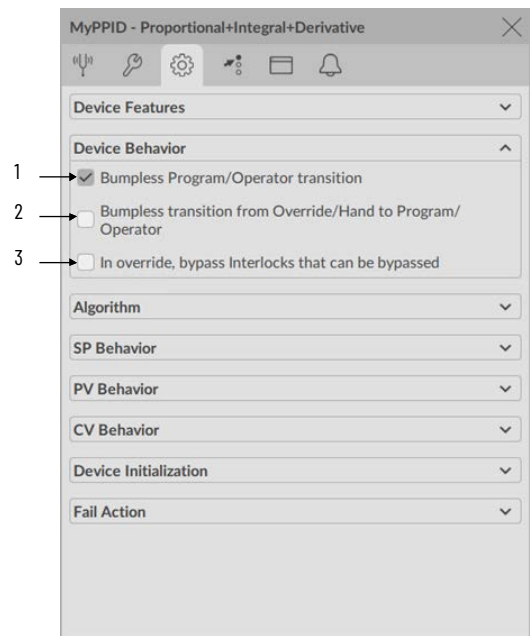
Item	Description
1	Enter the CV active threshold.

## Advanced Engineering Tab - Device Features



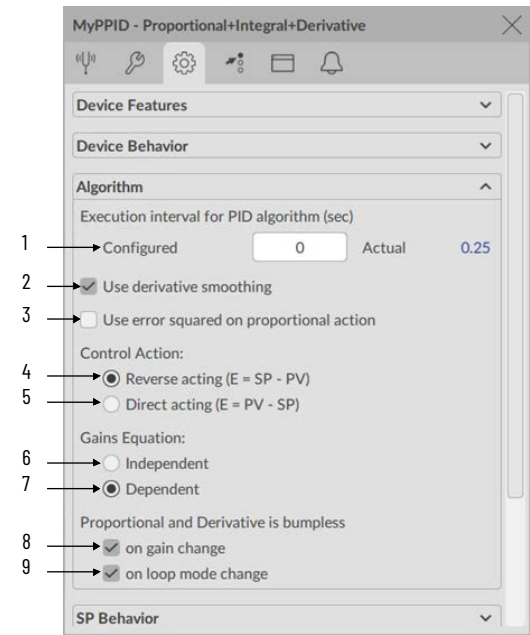
Item	Description
1	Select to enable Auto Loop mode.
2	Select to enable Manual Loop mode.
3	Select to enable Cascade Loop mode.
4	Select to enable ratio multiplier in Cascade mode.
5	Select to allow navigation to the setpoint Ramp Wizard Display from the Operator tab.
6	Select to disable normal loop mode selection.
7	Select to choose manual as the normal loop mode.
8	Select to choose auto as the normal loop mode.
9	Select to choose cascade as the normal loop mode.
10	Select to lock the loop in the mode configured as Normal.

## Advanced Engineering Tab - Device Behavior



Item	Description
1	Select so that when this parameter is: <ul style="list-style-type: none"><li>On, the operator settings track the program settings when command source is Program, and program settings track the operator settings when the command source is Operator. Transition between command sources is bumpless.</li><li>Off, the operator settings and program settings retain their values regardless of command source. When the command source is changed, the value of a limit can change, such as from the Programset value to the Operator-set value.</li></ul>
2	Select so that Program and operator settings track when the command source is Hand or Override.
3	Select to bypass Interlocks that can be bypassed while in Override command source.

## Advanced Engineering Tab - Algorithm



Item	Description
1	Enter the interval (in seconds) to execute the PID algorithm.
2	Select to enable derivative smoothing. Derivative smoothing can help reduce output jitter due to noise on the PV signal. Clear this checkbox to disable derivative smoothing. When derivative smoothing is disabled, it can result in quicker loop response at high derivative gain.
3	Select whether the error is squared on proportional action or not. Squaring the error minimizes the effect of a small error on the output.
4	Select for reverse-acting loop response (default). When the PV increases, the CV (output) decreases.
5	Select for direct-acting loop response. When the PV increases, the CV (output) increases.
6	Select to use the Independent Gains form of the PID algorithm. Changes to the proportional gain do not affect integral or derivative response.
7	Select to use the Dependent Gains form of the PID algorithm (default). Changes to Cfg_PGain are applied as loop gain changes and affect proportional, integral, and derivative responses.
8	Select whether the CV response to the proportional and derivative gains is bumpless or not.
9	Select if the proportional and derivative is bumpless during a loop mode change. This is only enabled when the integral gain is set to 0

## Advanced Engineering Tab - SP Behavior

MyPPID - Proportional+Integral+Derivative

Device Features

Device Behavior

Algorithm

SP Behavior

1 → ☐ SP tracks PV in Manual Loop Mode

2 → ☐ Skip Setpoint rate of change limiting in Interlock Trip, Maintenance or Override

3 → Weight on SP in proportional term, beta gain 1.0000

4 → Weight on SP in derivative term, gamma gain 0.0000

5 → If deviation exceeds this value pause SP ramp (0.0 = never pause): 0.00

PV Behavior

CV Behavior

Device Initialization

Fail Action

Item	Description
1	Select to have the current PV copied to the SP (track) whenever the loop is in Manual mode.
2	Select to skip the setpoint rate of change limiting in Interlock Trip, Maintenance, or Override.
3	Enter value for beta gain. This is the weight (multiplier) of the proportional gain. If beta is set to 0.0, the proportional gain has value. If beta is set to 1.0, the proportional gain has full effect. This is configurable from 0.0 to 1.5.
4	Enter value for gamma gain. This is the weight (multiplier) of the derivative gain. If gamma is set to 0.0, the derivative gain has value. If beta is set to 1.0, the derivative gain has full effect. This is configurable from 0.0 to 1.5.
5	Enter a value for maximum deviation between SP and PV. If the deviation exceeds this value, the SP ramp pauses until the PV returns to a value within the set deviation.

## Advanced Engineering Tab - PV Behavior

MyPPID - Proportional+Integral+Derivative

Algorithm

SP Behavior

PV Behavior

PV Deviation Deadband Action:

1 → ☒ All PID terms are suspended and CV does not move

2 → ☐ Only integral suspended, proportional and derivative remain operational

3 → PV deviation deadband when approaching SP 0.00

4 → PV deviation deadband when leaving SP 0.00

5 → PV failure trigger

☐ PV is Bad

☒ PV is Bad or Substituted

☐ PV is Bad, Substituted, or Uncertain

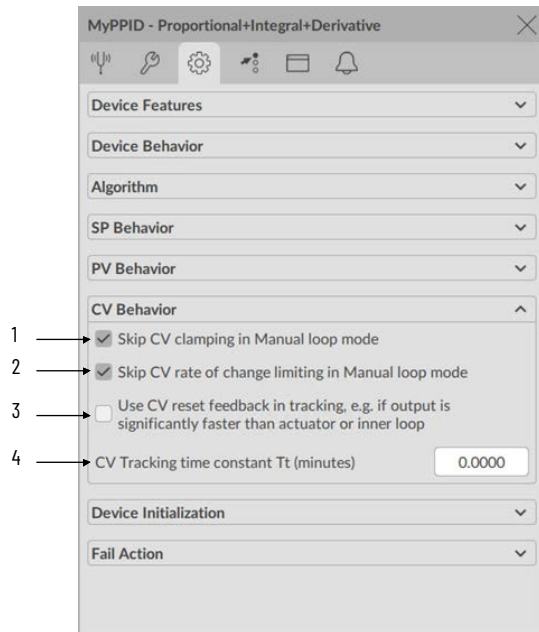
CV Behavior

Device Initialization

Fail Action

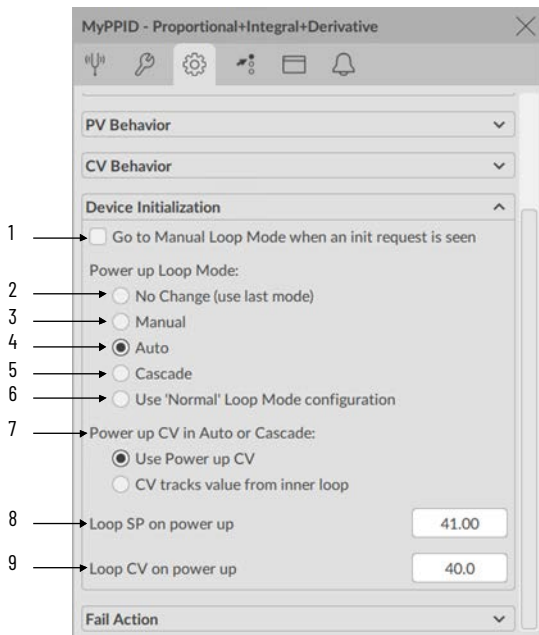
Item	Description
1	If the PV derivative deadband is exceeded, PID stops processing the error calculation and the CV freezes.
2	If the PV derivative deadband is exceeded, the integral portion of the error calculation will be suspended. The error calculation continues and the CV is updated.
3	Enter the value for PV deviation when the CV is approaching SP. A lower deadband allows for less deviation in the PV. If the deviation deadband is reached, action is taken according to items #1 or #2.
4	Enter the value for PV deviation when the CV is leaving the SP. A lower deadband allows for less deviation in the PV. If the deviation deadband is reached, action is taken according to items #1 or #2.
5	Select the PV failure trigger.

## Advanced Engineering Tab - CV Behavior



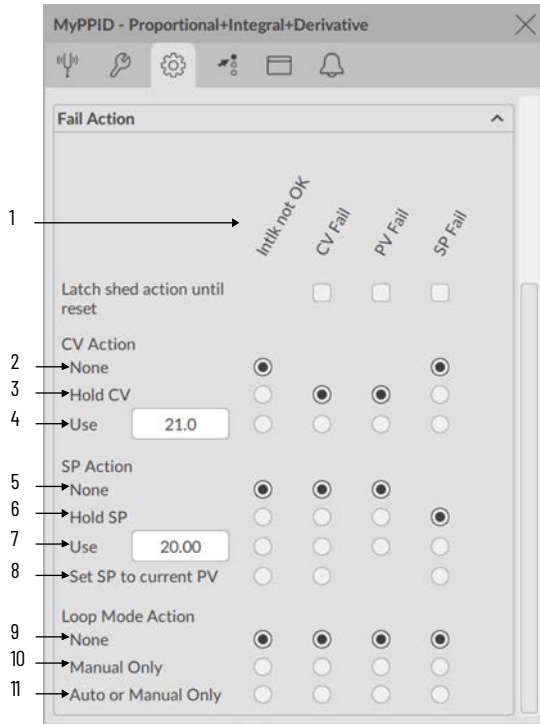
Item	Description
1	Select to disable CV clamping during Manual mode.
2	Select to disable CV rate of change during Manual mode.
3	Select to enable CV reset feedback tracking. This keeps the CV from ramping if the output device or inner loop is significantly slower.
4	Enter gain for CV tracking.

## Advanced Engineering Tab - Device Initialization



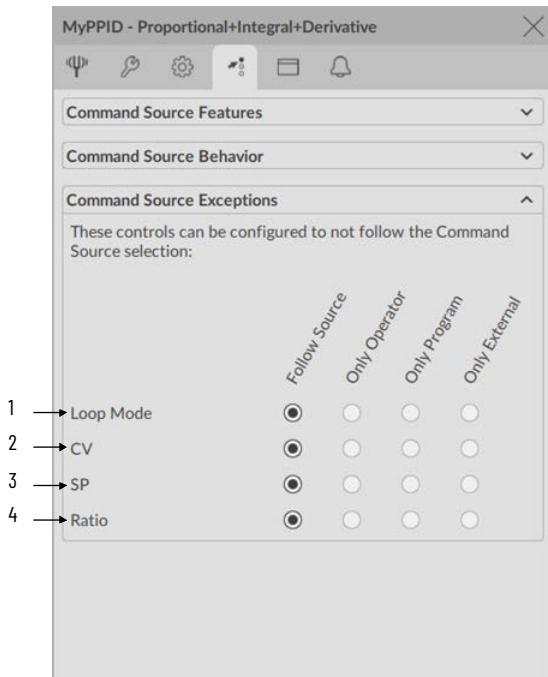
Item	Description
1	Select to set the Loop mode to Manual when the Use CVInit Value input is true. The loop is left in manual with the CV at the initialization value when the initialization request clears. Clear this checkbox to leave the loop in its current mode on an initialization request. When the initialization request clears, the loop resumes controlling in its previous mode.
2	Select to keep the Loop mode what it was at powerdown.
3	Select to set the Loop mode to Manual on powerup.
4	Select to set the Loop mode to Auto on powerup.
5	Select to set the Loop mode to Cascade on powerup.
6	Select to use the Normal loop mode configuration on powerup.
7	Selection of Powerup (first run) CV in Auto or Cascade. 0 = Ignore Inp_InnerAvailable and always use Cfg_CVPwrUp or last (Powerdown) CV (if Cfg_PwrUpLM = 0), 1 = Process Inp_InnerAvailable.
8	Enter a value to apply to the loop setpoint (in PV engineering units) on controller powerup. The setpoint is set to this value on controller powerup in Run mode and on controller transition from Program mode to Run mode.
9	Enter a value to apply to the loop CV (in percent) on controller powerup. The CV is set to this value on controller powerup in Run mode and on controller transition from Program mode to Run mode.

## Advanced Engineering Tab - Fail Action



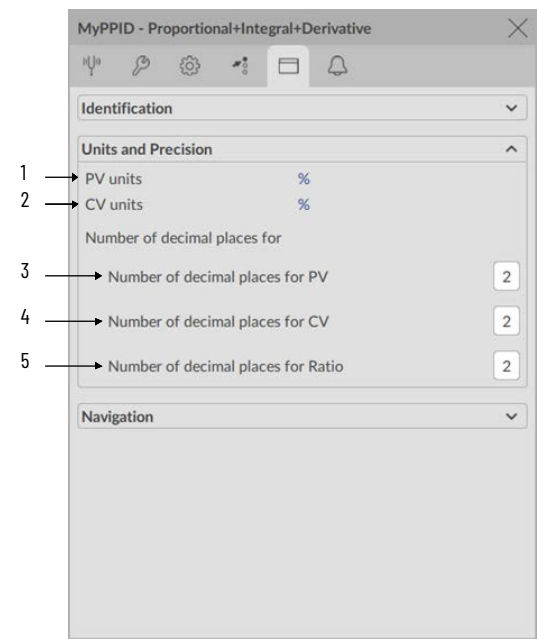
Item	Description
1	Possible Failures.
2	For the given failure, do not change the CV operation, keep controlling.
3	For the given failure, hold the CV at the current value.
4	For the given failure, set the CV to the configured value.
5	For the given failure, do not change the SP operation.
6	For the given failure, hold the SP at the current value.
7	For the given failure, set the SP to the configured value.
8	For the given failure, have SP track the current PV value.
9	For the given failure, keep current loop mode.
10	For the given failure, set the loop mode to manual.
11	For the given failure, If loop made is cascade set to auto.

## Advanced Command Source Tab - Command Source Exceptions



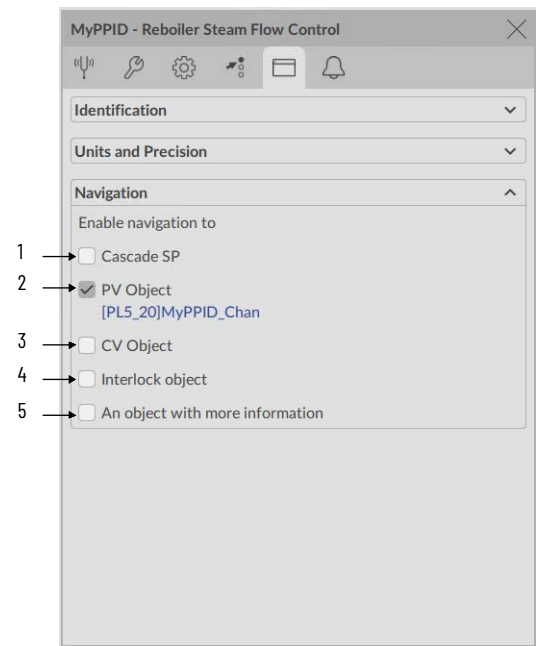
Item	Description
1	Select to keep control of loop mode commands with the Operator, Program, External, or Follow the Source.
2	Select to keep control of the controlled variable quantity setting with the Operator, Program, External, or Follow the Source.
3	Select to keep control of the setpoint settings with the Operator, Program, External, or Follow the Source.
4	Select to keep control of the ratio settings with the Operator, Program, External, or Follow the Source.

### Advanced HMI Configuration Tab - Units and Precision



Item	Description
1	Display the PV engineering units.
2	Display the CV engineering units. Percent (%) is the default.
3	Enter in the number of decimal places that are displayed for the Process Variable.
4	Enter in the number of decimal places that are displayed for the Control Variable.
5	Enter the number of decimal places that are displayed for the ratio (cascade).


### Advanced HMI Configuration Tab - Navigation







Item	Description
1	Select to enable navigation to Cascade SP object.
2	Select to enable navigation to the PV object.
3	Select to enable navigation to the CV object.
4	Select to enable navigation to the Interlock object.
5	Select to enable navigation to an object with more information (Cfg_HasMoreObj is set to true.) This can be configured to navigate to an object backing tag or a UDT tag that has Instruction and Library defined.

## Process Permissive (PPERM)

### Graphic Symbols

FactoryTalk Optix Graphic Symbol	Description
PPERM_GS 	Standard Permissive Global Object.

### Permissive States

Image	Description
	Not ready to run or energize. One or more permissive conditions are not OK.
	Ready to run or energize. One or more conditions that can be bypassed are not OK, but these conditions are bypassed. All conditions that cannot be bypassed are OK.
	Ready to run or energize. All permissive conditions are OK.
	Ready to run or energize, and all permissive conditions are OK, conditions that can be bypassed are being bypassed and the equipment is not shut down.

# FactoryTalk Optix Faceplates

This object has no Trends, Diagnostics, or Alarms tabs.

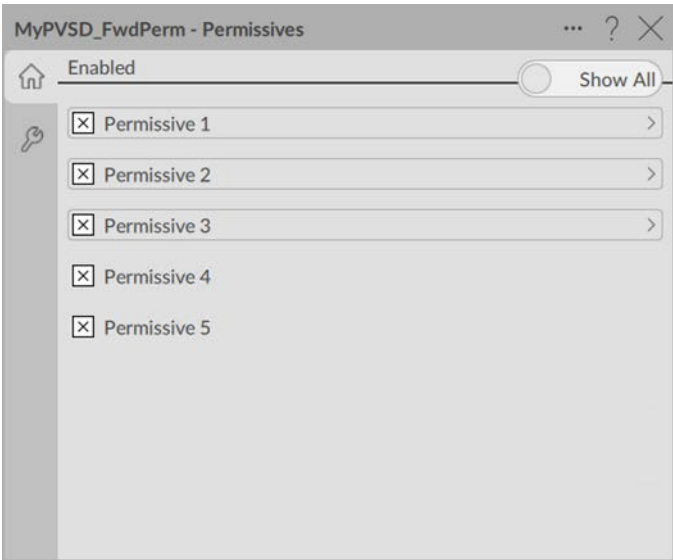
## Operator Tab

The Faceplate initially opens to the Operator (Home) tab. From here, an operator can monitor the device status.

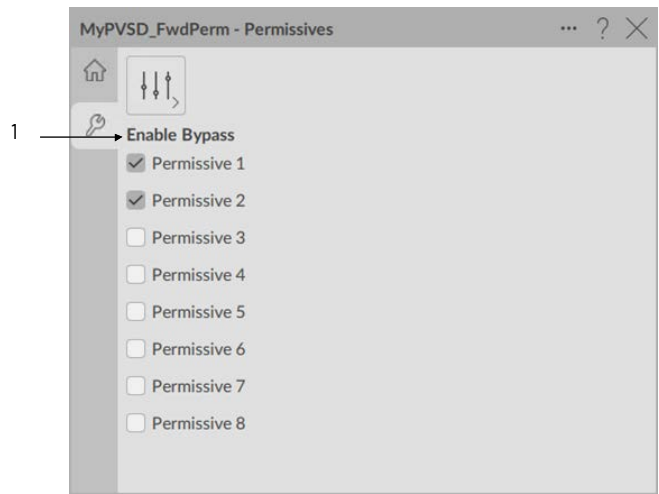
The Operator tab shows the following information:

- Permissive bypass status indicator (Enabled, Bypassed)
- Each configured permissive along with the current state of the permissive

If navigation is enabled, Select the condition to open the faceplate of the object that is associated with the condition.



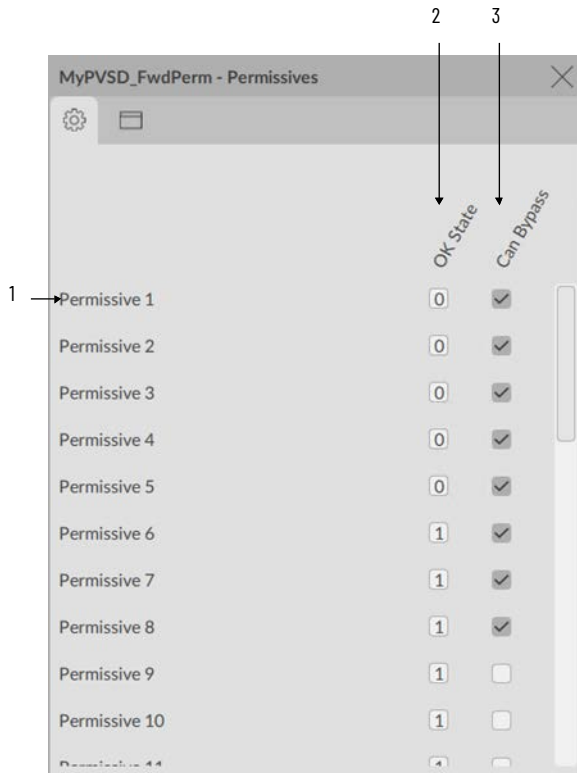
## Maintenance Tab



Item	Description
1	Select an active permissive, one that has a white checkbox, to enable bypass of that individual permissive.

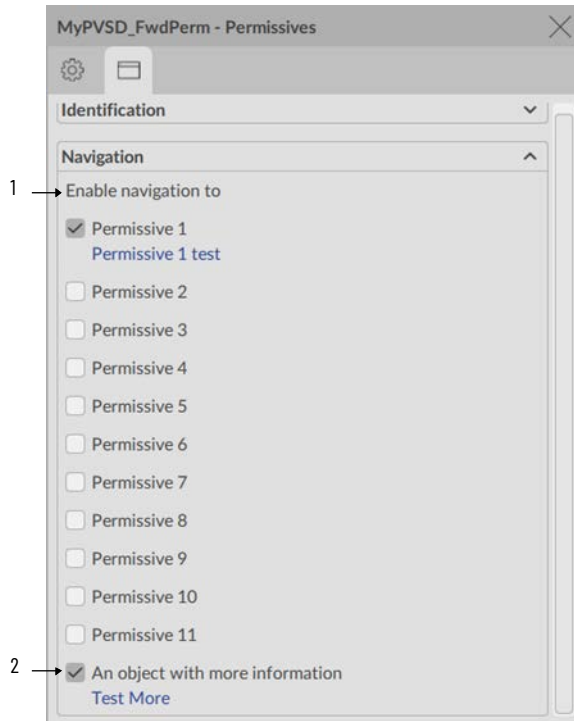


## Advanced Engineering Tab



Item	Description
1	The text description of each permissive condition used. Only the permissives with text entered appear on the Operator tab of the faceplate.
2	Selects the state of the corresponding permissive that is the OK to Run state.
3	Select to indicate that the corresponding permissive can be bypassed.

## Advanced HMI Configuration Tab

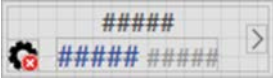


Item	Description
1	Select to allow navigation to Permissive Input objects.
2	Select to enable navigation to an object with more information (Cfg_HasMoreObj is set to true.) This can be configured to navigate to an object backing tag or a UDT tag that has Instruction and Library defined.

**Notes:**

# Process Pressure/Temperature Compensated Flow (PPTC)

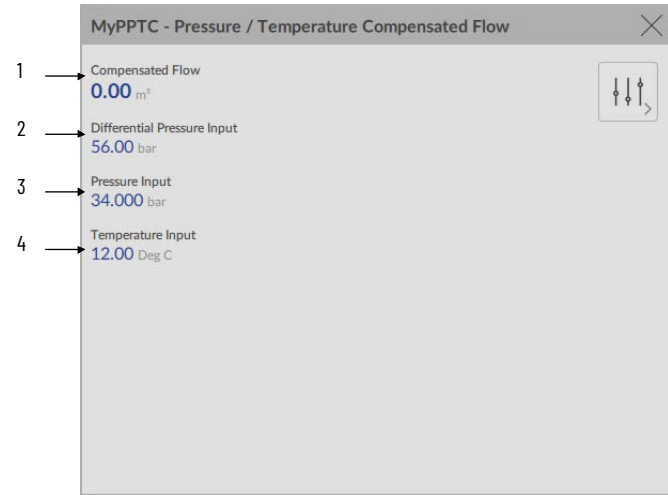
## Graphic Symbols

Graphic Symbol	Description
raP_5_20_PPTC_GS 	Standard pressure / temperature compensated flow graphic symbol

## FactoryTalk Optix Faceplates

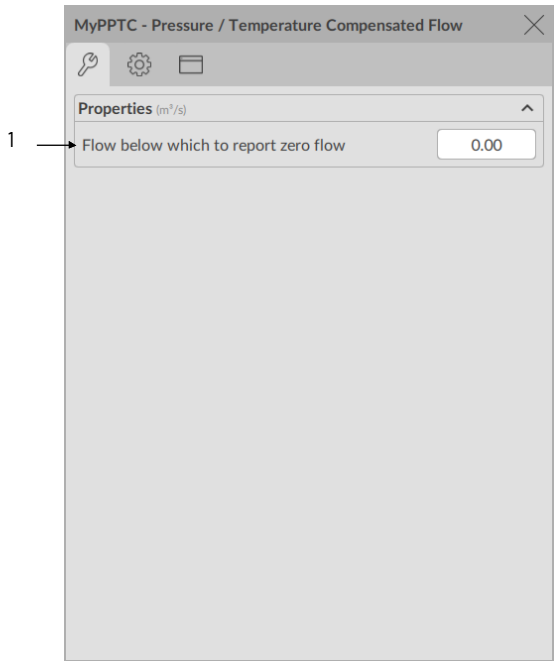
There are basic faceplate attributes that are common across all instructions. The Trends tab, Diagnostics tab, and Alarms tab all have the same basic functionality and are not described in this section. See [Basic Faceplate Attributes on page 24](#).

## Operator Tab



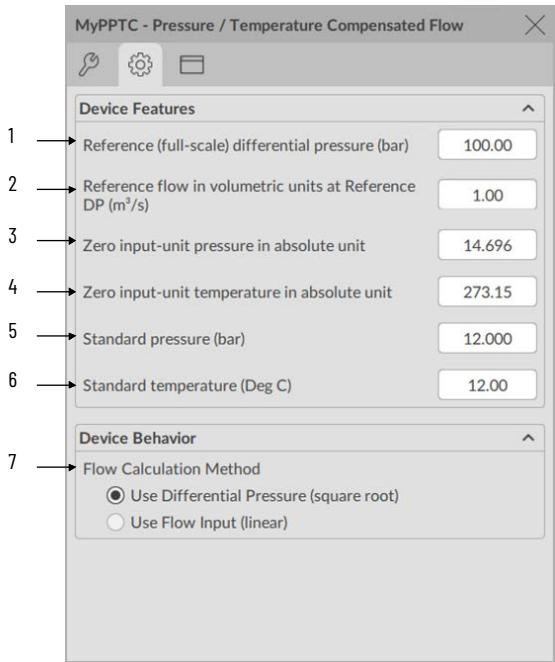
Item	Description
1	The compensated flow (at standard temperature and pressure).
2	Actual (measured) uncompensated flow in volumetric units.
3	The actual (measured) pressure. Can be absolute or common units.
4	The actual (measured) temperature.

## Advanced Maintenance Tab



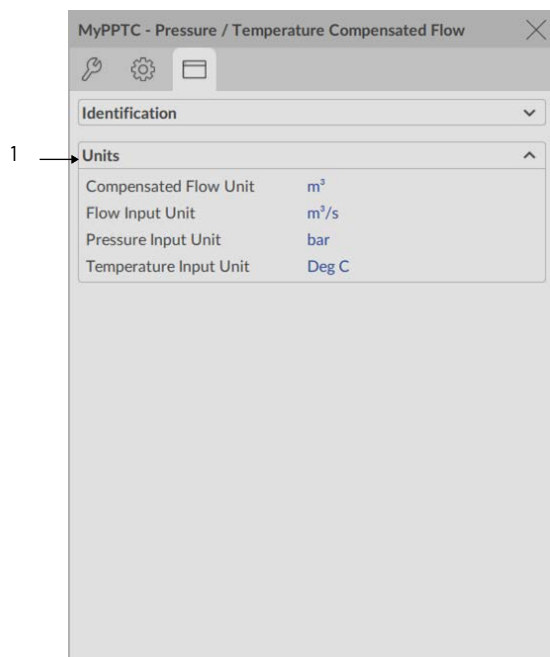
Item	Description
1	Enter the flow value. Any flow below this value is reported as 0.

## Advanced Engineering Tab



Item	Description
1	Enter the full-scale differential pressure reference.
2	Enter the flow at the reference differential pressure.
3	Enter the zero input-unit pressure. This is the pressure offset (usually 14.696 PSIA).
4	Enter the zero input-unit temperature. This is the temperature offset (usually 273.15 K or 459.67 Rankine).
5	Enter the standard pressure value.
6	Enter the standard temperature value.
7	Select the flow calculation method.

## Advanced HMI Tab - Units



Item	Description
1	Displays units

**Notes:**

Process Restart Inhibit (PRI)

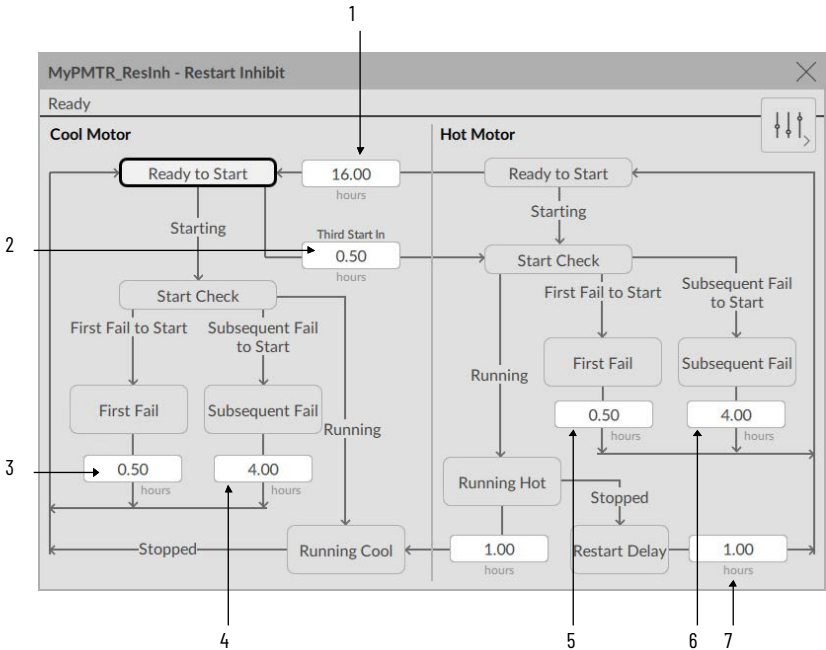
Graphic Symbols

FactoryTalk Optix Graphic Symbol	Description
raP_5_xx_PRI_GS 	Standard Restart Inhibit Graphic Symbol.

FactoryTalk Optix Faceplates

There are basic faceplate attributes that are common across all instructions. The Trends tab, Diagnostics tab, and Alarms tab all have the same basic functionality and are not described in this section. See [Basic Faceplate Attributes on page 24](#).

Operator Tab




Item	Description
1	Enter the time, in hours, for a stopped hot motor to cool.
2	Enter the time, in hours, during which three motor starts turn a cold motor to hot.
3	Enter the time, in hours, to wait after failing to start a cold motor the first time.
4	Enter the time, in hours, to wait after failing to start a cold motor two or more times.
5	Enter the time, in hours, to wait after failing to start a hot motor the first time.
6	Enter the time, in hours, to wait after failing to start a hot motor two or more times.
7	Enter the time, in hours, to wait after stopping a running hot motor.

## Notes:



# Process Run Time (PRT)

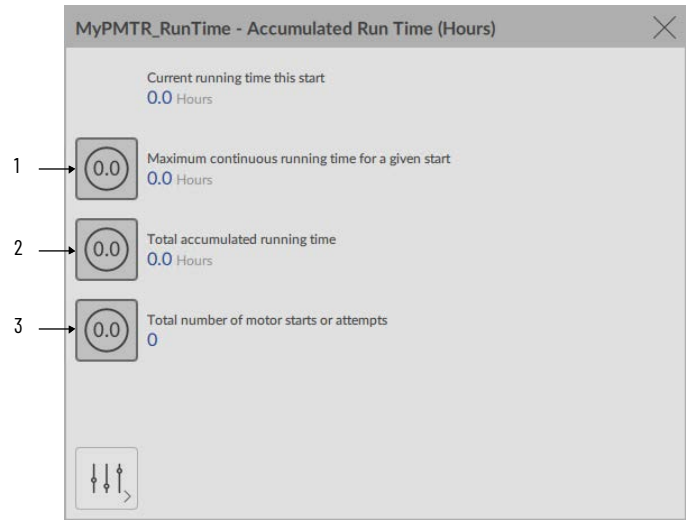
## Graphic Symbols

FactoryTalk Optix Graphic Symbol	Description
PRT_GS 	Standard Run Time Graphic Symbol.

## FactoryTalk Optix Faceplates

There are basic faceplate attributes that are common across all instructions. The Trends tab, Diagnostics tab, and Alarms tab all have the same basic functionality and are not described in this section. See [Basic Faceplate Attributes on page 24](#).

## Operator Tab




Item	Description
1	Select to clear maximum continuous running time for any given start.
2	Select to clear total running time.
3	Select to clear total number of motor starts or start attempts.

## Advanced Tab



# Process Tank Strapping Table (PTST)

## Graphic Symbols

FactoryTalk Optix Graphic Symbol	Description
<div>raP_5_20_PTST_GS</div> 	Standard tank strapping table graphic symbol

## FactoryTalk Optix Faceplates

There are basic faceplate attributes that are common across all instructions. The Trends tab, Diagnostics tab, and Alarms tab all have the same basic functionality and are not described in this section. See [Basic Faceplate Attributes on page 24](#).

## Operator Tab



Item	Description
1	Displays gross tank volume.
2	Displays free water volume.
3	Displays raw (observed) volume.
4	Displays calculated tank temperature.
5	Displays correction for tank temperature
6	Displays floating roof adjustment volume

## Advanced Engineering Tab

MyPTST - @MyPTST Tank Strapping Table

Device Features

1 → Tank calibration temperature (Deg F) 60.00

2 → Degrees API for which table includes floating roof data 30.50

3 → Lowest level at which to add/subtract floating roof compensation (Webbed Feet) 0.00

4 → Adjustment to table values for API <> CalAPI (Gallons/Degree API) -2.50

5 → Temperature weighting (0.0 for insulated tank) 7.0

6 → Table minor units per major unit 12.0

7 → Tank shell linear coefficient of thermal expansion (1/Deg F) 0.0000062

8 → ☒ Include correction for temperature of tank shell

9 → ☒ Include floating roof adjustment for displacement of fluid level

Item	Description
1	Enter temperature of tank calibration (typically 60 F or 15 C)
2	Enter degrees API for which the table includes floating roof data.
3	Enter the lowest level at which to add or subtract floating roof compensation.
4	Enter adjustment to table values for API <> CalAPI (volume/degrees API, typically a negative number).
5	Enter temperature weighting (0.0 for insulated tank). See API MPMS 2.2A Appendix D.
6	Enter table minor units in inches, cm, mm, per major unit (feet or meters). Enter 0.0 if minor units are not used.
7	Enter tank shell linear coefficient of thermal expansion (1 per degree Fahrenheit or 1 per Celsius).
8	Select to include the tank shell temperature correction.
9	Select to include the floating roof adjustment for calculating fluid level.

## Advanced HMI Tab

MyPTST - Tank Strapping Table

Identification

1 → Units

Volume Unit Gallons

Temperature Unit Deg F

Level Unit Webbed Feet

Navigation

Enable navigation to

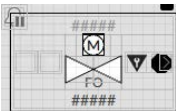





2 → ☒ An object with more information [PL5\_20]MyPTST\_More

Item	Description
1	Display units
2	Select to enable navigation to another object as a reference.

Process Valve (PVLV)

The PVLV Add-On Instruction can be configured to be a Hand Operated, Motor Operated, or Solenoid Operated valve.

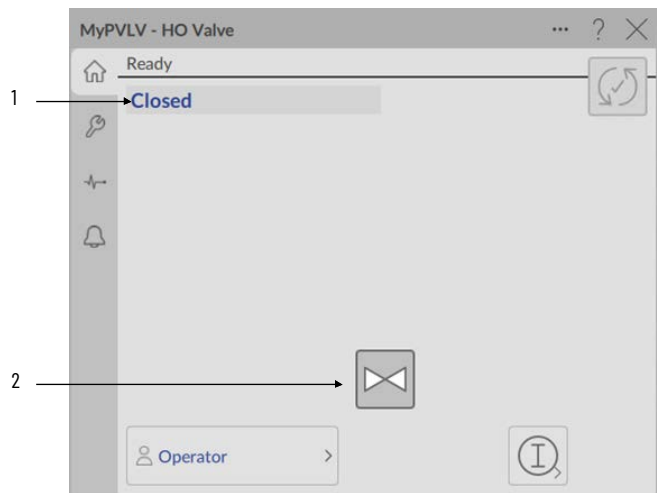
Graphic Symbols  
(Configured as Hand  
Operated Valve)

FactoryTalk Optix Graphic Symbol	Description
raP_5_xx_PVLV_GS_Valve	<p>Hand-operated Valves that are shown in various orientations.</p> <p>The FactoryTalk® Optix™ PVLV graphic symbols have configurable actuator that can show either a Motor Operated, Solenoid Operated, or Hand Operated Actuator.</p>
	
raP_5_xx_PVLV_GS_Valve_L	
	
raP_5_xx_PVLV_GS_Valve_R	
	
raP_5_xx_PVLV_GS_Valve_B	
	
raP_5_xx_PVLV_GS_Valve_Text	
	
raP_5_xx_PVLV_GS_Symbol	
	

# FactoryTalk Optix Faceplates (Configured as Hand Operated Valve)

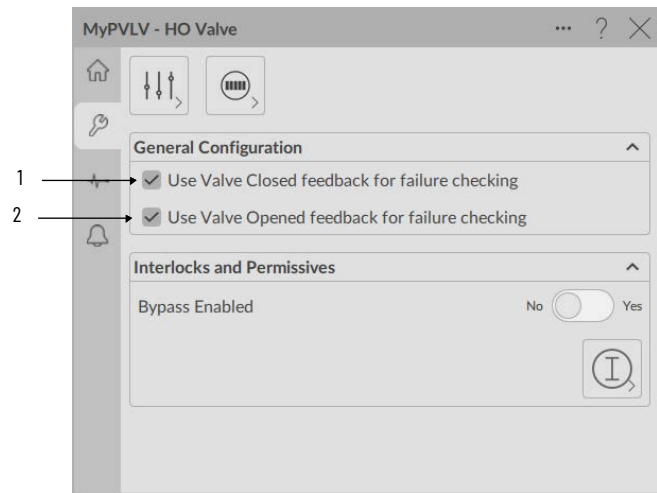
There are basic faceplate attributes that are common across all instructions. The Trends tab, Diagnostics tab, and Alarms tab all have the same basic functionality and are not described in this section. See [Basic Faceplate Attributes on page 24](#).

## Operator Tab



Item	Description
1	Valve state indicator.
2	Select to trip the valve "Open" or "Closed" depending on the valve configuration.

## Maintenance Tab



Item	Description
1	Select to configure the valve to use the closed limit switch. Clear the checkbox to bypass the closed limit switch temporarily.
2	Select to configure the valve to use the open limit switch. Clear the checkbox to bypass the closed limit switch temporarily.

## Advanced Maintenance Tab

MyPVLV - HO Valve

Timers (seconds)

1 → Time after command with no motion before Full Stall fault 15.000

2 → Time after command to reach position before Transit Stall fault 15.000

3 → Time after "Trip" to reach trip position before Trip fault 10.000

4 → Feedback delay for loopback test or when feedback not used 3.000

5 → Delay before changing output 0.000 0.000

Close Open

Item	Description
1	Enter the amount of time with no motion after a command for an alarm to occur.
2	Enter the amount of time that the valve is not confirmed open or closed before a Transit Stall.
3	Enter the amount of time to allow the valve to reach its trip position after a trip command is received before raising a trip fail alarm.
4	Configure the amount of time the valve status shows 'tripping' before showing an opened or closed status when the valve is tripped and I/O are being simulated.
5	Enter the amount of time after receiving a command to open or close the valve before changing the outputs to actually move the valve (command delay).

## Advanced Engineering Tab - Valve Features

MyPVLV - HO Valve

Valve Features

1 → Valve Type

☐ Solenoid Valve (SO)

☐ Motorized Valve (MO)

☒ Hand Valve (HO)

2 → ☒ Valve has Closed feedback

3 → ☒ Valve has Opened feedback

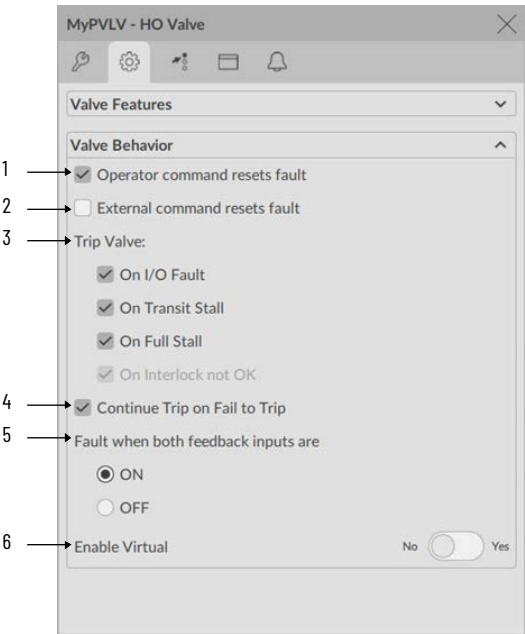
4 → ☒ Valve has Trip output

5 → ☒ Valve Opened on Trip

Valve Behavior

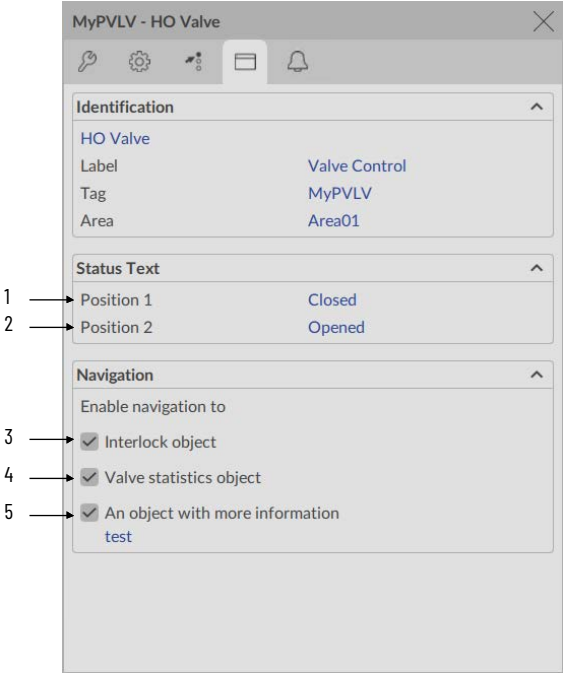
Item	Description
1	Select the Valve type.
2	Select if the valve has Closed feedback.
3	Select if the valve has Open feedback.
4	Select if a trip output is connected to the PVLV instruction to trip the valve on an interlock or trip command. This selection makes the trip command button visible on the operator tab.
5	Select if triggering the trip output causes the valve to open. Clear the checkbox (default) if triggering the trip output causes the valve to close. Note: This generally corresponds to the "fail" or "spring return" position of the valve. selected for a "fail open" valve or cleared for a "fail closed" valve.

