



Rockwell Automation Intelligent Electronic Devices Toolkit

Version 1.00



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.

	Additional Resources	9	
Introduction	PlantPAx DCS and IEC 61850	11	
	MVI56E-61850C Integration	11	
	PLX82-EIP-61850 Integration	12	
	Required Files	13	
	Controller Files	13	
	Visualization Files	13	
	HMI Security	16	
	Help Files	17	
Configure the ProSoft Communication	Configure the MVI56E-61850C Module	19	
	Install the Software	19	
	Add the MVI56E-61850C Module to Studio 5000 Logix Designer . .	19	
	Launch the ProSoft MV156E-61850C Configuration Manager . . .	20	
	Import IED Configuration Files	20	
	Configure the IED Network	20	
	IED Data Mapping	20	
	Module Properties in Configuration Manager	21	
	Export the Configuration to the Add-On Profile	22	
	Files Generated by the MV156E-61850C Configuration Manager . .	22	
	Configure the		
	PLX82-EIP-61850 Communication Gateway	22	
	Install the Software	22	
	Create a Project using Configuration Manager	22	
	Import IED Configuration Files	22	
	Configure the IED Network	22	
	IED Data Mapping	23	
	Exporting the IED Add-On Instructions for RSLogix 5000	24	
	Add the PLX82-EIP-61850 Module and Configuration to Studio 5000 Logix Designer	24	
	Integrate IEC 61850 into a Studio 5000 Project	Import the ProSoft Configuration into Studio 5000 Logix Designer . .	25
Import the Primary (HMI Interface) and Data Mapping Add-On Instructions		25	
Use the Add-On Instructions in a Routine		26	
Configure the Mapping Add-On Instructions		26	
	Configure the Primary (Trip Source) Add-On Instructions	28	
Bulletin 857 Motor/Feeder Protection Object	Controller Code	33	
	InOut Structure for Trip Source Add-On Instruction	34	
	Remote Bit Control Value Structure	34	
	Mapping InOut Tags to Trip Source Add-On Instruction	35	
	Using Visualization Files	35	
	Faceplates	36	
	Operator Tab	37	
	Diagnostics Tab	37	
	Alarms	38	
	Advanced Properties	38	
	Help Button	40	
Bulletin 865 Transformer Object	Controller Code	41	
	InOut Structure for Trip Source Add-On Instruction	42	

	Remote Bit Control Value Structure	42
	Mapping InOut Tags to Trip Source Add-On Instruction	42
	Using Visualization Files	43
	Faceplates	43
	Operator Tab	44
	Diagnostics Tab	44
	Alarms	45
	Advanced Properties	45
	Help Button	47
SEL 351 Object	Controller Code	49
	InOut Structure for Trip Source Add-On Instruction	49
	Remote Bit Control Value Structure	50
	Mapping InOut Tags to Trip Source Add-On Instruction	51
	Using Visualization Files	51
	Faceplates	52
	Operator Tab	53
	Diagnostics Tab	53
	Alarms	54
	Advanced Properties	54
	Help Button	56
SEL 411L Object	Controller Code	57
	InOut Structure for Trip Source Add-On Instruction	57
	Remote Bit Control Value Structure	58
	Mapping InOut Tags to Add-On Instructions	58
	Using Visualization Files	59
	Faceplates	59
	Operator Tab	60
	Manual Control Tab	60
	Diagnostics Tab	61
	Alarms	61
	Advanced Properties	61
	Help Button	63
SEL 421 Object	Controller Code	65
	InOut Structure for Trip Source Add-On Instruction	65
	Remote Bit Control Value Structure	66
	Mapping InOut Tags to Trip Source Add-On Instruction	67
	Using Visualization Files	67
	Faceplates	68
	Operator Tab	69
	Manual Control Tab	69
	Diagnostics Tab	69
	Alarms	70
	Advanced Properties	70
	Help Button	72
SEL 451 Object	Controller Code	73
	InOut Structure for Trip Source Add-On Instruction	73
	Remote Bit Control Value Structure	74
	Mapping InOut Tags to Trip Source Add-On Instruction	75
	Using Visualization Files	75

	Faceplates	76
	Operator Tab	77
	Manual Control Tab	77
	Diagnostics Tab	78
	Alarms	78
	Advanced Properties	79
	Help Button	81
SEL 487B Object	Controller Code	83
	InOut Structure for Trip Source Add-On Instruction	83
	Remote Bit Control Value Structure	84
	Mapping InOut Tags to Trip Source Add-On Instruction	85
	Using Visualization Files	85
	Faceplates	86
	Operator Tab	87
	Manual Control Tab	87
	Diagnostics Tab	87
	Alarms	88
	Advanced Properties	88
	Help Button	90
SEL 700G Object	Controller Code	91
	InOut Structure for Trip Source Add-On Instruction	91
	Remote Bit Control Value Structure	92
	Mapping InOut Tags to Trip Source Add-On Instruction	93
	Using Visualization Files	93
	Faceplates	93
	Operator Tab	95
	Automatic-Synchronization Tab	96
	Diagnostics Tab	96
	Alarms	97
	Advanced Properties	98
	Help Button	101
SEL 710 Object	Controller Code	103
	InOut Structure for Trip Source Add-On Instruction	103
	Remote Bit Control Value Structure	104
	Mapping InOut Tags to Trip Source Add-On Instruction	105
	Using Visualization Files	105
	Faceplates	106
	Operator Tab	107
	Diagnostics Tab	107
	Alarms	108
	Advanced Properties	108
	Faults Tab	111
	Help Button	111
SEL 735 Object	Controller Code	113
	InOut Structure for Trip Source Add-On Instruction	113
	Remote Bit Control Value Structure	114
	Mapping InOut Tags to Trip Source Add-On Instruction	115
	Using Visualization Files	115
	Faceplates	116

	Operator Tab.....	117
	Diagnostics Tab	117
	Alarms.....	118
	Advanced Properties	118
	Help Button.....	119
SEL 751 Object	Controller Code.....	121
	InOut Structure for Trip Source Add-On Instruction.....	121
	Remote Bit Control Value Structure	122
	Mapping InOut Tags to Trip Source Add-On Instruction.....	123
	Using Visualization Files.....	123
	Faceplates	124
	Operator Tab.....	125
	Manual Control Tab.....	125
	Diagnostics Tab	125
	Alarms.....	126
	Advanced Properties	126
	Help Button.....	129
SEL 751A Object	Controller Code.....	131
	InOut Structure for Trip Source Add-On Instruction.....	131
	Remote Bit Control Value Structure	132
	Mapping InOut Tags to Trip Source Add-On Instruction.....	133
	Using Visualization Files.....	133
	Faceplates	134
	Operator Tab.....	135
	Diagnostics Tab	135
	Alarms.....	136
	Advanced Properties	136
	Alarms.....	138
	Help Button.....	139
SEL 787 Object	Controller Code.....	141
	InOut Structure for Trip Source Add-On Instruction.....	141
	Remote Bit Control Value Structure	142
	Mapping InOut Tags to Trip Source Add-On Instruction.....	143
	Using Visualization Files.....	143
	Faceplates	144
	Operator Tab.....	145
	Diagnostics Tab	145
	Alarms.....	146
	Advanced Properties	146
	Help Button.....	149
ABB EMAX2 Using IED 61850 Object	Controller Code.....	151
	InOut Structure for ProSoft Add-On Instruction.....	152
	InOut Structure for Rockwell Automation Toolkit Download ...	152
	Mapping InOut Tags to Trip Source Add-On Instruction.....	153
	Using Visualization Files.....	153
	Faceplates	153
	Operator Tab.....	154
	Diagnostics Tab	154
	Advanced Properties	155

	Faults Tab.	157
	Help Button.	157
GE Multilin 845 Object	Controller Code.	159
	InOut Structure for Trip Source Add-On Instruction.	160
	Remote Bit Control Value Structure.	160
	Mapping InOut Tags to Trip Source Add-On Instruction.	161
	Using Visualization Files.	161
	Faceplates.	162
	Operator Tab.	163
	Diagnostics Tab.	163
	Alarms.	164
	Advanced Properties.	164
	Faults Tab.	166
	Help Button.	166
GE Multilin 850 Object	Controller Code.	167
	InOut Structure for Trip Source Add-On Instruction.	167
	Remote Bit Control Value Structure.	168
	Mapping InOut Tags to Trip Source Add-On Instruction.	169
	Using Visualization Files.	169
	Faceplates.	170
	Operator Tab.	170
	Diagnostics Tab.	171
	Alarms.	171
	Advanced Properties.	172
	Faults Tab.	173
	Help Button.	174
GE Multilin 869 Object	Controller Code.	175
	InOut Structure for Trip Source Add-On Instruction.	175
	Remote Bit Control Value Structure.	176
	Mapping InOut Tags to Trip Source Add-On Instruction.	177
	Using Visualization Files.	177
	Faceplates.	178
	Operator Tab.	178
	Diagnostics Tab.	179
	Alarms.	179
	Advanced Properties.	180
	Faults Tab.	181
	Help Button.	182
GE Multilin 889 Object	Controller Code.	183
	InOut Structure for Trip Source Add-On Instruction.	183
	Remote Bit Control Value Structure.	184
	Mapping InOut Tags to Trip Source Add-On Instruction.	185
	Using Visualization Files.	185
	Faceplates.	186
	Operator Tab.	186
	Diagnostics Tab.	187
	Alarms.	188
	Advanced Properties.	188
	HMI Configuration Tab.	189

Faults Tab..... 190

Help Button..... 190

This manual describes the Intelligent Electronic Devices Toolkit that contains Add-On Instructions and visualization objects.

The files that are required to configure the Intelligent Electronic Devices can be downloaded from the Product Compatibility and Download Center (PCDC) at <http://compatibility.rockwellautomation.com/Pages/home.aspx>.

See [Chapter 1](#) for more information on the IEC61850 standard.

Additional Resources

These documents contain additional information concerning related products from Rockwell Automation.

Resource	Description
IEC 61850 Client Communication Module User Manual, MVI56E-61850C User Manual	Explains the features of the MVI56E-61850C module and guides you through the installation and configuration of the module. This includes using the ProSoft MVI56E-61850C Configuration Manager software to map data for Intelligent Electronic Devices (IEDs) on the IEC 61850 network for use with a Rockwell Automation® ControlLogix® processor.
PLX82-EIP-61850 Communication Gateway EtherNet/IP to IEC 61850 Gateway User Manual, PLX82-EIP-61850 User Manual	The ProSoft Technology® EtherNet/IP™ to IEC 61850 communication gateway allows Rockwell Automation® PACs to interface with IEC 61850 Intelligent Electronic Devices (IED) such as substation power monitors and relays. The gateway acts as an IEC 61850 Client polling the devices on your network.
PlantPax Distributed Control System Selection Guide, publication PROCES-SG001	Provides information to assist with equipment procurement for your PlantPax® system.
PlantPax Distributed Control System Reference Manual, publication PROCES-RM001	Provides characterized recommendations for implementing your PlantPax system.
Rockwell Automation Library of Process Objects, publication PROCES-RM200	Provides general considerations for the PlantPax system library of process objects.
PlantPax Distributed Control System Infrastructure Configuration User Manual, publication PROCES-UM001	Describes procedures for how to configure system components that comprise a PlantPax modern DCS.
PlantPax Distributed Control System Application Configuration User Manual, publication PROCES-UM003	Describes the steps necessary to start development of PlantPax DCS.
Industrial Automation Wiring and Grounding Guidelines, publication I770-4.1	Provides general guidelines for installing a Rockwell Automation industrial system.
Product Certifications website, https://www.rockwellautomation.com/en-us/support/documentation/product-certifications.html	Provides declarations of conformity, certificates, and other certification details.

You can view or download publications at <https://www.rockwellautomation.com/en-us/support/documentation/literature-library.html>. To order paper copies of technical documentation, contact your local Allen-Bradley distributor or Rockwell Automation sales representative.

Notes:

Introduction

PlantPax DCS and IEC 61850

The PlantPax® distributed control system architecture provides for the integration of Intelligent Electronic Devices via the IEC 61850 standard. The IEC 61850 standard defines a communication interface that monitors and controls electrical distribution systems with one common platform regardless of manufacturer. Substation equipment has evolved from electromechanical to microprocessor-based relays that allow for communication to industrial control systems. The Intelligent Electronic Devices Toolkit supports communication via the ProSoft Technology® IEC 61850 communication module, MVI56E-61850C, and the ProSoft Technology EtherNet/IP™ Server to IEC 61850 Dual Port Client Gateway, PLX82-EIP-61850.

This manual describes how to integrate Add-On Instructions and visualizations that are described in this manual. The instructions maximize process control with intelligent devices on The Connected Enterprise®.

The IEC 61850 standard includes the following benefits:

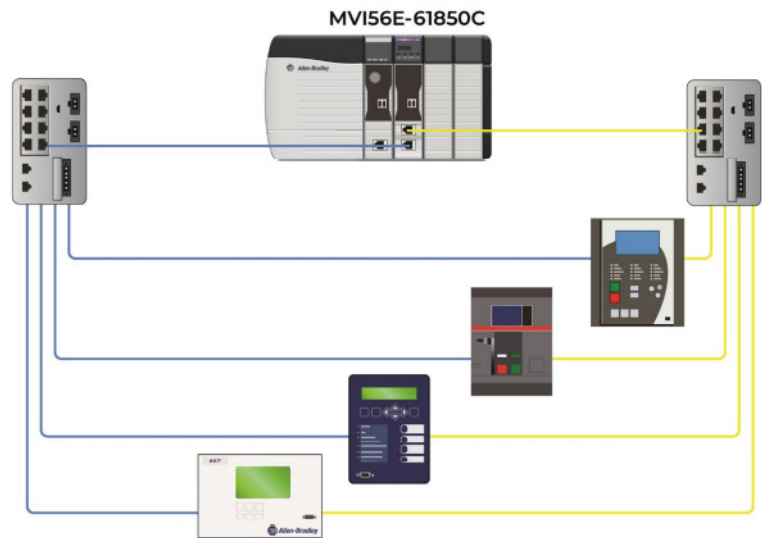
- Support of comprehensive substation functions
- Ease of design, specification, setup, and maintenance
- Strong functional support for substation communication and flexibility to support system evolution

MVI56E-61850C Integration

The ProSoft Technology IEC 61850 communication module allows Rockwell Automation® ControlLogix® PACs to interface with IEC 61850 Intelligent Electronic Devices (IED) such as substation power monitors and protective relays. The module operates as an IEC 61850 Client supporting the polling of devices using MMS messaging and reports.

The dual Ethernet ports on the module provide support for Parallel Redundancy Protocol (PRP), as shown in the following figure.

MVI56E-61850C Integration into PlantPax

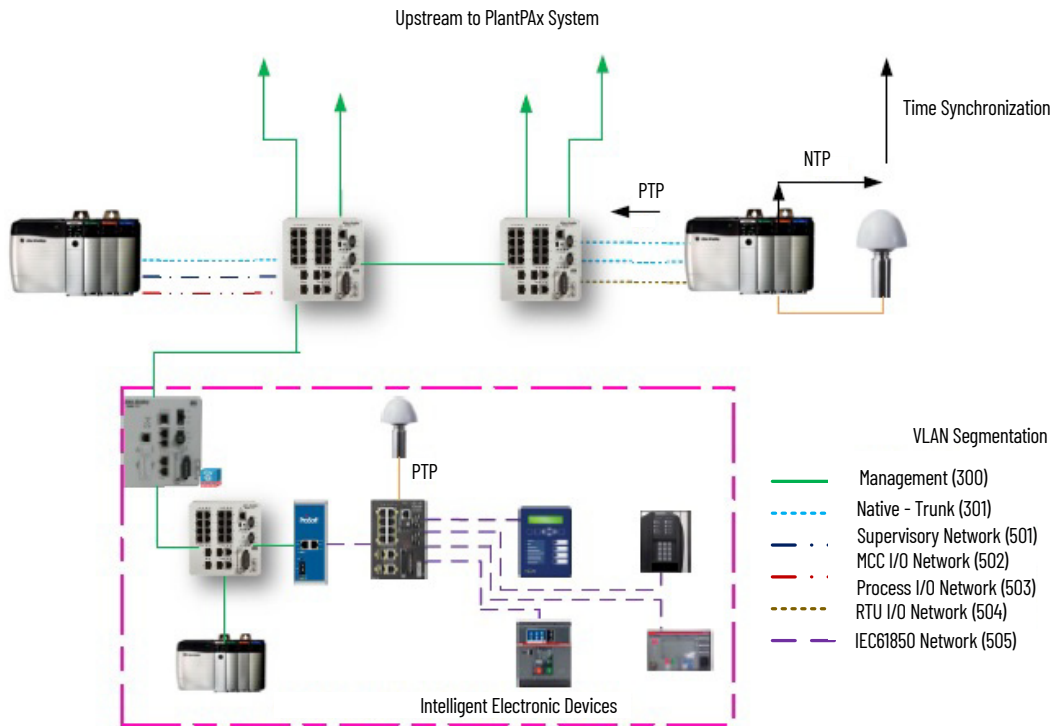


Configuration is accomplished through a custom Add-On Profile for Studio 5000® that launches the MVI56E-61850C Configuration Manager software, which can be downloaded from the ProSoft website, www.prosoft-technology.com. The configuration utility automatically creates a program import to be used in ControlLogix 1756-L8x processors with Studio 5000 Logix Designer® version 36 and greater and brings the data over as configured using the tag name of the device in the IEC 61850 network.

Mapping Add-On Instructions are used to interface between the program that is created by the ProSoft Configuration Manager and the HMI displays.

PLX82-EIP-61850 Integration

PLX82-EIP-61850 Integration into PlantPax



With the ProSoft Technology EtherNet/IP Server to IEC 61850 Dual Port Client Gateway, configuration is accomplished using the PLX8x-EIP-61850 Configuration Manager software, which can be downloaded from the ProSoft website, [PLX8x-EIP-61850 Configuration Manager](#). The configuration utility automatically creates the Add-On Instruction to be imported into Studio 5000 Logix Designer version 36 and later.

Mapping Add-On Instructions are used to interface between the Add-On instructions that are created by the ProSoft Configuration Manager and the HMI displays.

Required Files

The controller and visualization files are required to create instruction sets for programming logic. This logic is as a supplement to the instruction set provided natively in the ControlLogix firmware.

Controller Files

The module Add-On Instruction files are included in the following table

Table 1 - Module Add-On Instruction Files

Device Name	IED Toolkit Primary AOI	Chassis Mapping AOIs	Gateway Mapping AOIs	Description
SEL 351	raC_Dvc_SEL_351	raC_Dvc_SEL_351_MVI56E_61850C	raC_Dvc_SEL_351_PLX82_EIP_61850	Feeder protection relay
SEL 411L	raC_Dvc_SEL_411L	raC_Dvc_SEL_411L_MVI56E_61850C	raC_Dvc_SEL_411L_PLX82_EIP_61850	Transmission line protection relay
SEL 421	raC_Dvc_SEL_421	raC_Dvc_SEL_421_MVI56E_61850C	raC_Dvc_SEL_421_PLX82_EIP_61850	Distance/directional protection relay
SEL 451	raC_Dvc_SEL_451	raC_Dvc_SEL_451_MVI56E_61850C	raC_Dvc_SEL_451_PLX82_EIP_61850	Feeder protection relay
SEL 487B	raC_Dvc_SEL_487B	raC_Dvc_SEL_487B_MVI56E_61850C	raC_Dvc_SEL_487B_PLX82_EIP_61850	Bus differential/breaker failure relay
SEL 700G	raC_Dvc_SEL_700G	raC_Dvc_SEL_700G_MVI56E_61850C	raC_Dvc_SEL_700G_PLX82_EIP_61850	Generator protection relay
SEL 710	raC_Dvc_SEL_710	raC_Dvc_SEL_710_MVI56E_61850C	raC_Dvc_SEL_710_PLX82_EIP_61850	Motor protection relay
SEL 735	raC_Dvc_SEL_735	raC_Dvc_SEL_735_MVI56E_61850C	raC_Dvc_SEL_735_PLX82_EIP_61850	Power quality and revenue meter
SEL 751	raC_Dvc_SEL_751	raC_Dvc_SEL_751_MVI56E_61850C	raC_Dvc_SEL_751_PLX82_EIP_61850	Feeder protection relay
SEL 751A	raC_Dvc_SEL_751A	raC_Dvc_SEL_751A_MVI56E_61850C	raC_Dvc_SEL_751A_PLX82_EIP_61850	Feeder protection relay (arc flash)
SEL 787	raC_Dvc_SEL_787	raC_Dvc_SEL_787_MVI56E_61850C	raC_Dvc_SEL_787_PLX82_EIP_61850	Transformer protection relay
ABB EMAX2 (61850)	raC_Dvc_ABB_EMAX2	raC_Dvc_ABB_EMAX2_MVI56E_61850C	raC_Dvc_ABB_EMAX2_PLX82_EIP_61850	Power/air circuit breaker
GE Multilin 845	raC_Dvc_GE_Multilin845	raC_Dvc_GE_Multilin845_MVI56E_61850C	raC_Dvc_GE_Multilin845_PLX82_EIP_61850	Transformer differential protection relay
GE Multilin 850	raC_Dvc_GE_Multilin850	raC_Dvc_GE_Multilin850_MVI56E_61850C	raC_Dvc_GE_Multilin850_PLX82_EIP_61850	Feeder protection relay
GE Multilin 869	raC_Dvc_GE_Multilin869	raC_Dvc_GE_Multilin869_MVI56E_61850C	raC_Dvc_GE_Multilin869_PLX82_EIP_61850	Motor protection relay
GE Multilin 889	raC_Dvc_GE_Multilin889	raC_Dvc_GE_Multilin889_MVI56E_61850C	raC_Dvc_GE_Multilin889_PLX82_EIP_61850	Generator protection relay
AB Bul. 857	raC_Dvc_AB_Bul857	raC_Dvc_AB_Bul857_MVI56E_61850C	raC_Dvc_AB_Bul857_PLX82_EIP_61850	Motor and Feeder Protection Relay
AB Bul. 865	raC_Dvc_AB_Bul865	raC_Dvc_AB_Bul865_MVI56E_61850C	raC_Dvc_AB_Bul865_PLX82_EIP_61850	Motor and Feeder Protection Relay

Visualization Files

Each device type has associated visualization files that provide a common user interface. You must import these files in the following order:

- Images (.png files)
- Global Objects(.ggfx file type)
- HMI faceplates (.gfx file type)
- Tags (.csv file type)

- Macros (FactoryTalk® View SE software only) (.mcr file type)

File Type Abbreviations	Files	Description
Images (.png)	All .png (or .bmp) files in the images folder. IMPORTANT: FactoryTalk View application renames PNG files when they are imported with a .bmp file extension, but the files retain a .png format	Common icons that are used in the Global Objects and standard displays.
Global objects (.ggfx)	(raC-1-SE) precedes the name of the global object display specific to the Intelligent Electronic Devices Toolkit. (ra*) precedes the name of other Global Object displays that are common to multiple libraries. Examples: (raC-1-SE) Toolbox - IED Faceplate Objects (raSDK-1-SE) Toolbox - Common Objects	Global object files contain Graphic Symbols that are created once and referenced multiple times on multiple displays in an application. When changes are made to a global object, all instances in the application are automatically updated.
Standard displays (.gfx)	(raC-1_00-SE) precedes the name of the display. Examples: (raC-1_00-SE) raC_Dvc_SEL_351-Advanced (raC-1_00-SE) raC_Dvc_SEL_351-Faceplate	Standard display files, commonly called faceplates, provide a common user interface.
HMI tags (.csv)	IED_Toolkit_1_00_Tags.csv	HMI tags are created in a FactoryTalk View SE application to support security and other features on Toolkit faceplates. HMI tags can be imported via the comma-separated values file (.csv file type)
Macros (.mcr file)	Macros used for the Toolkit: NavToDisplay	In a FactoryTalk View SE application, a macro is a series of commands that are stored in a text file.

Global Objects

Global objects specific to the Intelligent Electronic Devices Toolkit are found in the global object file, (raC-1-SE) Toolbox - IED Faceplate Objects.

The following global objects, which are common to multiple libraries, are also included in the PCDC download for the Intelligent Electronic Devices Toolkit:

- (raP-5_20-SE) Toolbox - Alarm Objects
- (raP-5_20-SE) Toolbox - Common Adv Objects
- (raSDK-1-SE) Toolbox - Common Objects

Follow these steps to use the global object for launching one of the IED Toolkit faceplates.

1. Open the (raC-1-SE) Toolbox - IED Faceplate Objects display
2. Copy the GO_IED global object from the global object file and paste it in the display file.



3. In the display, right-click the global object and choose Global ObjectParameter Values.


The Global Object Parameter Values dialog box appears.

Global Object Parameter Values				
	Name	Value	Tag	Description
1	#102		...	IED Tag (raE_Dvc_*)
2	#120		...	Additional display parameter (e.g. /X100 or /CC) (optional)
3	#121		...	Additional display parameter (e.g. /Y100) (optional)

The global object parameters are as follows.

Parameter	Required	Description
#102	Y	Trip Source tag to point to the Add-On Instruction tag in the controller.
#120	N	Additional parameter to pass to the display command to open the faceplate. Typically used to define position for the faceplate.
#121	N	Additional parameter to pass to the display command to open the faceplate. To define X and Y coordinates, separate parameters so that #120 defines X and #121 defines Y. This separation lets these same parameters be used in subsequent display commands that originate from the faceplate.

- In the Value column, enter the tag or value as specified in the Description column. See the following display for example values.

 Global Object Parameter Values

	Name	Value	Tag	Description
1	#102	{[raC_Test]raC_Dvc_SEL_351_Test}	...	IED Tag (raE_Dvc_*)
2	#120		...	Additional display parameter (e.g. /X100 or /CC) (optional)
3	#121		...	Additional display parameter (e.g. /Y100) (optional)



Select the ellipsis (...) to browse and select a tag. Values for items that are not required can be left blank.

Displays

The display files (.gfx file type) included with the Intelligent Electronic Devices Toolkit are listed in the following table.

FactoryTalk View SE Software Faceplate	FactoryTalk View SE Software Advanced	Description
(raC-1.00-SE) raC_Dvc_SEL_351-Faceplate	(raC-1.00-SE) raC_Dvc_SEL_351-Advanced	Faceplate for the feeder protection relay with synchrophasor capability
(raC-1.00-SE) raC_Dvc_SEL_411L-Faceplate	(raC-1.00-SE) raC_Dvc_SEL_411L-Advanced	Faceplate for the transmission line protection relay.
(raC-1.00-SE) raC_Dvc_SEL_421-Faceplate	(raC-1.00-SE) raC_Dvc_SEL_421-Advanced	Faceplate for the high-speed distance and directional protection relay
(raC-1.00-SE) raC_Dvc_SEL_451-Faceplate	(raC-1.00-SE) raC_Dvc_SEL_451-Advanced	Faceplate for the feeder protection relay.
(raC-1.00-SE) raC_Dvc_SEL_487B-Faceplate	(raC-1.00-SE) raC_Dvc_SEL_487B-Advanced	Faceplate for the bus differential and breaker failure relay
(raC-1.00-SE) raC_Dvc_SEL_700G-Faceplate	(raC-1.00-SE) raC_Dvc_SEL_700G-Advanced	Faceplate for the generator protection relay
(raC-1.00-SE) raC_Dvc_SEL_710-Faceplate	(raC-1.00-SE) raC_Dvc_SEL_710-Advanced	Faceplate for the motor protection relay
(raC-1.00-SE) raC_Dvc_SEL_735-Faceplate	(raC-1.00-SE) raC_Dvc_SEL_735-Advanced	Faceplate for the power quality and revenue meter.
(raC-1.00-SE) raC_Dvc_SEL_751-Faceplate	(raC-1.00-SE) raC_Dvc_SEL_751-Advanced	Faceplate for the feeder protection relay.
(raC-1.00-SE) raC_Dvc_SEL_751A-Faceplate	(raC-1.00-SE) raC_Dvc_SEL_751A-Advanced	Faceplate for the feeder protection relay with arc flash detection
(raC-1.00-SE) raC_Dvc_SEL_787-Faceplate	(raC-1.00-SE) raC_Dvc_SEL_787-Advanced	Faceplate for the generator protection relay
(raC-1.00-SE) raC_Dvc_ABB_EMAX2-Faceplate	(raC-1.00-SE) raC_Dvc_ABB_EMAX2-Advanced	Faceplate for the power circuit breaker with communication via IEC 61850
(raC-1.00-SE) raC_Dvc_GE_Multilin845-Faceplate	(raC-1.00-SE) raC_Dvc_GE_Multilin845-Advanced	Faceplate for the transformer differential protection relay with arc flash protection
(raC-1.00-SE) raC_Dvc_GE_Multilin850-Faceplate	(raC-1.00-SE) raC_Dvc_GE_Multilin850-Advanced	Faceplate for the feeder protection relay with arc flash detection
(raC-1.00-SE) raC_Dvc_GE_Multilin869-Faceplate	(raC-1.00-SE) raC_Dvc_GE_Multilin869-Advanced	Faceplate for the motor protection relay with arc flash protection.
(raC-1.00-SE) raC_Dvc_GE_Multilin889-Faceplate	(raC-1.00-SE) raC_Dvc_GE_Multilin889-Advanced	Faceplate for the generator protection relay with arc flash protection.
(raC-1.00-SE) raC_Dvc_AB_Bul857-Faceplate	(raC-1.00-SE) raC_Dvc_AB_Bul857-Advanced	Faceplate for the feeder protection relay
(raC-1.00-SE) raC_Dvc_AB_Bul865-Faceplate	(raC-1.00-SE) raC_Dvc_AB_Bul865-Advanced	Faceplate for the generator protection relay

HMI Tags

HMI Tags are created in a FactoryTalk® View SE application to support security on the toolkit faceplates. The HMI tags can be imported via the comma-separated values file (.csv file type) in the following table.

FactoryTalk View SE Software	Description
IED_Toolkit_1.00_Tags.csv	These tags must be imported into the FactoryTalk View SE project to support area-based security on any Process Object faceplate.

Macros

The NavToDisplay macro is used for faceplate to faceplate navigation.

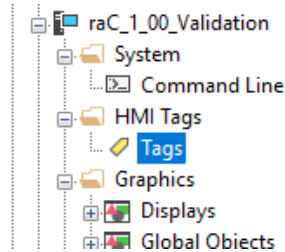
HMI Security

See PlantPAx Distributed Control System Configuration and Implementation, Publication [PROCES-UM100](#), section 'Configure Runtime Security' for more information.

Help Files

The help displays for the Intelligent Electronic Devices Toolkit are in PDF format. The PDF documents can be displayed from the FactoryTalk View SE displays by clicking the Help button.

1. Copy the Help files to a folder accessible by the FactoryTalk View clients. In this example we have copied the files to:
C:\Users\Public\Documents\RSView Enterprise\SE\Documentation.
2. Open your project in FactoryTalk View Studio.
3. Open the Tags setting in the Folder Tree.



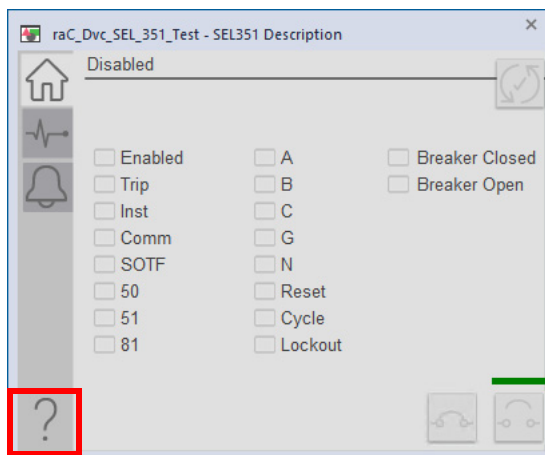
4. Select the RALibrary Folder and then Select RALibrary\HelpFilePath to access the settings for the Help Files.
5. Enter the path to the Help Files into the Initial Data Source Field and Select Accept.

The screenshot shows the 'Tags - /raC_1_00_Validation/' dialog box. The 'Tag' section has the following fields: Name (RALibrary\HelpFilePath), Type (String), Security (*), Description (Path name to folder where the help files are stored), and Length (82). The 'Data Source' section has Type (Memory selected), Initial Value (C:\Users\Public\Documents\RSView Enterprise\SE\Documentation), and a Retentive checkbox. On the right are buttons: Close, Prev, Next, New, and Help. At the bottom is a table with columns: Alm, Tag Name, Type, and Description.