Advanced Engineering Tab - Valve Behavior



Item	Description
1	Select to allow the operator trip command to reset any previous faults (I/O fault, fail to trip, interlock trip), then trip the valve. Clear this checkbox to reset faults with only the reset command.
2	Select to allow External commands to reset any previous faults (I/O fault, transit stall, full stall, interlock trip), then move the valve. Clear this checkbox to reset faults by using only the reset command.
3	Select the options for when to send the trip output to the valve if a fault is detected. Clear this checkbox to show only the fault status/alarm and not trip the valve if a fault is detected. The valve always stops on interlock not OK. This item cannot be cleared. It is displayed as a reminder that the interlock function always stops the valve.
4	Select to keep sending the trip output to the valve on a trip, even if position feedback does not confirm the valve reached the trip position. Clear this checkbox to stop sending the trip output to the valve when the valve trip times out and the fail to trip status is set.
5	Select 'ON' if both limit switches are OFF when the valve is moving in normal operation. Select 'OFF' if both limit switches are ON when the valve is moving in normal operation. This selection determines which limit switch combination indicates abnormal operation.
6	Enable or disable virtual mode.

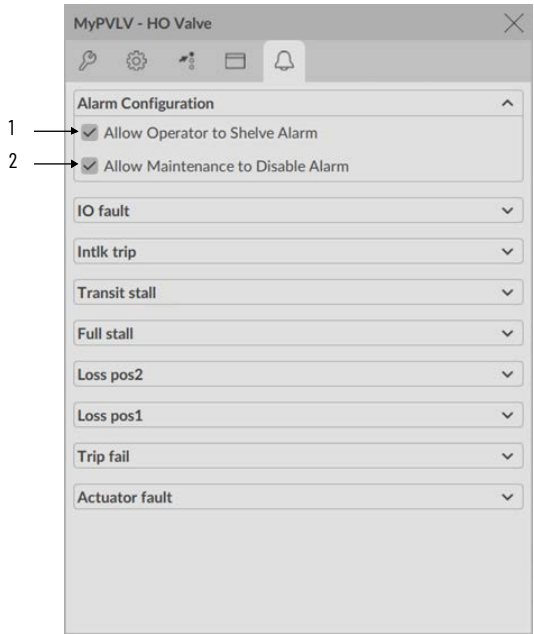
Advanced HMI Configuration Tab



Item	Description
1	Displays the text for Position 1.
2	Displays the text for Position 2.
3	Select if an Interlock object is used with this valve. This check changes the Interlock indicator to a clickable button to open the Interlock faceplate. <b>IMPORTANT:</b> The name of the interlock object in the controller must be the name of the object with the suffix '_Intlk'. For example, if your PVLV object has the name 'ValveH0123', then its interlock object must be named 'ValveH0123_Intlk'.
4	Select if the Valve Stats instruction. For example, PVLVS is used with this device. This check adds a button to the faceplate that opens the Valve Stats faceplate. <b>IMPORTANT:</b> The name of the Valve Statistics object in the controller must be the name of the object with the suffix '_ValveStats'. For example, if your PVLV object has the name 'ValveH0123', then its valve statistics object must be named 'ValveH0123_ValveStats'.
5	Select to enable navigation to an object with more information (Cfg_HasMoreObj is set to true.) You configure the tagname of the object that you want to navigate to in the extended tag property "Cfg_HasMoreObj.@Navigation". It uses the .@Library and .@Instruction extended tag properties to display the objects faceplate.

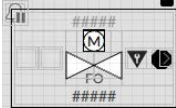







## Advanced Alarm Configuration Tab



Item	Description
1	Select to allow Operator to shelve alarm.
2	Select to allow Maintenance to disable alarm.

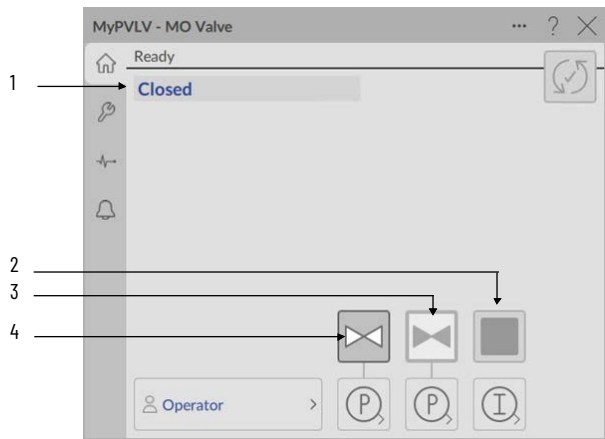
Graphic Symbols  
(Configured as Motorized  
Valve)

FactoryTalk Optix Graphic Symbol	Description
PVLV_GS_Valve	<p>Standard motor-operated valves that are shown in various orientations.</p> <p>The FactoryTalk Optix PVLV graphic symbols have configurable actuator that can show either a Motor Operated, Solenoid Operated, or Hand Operated Actuator.</p>
	
PVLV_GS_Valve_L	
	
PVLV_GS_Valve_R	
	
PVLV_GS_Valve_B	
	
PVLV_GS_Text	
	
PVLV_GS_Symbol	
	

# FactoryTalk Optix Faceplates (Configured as Motorized Valve)

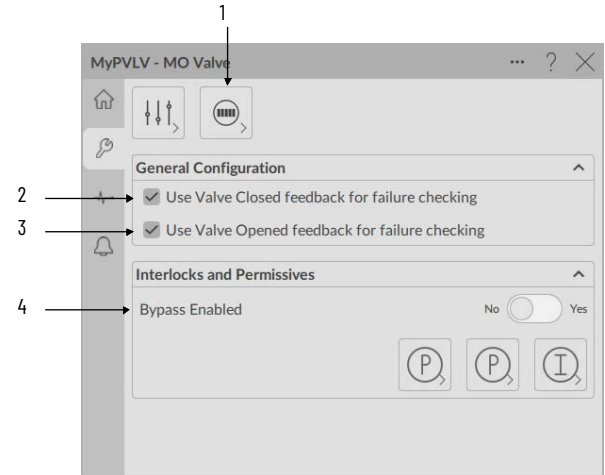
There are basic faceplate attributes that are common across all instructions. The Trends tab, Diagnostics tab, and Alarms tab all have the same basic functionality and are not described in this section. See [Basic Faceplate Attributes on page 24](#).

## Operator Tab



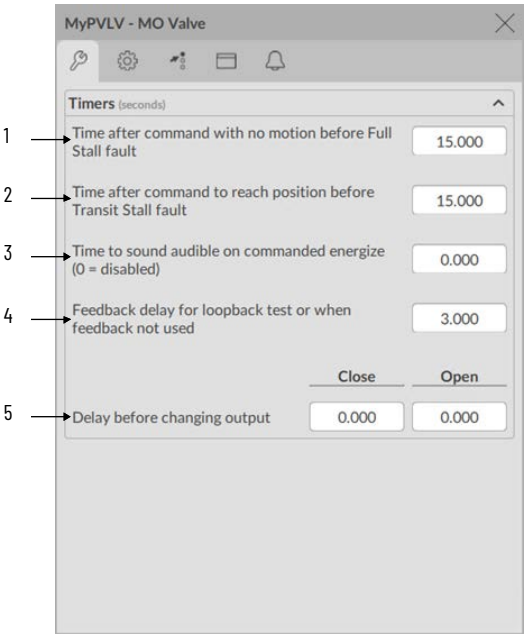
Item	Description
1	Valve state indicator.
2	Select to issue the valve Stop command.
3	Select to open valve.
4	Select to close valve.

## Maintenance Tab



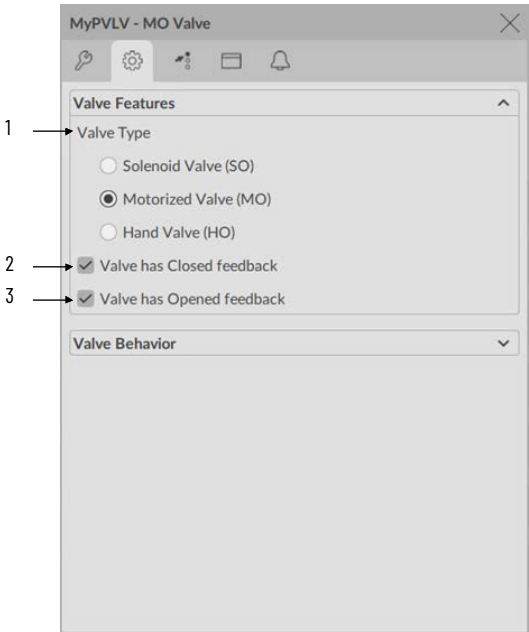
Item	Description
1	Select to open the Valve Statistics faceplate.
2	Select to use Valve Closed feedback for failure checking.
3	Select to use Valve Opened feedback for failure checking.
4	Select yes to bypass checking of interlocks and permissives that can be bypassed.

## Advanced Maintenance Tab



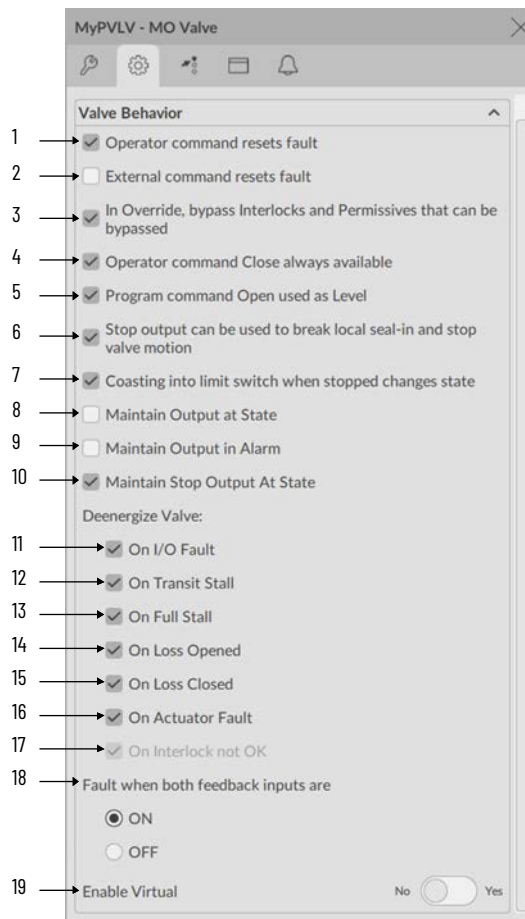
Item	Description
1	Enter the amount of time with no motion after a command for an alarm to occur.
2	Enter the amount of time that the valve is not confirmed open or closed before a Transit Stall.
3	Enter the seconds to sound an audible alarm when the valve energizes.
4	Enter the time delay (in seconds) for the opened or closed status to be echoed back when Simulation is enabled or when limit switch feedback is not used.
5	Enter the amount of time after receiving a command to open or close the valve before changing the outputs to actually move the valve (command delay).

## Advanced Engineering Tab - Valve Features



Item	Description
1	Select the Valve type.
2	Select if the valve has Closed feedback.
3	Select if the valve has Open feedback.

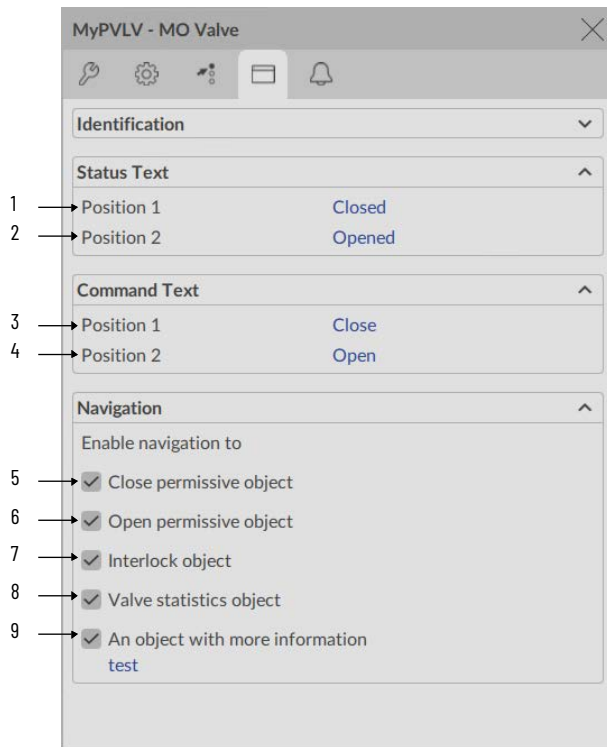
## Advanced Engineering Tab - Valve Behavior



Item	Description
1	Select to allow operator commands to reset any previous faults (I/O fault, fail to trip, interlock trip), then move the valve. Clear this checkbox to reset faults with only the reset command.
2	Select to allow External commands to reset any previous faults (I/O fault, transit stall, full stall, interlock trip), then move the valve. Clear this checkbox to reset faults by using only the reset command
3	When selected, the bypassable interlocks and permissives are bypassed when Override command source is selected. When the checkbox is cleared, the bypassable interlocks and permissives are enforced in Override.
4	When selected, the Operator command button to close the valve is available even when a command source other than Operator or Maintenance is selected. When the checkbox is cleared, the Operator close command button is only enabled in Operator or Maintenance command source.
5	When selected, the Program open command pin is treated as a level input: when 1, the valve is commanded to open, and when 0 the valve is commanded to close. When the checkbox is cleared, the Program commands follow the normal command convention: write a 1 to the Program open command to open the valve, and write a 1 to the Program close command to close the valve.
6	When selected, the valve Stop command is enabled and commanding the valve in the opposite direction while moving is permitted. When the checkbox is cleared, the valve Stop command is hidden, and a valve command to the opposite direction is not accepted while the initial move is in progress.
7	When selected, if the valve is stopped and limit switches then indicate that the valve has reached the opened or closed position, the valve state changes to opened or closed, as appropriate. When the checkbox is cleared, if the valve is stopped, the state shows stopped until the valve is commanded to a position, even if limit switch inputs change state.
8	When selected, outputs are maintained on, even when the valve reaches the target position. When the checkbox is cleared, outputs are turned off once the valve reaches the target position.
9	When selected, outputs are maintained on when a valve has a full stall (failed to move) or transit stall (failed to reach target position). When the checkbox is cleared, outputs are turned off when a valve stall occurs.
10	When selected, the stop output is maintained, even if the valve coasts into the opened or closed position. When the checkbox is cleared, the stop output is cleared if the valve coasts into the opened or closed position after a stop is commanded.
11	Select to send a stop output to the valve and clear the Open and Close outputs when an I/O Fault condition occurs. Clear this checkbox to keep the outputs to the valve in their current state on an I/O Fault condition. <b>IMPORTANT:</b> When this checkbox is selected and an I/O Fault condition occurs, a reset is required before the valve can be energized.
12	Select to send a stop output to the valve and clear the Open and Close outputs when a Transit Stall condition occurs. Clear this checkbox to keep the outputs to the valve in their current state (keep trying) on a Transit Stall condition. (A Transit Stall means the valve, when commanded to move, moved off its original position, but did not reach its commanded position before the Transit Stall time expired.) <b>IMPORTANT:</b> When this checkbox is selected and a Transit Stall condition occurs, a reset is required before the valve can be energized.





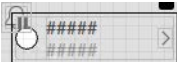

Item	Description
13	Select to send a stop output to the valve and clear the Open and Close outputs when a Full Stall condition occurs. Clear this checkbox to keep the outputs to the valve in their current state (keep trying) on a Full Stall condition. (A Full Stall means the valve, when commanded to move, did not move off its original position before the Full Stall time expired.) <b>IMPORTANT:</b> When this checkbox is selected and a Full Stall condition occurs, a reset is required before the valve can be energized.
14	Select to send a stop output to the valve and clear the Open and Close outputs when a Loss of Open Position condition occurs. Clear this checkbox to keep the outputs to the valve in their current state (keep trying) on a Loss of Open Position condition. (A Loss of Open Position means that the valve was commanded to open, reached the open position as confirmed by the limit switches, and then moved off the open position.) <b>IMPORTANT:</b> When this checkbox is selected and a Loss of Open Position condition occurs, a reset is required before the valve can be energized.
15	Select to send a stop output to the valve and clear the Open and Close outputs when a Loss of Closed Position condition occurs. Clear this checkbox to keep the outputs to the valve in their current state (keep trying) on a Loss of Closed Position condition. (A Loss of Closed Position means that the valve was commanded to close, reached the closed position as confirmed by the limit switches, and then moved off the closed position.) <b>IMPORTANT:</b> When this checkbox is selected and a Loss of Closed Position condition occurs, a reset is required before the valve can be energized.
16	Check to send a stop output to the valve and clear the Open and Close outputs when an Actuator Fault condition occurs. Clear this checkbox to keep the outputs to the valve in their current state on an Actuator Fault condition. <b>IMPORTANT:</b> When this checkbox is selected and an Actuator Fault condition occurs, a reset is required before the valve can be energized.
17	The device always de-energizes on interlock not OK. This item cannot be cleared. It is displayed as a reminder that the interlock function always de-energizes the valve.
18	Select 'ON' if both limit switches are OFF when the valve is moving in normal operation. Select 'OFF' if both limit switches are ON when the valve is moving in normal operation. This selection determines which limit switch combination indicates abnormal operation.
19	Enable or disable virtual mode.

## Advanced HMI Configuration Tab



Item	Description
1	Displays the text for Position 1.
2	Displays the text for Position 2.
3	Displays the command text for Position 1.
4	Displays the command text for Position 2.
5	Select if you have a PPERM instruction that is used with this valve for Close Permissives. This action changes the Permissive indicator to a clickable button to open the Permissive faceplate. <b>IMPORTANT:</b> The name of the Permissive object in the controller must be the name of the object with the suffix '_Pos1Perm'. For example, if your PVLV object has the name 'ValveM0123', then its Permissive object must be named 'ValveM0123_Pos1Perm'.
6	Select if you have a PPERM instruction that is used with this valve for Open Permissives. This action changes the Permissive indicator to a clickable button to open the Permissive faceplate. <b>IMPORTANT:</b> The name of the Permissive object in the controller must be the name of the object with the suffix '_Pos2Perm'. For example, if your PVLV object has the name 'ValveM0123', then its Permissive object must be named 'ValveM0123_Pos2Perm'.
7	Select if an interlock instruction is used with this output. <b>IMPORTANT:</b> The name of the Interlock object in the controller must be the name of the object with the suffix '_Intlk'. For example, if your PVLV object has the name 'ValveM0123', then its Interlock object must be named 'ValveM0123_Intlk'.
8	Check if a Valve Stats object is used with this valve. This action makes the Valve Statistics button visible on the Maintenance faceplate; Select this button to open the Valve Statistics faceplate for this valve. <b>IMPORTANT:</b> The name of the ValveStats object in the controller must be the name of the object with the suffix '_ValveStats'. For example, if your PVLV object has the name 'ValveM0123', then its Valve Stats object must be named 'ValveM0123_ValveStats'.
9	Select to enable navigation to an object with more information (Cfg_HasMoreObj is set to true.) You configure the tagname of the object that you want to navigate to in the extended tag property "Cfg_HasMoreObj.@Navigation". It uses the .@Library and .@Instruction extended tag properties to display the objects faceplate.

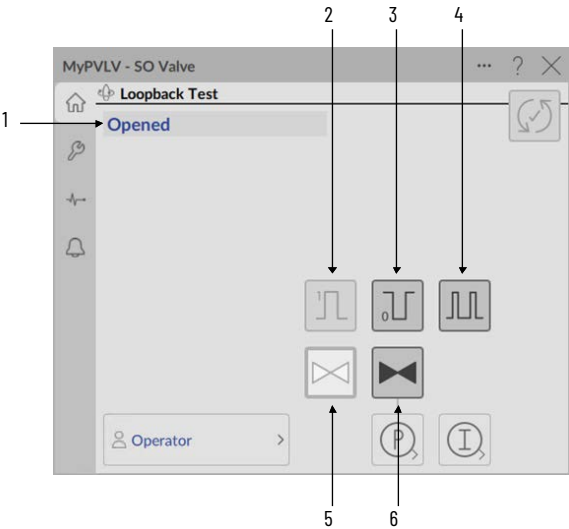
**Graphic Symbols  
(Configured as Solenoid  
Operated Valve)**

FactoryTalk Optix Graphic Symbol	Description
PVLV_GS_Valve	<p>Standard solenoid-operated valves that are shown in various orientations.</p> <p>The FactoryTalk Optix PVLV graphic symbols have configurable actuator that can show either a Motor Operated, Solenoid Operated, or Hand Operated Actuator.</p>
	
PVLV_GS_Valve_L	
	
PVLV_GS_Valve_R	
	
PVLV_GS_Valve_B	
	
PVLV_GS_Text	
	
PVLV_GS_Symbol	
	

# FactoryTalk Optix Faceplates (Configured as Solenoid Operated Valve)

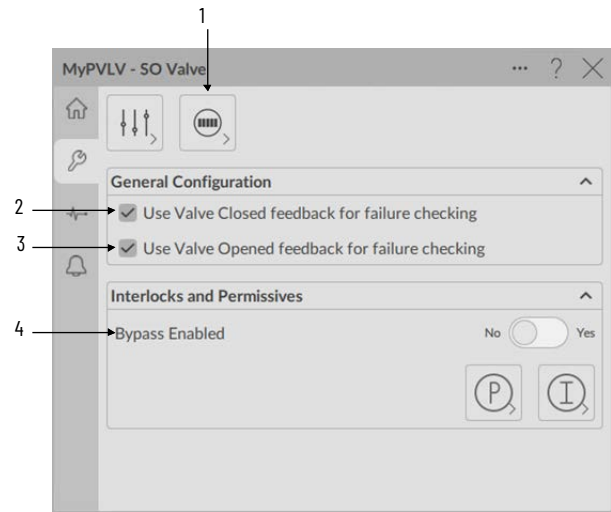
There are basic faceplate attributes that are common across all instructions. The Trends tab, Diagnostics tab, and Alarms tab all have the same basic functionality and are not described in this section. See [Basic Faceplate Attributes on page 24](#).

## Operator Tab



Item	Description
1	Valve state indicator.
2	Select to have the valve pulse open.
3	Select to have the valve pulse closed.
4	Select to have the valve pulse continuously.
5	Select to open valve.
6	Select to close valve.

## Maintenance Tab



Item	Description
1	Select to open the Valve Statistics faceplate.
2	Select to use Valve Closed feedback for failure checking.
3	Select to use Valve Opened feedback for failure checking.
4	Select yes to bypass checking of interlocks and permissives that can be bypassed.



## Advanced Maintenance Tab

MyPVLV - SO Valve

Timers (seconds)

1 → Time after command with no motion before Full Stall fault 15.000

2 → Time after command to reach position before Transit Stall fault 60.000

3 → Time to sound audible on commanded energize (0 = disabled) 2.000

4 → Feedback delay for loopback test or when feedback not used 7.000

5 → Delay before changing output Close: 0.000 Open: 0.000

6 → Pulse duration Close: 5.000 Open: 5.000

Item	Description
1	Enter the amount of time with no motion after a command for an alarm to occur.
2	Enter the amount of time that the valve is not confirmed open or closed before a Transit Stall.
3	Enter the seconds to sound an audible alarm when the valve energizes.
4	Enter the time delay (in seconds) for the opened or closed status to be echoed back when Simulation is enabled or when limit switch feedback is not used.
5	Enter the amount of time after receiving a command to open or close the valve before changing the outputs to actually move the valve (command delay).
6	Enter the amount of time to pulse the open and close outputs when commanding the valve. Enter zero if the outputs are to be maintained until the valve reaches the target position.

## Advanced Engineering Tab - Valve Features

MyPVLV - SO Valve

Valve Features

1 → Valve Type

☒ Solenoid Valve (SO)

☐ Motorized Valve (MO)

☐ Hand Valve (HO)

2 → ☒ Valve has Closed feedback

3 → ☒ Valve has Opened feedback

4 → ☒ Fail Open (energize to Close)

5 → ☒ Enable pulsing functions

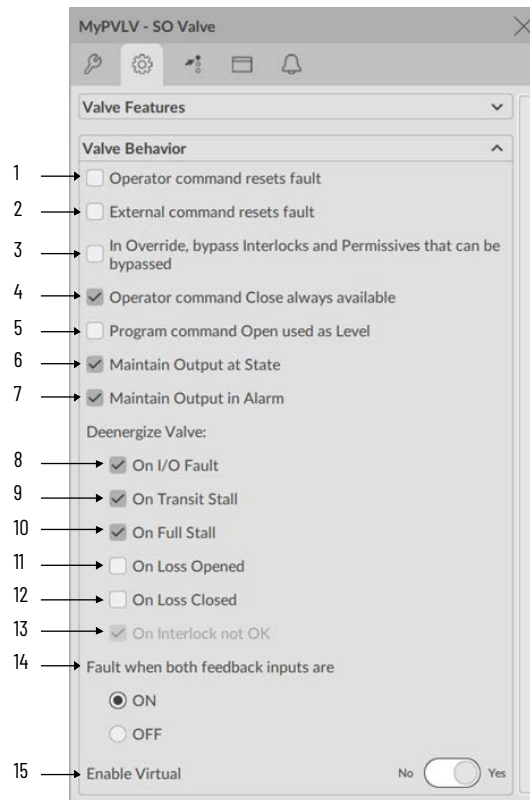
6 → ☒ Valve pulse to state

7 → ☒ Finish pulse in progress when commanded Open or Close

Valve Behavior

Item	Description
1	Select the Valve type.
2	Select if the valve has Closed feedback.
3	Select if the valve has Open feedback.
4	When selected, the valve is spring-return (fail) to the open position (energize to close). Leave the box unchecked if the valve is spring-return (fail) to the closed position (energize to open).
5	Select to enable pulsing functions.
6	Select to allow the valve to pulse to the desired state.
7	When selected, the valve will finish pulsing to the desired state before executing a command to open or close.

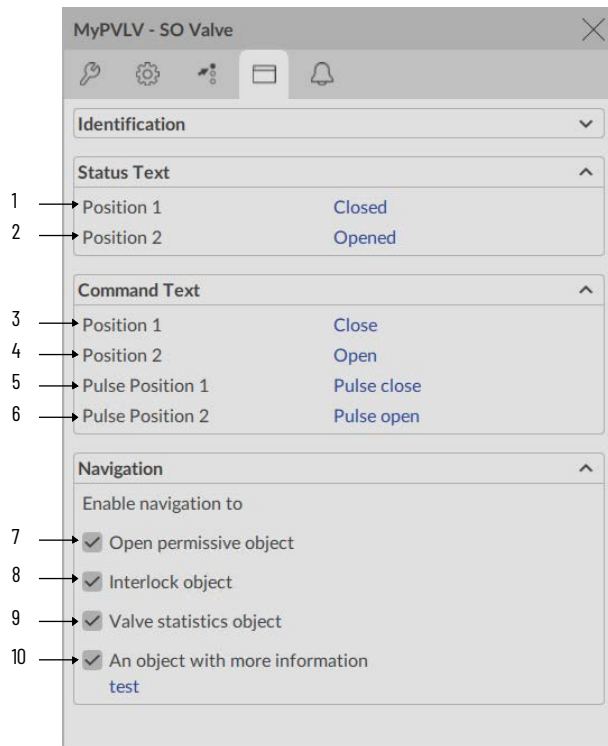
## Advanced Engineering Tab - Valve Behavior



Item	Description
1	Select to allow operator commands to reset any previous faults (I/O fault, fail to trip, interlock trip), then move the valve. Clear this checkbox to reset faults with only the reset command.
2	Select to allow External commands to reset any previous faults (I/O fault, transit stall, full stall, interlock trip), then move the valve. Clear this checkbox to reset faults by using only the reset command.
3	When selected, the bypassable interlocks and permissives are bypassed when Override command source is selected. When the checkbox is cleared, the bypassable interlocks and permissives are enforced in Override.
4	When selected, the Operator command button to close the valve is available even when a command source other than Operator or Maintenance is selected. When the checkbox is cleared, the Operator close command button is only enabled in Operator or Maintenance command source.
5	When selected, the Program open command pin is treated as a level input: when 1, the valve is commanded to open, and when 0 the valve is commanded to close. When the checkbox is cleared, the Program commands follow the normal command convention: write a 1 to the Program open command to open the valve, and write a 1 to the Program close command to close the valve.
6	When selected, outputs are maintained on, even when the valve reaches the target position. When the checkbox is cleared, outputs are turned off once the valve reaches the target position.
7	When selected, outputs are maintained on when a valve has a full stall (failed to move) or transit stall (failed to reach target position). When the checkbox is cleared, outputs are turned off when a valve stall occurs.
8	Select to send a stop output to the valve and clear the Open and Close outputs when an I/O Fault condition occurs. Clear this checkbox to keep the outputs to the valve in their current state on an I/O Fault condition. <b>IMPORTANT:</b> When this checkbox is selected and an I/O Fault condition occurs, a reset is required before the valve can be energized.
9	Select to send a stop output to the valve and clear the Open and Close outputs when a Transit Stall condition occurs. Clear this checkbox to keep the outputs to the valve in their current state (keep trying) on a Transit Stall condition. (A Transit Stall means the valve, when commanded to move, moved off its original position, but did not reach its commanded position before the Transit Stall time expired.) <b>IMPORTANT:</b> When this checkbox is selected and a Transit Stall condition occurs, a reset is required before the valve can be energized.
10	Select to send a stop output to the valve and clear the Open and Close outputs when a Full Stall condition occurs. Clear this checkbox to keep the outputs to the valve in their current state (keep trying) on a Full Stall condition. (A Full Stall means the valve, when commanded to move, did not move off its original position before the Full Stall time expired.) <b>IMPORTANT:</b> When this checkbox is selected and a Full Stall condition occurs, a reset is required before the valve can be energized.
11	Select to send a stop output to the valve and clear the Open and Close outputs when a Loss of Open Position condition occurs. Clear this checkbox to keep the outputs to the valve in their current state (keep trying) on a Loss of Open Position condition. (A Loss of Open Position means that the valve was commanded to open, reached the open position as confirmed by the limit switches, and then moved off the open position.) <b>IMPORTANT:</b> When this checkbox is selected and a Loss of Open Position condition occurs, a reset is required before the valve can be energized.

Item	Description
12	Select to send a stop output to the valve and clear the Open and Close outputs when a Loss of Closed Position condition occurs. Clear this checkbox to keep the outputs to the valve in their current state (keep trying) on a Loss of Closed Position condition. (A Loss of Closed Position means that the valve was commanded to close, reached the closed position as confirmed by the limit switches, and then moved off the closed position.) <b>IMPORTANT:</b> When this checkbox is selected and a Loss of Closed Position condition occurs, a reset is required before the valve can be energized.
13	The device always de-energizes on interlock not OK. This item cannot be cleared. It is displayed as a reminder that the interlock function always de-energizes the valve.
14	Select 'ON' if both limit switches are OFF when the valve is moving in normal operation. Select 'OFF' if both limit switches are ON when the valve is moving in normal operation. This selection determines which limit switch combination indicates abnormal operation.
15	Enable or disable virtual mode.

## Advanced HMI Configuration Tab

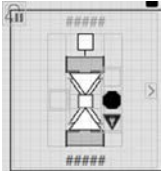
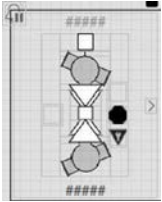
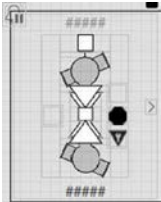


Item	Description
1	Displays the text for Position 1.
2	Displays the text for Position 2.
3	Displays the command text for Position 1.
4	Displays the command text for Position 2.
5	Displays the command text for Pulse Position 1.
6	Displays the command text for Pulse Position 2.
7	Select if you have a PPERM instruction that is used with this valve for Open Permissives. This action changes the Permissive indicator to a clickable button to open the Permissive faceplate. <b>IMPORTANT:</b> The name of the Permissive object in the controller must be the name of the object with the suffix '_Pos2Perm'. For example, if your PVLV object has the name 'ValveM0123', then its Permissive object must be named 'ValveM0123_Pos2Perm'.
8	Select if an interlock instruction is used with this output. <b>IMPORTANT:</b> The name of the Interlock object in the controller must be the name of the object with the suffix '_Intlk'. For example, if your PVLV object has the name 'ValveM0123', then its Interlock object must be named 'ValveM0123_Intlk'.
9	Check if a Valve Stats object is used with this valve. This action makes the Valve Statistics button visible on the Maintenance faceplate; Select this button to open the Valve Statistics faceplate for this valve. <b>IMPORTANT:</b> The name of the ValveStats object in the controller must be the name of the object with the suffix '_ValveStats'. For example, if your PVLV object has the name 'ValveM0123', then its Valve Stats object must be named 'ValveM0123_ValveStats'.
10	Select to enable navigation to an object with more information (Cfg_HasMoreObj is set to true.) You configure the tagname of the object that you want to navigate to in the extended tag property "Cfg_HasMoreObj.@Navigation". It uses the .@Library and .@Instruction extended tag properties to display the objects faceplate.

**Notes:**

# Mix-proof Valve (PVLVMP)

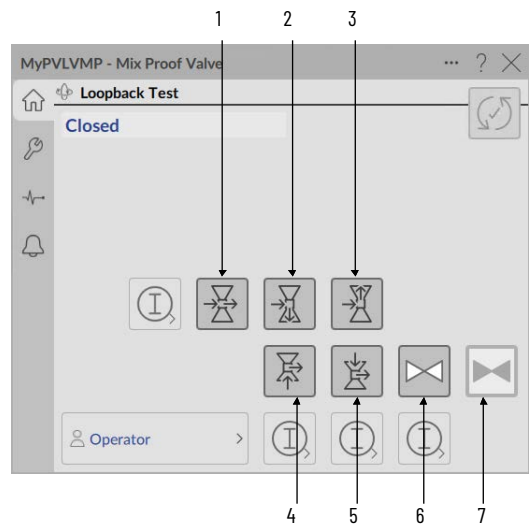
## Graphic Symbols

FactoryTalk Optix Graphic Symbol	Description
<div>raP_5_xx_PVLVMP_GS_2D_MixProofValve</div> 	This Mix-proof Valve graphic object allows for numerous orientations on displays
<div>raP_5_xx_PVLVMP_GS_Orth_MixProofValveLtTp</div> 	This 3-D orthogonal Mix-proof Valve graphic object provides different valve angle positions on displays.
<div>raP_5_xx_PVLVMP_GS_Orth_MixProofValveRtTp</div> 	This 3-D orthogonal Mix-proof Valve graphic object provides different valve angle positions on displays.

# FactoryTalk Optix Faceplates

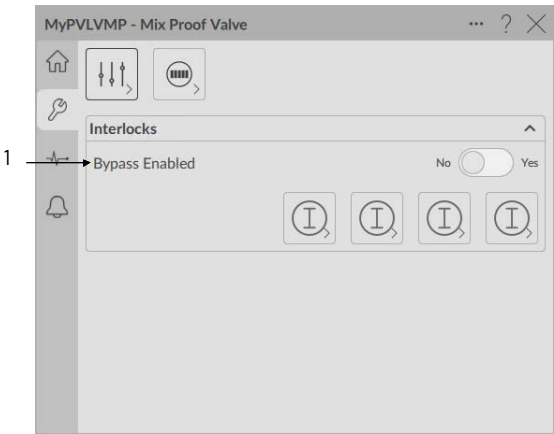
There are basic faceplate attributes that are common across all instructions. The Trends tab, Diagnostics tab, and Alarms tab all have the same basic functionality and are not described in this section. See [Basic Faceplate Attributes on page 24](#).

## Operator Tab



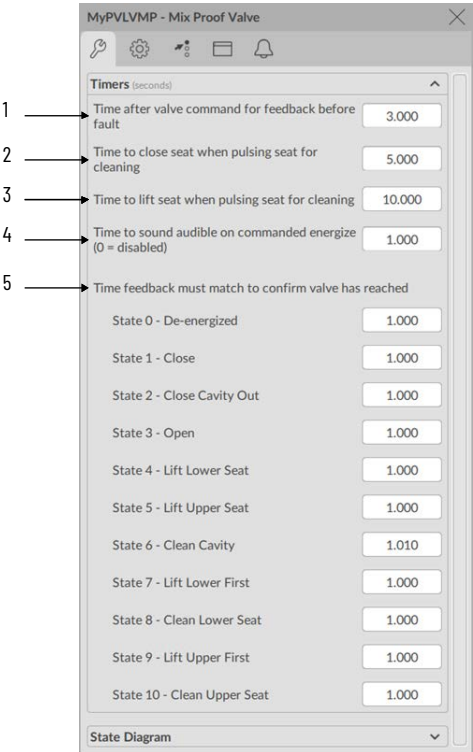
Item	Description
1	Select to go to the CIP/SIP Valve Cavity state.
2	Select to go to the CIP/SIP Valve Lower Seat state.
3	Select to go to the CIP/SIP Valve Upper Seat state.
4	Select to go to the Lift Valve Lower Seat state.
5	Select to go to the Lift Valve Upper Seat state.
6	Select to open valve.
7	Select to close valve.

## Maintenance Tab



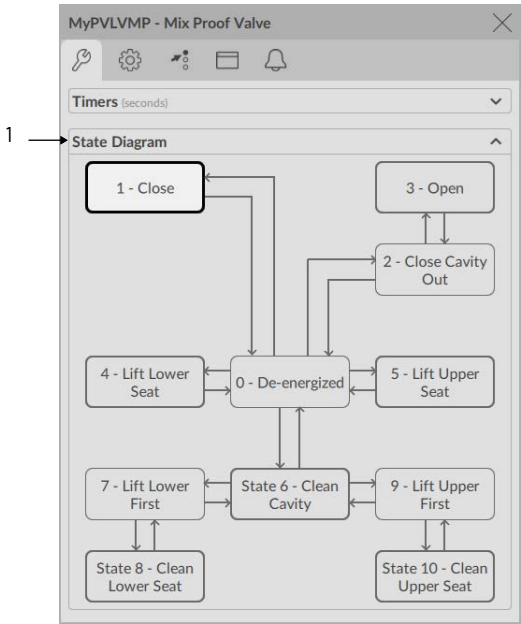
Item	Description
1	Select Yes to bypass checking of bypassable interlocks. Select No to enable checking of all interlocks.

Advanced Maintenance Tab - Timers



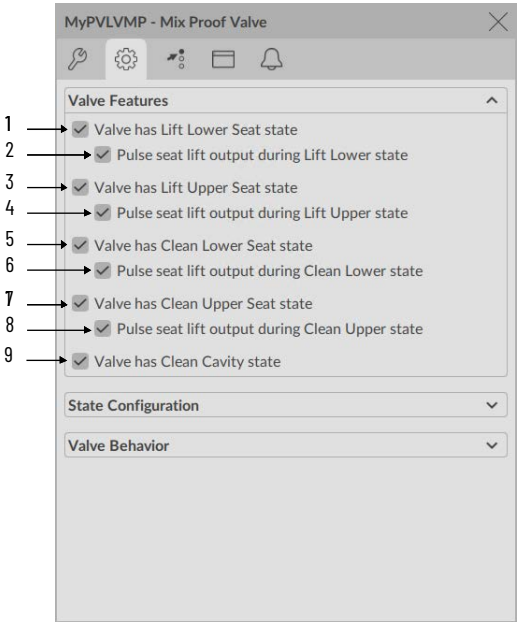
Item	Description
1	Enter a value (seconds) that gives the valve time to achieve state before triggering a valve failure fault.
2	Enter a value (seconds) that the valve seat is held closed when pulsing for cleaning.
3	Enter a value (seconds) that the valve seat is held open when pulsing for cleaning
4	Enter the time (in seconds) that the audible sounds when there is a commanded State change.
5	Enter a value (seconds) the feedback must match for the valve to achieve the selected state.

Advanced Maintenance Tab - State Diagram



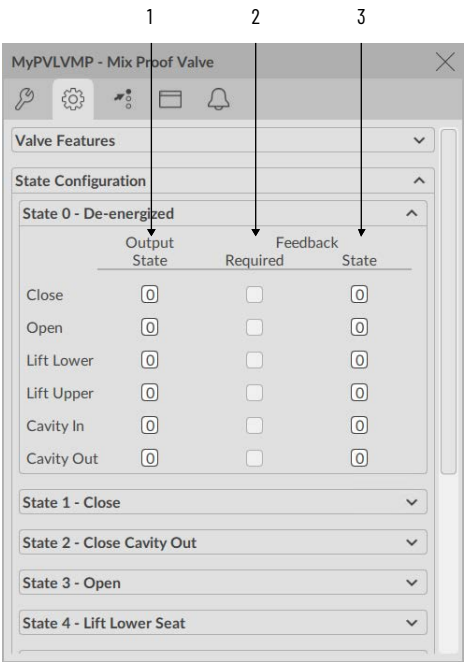
Item	Description
1	Select a state box to open the State Configuration display to access configuration parameters for the valve state.

Advanced Engineering Tab - Valve Features



Item	Description
1	Select to enable the lift lower seat state for the valve.
2	Select to enable pulsing in the lift lower state.
3	Select to enable the lift upper seat state for the valve.
4	Select to enable pulsing in the lift upper state.
5	Select to enable the clean lower seat state.
6	Select to enable pulsing in the clean lower seat state.
7	Select to enable the clean upper seat state.
8	Select to enable pulsing in the clean upper seat state.
9	Select to enable the clean cavity state.

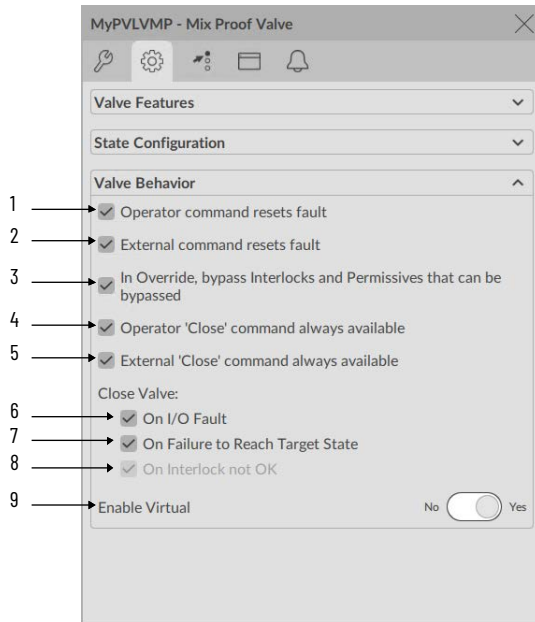
Advanced Engineering Tab - State Configuration



Item	Description
1	Set State of each Output in the selected valve state.
2	Select to require a feedback signal for the selected valve state.
3	Set the desired value of the feedback signals for the selected valve state.

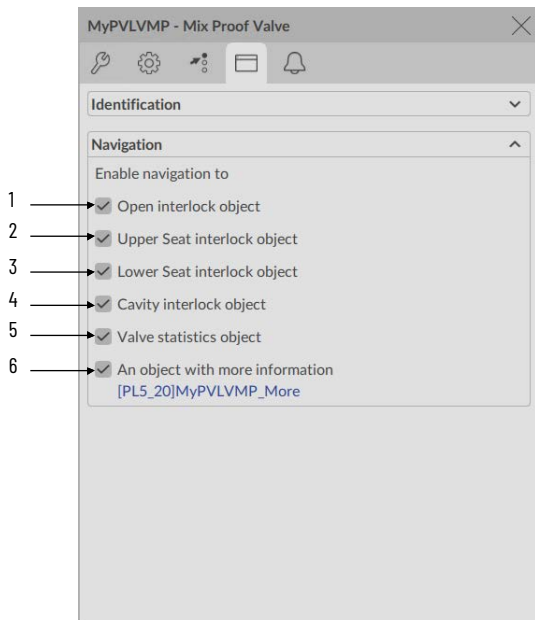


## Advanced Engineering Tab - Valve Behavior



Item	Description
1	Select to reset a fault on a new Operator command.
2	Select to reset a fault on a new External command.
3	Select to bypass permissives and interlocks in Override command source
4	Select to have Close command always available to Operator control.
5	Select to have Close command always available to External control.
6	Select to close the valve when an I/O Fault occurs. A reset is required to clear this latched shed condition. Clear this checkbox to show only the I/O fault status/ alarm and not trip the valve if an I/O fault is detected.
7	Select to close the valve when a Position Fail occurs. A reset is required to clear this latched shed condition. Clear this checkbox to show only the Position Fail status/alarm and not trip the valve if a Position Fail is detected
8	The device always sheds (closes) on interlock not OK. This item cannot be unchecked. It is displayed as a reminder that the interlock function always triggers a shed.
9	Select yes to enable virtual.

## Advanced HMI Configuration Tab - Navigation




Item	Description
1	Select if an interlock object is connected to Inp_OpenIntlkOK. The Open Interlock indicator becomes a button that opens the interlock faceplate.
2	Select if an interlock object is connected to Inp_UpperSeatIntlkOK. The Upper Seat Interlock indicator becomes a button that opens the interlock faceplate.
3	Select if an interlock object is connected to Inp_LowerSeatIntlkOK. The Lower Seat Interlock indicator becomes a button that opens the interlock faceplate.
4	Select if an interlock object is connected to Inp_CavityIntlkOK. The Cavity Interlock indicator becomes a button that opens the interlock faceplate.
5	Select if the Valve Stats instruction (for example, PVLVS) is used with this device. This check adds a button to the faceplate that opens the Valve Stats faceplate. <b>IMPORTANT:</b> The name of the Valve Statistics object in the controller must be the name of the object with the suffix '_ValveStats'. For example, if your PVLVMP object has the name 'ValveMP123', then its Interlock object must be named 'ValveMP123_ValveStats'
6	Select to enable navigation to an object with more information (Cfg_HasMoreObj is set to true.) You configure the tag name of the object that you want to navigate to in the extended tag property "Cfg_HasMoreObj.@Navigation". It uses the .@Library and .@Instruction extended tag properties to display the objects faceplate.

**Notes:**

# Process Valve Statistics (PVLVS)

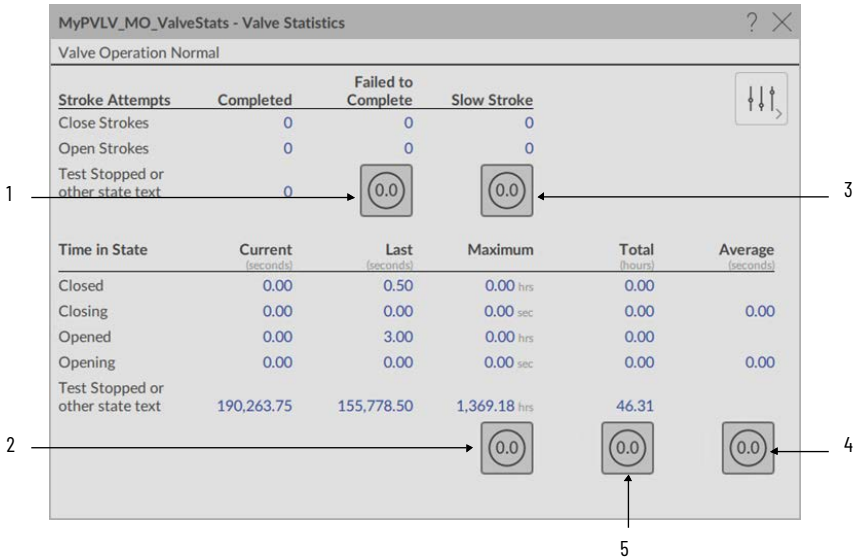
## Graphic Symbols

FactoryTalk Optix Graphic Symbol	Description
PVLVS_GS	
	Graphic symbol that launches the faceplate for the Valve Statistics device.

## FactoryTalk Optix Faceplates

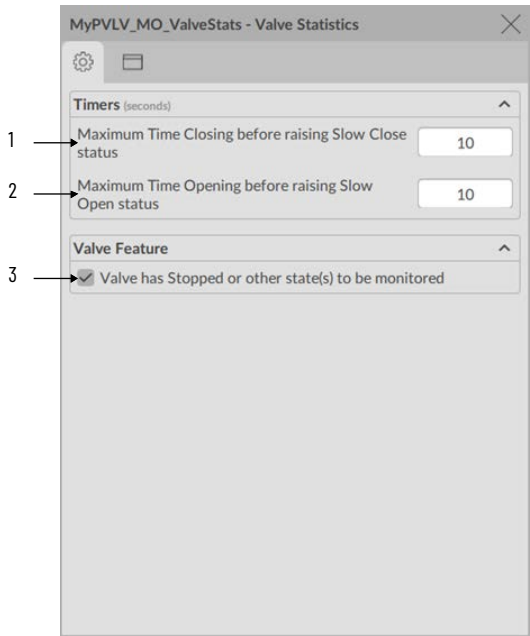
There are basic faceplate attributes that are common across all instructions. This object has no Trends, Diagnostics, or Alarms tabs.

### Operator



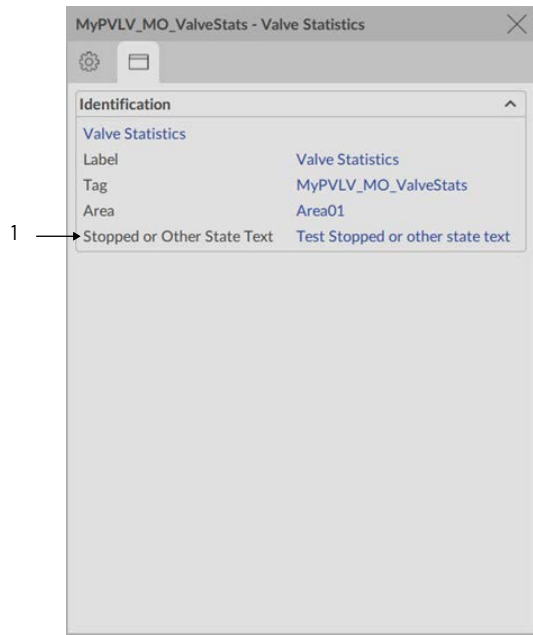
Item	Description
1	Select to clear Failed to Complete stroke counts.
2	Select to clear Maximum time.
3	Select to clear Slow Stroke counts.
4	Select to clear Average time.
5	Select to clear Total time

## Advanced Engineering



Item	Description
1	Enter the maximum time for valve to be in the closing state before indicating that the valve closed slower than expected.
2	Enter the maximum time for valve to be in the opening state before indicating that valve opened slower than expected.
3	Select if valve has Stopped or other states to be monitored.

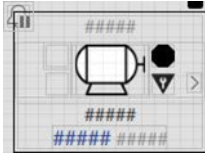
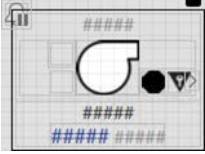
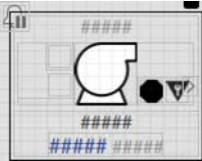
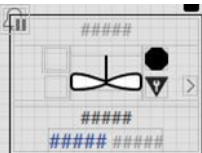
## Advanced HMI



Item	Description
1	The text for Stopped or Other State to be displayed in HMI.

Variable Speed Drive (PVSD)

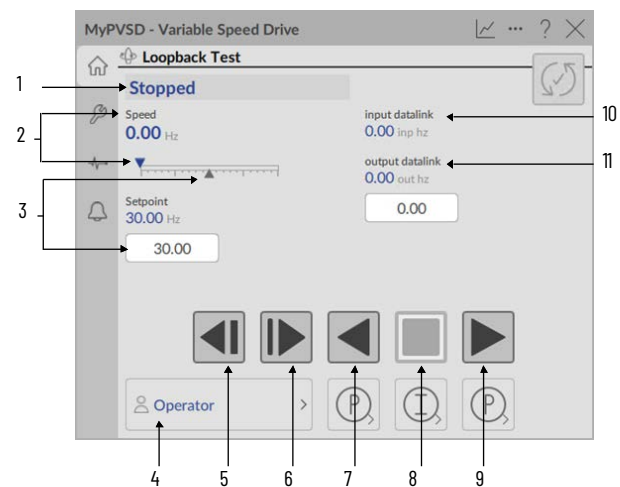
Graphic Symbols

FactoryTalk Optix Graphic Symbol	Description
<div>raP_5_xx_GS_Motor_R</div> 	Motors operate in different positions: right, up, and down.
<div>raP_5_xx_GS_Blower_R</div> 	Blowers operate in different positions: right, left, up, and down.
<div>raP_5_xx_GS_Pump_R</div> 	Pumps operate in several positions: right, left, and up
<div>raP_5_xx_PVSD_GS_Agitator</div> 	Agitator that is shown as a Graphic Symbol.

FactoryTalk Optix

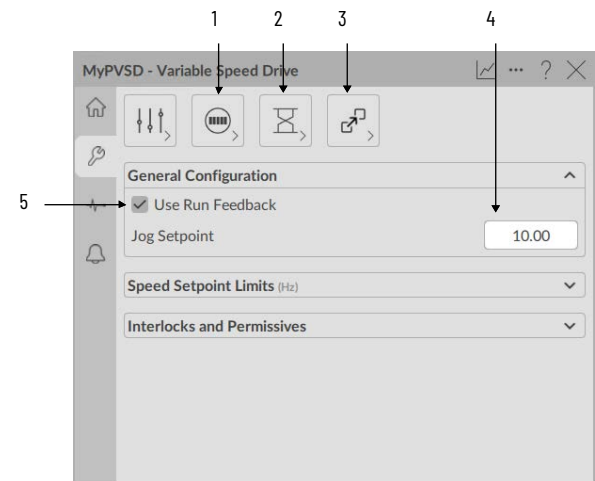
Faceplates

Operator Tab



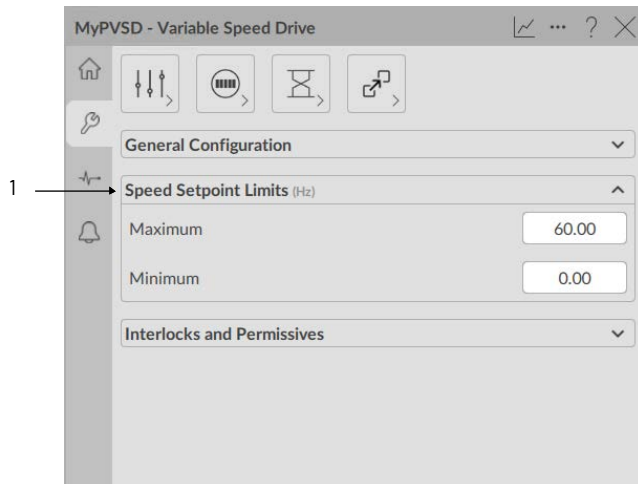
Item	Description
1	Drive state indicator.
2	Current speed of the drive.
3	Setpoint for the speed of the drive.
4	Current command source (Program, Operator, Override, Maintenance, or Hand)
5	Jog drive in reverse.
6	Jog drive forward
7	Start drive in reverse.
8	Stop drive.
9	Start drive forward.
10	Input datalink (if used).
11	Output datalink (if used).

Maintenance Tab - General Configuration



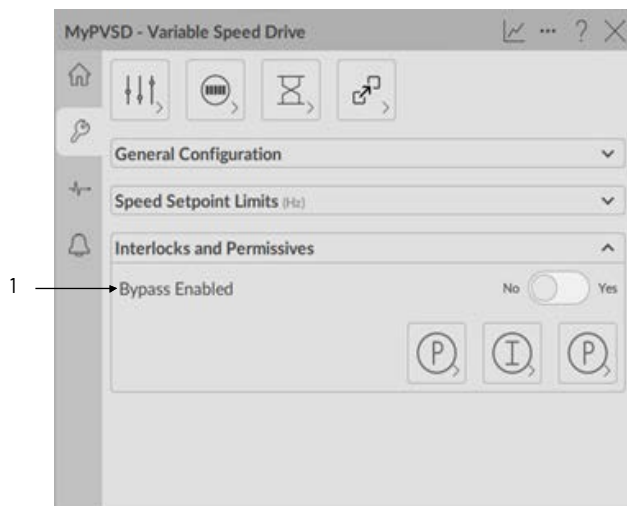
Item	Description
1	Display Runtime Accumulator Faceplate.
2	Display Restart Inhibit Faceplate.
3	Display Device Faceplate.
4	Enter the Jog Setpoint.
5	Select to use Run Feedback.

## Maintenance Tab - Speed Setpoint Limits



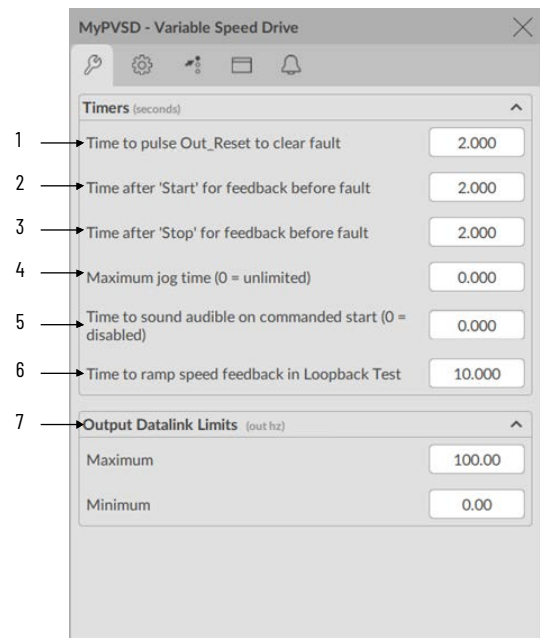
Item	Description
1	Enter the clamping limits for the speed setpoint. If a speed setpoint outside this range is entered, the speed is clamped at these limits and Sts_SpeedLimited is asserted.

## Maintenance Tab - Interlocks and Permissives



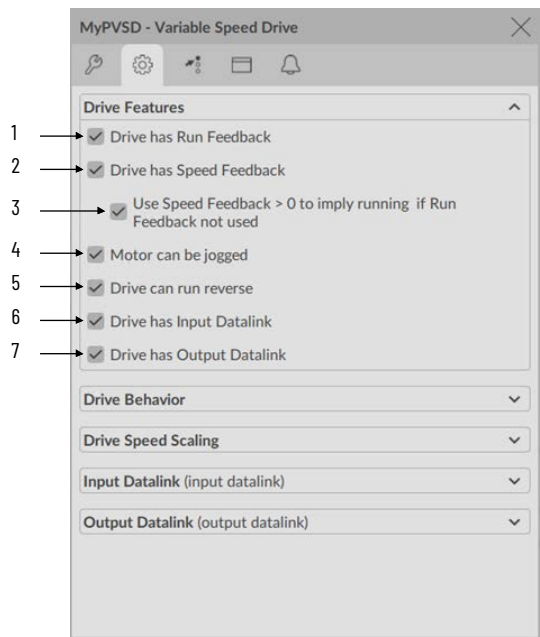
Item	Description
1	Select yes to bypass checking of interlocks and permissives that can be bypassed.

Advanced Maintenance Tab



Item	Description
1	Enter the amount of time to hold Out_Reset true to reset a drive fault when a reset command is received.
2	Enter the amount of time to allow for the run feedback on the drive to confirm that the drive has started before raising a Fail to Start alarm.
3	Enter the amount of time to allow for the run feedback on the drive to confirm that the drive has stopped before raising a Fail to Stop alarm. TIP: Allow extra time for the drive to decelerate or coast to zero speed before it returns a confirmed Stopped status.
4	Enter the maximum amount of time allowed to jog the motor.
5	Enter the time (in seconds) that the audible sounds when there is a commanded State change.
6	Enter the time, in seconds, to ramp speed feedback when in Virtual.
7	Enter values for the maximum and minimum Output Datalink clamping limits, in engineering (display) units. The Output Datalink is clamped to keep it within these limits when sending to the drive. These entries are disabled if the 'Drive has output datalink' check box is clear on Advanced Engineering Tab.

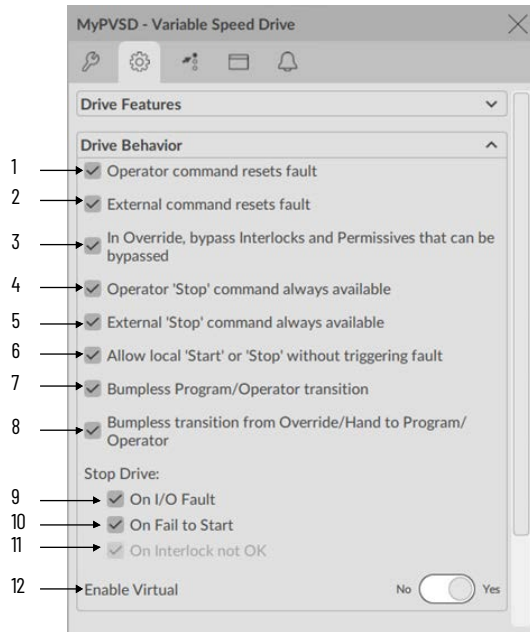
Advanced Engineering Tab - Drive Features



Item	Description
1	Select if the drive provides a run feedback signal. This check enables feedback checking for Fail to Start and Fail to Stop. Clear this checkbox if there is no run feedback.
2	Select if the drive provides a speed feedback signal. Clear this checkbox if there is no speed feedback.
3	Select if Speed feedback greater than zero is used to signify the drive is running. <b>IMPORTANT:</b> This configuration setting is available only if the previous configuration setting is checked.
4	Select to make the Jog command button visible on the Operator tab and enable the drive to be jogged from the faceplate.
5	Select to make the forward and reverse direction command buttons visible on the Operator tab and enable the drive to run forward or reverse.
6	Select to make the Input Datalink configuration and operation functions visible.
7	Select to make the Output Datalink configuration and operation functions visible.

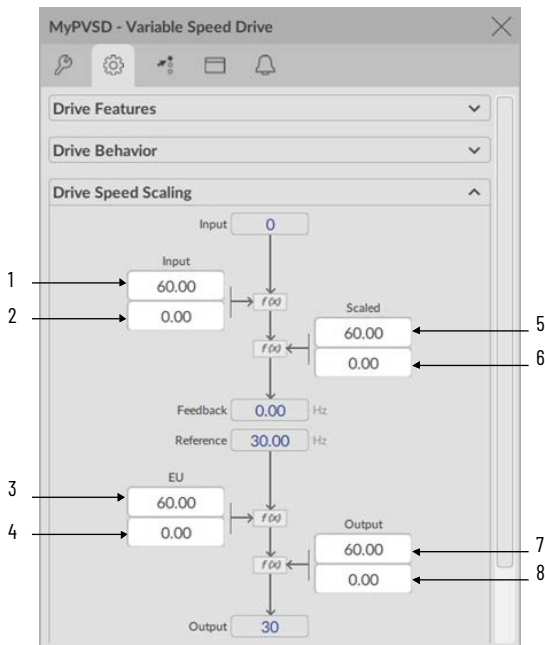


## Advanced Engineering Tab - Drive Behavior



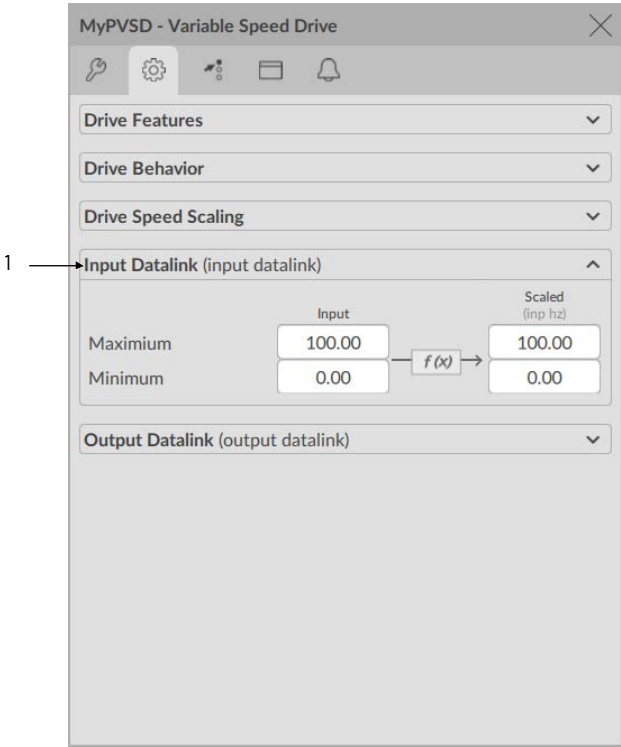
Item	Description
1	Select to reset faults when a new operator drive command, such as start or stop, is issued. Clear this checkbox to require an explicit reset command to clear faults.
2	Select to reset faults when a new external drive command, such as start or stop, is issued. Clear this checkbox to require an explicit reset command to clear faults.
3	Select to have the interlocks and permissives that can be bypassed, bypassed in Override command source.
4	Select (= 1) so that the OCmd.Stop has priority and is accepted at any time. If the Command Source is not Operator or Maintenance, the motor or drive requires a reset. Clear this checkbox (= 0) so that the OCmd.Stop works only in Operator or Maintenance command source.
5	Select (= 1) so that the XCmd.Stop has priority and is accepted at any time. If the Command Source is not External, the motor or drive requires a reset. Clear this checkbox (= 0) so that the XCmd.Stop only works when the command source is External.
6	Select to allow for local command source start and stop without triggering a fault.
7	Select to have Program settings, such as Speed Reference, track Operator settings in Operator command source, and have Operator settings track Program settings in Program command source.
8	Select to have Program and Operator Speed Reference track the Override Speed Reference in Override command source or the actual speed in Hand command source.
9	Select to stop the drive if an I/O Fault is detected. Clear this checkbox show the I/O Fault Status/Alarm only and not stop the drive if an I/O Fault is detected.
10	When the bit is on and a motor Fail to Start is detected, the drive is stopped. A reset is required before another start can be attempted. If the bit is off and a drive Fail to Start is detected, the instruction sets only the Sts.FailToStart status (and the Alm.FailToStart alarm, if so configured). The outputs are not changed, so the instruction continues to start the drive.
11	The drive always stops on interlock not OK. This item cannot be cleared. It is displayed as a reminder that the interlock function always stops the drive.
12	Enable or disable virtual mode.

## Advanced Engineering Tab - Drive Speed Scaling



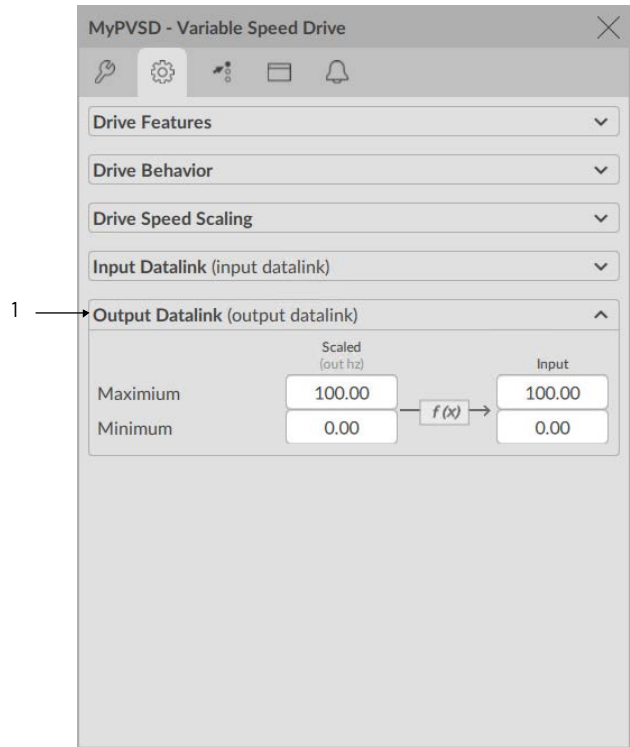
Item	Description
1	Enter the raw input count that corresponds to the maximum speed feedback from the drive.
2	Enter the raw input count that corresponds to the minimum speed feedback from the drive. (This value is usually zero.)
3	Enter the engineering unit value for the maximum speed reference that is sent to the drive.
4	Enter the engineering unit value for the minimum speed reference that is sent to the drive. (This value is usually zero. Do not enter a negative value for reversing drives. Reversing is handled separately.)
5	Enter the engineering unit value for the maximum speed feedback from the drive.
6	Enter the engineering unit value for the minimum speed feedback from the drive. (This value is usually zero. Do not enter a negative value for reversing drives. Reversing is handled separately.)
7	Enter the raw output count that corresponds to the maximum speed reference sent to the drive.
8	Enter the raw output count that corresponds to the minimum speed reference sent to the drive. (This value is usually zero.)

Advanced Engineering Tab - Input Datalink



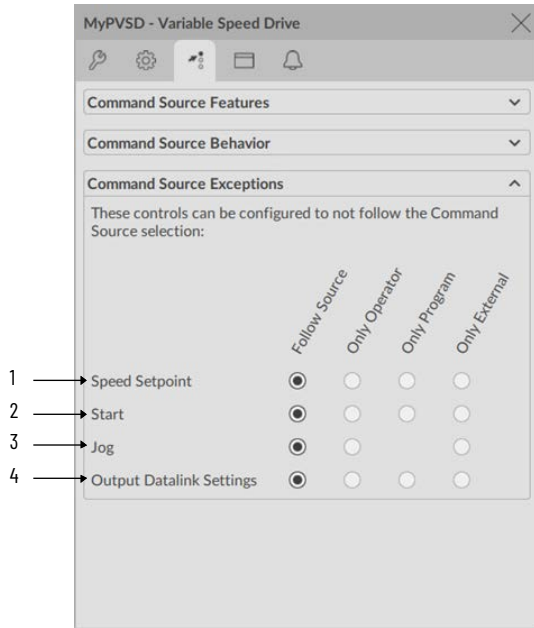
Item	Description
1	Left to Right: <ul style="list-style-type: none"><li>• Enter the minimum and maximum raw (from the drive) values for the Input Datalink.</li><li>• Enter the minimum and maximum scaled values for the Input Datalink in Engineering Units.</li></ul>

Advanced Engineering Tab - Output Datalink



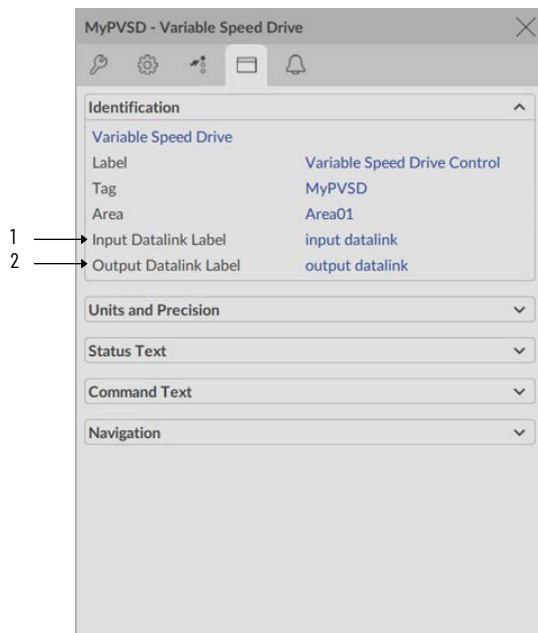
Item	Description
1	Left to Right: <ul style="list-style-type: none"><li>• Enter the minimum and maximum scaled values for the Output Datalink in Engineering Units.</li><li>• Enter the minimum and maximum scaled values for the Output Datalink in Raw (to the drive) Units. Enter the text to display for the label and units of measure of the Output Datalink.</li></ul>

## Advanced Command SourceTab - Command Source Exceptions



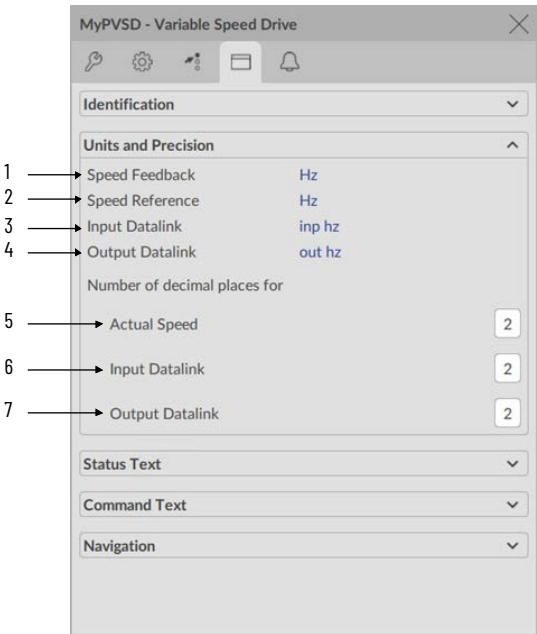
Item	Description
1	This selection determines whether control of the drive speed reference follows the command source that is selected for the instruction, stays with the operator, stays with the program, or stays with the external command source.
2	This selection determines whether control of the drive starting and stopping follows the command source that is selected for the instruction, stays with the operator, stays with the program, or stays with the external command source.
3	This selection determines whether control of the drive jogging follows the command source that is selected for the instruction, stays with the operator, stays with the program, or stays with the external command source.
4	This selection determines whether control of the output datalink value follows the command source that is selected for the instruction, stays with the operator, stays with the program, or stays with the external command source.

## Advanced HMI Configuration Tab - Identification



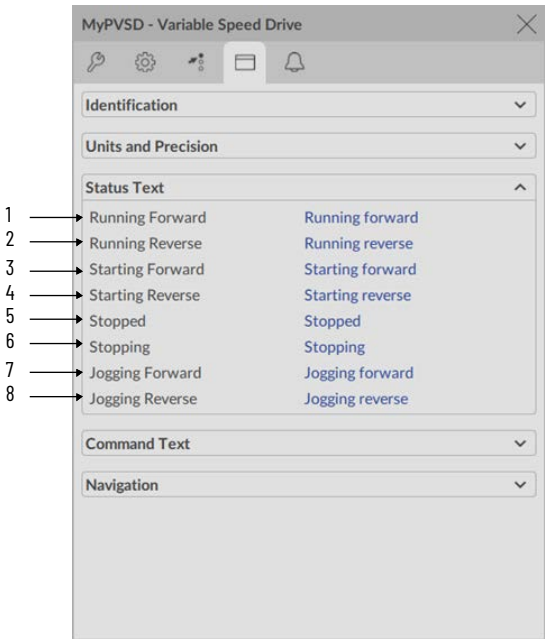
Item	Description
1	Display name for input Datalink.
2	Display name for output Datalink.

Advanced HMI Configuration Tab - Units and Precision



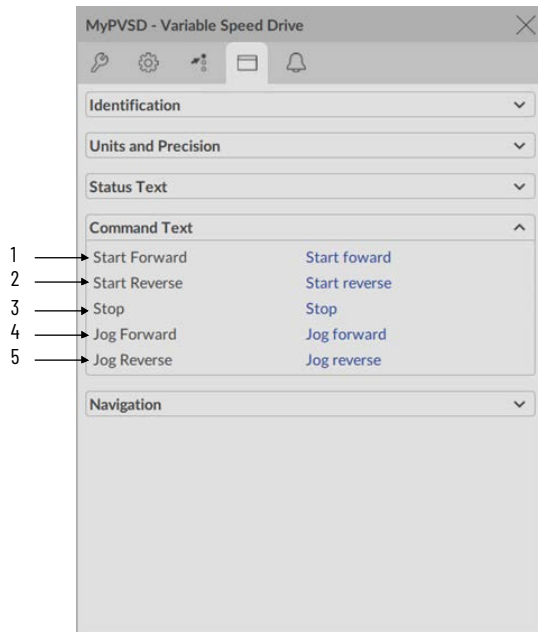
Item	Description
1	Units of measure to display for the speed feedback value.
2	Units of measure to display for the speed reference value.
3	Units of measure to display for the input datalink value.
4	Units of measure to display for the output datalink value.
5	Enter the decimal places to display for actual speed.
6	Enter the decimal places to display for Input Datalink.
7	Enter the decimal places to display for Output Datalink.

Advanced HMI Configuration Tab - Status Text



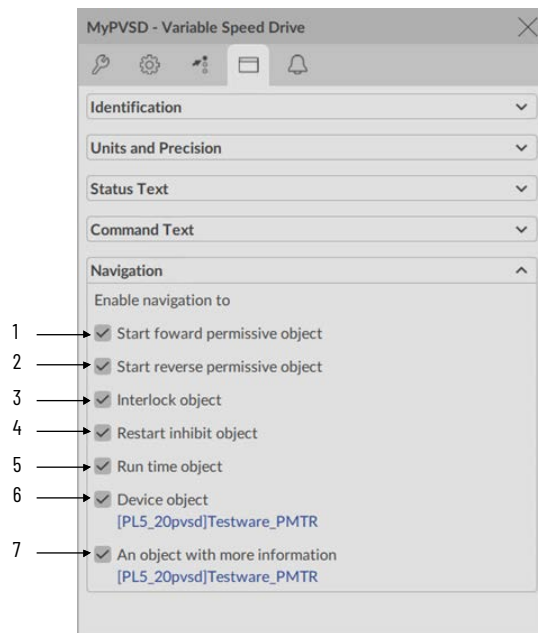
Item	Description
1	Display name for running forward direction.
2	Display name for running reverse direction.
3	Display name for starting forward direction.
4	Display name for starting reverse direction.
5	Display name for Stopped status.
6	Display name for Stopping status.
7	Display name for jogging forward direction.
8	Display name for jogging reverse direction.

## Advanced HMI Configuration Tab - Command Text



Item	Description
1	Display name for start forward direction
2	Display name for start reverse direction.
3	Display name for Stop.
4	Display name for jog forward direction.
5	Display name for jog reverse direction.

## Advanced HMI Configuration Tab - Navigation




Item	Description
1	Select if a permissive object is connected to Inp_FwdPermOK. The permissive indicator becomes a button that opens the permissive faceplate. <b>IMPORTANT:</b> The name of the permissive object in the controller must be the name of the object with the suffix "_FwdPerm".
2	Select if a permissive object is connected to Inp_RevPermOK. The permissive indicator becomes a button that opens the permissive faceplate. <b>IMPORTANT:</b> The name of the permissive object in the controller must be the name of the object with the suffix "_RevPerm".
3	Select if an interlock object is connected to Inp_IntlkOK. The Interlock indicator becomes a button that opens the interlock faceplate. <b>IMPORTANT:</b> The name of the Interlock object in the controller must be the name of the object with the suffix '_Intlk_0'. For example, if your PVSD object has the name 'Drive123', then its Interlock object must be named 'Drive123_Intlk'.
4	Select if a restart inhibit object is connected. The button that opens the Restart Inhibit faceplate appears. <b>IMPORTANT:</b> The name of the Restart Inhibit object in the controller must be the name of the object with the suffix '_ResInh'. For example, if your PVSD object has the name 'Drive123', then its Restart Inhibit object must be named 'Drive123_ResInh'.
5	Select if a runtime object is connected. The button that opens the runtime faceplate appears. <b>IMPORTANT:</b> The name of the runtime object in the controller must be the name of the object with the suffix '_RunTime'. For example, if your PVSD object has the name 'Drive123', then its runtime object must be named 'Drive123_RunTime'.
6	Select to allow navigation to the device object.
7	Select to enable navigation to an object with more information (Cfg_HasMoreObj is set to true.) You configure the tag name of the object that you want to navigate to in the extended tag property "Cfg_HasMoreObj.@Navigation". It uses the <backing tag>.@Library and <backing tag>.@Instruction extended tag properties to display the object's faceplate.

**Notes:**

# Process Area Module (raP\_Opr\_Area)

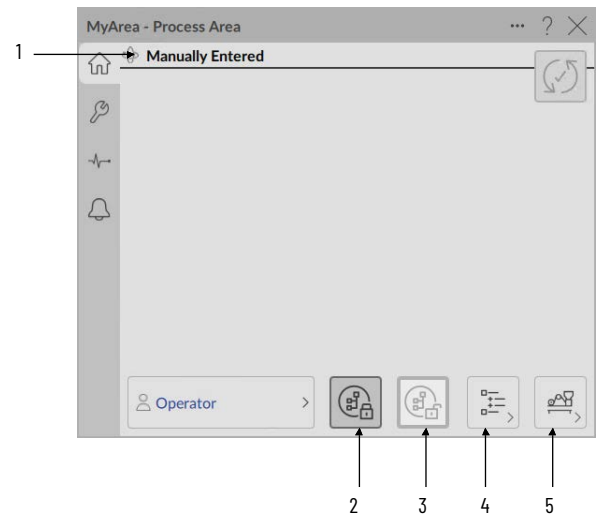
## Graphic Symbols

FactoryTalk Optix Graphic Symbol	Description
<div>GS_raP_Opr_Area</div> 	The raP_Opr_Area object groups Units together, and provides a propagation mechanism for aggregating status from Unit objects, and broadcasting commands to Unit Objects.

## FactoryTalk Optix Faceplates

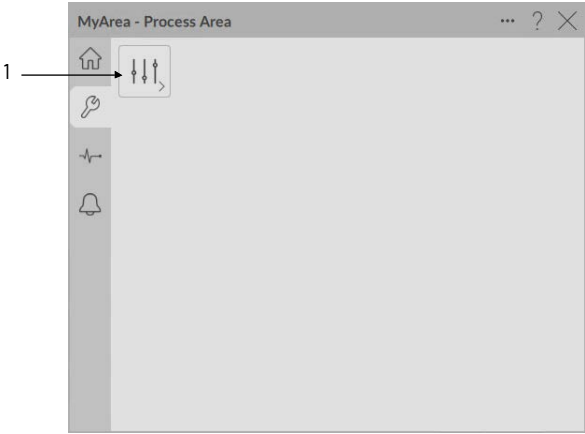
There are basic faceplate attributes that are common across all instructions. The Trends tab, Diagnostics tab, and Alarms tab all have the same basic functionality and are not described in this section. See [Basic Faceplate Attributes on page 24](#).

## Operator Tab



Item	Description
1	Displays the current state of the object
2	Acquire child command source
3	Release child command source
4	Display organizational tree view for this object
5	Display more information

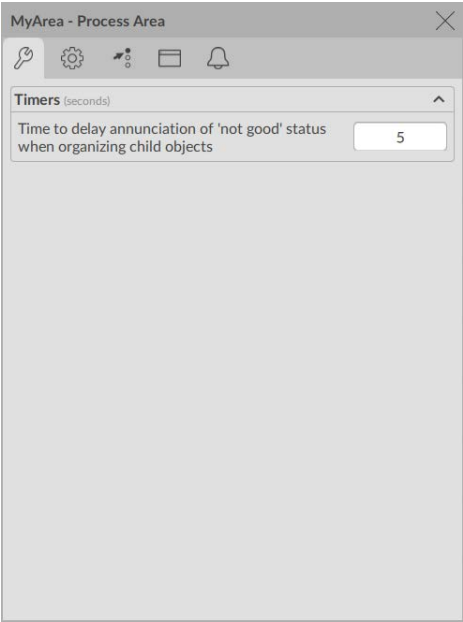
## Maintenance Tab



Item	Description
1	Display Advanced Properties

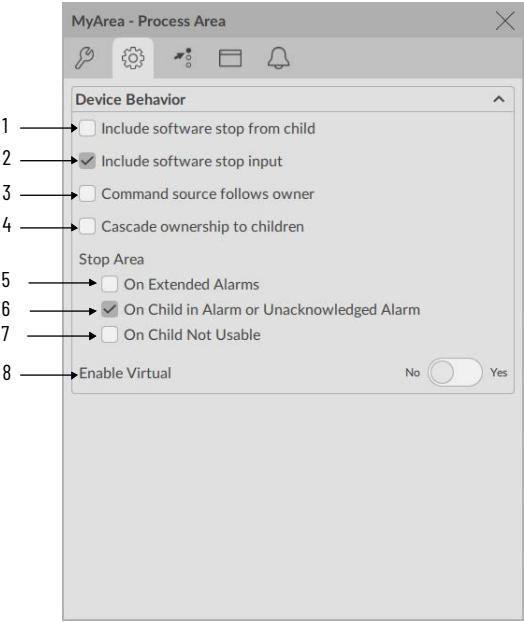
## Advanced Maintenance Tab

The timer creates a delay for the Tree View to indicate that Children are 'not good' upon ownership acquisition. This is done to avoid nuisance indications on the Tree View while waiting for children to be acquired. The default of five seconds is sufficient delay for most applications. You may wish to raise that value if child acquisition takes longer than this. This can occur if the organization has many nested organizational levels or nested elements have relatively long scan intervals. This value is limited less than 3600 seconds.