Alm	Tag Name	Type	Description
1	RALibrary\DefaultArea	String	Default area name
2	RALibrary\FilterStr	String	Tag used to filter list
3	RALibrary\HasAlarmDetails	Digital	Alarm detail parameter files have been generated for the alarms
4	RALibrary\HelpFilePath	String	Path name to folder where the help files are stored
5	RALibrary\HistorianServerName	String	Historian server name
6	RALibrary\Template_M1	String	Template Monitor 1 GFX File Name
7	RALibrary\Template_M2	String	Template Monitor 2 GFX File Name
8	RALibrary\Template_M3	String	Template Monitor 3 GFX File Name
9	RALibrary\Template_M4	String	Template Monitor 4 GFX File Name
10			

6. Close the settings display.
7. Restart FactoryTalk View Studio for the settings to take effect.

8. The Help Files can now be accessed using the Help button on the HMI Display.



Configure the ProSoft Communication

This section describes how to configure the ProSoft Technology® communication using either the MVI56E-6185 IEC 61850 Client Communication Module or the PLX82-EIP-61850 Communication Gateway.

This section also describes how to export and import a program or Add-On Instruction for use in Studio 5000 Logix Designer®.

IMPORTANT This manual assumes that you are using the IEC 61850 CID files that are provided on PCDC. If your application requires additional parameters, use the configuration software from the manufacturer to modify the PCDC CID files for parameters. Do not delete any content from pre-established reports that are labeled measurands, alarms, or LED PB and target status indicators. Deletion of these reports has an adverse effect on the faceplates.

IMPORTANT Use ProSoft firmware revision 2.01 or later when you integrate the PlantPax® objects for electrical protection.

Configure the MVI56E-61850C Module

This publication is designed to work in tandem with the ProSoft IEC 61850 Client Communication Module User Manual, publication [MVI56E-61850C User Manual](#), available.

Install the Software

Install the MVI56E-61850C required software, which is available in the Downloads section of the MVI56E-61850C product page on the ProSoft Technology website (www.prosoft-technology.com).

- MVI56E-61850C Add-On Profile (AOP): This program includes the IEC 61850 communication module profile and associated files.
- ProSoft MVI56E-61850C Configuration Manager: This program is used to configure all aspects that are associated with data communication between the MVI56E-61850C module and remote Intelligent Electronic Devices (IEDs) according to the IEC 61850 communication protocol.
- ProSoft MVI56E-61850C Diagnostics Tool: This application allows you to monitor diagnostics and configuration data for the module.



The install sets up both Configuration Manager and the Diagnostics Tool.

Add the MVI56E-61850C Module to Studio 5000 Logix Designer

Follow the Add the Module to Studio 5000 Logix Designer section in the ProSoft IEC 61850 Client Communication Module User Manual, publication [MVI56E-61850C User Manual](#).

Launch the ProSoft MV156E-61850C Configuration Manager

Follow the Launch the ProSoft MV156E-61850C Configuration Manager section in the ProSoft IEC 61850 Client Communication Module User Manual, publication [MV156E-61850C User Manual](#).

Import IED Configuration Files

Follow the Import IED Configuration Files section in the ProSoft IEC 61850 Client Communication Module User Manual, publication [MV156E-61850C User Manual](#).

IMPORTANT	This manual assumes that you are using the IEC 61850 CID files that are provided on the PCDC. If your application requires additional parameters, use the configuration software from the manufacturer to modify the PCDC CID files for parameters. Do not delete any content from pre-established reports that are labeled measurands, alarms, or LED PB and target status indicators. Deletion of these reports has an adverse effect on the faceplates.
------------------	--

IMPORTANT	Use ProSoft firmware revision 2.01 or later when you integrate the PlantPax® objects for electrical protection.
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Configure the IED Network

Follow the Configure the IED Network section in the ProSoft IEC 61850 Client Communication Module User Manual, publication [MV156E-61850C User Manual](#).

IED Data Mapping

Follow the IED Data Mapping section in the ProSoft IEC 61850 Client Communication Module User Manual, publication [MV156E-61850C User Manual](#).

Use the following table when dragging the data object, dataset, or data attributes from the tree into the mapping table. These are the minimum values that are required to support the Intelligent Electronic Devices Toolkit faceplates. Drag other values or commands to the canvas as required for your application.

Device type	Data Object, Dataset, or Data Attribute
SEL 351 SEL 411L SEL 421 SEL451 SEL487B SEL 700G SEL 710 SEL 735 SEL 735 SEL 751 SEL 751A SEL 787	CFG/LLNO/Reports/Measurands
	CFG/LLNO/Reports/Alarms
	CFG/LLNO/Reports/LEDs
	CON/RBGGI01/SPCS001/Oper
	CON/RBGGI01/SPCS002/Oper
	CON/RBGGI01/SPCS003/Oper
	CON/RBGGI01/SPCS004/Oper
	CON/RBGGI01/SPCS005/Oper
	CON/RBGGI01/SPCS006/Oper
	CON/RBGGI01/SPCS007/Oper
	CON/RBGGI01/SPCS008/Oper
	451/487B only: CON/RBGGI02/SPCS009/Oper CON/RBGGI02/SPCS010/Oper
	487B only: CON/RBGGI02/SPCS011/Oper CON/RBGGI02/SPCS012/Oper
AB857 AB865	Relay/LLNO/Reports/bcrceV1
	Relay/LLNO/Reports/bcrceV2
	Relay/LLNO/Reports/bcrceV3
	Relay/VI1GGI0137/SPCS0/Oper
	Relay/VI1GGI0138/SPCS0/Oper
	Relay/VI1GGI0139/SPCS0/Oper
	Relay/VI1GGI0140/SPCS0/Oper
	AB857 only: Relay/UoMMXU10/PhV/neut/cVal
GE Multilin 845 GE Multilin 850 GE Multilin 869 GE Multilin 889	Master/LLNO/Reports/brcb00_MEASURANDS01
	Master/LLNO/Reports/brcb01_ALARMS_101
	Master/LLNO/Reports/brcb02_ALARMS_201
	Master/LLNO/Reports/brcb03_ALARMS_301
	Master/LLNO/Reports/brcb04_INDICATORS01
	Master/GGI03/SPCS01/Oper
	Master/GGI03/SPCS02/Oper
	Master/GGI03/SPCS03/Oper
	Master/GGI03/SPCS04/Oper
	Master/GGI03/SPCS05/Oper
	Master/GGI03/SPCS06/Oper
	Master/GGI03/SPCS07/Oper
	Master/GGI03/SPCS08/Oper
ABB EMAX2 IEC 61850	LDO/LLNO/Reports/urcb_StatUrg01
	LDO/LLNO/Reports/urcb_StatNrmI01
	LDO/LLNO/Reports/urcb_MeasFlt01
	LDO/LLNO/Reports/urcb_StatIed01
	LDO/LLNO/Reports/urcb_Counters01
	LDO/CSWI1/Pos/Oper

Module Properties in Configuration Manager

Follow the Module Properties in the Configuration Manager section in the ProSoft IEC 61850 Client Communication Module User Manual, publication [MVI56E-61850C User Manual](#) or the [PLX82-EIP-61850 User Manual](#).

Configure the PLX82-EIP-61850 Communication Gateway

Export the Configuration to the Add-On Profile

Follow the Export the Configuration to the Add-On Profile section in the ProSoft IEC 61850 Client Communication Module User Manual, publication [MVI56E-61850C User Manual](#).

Files Generated by the MVI56E-61850C Configuration Manager

Follow the Files Generated by the MVI56E-61850C Configuration Manager section in the ProSoft IEC 61850 Client Communication Module User Manual, publication [MVI56E-61850C User Manual](#).

This publication is designed to work in tandem with the ProSoft PLX82-EIP-61850 Communication Gateway User Manual, publication [PLX82 EIP 61850 UM](#) available.

Install the Software

Install the PLX82-EIP-61850 Configuration Manager, which is available in the Downloads section of the [PLX82-EIP-61850 product page](#).

- ProSoft PLX8x-EIP-61850 Configuration Manager: This program is used to configure all aspects that are associated with data communication between the PLX82-EIP-61850 module and remote Intelligent Electronic Devices (IEDs) according to the IEC 61850 communication protocol.

Create a Project using Configuration Manager

Follow the Creating a New Project in the Configuration Manager section in the ProSoft [PLX82-EIP-61850 User Manual](#).

Import IED Configuration Files

Follow the Importing IED Files section in the ProSoft in the ProSoft PLX82-EIP-61850 User Manual.

IMPORTANT	This manual assumes that you are using the IEC 61850 CID files that are provided on the PCDC. If your application requires additional parameters, use the configuration software from the manufacturer to modify the PCDC CID files for parameters. Do not delete any content from pre-established reports. Deletion of these reports has an adverse effect on the faceplates.
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IMPORTANT	You must have a separate CID file for each device you are communicating with. If you have multiple devices of the same type, you must copy the CID file that is provided for that device type and provide a unique name for each device of that type.
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Configure the IED Network

Follow the Creating the IED Network section in the ProSoft PLX82-EIP-61850 User Manual.

IED Data Mapping

Follow the Mapping Data Attributes from IEDs to the Gateway section in the ProSoft PLX82-EIP-61850 User Manual.

Use the following table when dragging the data object, dataset, or data attributes from the tree into the mapping table. These are the minimum values that are required to support the Intelligent Electronic Devices Toolkit faceplates. Drag other values or commands to the canvas as required for your application.

Device type	Data Object, Dataset, or Data Attribute
SEL 351 SEL 411L SEL 421 SEL451 SEL487B SEL 700G SEL 710 SEL 735 SEL 735 SEL 751 SEL 751A SEL 787	CFG/LLNO/Reports/Measurands
	CFG/LLNO/Reports/Alarms
	CFG/LLNO/Reports/LEDs
	CON/RBGGI01/SPCS001/Oper/Ctlval
	CON/RBGGI01/SPCS002/Oper/Ctlval
	CON/RBGGI01/SPCS003/Oper/Ctlval
	CON/RBGGI01/SPCS004/Oper/Ctlval
	CON/RBGGI01/SPCS005/Oper/Ctlval
	CON/RBGGI01/SPCS006/Oper/Ctlval
	CON/RBGGI01/SPCS007/Oper/Ctlval
	CON/RBGGI01/SPCS008/Oper/Ctlval
	451/487B only: CON/RBGGI02/SPCS009/Oper/Ctlval CON/RBGGI02/SPCS010/Oper/Ctlval
	487B only: CON/RBGGI02/SPCS011/Oper/Ctlval CON/RBGGI02/SPCS012/Oper/Ctlval
AB857 AB865	Relay/LLNO/Reports/bcrcEV1
	Relay/LLNO/Reports/bcrcEV2
	Relay/LLNO/Reports/bcrcEV3
	Relay/V1GGI0137/SPCS0/Oper/Ctlval
	Relay/V1GGI0138/SPCS0/Oper/Ctlval
	Relay/V1GGI0139/SPCS0/Oper/Ctlval
	Relay/V1GGI0140/SPCS0/Oper/Ctlval
	AB857 only: Relay/UoMMXU10/PhV/neut/cVal
GE Multilin 845 GE Multilin 850 GE Multilin 869 GE Multilin 889	Master/LLNO/Reports/brcb00_MEASURANDS01
	Master/LLNO/Reports/brcb01_ALARMS_101
	Master/LLNO/Reports/brcb02_ALARMS_201
	Master/LLNO/Reports/brcb03_ALARMS_301
	Master/LLNO/Reports/brcb04_INDICATORS01
	Master/GGI03/SPCS01/Oper/Ctlval
	Master/GGI03/SPCS02/Oper/Ctlval
	Master/GGI03/SPCS03/Oper/Ctlval
	Master/GGI03/SPCS04/Oper/Ctlval
	Master/GGI03/SPCS05/Oper/Ctlval
	Master/GGI03/SPCS06/Oper/Ctlval
	Master/GGI03/SPCS07/Oper/Ctlval
	Master/GGI03/SPCS08/Oper/Ctlval
ABB EMAX2 IEC 61850	LDO/LLNO/Reports/urcb_StatUrg01
	LDO/LLNO/Reports/urcb_StatNrmI01
	LDO/LLNO/Reports/urcb_MeasFit01
	LDO/LLNO/Reports/urcb_Statled01
	LDO/LLNO/Reports/urcb_Counters01
	LDO/CSWI1/Pos/Oper/Ctlval

Exporting the IED Add-On Instructions for RSLogix 5000

Follow the Exporting the IED Add-On Instructions for RSLogix 5000® section in the ProSoft PLX82-EIP-61850 User Manual.

Add the PLX82-EIP-61850 Module and Configuration to Studio 5000 Logix Designer

Follow the Configuring the EtherNet/IP™ Driver section in the PLX82-EIP-61850 User Manual.

Integrate IEC 61850 into a Studio 5000 Project

Import the ProSoft Configuration into Studio 5000 Logix Designer

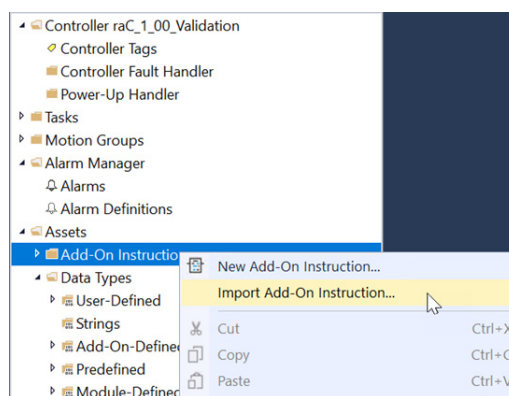
For the MVI56E-61850C module, follow the Import the MVI56E-61850C Program into Studio 5000 Logix Designer® section in the ProSoft IEC 61850 Client Communication Module User Manual, publication [MVI56E-61850C User Manual](#).

For the PLX82-EIP-61850 gateway, follow the Import the Add-On Instruction from the Configuration Manager and Adding the Rung to your Project sections in the [PLX82-EIP-61850 User Manual](#).

You have successfully configured the ProSoft gateway within your Studio 5000® project. The following steps define how to import the Toolkit Add-On Instructions.

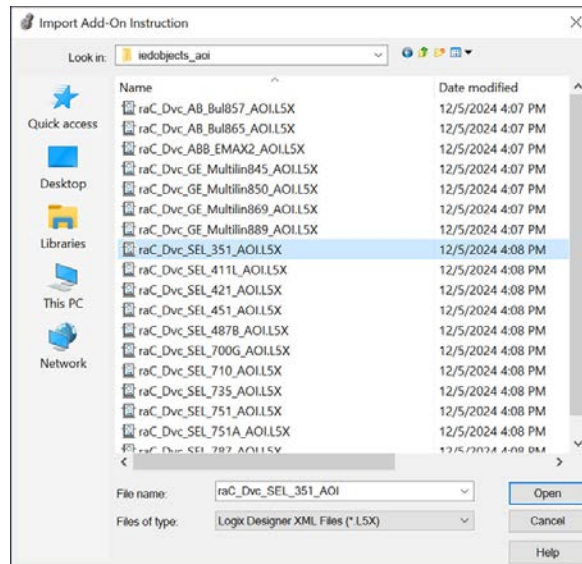
Import the Primary (HMI Interface) and Data Mapping Add-On Instructions

1. In the I/O Configuration tree, right-click Add-On Instruction and choose Import Add-On Instruction.



2. Navigate to the folder that contains the Toolkit Add-On Instructions.

3. Select the Add-On Instruction and click Open.

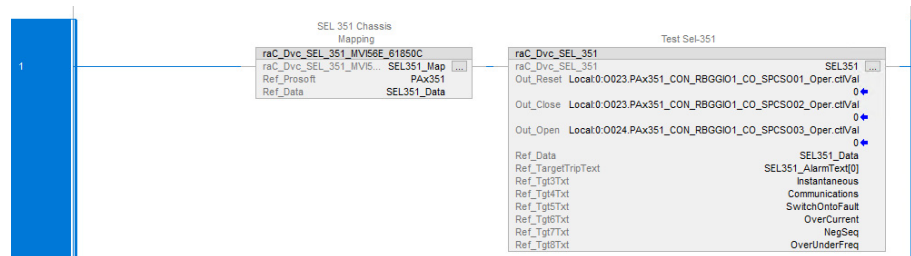


The Import Configuration display appears.

4. Click OK.
5. Repeat steps 1...4 for each device type's Primary Add-On Instruction and Data Mapping Add-On Instruction that is required for your application.

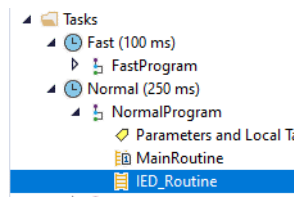
Use the Add-On Instructions in a Routine

For each device in your system, you instantiate two Add-On Instructions, one for mapping data from the ProSoft Add-On Instruction to a data tag and one for providing the trip source and HMI.

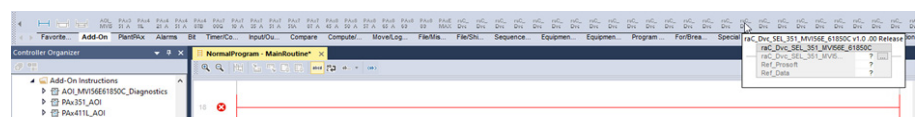


Configure the Mapping Add-On Instructions

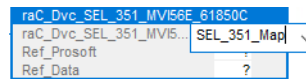
1. Create a routine in the Programmable Automation Controller. This routine is used to instantiate the Add-On Instructions for all IEDs in your project.



2. Select the mapping Add-On Instruction associated with your IED from the Add-On toolbar.



3. Inside the top of the instruction, double-click the tag name and type a new name. It is recommended you use your IED tag name with _Map appended. (YourIEDName_Map)

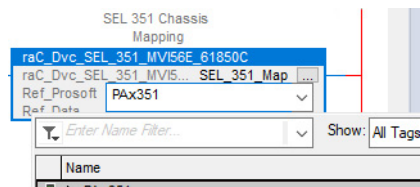


4. Click Enter.
5. Right-click the new tag name and choose New <new tag name> (SEL351_Map in this example).

The New Tag dialog box appears.

By default the New Tag dialog box includes the tag name, data type, and external access (read/write)

6. Enter an optional description and select a scope from the dropdown menu. Controller scope is selected in our example.
7. Select Create.
8. Map the Ref_ProSoft parameter to the corresponding ProSoft Add-On Instruction tag.



9. Map the Ref_Data parameter to a new tag named YourIEDName_Data.

IMPORTANT The tagname must follow this naming convention for the HMI to work.



10. Right-click the new tag name and choose New <new tag name> (SEL351_Map in this example).

The New Tag dialog box appears.

The 'New Tag' dialog box is shown with the following settings:

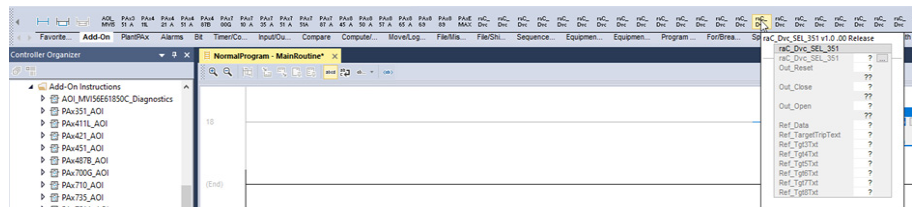
- Name:** SEL_351_Data
- Description:** (Empty text area)
- Usage:** <controller>
- Type:** Base
- Alias For:** (Empty dropdown)
- Data Type:** raC_Dvc_SEL_351_Data
- Parameter Connection:** (Empty dropdown)
- Scope:** Master_Chassis_IED_V36
- External Access:** Read/Write
- OPC UA Access:** None
- Style:** (Empty dropdown)
- ☐ Constant
- ☐ Sequencing
- ☐ Open Configuration
- ☐ Open Parameter Connections

By default the New Tag dialog box includes the tag name, data type, and external access (read/write)

11. Enter an optional description and select a scope from the dropdown menu. Controller scope is selected in our example.
12. Select Create.
13. Repeat [step 2...](#)[step 12](#) for each device in your project.

Configure the Primary (Trip Source) Add-On Instructions

1. Select the Add-On Instruction associated with your IED from the Add-On toolbar.

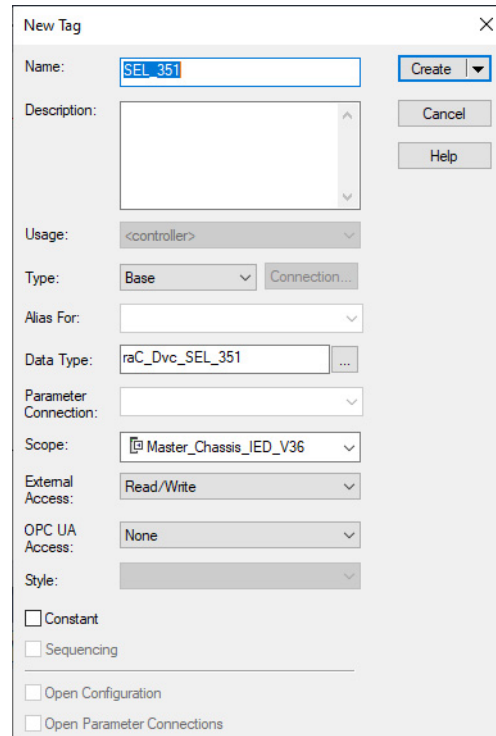


2. Inside the top of the instruction, double-click the tag name and type YourIEDName (for example, SEL351).

The screenshot shows the tag selection dropdown menu for the 'raC_Dvc_SEL_351' tag. The dropdown list includes the following items:

- raC_Dvc_SEL_351
- Out_Reset
- Out_Close
- Out_Open
- Ref_Data
- Ref_TargetTripText
- Ref_Tgt3Ttxt
- Ref_Tgt4Ttxt
- Ref_Tgt5Ttxt
- Ref_Tgt6Ttxt
- Ref_Tgt7Ttxt
- Ref_Tgt8Ttxt

3. Click Enter.
4. Right-click the new tag name and choose New <new tag name>.
The New Tag dialog box appears.



The New Tag dialog box is shown with the following fields and values:

- Name: SEL_351
- Description: (empty text area)
- Usage: <controller>
- Type: Base
- Alias For: (empty)
- Data Type: raC_Dvc_SEL_351
- Parameter Connection: (empty)
- Scope: Master_Chassis_IED_V36
- External Access: Read/Write
- OPC UA Access: None
- Style: (empty)
- Constant: ☐
- Sequencing: ☐
- Open Configuration: ☐
- Open Parameter Connections: ☐

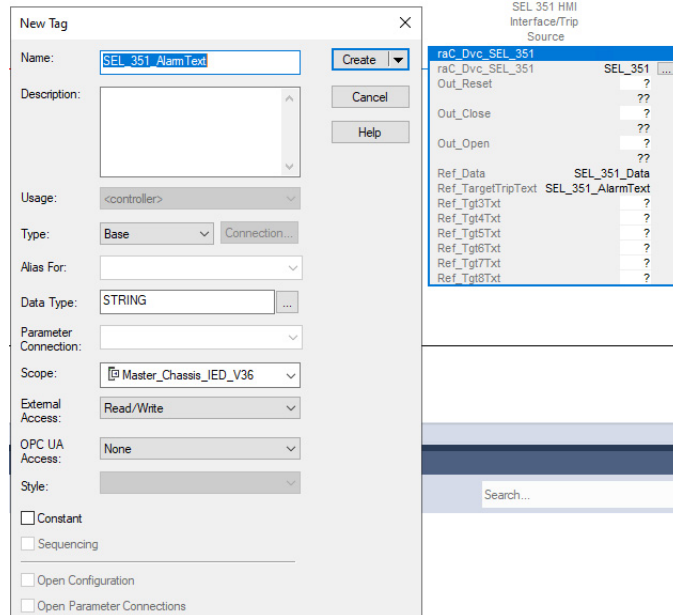
By default the New Tag dialog box includes the tag name, data type, and external access (read/write)

5. Enter an optional description and select a scope from the dropdown menu. Controller scope is selected in our example.
6. Click Create.
7. Map the Ref_Data parameter to the corresponding Data tag that was created in the previous section.

IMPORTANT The data tag must be named the same as the primary Add-On Instruction name with “_Data” appended to the tag name.

raC_Dvc_SEL_351	
raC_Dvc_SEL_351 SEL_351	...
Out_Reset	?
	??
Out_Close	?
	??
Out_Open	?
	??
Ref_Data SEL_351 Data	
Ref_TargetTripText	?
Ref_Tgt3Ttxt	?
Ref_Tgt4Ttxt	?
Ref_Tgt5Ttxt	?
Ref_Tgt6Ttxt	?
Ref_Tgt7Ttxt	?
Ref_Tgt8Ttxt	?

8. Map the Ref_TargetTripText to a string tag that is used to store text for the alarm message associated with the most recent trip.



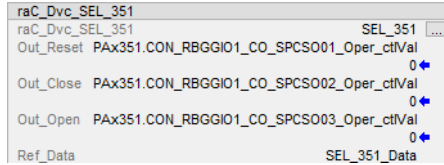
9. Map the Ref_Tgt#Txt reference tags to string tags in your controller. These string tags are configured with the text that you want to be displayed in the alarm message for each trip source. Where # corresponds to the LED alarm instance on the front panel of the IED.

raC_Dvc_SEL_351	
raC_Dvc_SEL_351	SEL_351
Out_Reset	?
Out_Close	??
Out_Open	??
Ref_Data	SEL_351_Data
Ref_TargetTripText	SEL_351_AlarmText
Ref_Tgt3Txt	Instantaneous
Ref_Tgt4Txt	?
Ref_Tgt5Txt	?
Ref_Tgt6Txt	?
Ref_Tgt7Txt	?
Ref_Tgt8Txt	?

10. Map the output parameters to the corresponding tags. The outputs tags are mapped differently depending on which version of hardware you are using for your application.
- For the MVI56E-61850C, output connections are mapped over the backplane. Outputs are mapped directly to I/O tags.

raC_Dvc_SEL_351	
raC_Dvc_SEL_351	SEL_351
Out_Reset	Locat:0:0023.PAx351_CON_RBGGIO1_CO_SPCS001_Oper.ctlVal
Out_Close	Locat:0:0023.PAx351_CON_RBGGIO1_CO_SPCS002_Oper.ctlVal
Out_Open	Locat:0:0024.PAx351_CON_RBGGIO1_CO_SPCS003_Oper.ctlVal
Ref_Data	SEL_351_Data
Ref_TargetTripText	SEL_351_AlarmText
Ref_Tgt3Txt	Instantaneous
Ref_Tgt4Txt	Communications
Ref_Tgt5Txt	SwitchOntoFault
Ref_Tgt6Txt	OverCurrent
Ref_Tgt7Txt	NegSeq
Ref_Tgt8Txt	OverUnderFreq

- For the PLX82-EIP-61850 Configuration Manager, outputs are mapped to tags created in the ProSoft Add-On Instruction.



- Monitor the newly created Add-On Instruction tag and configure the Extended Tag Properties.

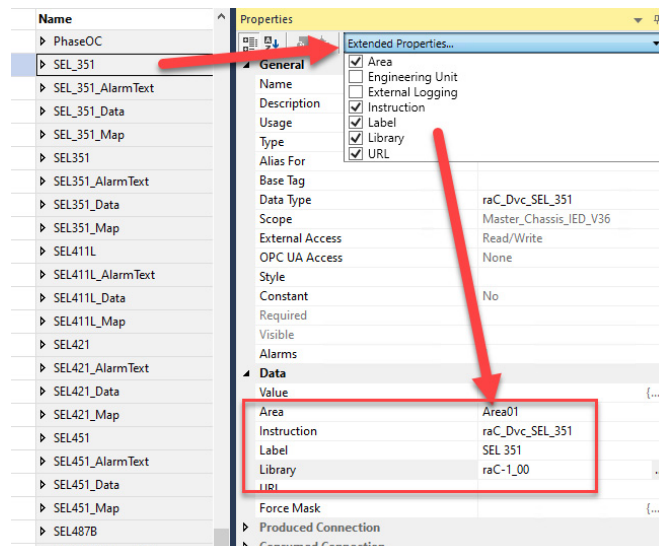
IMPORTANT

The Library and Instruction extended tag properties are used for launching the faceplates from the NavToDisplay macro. The display name is in the format (Library-SE) Instruction-Faceplate. These extended tag properties must match the library and instruction names that are used in the display names.

See [Displays on page 16](#) for a list of display names associated with each device type. For example, an SEL 451 device should have the library name (raC-1.00) and the instruction name raC_Dvc_SEL_451. This would launch the display that is named (raC-1.00-SE) raC_Dvc_SEL_451-Faceplate.

Extended Tag	Description
Area	The area name used for security.
Instruction	The instruction name. This is in the format raC_Dvc...
Library	The library name. This is in the format raC-1.00.
Label	The label to display on the HMI for the device.
URL	The Help file URL (only needed if using files other than the help files provided with the Toolkit download).

Example Extended Tag Properties



- Repeat [step 1](#)...[step 11](#) for each device in your project.

You have successfully configured your Studio 5000 project. The following chapters discuss each faceplate and its corresponding functionality.

Notes:

Bulletin 857 Motor/Feeder Protection Object



The Bulletin 857 Relay is a combined motor and feeder protection relay that is used for various tasks. These tasks include highly selective protection of rotating machines, line feeders, cable feeders, capacitor banks, reactors, transformers, and busbars.

The relay is used in power distribution substations, power plants, and industrial power systems, marine, and offshore installations. The 857 relay offers extensive customizable control, advanced protection, circuit breaker control and monitoring, power and energy measurements, primary circuit monitoring and communication functionality. The 857 relay also offers a comprehensive range of standard motor and feeder protection functions.

This instruction monitors one 857 relay. Alarms are provided when the physical device experiences a protection-related trip. The instruction also provides capabilities for locking, and to open and close the breaker.

Add-On Instruction

Faceplate

raC_Dvc_AB_Bul857

raC_Dvc_AB_Bul857

Out_Enable

Local:0:0001.PAx857_Relay_V11GGIO137_CO_SPCSO_Oper.ctVal

0

+

Out_Reset

Local:0:0001.PAx857_Relay_V12GGIO138_CO_SPCSO_Oper.ctVal

0

+

Out_Close

Local:0:0001.PAx857_Relay_V13GGIO139_CO_SPCSO_Oper.ctVal

0

+

Out_Open

Local:0:0001.PAx857_Relay_V14GGIO140_CO_SPCSO_Oper.ctVal

0

+

Ref_Data

AB_857_Data

Ref_TargetTripText

AB_857_AlarmText[0]

Ref_Tgt3Txt

BreakerFailure

Ref_Tgt4Txt

CurrentImbalance

Ref_Tgt5Txt

Differential

Ref_Tgt6Txt

GrdNeutOC

Ref_Tgt7Txt

Instantaneous

Ref_Tgt8Txt

OverCurrent

raC_Dvc_AB_Bul857_Test - AB 857 Description

Disabled

Alarm

Trip

A

B

C

Enabled

Disabled

Block Close

Breaker Closed

...

Breaker Open

Enable

No

Yes

Controller Code

Three Add-On Instructions represent each physical device. The first is generated by the ProSoft Configuration Manager. The second is a mapping Add-On Instruction that is used to map the data from the ProSoft configuration to the Trip Source (Primary HMI interface) Add-On Instruction. The third is the TripSource Add-On Instruction, The second and third are available for download from the Rockwell Automation® Intelligent Electronic Devices Toolkit from the PCDC.

InOut Structure for Trip Source Add-On Instruction

InOut parameters in [Table 2](#) are used to link the Add-On Instruction to external tags that contain necessary data for the instruction to operate. These external tags must be of the data type shown

Table 2 - Bulletin 857_TripSource

Name	Data Type	Description
Ref_Data	<Defined by device AOI>	Device data from the mapping Add-On Instruction, which maps the connections from the ProSoft gateway to the HMI tags.
Ref_TargetTripText	STRING	Alarm text to be displayed when active.
Ref_Tgt3Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.
Ref_Tgt4Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.
Ref_Tgt5Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.
Ref_Tgt6Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.
Ref_Tgt7Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.
Ref_Tgt8Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.