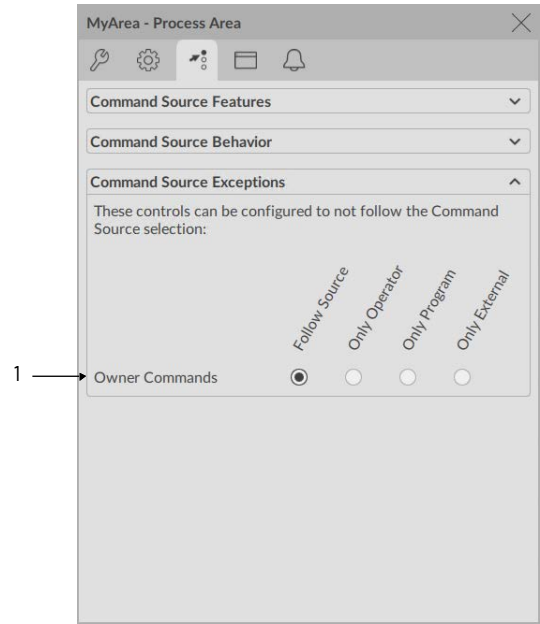


Advanced Engineering Tab



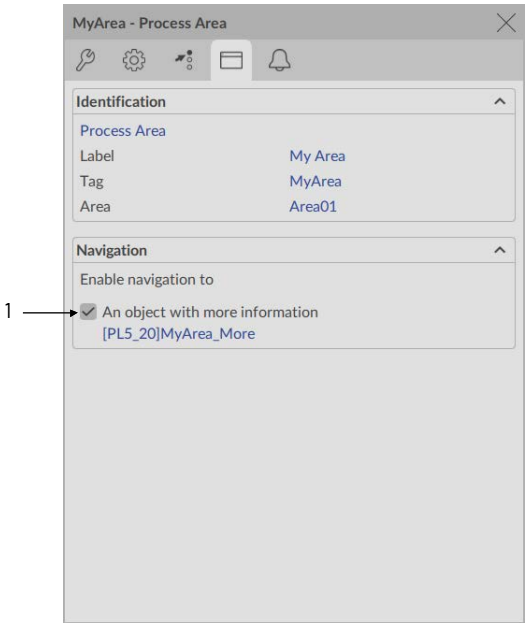
Item	Description
1	Select to include software stop from child
2	Select to include software stop input
3	Select to have the Command source follow the owner
4	Select to cascade ownership to children (children will be owned when this object is owned)
5	Select to stop unit on extended alarms
6	Select to stop unit when Child is in Alarm or Unacknowledged Alarm
7	Select to stop unit when Child cannot be put into Program or is owned by another owner.
8	Select yes to enable virtual mode

Advanced CmdSrc Tab - Command Source Exceptions



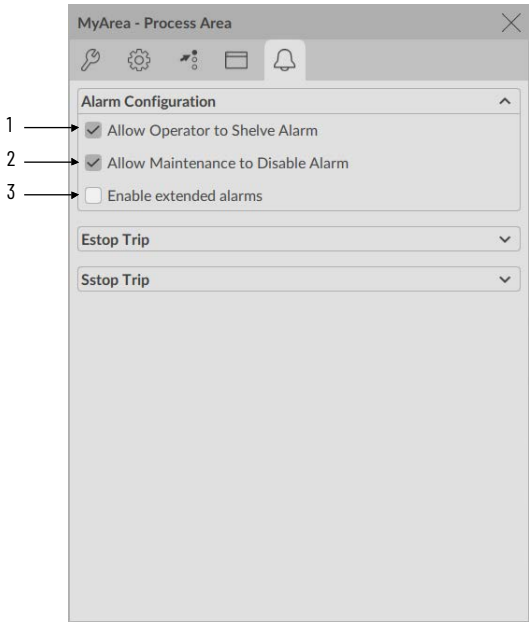
Item	Description
1	Use the radio buttons for the area owner commands to follow the overall command source of the instruction, or to "keep" particular source (operator, program, or external).

### Advanced HMI Configuration Tab



Item	Description
2	Select to allow navigation to an object with more information. You configure the tag name of the object that you want to navigate to in the extended tag property "Cfg_HasMoreObj.@Navigation". It uses the .@Library and .@Instruction extended tag properties to display the objects faceplate.

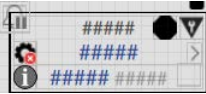
### Advanced Alarm Configuration



Item	Description
1	Select to allow Operator to shelve alarm
2	Select to allow Maintenance to disable alarm
3	Select to enable extended alarms

# Process Unit (raP\_Opr\_Unit)

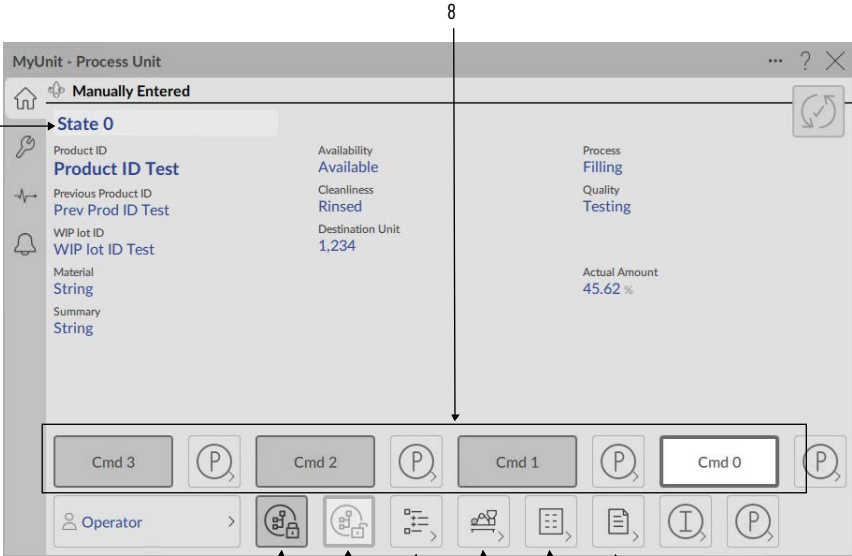
## Graphic Symbols

FactoryTalk Optix Graphic Symbol	Description
<div>GS_ raP_Opr_Unit</div> 	The raP_Opr_Unit object groups Equipment together, and provides a propagation mechanism for aggregating status from Equipment, and broadcasting commands to Equipment.

## FactoryTalk Optix Faceplates

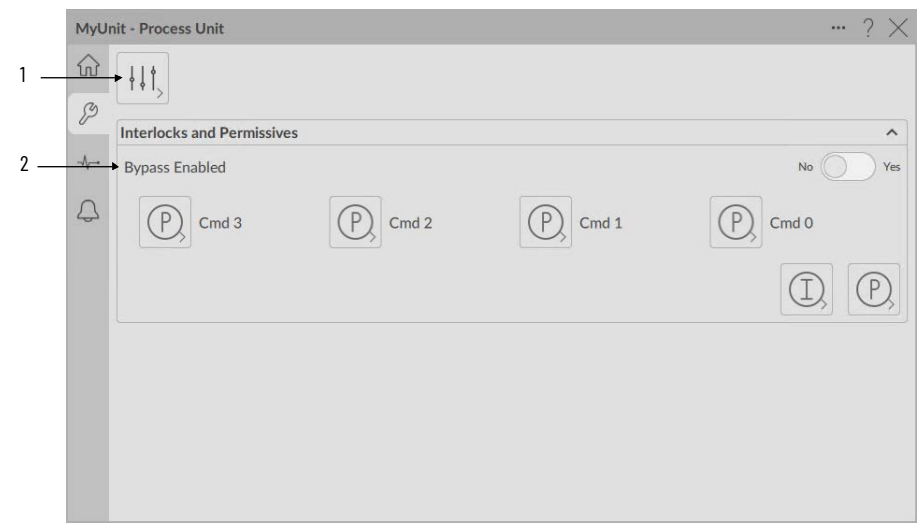
There are basic faceplate attributes that are common across all instructions. The Trends tab, Diagnostics tab, and Alarms tab all have the same basic functionality and are not described in this section. See [Basic Faceplate Attributes on page 24](#).

## Operator Tab



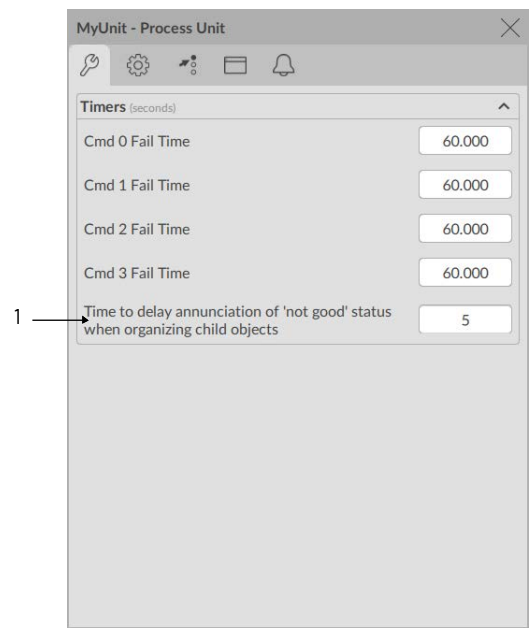
Item	Description
1	Displays the current state of the object
2	Acquire child command source
3	Release child command source
4	Display tree view for this object
5	Display the Bus faceplate for this object
6	Show parameter display
7	Show report display
8	Command user-defined function (0, 1, 2, or 3)

## Maintenance Tab



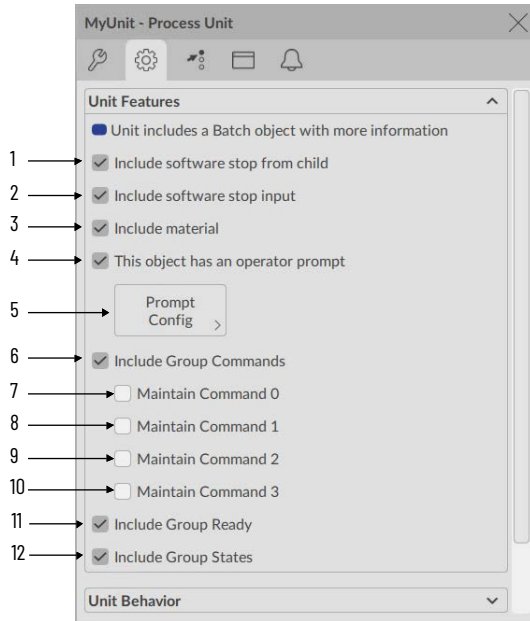
Item	Description
1	Display Advanced Properties
2	Select yes to enable bypass

## Advanced Maintenance Tab



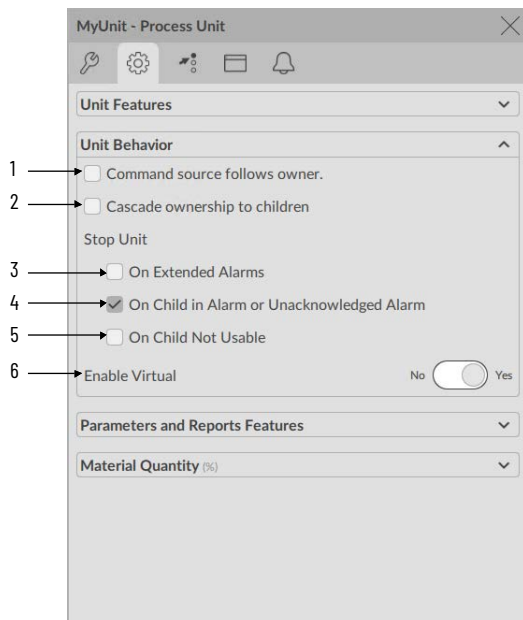
Item	Description
1	The timer creates a delay for the Tree View to indicate that Children are 'not good' upon ownership acquisition. This is done to avoid nuisance indications on the Tree View while waiting for children to be acquired. The default of five seconds is sufficient delay for most applications. You may wish to raise that value if child acquisition takes longer than this. This can occur if the organization has many nested organizational levels or nested elements have relatively long scan intervals. This value is limited less than 3600 seconds.

## Advanced Engineering Tab - Unit Features



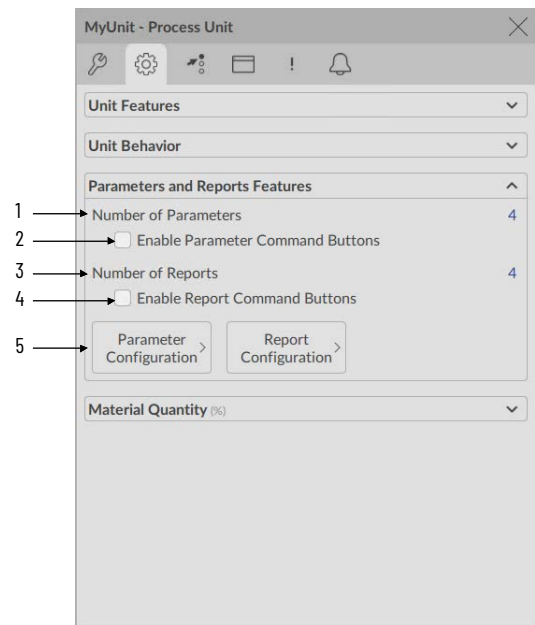
Item	Description
1	Select to include a software stop from child object
2	Select to include software stop input
3	Select to include material
4	Select to enable an operator prompt
5	Select to open the Prompt configuration
6	Enable User-Defined Group Commands
7	Enable level command for Command 0
8	Enable level command for Command 1
9	Enable level command for Command 2
10	Enable level command for Command 3
11	Enable external ready mapping to group commands
12	Enable User-Defined Group States

## Advanced Engineering Tab - Unit Behavior



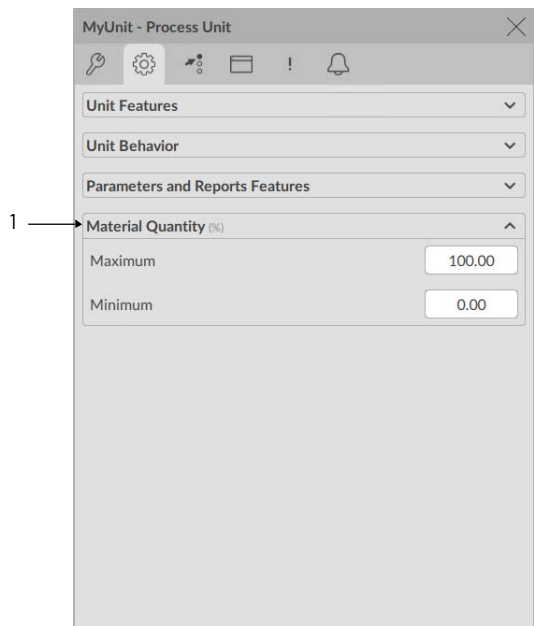
Item	Description
1	Select to have the command source follow the owner.
2	Select to cascade ownership to children (children will be owned when this object is owned)
3	Select to stop unit on extended alarms
4	Select to stop unit on active child alarm, or unacknowledged child alarm
5	Select to stop unit on child not usable, cannot be owned or in a state that makes it unusable.
6	Select to enable virtual mode

## Advanced Engineering Tab - Parameters and Reports Features



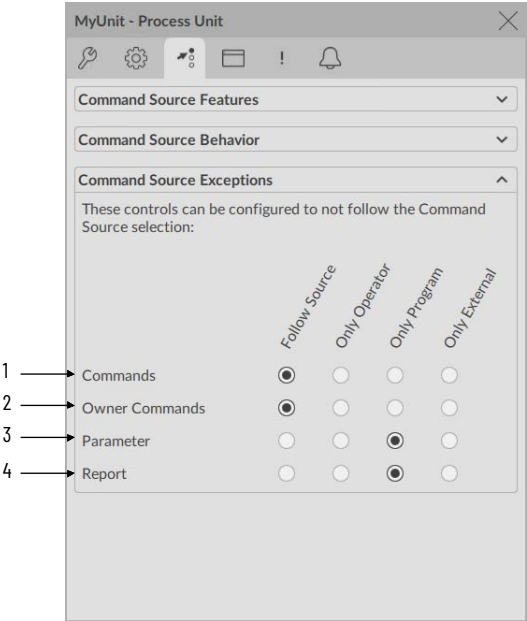
Item	Description
1	Number of Parameters configured.
2	Select to enable parameter command buttons
3	Number of Reports configured.
4	Select to enable report command buttons
5	Select to show parameter configuration display (left) or report configuration display (right)

## Advanced Engineering Tab - Material Quantity



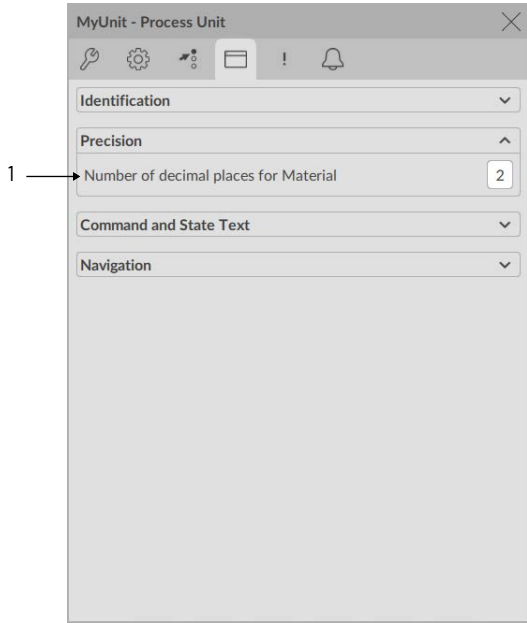
Item	Description
1	Enter the material maximum and minimum quantities.

Advanced CmdSrc Tab - Command Source Exceptions



Item	Description
1	Use the radio buttons for the unit commands to follow the overall command source of the instruction, or to "keep" particular source (operator, program, or external).
2	Use the radio buttons for the unit owner commands to follow the overall command source of the instruction, or to "keep" particular source (operator, program, or external).
3	Use the radio buttons for the unit parameter commands to follow the overall command source of the instruction, or to "keep" particular source (operator, program, or external).
4	Use the radio buttons for the unit report commands to follow the overall command source of the instruction, or to "keep" particular source (operator, program, or external).

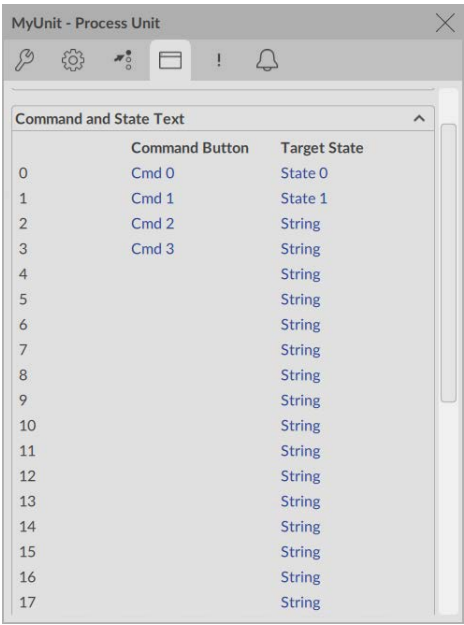
Advanced HMI Configuration Tab - Precision



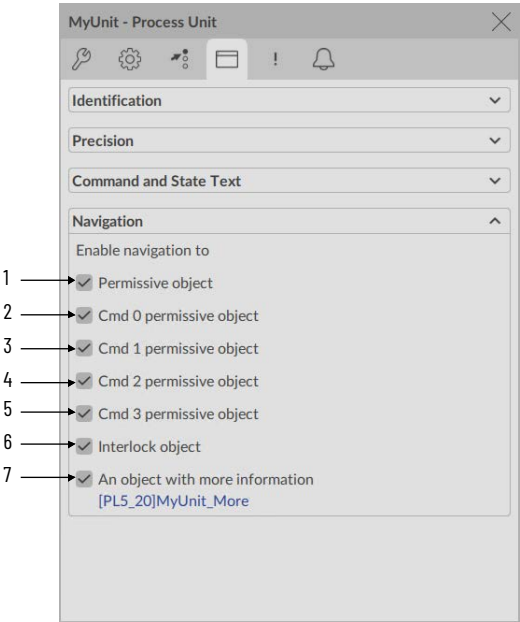
Item	Description
1	Enter the number of decimal places for the material

## Advanced HMI Configuration Tab - Command and State Text

This faceplate displays configuration of Command Buttons and Target State text (displayed on Operator Tab) for the Equipment Object.



## Advanced HMI Configuration Tab - Navigation

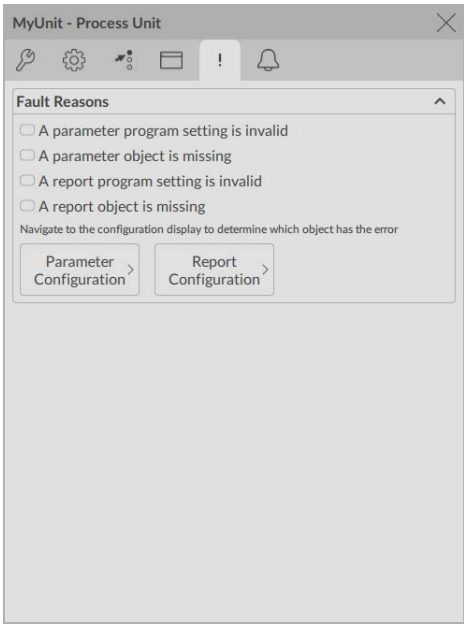


Item	Description
1	Select to enable navigation to the permissive object
2	Select to enable navigation to the Command 0 permissive object
3	Select to enable navigation to the Command 1 permissive object
4	Select to enable navigation to the Command 2 permissive object
5	Select to enable navigation to the Command 3 permissive object
6	Select to enable navigation to the interlock object
7	Select to enable navigation to an object with more information. You configure the tag name of the object that you want to navigate to in the extended tag property "Cfg_HasMoreObj.@Navigation". It uses the .@Library and .@Instruction extended tag properties to display the objects faceplate.

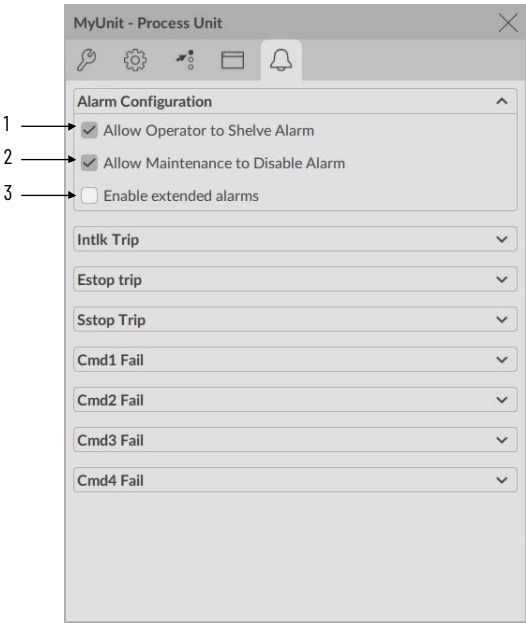


## Advanced Faults Tab

The Faults tab shows information on the status of the objects. Select the Parameter and Report configuration buttons to determine which object has the fault.



## Advanced Alarm Configuration

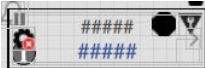


Item	Description
1	Select to allow Operator to shelve alarm
2	Select to allow Maintenance to disable alarm
3	Select to enable extended alarms

**Notes:**

# Generic Equipment Module (raP\_Opr\_EMGen)

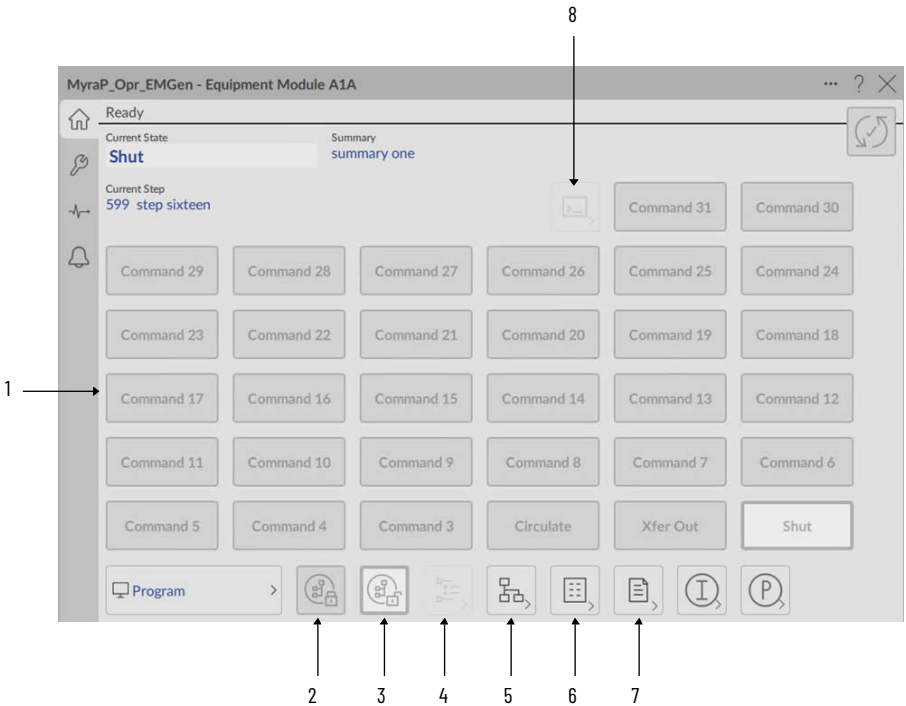
## Graphic Symbols

FactoryTalk Optix Graphic Symbol	Description
<div>GS_raP_Opr_EMGen</div> 	The raP_Opr_EMGen (Generic Equipment Module) object controls an Equipment Module in various command sources and monitors for fault conditions.

# FactoryTalk Optix Faceplates

There are basic faceplate attributes that are common across all instructions. The Trends tab, Diagnostics tab, and Alarms tab all have the same basic functionality and are not described in this section. See [Basic Faceplate Attributes on page 24](#).

## Operator Tab



Item	Description
1	Command buttons with command text
2	Acquire child command source
3	Release child command source
4	Display tree view for this object
5	Show State Detail display. <b>Note:</b> This button is only visible if the EM has been configured with a variable state machine.  The display to be launched varies based on the extended tag property that is entered for the EM.Sts.HasVSM.@Navigation tag. The @Navigation text is appended to the detail display name.  For example:  EM.Sts.HasVSM.@Navigation = S88 launches (raP-5_30-SE) raP_Opr_EMGen-Detail_S88.  EM.Sts.HasVSM.@Navigation = NAMUR would launch (raP-5_30-SE) raP_Opr_EMGen-Detail_NAMUR.
6	Show parameter display
7	Show report display
8	Show prompt response display

## Pre-defined State Detail Displays

State detail displays are available to be used with pre-defined control strategies for Equip, NAMUR, PackML, and S88 state machines. There is also a generic template display that can be customized as needed.

These displays are launched from the state detail navigation button on the home tab of the raP\_Opr\_EMGen faceplate. The display to launch will be determined based on the extended tag property entered for the EM.Sts\_HasVSM.@Navigation tag. The @Navigation text is appended to the detail display name.

For example,

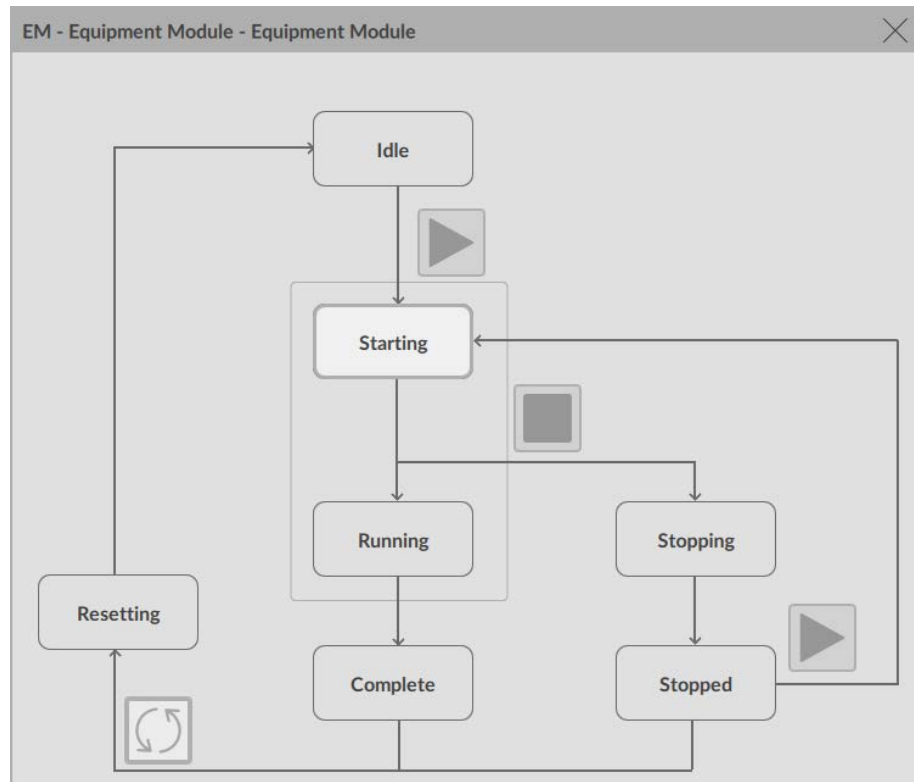
EM.Sts\_HasVSM.@Navigation = S88 would launch:

(raP-5\_30-SE) raP\_Opr\_EMGen-Detail\_S88.

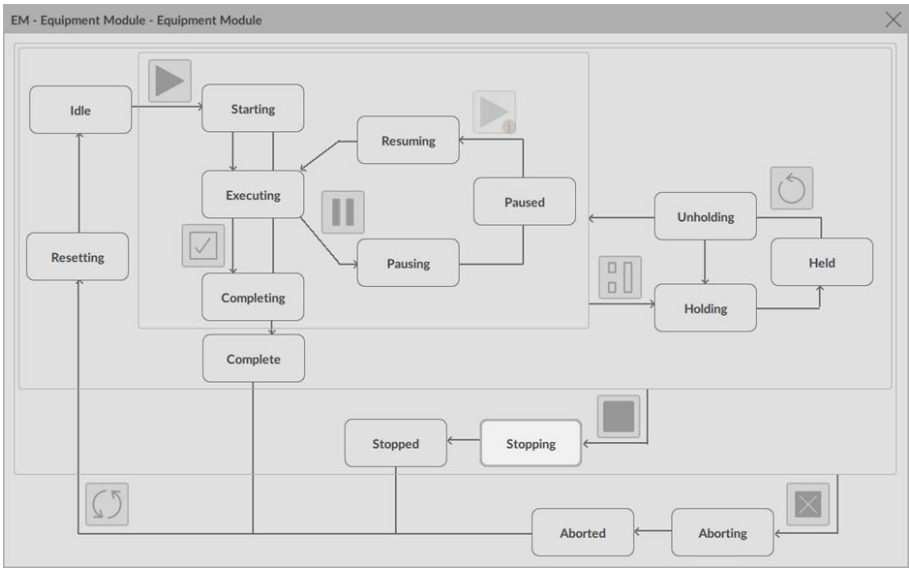
EM.Sts\_HasVSM.@Navigation = NAMUR would launch:

(raP-5\_30-SE) raP\_Opr\_EMGen-Detail\_NAMUR.

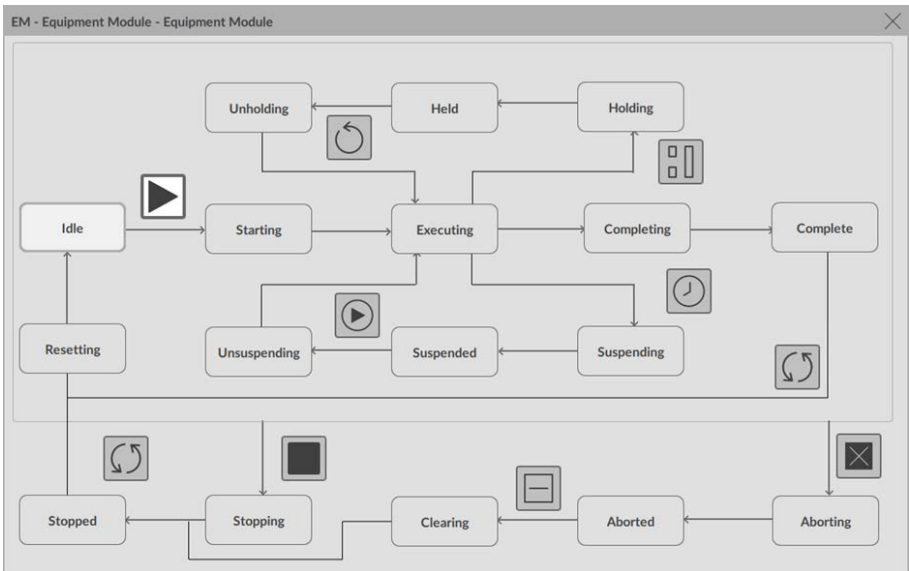
*raP\_Opr\_EMGen-Detail\_Equip*

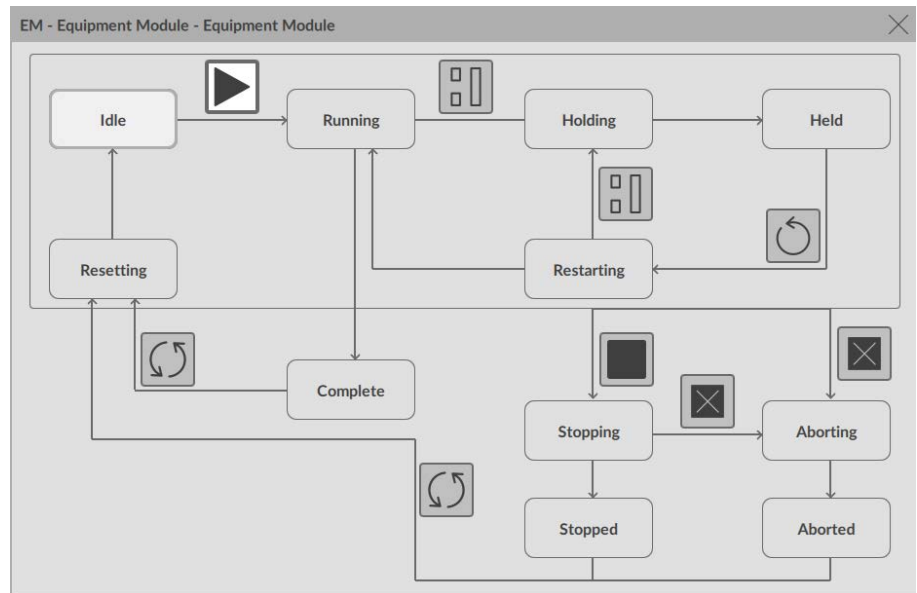


raP\_Opr\_EMGen-Detail\_NAMUR

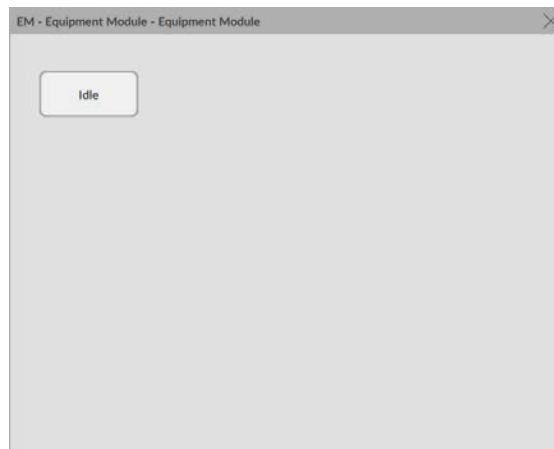


raP\_Opr\_EMGen-Detail\_PackML

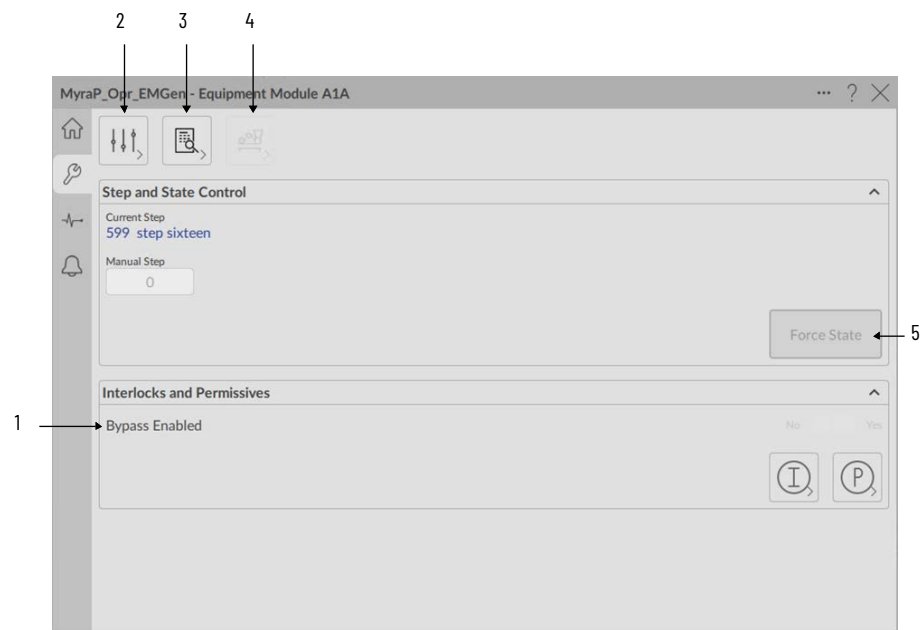


*raP\_Opr\_EMGen-Detail\_S88**raP\_Opr\_EMGen-Detail\_Template*

This display can be customized as needed.



## Maintenance Tab

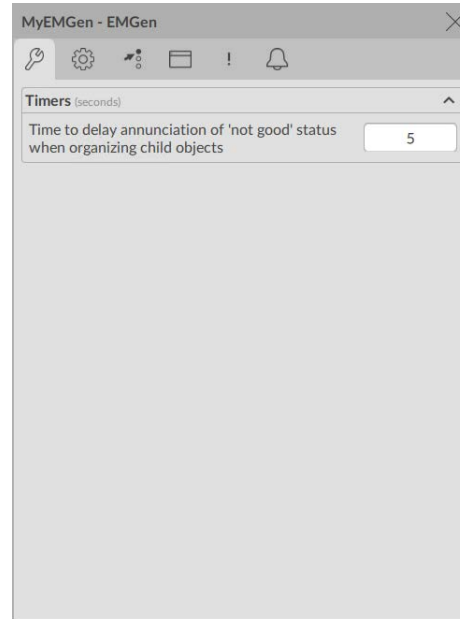


Item	Description
1	Select yes to enable bypass
2	Display advanced properties
3	Navigation to detail display
4	Display the Bus faceplate for this object (future)
5	The state force button is a Maintenance source command that is used to set the Sts_StateCompleteRqst bit. For an EM instance with the VSM enabled, this sets the Inp_StateComplete parameter and transition the current state to complete. For an instance without the VSM the user will need to connect the Sts_StateCompleteRqst to the required location in their SM logic.

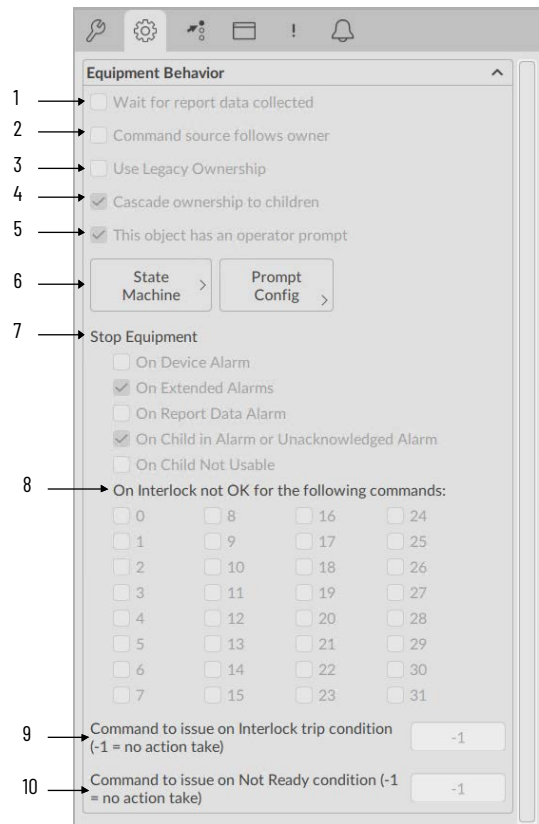


## Advanced Maintenance Tab

The timer creates a delay for the Tree View to indicate that Children are 'not good' upon ownership acquisition. This is done to avoid nuisance indications on the Tree View while waiting for children to be acquired. The default of five seconds is sufficient delay for most applications. You may wish to raise that value if child acquisition takes longer than this. This can occur if the organization has many nested organizational levels or nested elements have relatively long scan intervals. This value is limited less than 3600 seconds.

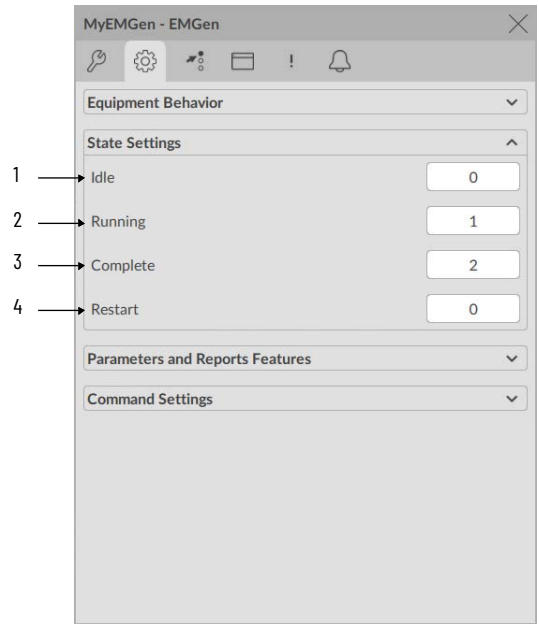


Advanced Engineering Tab - Equipment Behavior



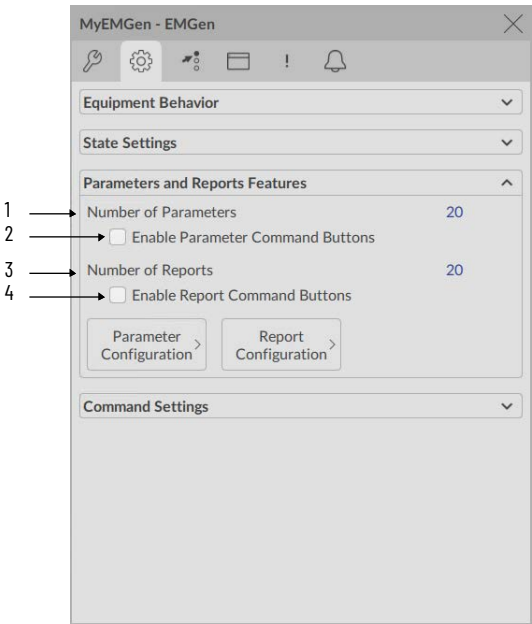
Item	Description
1	Wait for report data to be collected.
2	Command source follows parent object.
3	Enable legacy ownership, use PCmd_Owner.
4	Select to cascade ownership to children (children will be owned when this object is owned)
5	Select to enable the Operator prompt.
6	Select to navigate to the Prompt faceplate.
7	Select conditions to stop equipment
8	Stop equipment module on interlock trip. Bit based condition applies to only its state, Bit 0 will only affect operation of state 0, bit 31 effects state 31.
9	Enter the command number to issue on an interlock trip condition. If no action should be taken, enter -1.
10	Enter the command number to issue on a not ready condition. If no action should be taken, enter -1.

Advanced Engineering Tab - State Settings



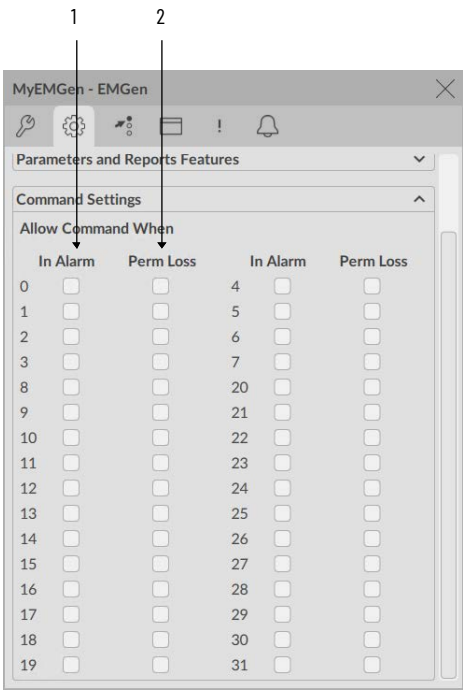
Item	Description
1	Define the Idle State for Status indication.
2	Define the Running State for Status indication
3	Define the Complete State for Status indication.
4	Define the Restart State for Status indication.

### Advanced Engineering Tab - Parameters and Reports



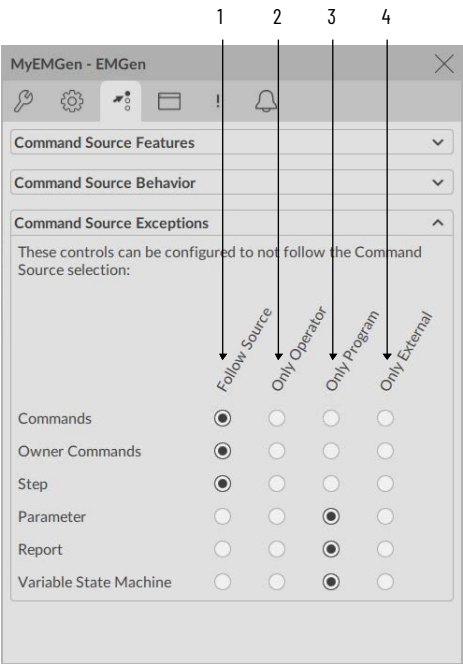
Item	Description
1	Number of Parameters configured.
2	Select to enable parameter command buttons
3	Number of Reports configured.
4	Select to enable report command buttons

### Advanced Engineering Tab - Command Settings



Item	Description
1	Select to allow Operator command execution with active alarm condition
2	Select to allow Operator command execution with loss of permissive

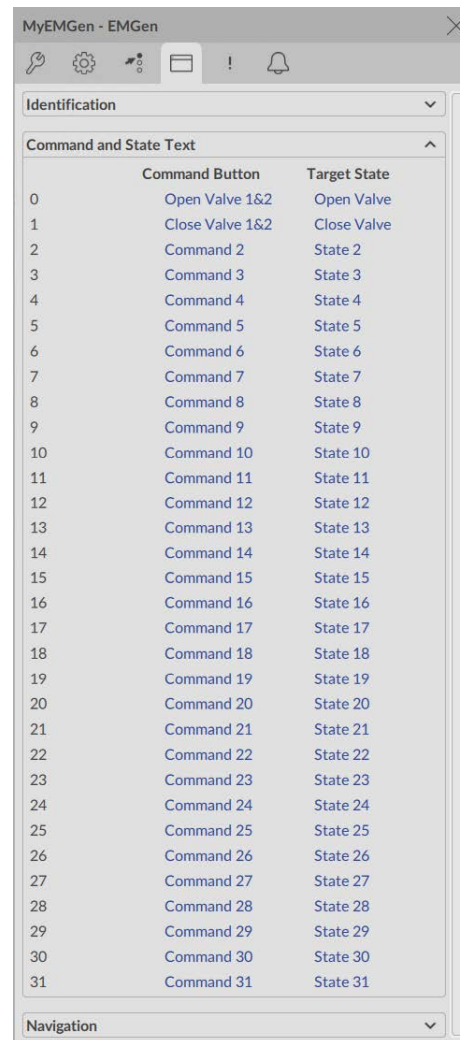
## Advanced Command Source Tab - Command Source Exceptions



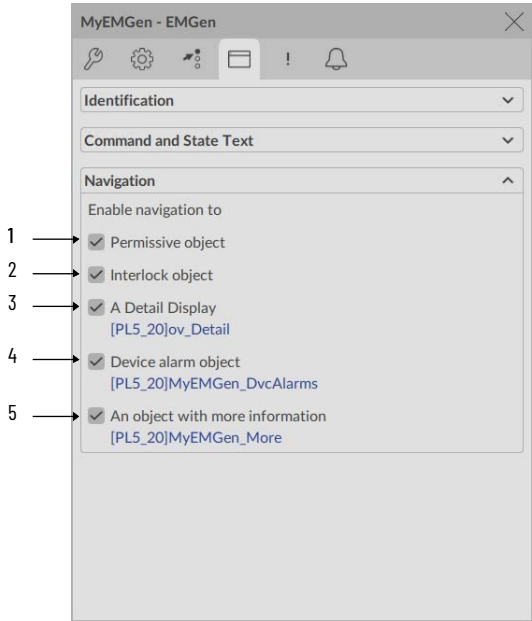
Item	Description
1	Control of this feature is determined by the current command source
2	This feature will always be commanded by the Operator
3	This feature will always be commanded by the Program Logic
4	This feature will always be commanded by the External Source

## Advanced HMI Configuration Tab - Command and State Text

Display the Command Button and Target Stages.



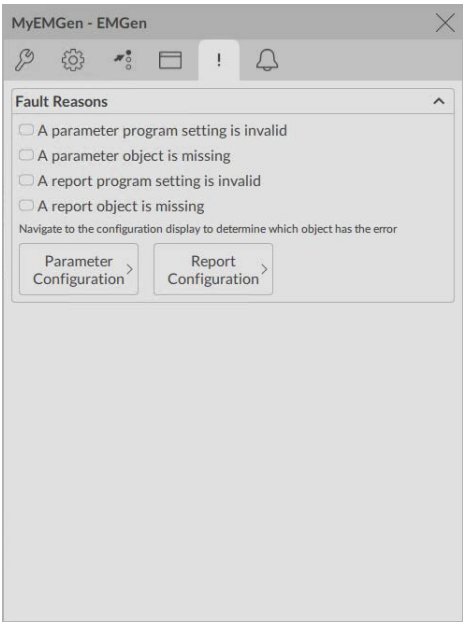
## Advanced HMI Configuration Tab - Navigation



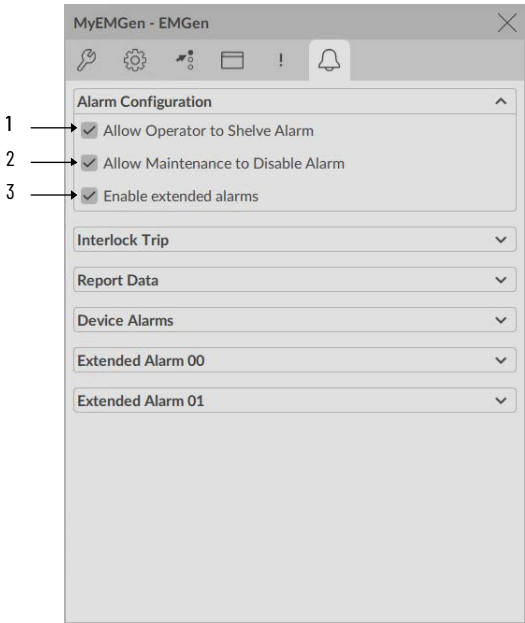
Item	Description
1	Select to enable navigation to permissive object
2	Select to enable navigation to interlock object
3	Select to allow navigation to detail display
4	Select to allow navigation to a device alarm object.
5	Select to enable navigation to an object with more information. You configure the tag name of the object that you want to navigate to in the extended tag property "Cfg_HasMoreObj.@Navigation". It uses the .@Library and .@Instruction extended tag properties to display the objects faceplate.

## Advanced Faults Tab

The Faults tab shows information on the status of the objects. Select the Parameter and Report configuration buttons to determine which object has the fault.



# Advanced Alarm Configuration



Item	Description
1	Select to allow Operator to shelve alarm
2	Select to allow Maintenance to disable alarm
3	Select to enable extended alarms


**Notes:**



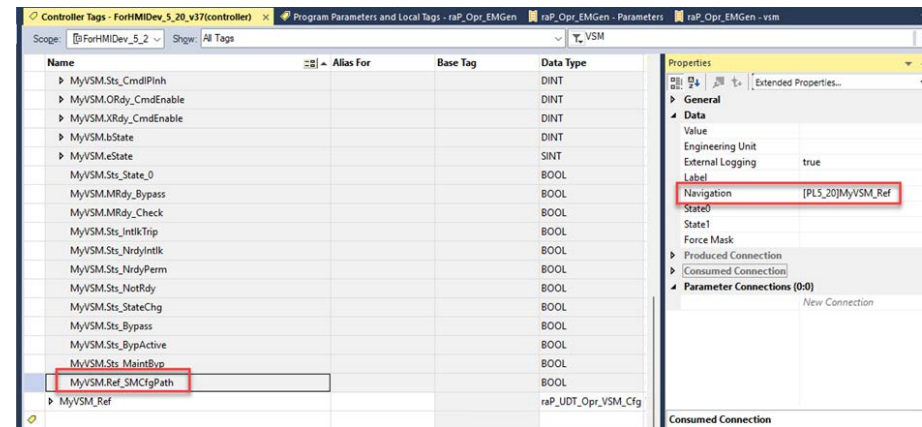
Graphic Symbols

Variable State Machine (raP\_Opr\_VSM)

A Graphic Symbol (global object) is created once and can be referenced multiple times on multiple displays in an application. When changes are made to the original (base) object, the instantiated copies (reference objects) are automatically updated. Use of graphic symbols, with tag structures in the ControlLogix® system, aid consistency and save engineering time. The configuration tag for the state machine backing tag is stored in the Parent Add-On Instruction tag Ref\_SMCfgPath.@Navigation. The macro NavToVSM.mcr is used to process the indirect reference.

Graphic Symbol	Description
raP_5_20_raP_Opr_VSM_GS_Standalone 	Show the VSM Config display

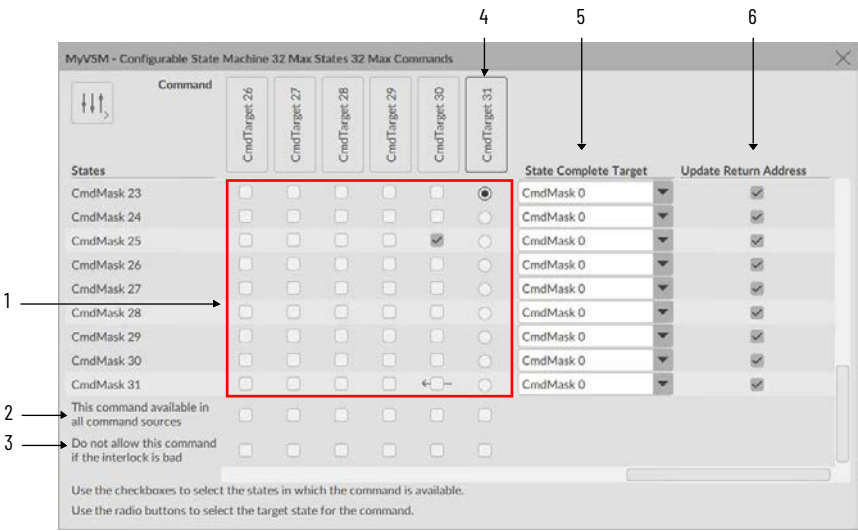
The graphic faceplates require the tag name for the Cfg\_VSM tag. You must set the @Navigation extended tag property on the VSM.Ref\_SMCfgPath tag.



FactoryTalk Optix  
Faceplates

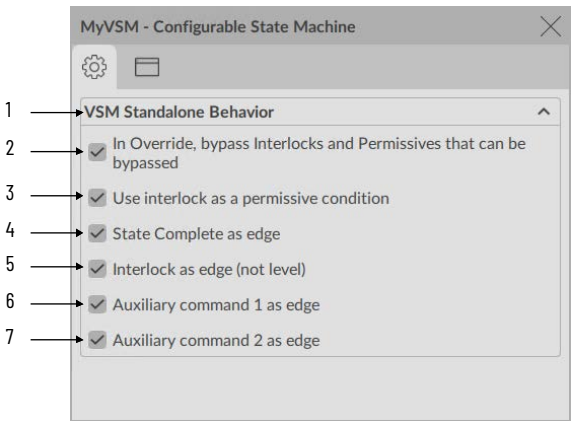
There are basic faceplate attributes that are common across all instructions. The Trends tab, Diagnostics tab, and Alarms tab all have the same basic functionality and are not described in this section. See [Basic Faceplate Attributes on page 24](#).

Operator Tab



Item	Description
1	Check Box = The command is allowed in this state Arrow = Target State when the command is executed Radio button = The state can be selected as the target state
2	Select to make this command available in all command sources
3	Select to prevent this command if the interlock is not OK
4	Click command button to show radio buttons for the command
5	Select the dropdown menu to choose State complete Target
6	Select to use update Return Address

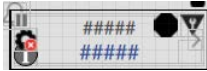
Advanced Engineering Tab



Item	Description
1	Show Embedded Behavior or Standalone Behavior
2	Select to bypass bypassable interlocks and permissives in Override command source.
3	Select to use interlock as permissive condition
4	Select to use State Complete as edge
5	Select to use Interlock as edge
6	Select to use Auxiliary command 1 as edge
7	Select to use Auxiliary command 2 as edge

# Generic Equipment Phase (raP\_Opr\_EPGen)

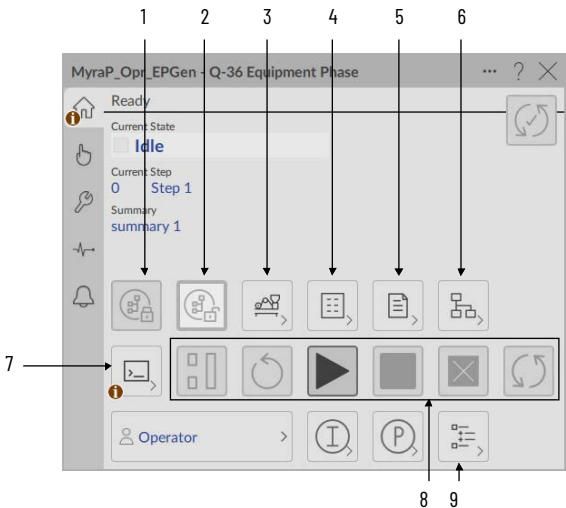
## Graphic Symbols

FactoryTalk Optix Graphic Symbol	Description
<div>GS_raP_Opr_EPGen</div> 	The raP_Opr_EPGen (Generic Phase Module) object controls an Equipment Phase in various command sources and monitors for fault conditions.

## FactoryTalk Optix Faceplates

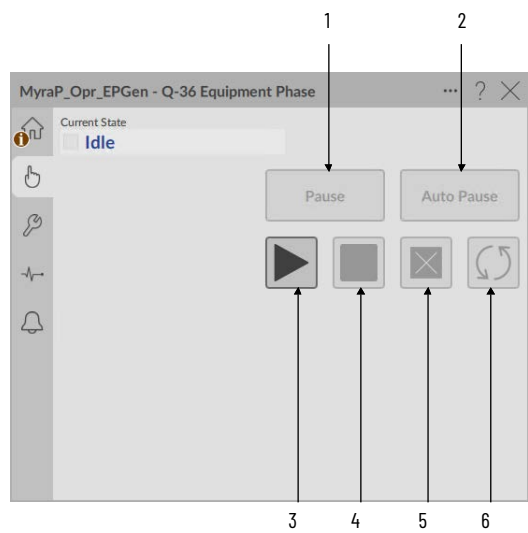
There are basic faceplate attributes that are common across all instructions. The Trends tab, Diagnostics tab, and Alarms tab all have the same basic functionality and are not described in this section. See [Basic Faceplate Attributes on page 24](#).

## Operator Tab



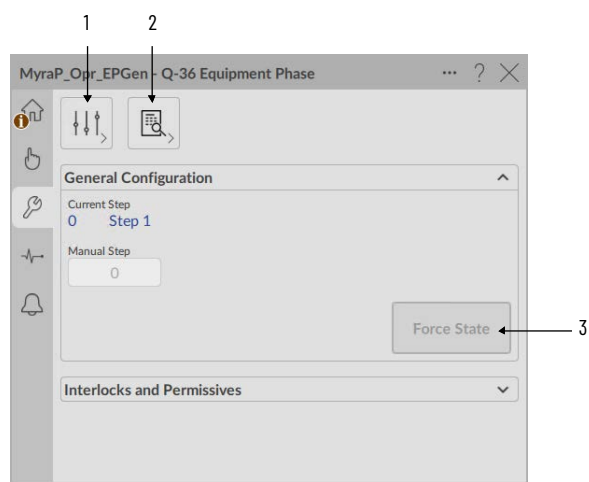
Item	Description
1	Acquire child command source
2	Release child command source
3	Display Bus faceplate for this object
4	Show parameter display
5	Show report display
6	Show State Detail display
7	Respond to Prompt request
8	Phase Commands (from left to right): Hold phase, Restart phase, Start phase, Stop phase, Abort phase, Reset phase
9	Display more information

### Manual Control



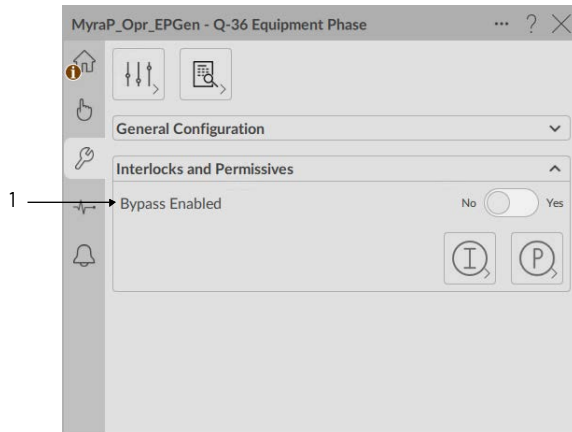
Item	Description
1	Pause phase
2	Auto pause the phase
3	Start phase
4	Stop phase
5	Abort phase
6	Reset phase

### Maintenance Tab



Item	Description
1	Display Advanced Properties
2	Navigate to detail display
3	The state force button is a Maintenance source command that is used to set the Sts_StateCompleteRqst bit. For an instance without the VSM the user needs to connect the Sts_StateCompleteRqst to the required location in their SM logic.

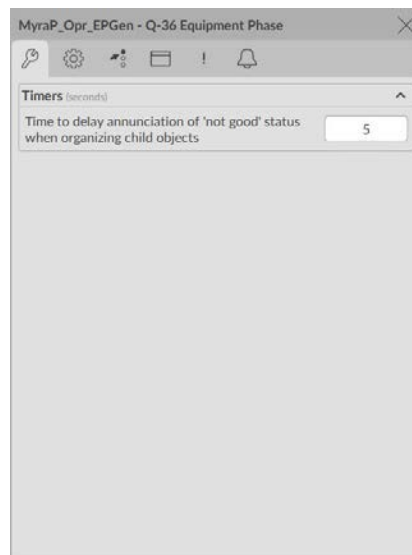
## Maintenance Tab - Interlocks and Permissives



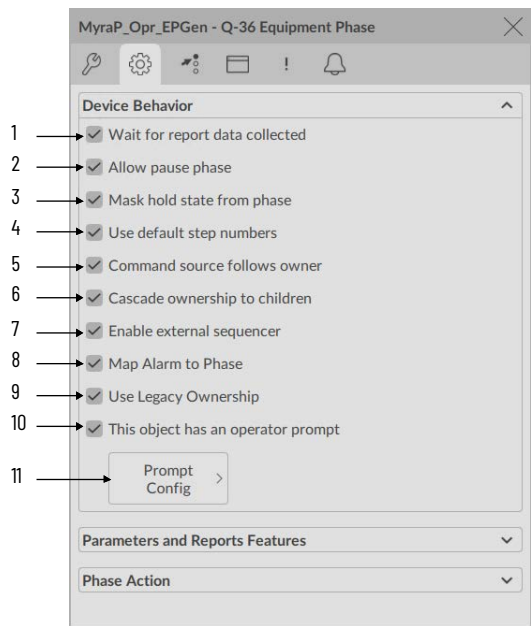
Item	Description
1	Select Yes to enable bypass

## Advanced Maintenance Tab

The timer creates a delay for the Tree View to indicate that Children are 'not good' upon ownership acquisition. This is done to avoid nuisance indications on the Tree View while waiting for children to be acquired. The default of five seconds is sufficient delay for most applications. You may wish to raise that value if child acquisition takes longer than this. This can occur if the organization has many nested organizational levels or nested elements have relatively long scan intervals. This value is limited less than 3600 seconds.

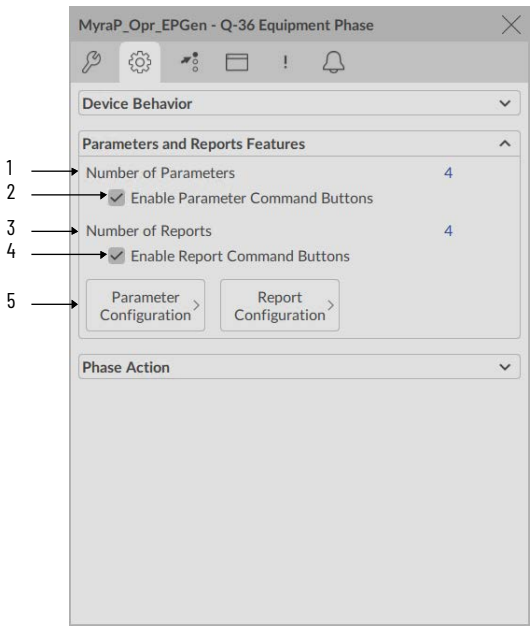


Advanced Engineering Tab - Device Behavior



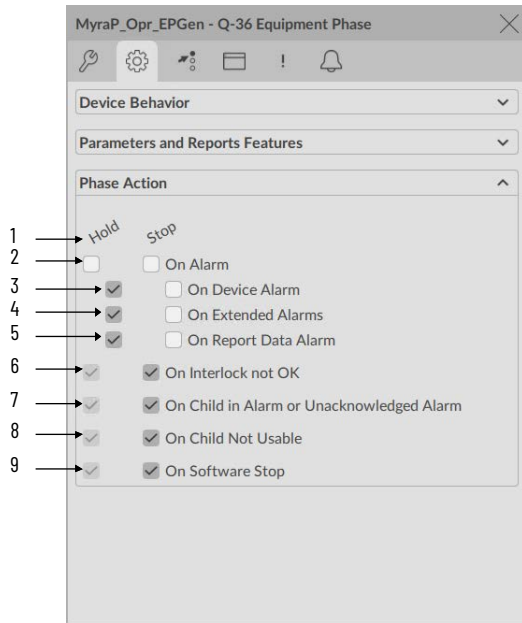
Item	Description
1	Select to wait for report data that is collected before alarming.
2	Select to allow a pause phase.
3	Select to mask hold state from phase.
4	Select to use default step numbers.
5	Select to have the command source follow the owner.
6	Select to cascade ownership to children (children will be owned when this object is owned)
7	This phase has an external sequence that is associated to it. (FTBatch).
8	Map alarm code form the equipment phase to the phase with the PFL instruction.
9	Use legacy object ownership. Use PCmd_Owner to set Val_Owner.
10	Select to enable an operator prompt.
11	Select to navigate to the Prompt faceplate.

Advanced Engineering Tab - Parameters and Reports Features



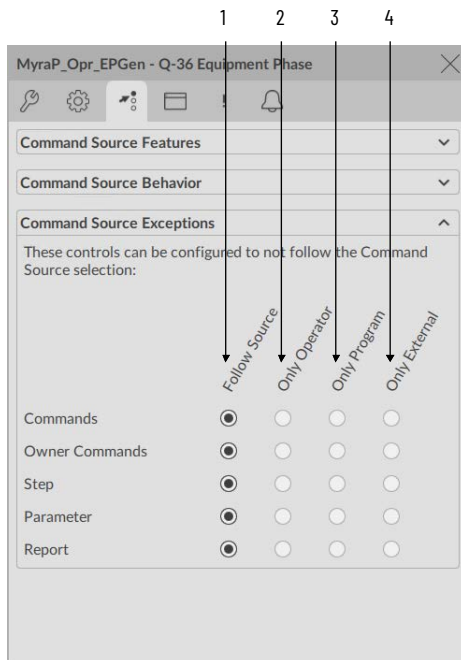
Item	Description
1	Number of Parameters configured.
2	Select to enable parameter command buttons.
3	Number of Reports configured.
4	Select to enable report command buttons.
5	Select to show parameter configuration display (left) or report configuration display (right).

## Advanced Engineering Tab - Phase Action



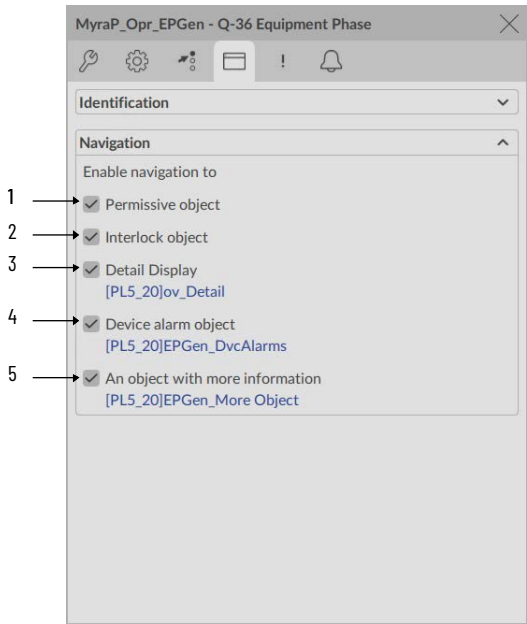
Item	Description
1	Select conditions to Hold or Stop phase
2	On alarm active
3	Device alarms condition, external devices connected via Inp_DvcAlms
4	Extended alarms active, connected via Inp_ExtdAlmsAlm
5	Report data alarm, report data not received from external system in set time.
6	Interlock not ok
7	Child alarm active or UnAckd via OOAP
8	Child cannot be owned or is in a state that makes it unusable via OOAP
9	Software stop active

## Advanced Command Source Tab - Command Source Exceptions



Item	Description
1	Control of this feature is determined by the current command source
2	This feature will always be commanded by the Operator
3	This feature will always be commanded by the Program Logic
4	This feature will always be commanded by the External Source

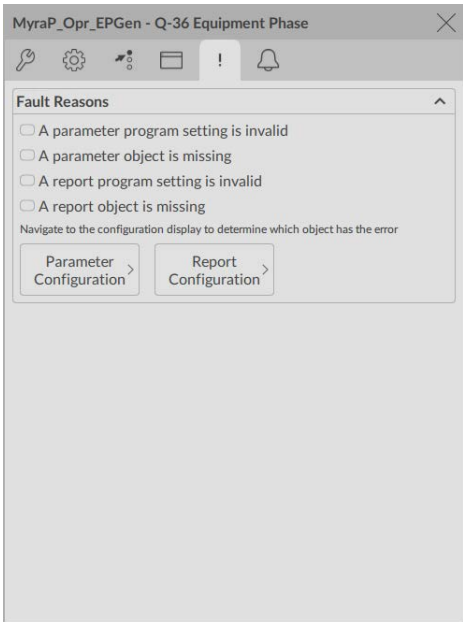
## Advanced HMI Configuration Tab - Navigation



Item	Description
1	Select to enable navigation to permissive object
2	Select to enable navigation to interlock object
3	Select to allow navigation to detail display
4	Select to allow navigation to a device alarm object.
5	Select to enable navigation to an object with more information. You configure the tag name of the object that you want to navigate to in the extended tag property "Cfg_HasMoreObj.@Navigation". It uses the .@Library and .@Instruction extended tag properties to display the objects faceplate.

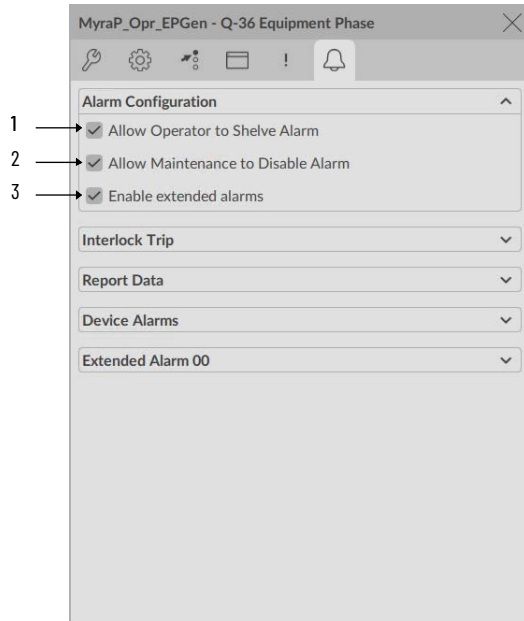
## Advanced Faults Tab

The Faults tab shows information on the status of the objects. Select the Parameter and Report configuration buttons to determine which object has the fault.





## Advanced Alarm Configuration



Item	Description
1	Select to allow Operator to shelve alarm
2	Select to allow Maintenance to disable alarm
3	Select to enable extended alarms

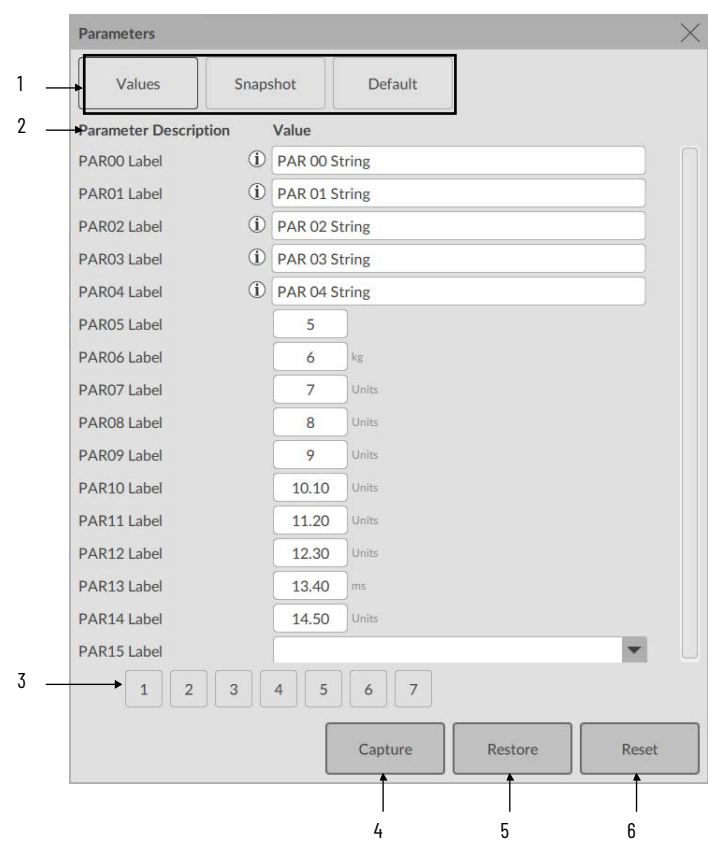
**Notes:**

# Parameter and Reports (raP\_Tec\_ParRpt)

## FactoryTalk Optix Faceplates

There are basic faceplate attributes that are common across all instructions. The Trends tab, Diagnostics tab, and Alarms tab all have the same basic functionality and are not described in this section. See [Basic Faceplate Attributes on page 24](#).

### Parameter Display



Item	Description
1	Select to navigate between current values, snapshot values, and default values.
2	List of each parameter value and description.
3	Navigation to more parameters (only visible if more than 16 parameter values used).
4	Capture Snapshot. Press to capture current values into snapshot values.
5	Restore Snapshot. Press to restore snapshot values into current values.
6	Reset to defaults. Press to reset current values to default values.

The following display shows the information that is captured by the snapshot.

Parameters

Values

Snapshot

Default

Parameter Description	Snapshot
PAR00 Label	
PAR01 Label	
PAR02 Label	
PAR03 Label	
PAR04 Label	
PAR05 Label	0
PAR06 Label	0 kg
PAR07 Label	0 Units
PAR08 Label	0 Units
PAR09 Label	0 Units
PAR10 Label	0.00 Units
PAR11 Label	0.00 Units
PAR12 Label	0.00 Units
PAR13 Label	0.00 ms
PAR14 Label	0.00 Units
PAR15 Label	

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4

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Capture

Restore

Reset

The following display shows the default information.

Parameters

Values

Snapshot

Default

Parameter Description	Default
PAR00 Label	Test Default 00
PAR01 Label	
PAR02 Label	
PAR03 Label	
PAR04 Label	
PAR05 Label	0
PAR06 Label	0 kg
PAR07 Label	0 Units
PAR08 Label	0 Units
PAR09 Label	0 Units
PAR10 Label	0.00 Units
PAR11 Label	0.00 Units
PAR12 Label	0.00 Units
PAR13 Label	0.00 ms
PAR14 Label	0.00 Units
PAR15 Label	

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Capture

Restore

Reset

## Parameter Configuration

Parameters Configuration

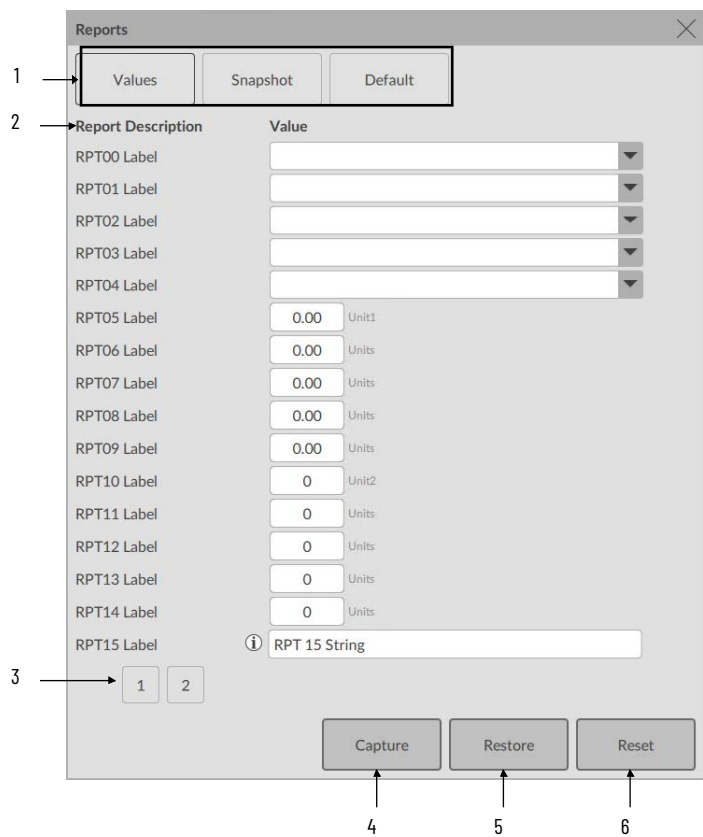
Has Parameter	Default Value	Unit	Adjust	-ve	+ve	Minimum	Maximum	DP	R/W	Keep	Security Code
<input checked="" type="checkbox"/> PAR00 Label	Par 00								<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	E
<input checked="" type="checkbox"/> PAR01 Label	Par 01								<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	E
<input checked="" type="checkbox"/> PAR02 Label	Par 02								<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	E
<input checked="" type="checkbox"/> PAR03 Label	Par 03								<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	E
<input checked="" type="checkbox"/> PAR04 Label	Par 04								<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	E
<input checked="" type="checkbox"/> PAR05 Label123	0	%	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0	100		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	E
<input checked="" type="checkbox"/> PAR06 Label	0	kg123	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0	100		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	E
<input checked="" type="checkbox"/> PAR07 Label	0	test	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0	100		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	E
<input checked="" type="checkbox"/> PAR08 Label	0	Units	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0	100		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	E
<input checked="" type="checkbox"/> PAR09 Label	0	Units	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0	100		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	E
<input checked="" type="checkbox"/> PAR10 Label	0	Units	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0	100	0	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	E
<input checked="" type="checkbox"/> PAR11 Label	0	Units	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0	100	0	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	E
<input checked="" type="checkbox"/> PAR12 Label	0	Units	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0	100	0	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	E
<input checked="" type="checkbox"/> PAR13 Label	0	ms	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0	100	0	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	E
<input checked="" type="checkbox"/> PAR14 Label	0	Units	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0	100	0	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	E
<input checked="" type="checkbox"/> PAR15 Label	Enum 00								<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	E

1 - 16 of 100    1 2 3 4 5 6 7

DP - Decimal places  
Keep - Value can be modified when in Program Command  
R/W - Value can be modified by the user

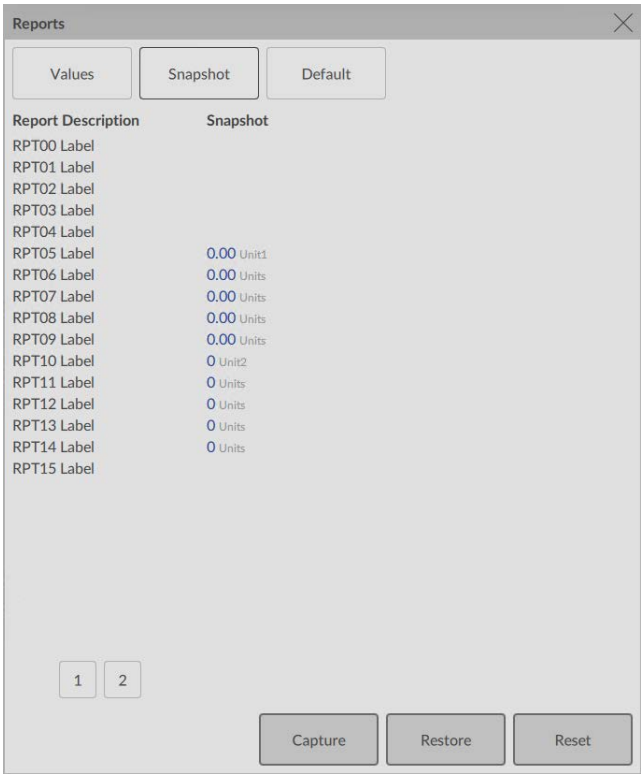
Item	Description
1	Parameter description
2	Default value of Parameter
3	Engineering unit of Parameter.
4	Allow limit adjust
5	Integer minimum adjust value of the parameter
6	Integer maximum adjust value of the parameter.
7	Minimum value of the Parameter
8	Maximum value of the Parameter
9	Enter the decimal places to display.
10	Parameter value can be modified by the operator when enabled.
11	Parameter value can be modified when in Program Command.
12	Assign User Roles Security Level of the Parameter.

# Report Display



Item	Description
1	Select to navigate between current values, snapshot values, and default values.
2	List of each report value and description.
3	Navigation to more parameters (only visible if more than 16 report values used). See <a href="#">Parameter Configuration on page 277</a>
4	Capture Snapshot. Press to capture current values into snapshot values.
5	Restore Snapshot. Press to restore snapshot values into current values.
6	Reset to defaults. Press to reset current values to default values.

The following display shows the information that is captured by the snapshot.



The following display shows the default information.

The screenshot shows a 'Reports' dialog box with three tabs: 'Values', 'Snapshot', and 'Default'. The 'Default' tab is selected, displaying a table of report labels and their default values. The table has two columns: 'Report Description' and 'Default'. The labels range from RPT00 to RPT15. The default values are mostly '0.00' followed by a unit (Unit1, Units, or Unit2), or '0' followed by a unit. RPT15 has a default value of 'Test Default 00'. At the bottom of the dialog, there are two small buttons labeled '1' and '2', and three larger buttons labeled 'Capture', 'Restore', and 'Reset'.

Report Description	Default
RPT00 Label	
RPT01 Label	
RPT02 Label	
RPT03 Label	
RPT04 Label	
RPT05 Label	0.00 Unit1
RPT06 Label	0.00 Units
RPT07 Label	0.00 Units
RPT08 Label	0.00 Units
RPT09 Label	0.00 Units
RPT10 Label	0 Unit2
RPT11 Label	0 Units
RPT12 Label	0 Units
RPT13 Label	0 Units
RPT14 Label	0 Units
RPT15 Label	Test Default 00

# Report Configuration

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12

Reports Configuration

Has Report

Default Value

Unit

Adjust

-ve

+ve

Minimum

Maximum

DP

R/W

Keep

Security Code

☒

RPT00 Label

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RPT01 Label

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RPT02 Label

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RPT03 Label☐☐☒☒

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RPT05 Label☐☒☒

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RPT11 Label☐☒☒

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RPT12 Label☐☒☒

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RPT13 Label☐☒☒

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RPT14 Label☐☒☒

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RPT15 Label☐☐☒☒

1 - 16 of 20

1

2

DP - Decimal places

Keep - Value can be modified when in Program Command


R/W - Value can be modified by the user

Item	Description
1	Report description
2	Default value of Report
3	Engineering unit of Report.
4	Allow limit adjust
5	Integer minimum adjust value of the parameter.
6	Integer maximum adjust value of the parameter.
7	Minimum value of the Report
8	Maximum value of the Report
9	Enter the decimal places to display.
10	Report value can be modified by the operator when enabled.
11	Report value can be modified when in Program Command.
12	Assign User Roles Security Level of the Report.



# Operator Prompt (raP\_Opr\_Prompt)

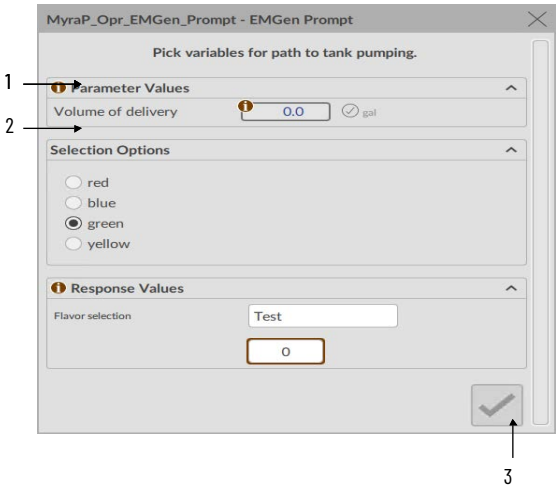
## Graphic Symbols

FactoryTalk Optix Graphic Symbol	Description
<div>raP_5_xx_raP_Opr_Prompt_GS</div> 	Standard Prompt graphic symbol

## FactoryTalk Optix Faceplates

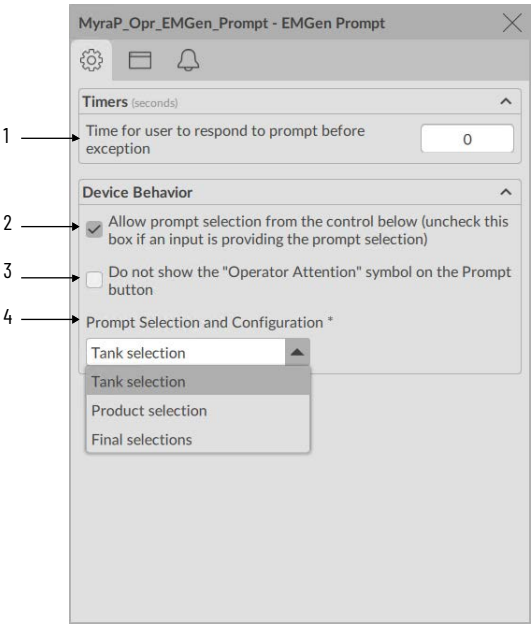
There are basic faceplate attributes that are common across all instructions. The Trends tab, Diagnostics tab, and Alarms tab all have the same basic functionality and are not described in this section. See [Basic Faceplate Attributes on page 24](#).