Remote Bit Control Value Structure

Remote Bit Control Value parameters are used to link the Add-On Instruction to configurable control points in the device. Each bit is configurable through the device vendor software. [Table 3](#) has the recommended uses for each bit.

Table 3 - Remote Bit Control - Bulletin 857

Name	Description
VI1GGI0137_CO_SPCSO_ctlVal	Enable/Disable
VI1GGI0138_CO_SPCSO_ctlVal	Target Reset
VI1GGI0139_CO_SPCSO_ctlVal	Breaker Close
VI1GGI0140_CO_SPCSO_ctlVal	Breaker Open

Mapping InOut Tags to Trip Source Add-On Instruction

Configure the Bulletin 857_TripSource Add-On Instruction.

1. Click the question mark next to Ref_Data and select the mapping tag for your device.
2. Click the question mark next to each Ref_Tgt#Txt and enter a string tag. These tags are intended to match the status indicators on the front panel of the device.
3. Once you type the tag name, if the tag is not already configured in the controller, you have to right-click and create a tag.
4. Click the question mark next to Ref_TargetTripText and select or create a String tag to be used for the final alarm message. The Trip Source Add-On Instruction selects from the Ref_Tgt#Txt strings based on the active trip source and copies that reference string to this target string.
5. For Output parameters, click the question mark next to each Output parameter and select the tag to be used when using RLL. For FBD, add an ORef configured with the appropriate I/O tag and connect the associated output parameter to the ORef.

raC_Dvc_AB_Bul857	
raC_Dvc_AB_Bul857	AB_857
Out_Enable	Local:0:0001.PAx857_Relay_VI1GGIO137_CO_SPCSO_Oper.ctfVal
	0
Out_Reset	Local:0:0001.PAx857_Relay_VI2GGIO138_CO_SPCSO_Oper.ctfVal
	0
Out_Close	Local:0:0001.PAx857_Relay_VI3GGIO139_CO_SPCSO_Oper.ctfVal
	0
Out_Open	Local:0:0001.PAx857_Relay_VI4GGIO140_CO_SPCSO_Oper.ctfVal
	0
Ref_Data	AB_857_Data
Ref_TargetTripText	AB_857_AlarmText[0]
Ref_Tgt3Txt	BreakerFailure
Ref_Tgt4Txt	CurrentImbalance
Ref_Tgt5Txt	Differential
Ref_Tgt6Txt	GrdNeutOC
Ref_Tgt7Txt	Instantaneous
Ref_Tgt8Txt	OverCurrent

Using Visualization Files

See [Visualization Files on page 13](#) for detailed information.

Faceplates

The Operator tab is displayed when the faceplate is initially opened. Click the appropriate icon on the left of the faceplate to access a specific tab.

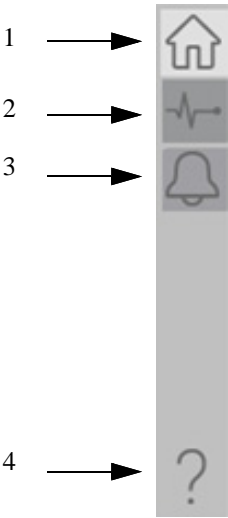


Table 4 - Tab Descriptions

Item	Description
1	Operator tab
2	Diagnostics tab
3	Alarm
4	Help

The faceplate provides the means for operators, maintenance workers, engineers, and others to interact with the instruction instance. This interaction provides a view of the status and values of the instruction instance and an ability to manipulate it through its commands and settings.

The faceplates that are shown in this section are from FactoryTalk® View SE. Any feature that is contained in the Studio 5000 View Designer® faceplates has the same functionality as used in the FactoryTalk View SE faceplates.



The Advanced Properties faceplates do not apply to Studio 5000 View Designer.

Operator Tab

The Faceplate initially opens to the Operator tab, sometimes called the Home tab. From here, an operator can monitor the device status and manually operate the device.

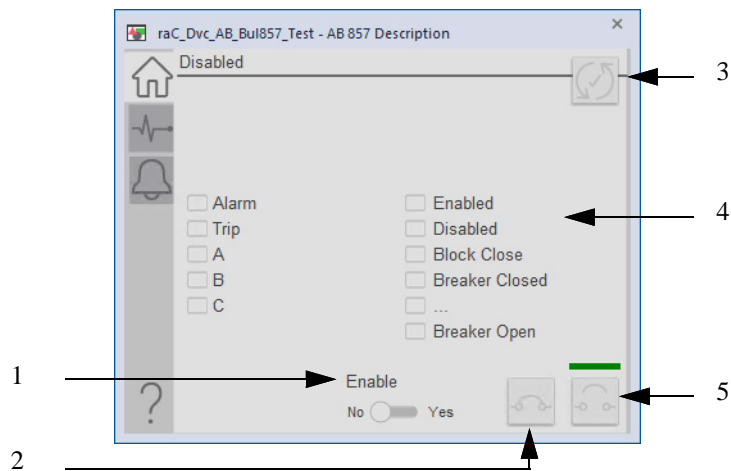


Table 5 - Operator Tab Description

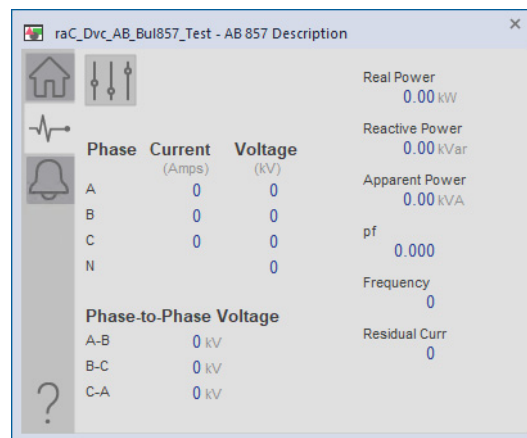
Item	Description
1	Click to enable/disable the device. To issue the commands to the device, enable the device. If the device is disabled, you can only monitor data from the device.
2	Click to close the circuit breaker.
3	Click to reset the device. The status of the device is indicated on the faceplate.
4	Status Indicators
5	Click to open the circuit breaker.

Diagnostics Tab

The diagnostics tab allows the operator to see the measurement values from the physical device.

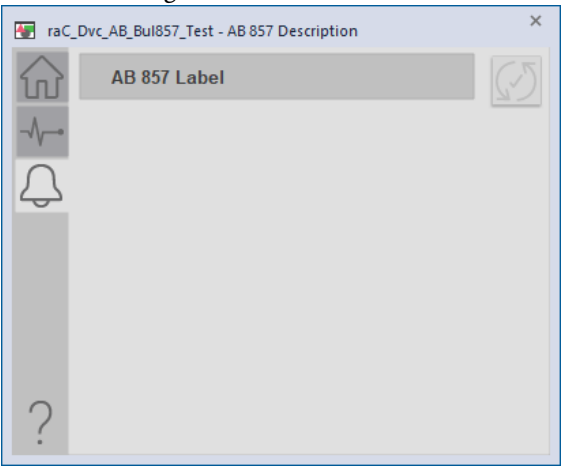
Diagnostics Tab

Readout of the measurement values from the 857 relay.



Alarms

The Alarm tab displays the trip source alarm. The icon on the tab for the alarms page has an outline that changes color to show the current active alarm status.



Advanced Properties


Click the advanced properties icon  on the diagnostics page to display the advanced properties. The following screenshot shows the tabs that are available in the advanced properties display



Table 6 - Advanced Properties Tab Descriptions

Item	Description
1	HMI Configuration
2	Faults
3	Help

HMI Configuration Tab

The HMI configuration tab displays the text that is configured in the extended tag properties for the description, label, tag, and security area for the device.

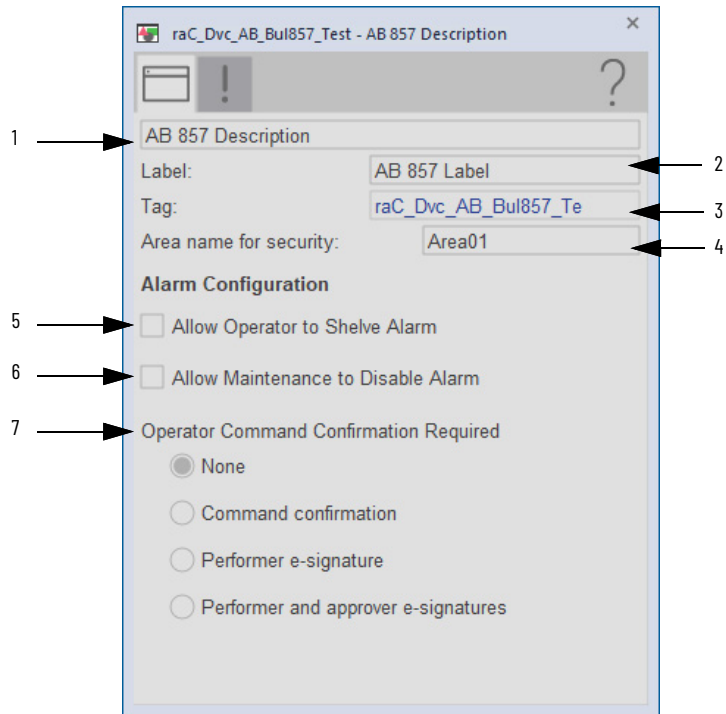
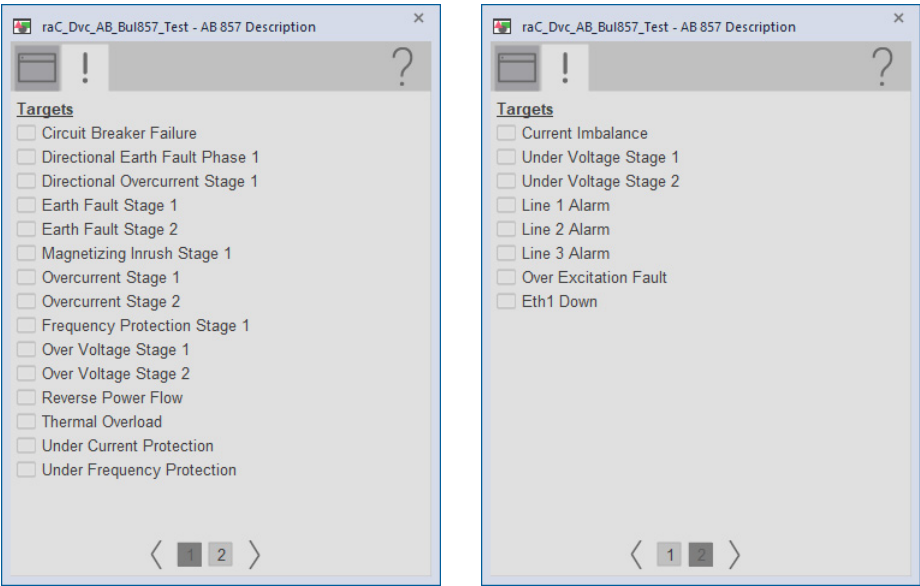


Table 7 - HMI Configuration Tab Description

Item	Action
1	Displays the device description to show on the faceplate title bar as configured for the extended tag property TripSourceA0ITag.@Description
2	The label to show on the graphic symbol as configured for the extended tag property TripSourceA0ITag.@Label.
3	The tag name to show on the faceplate and Tooltip.
4	The Area name for security based on the extended tag property TripSourceA0ITag.@Area.
5	Select to allow Operator to shelve alarm.
6	Select to allow Maintenance to disable the alarm.
7	Select an option for Operator Command Confirmation Requirements.

Faults Tab

The faults tab shows which alarms are active from the physical device.



Help Button

Press the help button on the faceplates to access help for the faceplate.

The help file to launch is configurable using the URL extended tag property of the trip source Add-On Instruction tag.

Bulletin 865 Transformer Object

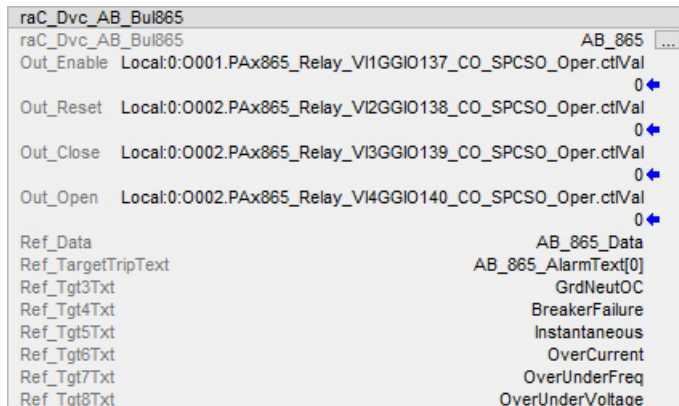


The Allen-Bradley® 865 is a differential protection relay that is used for various tasks. These tasks include selective differential protection of substation transmission lines, medium-voltage overhead and cable feeders, rotating machines, transformer feeders, capacitor banks, generators, reactors, and busbars. The relay is used in power system distribution substations, power plants, industrial power systems, and marine and offshore installations.

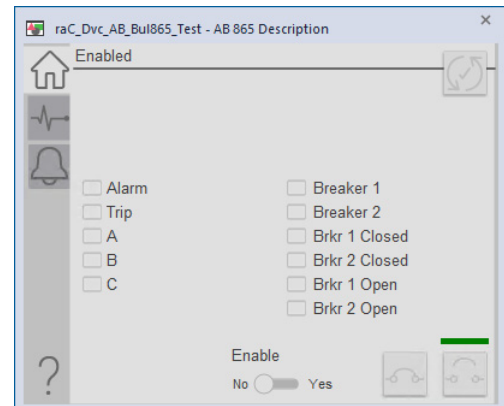
The 865 relay offers extensive customizable control, power and energy measurements, circuit breaker control and monitoring, primary circuit monitoring, and communication functionality, and a comprehensive range of standard protection functions.

This instruction monitors one 865 relay. Alarms are provided when the physical device experiences a protection-related trip. The instruction also provides capabilities for opening and closing the breaker. It is also possible to switch between the two available breakers.

Add-On Instruction



Faceplate



Controller Code

Three Add-On Instructions represent each physical device. The first is generated by the ProSoft Configuration Manager. The second is a mapping Add-On Instruction that is used to map the data from the ProSoft configuration to the Trip Source (Primary HMI interface) Add-On Instruction. The third is the TripSource Add-On Instruction. The second and third are available for download from the Rockwell Automation® Intelligent Electronic Devices Toolkit from the PCDC.

InOut Structure for Trip Source Add-On Instruction

InOut parameters in [Table 8](#) are used to link the Add-On Instruction to external tags that contain necessary data for the instruction to operate. These external tags must be of the data type shown

Table 8 - Bulletin 865_TripSource

Name	Data Type	Description
Ref_Data	<Defined by device AOI>	Device data from the mapping Add-On Instruction, which maps the connections from the ProSoft gateway to the HMI tags.
Ref_TargetTripText	STRING	Alarm text to be displayed when active.
Ref_Tgt3Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.
Ref_Tgt4Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.
Ref_Tgt5Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.
Ref_Tgt6Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.
Ref_Tgt7Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.
Ref_Tgt8Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.

Remote Bit Control Value Structure

Remote Bit Control Value parameters are used to link the Add-On Instruction to configurable input points in the device. Each bit is configurable through the device vendor software. [Table 9](#) has the recommended uses for each bit.

Table 9 - Remote Bit Control - Bulletin 865 Device

Name	Description
VI1GGI0137_CO_SPCSO_ctlVal	Breaker Select
VI1GGI0138_CO_SPCSO_ctlVal	Target Reset
VI1GGI0139_CO_SPCSO_ctlVal	Breaker Close
VI1GGI0140_CO_SPCSO_ctlVal	Breaker Open

Mapping InOut Tags to Trip Source Add-On Instruction

Configure the Bulletin 865_TripSource Add-On Instruction.

1. Click the question mark next to Ref_PlantPAx865 and select the tag that was created by the ProSoft Configuration Manager for your device.
2. Click the question mark next to each Ref_Tgt#Txt and enter a string tag. These tags are intended to match the status indicators on the front panel of the device.
3. Once you type the tag name, if the tag is not already configured in the controller, you have to right-click and create a tag.
4. Click the question mark next to Ref_TargetTripText and select or create a String tag to be used for the final alarm message. The Trip Source Add-On Instruction selects from the Ref_Tgt#Txt strings based on the active trip source and copies that reference string to this target string.
5. For Output parameters, click the question mark next to each Output parameter and select the tag to be used when using RLL. For FBD, add an

ORef configured with the appropriate I/O tag and connect the associated output parameter to the ORef.

raE_Dvc_AB_Bul_865	AB865
raE_Dvc_AB_Bul_865	AB865
Out_Enable	Local:0:0001.PAx865_Relay_VI1GGIO137_CO_SPCSO_Oper.ctlVal
Out_Reset	Local:0:0002.PAx865_Relay_VI2GGIO138_CO_SPCSO_Oper.ctlVal
Out_Close	Local:0:0002.PAx865_Relay_VI3GGIO139_CO_SPCSO_Oper.ctlVal
Out_Open	Local:0:0002.PAx865_Relay_VI4GGIO140_CO_SPCSO_Oper.ctlVal
Ref_Data	AB865_Data
Ref_TargetTripText	AB865Text[0]
Ref_Tgt3Txt	GrdNeutOC
Ref_Tgt4Txt	BreakerFailure
Ref_Tgt5Txt	Instantaneous
Ref_Tgt6Txt	OverCurrent
Ref_Tgt7Txt	OverUnderFreq
Ref_Tgt8Txt	OverUnderVoltage

Using Visualization Files

See [Visualization Files on page 13](#) for detailed information.

Faceplates

The Operator tab is displayed when the faceplate is initially opened. Click the appropriate icon on the left of the faceplate to access a specific tab.

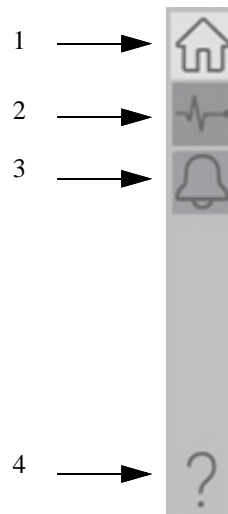


Table 10 - Tab Descriptions

Item	Description
1	Operator tab
2	Diagnostics tab
3	Alarm
4	Help

The faceplate provides the means for operators, maintenance workers, engineers, and others to interact with the instruction instance. This interaction provides a view of the status and values of the instruction instance and an ability to manipulate it through its commands and settings.

The faceplates that are shown in this section are from FactoryTalk® View SE. Any feature that is contained in the Studio 5000 View Designer® faceplates has the same functionality as used in the FactoryTalk View SE faceplates.



The Advanced Properties faceplates do not apply to Studio 5000 View Designer.

Operator Tab

The Faceplate initially opens to the Operator tab, sometimes called the Home tab. From here, an operator can monitor the device status and manually operate the device.

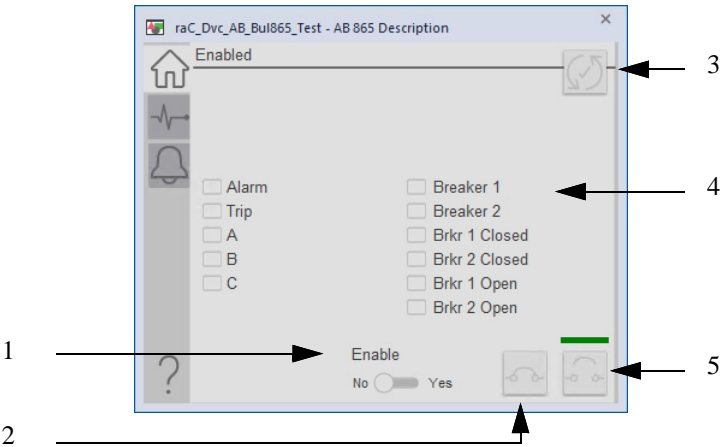


Table 11 - Operator Tab Description

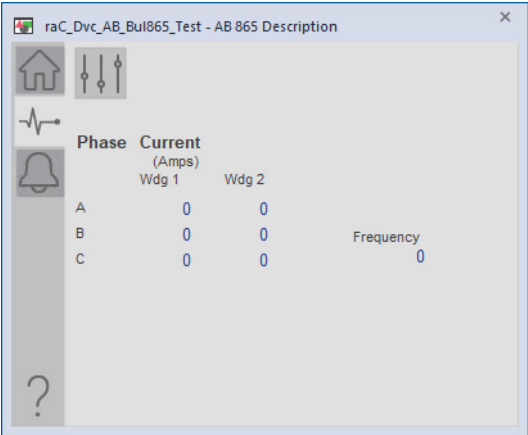
Item	Description
1	Click to enable/disable the device. To issue the commands to the device, enable the device. If the device is disabled, you can only monitor data from the device.
2	Click to close the circuit breaker.
3	Click to reset the device. The status of the device is indicated on the faceplate.
4	Status Indicators
5	Click to open the circuit breaker.

Diagnostics Tab

The diagnostics tab allows the operator to see the measurement values from the physical device.

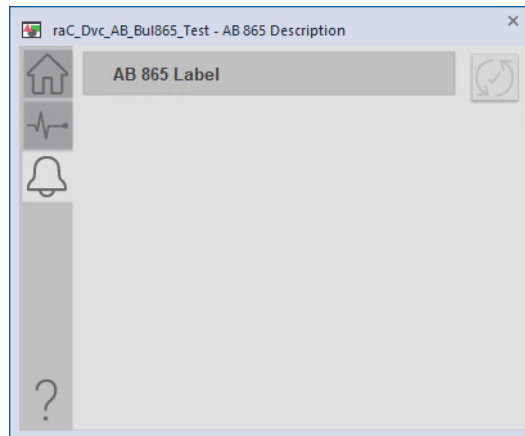
Diagnostics Tab

Readout of the measurement values from the 865 relay.



Alarms

The Alarm tab displays the trip source alarm. The icon on the tab for the alarms page has an outline that changes color to show the current active alarm status.



Advanced Properties


Click the advanced properties icon  on the diagnostics page to display the advanced properties. The following screenshot shows the tabs that are available in the advanced properties display



Table 12 - Advanced Properties Tab Descriptions

Item	Description
1	HMI Configuration
2	Faults
3	Help

HMI Configuration Tab

The HMI configuration tab provides access to displayed text, and faceplate-to-faceplate navigation settings. Configure the description, label, tag, and security area for the device.

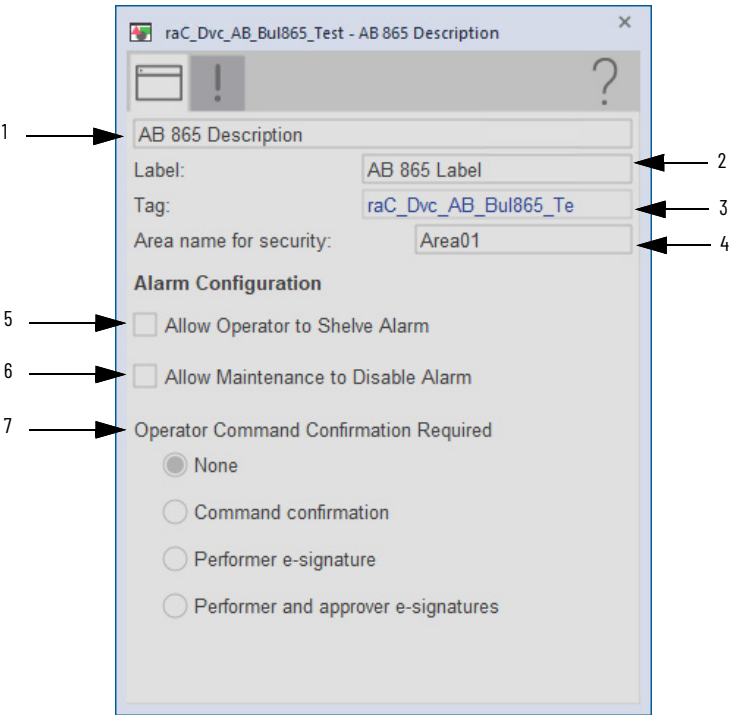
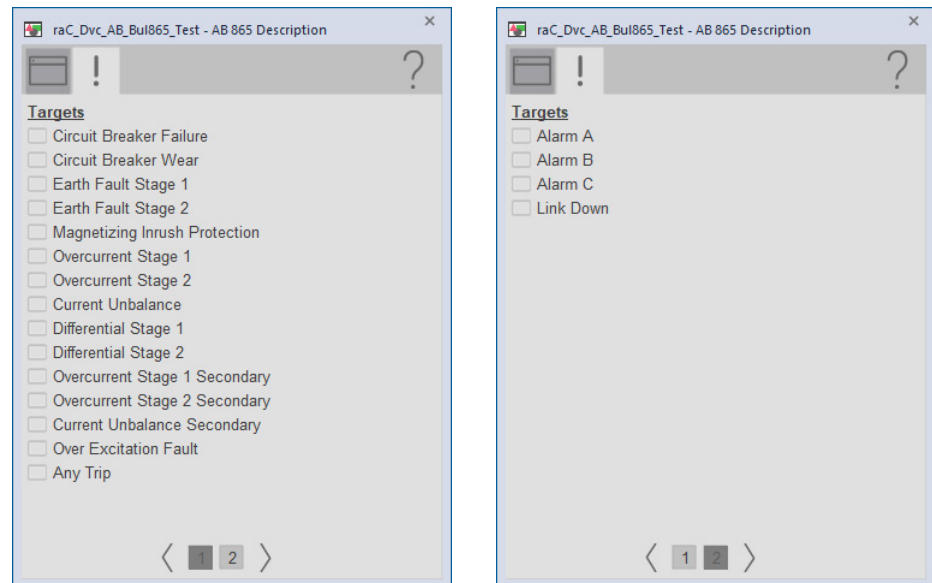


Table 13 - HMI Configuration Tab Description

Item	Action
1	Displays the device description to show on the faceplate title bar as configured for the extended tag property TripSourceA01Tag.@Description
2	The label to show on the graphic symbol as configured for the extended tag property TripSourceA01Tag.@Label.
3	The tag name to show on the faceplate and Tooltip.
4	The Area name for security based on the extended tag property TripSourceA01Tag.@Area.
5	Select to allow Operator to shelve alarm.
6	Select to allow Maintenance to disable the alarm.
7	Select an option for Operator Command Confirmation Requirements.

Faults Tab

The faults tab shows which alarms are active from the physical device.



Help Button

Press the help button on the faceplates to access help for the faceplate.

The help file to launch is configurable using the URL extended tag property of the trip source Add-On Instruction tag.

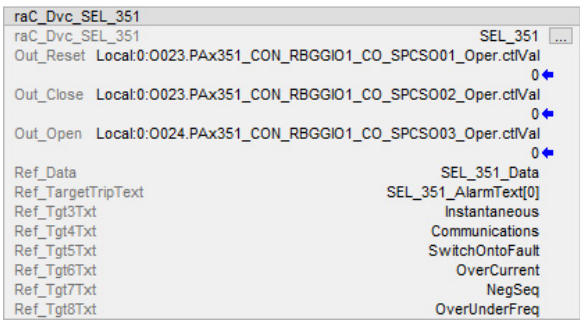
Notes:

SEL 351 Object

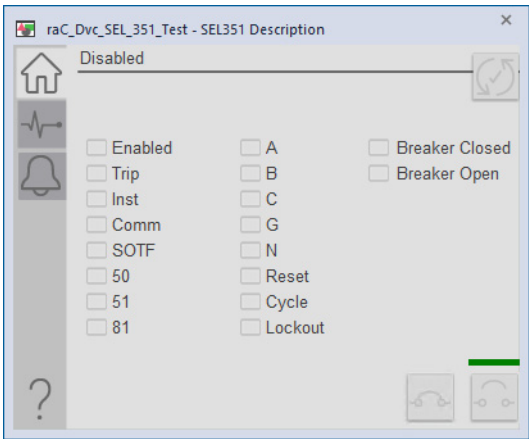
The Schweitzer Engineering Labs 351 is a feeder protection relay with synchrophasor capability. This device is used to help protect an electrical bus from conditions of over current, over voltage, under voltage, and so on. The device also provides multiple fundamental metering data including voltage, current, frequency, and power.

This instruction monitors one SEL351 relay. Alarms are provided when the device experiences a protection-related trip. The instruction also provides capabilities for locking, and to open and close the breaker.

Add-On Instruction



Faceplate



Controller Code

Three Add-On Instructions represent each physical device. The first is generated by the ProSoft Configuration Manager. The second is a mapping Add-On Instruction that is used to map the data from the ProSoft configuration to the Trip Source (Primary HMI interface) Add-On Instruction. The third is the TripSource Add-On Instruction. The second and third are available for download from the Rockwell Automation® Intelligent Electronic Devices Toolkit from the PCDC.

InOut Structure for Trip Source Add-On Instruction

InOut parameters in [Table 14](#) are used to link the Add-On Instruction to external tags that contain necessary data for the instruction to operate. These external tags must be of the data type shown. These tags are representative of the tags that are required for each SEL-351 relay, which is configured in your system.

Table 14 - SEL351 Relay

Name	Data Type	Description
Ref_Data	<Defined by device AOI>	Device data from the mapping Add-On Instruction, which maps the connections from the ProSoft gateway to the HMI tags.
Ref_TargetTripText	STRING	Alarm text to be displayed when active.
Ref_Tgt3Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.
Ref_Tgt4Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.
Ref_Tgt5Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.
Ref_Tgt6Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.
Ref_Tgt7Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.
Ref_Tgt8Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.

Remote Bit Control Value Structure

Remote Bit Control Value parameters are used to link the Add-On Instruction to configurable input points in the physical device. Each bit is configurable via the vendor software of each device. [Table 15](#) has recommended uses for each bit.

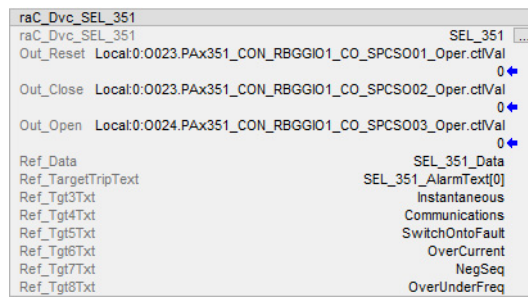
Table 15 - Remote Bit Control - SEL351 Relay

Name	Description
CON_RBGGI01_CO_SPCS001_Oper_ctlVal	Lock/Unlock
CON_RBGGI01_CO_SPCS002_Oper_ctlVal	Target Reset
CON_RBGGI01_CO_SPCS003_Oper_ctlVal	Breaker Close
CON_RBGGI01_CO_SPCS004_Oper_ctlVal	Breaker Open
CON_RBGGI01_CO_SPCS005_Oper_ctlVal	User Programmable
CON_RBGGI01_CO_SPCS006_Oper_ctlVal	User Programmable
CON_RBGGI01_CO_SPCS007_Oper_ctlVal	User Programmable
CON_RBGGI01_CO_SPCS008_Oper_ctlVal	User Programmable

Mapping InOut Tags to Trip Source Add-On Instruction

Configure the SEL 351_TripSource Add-On Instruction.

1. Click the question mark next to Ref_PlantPAX351 and select the tag that was created by the ProSoft Configuration Manager for your device.
2. Click the question mark next to each Ref_Tgt#Txt and enter a string tag. These tags are intended to match the status indicators on the front panel of the device.
3. Once you type the tag name, if the tag is not already configured in the controller, you have to right-click and create a tag.
4. Click the question mark next to Ref_TargetTripText and select or create a String tag to be used for the final alarm message. The Trip Source Add-On Instruction selects from the Ref_Tgt#Txt strings based on the active trip source and copies that reference string to this target string.
5. For Output parameters, click the question mark next to each Output parameter and select the tag to be used when using RLL. For FBD, add an ORef configured with the appropriate I/O tag and connect the associated output parameter to the ORef.



Using Visualization Files

See [Visualization Files on page 13](#) for detailed information.

Faceplates

The Operator tab is displayed when the faceplate is initially opened. Click the appropriate icon on the left of the faceplate to access a specific tab.

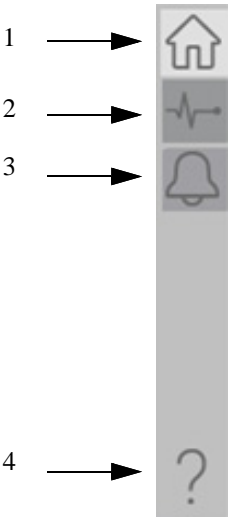



Table 16 - Tab Descriptions

Item	Description
1	Operator tab
2	Diagnostics tab
3	Alarm
4	Help

The faceplate provides the means for operators, maintenance workers, engineers, and others to interact with the instruction instance. This interaction provides a view of the status and values of the instruction instance and an ability to manipulate it through its commands and settings.

The faceplates that are shown in this section are from FactoryTalk® View SE. Any feature that is contained in the Studio 5000 View Designer® faceplates has the same functionality as used in the FactoryTalk View SE faceplates.

 The Advanced Properties faceplates do not apply to Studio 5000 View Designer.

Operator Tab

The Faceplate initially opens to the Operator tab, sometimes called the Home tab. From here, an operator can monitor the device status and manually operate the device.

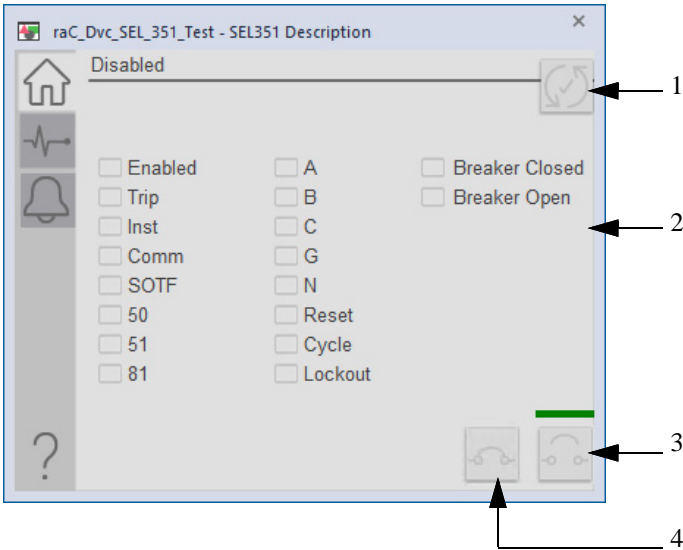


Table 17 - Operator Tab Description

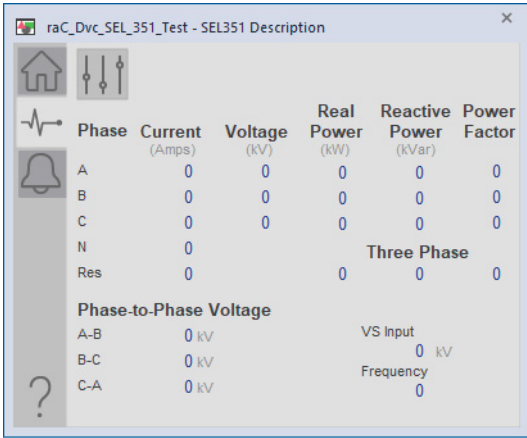
Item	Description
1	Click to reset the device. The status of the device is indicated on the faceplate.
2	Status Indicators
2	Click to open the circuit breaker.
4	Click to close the circuit breaker.

Diagnostics Tab

The diagnostics tab allows the operator to see the measurement values from the physical device.

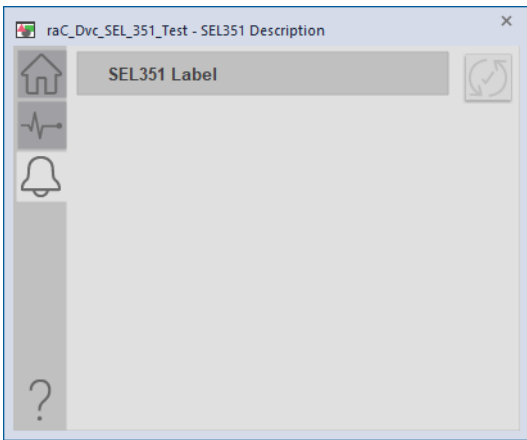
Diagnostics Tab

Readout of the measurement values from the SEL-351.



Alarms

The Alarm tab displays the trip source alarm. The icon on the tab for the alarms page has an outline that changes color to show the current active alarm status.



Advanced Properties


Click the advanced properties icon  on the diagnostics page to display the advanced properties. The following screenshot shows the tabs that are available in the advanced properties display



Table 18 - Advanced Properties Tab Descriptions

Table 19 -

Item	Description
1	HMI Configuration
2	Faults
3	Help

HMI Configuration Tab

The HMI configuration tab provides access to displayed text, and faceplate-to-faceplate navigation settings. Configure the description, label, tag, and security area for the device.

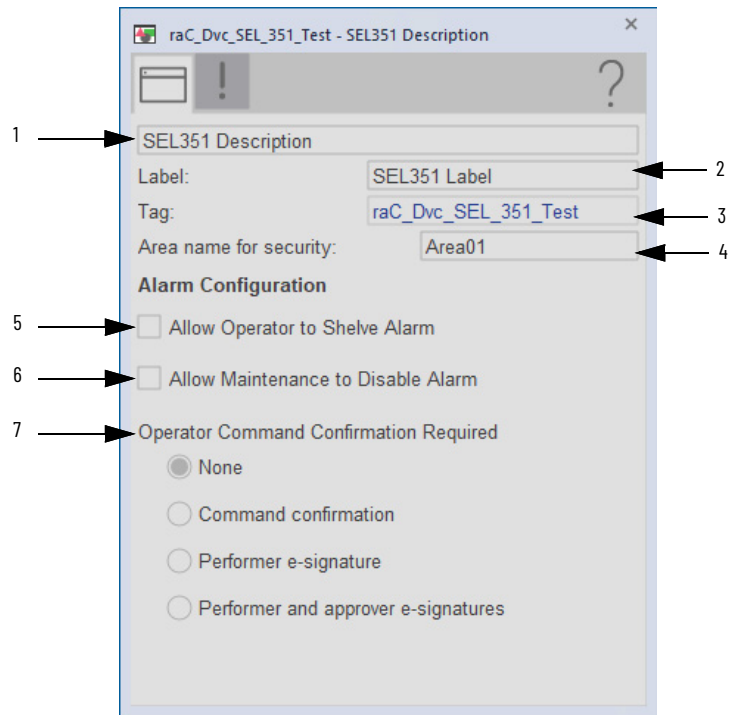
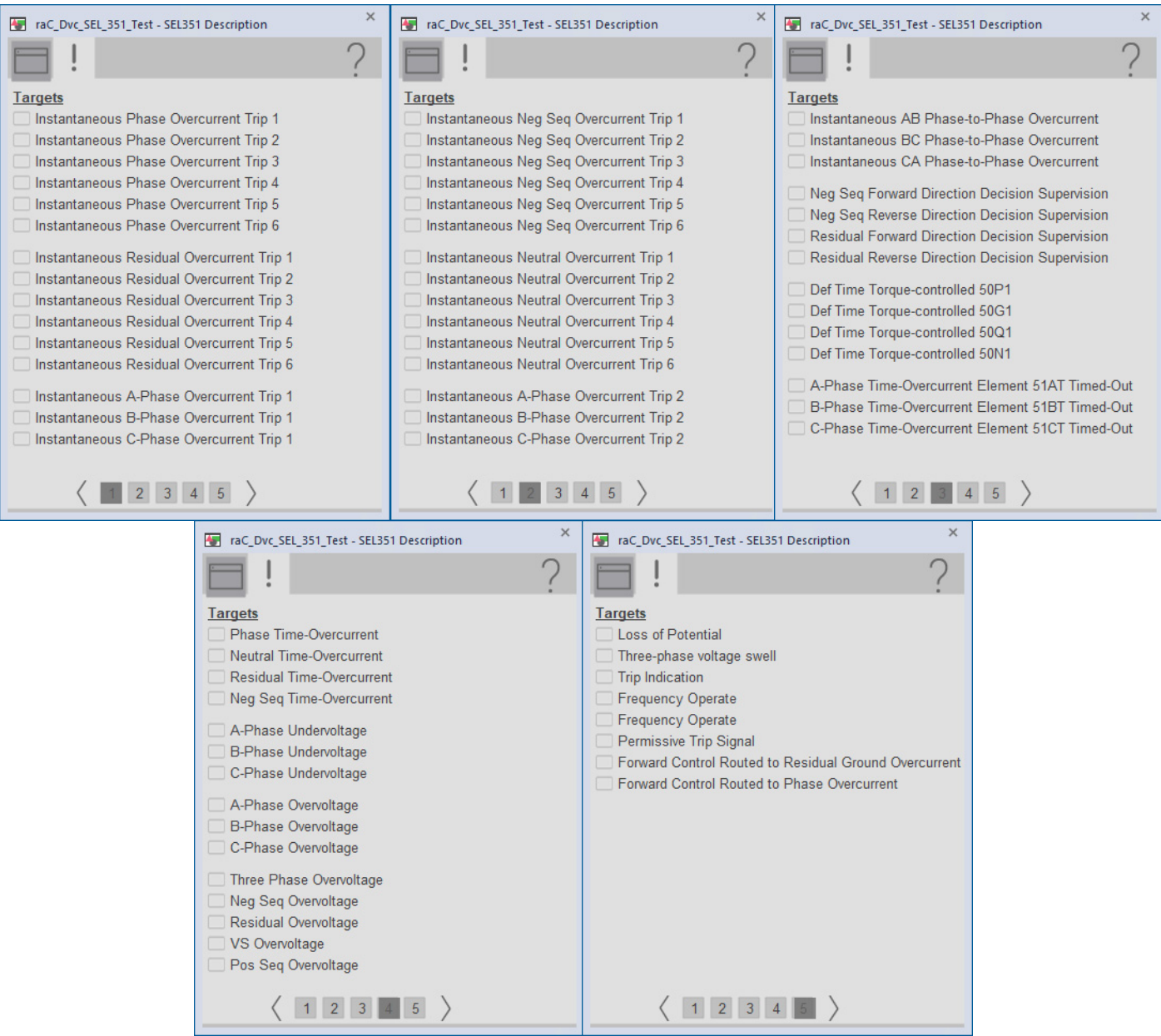


Table 20 - HMI Configuration Tab Description

Item	Action
1	Displays the device description to show on the faceplate title bar as configured for the extended tag property TripSourceA0ITag.@Description
2	The label to show on the graphic symbol as configured for the extended tag property TripSourceA0ITag.@Label.
3	The tag name to show on the faceplate and Tooltip.
4	The Area name for security based on the extended tag property TripSourceA0ITag.@Area.
5	Select to allow Operator to shelve the alarm.
6	Select to allow Maintenance to disable the alarm.
7	Select an option for Operator Command Confirmation Requirements.

Faults Tab

The Faults tab shows which alarms are active from the physical device.



Help Button

Press the help button on the faceplates to access help for the faceplate.

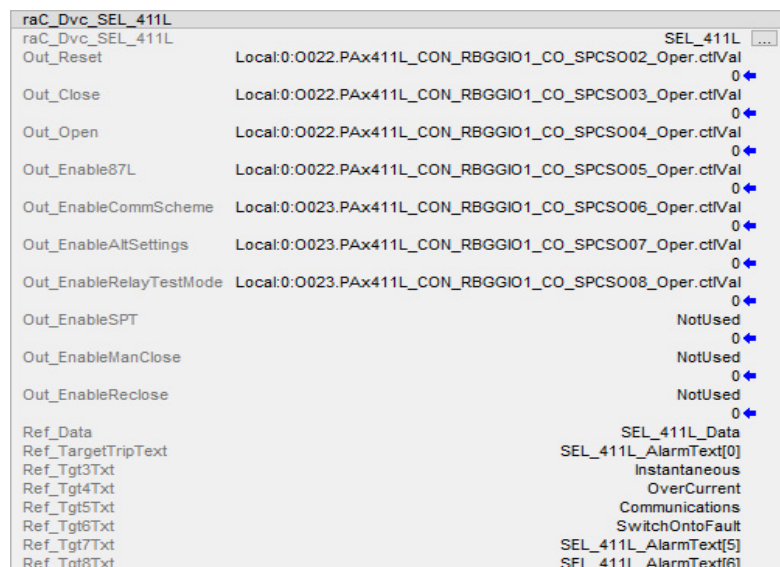
The help file to launch is configurable using the URL extended tag property of the trip source Add-On Instruction tag.

SEL 411L Object

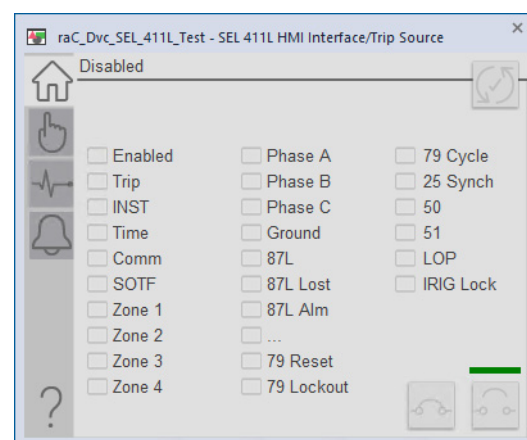
The SEL-411L provides protection and control of transmission lines. The SEL-411L provides differential protection with both phase- and sequence-based operating elements for sensitivity and high-speed operation.

This instruction monitors one SEL411L relay. Alarms are provided when the device experiences a protection-related trip. The instruction also provides capabilities for locking, and to open and close the breaker.

Add-On Instruction



Faceplate



Controller Code

Three Add-On Instructions represent each physical device. The first is generated by the ProSoft Configuration Manager. The second is a mapping Add-On Instruction that is used to map the data from the ProSoft configuration to the Trip Source (Primary HMI interface) Add-On Instruction. The third is the TripSource Add-On Instruction. The second and third are available for download from the Rockwell Automation® Intelligent Electronic Devices Toolkit from the PCDC.

InOut Structure for Trip Source Add-On Instruction

InOut parameters in [Table 21](#) are used to link the Add-On Instruction to external tags that contain necessary data for the instruction to operate. These external tags must be of the data type shown. These tags are representative of

the tags that are required for each SEL-411L relay, which is configured in your system.

Table 21 - SEL411L Relay

Name	Data Type	Description
Ref_Data	<Defined by device AOI>	Device data from the mapping Add-On Instruction, which maps the connections from the ProSoft gateway to the HMI tags.
Ref_TargetTripText	STRING	Alarm text to be displayed when active.
Ref_Tgt3Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.
Ref_Tgt4Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.
Ref_Tgt5Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.
Ref_Tgt6Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.
Ref_Tgt7Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.
Ref_Tgt8Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.

Remote Bit Control Value Structure

Remote Bit Control Value parameters are used to link the Add-On Instruction to configurable input points in the physical device. Each bit is configurable via the vendor software of each device. The following table has recommended uses for each bit.

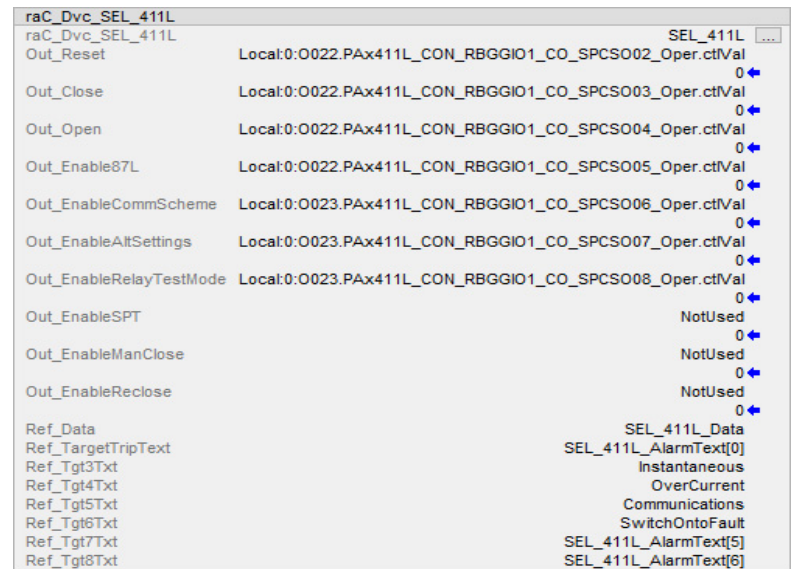
Name	Description
CON_RBGGIO1_CO_SPCS001_Oper_ctlVal	Lock/Unlock
CON_RBGGIO1_CO_SPCS002_Oper_ctlVal	Target Reset
CON_RBGGIO1_CO_SPCS003_Oper_ctlVal	Breaker Close
CON_RBGGIO1_CO_SPCS004_Oper_ctlVal	Breaker Open
CON_RBGGIO1_CO_SPCS005_Oper_ctlVal	User Programmable
CON_RBGGIO1_CO_SPCS006_Oper_ctlVal	User Programmable
CON_RBGGIO1_CO_SPCS007_Oper_ctlVal	User Programmable
CON_RBGGIO1_CO_SPCS008_Oper_ctlVal	User Programmable

Mapping InOut Tags to Add-On Instructions

Configure the SEL411L_TripSource Add-On Instruction.

1. Click the question mark next to Ref_PlantPAX411L and select the tag that was created by the ProSoft Configuration Manager for your device.
2. Click the question mark next to each Ref_Tgt#Txt and enter a string tag. These tags are intended to match the status indicators on the front panel of the device.
3. Once you type the tag name, if the tag is not already configured in the controller, you have to right-click and create a tag.
4. Click the question mark next to Ref_TargetTripText and select or create a String tag to be used for the final alarm message. The Trip Source Add-On Instruction selects from the Ref_Tgt#Txt strings based on the active trip source and copies that reference string to this target string.
5. For Output parameters, click the question mark next to each Output parameter and select the tag to be used when using RLL. For FBD, add an

ORef configured with the appropriate I/O tag and connect the associated output parameter to the ORef.



Using Visualization Files

See [Visualization Files on page 13](#) for detailed information.

Faceplates

The Operator tab is displayed when the faceplate is initially opened. Click the appropriate icon on the left of the faceplate to access a specific tab.

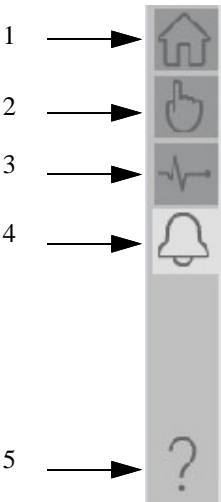



Table 22 - Tab Descriptions

Item	Description
1	Operator tab
2	Manual Control tab
3	Diagnostics tab
4	Alarm
5	Help

The faceplate provides the means for operators, maintenance workers, engineers, and others to interact with the instruction instance. This interaction provides a view of the status and values of the instruction instance and an ability to manipulate it through its commands and settings.

The faceplates that are shown in this section are from FactoryTalk® View SE. Any feature that is contained in the Studio 5000 View Designer® faceplates has the same functionality as used in the FactoryTalk View SE faceplates.

 The Advanced Properties faceplates do not apply to Studio 5000 View Designer.

Operator Tab

The Faceplate initially opens to the Operator tab, sometimes called the Home tab. From here, an operator can monitor the device status and manually operate the device.

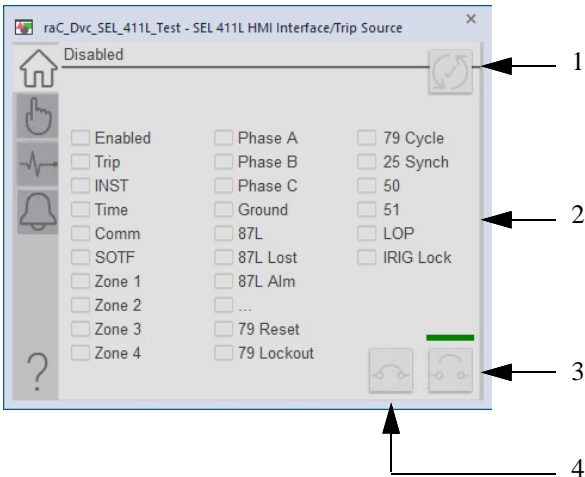
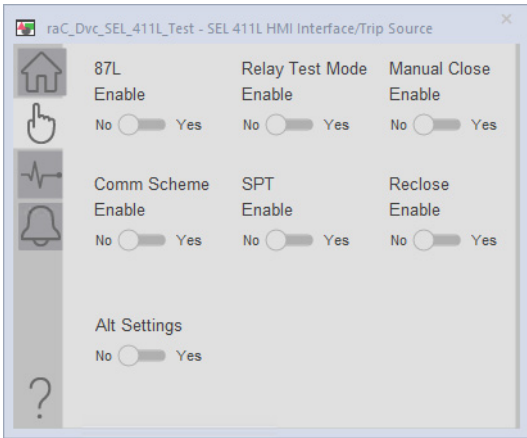


Table 23 - Operator Tab Description

Item	Description
1	Click to reset the device. The status of the device is indicated on the faceplate.
2	Status Indicators
3	Click to open the circuit breaker.
4	Click to close the circuit breaker.

Manual Control Tab

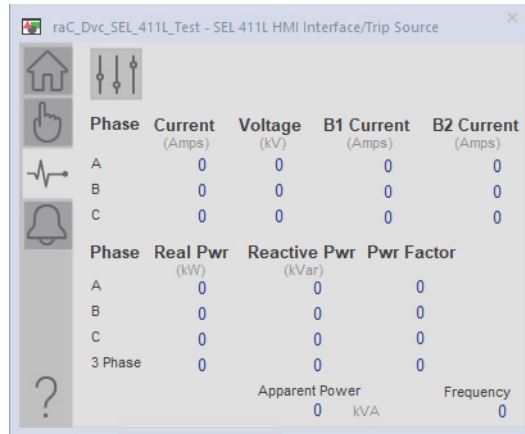


Diagnostics Tab

The diagnostics tab allows the operator to see the measurement values from the device.

Diagnostics Tab

Readout of the measurement values from the SEL-411L.




Alarms

The Alarm tab displays the trip source alarm. The icon on the tab for the alarms page has an outline that changes color to show the current active alarm status.



Advanced Properties

Click the advanced properties icon  on the diagnostics page to display the advanced properties. The following screenshot shows the tabs that are available in the advanced properties display

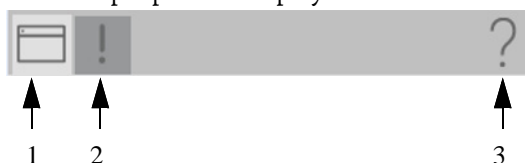


Table 24 - Advanced Properties Tab Descriptions

Item	Description
1	HMI Configuration
2	Faults
3	Help

HMI Configuration Tab

The HMI configuration tab provides access to displayed text, and faceplate-to-faceplate navigation settings. Configure the description, label, tag, and security area for the device.

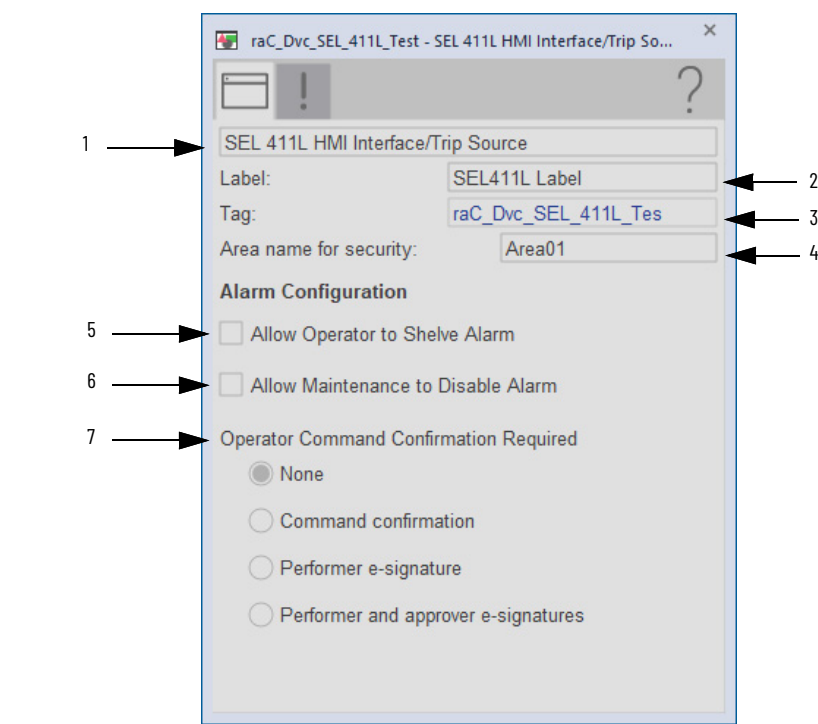
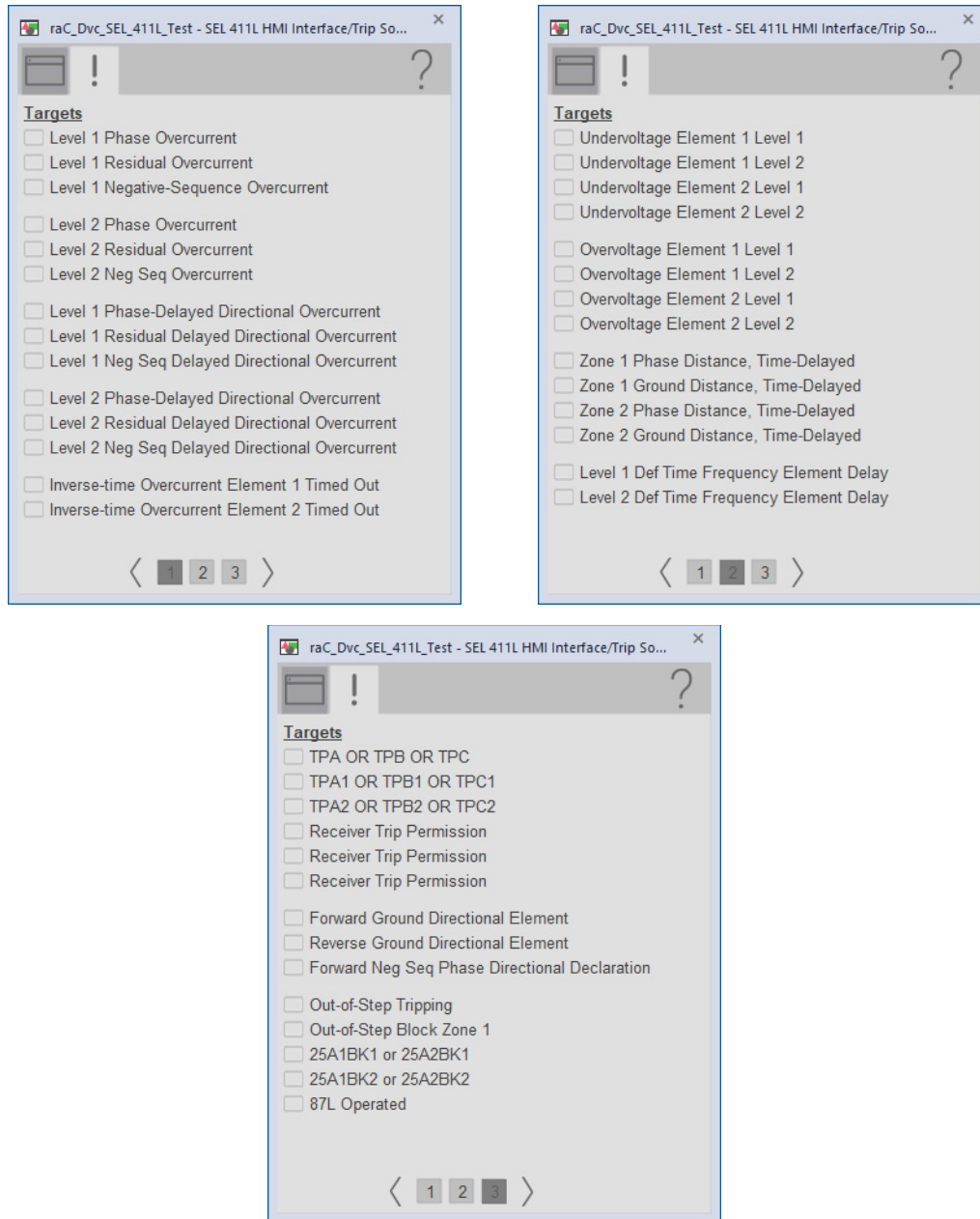


Table 25 - HMI Configuration Tab Description

Item	Action
1	Displays the device description to show on the faceplate title bar as configured for the extended tag property TripSourceA0ITag.@Description
2	The label to show on the graphic symbol as configured for the extended tag property TripSourceA0ITag.@Label.
3	The tag name to show on the faceplate and Tooltip.
4	The Area name for security based on the extended tag property TripSourceA0ITag.@Area.
5	Select to allow Operator to shelve the alarm.
6	Select to allow Maintenance to disable the alarm.
7	Select an option for Operator Command Confirmation Requirements.

Faults Tab

The faults tab shows which alarms are active from the device.



Help Button

Press the help button on the faceplates to access help for the faceplate.

The help file to launch is configurable using the URL extended tag property of the trip source Add-On Instruction tag.

Notes:

SEL 421 Object

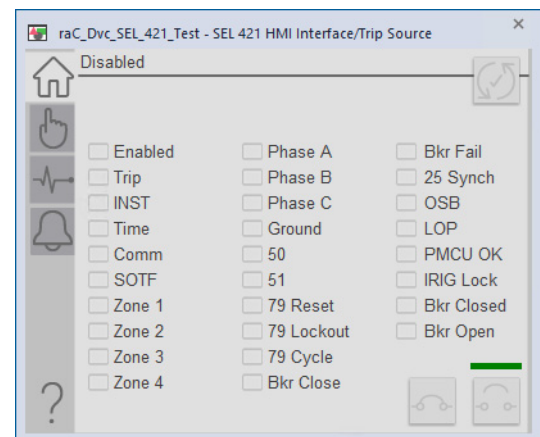
The SEL-421 is a high-speed distance and directional protection relay that can provide complete control of a two-breaker bay. It is used to help protect any transmission line using a combination of five zones of phase- and ground-distance and directional overcurrent elements.

This instruction monitors one SEL421 relay. Alarms are provided when the device experiences a protection-related trip. The instruction also provides capabilities for locking, and to open and close the breaker.

Add-On Instruction



Faceplate



Controller Code

Three Add-On Instructions represent each physical device. The first is generated by the ProSoft Configuration Manager. The second is a mapping Add-On Instruction that is used to map the data from the ProSoft configuration to the Trip Source (Primary HMI interface) Add-On Instruction. The third is the TripSource Add-On Instruction. The second and third are available for download from the Rockwell Automation® Intelligent Electronic Devices Toolkit from the PCDC.

InOut Structure for Trip Source Add-On Instruction

InOut parameters in [Table 26](#) are used to link the Add-On Instruction to external tags that contain necessary data for the instruction to operate. These external tags must be

of the data type shown. These tags are representative of the tags that are required for each SEL-421 relay, which is configured in your system.

Table 26 - SEL421 Relay

Name	Data Type	Description
Ref_Data	<Defined by device AOI>	Device data from the mapping Add-On Instruction, which maps the connections from the ProSoft gateway to the HMI tags.
Ref_TargetTripText	STRING	Alarm text to be displayed when active.
Ref_Tgt3Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.
Ref_Tgt4Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.
Ref_Tgt5Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.
Ref_Tgt6Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.
Ref_Tgt7Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.
Ref_Tgt8Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.

Remote Bit Control Value Structure

Remote Bit Control Value parameters are used to link the Add-On Instruction to configurable input points in the physical device. Each bit is configurable via the vendor software of each device. The following table has recommended uses for each bit.

Name	Description
CON_RBGGI01_CO_SPCS001_Oper_ctlVal	Lock/Unlock
CON_RBGGI01_CO_SPCS002_Oper_ctlVal	Target Reset
CON_RBGGI01_CO_SPCS003_Oper_ctlVal	Breaker Close
CON_RBGGI01_CO_SPCS004_Oper_ctlVal	Breaker Open
CON_RBGGI01_CO_SPCS005_Oper_ctlVal	User Programmable
CON_RBGGI01_CO_SPCS006_Oper_ctlVal	User Programmable
CON_RBGGI01_CO_SPCS007_Oper_ctlVal	User Programmable
CON_RBGGI01_CO_SPCS008_Oper_ctlVal	User Programmable

Mapping InOut Tags to Trip Source Add-On Instruction

Configure the SEL421_TripSource Add-On Instruction.