## Operator Tab



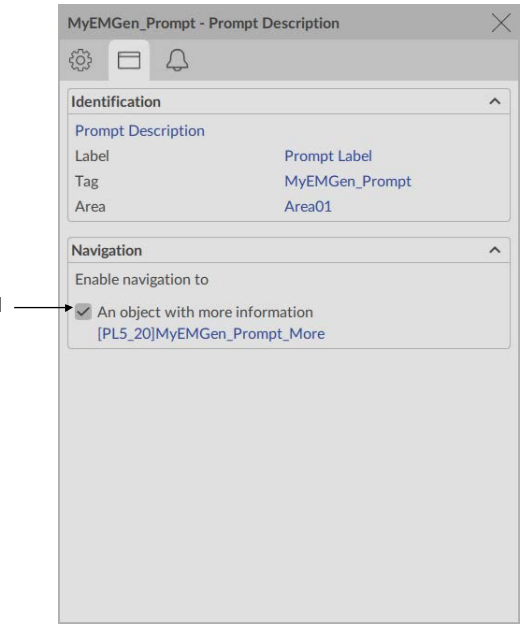
Item	Description
1	Displays the Prompt mode status.
2	Displays the Prompt selection.
3	Navigate to the Prompt Response display.

## Advanced Engineering Tab



Item	Description
1	Configure the maximum time without a user response before an exception occurs.
2	Allow prompt selection and configuration from this display.
3	Hides the operator attention symbol on the Prompt Response button when there is an active prompt.
4	Select a prompt from Prompt Selection dropdown menu.

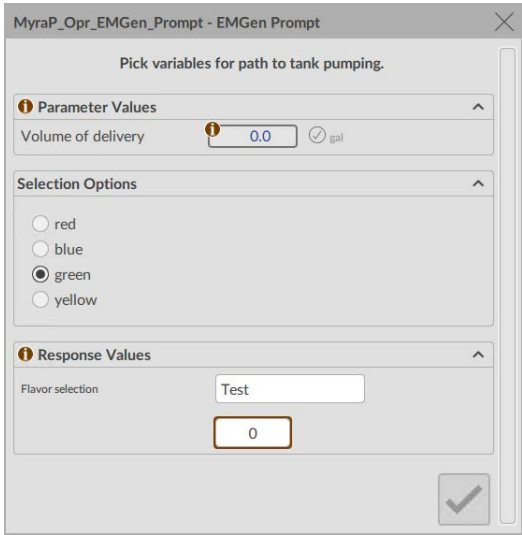
## Advanced HMI Configuration Tab



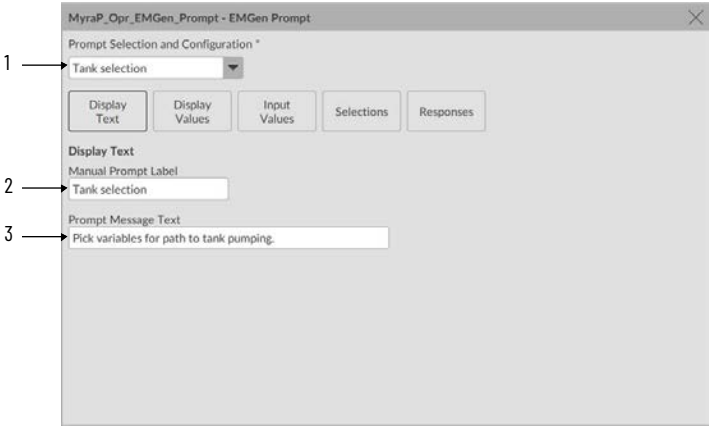
Item	Description
1	Select to enable navigation to an object with more information. You configure the tag name of the object that you want to navigate to in the extended tag property "Cfg_HasMoreObj.@Navigation". It uses the .@Library and .@Instruction extended tag properties to display the objects faceplate.

Response

This faceplate lets the operator review and record data based on the prompt. All values are configured on the prompt configuration faceplate in FactoryTalk View SE. The operator selects the checkbox to continue.

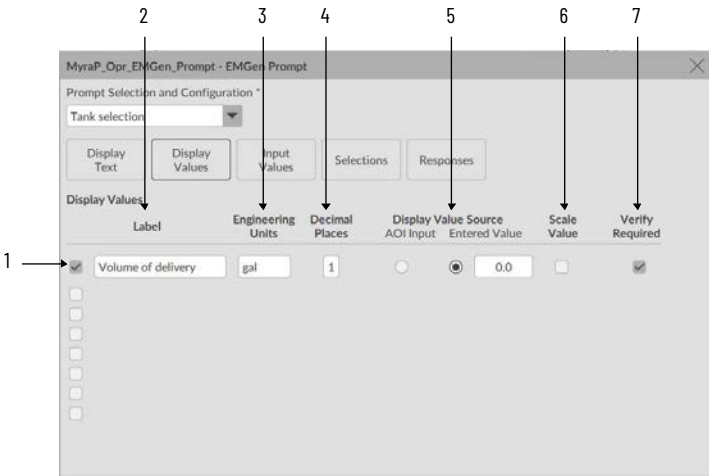


Prompt Configuration



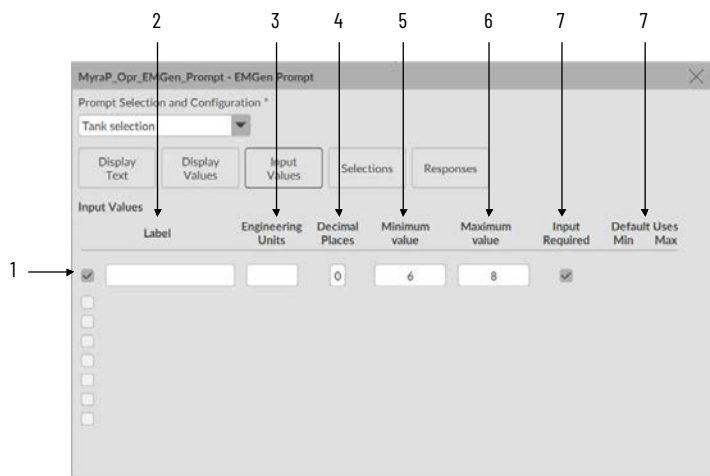
Display Text Tab

Item	Description
1	Select a prompt from Prompt Selection dropdown menu.
2	Enter a label for the Prompt.
3	Enter the Prompt message text.



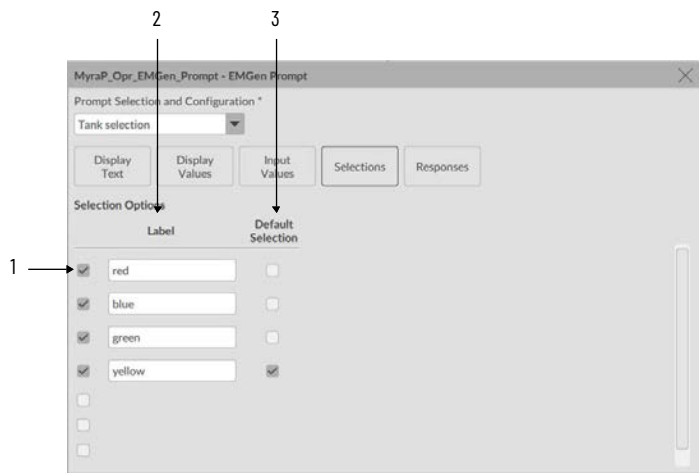
Display Values Tab

Item	Description
1	Select to enable a numeric display field.
2	Enter a label.
3	Enter an engineering unit.
4	Enter the decimal places to display.
5	Select to either display a value from the prompt 'AOI Input' or the value that you enter in the box that appears.
6	Select to scale the value by the entered value and the Inp.ScalePct.
7	Select to require the operator to verify the displayed value.



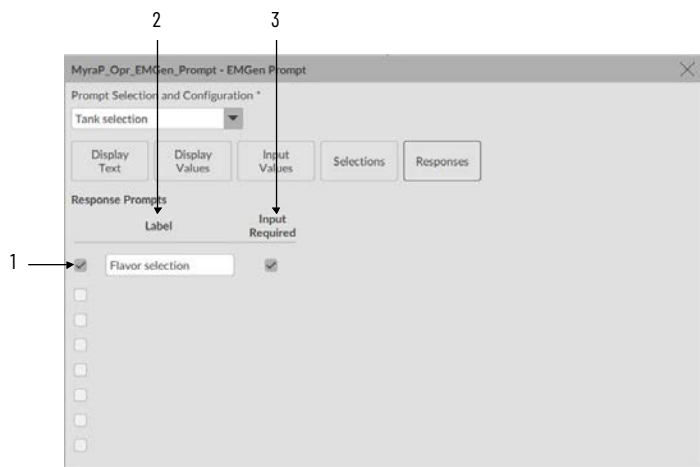
### Input Values Tab

Item	Description
1	Select to enable a numeric input
2	Enter a label for the input value.
3	Enter an engineering unit.
4	Enter the decimal places to display.
5	Enter a minimum value for the entry.
6	Enter a maximum value for the entry.
7	Select to require an operator to enter a value.
8	If an input is not required, click Minimum or Maximum to be used for the entry.



### Selections Tab

Item	Description
1	Select to enable a label text box.
2	Enter a label for the selection option.
3	Select to designate a selection as the default.



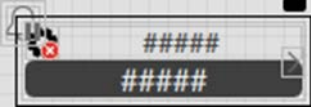
### Responses Tab

Item	Description
1	Select to enable a response prompt.
2	Enter a label for the response prompt.
3	Select to require an input.

# Logix Diagnostic Objects

## Logix Change Detector (raP\_Dvc\_LgxChangeDet)

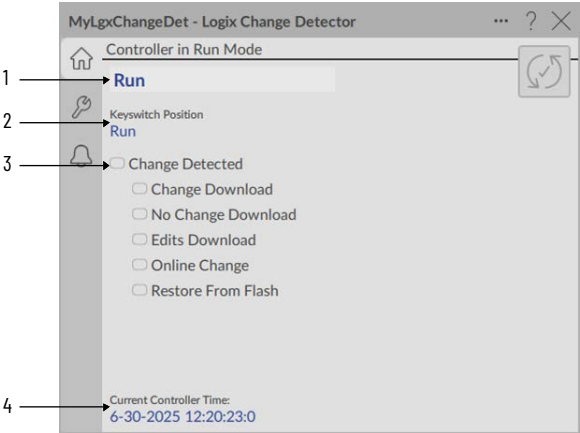
### Graphic Symbols

FactoryTalk Optix Graphic Symbol	Description
raP_5_xx_raP_Dvc_LgxChangeDet_GS	
	Standard raP_Dvc_LgxChangeDet graphic symbol

### FactoryTalk Optix Faceplates

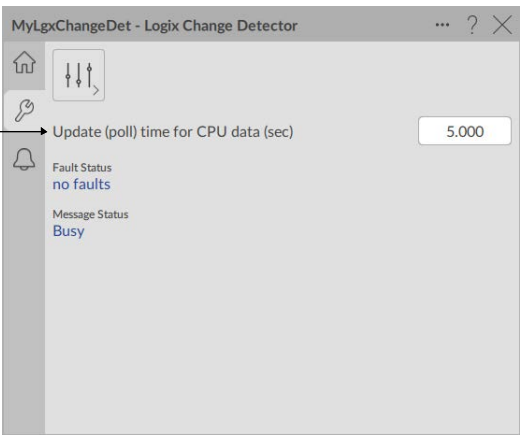
There are basic faceplate attributes that are common across all instructions. The Trends tab, Diagnostics tab, and Alarms tab all have the same basic functionality and are not described in this section. See [Basic Faceplate Attributes on page 24](#).

#### Operator Tab



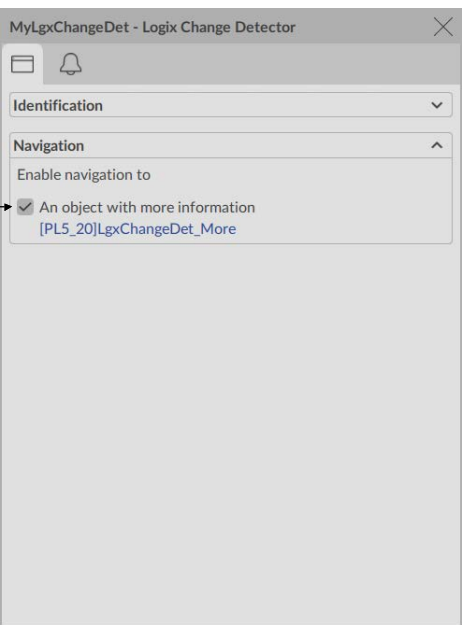
Item	Description
1	Displays the controller status mode.
2	Displays the keyswitch position status
3	Displays the change detected status.
4	Displays the current controller time.

Maintenance Tab



Item	Description
1	Enter the update time for CPU data.

Advanced HMI Configuration Tab - Navigation



Item	Description
1	Select to enable navigation to an object with more information (Cfg_HasMoreObj is set to true.) This can be configured to navigate to an object backing tag or a UDT tag that has Instruction and Library defined.

Logix Controller CPU  
Utilization  
(raP\_Dvc\_LgxCPU\_5x80)

Graphic Symbols

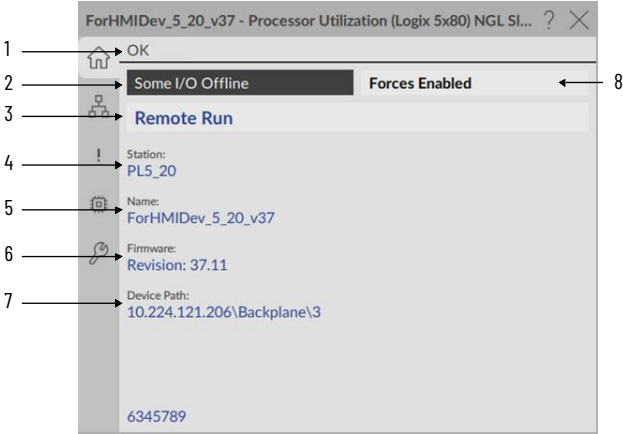
A Graphic Symbol (global object) is created once and can be referenced multiple times on multiple displays in an application. When changes are made to the original (base) object, the instantiated copies (reference objects) are automatically updated. Use of graphic symbols, with tag structures in the ControlLogix® system, aid consistency and save engineering time.

FactoryTalk Optix Graphic Symbol	Description
raP_5_xx_raP_Dvc_LgxCPU_5x80_GS	This global object is used to view controller CPU utilization for Logix 5x80 controllers at firmware version 33 or later.

FactoryTalk Optix Faceplates

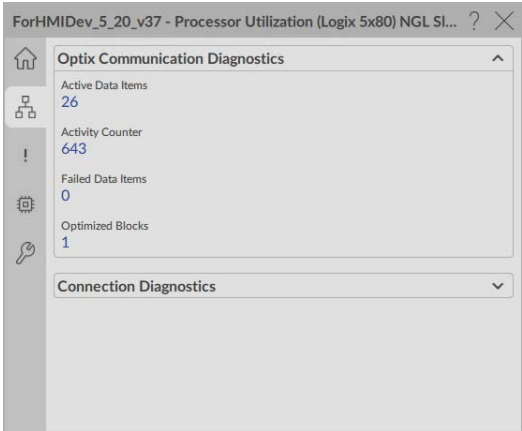
There are basic faceplate attributes that are common across all instructions. The Trends tab, Diagnostics tab, and Alarms tab all have the same basic functionality and are not described in this section. See [Basic Faceplate Attributes on page 24](#).

Operator Tab



Item	Description
1	Controller OK indicator
2	I/O communication status
3	Current controller mode
4	Device shortcut
5	Processor name defined in RSLogix 5000
6	Current firmware revision
7	Path from the HMI server to the device
8	I/O forcing status indicator

Communication Tab - Optix Communication Diagnostics



Communication Tab - Connection Diagnostics

ForHMIDev\_5\_20\_v37 - Processor Utilization (Logix 5x80) NGL SI... ? X

Connection Diagnostics

Connection Type	Current Instances	High Water	Total Allowed
Total	1	3	1,533
I/O	0	0	38
Produced Tags	0	0	0
Consumed Tags	0	0	0
Message/Block Xfer	0	0	
Incoming	1	3	
Unconnected Buffers	1	2	320
Message/Block Xfer Cache Entries	0	0	256

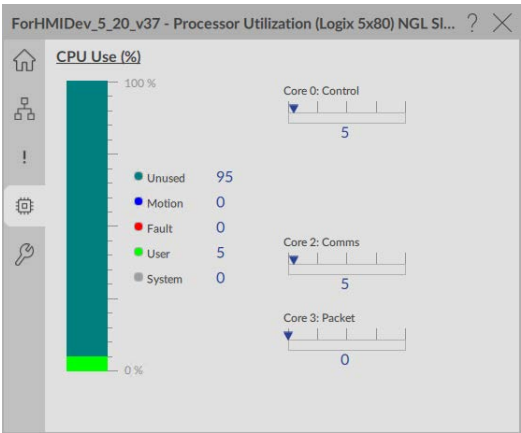
Faults Tab

ForHMIDev\_5\_20\_v37 - Processor Utilization (Logix 5x80) NGL SI... ? X

Minor Faults (0)

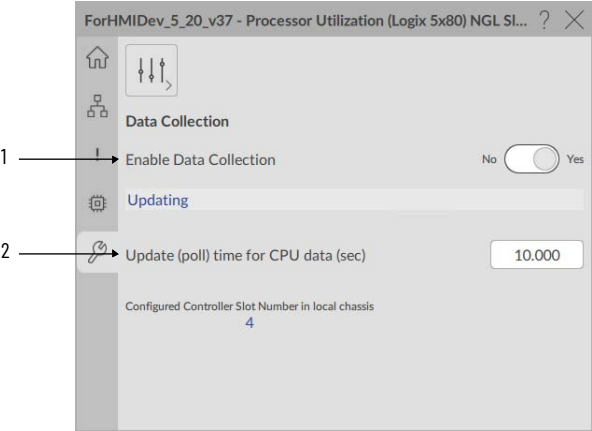
☐ Program   ☐ Port  
☐ Task   ☐ Battery

Performance Tab



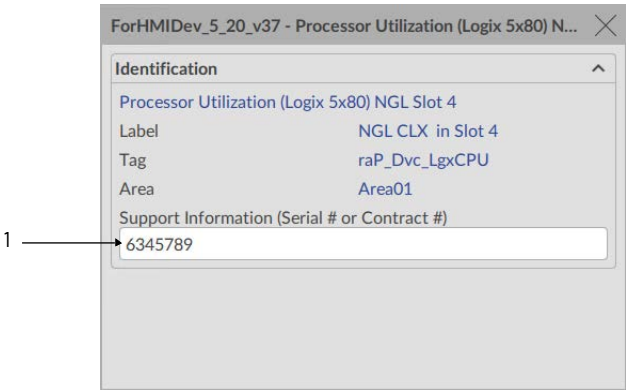


Maintenance Tab



Item	Description
1	Enable / Disable Data Collection. <b>IMPORTANT:</b> The raP_Dvc_LgxCPU_5x80 instruction accomplishes its data collection by using MSG instructions to the controller (MSG to self), which uses some controller communication resources. You can leave data collection disabled until it is needed. Some faceplate data is monitored without using the polling messages and is still displayed. When disabled, only data collection via MSG instructions is disabled. Other data can still be updated and displayed on the faceplate. Data not updated when collection is disabled is not displayed.
2	Enter the interval that is used to collect and update data that is displayed on the other faceplate tabs. <b>IMPORTANT:</b> If you set this parameter too low, it can result in a flood of messages to the controller and possibly affect control performance. Do not use a value less than 5 seconds unless instructed to do so by a Rockwell Automation Technical Support specialist.

Advanced HMI Configuration Tab

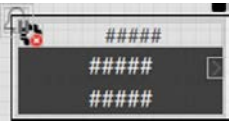


Item	Description
1	Enter a serial number for your Studio 5000 Logix Designer® software, the contract number for your TechConnect <sup>SM</sup> , or other technical support contract information. This information is then available for ready reference if you call Rockwell Automation Technical Support.

# Logix Redundant Controller Monitor (raP\_Dvc\_LgxRedun)

## Graphic Symbols

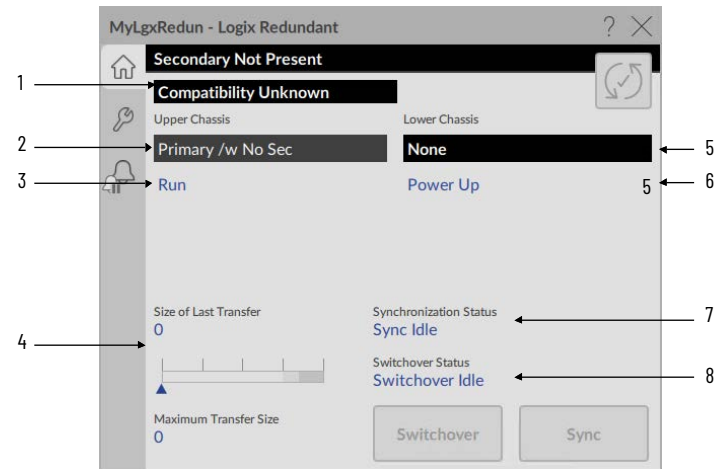
A Graphic Symbol (global object) is created once and can be referenced multiple times on multiple displays in an application. When changes are made to the original (base) object, the instantiated copies (reference objects) are automatically updated. Use of graphic symbols, with tag structures in the ControlLogix system, aid consistency and save engineering time.

FactoryTalk Optix Graphic Symbol	Description
<div> <div>raP_5_xx_raP_Dvc_LgxRedun_GS</div>  </div>	This global object is used for redundancy modules.

## FactoryTalk Optix Faceplates

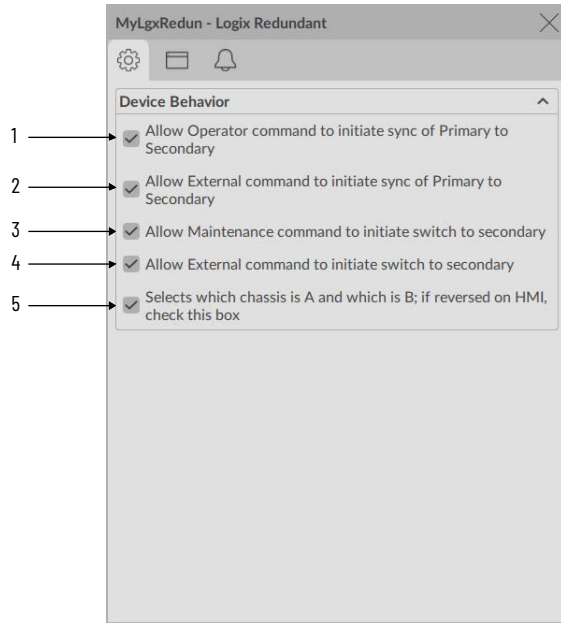
There are basic faceplate attributes that are common across all instructions. The Trends tab, Diagnostics tab, and Alarms tab all have the same basic functionality and are not described in this section. See [Basic Faceplate Attributes on page 24](#).

### Operator Tab



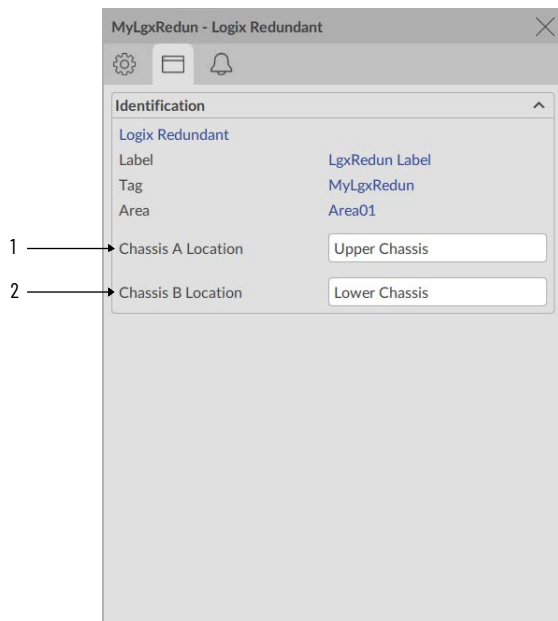
Item	Description
1	Compatibility status
2	Chassis A (upper chassis) status
3	Chassis A (upper chassis) controller mode
4	Transfer size and status
5	Chassis B (lower chassis) status
6	Chassis B (lower chassis) controller status
7	Synchronization status
8	Switchover status

### Advanced Engineering Tab



Item	Description
1	Select to enable the Operator command to initiate synchronization of the primary controller to the secondary controller.
2	Select to enable the External command to initiate synchronization of the primary controller to the secondary controller.
3	Select to enable the Maintenance command to switch to the secondary controller.
4	Select to enable the External command to switch to the secondary controller.
5	Select to designate chassis A and chassis B on the HMI.

### Advanced HMI Configuration Tab

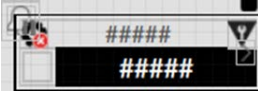


Item	Description
1	Enter a name for the location of Chassis A location.
2	Enter a name for the location of Chassis B location.

**Logix Module Status**  
**(raP\_Dvc\_LgxModuleSts)**

**Graphic Symbols**

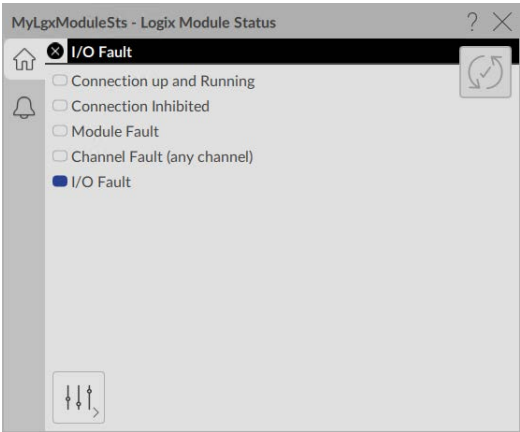
A Graphic Symbol (global object) is created once and can be referenced multiple times on multiple displays in an application. When changes are made to the original (base) object, the instantiated copies (reference objects) are automatically updated. Use of graphic symbols, with tag structures in the ControlLogix system, aid consistency and save engineering time.

FactoryTalk Optix Graphic Symbol	Description
<div> <div>raP_5_xx_raP_Dvc_LgxModuleSts_GS</div>  </div>	This global object is used for module status.

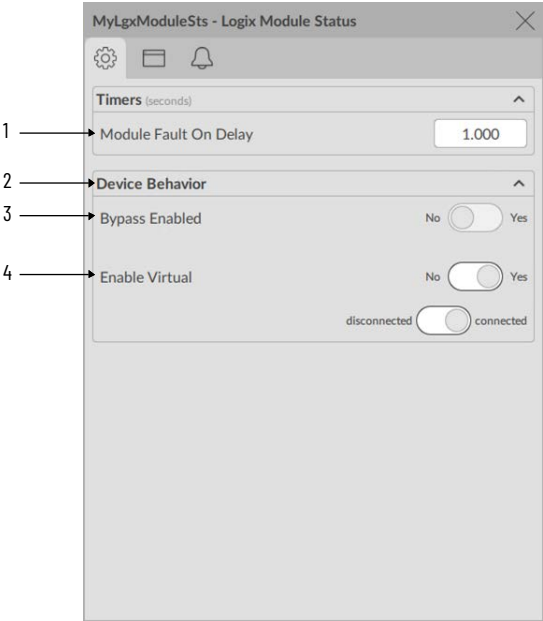
**FactoryTalk Optix Faceplates**

There are basic faceplate attributes that are common across all instructions. The Trends tab, Diagnostics tab, and Alarms tab all have the same basic functionality and are not described in this section. See [Basic Faceplate Attributes on page 24](#).

*Operator*



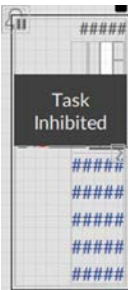

Advanced Engineering



Item	Description
1	Enter the delay, in seconds, after an I/O communication fault is detected before raising the Alm_ModuleFault alarm. This delay may be needed to avoid an alarm flood when a network or I/O adapter fault cascades down to several modules. The delay allows time for the parent fault to inhibit the individual module fault alarms.
2	Select yes to bypass (block) the generation of the I/O Fault status (Sts_IOFault). Select no to enable I/O Fault status generation.
3	Select yes to enable virtual operation; the actual module connection status is ignored, and the virtual connection status setting (#4) is used instead. Select no to enable physical operation; the actual module connection is monitored.
4	When virtual operation is selected, use this selector to set the virtual connection status. When set to disconnected, an I/O Fault status is generated (if not bypassed).

Logix Task Monitor  
(raP\_Dvc\_LgxTaskMon)

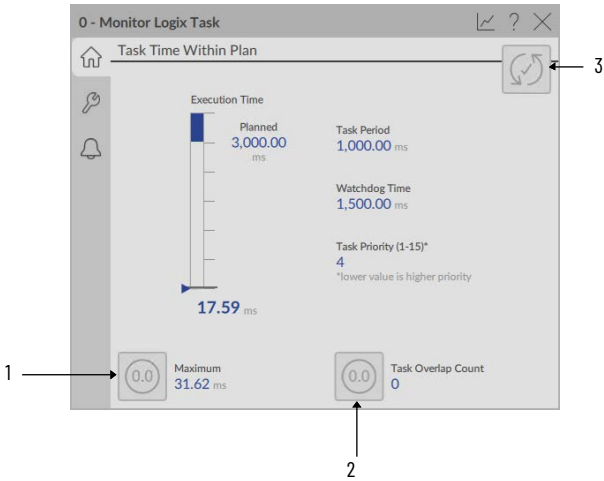
Graphic Symbols

FactoryTalk Optix Graphic Symbol	Description
raP_5_xx_raP_Dvc_LgxTaskMon_GS_TaskMon	 <p>This global object provides task statistics for one task in a Logix controller.</p>
raP_5_xx_raP_Dvc_LgxTaskMon_GS_TaskMonSummary	
	This object provides a graphic representation of eight L_TaskMon objects in a controller. Click this object to display a summary screen of all eight L_TaskMon objects.

FactoryTalk Optix Faceplates

There are basic faceplate attributes that are common across all instructions. The Trends tab, Diagnostics tab, and Alarms tab all have the same basic functionality and are not described in this section. See [Basic Faceplate Attributes on page 24](#).

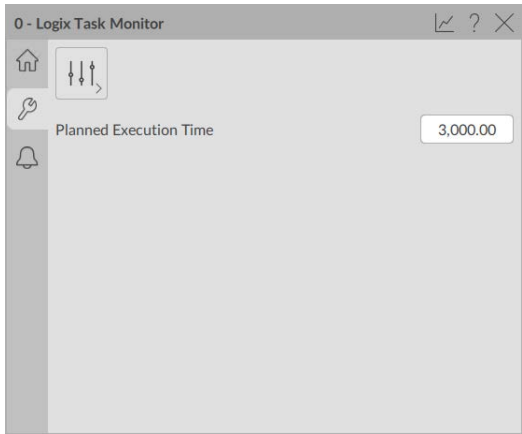
Operator Tab



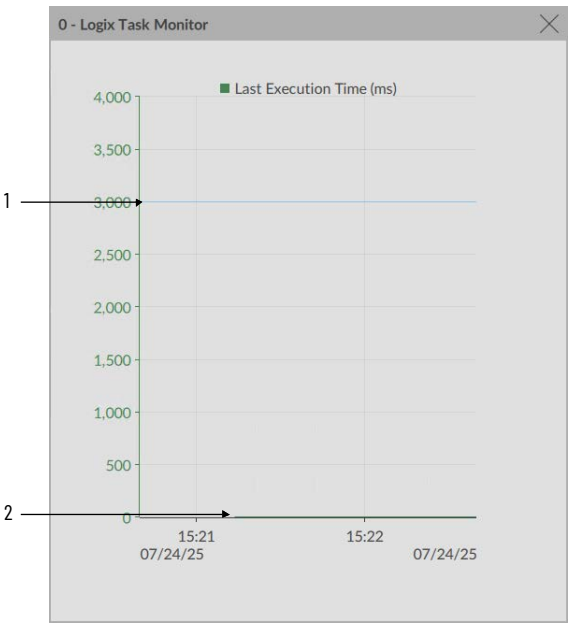
Item	Description
1	Click to reset the Max Execution Time.
2	Click to reset Task Overlap Count.
3	Click to reset and acknowledge all alarms.

Maintenance Tab

The maintenance tab provides access to the planned execution time.



Trends Tab



Item	Description
1	Planned execution time (blue line)
2	Last execution time (green line)

Logix Event  
(raP\_Tec\_LgxEvent)

Graphic Symbols

There are no visualization files associated with this object.

Faceplates

There are no visualization files associated with this object

**Notes:**



## Ownership (raP\_Opr\_Owner)

### Graphic Symbols

There are no graphic symbols or HMI graphic support for the raP\_Opr\_Owner instruction.

### FactoryTalk Optix Faceplates

There are basic faceplate attributes that are common across all instructions. The Trends tab, Diagnostics tab, and Alarms tab all have the same basic functionality and are not described in this section. See [Basic Faceplate Attributes on page 24](#).

**Notes:**

## Arbitration (raP\_Opr\_ArbitrationQ)

### Graphic Symbols

There are no graphic symbols or HMI graphic support for the raP\_Opr\_ArbitrationQ instruction.

### FactoryTalk Optix Faceplates

There are basic faceplate attributes that are common across all instructions. The Trends tab, Diagnostics tab, and Alarms tab all have the same basic functionality and are not described in this section. See [Basic Faceplate Attributes on page 24](#).

**Notes:**

## Organizational Scan (raP\_Opr\_OrgScan)

### Graphic Symbols

There are no graphic symbols or HMI graphic support for the raP\_Opr\_OrgScan instruction.


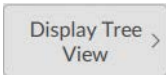
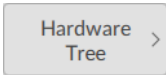
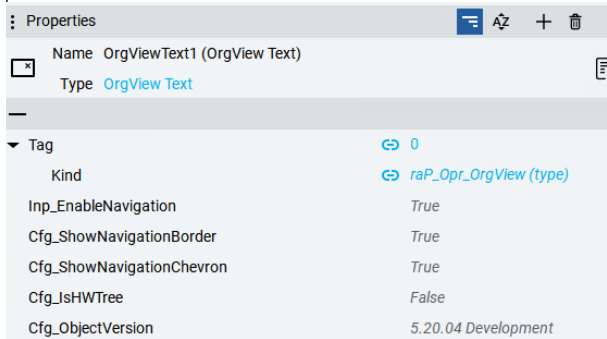
### FactoryTalk Optix Faceplates

There are basic faceplate attributes that are common across all instructions. The Trends tab, Diagnostics tab, and Alarms tab all have the same basic functionality and are not described in this section. See [Basic Faceplate Attributes on page 24](#).



## Organizational View (raP\_Opr\_OrgView)

### Graphic Symbols

Graphic Symbol	Description
raP_5_xx_GS_raP_Opr_OrgView_Symbol 	
raP_5_xx_GS_raP_Opr_OrgView_Text 	
	<p>Set the variable Cfg_IsHWTre to 'True' in Properties to show the Hardware Tree graphic symbol.</p> 

### FactoryTalk Optix Faceplates

There are basic faceplate attributes that are common across all instructions. The Trends tab, Diagnostics tab, and Alarms tab all have the same basic functionality and are not described in this section. See [Basic Faceplate Attributes on page 24](#).

Faceplates for this instruction are shown in the OOAP chapter of [PROCES-RM200](#).

**Notes:**



## FactoryTalk Optix E-Signature

# FactoryTalk Optix E-Signature User Guide

PlantPAX® Process Library offers a suite of components for bulk configuration of FactoryTalk® Optix™ E-Signature, allowing users to efficiently manage E-Signature at the tag level.

## Features

The E-Signature components provide the following features to users:

- Tag DataType based predefined Template.
- Export FactoryTalk Optix tag list to Excel® configuration file based on Template.
- One-step import Tags' Confirmation configurations into FactoryTalk Optix.
- One-step import Tags' AuditSigning Signature properties into FactoryTalk Optix from customized configuration file.
- Pop-up dialogs (including Confirm, Sign, DoubleSign) that can be triggered by named workflow.
- Data grid for recording E-Signature logs.

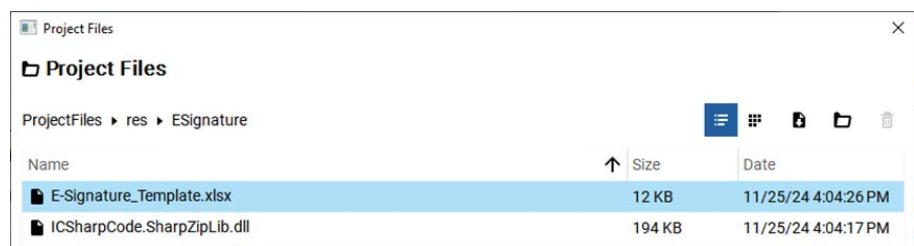
## Components

The components include E-Signature\_Template.xlsx, Audit\_NetLogic, SigningWorkflow HMI objects and E-Signature Event Logging objects.

### *E-Signature\_Template.xlsx*

E-Signature\_Template.xlsx is a predefined configuration file that is provided by the Process Library to define tag-level electronic signature workflows, such as ESigWorkflowType, SignApproverGroup and Caption.

See [E-Signature Template File on page 313](#) for detailed introduction of E-Signature Template.

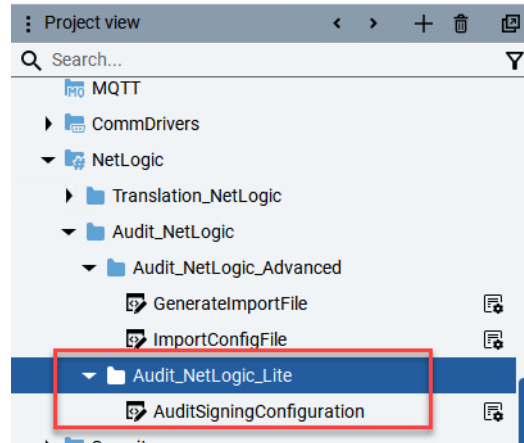


### *Audit\_NetLogic*

Audit\_NetLogic enables users to bulk import E-Signature configurations from the E-Signature Template into FactoryTalk Optix.

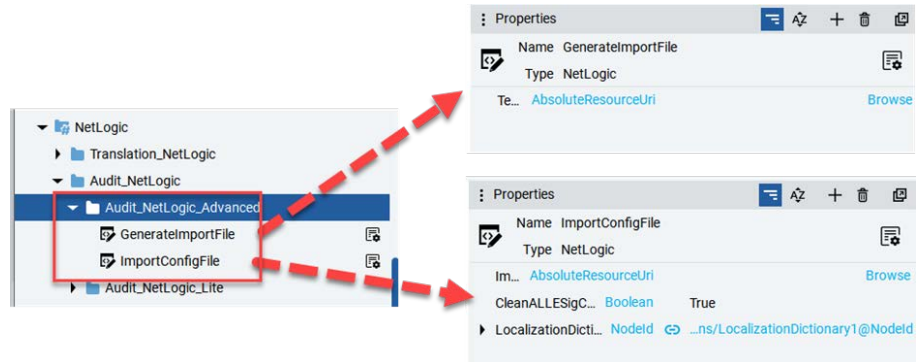
PlantPAx Process Library provides two versions of NetLogic under DesignTime path: '<ProjectName> > NetLogic > Audit\_NetLogic', which includes a Lite Version and an Advanced Version.

- The Lite Version NetLogics (AuditSigningConfiguration) only supports the importation of pre-defined Confirmation configurations. For instructions on how to use it, See [Confirmation Configuration on page 312](#).



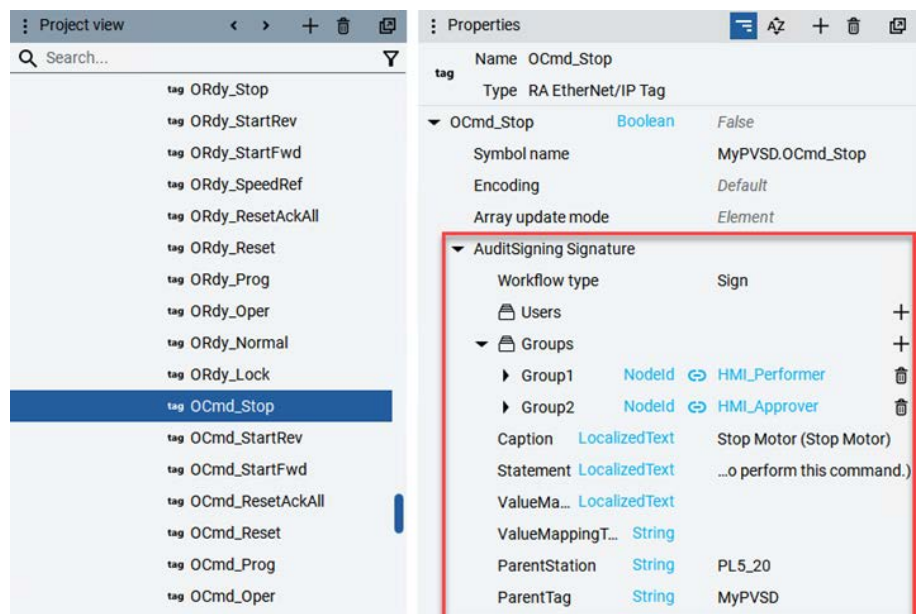
Note: For the pre-defined TagMembers with Confirmation configurations, See [Pre-defined TagMembers with Confirmation Workflow on page 328](#).

- The Advanced Version NetLogics (GenerateImportFile and ImportConfigFile) supports the importation of custom Confirmation, Sign and Double-Sign configurations. Users can redefine the ESigWorkflowType of each TagMember in E-Signature Template before importing. For instructions on how to use them, See [E-Signature Configuration on page 312](#).



Both suites of the NetLogics support configuration for multiple RAEtherNet\_IPDrivers and RAEtherNet\_IPStations.

After being imported by any version of Audit\_NetLogic, the E-Signature configurations appear under an automatically added "AuditSigning Signature" variable in the Properties of the relevant TagMember. The values match those defined by the E-Signature Template.