1. Click the question mark next to Ref_PlantPAX421 and select the tag that was created by the ProSoft Configuration Manager for your device.
2. Click the question mark next to each Ref_Tgt#Txt and enter a string tag. These tags are intended to match the status indicators on the front panel of the device.
3. Once you type the tag name, if the tag is not already configured in the controller, you have to right-click and create a tag.
4. Click the question mark next to Ref_TargetTripText and select or create a String tag to be used for the final alarm message. The Trip Source Add-On Instruction selects from the Ref_Tgt#Txt strings based on the active trip source and copies that reference string to this target string.
5. For Output parameters, click the question mark next to each Output parameter and select the tag to be used when using RLL. For FBD, add an ORef configured with the appropriate I/O tag and connect the associated output parameter to the ORef.

raC_Dvc_SEL_421	
raC_Dvc_SEL_421	SEL_421
Out_Reset	Local:0:0020.PAx421_CON_RBGGIO1_CO_SPCS002_Oper.ctiVal 0
Out_Close	Local:0:0020.PAx421_CON_RBGGIO1_CO_SPCS003_Oper.ctiVal 0
Out_Open	Local:0:0021.PAx421_CON_RBGGIO1_CO_SPCS004_Oper.ctiVal 0
Out_EnableCommScheme	Local:0:0021.PAx421_CON_RBGGIO1_CO_SPCS005_Oper.ctiVal 0
Out_EnableAltSettings	Local:0:0021.PAx421_CON_RBGGIO1_CO_SPCS006_Oper.ctiVal 0
Out_EnableRelayTestMode	Local:0:0021.PAx421_CON_RBGGIO1_CO_SPCS007_Oper.ctiVal 0
Out_EnableSPT	Local:0:0021.PAx421_CON_RBGGIO1_CO_SPCS008_Oper.ctiVal 0
Out_EnableManClose	NotUsed 0
Out_EnableReclose	NotUsed 0
Ref_Data	SEL_421_Data
Ref_TargetTripText	SEL_421_AlarmText[0]
Ref_Tgt3Txt	Instantaneous
Ref_Tgt4Txt	Time
Ref_Tgt5Txt	Communications
Ref_Tgt6Txt	SwitchOntoFault
Ref_Tgt7Txt	Zone1
Ref_Tgt8Txt	Zone2

Using Visualization Files

See [Visualization Files on page 13](#) for detailed information.

Faceplates

The Operator tab is displayed when the faceplate is initially opened. Click the appropriate icon on the left of the faceplate to access a specific tab.

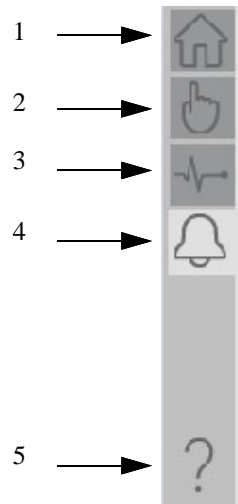



Table 27 - Tab Descriptions

Item	Description
1	Operator tab
2	Manual Control tab
3	Diagnostics tab
4	Alarm
5	Help

The faceplate provides the means for operators, maintenance workers, engineers, and others to interact with the instruction instance. This interaction provides a view of the status and values of the instruction instance and an ability to manipulate it through its commands and settings.

The faceplates that are shown in this section are from FactoryTalk® View SE. Any feature that is contained in the Studio 5000 View Designer® faceplates has the same functionality as used in the FactoryTalk View SE faceplates.

 The Advanced Properties faceplates do not apply to Studio 5000 View Designer.

Operator Tab

The Faceplate initially opens to the Operator tab, sometimes called the Home tab. From here, an operator can monitor the device status and manually operate the device.

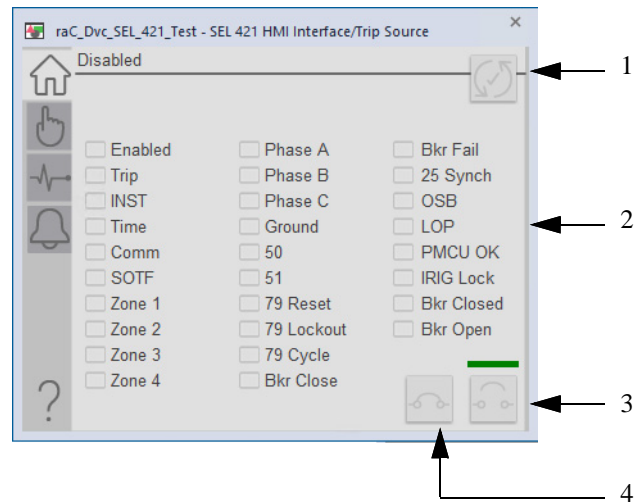
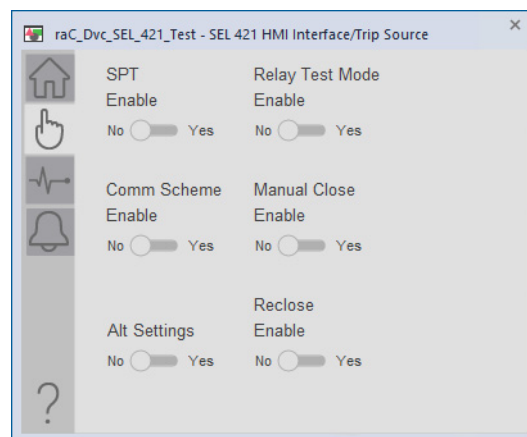


Table 28 - Operator Tab Description

Item	Description
1	Click to reset the device. The status of the device is indicated on the faceplate.
2	Status Indicators
3	Click to open the circuit breaker.
4	Click to close the circuit breaker.

Manual Control Tab

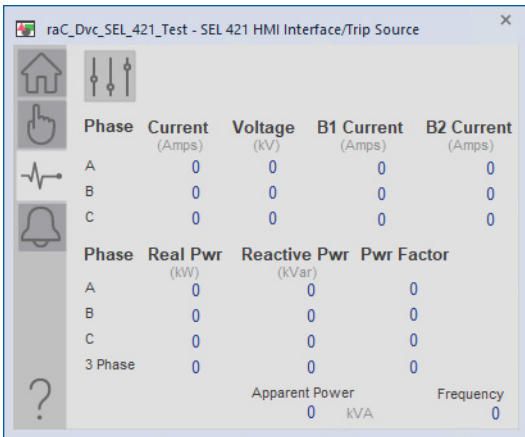


Diagnostics Tab

The diagnostics tab allows the operator to see the measurement values from the device.

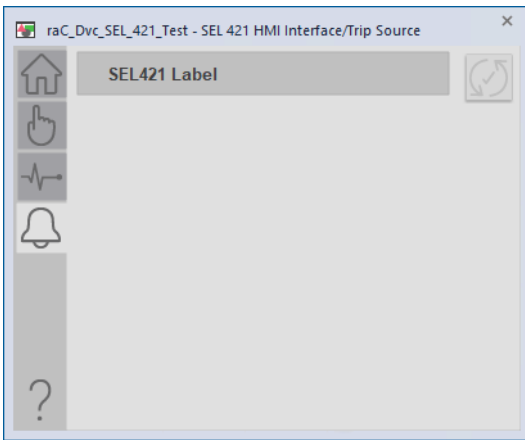
Diagnostics Tab

Readout of the measurement values from the SEL-421.



Alarms

The Alarm tab displays the trip source alarm. The icon on the tab for the alarms page has an outline that changes color to show the current active alarm status.



Advanced Properties


Click the advanced properties icon  on the diagnostics page to display the advanced properties. The following screenshot shows the tabs that are available in the advanced properties display



Table 29 - Advanced Properties Tab Descriptions

Item	Description
1	HMI Configuration
2	Faults
3	Help

HMI Configuration Tab

The HMI configuration tab provides access to displayed text, and faceplate-to-faceplate navigation settings. Configure the description, label, tag, and security area for the device.

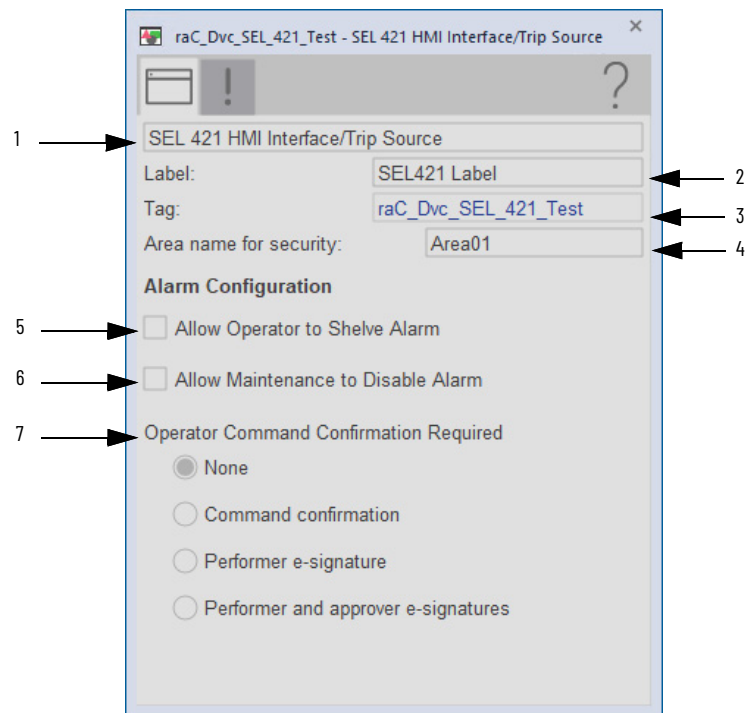
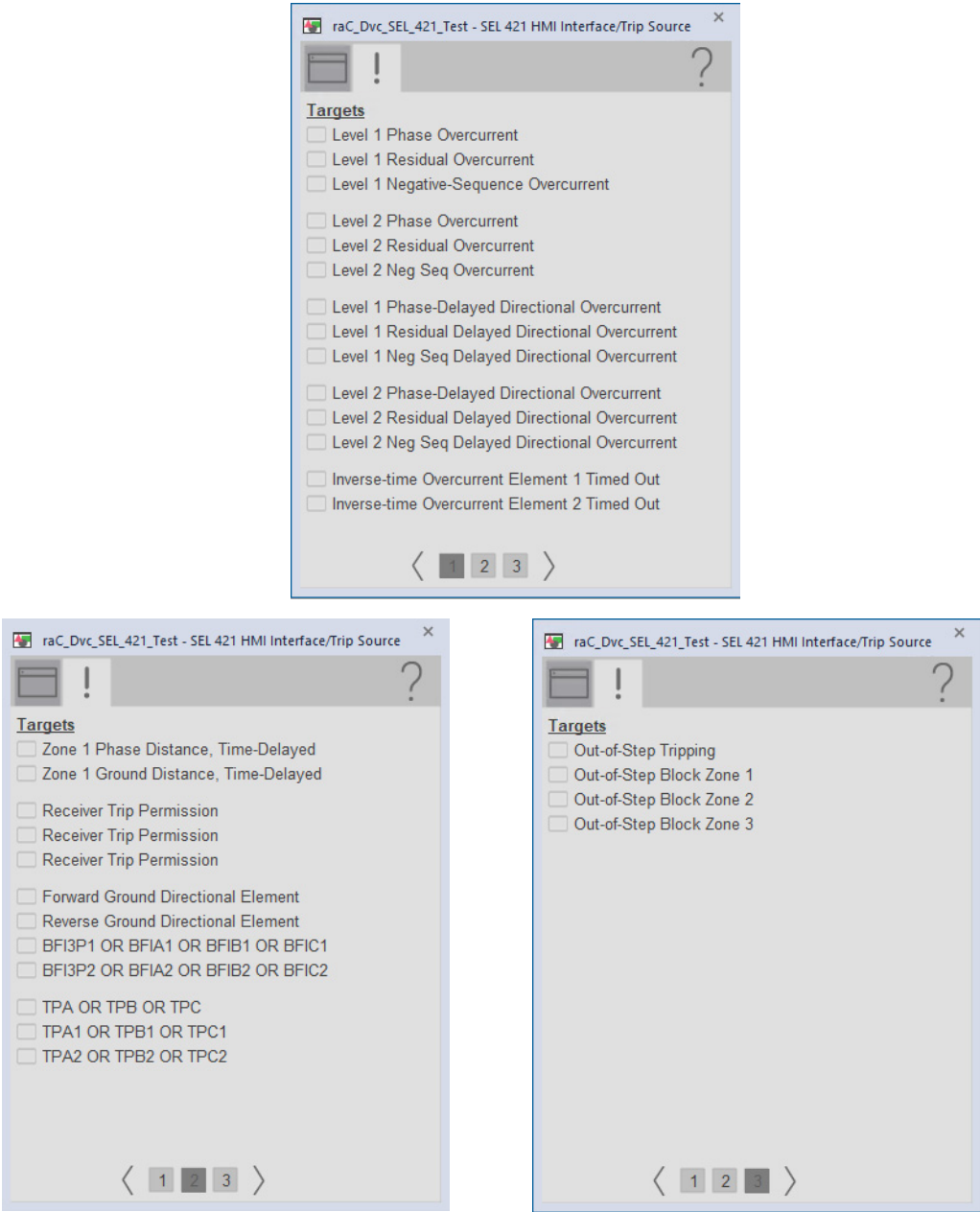


Table 30 - HMI Configuration Tab Description

Item	Action
1	Displays the device description to show on the faceplate title bar as configured for the extended tag property TripSourceA0ITag.@Description
2	The label to show on the graphic symbol as configured for the extended tag property TripSourceA0ITag.@Label.
3	The tag name to show on the faceplate and Tooltip.
4	The Area name for security based on the extended tag property TripSourceA0ITag.@Area.
5	Select to allow Operator to shelve the alarm.
6	Select to allow Maintenance to disable the alarm.
7	Select an option for Operator Command Confirmation Requirements.

Faults Tab

The faults tab shows which alarms are active from the device.



Help Button

Press the help button on the faceplates to access help for the faceplate.

The help file to launch is configurable using the URL extended tag property of the trip source Add-On Instruction tag.

SEL 451 Object

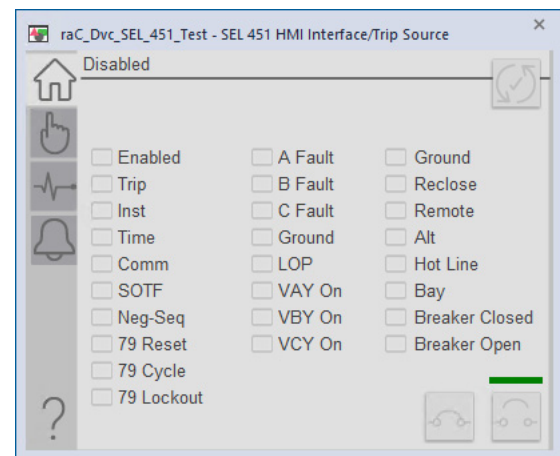
The Schweitzer Engineering Labs 451 is a feeder protection relay. This device is used to help protect an electrical bus from conditions of over current, over voltage, under voltage, and so on. The device also provides multiple fundamental metering data including voltage, current, frequency, and power. The SEL-451 provides complete bay control functionality.

This instruction monitors one SEL451 relay. Alarms are provided when the device experiences a protection-related trip. The instruction also provides capabilities for locking, and to open and close the breaker.

Add-On Instruction

raC_Dvc_SEL_451	SEL_451
raC_Dvc_SEL_451	SEL_451
Out_Reset	Local:0:0019.PAx451_CON_RBGGIO1_CO_SPCSO02_Oper.ctfVal 0
Out_Close	Local:0:0019.PAx451_CON_RBGGIO1_CO_SPCSO03_Oper.ctfVal 0
Out_Open	Local:0:0019.PAx451_CON_RBGGIO1_CO_SPCSO04_Oper.ctfVal 0
Out_EnableGround	Local:0:0019.PAx451_CON_RBGGIO1_CO_SPCSO05_Oper.ctfVal 0
Out_EnableReclose	Local:0:0019.PAx451_CON_RBGGIO1_CO_SPCSO06_Oper.ctfVal 0
Out_EnableRemote	Local:0:0020.PAx451_CON_RBGGIO1_CO_SPCSO07_Oper.ctfVal 0
Out_EnableAltSettings	Local:0:0020.PAx451_CON_RBGGIO1_CO_SPCSO08_Oper.ctfVal 0
Out_EnableHotLineTag	NotUsed 0
Out_EnableBayDisplay	NotUsed 0
Ref_Data	SEL_451_Data
Ref_TargetTripText	SEL_451_AlarmText[0]
Ref_Tgt3Txt	Instantaneous
Ref_Tgt4Txt	Time
Ref_Tgt5Txt	Communications
Ref_Tgt6Txt	SwitchOntoFault
Ref_Tgt7Txt	NegSeq
Ref_Tgt8Txt	SEL_451_AlarmText[6]

Faceplate



Controller Code

Three Add-On Instructions represent each physical device. The first is generated by the ProSoft Configuration Manager. The second is a mapping Add-On Instruction that is used to map the data from the ProSoft configuration to the Trip Source (Primary HMI interface) Add-On Instruction. The third is the TripSource Add-On Instruction. The second and third are available for download from the Rockwell Automation® Intelligent Electronic Devices Toolkit from the PCDC.

InOut Structure for Trip Source Add-On Instruction

InOut parameters in [Table 31](#) are used to link the Add-On Instruction to external tags that contain necessary data for the instruction to operate. These external

tags must be of the data type shown. These tags are representative of the tags that are required for each SEL-451 relay, which is configured in your system.

Table 31 - SEL451 Relay

Name	Data Type	Description
Ref_Data	<Defined by device AOI>	Device data from the mapping Add-On Instruction, which maps the connections from the ProSoft gateway to the HMI tags.
Ref_TargetTripText	STRING	Alarm text to be displayed when active.
Ref_Tgt3Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.
Ref_Tgt4Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.
Ref_Tgt5Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.
Ref_Tgt6Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.
Ref_Tgt7Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.
Ref_Tgt8Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.

Remote Bit Control Value Structure

Remote Bit Control Value parameters are used to link the Add-On Instruction to configurable input points in the physical device. Each bit is configurable via the vendor software of each device. [Table 32](#) has recommended uses for each bit.

Table 32 - Remote Bit Control - SEL451 Relay

Name	Description
CON_RBGGI01_CO_SPCS001_Oper_ctlVal	Lock/Unlock
CON_RBGGI01_CO_SPCS002_Oper_ctlVal	Target Reset
CON_RBGGI01_CO_SPCS003_Oper_ctlVal	Breaker Close
CON_RBGGI01_CO_SPCS004_Oper_ctlVal	Breaker Open
CON_RBGGI01_CO_SPCS005_Oper_ctlVal	Ground Enable
CON_RBGGI01_CO_SPCS006_Oper_ctlVal	Reclose Enable
CON_RBGGI01_CO_SPCS007_Oper_ctlVal	Remote Enable
CON_RBGGI01_CO_SPCS008_Oper_ctlVal	Alt Settings
CON_RBGGI01_CO_SPCS009_Oper_ctlVal	Hot Line Tag
CON_RBGGI01_CO_SPCS010_Oper_ctlVal	Bay Display

Mapping InOut Tags to Trip Source Add-On Instruction

Configure the SEL451_TripSource Add-On Instruction.

1. Click the question mark next to Ref_PlantPAx451 and select the tag that was created by the ProSoft Configuration Manager for your device.
2. Click the question mark next to each Ref_Tgt#Txt and enter a string tag. These tags are intended to match the status indicators on the front panel of the device.
3. Once you type the tag name, if the tag is not already configured in the controller, you have to right-click and create a tag.
4. Click the question mark next to Ref_TargetTripText and select or create a String tag to be used for the final alarm message. The Trip Source Add-On Instruction selects from the Ref_Tgt#Txt strings based on the active trip source and copies that reference string to this target string.
5. For Output parameters, click the question mark next to each Output parameter and select the tag to be used when using RLL. For FBD, add an ORef configured with the appropriate I/O tag and connect the associated output parameter to the ORef.

raC_Dvc_SEL_451	SEL_451
Out_Reset	Local:0:0019.PAx451_CON_RBGGIO1_CO_SPCSO02_Oper.ctfVal
Out_Close	Local:0:0019.PAx451_CON_RBGGIO1_CO_SPCSO03_Oper.ctfVal
Out_Open	Local:0:0019.PAx451_CON_RBGGIO1_CO_SPCSO04_Oper.ctfVal
Out_EnableGround	Local:0:0019.PAx451_CON_RBGGIO1_CO_SPCSO05_Oper.ctfVal
Out_EnableReclose	Local:0:0019.PAx451_CON_RBGGIO1_CO_SPCSO06_Oper.ctfVal
Out_EnableRemote	Local:0:0020.PAx451_CON_RBGGIO1_CO_SPCSO07_Oper.ctfVal
Out_EnableAltSettings	Local:0:0020.PAx451_CON_RBGGIO1_CO_SPCSO08_Oper.ctfVal
Out_EnableHotLineTag	NotUsed
Out_EnableBayDisplay	NotUsed
Ref_Data	SEL_451_Data
Ref_TargetTripText	SEL_451_AlarmText[0]
Ref_Tgt3Txt	Instantaneous
Ref_Tgt4Txt	Time
Ref_Tgt5Txt	Communications
Ref_Tgt6Txt	SwitchOntoFault
Ref_Tgt7Txt	NegSeq
Ref_Tgt8Txt	SEL_451_AlarmText[6]

Using Visualization Files

See [Visualization Files on page 13](#) for detailed information.

Faceplates

The Operator tab is displayed when the faceplate is initially opened. Click the appropriate icon on the left of the faceplate to access a specific tab.

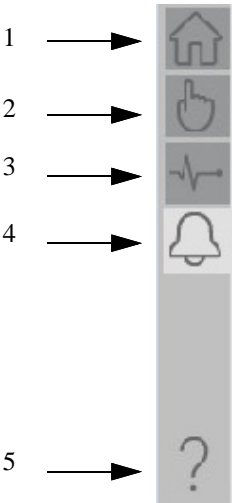



Table 33 - Tab Descriptions

Item	Description
1	Operator tab
2	Manual Control tab
3	Diagnostics tab
4	Alarms tab
5	Help

The faceplate provides the means for operators, maintenance workers, engineers, and others to interact with the instruction instance. This interaction provides a view of the status and values of the instruction instance and an ability to manipulate it through its commands and settings.

The faceplates that are shown in this section are from FactoryTalk® View SE. Any feature that is contained in the Studio 5000 View Designer® faceplates has the same functionality as used in the FactoryTalk View SE faceplates.

 The Advanced Properties faceplates do not apply to Studio 5000 View Designer.

Operator Tab

The Faceplate initially opens to the Operator tab, sometimes called the Home tab. From here, an operator can monitor the device status and manually operate the device.

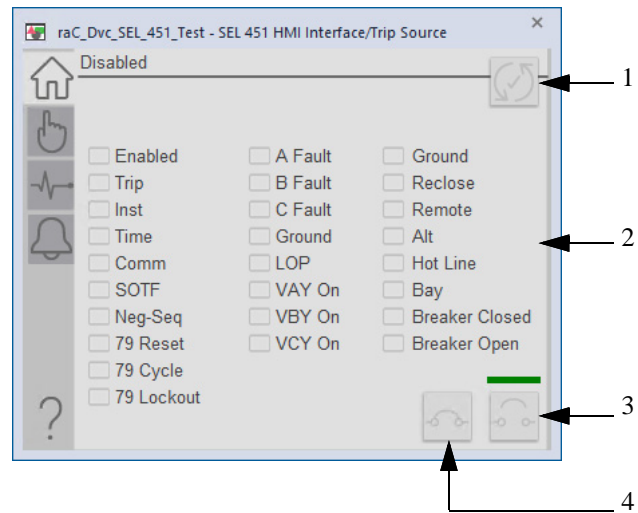
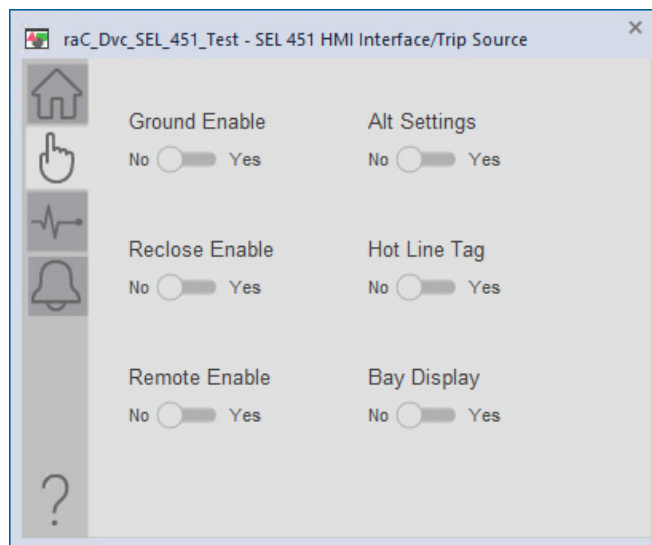


Table 34 - Operator Tab Description

Item	Description
1	Click to reset the device. The status of the device is indicated on the faceplate.
2	Status Indicators
3	Click to open the circuit breaker.
4	Click to close the circuit breaker.

Manual Control Tab

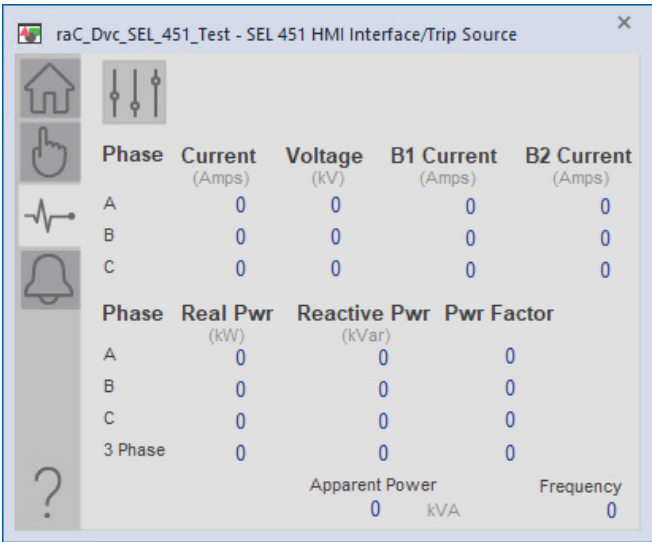


Diagnostics Tab

The diagnostics tab allows the operator to see the measurement values from the physical device.

Diagnostics Tab

Readout of the measurement values from the SEL-451.



Alarms

The Alarm tab displays the trip source alarm. The icon on the tab for the alarms page has an outline that changes color to show the current active alarm status.



Advanced Properties


Click the advanced properties icon  on the diagnostics page to display the advanced properties. The following screenshot shows the tabs that are available in the advanced properties display



Table 35 - Advanced Properties Tab Descriptions

Item	Description
1	HMI Configuration
2	Faults
3	Help

HMI Configuration Tab

The HMI configuration tab provides access to displayed text, and faceplate-to-faceplate navigation settings. Configure the description, label, tag, and security area for the device.

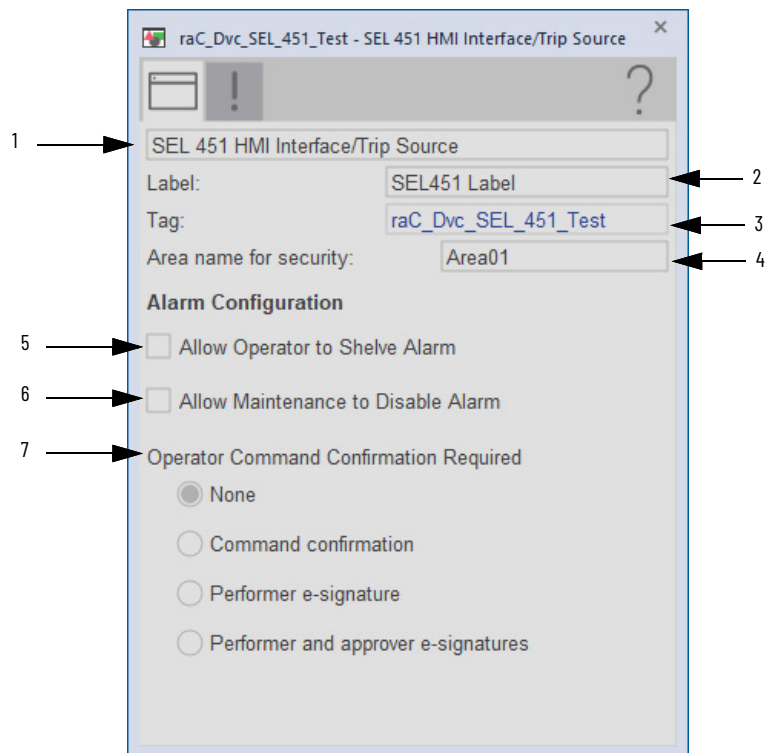


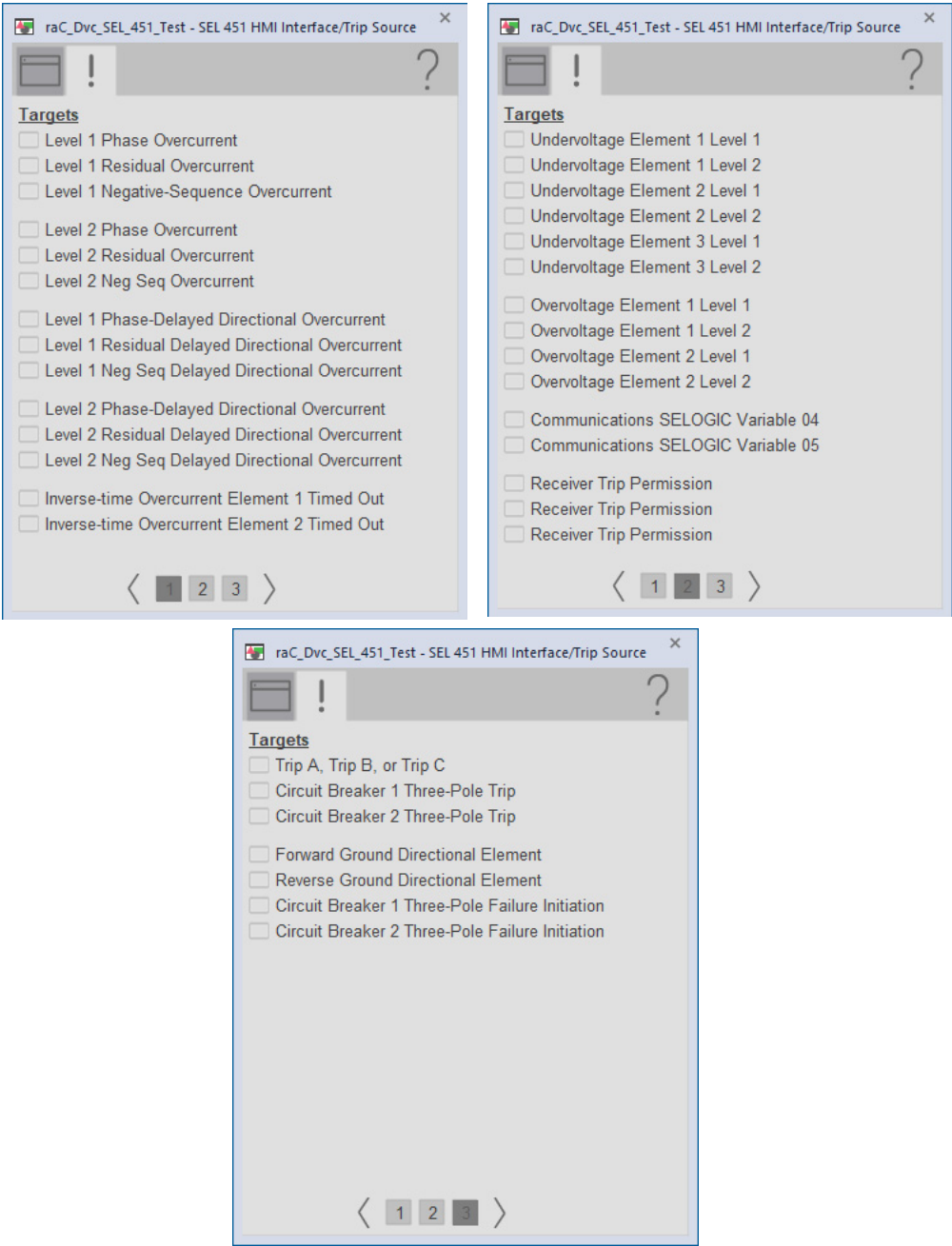
Table 36 - HMI Configuration Tab Description

Item	Action
1	Displays the device description to show on the faceplate title bar as configured for the extended tag property <code>TripSourceAOITag.@Description</code>
2	The label to show on the graphic symbol as configured for the extended tag property <code>TripSourceAOITag.@Label</code> .
3	The tag name to show on the faceplate and Tooltip.

Item	Action
4	The Area name for security based on the extended tag property TripSourceAOITag.@Area.
5	Select to allow Operator to shelve the alarm.
6	Select to allow Maintenance to disable the alarm.
7	Select an option for Operator Command Confirmation Requirements.

Faults Tab

The Faults tab shows which alarms are active from the physical device.



Help Button

Press the help button on the faceplates to access help for the faceplate.

The help file to launch is configurable using the URL extended tag property of the trip source Add-On Instruction tag.

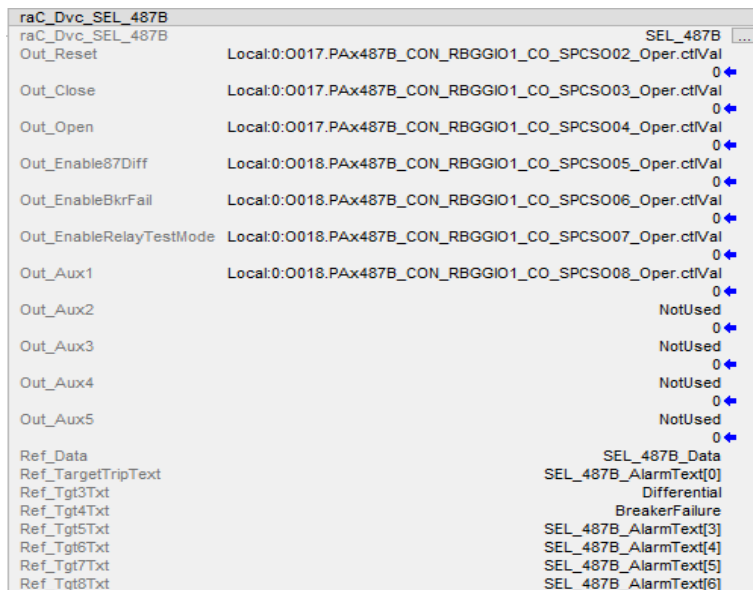
Notes:

SEL 487B Object

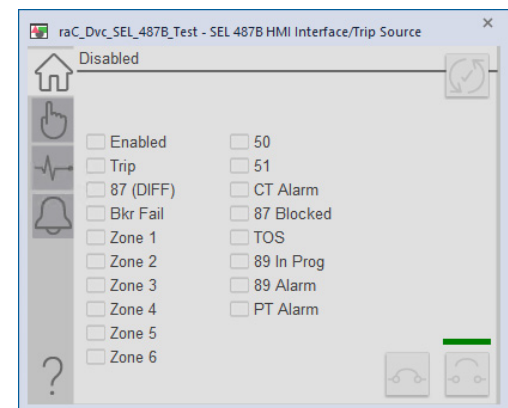
The SEL-487B is a bus differential and breaker failure relay. The SEL-487B provides optimized, low-impedance bus differential fault detection by using high-speed, subcycle protection.

This instruction monitors one SEL487B relay. Alarms are provided when the device experiences a protection-related trip. The instruction also provides capabilities for locking, and to open and close the breaker.

Add-On Instruction



Faceplate



Controller Code

Three Add-On Instructions represent each physical device. The first is generated by the ProSoft Configuration Manager. The second is a mapping Add-On Instruction that is used to map the data from the ProSoft configuration to the Trip Source (Primary HMI interface) Add-On Instruction. The third is the TripSource Add-On Instruction. The second and third are available for download from the Rockwell Automation® Intelligent Electronic Devices Toolkit from the PCDC.

InOut Structure for Trip Source Add-On Instruction

InOut parameters in [Table 37](#) are used to link the Add-On Instruction to external tags that contain necessary data for the instruction to operate. These external tags must be of the data type shown. These tags are representative of

the tags that are required for each SEL-487B relay, which is configured in your system.

Table 37 - SEL487B Relay

Name	Data Type	Description
Ref_Data	<Defined by device AOI>	Device data from the mapping Add-On Instruction, which maps the connections from the ProSoft gateway to the HMI tags.
Ref_TargetTripText	STRING	Alarm text to be displayed when active.
Ref_Tgt3Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.
Ref_Tgt4Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.
Ref_Tgt5Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.
Ref_Tgt6Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.
Ref_Tgt7Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.
Ref_Tgt8Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.

Remote Bit Control Value Structure

Remote Bit Control Value parameters are used to link the Add-On Instruction to configurable input points in the physical device. Each bit is configurable via the vendor software of each device. The following table has recommended uses for each bit.

Name	Description
CON_RBGGI01_CO_SPCS001_Oper_ctlVal	Lock/Unlock
CON_RBGGI01_CO_SPCS002_Oper_ctlVal	Target Reset
CON_RBGGI01_CO_SPCS003_Oper_ctlVal	Breaker Close
CON_RBGGI01_CO_SPCS004_Oper_ctlVal	Breaker Open
CON_RBGGI01_CO_SPCS005_Oper_ctlVal	87 Diff Enable
CON_RBGGI01_CO_SPCS006_Oper_ctlVal	BKR Fail Enable
CON_RBGGI01_CO_SPCS007_Oper_ctlVal	Relay Test Mode Enabled
CON_RBGGI01_CO_SPCS008_Oper_ctlVal	User Programmable
CON_RBGGI01_CO_SPCS009_Oper_ctlVal	User Programmable
CON_RBGGI01_CO_SPCS010_Oper_ctlVal	User Programmable
CON_RBGGI01_CO_SPCS011_Oper_ctlVal	User Programmable
CON_RBGGI01_CO_SPCS012_Oper_ctlVal	User Programmable

Mapping InOut Tags to Trip Source Add-On Instruction

Configure the SEL487B_TripSource Add-On Instruction.

1. Click the question mark next to Ref_PlantPAx487B and select the tag that was created by the ProSoft Configuration Manager for your device.
2. Click the question mark next to each Ref_Tgt#Txt and enter a string tag. These tags are intended to match the status indicators on the front panel of the device.
3. Once you type the tag name, if the tag is not already configured in the controller, you have to right-click and create a tag.
4. Click the question mark next to Ref_TargetTripText and select or create a String tag to be used for the final alarm message. The Trip Source Add-On Instruction selects from the Ref_Tgt#Txt strings based on the active trip source and copies that reference string to this target string.
5. For Output parameters, click the question mark next to each Output parameter and select the tag to be used when using RLL. For FBD, add an ORef configured with the appropriate I/O tag and connect the associated output parameter to the ORef.

raC_Dvc_SEL_487B		SEL_487B
raC_Dvc_SEL_487B		
Out_Reset	Local:0:0017.PAx487B_CON_RBGGIO1_CO_SPCS002_Oper.ctfVal	0
Out_Close	Local:0:0017.PAx487B_CON_RBGGIO1_CO_SPCS003_Oper.ctfVal	0
Out_Open	Local:0:0017.PAx487B_CON_RBGGIO1_CO_SPCS004_Oper.ctfVal	0
Out_Enable87Diff	Local:0:0018.PAx487B_CON_RBGGIO1_CO_SPCS005_Oper.ctfVal	0
Out_EnableBkrFail	Local:0:0018.PAx487B_CON_RBGGIO1_CO_SPCS006_Oper.ctfVal	0
Out_EnableRelayTestMode	Local:0:0018.PAx487B_CON_RBGGIO1_CO_SPCS007_Oper.ctfVal	0
Out_Aux1	Local:0:0018.PAx487B_CON_RBGGIO1_CO_SPCS008_Oper.ctfVal	0
Out_Aux2	NotUsed	0
Out_Aux3	NotUsed	0
Out_Aux4	NotUsed	0
Out_Aux5	NotUsed	0
Ref_Data		SEL_487B_Data
Ref_TargetTripText		SEL_487B_AlarmText[0]
Ref_Tgt3Txt		Differential
Ref_Tgt4Txt		BreakerFailure
Ref_Tgt5Txt		SEL_487B_AlarmText[3]
Ref_Tgt6Txt		SEL_487B_AlarmText[4]
Ref_Tgt7Txt		SEL_487B_AlarmText[5]
Ref_Tgt8Txt		SEL_487B_AlarmText[6]

Using Visualization Files

See [Visualization Files on page 13](#) for detailed information.

Faceplates

The Operator tab is displayed when the faceplate is initially opened. Click the appropriate icon on the left of the faceplate to access a specific tab.

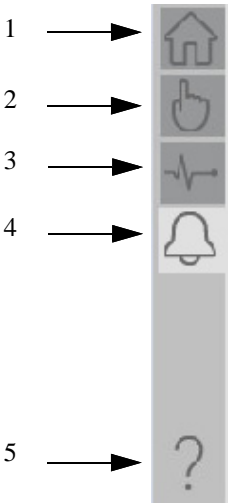



Table 38 - Tab Descriptions

Item	Description
1	Operator tab
2	Manual Control Tab
3	Diagnostics tab
4	Alarms tab
5	Help

The faceplate provides the means for operators, maintenance workers, engineers, and others to interact with the instruction instance. This interaction provides a view of the status and values of the instruction instance and an ability to manipulate it through its commands and settings.

The faceplates that are shown in this section are from FactoryTalk® View SE. Any feature that is contained in the Studio 5000 View Designer® faceplates has the same functionality as used in the FactoryTalk View SE faceplates.

 The Advanced Properties faceplates do not apply to Studio 5000 View Designer.

Operator Tab

The Faceplate initially opens to the Operator tab, sometimes called the Home tab. From here, an operator can monitor the device status and manually operate the device.

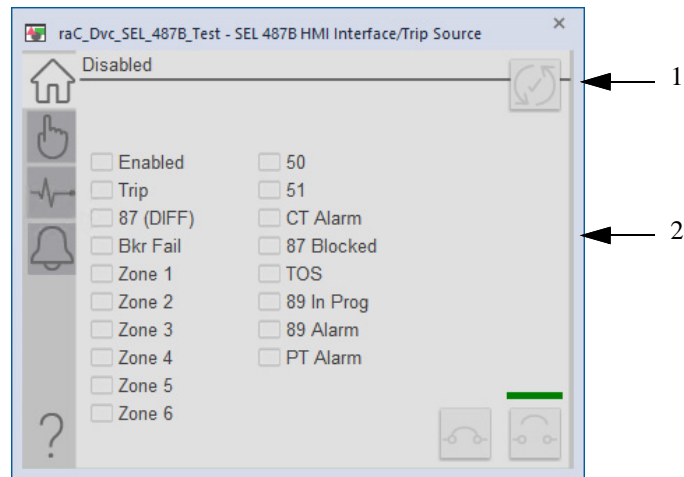
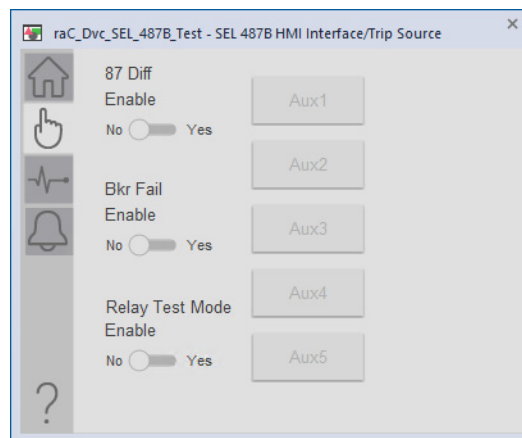


Table 39 - Operator Tab Description

Item	Description
1	Click to reset the device. The status of the device is indicated on the faceplate.
2	Status Indicators

Manual Control Tab

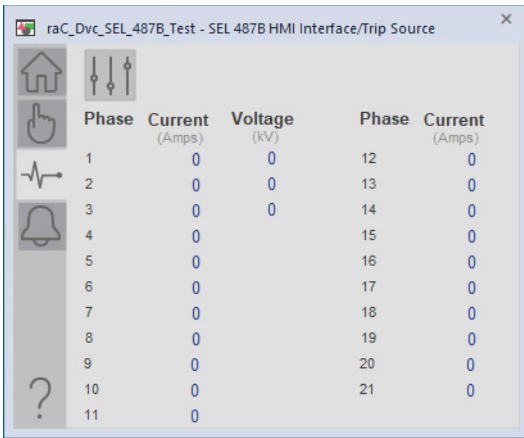


Diagnostics Tab

The diagnostics tab allows the operator to see the measurement values from the device.

Diagnostics Tab

Readout of the measurement values from the SEL-487B.



Alarms

The Alarm tab displays the trip source alarm. The icon on the tab for the alarms page has an outline that changes color to show the current active alarm status.



Advanced Properties


Click the advanced properties icon  on the diagnostics page to display the advanced properties. The following screenshot shows the tabs that are available in the advanced properties display



Table 40 - Advanced Properties Tab Descriptions

Item	Description
1	HMI Configuration
2	Faults
3	Help

HMI Configuration Tab

The HMI configuration tab provides access to displayed text, and faceplate-to-faceplate navigation settings. Configure the description, label, tag, and security area for the device.

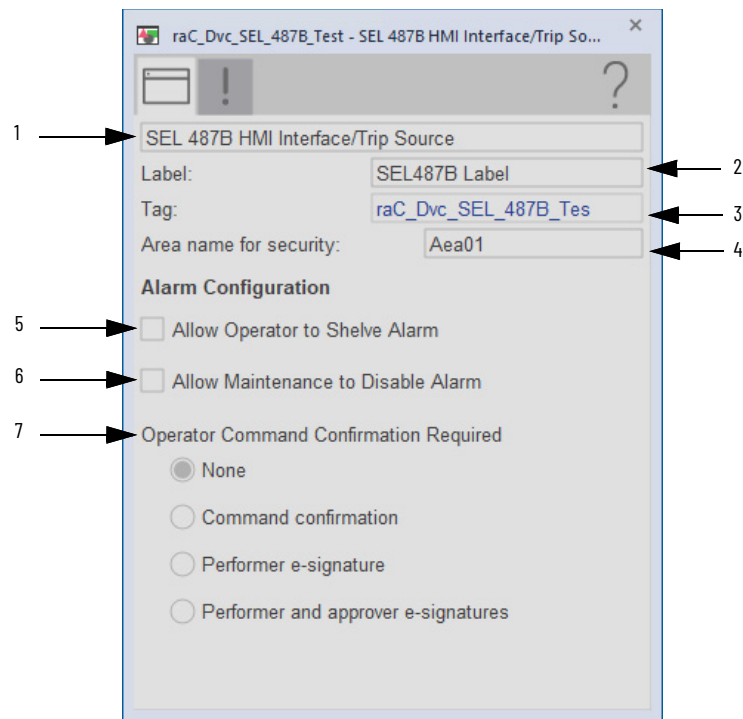
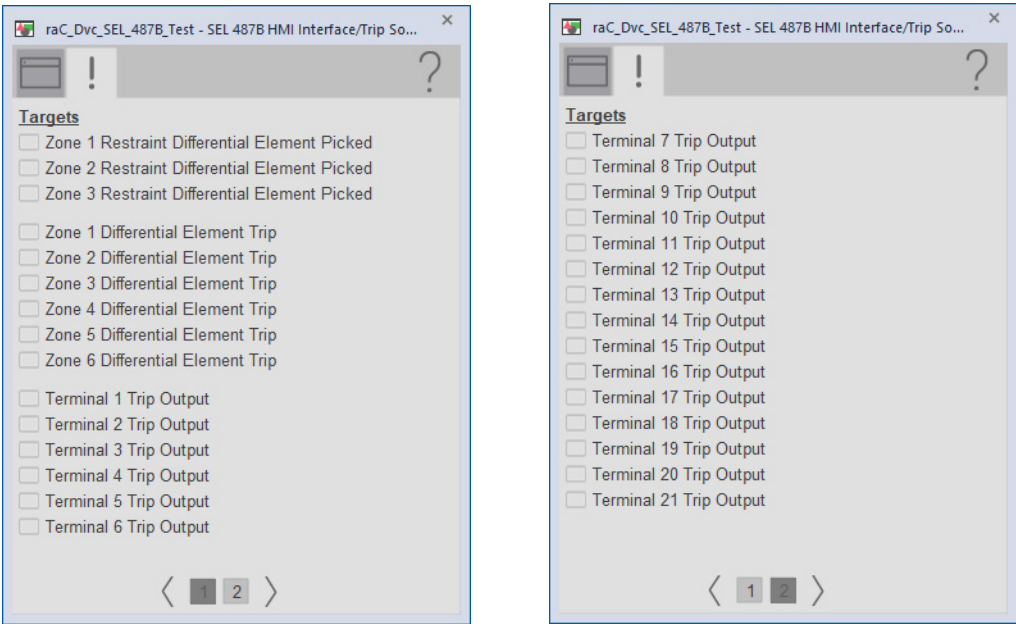


Table 41 - HMI Configuration Tab Description

Item	Action
1	Displays the device description to show on the faceplate title bar as configured for the extended tag property TripSourceA0ITag.@Description
2	The label to show on the graphic symbol as configured for the extended tag property TripSourceA0ITag.@Label.
3	The tag name to show on the faceplate and Tooltip.
4	The Area name for security based on the extended tag property TripSourceA0ITag.@Area.
5	Select to allow Operator to shelve the alarm.
6	Select to allow Maintenance to disable the alarm.
7	Select an option for Operator Command Confirmation Requirements.

Faults Tab

The faults tab shows which alarms are active from the device.



Help Button

Press the help button on the faceplates to access help for the faceplate.

The help file to launch is configurable using the URL extended tag property of the trip source Add-On Instruction tag.

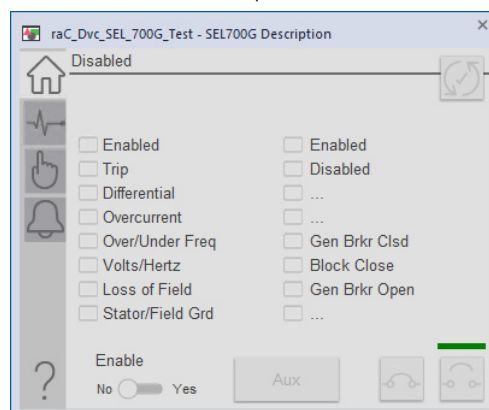
SEL 700G Object



Add-On Instruction

raC_Dvc_SEL_700G	SEL_700G
raC_Dvc_SEL_700G	SEL_700G
Out_Enable	Local0:0025.PAx700G_CON_RBGGIO1_CO_SPCSO01_Oper.ctfVal
Out_Reset	Local0:0025.PAx700G_CON_RBGGIO1_CO_SPCSO02_Oper.ctfVal
Out_Close	Local0:0025.PAx700G_CON_RBGGIO1_CO_SPCSO03_Oper.ctfVal
Out_Open	Local0:0025.PAx700G_CON_RBGGIO1_CO_SPCSO04_Oper.ctfVal
Out_Aux0	Local0:0026.PAx700G_CON_RBGGIO1_CO_SPCSO05_Oper.ctfVal
Out_Sync	Local0:0026.PAx700G_CON_RBGGIO1_CO_SPCSO06_Oper.ctfVal
Out_FreqSync	Local0:0026.PAx700G_CON_RBGGIO1_CO_SPCSO07_Oper.ctfVal
Out_Voltsync	Local0:0026.PAx700G_CON_RBGGIO1_CO_SPCSO08_Oper.ctfVal
Ref_Data	SEL_700G_Data
Ref_TargetTripText	SEL_700G_AlarmText[0]
Ref_Tgt3Ttxt	Differential
Ref_Tgt4Ttxt	OverCurrent
Ref_Tgt5Ttxt	OverUnderFreq
Ref_Tgt6Ttxt	VoltsHertz
Ref_Tgt7Ttxt	LossOfField
Ref_Tgt8Ttxt	StatorFieldGrid

Faceplate



Controller Code

Three Add-On Instructions represent each physical device. The first is generated by the ProSoft Configuration Manager. The second is a mapping Add-On Instruction that is used to map the data from the ProSoft configuration to the Trip Source (Primary HMI interface) Add-On Instruction. The third is the TripSource Add-On Instruction. The second and third are available for download from the Rockwell Automation® Intelligent Electronic Devices Toolkit from the PCDC.

InOut Structure for Trip Source Add-On Instruction

InOut parameters in [Table 42](#) are used to link the Add-On Instruction to external tags that contain necessary data for the instruction to operate. These external tags must be of the data type shown. These tags are representative of

the tags that are required for each SEL-700G relay, which is configured in your system.

Table 42 - SEL700G Relay

Name	Data Type	Description
Ref_Data	<Defined by device AOI>	Device data from the mapping Add-On Instruction, which maps the connections from the ProSoft gateway to the HMI tags.
Ref_TargetTripText	STRING	Alarm text to be displayed when active.
Ref_Tgt3Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.
Ref_Tgt4Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.
Ref_Tgt5Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.
Ref_Tgt6Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.
Ref_Tgt7Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.
Ref_Tgt8Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.

Remote Bit Control Value Structure

Remote Bit Control Value parameters are used to link the Add-On Instruction to configurable input points in the physical device. Each bit is configurable via the vendor software of each device. [Table 43](#) has recommended uses for each bit.

Table 43 - Remote Bit Control - SEL700G Relay

Name	Description
CON_RBGGI01_CO_SPCS001_Oper_ctlVal	Lock/Unlock
CON_RBGGI01_CO_SPCS002_Oper_ctlVal	Target Reset
CON_RBGGI01_CO_SPCS003_Oper_ctlVal	Breaker Close
CON_RBGGI01_CO_SPCS004_Oper_ctlVal	Breaker Open
CON_RBGGI01_CO_SPCS005_Oper_ctlVal	AUX
CON_RBGGI01_CO_SPCS006_Oper_ctlVal	Enable SYNC
CON_RBGGI01_CO_SPCS007_Oper_ctlVal	Frequency SYNC
CON_RBGGI01_CO_SPCS008_Oper_ctlVal	Voltage SYNC

IMPORTANT The bits shown in [Table 43](#) are dependent on the use of the IEC 61850 CID files and your gateway is configured as described in [Chapter 2](#). The IEC 61850 CID files are provided on the PCDC. If your application requires additional parameters, use the configuration software of the manufacturer to modify the PCDC CID files.

Mapping InOut Tags to Trip Source Add-On Instruction

Configure the SEL700G_TripSource Add-On Instruction.

1. Click the question mark next to Ref_PlantPAx700G and select the tag that was created by the ProSoft Configuration Manager for your device.
2. Click the question mark next to each Ref_Tgt#Txt and enter a string tag. These tags are intended to match the status indicators on the front panel of the device.
3. Once you type the tag name, if the tag is not already configured in the controller, you have to right-click and create a tag.
4. Click the question mark next to Ref_TargetTripText and select or create a String tag to be used for the final alarm message. The Trip Source Add-On Instruction selects from the Ref_Tgt#Txt strings based on the active trip source and copies that reference string to this target string.
5. For Output parameters, click the question mark next to each Output parameter and select the tag to be used when using RLL. For FBD, add an ORef configured with the appropriate I/O tag and connect the associated output parameter to the ORef.

raE_Dvc_SEL700G	SEL700G
raE_Dvc_SEL700G	
Out_Enable	Local:0:0025.PAx700G_CON_RBGGIO1_CO_SPCS002_Oper.ctlVal
Out_Reset	Local:0:0025.PAx700G_CON_RBGGIO1_CO_SPCS002_Oper.ctlVal
Out_Close	Local:0:0025.PAx700G_CON_RBGGIO1_CO_SPCS003_Oper.ctlVal
Out_Open	Local:0:0025.PAx700G_CON_RBGGIO1_CO_SPCS004_Oper.ctlVal
Out_Aux0	Local:0:0026.PAx700G_CON_RBGGIO1_CO_SPCS005_Oper.ctlVal
Out_Sync	Local:0:0026.PAx700G_CON_RBGGIO1_CO_SPCS006_Oper.ctlVal
Out_FreqSync	Local:0:0026.PAx700G_CON_RBGGIO1_CO_SPCS007_Oper.ctlVal
Out_VoltSync	Local:0:0026.PAx700G_CON_RBGGIO1_CO_SPCS008_Oper.ctlVal
Ref_Data	SEL700G_Data
Ref_TargetTripText	SEL700GText[0]
Ref_Tgt3Txt	Differential
Ref_Tgt4Txt	OverCurrent
Ref_Tgt5Txt	OverUnderFreq
Ref_Tgt6Txt	VoltsHertz
Ref_Tgt7Txt	LossOfField
Ref_Tgt8Txt	StatorFieldGrid

Using Visualization Files

See [Visualization Files on page 13](#) for detailed information.

Faceplates

The Operator tab is displayed when the faceplate is initially opened. Click the appropriate icon on the left of the faceplate to access a specific tab.

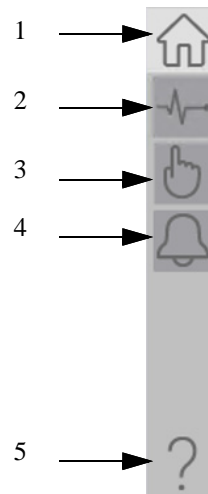


Table 44 - Tab Descriptions

Item	Description
1	Operator tab
2	Diagnostics tab
3	Auto-Sync tab
4	Alarms
5	Help

The faceplate provides the means for operators, maintenance workers, engineers, and others to interact with the instruction instance. Here, they can view the status and values of the instruction instance and manipulate it through its commands and settings.

The faceplates that are shown in this section are from FactoryTalk® View SE. Any feature that is contained in the Studio 5000 View Designer® faceplates has the same functionality as used in the FactoryTalk View SE faceplates.



The Advanced Properties faceplates do not apply to Studio 5000 View Designer.

Operator Tab

The Faceplate initially opens to the Operator tab, sometimes called the Home tab. From here, an operator can monitor the device status and manually operate the device.

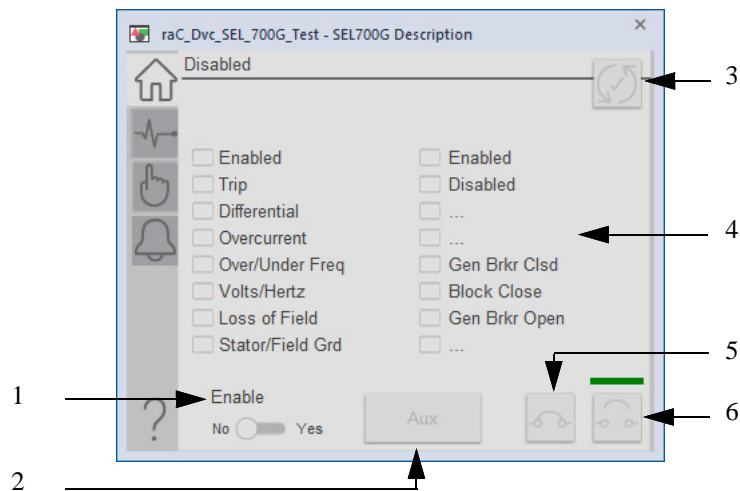


Table 45 - Operator Tab Description

Item	Description
1	Click to enable/disable the device. To issue the commands to the device, enable the device. If the device is disabled, you can only monitor data from the device.
2	Click to toggle the AUX input to the device. This input is configurable in the device vendor software. This button provides a configurable interface to provide a user-chosen command.
3	Click to reset the device. The status of the device is indicated on the faceplate.
4	Status Indicators
5	Click to close the circuit breaker.
6	Click to open the circuit breaker.

Automatic-Synchronization Tab

The Automatic-synchronization tab allows the operator to initiate and monitor the status of the device synchronization. You can select the type of synchronization, voltage, or frequency and initiate the process by clicking the Start button.

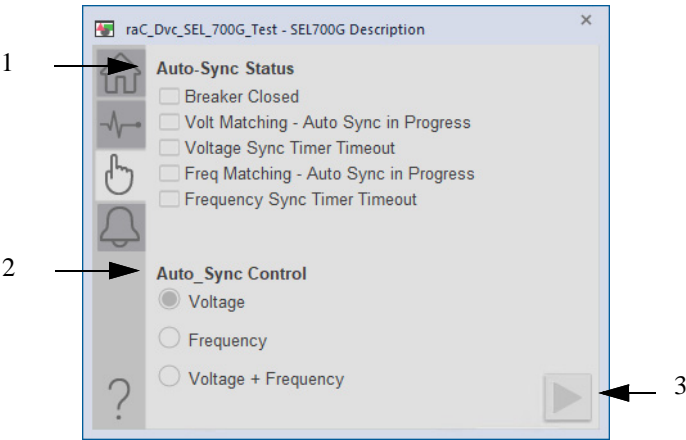


Table 46 - Auto-Sync Tab Description

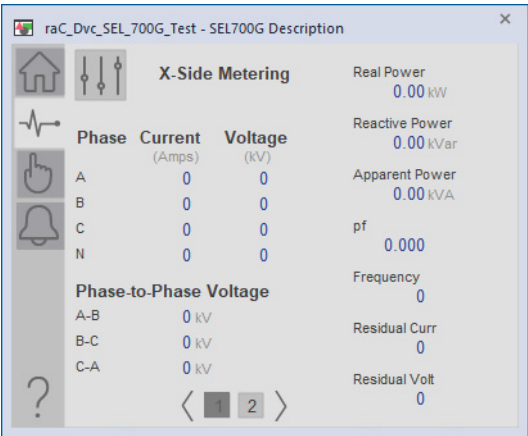
Item	Description
1	Auto-Sync Status
2	Auto-Sync control options
3	Click to initiate Auto-Sync.

Diagnostics Tab

The diagnostics tab allows the operator to see the measurement values from the physical device.

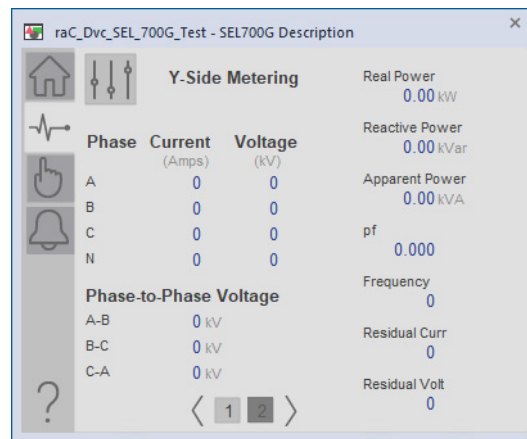
Diagnostics Page 1

Readout of the X-side measurement values from the SEL-700G. This readout displays fundamental metering data that is associated with the X-side of the generator.



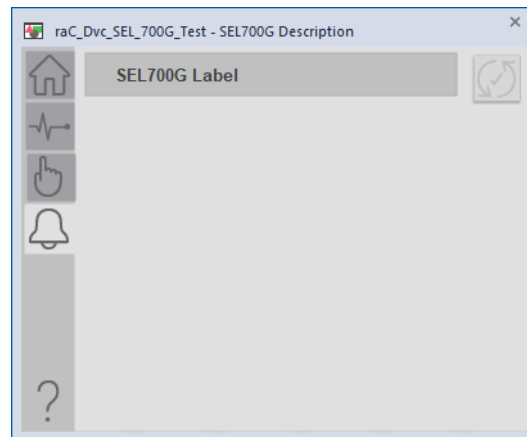
Diagnostics Page 2

Readout of the Y-side measurement values from the SEL-700G. This readout displays fundamental metering data that is associated with the Y-side of the generator.




Alarms

The Alarm tab displays the trip source alarm. The icon on the tab for the alarms page has an outline that changes color to show the current active alarm status.



Advanced Properties

Click the advanced properties icon  on the diagnostics page to display the advanced properties. The following screenshot shows the tabs that are available in the advanced properties display.

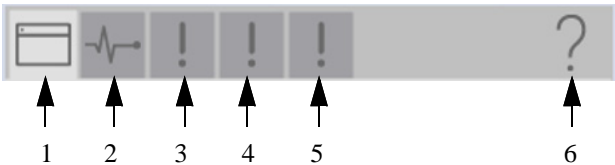


Table 47 - Advanced Properties Tab Descriptions

Item	Description
1	HMI Configuration
2	Diagnostics
3	Faults
4	X-Side Faults
5	Y-Side Faults
6	Help

HMI Configuration Tab

The HMI configuration tab provides access to displayed text, and faceplate-to-faceplate navigation settings. Configure the description, label, tag, and security area for the device.