*SigningWorkflow HMI Objects*

SigningWorkflow HMI objects are interface panels that are provided by the Process Library that can be displayed during FactoryTalk Optix RunTime when a user operates and changes the value of a TagMember with "AuditSigning Signature" properties. Which panel to pop up at RunTime depends on the Workflow Type (Confirm, Sign, or DoubleSign) defined in E-Signature Template.

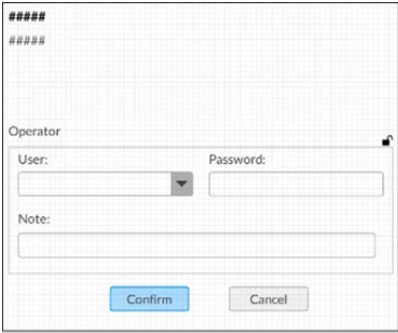
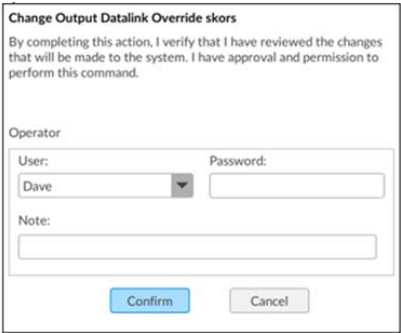
See [E-Signature Workflow Pop-up Dialog on page 318](#) for more information about the relationships among E-Signature Template, tag AuditSigning Signature properties, and SigningWorkflow HMI objects.

These Objects are located under the DesignTime path:  
<ProjectName> > Audit > SigningWorkflow


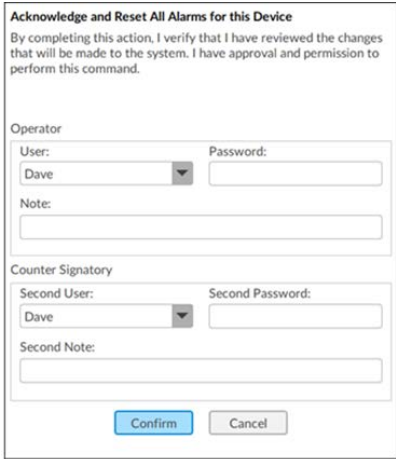
- Confirm workflow panel:

 <p>DesignTime</p>	 <p>RunTime</p>
--	--

- Sign workflow panel:

 <p>DesignTime</p>	 <p>RunTime</p>
--	---

- Double-Sign workflow panel:

 <p>DesignTime</p>	 <p>RunTime</p>
---	--

- Workflow panel when ValueMappingContent is not empty:

Request confirm operation for changing MSet\_Bypass.6 to 1

Note:

Confirm Cancel

Value Mapping

bit 0: Changed 'Interlock 00 (Bad Things) bypassed' to new value

bit 1: Changed 'Interlock 01 (label1) bypassed' to new value

bit 2: Changed 'Interlock 02 (label2) bypassed' to new value

bit 3: Changed 'Interlock 03 (label3) bypassed' to new value

bit 4: Changed 'Interlock 04 (label4) bypassed' to new value

bit 5: Changed 'Interlock 05 (label5) bypassed' to new value

bit 6: Changed 'Interlock 06 (label6) bypassed' to new value

bit 7: Changed 'Interlock 07 (label7) bypassed' to new value

bit 8: Changed 'Interlock 08 (label8) bypassed' to new value

bit 9: Changed 'Interlock 09 (label9) bypassed' to new value

bit 10: Changed 'Interlock 10 (label10) bypassed' to new value

bit 11: Changed 'Interlock 11 (label11) bypassed' to new value

### E-Signature Event Logging Objects

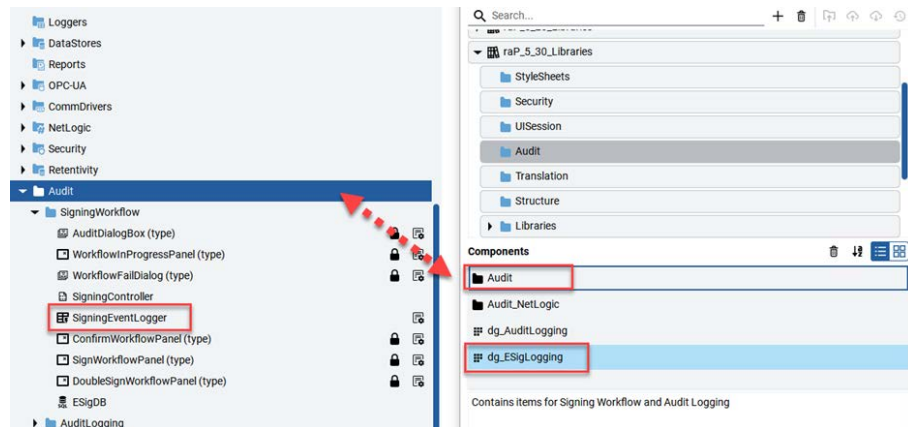
E-Signature event logging objects are used to record and monitor audit signing workflows and E-Signature events.

PlantPax Process Library provides predefined FactoryTalk Optix E-Signature event logging objects, including an event logger (SigningEventLogger) and a logging DataGrid (dg\_ESigLogging), stored in DesignTime path '<ProjectName> -> Audit' folder.

To store these events using the SigningEventLogger, you must manually create a database within FactoryTalk Optix. The SigningEventLogger logs key information of its pre-defined event fields. During RunTime, you can view the logged information in DataGrid (dg\_ESigLogging).

The predefined event fields include Severity, EventType, LocalTime, SourceName, Action, WorkflowType, SignResult, ClientUserId, ClientUserNote, SecondClientId, SecondClientUserNote, SourceNode.

See [E-Signature Event Logging Configuration on page 325](#) for instructions on utilizing the E-Signature event logging objects.



## Environment Setup

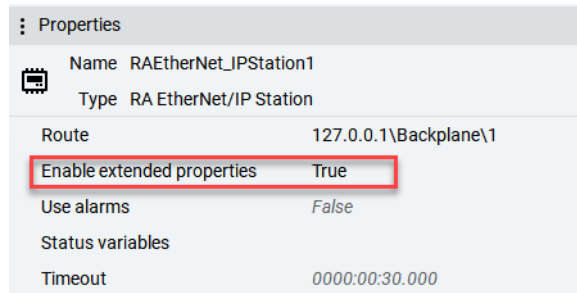
Use the following guidelines to configure the project environment before starting the E-Signature configuration:

### Prerequisites

Follow [PlantPAx Process Library User Guide for FactoryTalk Optix on page 34](#) to set up FactoryTalk Optix project and ensure the files that are mentioned in the subsequent sections are prepared in their designated location.

### Import Tags into FactoryTalk Optix

1. Launch the FactoryTalk Optix project.
2. Configure the 'Enable extended properties' setting to 'True' for the RAEtherNet\_IPStation that will be utilized within the project.



3. Import tags into the RAEtherNet\_IPStation as required.

### Copy .csproj and DLL Files to Designated Directory

This step is only required before running the Advanced Version NetLogics in your project.

1. Double-click the Windows® Command Script 'CopyESignatureNetLogicConfigToProject.cmd' that is in the '<ProjectPath>\ProjectFiles\res\ESignature' directory.



## 2. Follow the prompt to complete the process.

```

C:\Windows\system32\cmd.exe
#####
# Automated Project Template Deployment Tool #
#####

This tool automatically detects the project name and deploys project template content.
It copies .dll files and renames .csproj files to match the project name.

Press any key to continue . . .

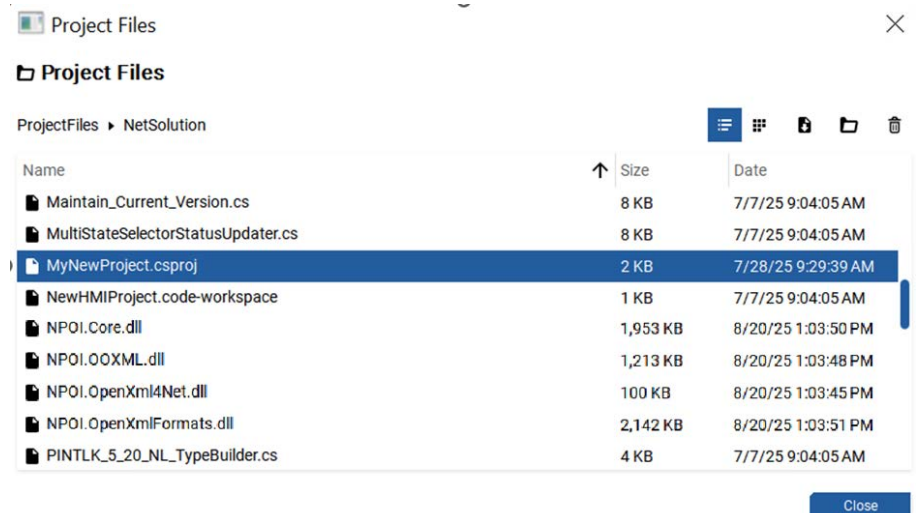
C:\Windows\system32\cmd.exe
#####
# Automated Project Template Deployment Tool #
#####

This tool automatically detects the project name and deploys project template content.
It copies .dll files and renames .csproj files to match the project name.

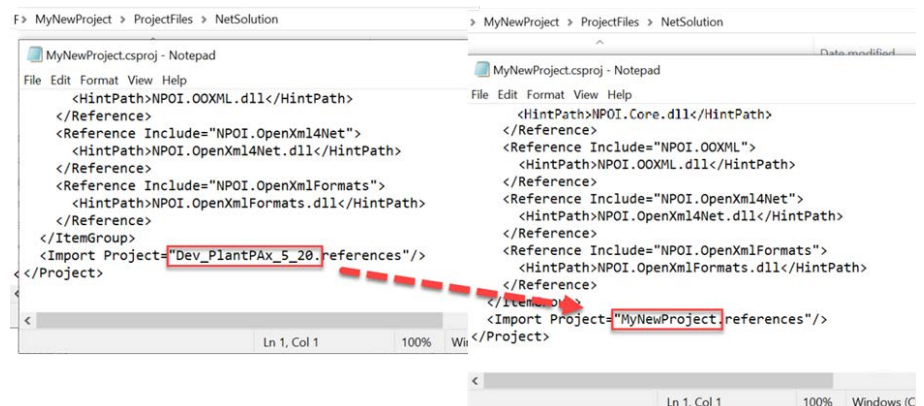
Press any key to continue . . .
Detected project name: **MyNewProject**
Preparing to copy project template content...
Source Path: "D:\ProcessLibrary\MyNewProject\ProjectFiles\res\ESignature\"
Target Path: "D:\ProcessLibrary\MyNewProject\ProjectFiles\NetSolution\"
Excluding script file: "CopyESignatureNetLogicConfigToProject.cmd"
Only copying .dll files and .csproj files (renamed to project name)
Copying file: ICSharpCode.SharpZipLib.dll
Copying file: NPOI.Core.dll
Copying file: NPOI.OOXML.dll
Copying file: NPOI.OpenXml4Net.dll
Copying file: NPOI.OpenXmlFormats.dll
Copying file: ZString.dll
Renaming and copying: ESignatureNetLogicRequiredReference.csproj to MyNewProject.csproj
Press any key to continue . . .
Project 'MyNewProject' template content successfully deployed.
.dll files copied as-is
.csproj file renamed to MyNewProject.csproj
Please check the 'D:\ProcessLibrary\MyNewProject\ProjectFiles\NetSolution\' folder.
Press any key to continue . . .

```

## 3. Navigate to the '<ProjectPath>\ProjectFiles\NetSolution' folder and open the newly copied .csproj file.



## 4. Modify the project name in the last line of the <ProjectName>.csproj file to match actual <ProjectName>. Once completed, save the changes and close the file.





5. Reopen the FactoryTalk Optix project and check the Studio Output messages to confirm that the .Net solution has been built successfully.



## E-Signature Configuration

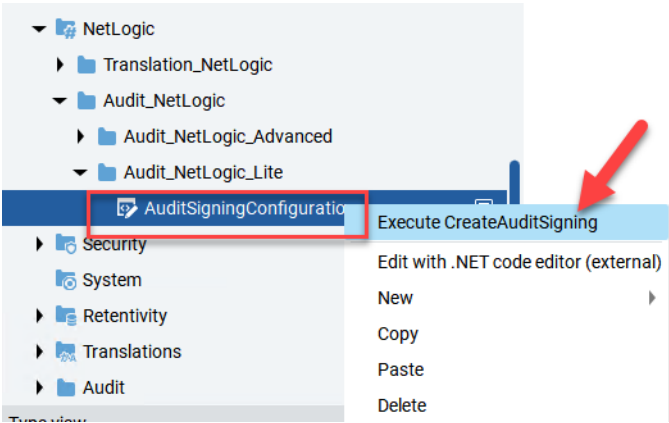
PlantPax Process Library provides two suites of solutions:

- The steps of [Confirmation Configuration](#) apply if you only need Confirmation workflow type.
- The steps of [E-Signature Configuration](#) apply if you would like to customize the E-Signature workflow type (Confirm, Sign, or DoubleSign).

### Confirmation Configuration

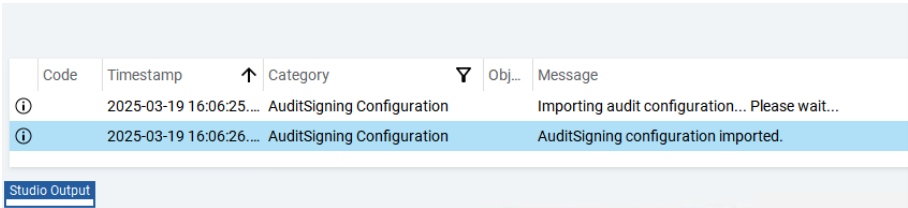
The Lite Version Audit\_NetLogic (AuditSigningConfiguration) is used here, with a built-in, predefined E-Signature Template. For the list of the TagMembers with Confirmation workflow predefined by the template, [Pre-defined TagMembers with Confirmation Workflow on page 328](#).

1. Navigate to the NetLogic in DesignTime path: '<ProjectName> > NetLogic > Audit\_NetLogic > Audit\_NetLogic\_Lite > AuditSigningConfiguration'.
2. Right click NetLogic and select 'Execute CreateAuditSigning' method.



The AuditSigning Configuration is added to all pre-defined tags by NetLogic.

In FactoryTalk Optix Studio Output, the information message shows 'AuditSigning configuration imported.' when completed:





## E-Signature Configuration

The Advanced Version of NetLogics are used in this section. You can customize the EsigWorkflowType in the E-Signature Template and export the existing tag list from FactoryTalk Optix by using GenerateImportFile NetLogic based on the custom E-Signature Template. Then import the generated E-Signature Configuration file to FactoryTalk Optix to complete the E-Signature configuration.

### Export Tag Based on Template

#### E-Signature Template File

The E-Signature Template file is provided by the Process Library and is in the '`<ProjectPath>\ProjectFile\res\ESignature`' folder. The format is shown in the following example:

Data Type	Tag Member	EsigWorkflowType	Caption	Statement	SignApproverGroup	ValueMappingType	ValueMappingContent
1	ANALOG_HART	MCmd_Virtual	Sign	Place the device in virtual operation	By completing this action, I verify that I have reviewed the changes HMI_Performer/HMI_Approver		
2	ANALOG_HART	MCmd_Physical	Sign	Enable physical	By completing this action, I verify that I have reviewed the changes HMI_Performer/HMI_Approver		
3	ANALOG_INPUT	OCmd_ResetAck	Sign	Acknowledge and Reset All Alarms for this	By completing this action, I verify that I have reviewed the changes HMI_Performer/HMI_Approver		
4	ANALOG_INPUT	OCmd_Reset	Sign	Device Reset	By completing this action, I verify that I have reviewed the changes HMI_Performer/HMI_Approver		
5	ANALOG_INPUT	OCmd_ClearCap	Sign	Clear captured minimum and maximum	By completing this action, I verify that I have reviewed the changes HMI_Performer/HMI_Approver		
6	ANALOG_INPUT	MCmd_SubstPV	Sign	Substitute PV	By completing this action, I verify that I have reviewed the changes HMI_Performer/HMI_Approver		
7	ANALOG_INPUT	MCmd_Virtual	Sign	Place the device in virtual operation	By completing this action, I verify that I have reviewed the changes HMI_Performer/HMI_Approver		
8	ANALOG_INPUT	MCmd_Physical	Sign	Enable physical	By completing this action, I verify that I have reviewed the changes HMI_Performer/HMI_Approver		
9	ANALOG_INPUT	MCmd_SubstPV	Sign	Replace the PV with a substitute value for	By completing this action, I verify that I have reviewed the changes HMI_Performer/HMI_Approver		
10	ANALOG_INPUT	MCmd_InputPV	Sign	Use input PV	By completing this action, I verify that I have reviewed the changes HMI_Performer/HMI_Approver		
11	ANALOG_INPUT	@Alarms/Alarm_*/OpenAck	Sign	Acknowledge alarm	By completing this action, I verify that I have reviewed the changes HMI_Performer/HMI_Approver		
12	ANALOG_INPUT	@Alarms/Alarm_*/OpenReset	Sign	Reset alarm	By completing this action, I verify that I have reviewed the changes HMI_Performer/HMI_Approver		
13	ANALOG_INPUT	@Alarms/Alarm_*/OpenShelve	Sign	Shelve alarm	By completing this action, I verify that I have reviewed the changes HMI_Performer/HMI_Approver		
14	ANALOG_INPUT	@Alarms/Alarm_*/OpenUnshelve	Sign	Unshelve alarm	By completing this action, I verify that I have reviewed the changes HMI_Performer/HMI_Approver		
15	ANALOG_INPUT	@Alarms/Alarm_*/ShelveDuration	Sign	Change Shelve Duration (min)	By completing this action, I verify that I have reviewed the changes HMI_Performer/HMI_Approver		
16	ANALOG_INPUT	OCmd_SelectMin	Sign	Select Minimum	By completing this action, I verify that I have reviewed the changes HMI_Performer/HMI_Approver		
17	ANALOG_INPUT	OCmd_SelectMax	Sign	Select Maximum	By completing this action, I verify that I have reviewed the changes HMI_Performer/HMI_Approver		
18	ANALOG_INPUT	OCmd_SelectB	Sign	Select input B	By completing this action, I verify that I have reviewed the changes HMI_Performer/HMI_Approver		
19	ANALOG_INPUT	OCmd_SelectA	Sign	Select Average	By completing this action, I verify that I have reviewed the changes HMI_Performer/HMI_Approver		
20	ANALOG_INPUT	OCmd_SelectA	Sign	Select input A	By completing this action, I verify that I have reviewed the changes HMI_Performer/HMI_Approver		
21	ANALOG_INPUT	@Alarms/Alarm_*/OpenAck	Sign	Acknowledge alarm	By completing this action, I verify that I have reviewed the changes HMI_Performer/HMI_Approver		
22	ANALOG_INPUT	@Alarms/Alarm_*/OpenReset	Sign	Reset alarm	By completing this action, I verify that I have reviewed the changes HMI_Performer/HMI_Approver		
23	ANALOG_INPUT	@Alarms/Alarm_*/OpenShelve	Sign	Shelve alarm	By completing this action, I verify that I have reviewed the changes HMI_Performer/HMI_Approver		
24	ANALOG_INPUT	@Alarms/Alarm_*/OpenUnshelve	Sign	Unshelve alarm	By completing this action, I verify that I have reviewed the changes HMI_Performer/HMI_Approver		
25	ANALOG_INPUT	@Alarms/Alarm_*/ShelveDuration	Sign	Change Shelve Duration (min)	By completing this action, I verify that I have reviewed the changes HMI_Performer/HMI_Approver		
26	ANALOG_INPUT	OCmd_ResetAck	Sign	Acknowledge and Reset All Alarms for this	By completing this action, I verify that I have reviewed the changes HMI_Performer/HMI_Approver		

Modifying the information in the template is not recommended other than the values in the column EsigWorkflowType. The following table provides a detailed explanation of each column in the template.

Column <sup>(1)</sup>	Format	Mandatory	Example
Data Type <sup>(2)</sup>	Match 'Data Type' in Logix Designer	Y	P_VARIABLE_SPEED_DRIVE
TagMember	Match tag 'Name' suffix in Logix Designer	Y	OSet_OutDataLink
EsigWorkflowType	<ul style="list-style-type: none"> <li>Confirm</li> <li>Sign</li> <li>DoubleSign</li> </ul>	N • If empty, the line is skipped when imported into FactoryTalk Optix.	Default: Sign
Caption	Predefined strings	N • If empty, a default caption is shown during RunTime.	Default: Request confirm operation for changing {<TagName>} <sup>(3)</sup> from <OldValue> to <NewValue>
Statement	Predefined strings	N	—
SignApproverGroup <sup>(4)</sup>	Match the existing group names under FactoryTalk Optix DesignTime path '<ProjectName>>Security>Groups'.	Y for 'Sign' and 'DoubleSign' Workflow Type	<ul style="list-style-type: none"> <li>Default for 'Sign': HMI_Performer<sup>(5)</sup></li> <li>Default for 'DoubleSign': HMI_Performer<sup>(5)/HMI_Approver<sup>(6)</sup></sup></li> </ul>
ValueMappingContent <sup>(7)</sup>	Predefined strings	N	(Content differs by TagMember) MSet_Bypass: <ul style="list-style-type: none"> <li>Value = 1: Enable Bypass</li> <li>Value = 0: Disable Bypass</li> </ul>
ValueMappingType <sup>(7)</sup>	<ul style="list-style-type: none"> <li>MultipleValues</li> <li>BitValues</li> </ul>	<ul style="list-style-type: none"> <li>N</li> <li>Y if ValueMappingContent is not empty.</li> </ul>	<ul style="list-style-type: none"> <li>MultipleValues</li> <li>BitValues</li> </ul>

(1) Do NOT modify column names in the template.

- (2) For Template predefined DataType, See [Template Pre-Defined DataType on page 327](#)
- (3) To insert a tag value in the caption content, follow the format '{<Tag>}' or '{<ExtendedProperties>}'. For all supported Extended Properties, See [Extended Properties Dictionary on page 330](#)
- (4) Used to identify groups and members within each group that can sign.
- (5) The HMI\_Performer group must include all authorized users/operators intended to be the first signature for the 'Sign' and 'DoubleSign' workflow.
- (6) The HMI\_Approver group must include all authorized users who are intended to be the second signature/counter signatory for the 'DoubleSign' workflow.
- (7) <ValueMappingContent> and <ValueMppingType> is only displayed during FactoryTalk Optix RunTime when <ValueMappingContent> is not empty, See [Workflow panel when ValueMappingContent is not empty: on page 309](#)

**IMPORTANT**

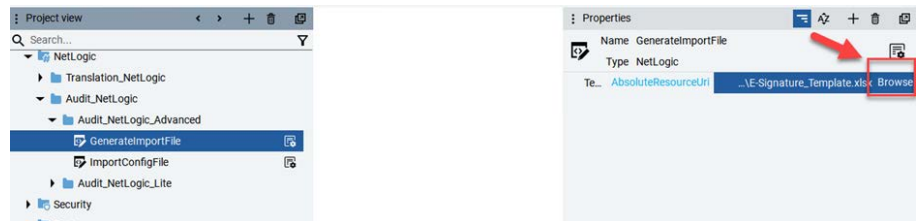
Updating Caption, Statement, or ValueMappingContent in the E-Signature template may cause the existing translation configuration to fail. For instructions on updating these strings See [How to Customize Caption/Statement/ValueMappingContent by Template on page 332](#)

*Export Procedure*

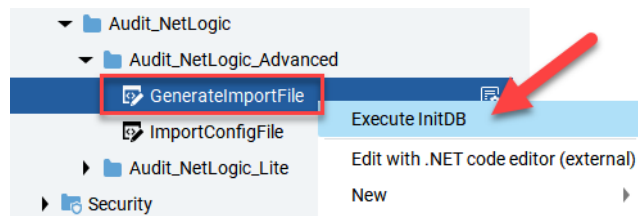
1. Select '<ProjectName> > NetLogic > Audit\_NetLogic > Audit\_NetLogic\_Advanced > GenerateImportFile'.
2. In properties, update parameter 'TemplateFilePath' to E-Signature\_Template.xlsx full path.

For example:

D:\ProcessLibrary\MyNewProject\ProjectFiles\res\ESignature\E-Signature\_Template.xlsx



3. Right click the NetLogic 'GenerateImportFile' and select 'Execute InitDB' method.



4. The E-Signature Configuration file is exported to path: 'ProjectFiles\res\ESignature\E-Signature\_<timestamps>.xlsx' by default.

## Import E-Signature Configuration File

### E-Signature Configuration File

The E-Signature Configuration file is the one generated in [Export Procedure](#), including the following information:

#### Summary Tab

	A	B	C	D	E	F	G
1	DriverName	StationName	FolderName	TagName	DataType	E-Signature Import	Note
2	RAEtherNet_IPDriver1	PL5_20	Controller Tags	My9AI	P_ANALOG_INPUT	Y	
3	RAEtherNet_IPDriver1	PL5_20	Controller Tags	My9AID	P_ANALOG_INPUT_DUAL	Y	
4	RAEtherNet_IPDriver1	PL5_20	Controller Tags	My9AO	P_ANALOG_OUTPUT	Y	
5	RAEtherNet_IPDriver1	PL5_20	Controller Tags	My9BL	P_BOOLEAN_LOGIC	N	The DataType is not in E-Signature Template.
6	RAEtherNet_IPDriver1	PL5_20	Controller Tags	My9D4SD	P_DISCRETE_4STATE	Y	
7	RAEtherNet_IPDriver1	PL5_20	Controller Tags	My9DBC	P_DEADBAND	Y	
8	RAEtherNet_IPDriver1	PL5_20	Controller Tags	My9DI	P_DISCRETE_INPUT	Y	
9	RAEtherNet_IPDriver1	PL5_20	Controller Tags	My9DO	P_DISCRETE_OUTPUT	Y	
10	RAEtherNet_IPDriver1	PL5_20	Controller Tags	My9DOSE_F	P_DOSING	Y	
11	RAEtherNet_IPDriver1	PL5_20	Controller Tags	My9DOSE_W	P_DOSING	Y	
12	RAEtherNet_IPDriver1	PL5_20	Controller Tags	My9VLV_MO	P_VALVE_DISCRETE	Y	
13	RAEtherNet_IPDriver1	PL5_20	Controller Tags	My9VLV_SO	P_VALVE_DISCRETE	Y	
14	RAEtherNet_IPDriver1	PL5_20	Controller Tags	My9VSD	P_VARIABLE_SPEED_DRIVE	Y	
15	RAEtherNet_IPDriver1	PL5_20	Controller Tags	My9VSD_Intlk_0	P_INTERLOCK	Y	
16							
	Summary	All Tag Data Types in FT Optix project exported here.					

#### IMPORTANT

Do not modify any cells except for entries in the 'E-Signature Import' column, where only 'Y' or 'N' values are permitted. Only DataType entries marked as 'Y' and associated with a valid TagMember in the Detail Tab is imported when the ImportConfigFile NetLogic is executed.

#### Detail Tab

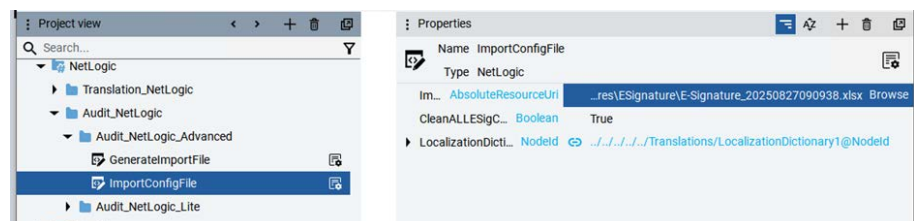
	A	B	C	D	E	F	G	H
1	DataType	TagMember	EsigWorkflowType	Caption	Statement	SignApproverGroup	ValueMappingType	ValueMappingContent
2	P_ANALOG_HART	MCmd_Virtual	Sign	Place the device in vis	By completing this actHMI_Performer/HMI_Approver			
3	P_ANALOG_HART	MCmd_Physical	Sign	Enable physical	By completing this actHMI_Performer/HMI_Approver			
4	P_ANALOG_INPUT	OCmd_ResetAckAll	Sign	Acknowledge and Reset	By completing this actHMI_Performer/HMI_Approver			
5	P_ANALOG_INPUT	OCmd_Reset	Sign	Device Reset	By completing this actHMI_Performer/HMI_Approver			
6	P_ANALOG_INPUT	OCmd_ClearCapt	Sign	Clear captured minim	By completing this actHMI_Performer/HMI_Approver			
7	P_ANALOG_INPUT	MSet_SubstPV	Sign	Substitute PV	By completing this actHMI_Performer/HMI_Approver			
8	P_ANALOG_INPUT	MCmd_Virtual	Sign	Place the device in vis	By completing this actHMI_Performer/HMI_Approver			
9	P_ANALOG_INPUT	MCmd_Physical	Sign	Enable physical	By completing this actHMI_Performer/HMI_Approver			
10	P_ANALOG_INPUT	MCmd_SubstPV	Sign	Replace the PV with a	By completing this actHMI_Performer/HMI_Approver			
11	P_ANALOG_INPUT	MCmd_InpPV	Sign	Use input PV	By completing this actHMI_Performer/HMI_Approver			
12	P_ANALOG_INPUT	@Alarms/Alm_**/Op Sign	Sign	Acknowledge alarm	By completing this actHMI_Performer/HMI_Approver			
13	P_ANALOG_INPUT	@Alarms/Alm_**/Op Sign	Sign	Reset alarm	By completing this actHMI_Performer/HMI_Approver			
14	P_ANALOG_INPUT	@Alarms/Alm_**/Op Sign	Sign	Shelve alarm	By completing this actHMI_Performer/HMI_Approver			
15	P_ANALOG_INPUT	@Alarms/Alm_**/Op Sign	Sign	Unshelve alarm	By completing this actHMI_Performer/HMI_Approver			
16	P_ANALOG_INPUT	@Alarms/Alm_**/Shi Sign	Sign	Change Shelve Durati	By completing this actHMI_Performer/HMI_Approver			

#### IMPORTANT

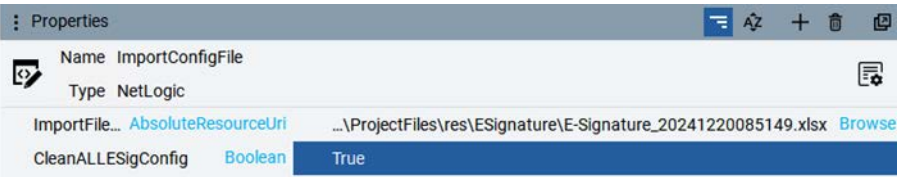
Any cell in the 'EsigWorkflowType' column that is empty is highlighted. Rows with an empty 'EsigWorkflowType' cell will not be imported into the FactoryTalk Optix project.

### Import Procedure

1. From FactoryTalk Optix, select '<ProjectName> > NetLogic > Audit\_NetLogic > Audit\_NetLogic\_Advanced > ImportConfigFile'.
2. From properties dialog, input full path of the Configuration file.



3. Select 'True' or 'False' for CleanALLESigConfig:

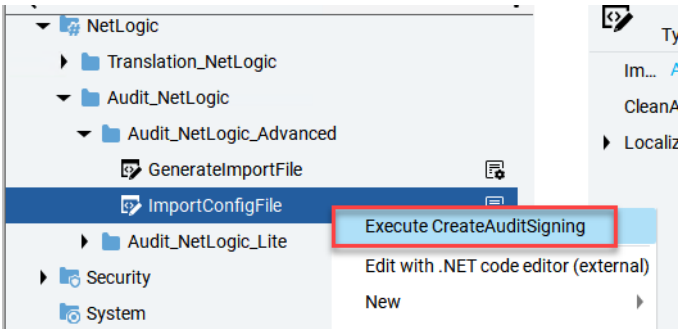


- True: The NetLogic will first clean all existing AuditSigning information in FactoryTalk Optix before importing.
- False: The NetLogic will only import and replace the AuditSigning information in FactoryTalk Optix for the TagMembers selected in the Import File. Existing AuditSigning information where the TagMember is not selected to import in the Import File is not cleaned.



It is recommended that you back up the current FactoryTalk Optix project before next step.

4. Right-Click on NetLogic 'ImportConfigFile' and select 'Execute CreateAuditSigning' method.



5. In the FactoryTalk Optix Studio output, the info message shows 'AuditSigning configuration imported.' when completed.



Trouble Shooting

When any exception occurs while executing NetLogic, there is an output message in the FactoryTalk Optix Studio Output to indicate the error with the Category 'AuditSigning Configuration'. For example:

Code	Timestamp	Category	Object	Message
!	2024-12-02 12:38:54.60	AuditSigning Configuration		Export failed. No tags found.

The following table lists common error messages and the corresponding reasons for the error:

NetLogic	Output Message	Reasons
Export (GenerateImportFile)	Export failed. No tags found.	No tag under CommDrivers in the FactoryTalk Optix project.
	Could not find file "ICSharpCode.SharpZipLib.dll" under '<ProjectPath>/ProjectFiles/NetSolution/bin' folder.	You didn't copy the dll file before executing the NetLogic. See <a href="#">Copy .csproj and DLL Files to Designated Directory on page 310</a>
	File in use: <user-input path>.	The template file is open.
	Template file not found: <user-input path>.	Incorrect template file path selected for GenerateImportFile NetLogic.
	Incorrect template format, only support .xlsx and .xls file type.	Incorrect template file type selected for GenerateImportFile NetLogic. It supports all .xlsx files and .xls from Excel version 97.
	Incorrect template format.	Template includes incorrect content (for example, incorrect column name or missing required column).
Import (ImportConfigFile)	Could not find file "ICSharpCode.SharpZipLib.dll" under '<ProjectPath>/ProjectFiles/NetSolution/bin' folder.	You didn't copy the dll file before executing the NetLogic. See <a href="#">Copy .csproj and DLL Files to Designated Directory on page 310</a>
	File not found: <user-input path>.	Incorrect import file path selected for ImportConfigFile NetLogic.
	File in use: <user-input path>.	The import file is open.
	Incorrect import file format, only support .xlsx and .xls file type.	Incorrect import file type selected for ImportConfigFile NetLogic. It supports all .xlsx files and .xls from Excel version 97.
	Incorrect import file format.	Import file includes incorrect content (for example, incorrect column name or missing required column).
	No AuditSigning created.	Missing mandatory information in import file (for example, StationName, DataType, E-signature Import, TagMember, EsigWorkflowType).
	Import failed. No matching '<user-input Driver>' DriverName found.	Non-existent cell value under DriverName column in Summary Sheet of import file.
	Import failed. No matching '<Tag path>' found.	Invalid cell value under StationName/TagName column in Summary Sheet of import file.
	Import failed. No matching '<ColumnName>' found 'xxx'.	Invalid value 'xxx' under <ColumnName> column in Detail Sheet of Import file.
	<ColumnName> import failed. No matching tags found '<Tag>'.	Invalid '<Tag>' included in the cell value of <ColumnName> column on Detail Sheet of Import file.

## E-Signature Workflow Pop-up Dialog

After importing the E-Signature Configurations into FactoryTalk Optix, the parameters will appear under the "AuditSigning Signature" variable of the configured TagMember. When you start RunTime and interact with the corresponding TagMember, an E-Signature Workflow dialog with the configured content automatically pops up.

The mapping between the content in the E-Signature Template and what appears in FactoryTalk Optix DesignTime and the RunTime pop-up dialogs are as follows.

### Confirm Workflow

#### 1. DataType mapping

The screenshot shows the FactoryTalk Optix DesignTime interface. At the top, a table lists the configuration:

1	DataType	TagMember	EsigWorkflowType	Caption
102	P_DISCRETE_INPUT	MSet_SubstPV	Sign	

Below the table, the Project view shows a tree structure of tags. The tag **MyPDI** is selected. The Properties pane on the right shows the tag's details:

- Name: MyPDI
- Type: **P\_DISCRETE\_INPUT**

Red boxes highlight the **DataType** column in the table and the **MyPDI** tag in the Project view. Red arrows indicate the mapping from the table to the tag.

#### 2. TagMember mapping

The screenshot shows the FactoryTalk Optix DesignTime interface. At the top, a table lists the configuration:

1	DataType	TagMember	EsigWorkflowType	Caption
104	P_DISCRETE_INPUT	MCcmd_SubstPV	Confirm	Replace the PV with a substitute value for the device

Below the table, the Project view shows a tree structure of tags. The tag **MCcmd\_SubstPV** is selected. The Properties pane on the right shows the tag's details:

- Name: MCcmd\_SubstPV
- Type: RA EtherNet/IP Tag
- MCcmd\_SubstPV: **Boolean** False
- Symbol name: **MyPDI.MCcmd\_SubstPV**
- Encoding: Default
- Array update mode: Element
- AuditSigning Signature: Confirm

Red boxes highlight the **TagMember** column in the table and the **MCcmd\_SubstPV** tag in the Project view. Red arrows indicate the mapping from the table to the tag.

#### 3. EsigWorkflowType

The screenshot shows the FactoryTalk Optix DesignTime interface. At the top, a table lists the configuration:

	DataType	TagMember	EsigWorkflowType	Caption	Statement
	P_DISCRETE_INPUT	MCcmd_SubstPV	Confirm	Replace the PV with a substitute value for the device	

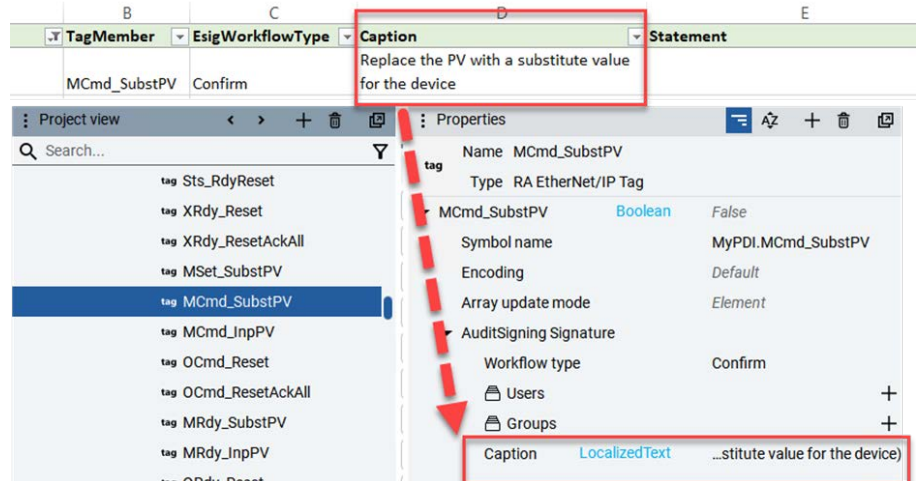
Below the table, the Project view shows a tree structure of tags. The tag **MCcmd\_SubstPV** is selected. The Properties pane on the right shows the tag's details:

- Name: MCcmd\_SubstPV
- Type: RA EtherNet/IP Tag
- MCcmd\_SubstPV: **Boolean** False
- Symbol name: MyPDI.MCcmd\_SubstPV
- Encoding: Default
- Array update mode: Element
- AuditSigning Signature: **Confirm**

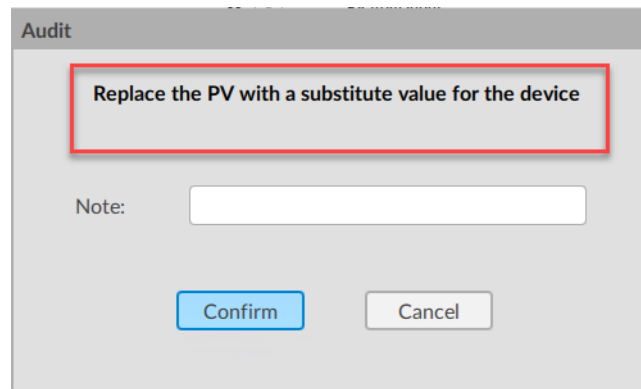
Red boxes highlight the **EsigWorkflowType** column in the table and the **AuditSigning Signature** property in the Properties pane. Red arrows indicate the mapping from the table to the property.



4. Caption:
  - DesignTime

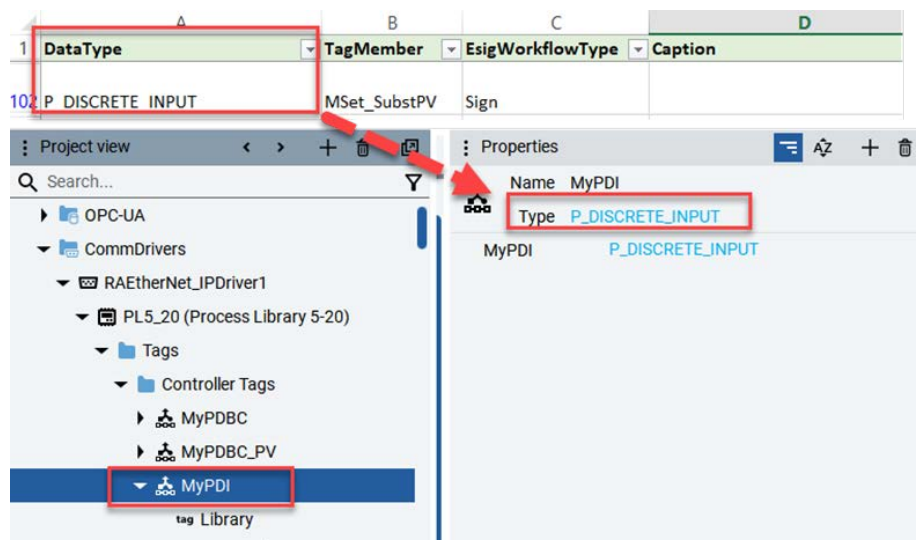


- RunTime



## Sign Workflow

1. DataType mapping



2. TagMember mapping

The screenshot displays the 'TagMember' dropdown menu with 'MSet\_SubstPV' selected. The 'Properties' pane on the right shows the configuration for 'MSet\_SubstPV', including 'Symbol name' set to 'MyPDI.MSet\_SubstPV' and 'Type' set to 'RA EtherNet/IP Tag'. A red box highlights the 'TagMember' dropdown and the 'Symbol name' property.

3. EsigWorkflowType

The screenshot displays the 'EsigWorkflowType' dropdown menu with 'Sign' selected. The 'Properties' pane on the right shows the configuration for 'Sign', including 'Workflow type' set to 'Sign' and 'Type' set to 'RA EtherNet/IP Tag'. A red box highlights the 'EsigWorkflowType' dropdown and the 'Workflow type' property.

4. Caption

- DesignTime

The screenshot displays the 'Caption' dropdown menu with 'DesignTime' selected. The 'Properties' pane on the right shows the configuration for 'DesignTime', including 'Caption' set to 'LocalizedText' and 'Type' set to 'RA EtherNet/IP Tag'. A red box highlights the 'Caption' dropdown and the 'Caption' property.