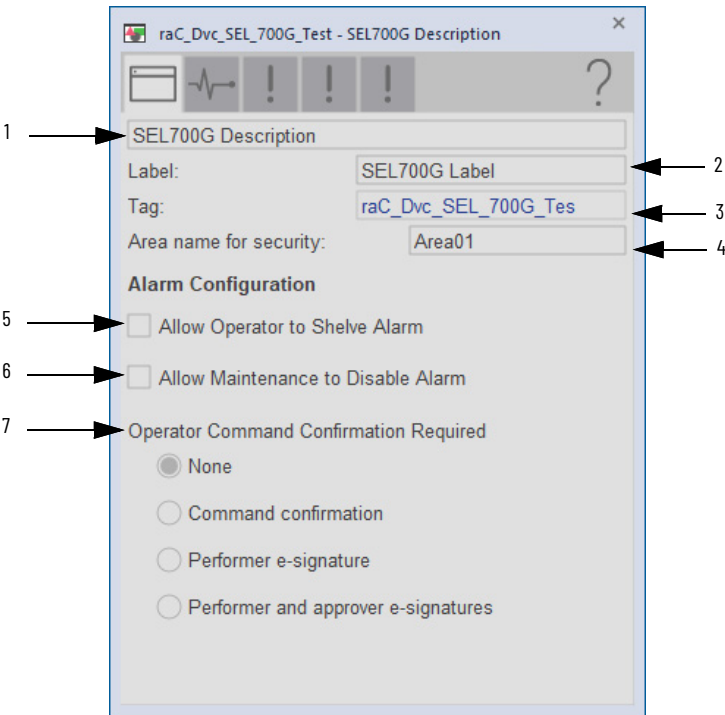
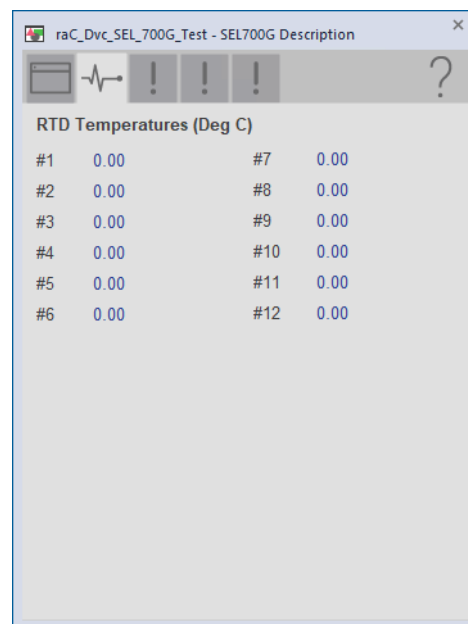


Table 48 - HMI Configuration Tab Description

Item	Action
1	Displays the device description to show on the faceplate title bar as configured for the extended tag property TripSourceA0ITag.@Description
2	The label to show on the graphic symbol as configured for the extended tag property TripSourceA0ITag.@Label.
3	The tag name to show on the faceplate and Tooltip.
4	The Area name for security based on the extended tag property TripSourceA0ITag.@Area.
5	Select to allow Operator to shelve the alarm.
6	Select to allow Maintenance to disable the alarm.
7	Select an option for Operator Command Confirmation Requirements.

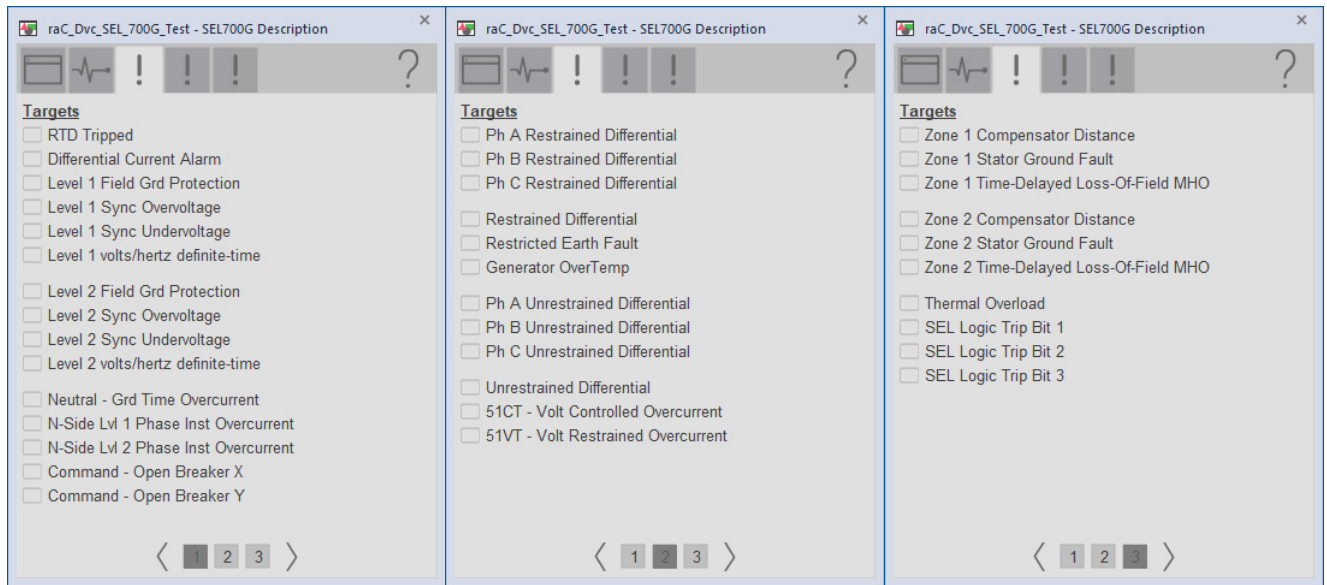
Advanced Diagnostics Tab

This tab provides a readout of the temperatures from the 12 RTD inputs that are available in the SEL-700G.

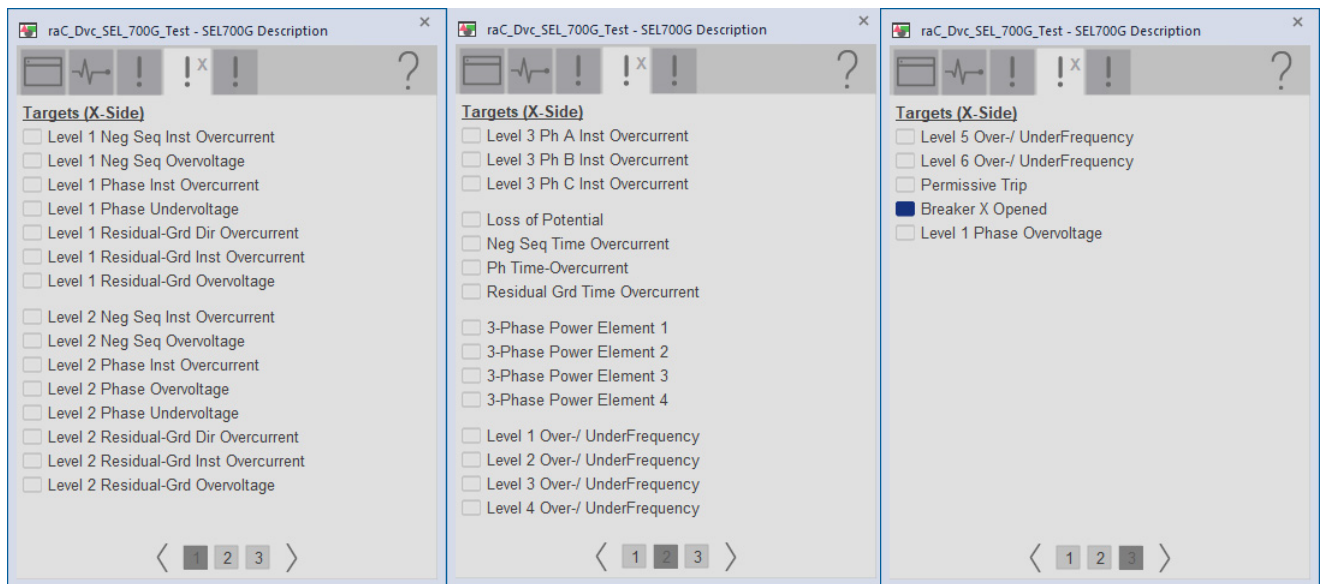


Faults Tab

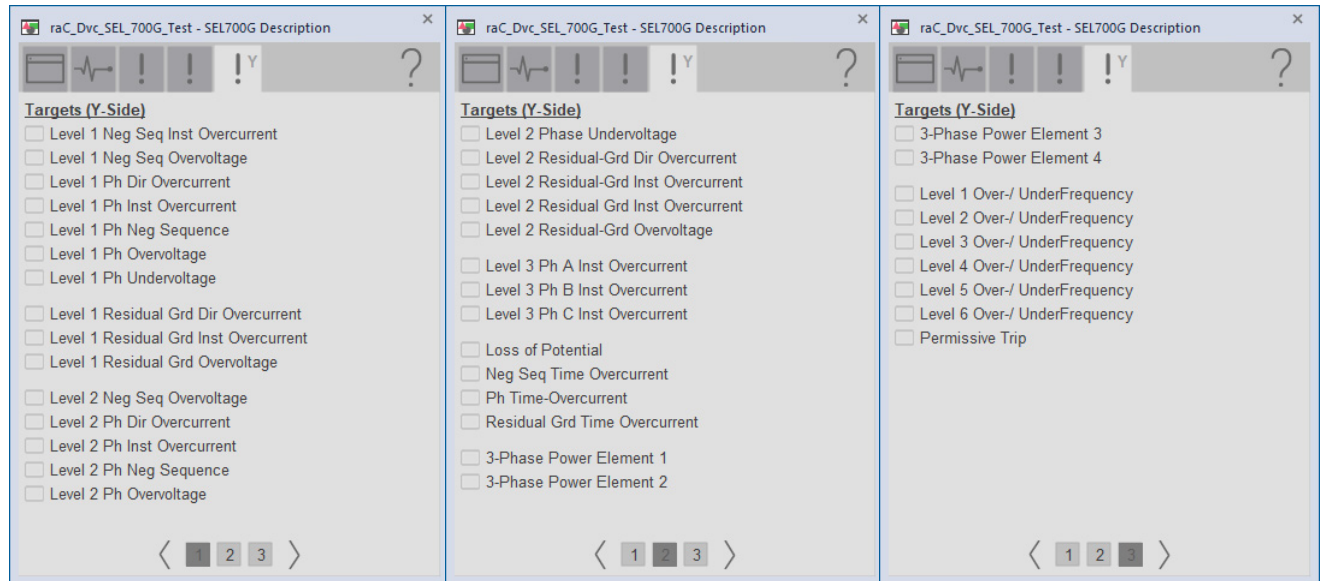
The faults tab shows which alarms are active from the physical device. The first tab shows general faults for the entire generator. There are separate tabs for the X-Side and Y-Side conditions.



X-Side Faults Tab



Y-Side Faults Tab



Help Button

Press the help button on the faceplates to access help for the faceplate.

The help file to launch is configurable using the URL extended tag property of the trip source Add-On Instruction tag.

Notes:

SEL 710 Object

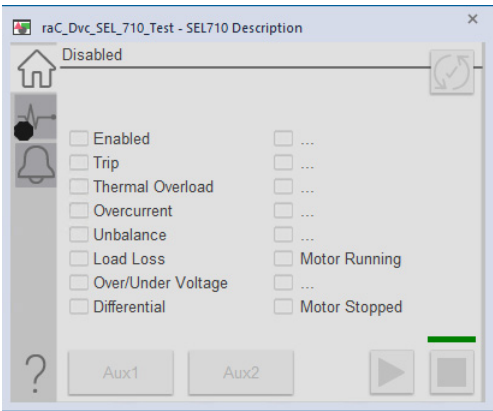
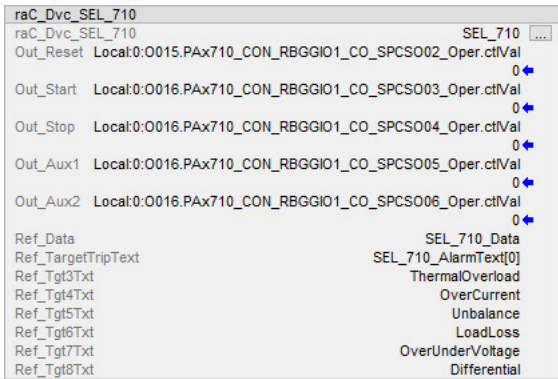


Add-On Instruction

The Schweitzer Engineering Labs 710 / 710d5 is a motor protection relay. This device helps protect rotating load assets within the system. It is equipped with a thermal model and metering data that allows a configurable starting sequence of the motor. The device also provides multiple fundamental metering data including voltage, current, frequency, power, and so on. The SEL 710d5 model version is equipped with synchronous machine protection capabilities.

The following instruction monitors one SEL710 relay. Alarms are provided when the device experiences a protection-related trip. The instruction also provides capabilities for starting and stopping the motor and two auxiliary inputs.

Faceplate



Controller Code

Three Add-On Instructions represent each physical device. The first is generated by the ProSoft Configuration Manager. The second is a mapping Add-On Instruction that is used to map the data from the ProSoft configuration to the Trip Source (Primary HMI interface) Add-On Instruction. The third is the TripSource Add-On Instruction. The second and third are available for download from the Rockwell Automation® Intelligent Electronic Devices Toolkit from the PCDC.

InOut Structure for Trip Source Add-On Instruction

InOut parameters in [Table 49](#) are used to link the Add-On Instruction to external tags that contain necessary data for the instruction to operate. These external tags must be of the data type shown. These tags are representative of

the tags that are required for each SEL-710 relay, which is configured in your system.

Table 49 - SEL710 Relay

Name	Data Type	Description
Ref_Data	<Defined by device AOI>	Device data from the mapping Add-On Instruction, which maps the connections from the ProSoft gateway to the HMI tags.
Ref_TargetTripText	STRING	Alarm text to be displayed when active.
Ref_Tgt3Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.
Ref_Tgt4Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.
Ref_Tgt5Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.
Ref_Tgt6Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.
Ref_Tgt7Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.
Ref_Tgt8Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.

Remote Bit Control Value Structure

Remote Bit Control Value parameters are used to link the Add-On Instruction to configurable input points in the physical device. Each bit is configurable via the vendor software of each device. [Table 50](#) has recommended uses for each bit.

Table 50 - Remote Bit Control - SEL710 Relay

Name	Description
CON_RBGGI01_CO_SPCS001_Oper_ctlVal	Lock/Unlock
CON_RBGGI01_CO_SPCS002_Oper_ctlVal	Target Reset
CON_RBGGI01_CO_SPCS003_Oper_ctlVal	Motor Start
CON_RBGGI01_CO_SPCS004_Oper_ctlVal	Motor Stop
CON_RBGGI01_CO_SPCS005_Oper_ctlVal	AUX1
CON_RBGGI01_CO_SPCS006_Oper_ctlVal	AUX2
CON_RBGGI01_CO_SPCS007_Oper_ctlVal	Not Used
CON_RBGGI01_CO_SPCS008_Oper_ctlVal	Not Used

Mapping InOut Tags to Trip Source Add-On Instruction

Configure the SEL710_TripSource Add-On Instruction.

1. Click the question mark next to Ref_PlantPAx710 and select the tag that was created by the ProSoft Configuration Manager for your device.
2. Click the question mark next to each Ref_Tgt#Txt and enter a string tag. These tags are intended to match the status indicators on the front panel of the device.
3. Once you type the tag name, if the tag is not already configured in the controller, you have to right-click and create a tag.
4. Click the question mark next to Ref_TargetTripText and select or create a String tag to be used for the final alarm message. The Trip Source Add-On Instruction selects from the Ref_Tgt#Txt strings based on the active trip source and copies that reference string to this target string.
5. For Output parameters, click the question mark next to each Output parameter and select the tag to be used when using RLL. For FBD, add an ORef configured with the appropriate I/O tag and connect the associated output parameter to the ORef.

raE_Dvc_SEL710	SEL710
raE_Dvc_SEL710	
Out_Reset	Local:0:0015.PAx710_CON_RBGGIO1_CO_SPCS002_Oper.ctlVal
	0
Out_Start	Local:0:0016.PAx710_CON_RBGGIO1_CO_SPCS003_Oper.ctlVal
	0
Out_Stop	Local:0:0016.PAx710_CON_RBGGIO1_CO_SPCS004_Oper.ctlVal
	0
Out_Aux1	Local:0:0016.PAx710_CON_RBGGIO1_CO_SPCS005_Oper.ctlVal
	0
Out_Aux2	Local:0:0016.PAx710_CON_RBGGIO1_CO_SPCS006_Oper.ctlVal
	0
Ref_Data	SEL710_Data
Ref_TargetTripText	SEL710Text[0]
Ref_Tgt3Txt	ThermalOverload
Ref_Tgt4Txt	OverCurrent
Ref_Tgt5Txt	Unbalance
Ref_Tgt6Txt	LoadLoss
Ref_Tgt7Txt	OverUnderVoltage
Ref_Tgt8Txt	Differential

Using Visualization Files

See [Visualization Files on page 13](#) for detailed information.

Faceplates

The Operator tab is displayed when the faceplate is initially opened. Click the appropriate icon on the left of the faceplate to access a specific tab.

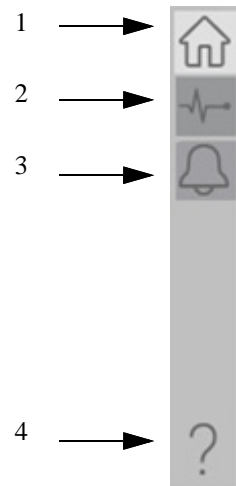



Table 51 - Tab Descriptions

Item	Description
1	Operator tab
2	Diagnostics tab
3	Alarms Tab
4	Help

The faceplate provides the means for operators, maintenance workers, engineers, and others to interact with the instruction instance. This interaction provides a view of the status and values of the instruction instance and an ability to manipulate it through its commands and settings.

The faceplates that are shown in this section are from FactoryTalk® View SE. Any feature that is contained in the Studio 5000 View Designer® faceplates has the same functionality as used in the FactoryTalk View SE faceplates.

 The Advanced Properties faceplates do not apply to Studio 5000 View Designer.

Operator Tab

The Faceplate initially opens to the Operator tab, sometimes called the Home tab. From here, an operator can monitor the device status and manually operate the device.

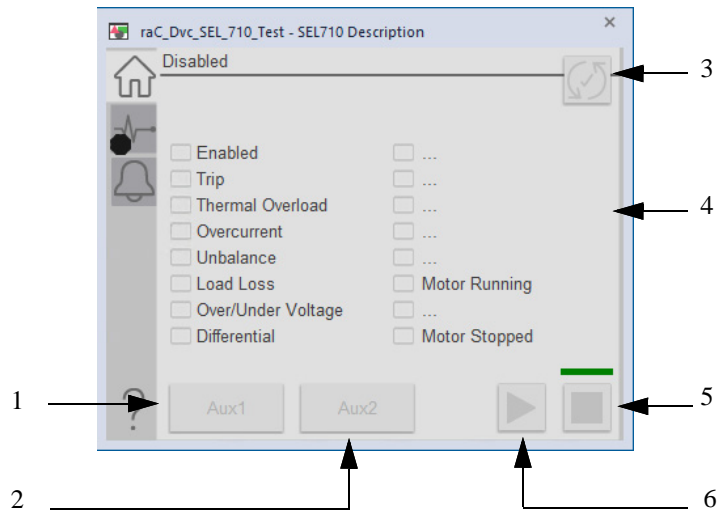


Table 52 - Operator Tab Description

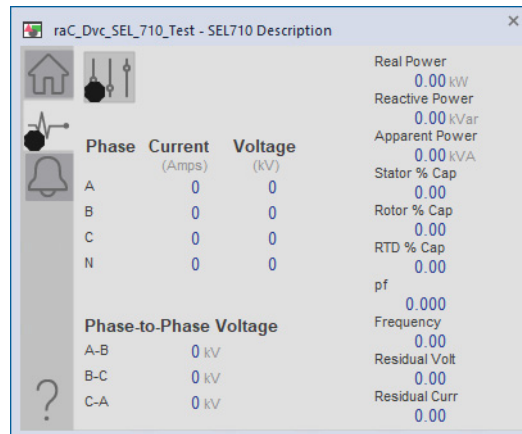
Item	Description
1	Click to toggle the AUX input to the device. This input is configurable in the device vendor software.
2	Click to toggle the AUX input to the device. This input is configurable in the device vendor software.
3	Click to reset the device. The status of the device is indicated on the faceplate.
4	Status Indicators
5	Click to stop the motor.
	Click to start the motor.

Diagnostics Tab

The diagnostics tab allows the operator to see the measurement values from the physical device.

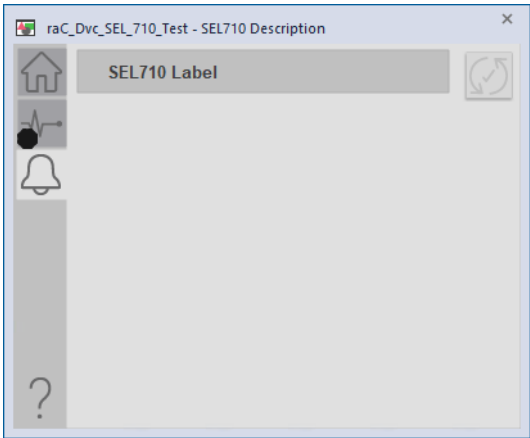
Diagnostics Tab

Readout of measurement values from the SEL-710.



Alarms

The Alarm tab displays the trip source alarm. The icon on the tab for the alarms page has an outline that changes color to show the current active alarm status.



Advanced Properties


Click the advanced properties icon  on the diagnostics page to display the advanced properties. The following screenshot shows the tabs that are available in the advanced properties display



Table 53 - Advanced Properties Tab Descriptions

Item	Description
1	HMI Configuration
2	Diagnostics
3	Faults
4	Help

HMI Configuration Tab

The HMI configuration tab provides access to displayed text, and faceplate-to-faceplate navigation settings. Configure the description, label, tag, and security area for the device.

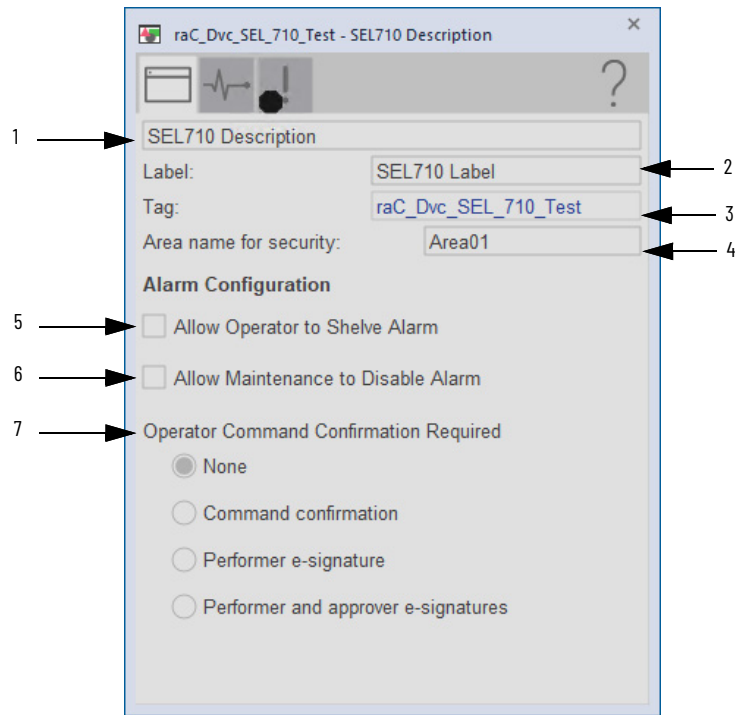
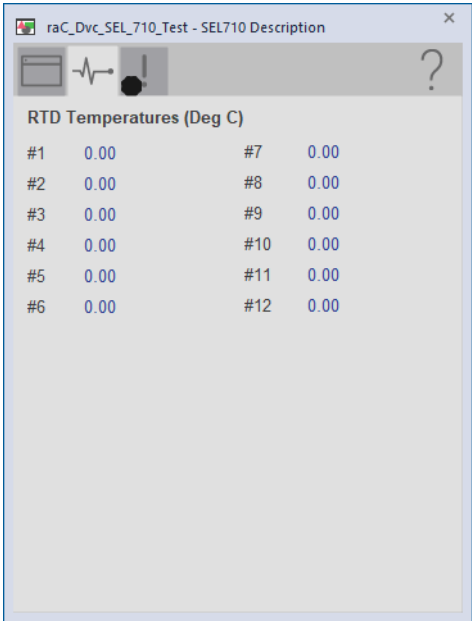


Table 54 - HMI Configuration Tab Description

Item	Action
1	Displays the device description to show on the faceplate title bar as configured for the extended tag property TripSourceA0ITag.@Description
2	The label to show on the graphic symbol as configured for the extended tag property TripSourceA0ITag.@Label.
3	The tag name to show on the faceplate and Tooltip.
4	The Area name for security based on the extended tag property TripSourceA0ITag.@Area.
5	Select to allow Operator to shelve the alarm.
6	Select to allow Maintenance to disable the alarm.
7	Select an option for Operator Command Confirmation Requirements.

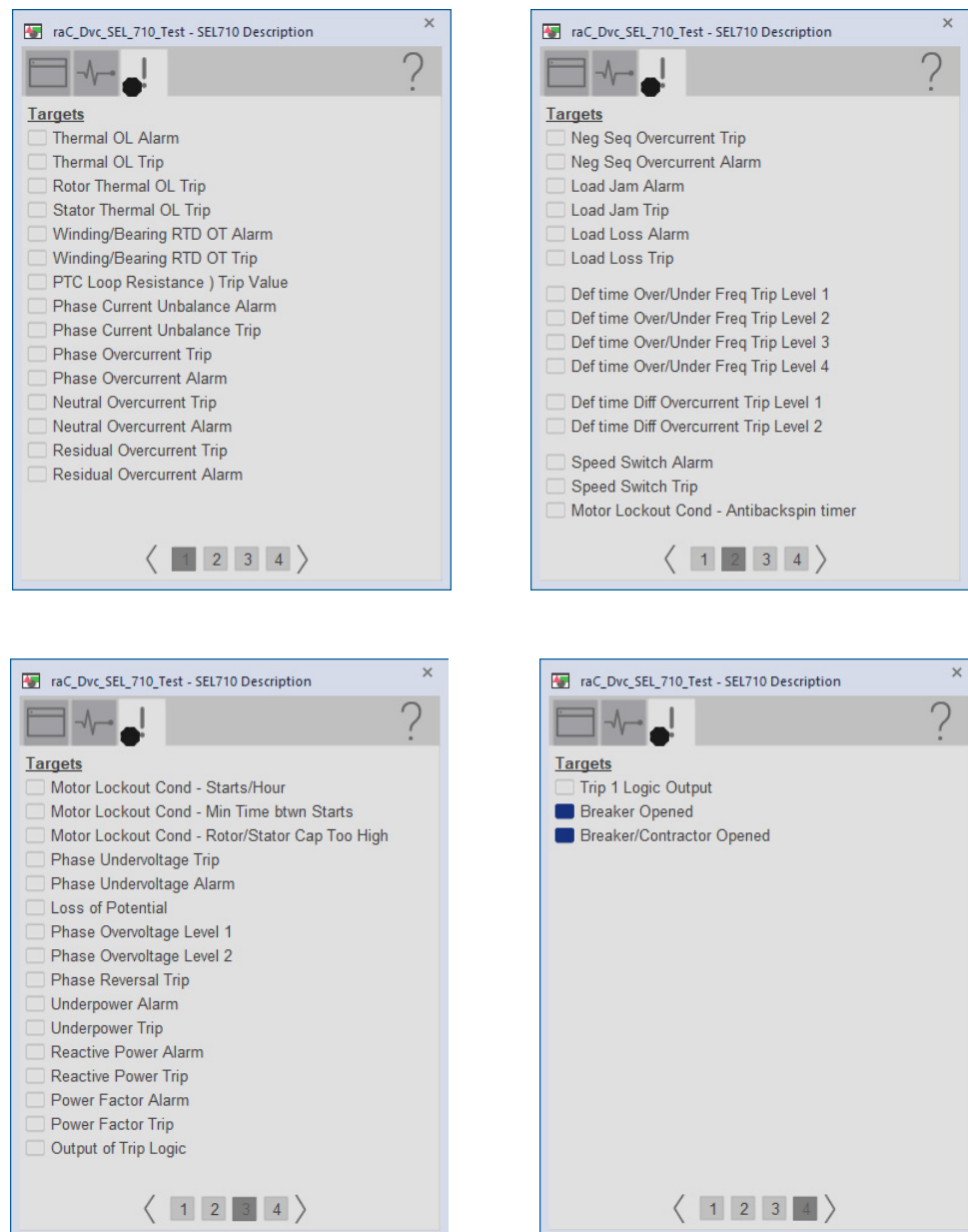
Diagnostics Tab

Readout of the temperatures from the 12 RTD inputs that are available in the SEL-710.



Faults Tab

The faults tab shows which alarms are active from the physical device.



Help Button

Press the help button on the faceplates to access help for the faceplate.

The help file to launch is configurable using the URL extended tag property of the trip source Add-On Instruction tag.

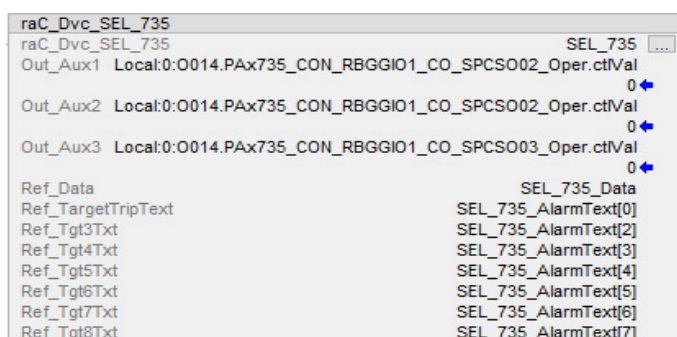
Notes:

SEL 735 Object

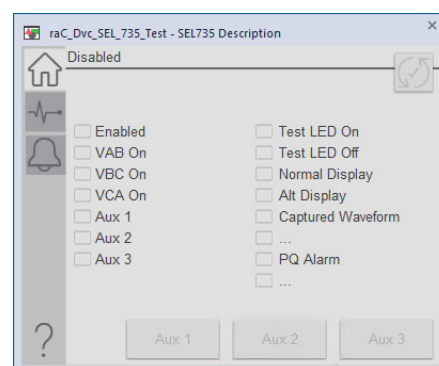
The SEL-735 Power Quality and Revenue Meter is fully Class A-compliant to the IEC 61000-4-30 power quality standard. The meter provides voltage, current, and power quality measures in an easy-to-utilize fashion.

This instruction monitors one SEL735. Alarms are provided when the device experiences a protection-related trip. The instruction also provides capabilities for locking, and to open and close the breaker.

Add-On Instruction



Faceplate



Controller Code

Three Add-On Instructions represent each physical device. The first is generated by the ProSoft Configuration Manager. The second is a mapping Add-On Instruction that is used to map the data from the ProSoft configuration to the Trip Source (Primary HMI interface) Add-On Instruction. The third is the TripSource Add-On Instruction. The second and third are available for download from the Rockwell Automation® Intelligent Electronic Devices Toolkit from the PCDC.

InOut Structure for Trip Source Add-On Instruction

InOut parameters in [Table 55](#) are used to link the Add-On Instruction to external tags that contain necessary data for the instruction to operate. These external tags must be of the data type shown. These tags are representative of the tags that are required for each SEL-735, which is configured in your system.

Table 55 - SEL735 Relay

Name	Data Type	Description
Ref_Data	<Defined by device AOI>	Device data from the mapping Add-On Instruction, which maps the connections from the ProSoft gateway to the HMI tags.
Ref_TargetTripText	STRING	Alarm text to be displayed when active.
Ref_Tgt3Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.