- RunTime (a default caption shows when it's empty in DesignTime)

Audit	Value Mapping
<p><b>Request sign operation for changing MSet_SubstPV from 1 to 0</b></p> <p>By completing this action, I verify that I have reviewed the changes that will be made to the system. I have approval and permission to perform this change.</p>	<p>Value = 1: Veggie; Value = 0: Bacon</p>
<p>Operator</p> <p>User: <input type="text" value="EngineerType1"/> Password: <input type="password"/></p> <p>Note: <input type="text"/></p> <p><input type="button" value="Confirm"/> <input type="button" value="Cancel"/></p>	

## 5. Statement:

- DesignTime

D	E	F	G
Statement	SignApproverGroup	ValueMapping	
By completing this action, I verify that I have HMI_Performer/HMI_Approver MultipleValues			

Project view

tag Sts\_RdyReset  
tag XRdy\_Reset  
tag XRdy\_ResetAckAll  
**tag MSet\_SubstPV**  
tag MCmd\_SubstPV  
tag MCmd\_InpPV  
tag OCmd\_Reset  
tag OCmd\_ResetAckAll  
tag MRdy\_SubstPV  
tag MRdy\_InpPV  
tag ORdy\_Reset  
tag ORdy\_ResetAckAll  
tag MCmd\_Virtual  
tag MRdy\_Virtual  
tag MCmd\_Physical  
tag MRdy\_Physical  
Wkr\_TgtDisagreeOffDlyT

Properties

Name MSet\_SubstPV  
Type RA EtherNet/IP Tag  
MSet\_SubstPV Boolean False  
Symbol name MyPDI.MSet\_SubstPV  
Encoding Default  
Array update mode Element  
AuditSigning Signature  
Workflow type Sign  
Users  
Groups  
Group1 Nodetd HMI\_Performer  
Group2 Nodetd HMI\_Approver  
Caption LocalizedText  
**Statement LocalizedText ...sion to perform this change.**  
ValueMappingContent String Complex Dynamic Link  
ValueMappingType String MultipleValues  
ParentStation String PL5\_20  
ParentTag String MyPDI

- RunTime

Audit	Value Mapping
<p><b>Request sign operation for changing MSet_SubstPV from 1 to 0</b></p> <p>By completing this action, I verify that I have reviewed the changes that will be made to the system. I have approval and permission to perform this change.</p>	<p>Value = 1: Veggie; Value = 0: Bacon</p>
<p>Operator</p> <p>User: <input type="text" value="EngineerType1"/> Password: <input type="password"/></p> <p>Note: <input type="text"/></p> <p><input type="button" value="Confirm"/> <input type="button" value="Cancel"/></p>	

6. SignApproverGroup

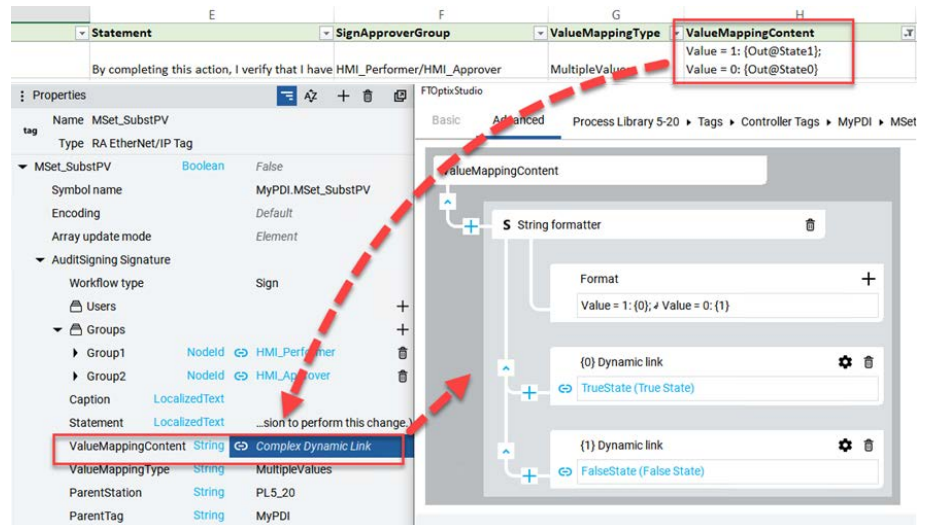
The screenshot shows the configuration of the **SignApproverGroup** property. The **Statement** is "By completing this action, I verify that I have HMI\_Performer/HMI\_Approver". The **ValueMappingType** is set to **MultipleValues**. The **Properties** pane shows the **MSet\_SubstPV** property with a **Boolean** type and a **Workflow type** of **Sign**. The **Groups** section lists **Group1** (Nodeid: HMI\_Performer) and **Group2** (Nodeid: HMI\_Approver). A red dashed arrow points from the **SignApproverGroup** property to the **Groups** section.

7. ValueMappingType

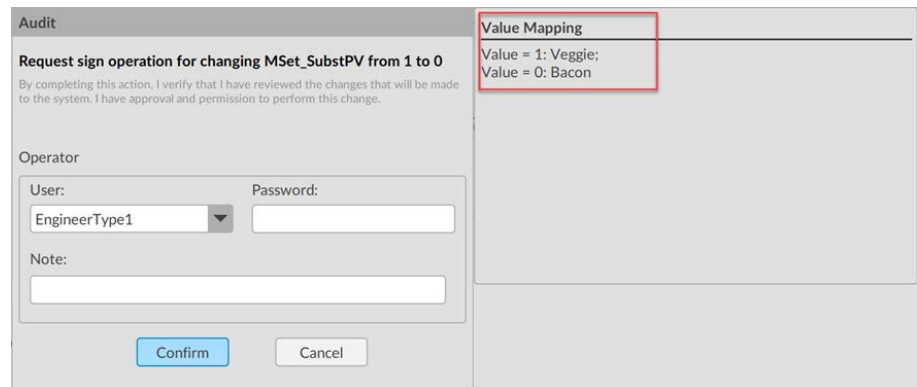
The screenshot shows the configuration of the **ValueMappingType** property. The **ValueMappingContent** is set to **MultipleValues**. The **Properties** pane shows the **MSet\_SubstPV** property with a **Boolean** type and a **Workflow type** of **Sign**. The **Groups** section lists **Group1** (Nodeid: HMI\_Performer) and **Group2** (Nodeid: HMI\_Approver). A red dashed arrow points from the **ValueMappingType** property to the **ValueMappingContent** section.

8. ValueMappingContent:

- DesignTime



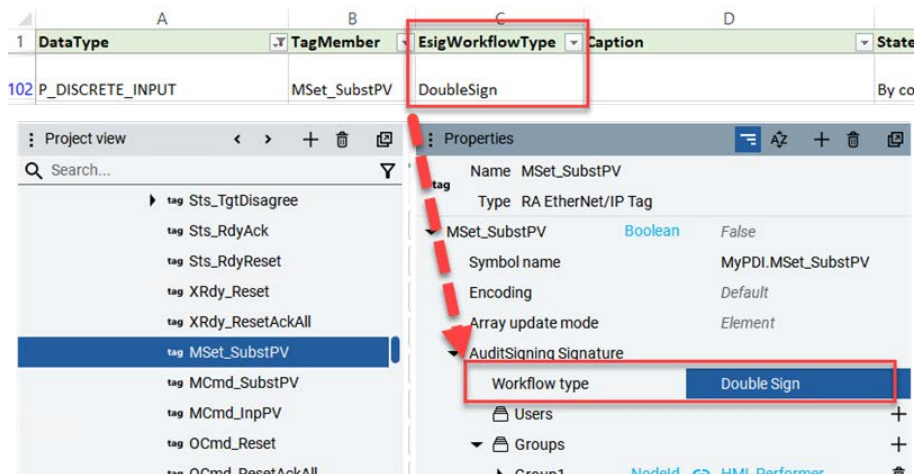
- RunTime (ValueMappingContent panel is only shown when ValueMappingContent is not empty)



See [Extended Properties Dictionary on page 330](#) for the format of Extended Properties.

## Double-Sign Workflow

1. DataType Mapping - See [Sign Workflow](#).
2. TagMember Mapping - See [Sign Workflow](#).
3. ESigWorkflowType



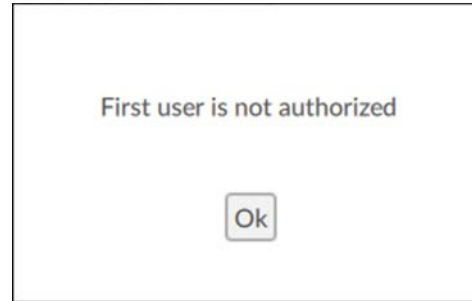
4. Caption:
  - DesignTime - See [Sign Workflow](#).
  - RunTime (a default caption shows when it's empty in DesignTime)

The screenshot shows the 'Audit' dialog box. The title bar is 'Audit'. The main text area contains the message: 'Request double sign operation for changing MSet\_SubstPV from 1 to 0'. Below this is a disclaimer: 'By completing this action, I verify that I have reviewed the changes that will be made to the system. I have approval and permission to perform this change.' The dialog is divided into two main sections: 'Operator' and 'Counter Signatory'. The 'Operator' section has fields for 'User:' (set to 'EngineerType1'), 'Password:', and 'Note:'. The 'Counter Signatory' section has fields for 'Second User:' (set to 'EngineerType1'), 'Second Password:', and 'Second Note:'. At the bottom are 'Confirm' and 'Cancel' buttons. To the right of the dialog is a 'Value Mapping' section with the text: 'Value = 1: Veggie; Value = 0: Bacon'.

5. Statement - See [Sign Workflow](#).
6. SignApproverGroup - See [Sign Workflow](#).
7. ValueMappingType - See [Sign Workflow](#).
8. ValueMappingContent - See [Sign Workflow](#).

## Exception Messages

When incorrect signing information is input in the Sign or Double-Sign workflow dialog and the 'Confirm' button is clicked, another pop-up dialog appears indicating an error and the corresponding reason for the error, for example:



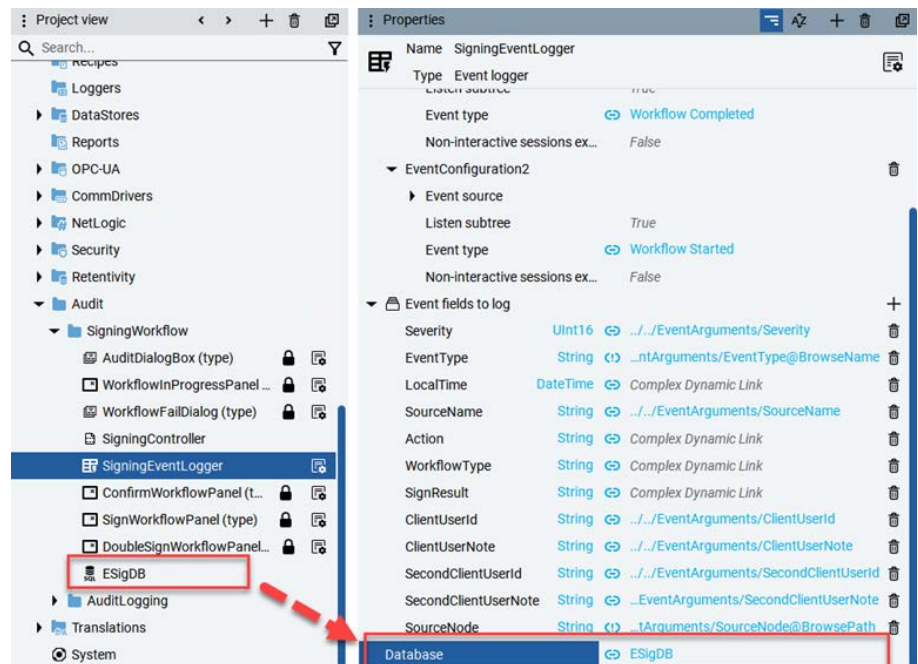
The following table lists common messages and corresponding reasons may occur:

Error Message	Reason
First (Second) user is not authorized	The first (second) user is not in the approver list.
Sign in failed for first (second) user	Password for first (second) user is incorrect.
Second user must differ from the first user	The first and second users selected are the same user.

## E-Signature Event Logging Configuration

Complete the following steps to configure the E-Signature Logs to be viewed in RunTime using a FactoryTalk Optix DataGrid.

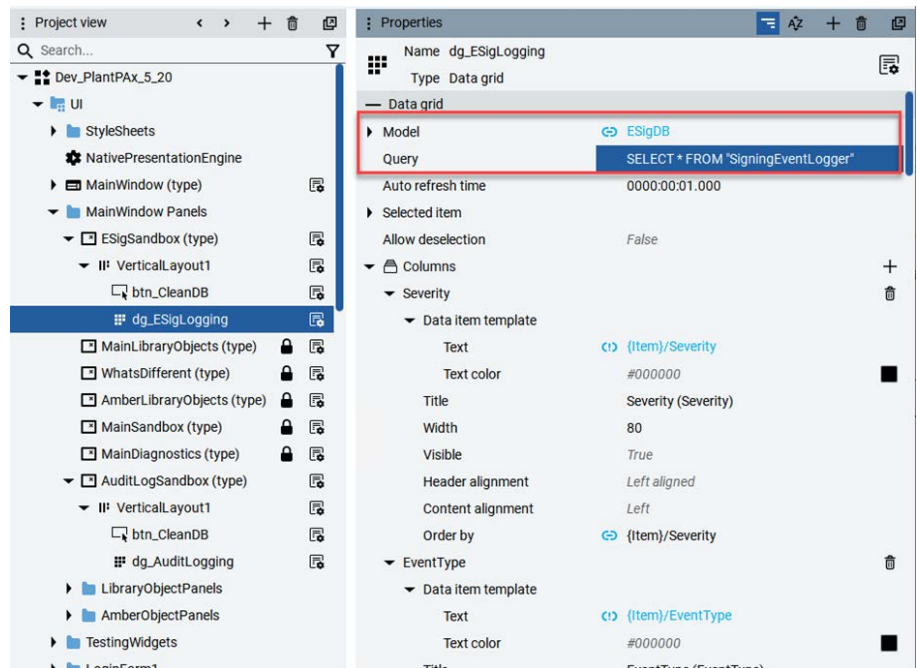
- Under 'Audit > SigningWorkflow' folder, create a Database (either an Embedded Database or an ODBC Database) for E-Signature logging. For example, an Embedded Database that is named 'ESigDB' may be used.
- In the Properties of the SigningEventLogger component, set the Database to the database name created in the previous step ('ESigDB' in the example).



- Under the 'UI' folder, create a panel for DataGrid. (named 'ESigSandbox' in the following example)



4. Drag the DataGrid dg\_ESigLogging from the raP\_5\_30\_Libraries to panel 'ESigSandbox'. Ensure that Model is set to ESigDB. The columns on the grid can be customized based on the event fields that are defined in the SigningEventLogger.



5. After running the project, monitor the E-Signature event logs on the DataGrid.

Severity	Event Type	Local Time	Source Name	Action	Workflow Type	Sign Result	Client User ID	Client U...	Sec...	Sec...	Source Node
1	AuditSigningWorkflowCompletedEvent	Aug 4, 2025, 3:49:11 PM	MCmd_SubstPV	Value changed from 0 to 1	Operation confirmed	Cancelled	Will				Root/Objects/Dev_PlantPax_5_20/CommDrive
1	AuditSigningWorkflowCompletedEvent	Aug 4, 2025, 3:49:12 PM	MCmd_SubstPV	Value changed from 0 to 1	Operation confirmed	Cancelled	Will				Root/Objects/Dev_PlantPax_5_20/CommDrive
1	AuditSigningWorkflowCompletedEvent	Aug 4, 2025, 3:49:13 PM	MCmd_SubstPV	Value changed from 0 to 1	Operation confirmed	Cancelled	Will				Root/Objects/Dev_PlantPax_5_20/CommDrive
1	AuditSigningWorkflowCompletedEvent	Aug 4, 2025, 3:49:13 PM	MCmd_SubstPV	Value changed from 0 to 1	Operation confirmed	Cancelled	Will				Root/Objects/Dev_PlantPax_5_20/CommDrive
1	AuditSigningWorkflowCompletedEvent	Aug 4, 2025, 3:49:19 PM	MCmd_Virtual	Value changed from 0 to 1	Operation confirmed	Cancelled	Will				Root/Objects/Dev_PlantPax_5_20/CommDrive
1	AuditSigningWorkflowCompletedEvent	Aug 4, 2025, 3:49:20 PM	MCmd_Virtual	Value changed from 0 to 1	Operation confirmed	Cancelled	Will				Root/Objects/Dev_PlantPax_5_20/CommDrive
1	AuditSigningWorkflowCompletedEvent	Aug 4, 2025, 3:49:21 PM	MCmd_Virtual	Value changed from 0 to 1	Operation confirmed	Cancelled	Will				Root/Objects/Dev_PlantPax_5_20/CommDrive
1	AuditSigningWorkflowCompletedEvent	Aug 4, 2025, 3:49:22 PM	MCmd_Virtual	Value changed from 0 to 1	Operation confirmed	Cancelled	Will				Root/Objects/Dev_PlantPax_5_20/CommDrive
1	AuditSigningWorkflowCompletedEvent	Aug 4, 2025, 3:49:26 PM	MCmd_SubstPV	Value changed from 0 to 1	Operation confirmed	Cancelled	Will				Root/Objects/Dev_PlantPax_5_20/CommDrive
1	AuditSigningWorkflowCompletedEvent	Aug 4, 2025, 3:49:27 PM	MCmd_SubstPV	Value changed from 0 to 1	Operation confirmed	Cancelled	Will				Root/Objects/Dev_PlantPax_5_20/CommDrive
1	AuditSigningWorkflowCompletedEvent	Aug 4, 2025, 3:49:28 PM	MCmd_Virtual	Value changed from 0 to 1	Operation confirmed	Cancelled	Will				Root/Objects/Dev_PlantPax_5_20/CommDrive
1	AuditSigningWorkflowCompletedEvent	Aug 4, 2025, 3:49:28 PM	MCmd_Virtual	Value changed from 0 to 1	Operation confirmed	Cancelled	Will				Root/Objects/Dev_PlantPax_5_20/CommDrive
1	AuditSigningWorkflowCompletedEvent	Aug 4, 2025, 3:49:30 PM	MCmd_SubstPV	Value changed from 0 to 1	Operation confirmed	Cancelled	Will				Root/Objects/Dev_PlantPax_5_20/CommDrive
1	AuditSigningWorkflowCompletedEvent	Aug 4, 2025, 3:49:31 PM	MCmd_SubstPV	Value changed from 0 to 1	Operation confirmed	Cancelled	Will				Root/Objects/Dev_PlantPax_5_20/CommDrive
1	AuditSigningWorkflowCompletedEvent	Aug 4, 2025, 3:49:33 PM	MCmd_Virtual	Value changed from 0 to 1	Operation confirmed	Cancelled	Will				Root/Objects/Dev_PlantPax_5_20/CommDrive

For more information about how to configure Event logger in FactoryTalk Optix, see the Event logger section in the FactoryTalk Optix Help manual, which is installed with FactoryTalk Optix. The help manual is in the folder:

C:/ProgramFiles/RockwellAutomation/FactoryTalkOptix/Studio1.6.0.626/Help/en/Index.html

## Additional Information

## Template Pre-Defined DataType

NO.	DataType
1	P_ANALOG_HART
2	P_ANALOG_INPUT
3	P_ANALOG_INPUT_DUAL
4	P_ANALOG_INPUT_MULTI
5	P_ANALOG_OUTPUT
6	P_DISCRETE_4STATE
7	P_DEADBAND
8	P_DISCRETE_INPUT
9	P_DISCRETE_OUTPUT
10	P_DOSING
11	P_INTERLOCK
12	P_LEAD_LAG_STANDBY
13	P_LEAD_LAG_STANDBY_MOTOR
14	P_MOTOR_DISCRETE
15	P_DISCRETE_N_POSITION
16	P_PERMISSIVE
17	P_PID
18	P_RUN_TIME
19	P_VALVE_DISCRETE
20	P_DISCRETE_MIX_PROOF
21	P_VALVE_STATISTICS
22	P_VARIABLE_SPEED_DRIVE
23	raP_Dvc_EH_Flowmeter
24	raP_Dvc_EH_Heartbeat
25	raP_Dvc_LgxChangeDet
26	raP_Dvc_LgxCPU_5x80
27	raP_Dvc_LgxModuleSts
28	raP_Dvc_LgxRedun
29	raP_Dvc_LgxTaskMon
30	raP_Opr_Area
31	raP_Opr_EMGen
32	raP_Opr_EPGen
33	raP_Opr_ExtddAlm
34	raP_Opr_Prompt
35	raP_Opr_Prompt_Core
36	raP_Opr_Unit
37	raP_Tec_ParRpt
38	P_BOOLEAN_LOGIC
39	raP_Opr_Seq
40	raP_Opr_SeqBoolInp
41	raP_UDT_Opr_Bus
42	raP_Opr_OrgScan

## Pre-defined TagMembers with Confirmation Workflow

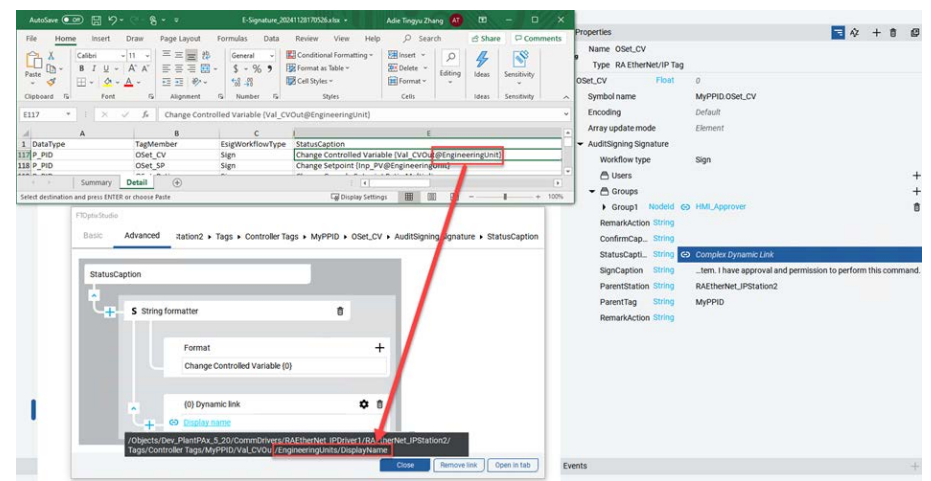
Data Type	TagMember	Caption
P_ANALOG_HART	MCmd_Virtual	Place the device in virtual operation
P_ANALOG_INPUT	MCmd_Virtual	Place the device in virtual operation
P_ANALOG_INPUT	MCmd_SubstPV	Replace the PV with a substitute value for the device
P_ANALOG_INPUT	@Alarms/Alm_**/OperShelve	Shelve alarm
P_ANALOG_INPUT_DUAL	@Alarms/Alm_**/OperShelve	Shelve alarm
P_ANALOG_INPUT_MULTI	@Alarms/Alm_**/OperShelve	Shelve alarm
P_ANALOG_OUTPUT	MCmd_Virtual	Place the device in virtual operation
P_ANALOG_OUTPUT	MCmd_OoS	Take the device Out of Service
P_ANALOG_OUTPUT	MCmd_Bypass	Bypass interlocks for the device
P_ANALOG_OUTPUT	@Alarms/Alm_**/OperShelve	Shelve alarm
P_DISCRETE_4STATE	MCmd_Virtual	Place the device in virtual operation
P_DISCRETE_4STATE	MCmd_OoS	Take the device Out of Service
P_DISCRETE_4STATE	MCmd_Bypass	Bypass interlocks and permissives for the device
P_DISCRETE_4STATE	@Alarms/Alm_**/OperShelve	Shelve alarm
P_DEADBAND	MCmd_OoS	Take the device Out of Service
P_DEADBAND	@Alarms/Alm_**/OperShelve	Shelve alarm
P_DISCRETE_INPUT	MCmd_Virtual	Place the device in virtual operation
P_DISCRETE_INPUT	MCmd_SubstPV	Replace the PV with a substitute value for the device
P_DISCRETE_INPUT	@Alarms/Alm_**/OperShelve	Shelve alarm
P_DISCRETE_OUTPUT	MCmd_Virtual	Place the device in virtual operation
P_DISCRETE_OUTPUT	MCmd_OoS	Take the device Out of Service
P_DISCRETE_OUTPUT	MCmd_Bypass	Bypass interlocks and permissives for the device
P_DISCRETE_OUTPUT	@Alarms/Alm_**/OperShelve	Shelve alarm
P_DOSING	MCmd_Virtual	Place the device in virtual operation
P_DOSING	MCmd_OoS	Take the device Out of Service
P_DOSING	@Alarms/Alm_**/OperShelve	Shelve alarm
P_LEAD_LAG_STANDBY	MCmd_OoS	Take the device Out of Service
P_LEAD_LAG_STANDBY	MCmd_Bypass	Bypass interlocks and permissives for the device
P_LEAD_LAG_STANDBY	@Alarms/Alm_**/OperShelve	Shelve alarm
P_MOTOR_DISCRETE	MCmd_Virtual	Place the device in virtual operation
P_MOTOR_DISCRETE	MCmd_OoS	Take the device Out of Service
P_MOTOR_DISCRETE	MCmd_Bypass	Bypass interlocks and permissives for the device
P_MOTOR_DISCRETE	@Alarms/Alm_**/OperShelve	Shelve alarm
P_DISCRETE_N_POSITION	MCmd_Virtual	Place the device in virtual operation
P_DISCRETE_N_POSITION	MCmd_OoS	Take the device Out of Service
P_DISCRETE_N_POSITION	MCmd_Bypass	Bypass interlocks and permissives for the device
P_DISCRETE_N_POSITION	@Alarms/Alm_**/OperShelve	Shelve alarm
P_PID	MCmd_OoS	Take the device Out of Service
P_PID	MCmd_Bypass	Bypass interlocks for the device
P_PID	@Alarms/Alm_**/OperShelve	Shelve alarm
P_VALVE_DISCRETE	MCmd_Virtual	Place the device in virtual operation
P_VALVE_DISCRETE	MCmd_OoS	Take the device Out of Service
P_VALVE_DISCRETE	MCmd_Bypass	Bypass interlocks and permissives for the device
P_VALVE_DISCRETE	@Alarms/Alm_**/OperShelve	Shelve alarm
P_DISCRETE_MIX_PROOF	MCmd_Virtual	Place the device in virtual operation
P_DISCRETE_MIX_PROOF	MCmd_OoS	Take the device Out of Service
P_DISCRETE_MIX_PROOF	MCmd_Bypass	Bypass interlocks for the device
P_DISCRETE_MIX_PROOF	@Alarms/Alm_**/OperShelve	Shelve alarm
P_VARIABLE_SPEED_DRIVE	MCmd_Virtual	Place the device in virtual operation
P_VARIABLE_SPEED_DRIVE	MCmd_OoS	Take the device Out of Service
P_VARIABLE_SPEED_DRIVE	MCmd_Bypass	Bypass interlocks and permissives for the device



Data Type	Tag Member	Caption
P_VARIABLE_SPEED_DRIVE	@Alarms/Alm_**/OperShelve	Shelve alarm
raP_Dvc_LgxChangeDet	@Alarms/Alm_**/OperShelve	Shelve alarm
raP_Dvc_LgxCPU_5x80	MCmd_Enable	Enabling data collection affects communication and processor performance. Be sure to disable data collection when you are finished monitoring the controller.
raP_Dvc_LgxModuleSts	MCmd_Virtual	Place the device in virtual operation
raP_Dvc_LgxModuleSts	MCmd_Bypass	Bypass connection checking for the device
raP_Dvc_LgxModuleSts	@Alarms/Alm_**/OperShelve	Shelve alarm
raP_Dvc_LgxRedun	MCmd_Switchover	Initiate switchover for controller
raP_Dvc_LgxRedun	@Alarms/Alm_**/OperShelve	Shelve alarm
raP_Dvc_LgxTaskMon	@Alarms/Alm_**/OperShelve	Shelve alarm
raP_Opr_Area	MCmd_Virtual	Place the device in virtual operation
raP_Opr_Area	MCmd_OoS	Take the device Out of Service
raP_Opr_Area	@Alarms/Alm_**/OperShelve	Shelve alarm
raP_Opr_EMGen	MCmd_StateForce	Force State
raP_Opr_EMGen	MCmd_OoS	Take the device Out of Service
raP_Opr_EMGen	MCmd_Bypass	Bypass interlocks and permissives for the device
raP_Opr_EMGen	@Alarms/Alm_**/OperShelve	Shelve alarm
raP_Opr_EPGen	OCmd_Abort	Abort Phase
raP_Opr_EPGen	MCmd_StateForce	Force State
raP_Opr_EPGen	MCmd_OoS	Take the device Out of Service
raP_Opr_EPGen	MCmd_Bypass	Bypass interlocks and permissives for the device
raP_Opr_EPGen	@Alarms/Alm_**/OperShelve	Shelve alarm
raP_Opr_ExtdAlm	@Alarms/Alm_**/OperShelve	Shelve alarm
raP_Opr_Prompt	@Alarms/Alm_**/OperShelve	Shelve alarm
raP_Opr_Unit	MCmd_Virtual	Place the device in virtual operation
raP_Opr_Unit	MCmd_OoS	Take the device Out of Service
raP_Opr_Unit	MCmd_Bypass	Bypass interlocks and permissives for the device
raP_Opr_Unit	@Alarms/Alm_**/OperShelve	Shelve alarm
raP_Opr_Seq	Cmd_StepDel	Delete step
raP_Opr_Seq	MCmd_Bypass	Bypass interlocks and permissives for the device
raP_Opr_Seq	MCmd_Check	Disable interlock bypass
raP_Opr_Seq	MCmd_SeqStepForce	Force Step
raP_Opr_OrgScan	OCmd_DelNode	Delete this node
raP_Opr_OrgScan	OCmd_AddChild	Add a child node to this node

# Extended Properties Dictionary

The extended properties that are used in the E-Signature Template are from Logix Designer. The format is different with the ones in FactoryTalk Optix dynamic link browser path.



The following table is a mapping of commonly used extended properties:

Extended Properties	FactoryTalk Optix dynamic link browser path
@Description	/Description
@Label	/Label
@Area	/Area
@Navigation	/Navigation
@State0	/FalseState
@State1	/TrueState
@EngineeringUnit	/EngineeringUnits/DisplayName
@Max	/EURange/High
@Min	/EURange/Low
@Library	/Library
@Instruction	/Instruction
@URL	/URL

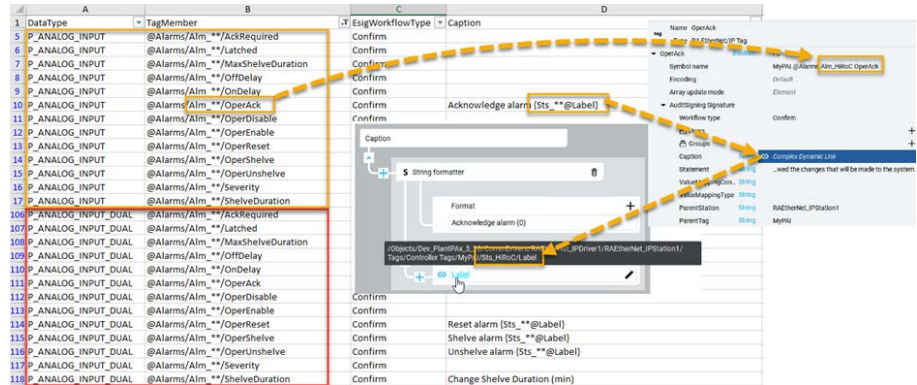
## Tag Format for Alarms

There are 13 default Alarms TagMembers for each DataType in the template. The TagMembers all have same format.

'@Alarms/Alm\_\*\*/<ChildTag>'.

During importing into FactoryTalk Optix, the '\*\*' will be instantiated to all the actual Alarms TagMembers per each DataType.

The following is an example how the TagMember be instantiated:



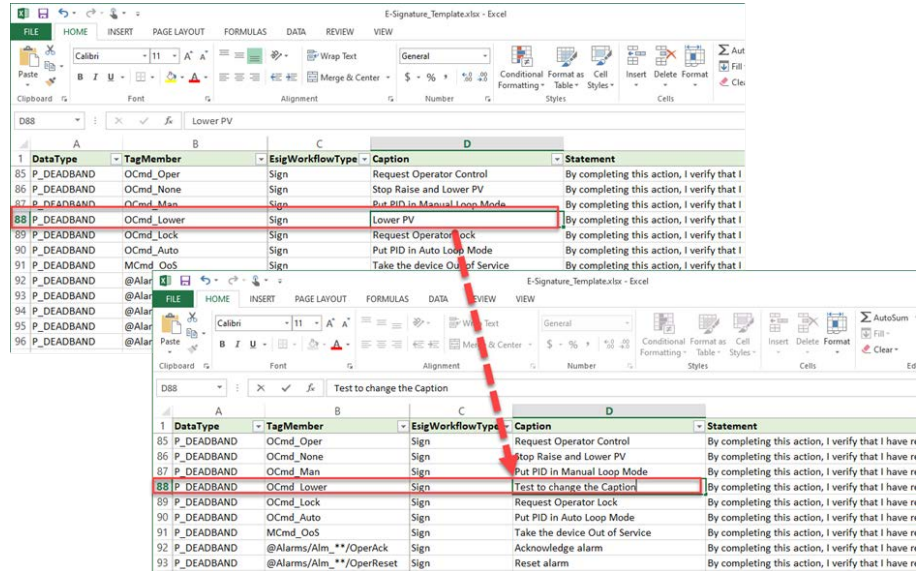
The format '@Alarms/Alm\_\*\*/<ChildTag>' can only import all the Alarm TagMembers for the DataType at one time. If user would like to choose parts of the tags to import, then the '\*\*' must be instantiated manually in the template before importing. See the following example:

1019	P_VARIABLE_SPEED_DRIVE	@Alarms/Alm_DriveFault/OffDelay	Confirm	
1020	P_VARIABLE_SPEED_DRIVE	@Alarms/Alm_DriveFault/OnDelay	Confirm	
1021	P_VARIABLE_SPEED_DRIVE	@Alarms/Alm_DriveFault/OperAck	Confirm	Acknowledge alarm [Sts_DriveFault@Label]
1022	P_VARIABLE_SPEED_DRIVE	@Alarms/Alm_DriveFault/OperDisable	Confirm	
1023	P_VARIABLE_SPEED_DRIVE	@Alarms/Alm_DriveFault/OperEnable	Confirm	
1024	P_VARIABLE_SPEED_DRIVE	@Alarms/Alm_DriveFault/OperReset	Confirm	Reset alarm [Sts_DriveFault@Label]
1025	P_VARIABLE_SPEED_DRIVE	@Alarms/Alm_DriveFault/OperShelve	Confirm	Shelve alarm [Sts_DriveFault@Label]
1026	P_VARIABLE_SPEED_DRIVE	@Alarms/Alm_DriveFault/OperUnshelve	Confirm	Unshelve alarm [Sts_DriveFault@Label]
1027	P_VARIABLE_SPEED_DRIVE	@Alarms/Alm_DriveFault/Severity	Confirm	
1028	P_VARIABLE_SPEED_DRIVE	@Alarms/Alm_DriveFault/ShelveDuration	Confirm	Change Shelve Duration (min)

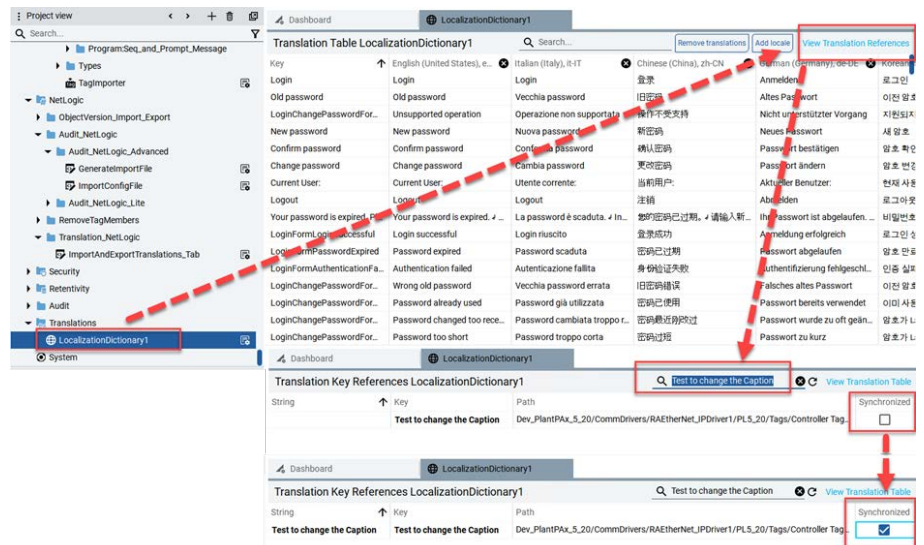
## How to Customize Caption/Statement/ValueMappingContent by Template

To display custom contents correctly during RunTime, you must use the following steps when customizing Caption, Statement, or ValueMapping in the E-Signature template:

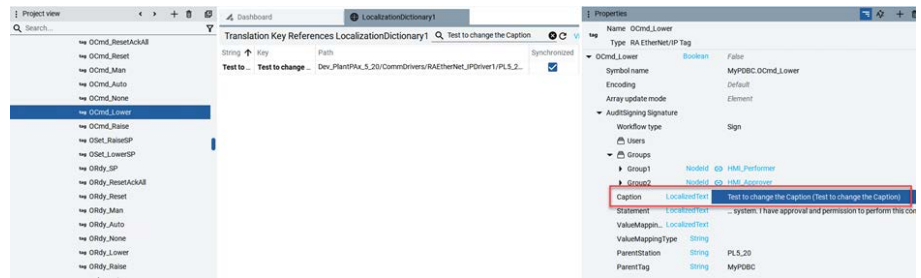
1. Update a predefined Caption/Statement/ValueMappingContent in the template (for example, a caption of P\_DEADBAND), then save and close the file.



2. Follow steps in [E-Signature Configuration](#) to export and import the E-Signature configuration of P\_DEADBAND.
3. In Project View, double-click 'LocalizationDictionary1' under the 'Translation' folder and select 'View Translation References'. Then search for the updated Caption ('Test to change the Caption').
4. Select the 'Synchronized' checkbox for the key.



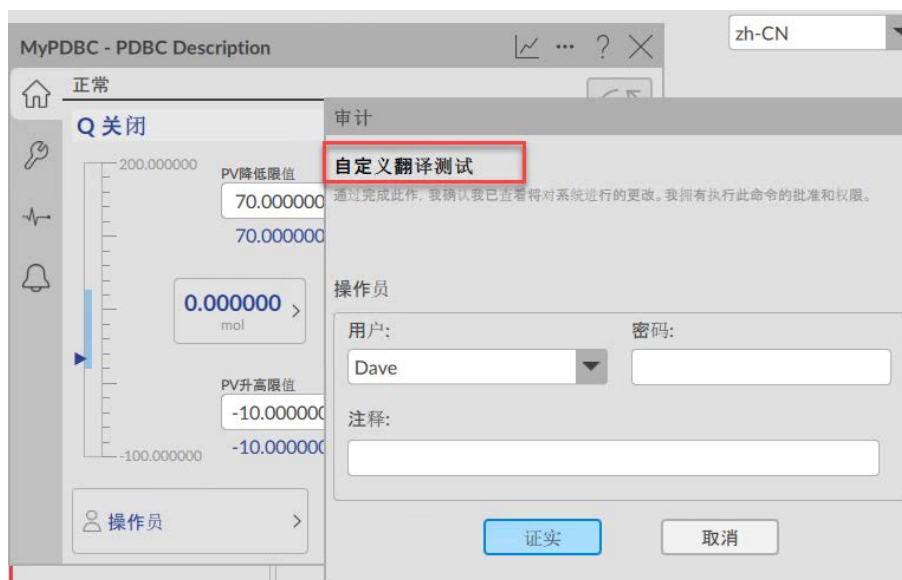
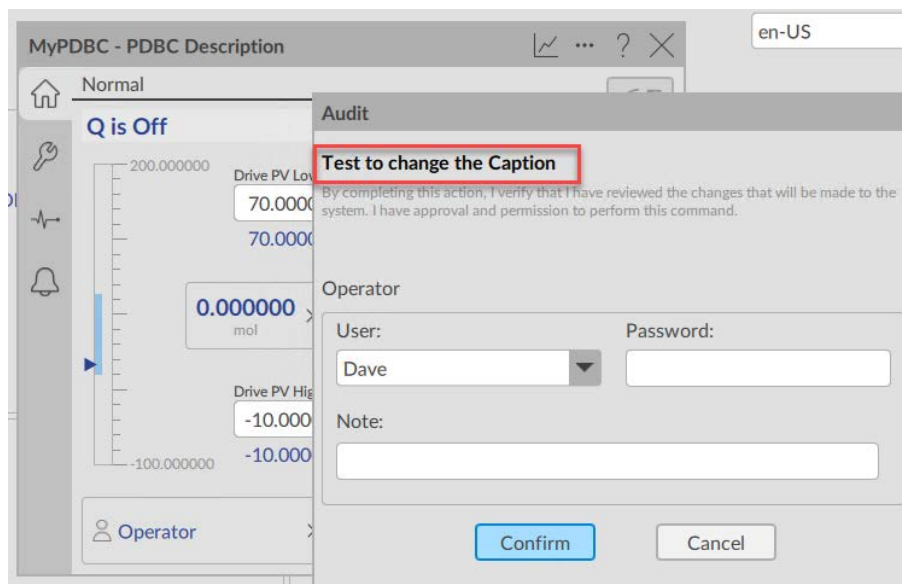
## Observation of changed tag:



5. You can add translations manually in the Translation Table to enable Multilanguage:



6. Start RunTime. When an operation is made to the tag, the E-Signature pop-up appears. And now the custom caption and translations can be displayed correctly.





# Rockwell Automation Support

Use these resources to access support information.

<b>Technical Support Center</b>	Find help with how-to videos, FAQs, chat, user forums, Knowledgebase, and product notification updates.	<a href="http://rok.auto/support">rok.auto/support</a>
<b>Local Technical Support Phone Numbers</b>	Locate the telephone number for your country.	<a href="http://rok.auto/phonesupport">rok.auto/phonesupport</a>
<b>Technical Documentation Center</b>	Quickly access and download technical specifications, installation instructions, and user manuals.	<a href="http://rok.auto/techdocs">rok.auto/techdocs</a>
<b>Literature Library</b>	Find installation instructions, manuals, brochures, and technical data publications.	<a href="http://rok.auto/literature">rok.auto/literature</a>
<b>Product Compatibility and Download Center (PCDC)</b>	Download firmware, associated files (such as AOP, EDS, and DTM), and access product release notes.	<a href="http://rok.auto/pcdc">rok.auto/pcdc</a>

## Documentation Feedback

Your comments help us serve your documentation needs better. If you have any suggestions on how to improve our content, complete the form at [rok.auto/docfeedback](http://rok.auto/docfeedback).

## Waste Electrical and Electronic Equipment (WEEE)



At the end of life, this equipment should be collected separately from any unsorted municipal waste.

Rockwell Automation maintains current product environmental compliance information on its website at [rok.auto/pec](http://rok.auto/pec).





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Publication PROCES-RM260A-EN-P - April 2026

Supersedes Publication PROCES-RM203E-EN-P - December 2025

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