Table 55 - SEL735 Relay

Name	Data Type	Description
Ref_Tgt4Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.
Ref_Tgt5Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.
Ref_Tgt6Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.
Ref_Tgt7Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.
Ref_Tgt8Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.

Remote Bit Control Value Structure

Remote Bit Control Value parameters are used to link the Add-On Instruction to configurable input points in the physical device. Each bit is configurable via the vendor software of each device. [Table 56](#) has recommended uses for each bit.

Table 56 - Remote Bit Control - SEL735

Name	Description
CON_RBGGI01_CO_SPCS001_Oper_ctlVal	User Programmable
CON_RBGGI01_CO_SPCS002_Oper_ctlVal	User Programmable
CON_RBGGI01_CO_SPCS003_Oper_ctlVal	User Programmable
CON_RBGGI01_CO_SPCS004_Oper_ctlVal	User Programmable
CON_RBGGI01_CO_SPCS005_Oper_ctlVal	User Programmable
CON_RBGGI01_CO_SPCS006_Oper_ctlVal	User Programmable
CON_RBGGI01_CO_SPCS007_Oper_ctlVal	User Programmable
CON_RBGGI01_CO_SPCS008_Oper_ctlVal	User Programmable

Mapping InOut Tags to Trip Source Add-On Instruction

Configure the SEL735_TripSource Add-On Instruction.

1. Click the question mark next to Ref_PlantPAx735 and select the tag that was created by the ProSoft Configuration Manager for your device.
2. Click the question mark next to each Ref_Tgt#Txt and enter a string tag. These tags are intended to match the status indicators on the front panel of the device.
3. Once you type the tag name, if the tag is not already configured in the controller, you have to right-click and create a tag.
4. Click the question mark next to Ref_TargetTripText and select or create a String tag to be used for the final alarm message. The Trip Source Add-On Instruction selects from the Ref_Tgt#Txt strings based on the active trip source and copies that reference string to this target string.
5. For Output parameters, click the question mark next to each Output parameter and select the tag to be used when using RLL. For FBD, add an ORef configured with the appropriate I/O tag and connect the associated output parameter to the ORef.

raC_Dvc_SEL_735	
raC_Dvc_SEL_735	SEL_735
Out_Aux1	Local:0:0014.PAx735_CON_RBGGIO1_CO_SPCSO02_Oper.ctfVal
	0
Out_Aux2	Local:0:0014.PAx735_CON_RBGGIO1_CO_SPCSO02_Oper.ctfVal
	0
Out_Aux3	Local:0:0014.PAx735_CON_RBGGIO1_CO_SPCSO03_Oper.ctfVal
	0
Ref_Data	SEL_735_Data
Ref_TargetTripText	SEL_735_AlarmText[0]
Ref_Tgt3Txt	SEL_735_AlarmText[2]
Ref_Tgt4Txt	SEL_735_AlarmText[3]
Ref_Tgt5Txt	SEL_735_AlarmText[4]
Ref_Tgt6Txt	SEL_735_AlarmText[5]
Ref_Tgt7Txt	SEL_735_AlarmText[6]
Ref_Tgt8Txt	SEL_735_AlarmText[7]

Using Visualization Files

See [Visualization Files on page 13](#) for detailed information.

Faceplates

The Operator tab is displayed when the faceplate is initially opened. Click the appropriate icon on the left of the faceplate to access a specific tab.

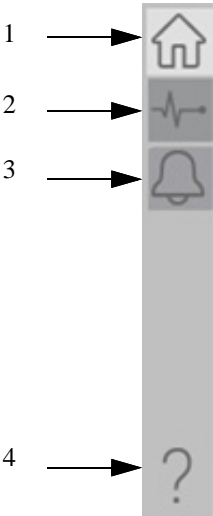


Table 57 - Tab Descriptions

Item	Description
1	Operator tab
2	Diagnostics tab
3	Alarms tab
4	Help

The faceplate provides the means for operators, maintenance workers, engineers, and others to interact with the instruction instance. This interaction provides a view of the status and values of the instruction instance and an ability to manipulate it through its commands and settings.

The faceplates that are shown in this section are from FactoryTalk® View SE. Any feature that is contained in the Studio 5000 View Designer® faceplates has the same functionality as used in the FactoryTalk View SE faceplates.



The Advanced Properties faceplates do not apply to Studio 5000 View Designer.

Operator Tab

The Faceplate initially opens to the Operator tab, sometimes called the Home tab. From here, an operator can monitor the device status and manually operate the device.

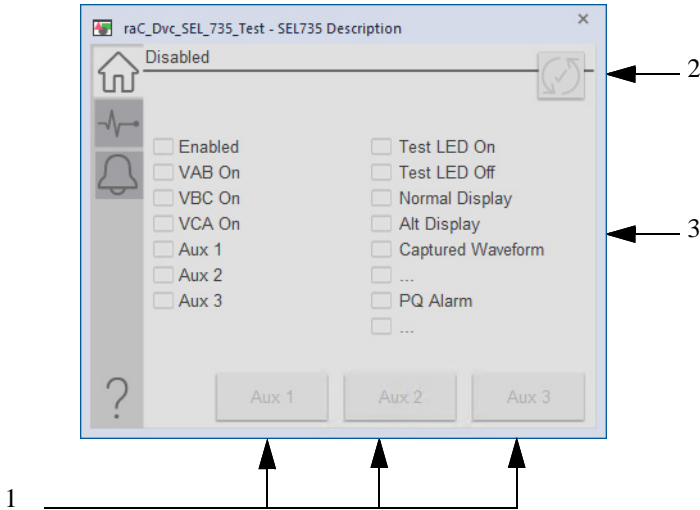


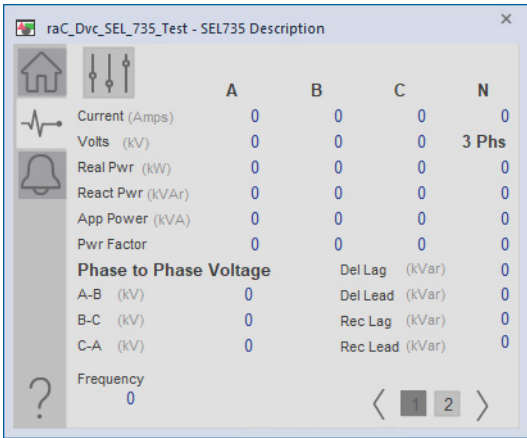
Table 58 - Operator Tab Description

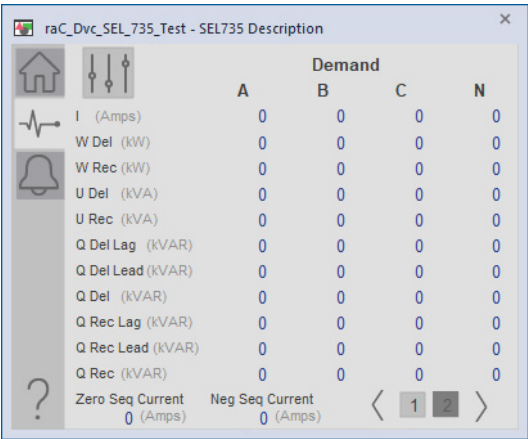
Item	Description
1	Click to toggle the AUX input to the device. This input is configurable in the device vendor software.
2	Click to reset the device. The status of the device is indicated on the faceplate.
3	Status Indicators

Diagnostics Tab

The diagnostics tabs allow the operator to see the measurement values from the physical device.

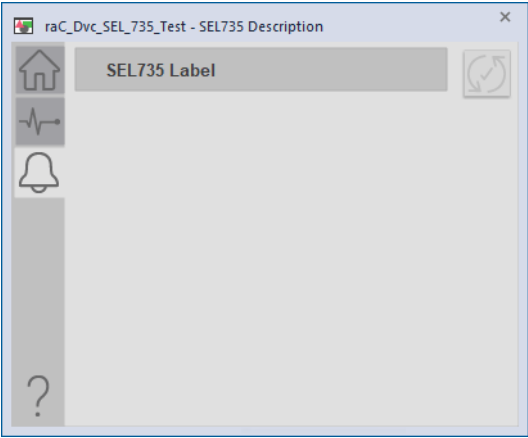
Readout of the measurement values from the SEL-735.





Alarms

The Alarm tab displays the trip source alarm. The icon on the tab for the alarms page has an outline that changes color to show the current active alarm status.



Advanced Properties


Click the advanced properties icon  on the diagnostics page to display the advanced properties. The following screenshot shows the tabs that are available in the advanced properties display



Table 59 - Advanced Properties Tab Descriptions

Item	Description
1	HMI Configuration
2	Help

HMI Configuration Tab

The HMI configuration tab provides access to displayed text, and faceplate-to-faceplate navigation settings. Configure the description, label, tag, and security area for the device.

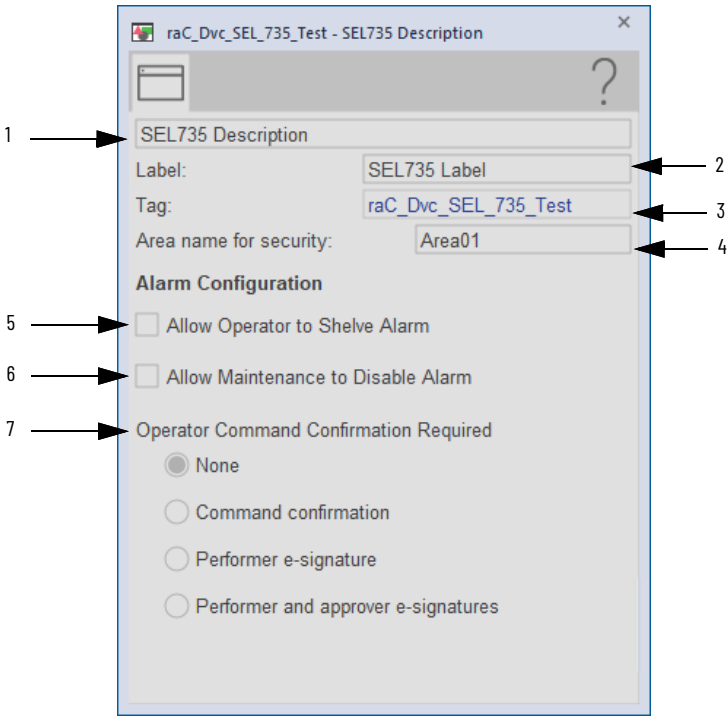


Table 60 - HMI Configuration Tab Description

Item	Action
1	Displays the device description to show on the faceplate title bar as configured for the extended tag property TripSourceAOITag.@Description
2	The label to show on the graphic symbol as configured for the extended tag property TripSourceAOITag.@Label.
3	The tag name to show on the faceplate and Tooltip.
4	The Area name for security based on the extended tag property TripSourceAOITag.@Area.
5	Select to allow Operator to shelve the alarm.
6	Select to allow Maintenance to disable the alarm.
7	Select an option for Operator Command Confirmation Requirements.

Help Button

Press the help button on the faceplates to access help for the faceplate.

The help file to launch is configurable using the URL extended tag property of the trip source Add-On Instruction tag.

Notes:

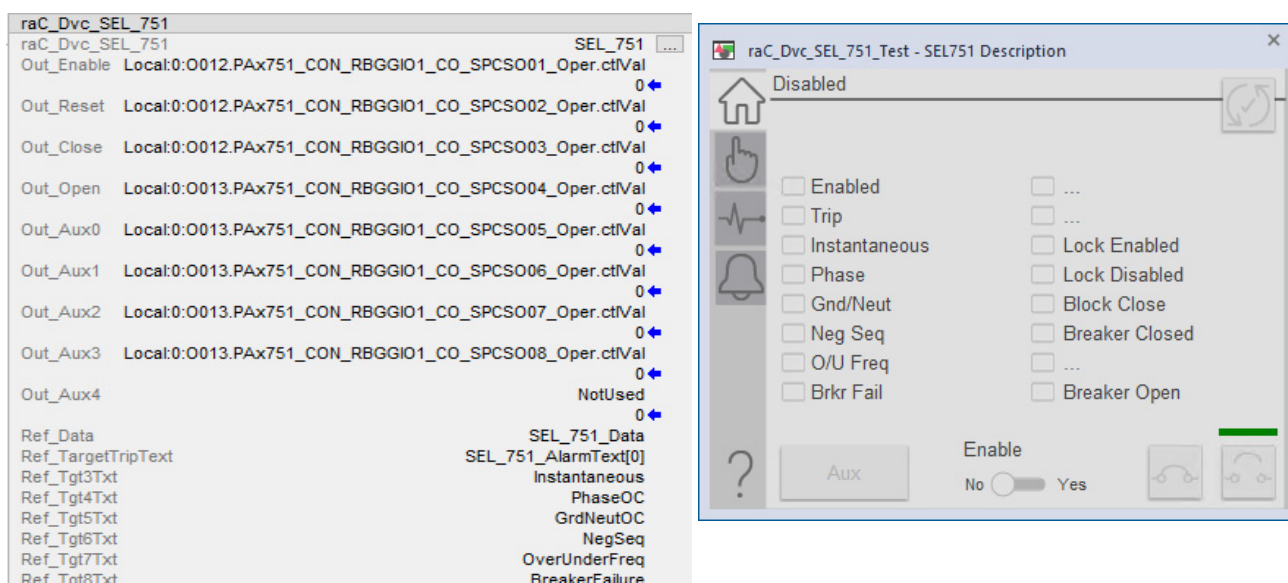
SEL 751 Object

The Schweitzer Engineering Labs 751 is a feeder protection relay. This device is used to help protect an electrical bus from conditions of over current, over voltage, under voltage, and so on. The device also provides multiple fundamental metering data including voltage, current, frequency, and power.

This instruction monitors one SEL751 relay. Alarms are provided when the device experiences a protection-related trip. The instruction also provides capabilities for locking, and to open and close the breaker.

Add-On Instruction

Faceplate



Controller Code

Three Add-On Instructions represent each physical device. The first is generated by the ProSoft Configuration Manager. The second is a mapping Add-On Instruction that is used to map the data from the ProSoft configuration to the Trip Source (Primary HMI interface) Add-On Instruction. The third is the TripSource Add-On Instruction. The second and third are available for download from the Rockwell Automation® Intelligent Electronic Devices Toolkit from the PCDC.

InOut Structure for Trip Source Add-On Instruction

InOut parameters in [Table 61](#) are used to link the Add-On Instruction to external tags that contain necessary data for the instruction to operate. These external tags must be of the data type shown. These tags are representative of

the tags that are required for each SEL-751 relay, which is configured in your system.

Table 61 - SEL751 Relay

Name	Data Type	Description
Ref_Data	<Defined by device AOI>	Device data from the mapping Add-On Instruction, which maps the connections from the ProSoft gateway to the HMI tags.
Ref_TargetTripText	STRING	Alarm text to be displayed when active.
Ref_Tgt3Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.
Ref_Tgt4Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.
Ref_Tgt5Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.
Ref_Tgt6Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.
Ref_Tgt7Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.
Ref_Tgt8Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.

Remote Bit Control Value Structure

Remote Bit Control Value parameters are used to link the Add-On Instruction to configurable input points in the physical device. Each bit is configurable via the vendor software of each device. [Table 62](#) has recommended uses for each bit.

Table 62 - Remote Bit Control - SEL751 Relay

Name	Description
CON_RBGGI01_CO_SPCS001_Oper_ctlVal	Lock/Unlock
CON_RBGGI01_CO_SPCS002_Oper_ctlVal	Target Reset
CON_RBGGI01_CO_SPCS003_Oper_ctlVal	Breaker Close
CON_RBGGI01_CO_SPCS004_Oper_ctlVal	Breaker Open
CON_RBGGI01_CO_SPCS005_Oper_ctlVal	AUX
CON_RBGGI01_CO_SPCS006_Oper_ctlVal	User Programmable
CON_RBGGI01_CO_SPCS007_Oper_ctlVal	User Programmable
CON_RBGGI01_CO_SPCS008_Oper_ctlVal	User Programmable

Mapping InOut Tags to Trip Source Add-On Instruction

Configure the SEL751_TripSource Add-On Instruction.

1. Click the question mark next to Ref_PlantPAx751 and select the tag that was created by the ProSoft Configuration Manager for your device.
2. Click the question mark next to each Ref_Tgt#Txt and enter a string tag. These tags are intended to match the status indicators on the front panel of the device.
3. Once you type the tag name, if the tag is not already configured in the controller, you have to right-click and create a tag.
4. Click the question mark next to Ref_TargetTripText and select or create a String tag to be used for the final alarm message. The Trip Source Add-On Instruction selects from the Ref_Tgt#Txt strings based on the active trip source and copies that reference string to this target string.
5. For Output parameters, click the question mark next to each Output parameter and select the tag to be used when using RLL. For FBD, add an ORef configured with the appropriate I/O tag and connect the associated output parameter to the ORef.

raC_Dvc_SEL_751	
raC_Dvc_SEL_751	SEL_751
Out_Enable	Local:0:0012.PAx751_CON_RBGGIO1_CO_SPCSO01_Oper.ctfVal
Out_Reset	Local:0:0012.PAx751_CON_RBGGIO1_CO_SPCSO02_Oper.ctfVal
Out_Close	Local:0:0012.PAx751_CON_RBGGIO1_CO_SPCSO03_Oper.ctfVal
Out_Open	Local:0:0013.PAx751_CON_RBGGIO1_CO_SPCSO04_Oper.ctfVal
Out_Aux0	Local:0:0013.PAx751_CON_RBGGIO1_CO_SPCSO05_Oper.ctfVal
Out_Aux1	Local:0:0013.PAx751_CON_RBGGIO1_CO_SPCSO06_Oper.ctfVal
Out_Aux2	Local:0:0013.PAx751_CON_RBGGIO1_CO_SPCSO07_Oper.ctfVal
Out_Aux3	Local:0:0013.PAx751_CON_RBGGIO1_CO_SPCSO08_Oper.ctfVal
Out_Aux4	NotUsed
Ref_Data	SEL_751_Data
Ref_TargetTripText	SEL_751_AlarmText[0]
Ref_Tgt3Txt	Instantaneous
Ref_Tgt4Txt	PhaseOC
Ref_Tgt5Txt	GrdNeutOC
Ref_Tgt6Txt	NegSeq
Ref_Tgt7Txt	OverUnderFreq
Ref_Tgt8Txt	BreakerFailure

Using Visualization Files

See [Visualization Files on page 13](#) for detailed information.

Faceplates

The Operator tab is displayed when the faceplate is initially opened. Click the appropriate icon on the left of the faceplate to access a specific tab.

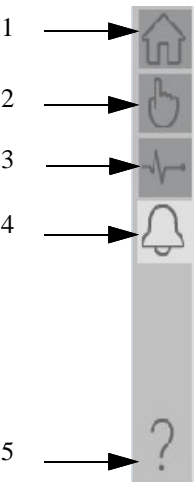



Table 63 - Tab Descriptions

Item	Description
1	Operator tab
2	Manual Control Tab
3	Diagnostics tab
4	Alarms tab
5	Help

The faceplate provides the means for operators, maintenance workers, engineers, and others to interact with the instruction instance. This interaction provides a view of the status and values of the instruction instance and an ability to manipulate it through its commands and settings.

The faceplates that are shown in this section are from FactoryTalk® View SE. Any feature that is contained in the Studio 5000 View Designer® faceplates has the same functionality as used in the FactoryTalk View SE faceplates.

 The Advanced Properties faceplates do not apply to Studio 5000 View Designer.

Operator Tab

The Faceplate initially opens to the Operator tab, sometimes called the Home tab. From here, an operator can monitor the device status and manually operate the device.

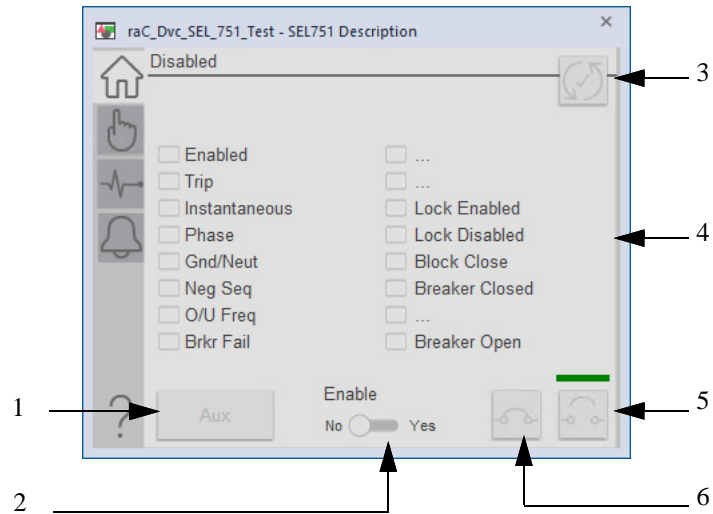
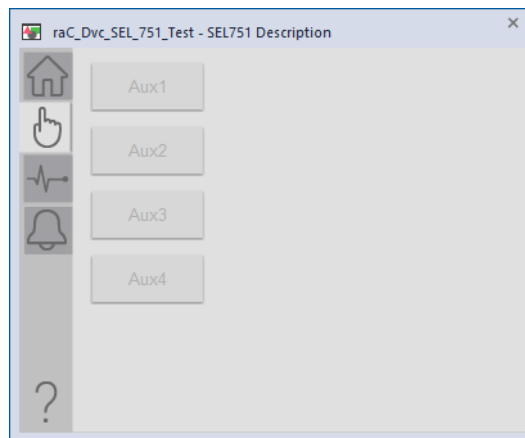


Table 64 - Operator Tab Description

Item	Description
1	Click to toggle the AUX input to the device. This input is configurable in the device vendor software.
2	Click to enable/disable the device. To issue the commands to the device, enable the device. If the device is disabled, you can only monitor data from the device.
3	Click to reset the device. The status of the device is indicated on the faceplate.
4	Status Indicators
5	Click to open the circuit breaker.
6	Click to close the circuit breaker.

Manual Control Tab

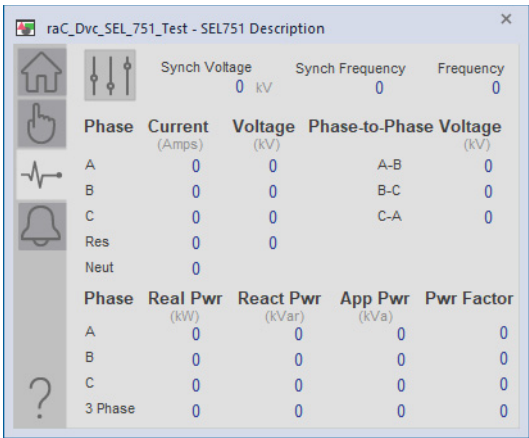


Diagnostics Tab

The diagnostics tab allows the operator to see the measurement values from the physical device.

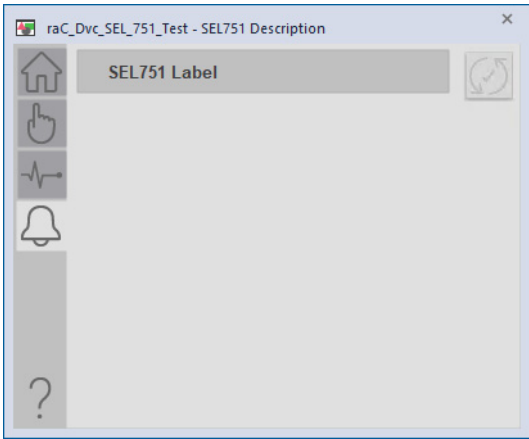
Diagnostics Tab

Readout of the measurement values from the SEL-751.



Alarms

The Alarm tab displays the trip source alarm. The icon on the tab for the alarms page has an outline that changes color to show the current active alarm status.



Advanced Properties


Click the advanced properties icon  on the diagnostics page to display the advanced properties. The following screenshot shows the tabs that are available in the advanced properties display



Table 65 - Advanced Properties Tab Descriptions

Item	Description
1	HMI Configuration
2	Diagnostics
3	Faults
4	Help

HMI Configuration Tab

The HMI configuration tab provides access to displayed text, and faceplate-to-faceplate navigation settings. Configure the description, label, tag, and security area for the device.

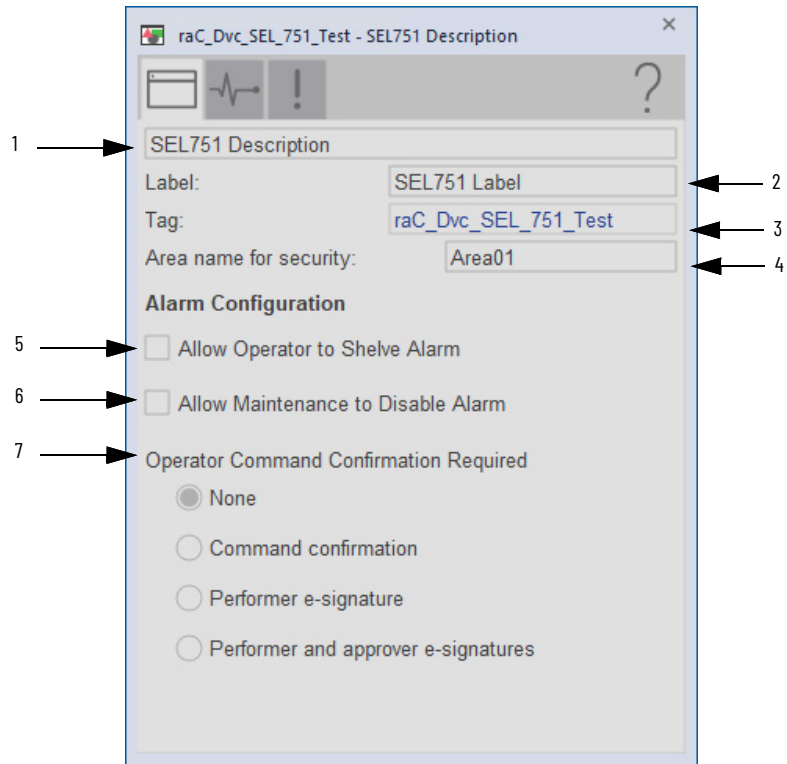
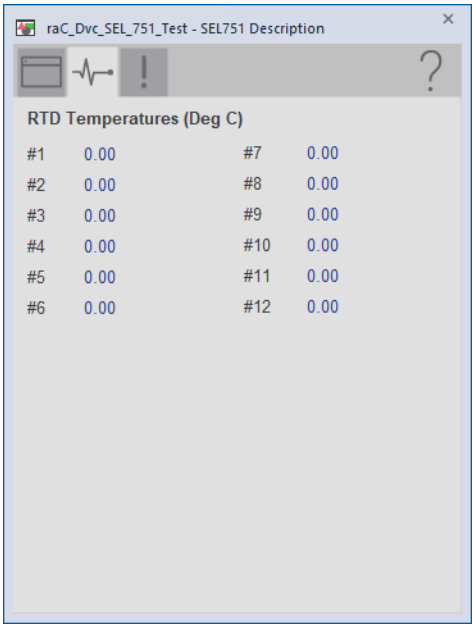


Table 66 - HMI Configuration Tab Description

Item	Action
1	Displays the device description to show on the faceplate title bar as configured for the extended tag property TripSourceA0ITag.@Description
2	The label to show on the graphic symbol as configured for the extended tag property TripSourceA0ITag.@Label.
3	The tag name to show on the faceplate and Tooltip.
4	The Area name for security based on the extended tag property TripSourceA0ITag.@Area.
5	Select to allow Operator to shelve the alarm.
6	Select to allow Maintenance to disable the alarm.
7	Select an option for Operator Command Confirmation Requirements.

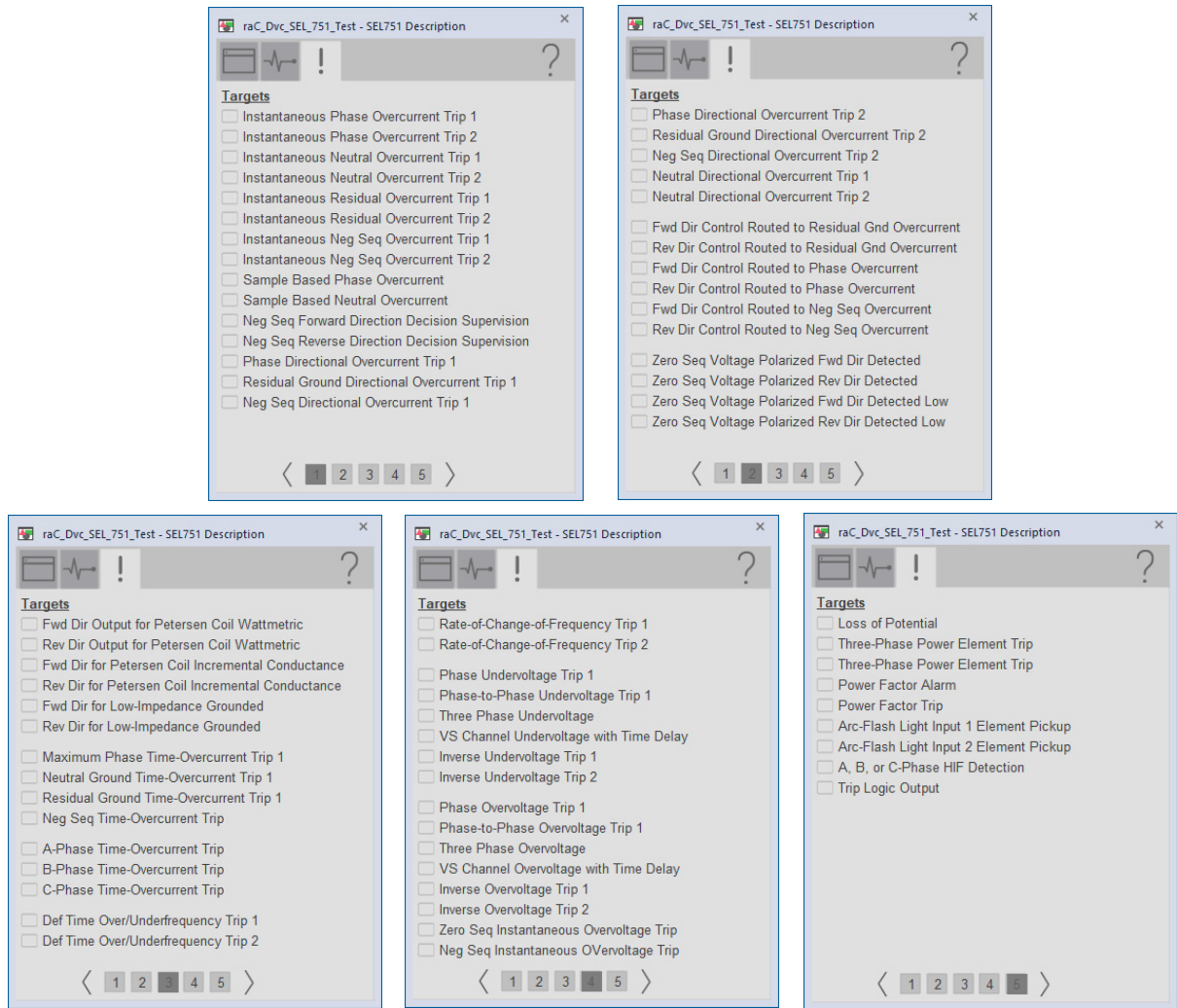
Advanced Diagnostics Tab

Readout of the temperatures from the 12 RTD inputs that are available in the SEL-751.



Faults Tab

The Faults tab shows which alarms are active from the physical device.



Help Button

Press the help button on the faceplates to access help for the faceplate.

The help file to launch is configurable using the URL extended tag property of the trip source Add-On Instruction tag.

Notes:

SEL 751A Object



The Schweitzer Engineering Labs 751A is a feeder protection relay with arc flash protection. This device is used to help protect an electrical bus from conditions of over current, over voltage, under voltage, and so on. The device also provides multiple fundamental metering data including voltage, current, frequency, and power. When retrofitted with RTD capability, the SEL 751A can also provide various temperature measurements at locations on the electrical bus.

This instruction monitors one SEL751A relay. Alarms are provided when the device experiences a protection-related trip. The instruction also provides capabilities for locking, and to open and close the breaker.

Add-On Instruction

raC_Dvc_SEL_751A		SEL_751A
raC_Dvc_SEL_751A	Locat0:0010.PAx751A_CON_RBGGIO1_CO_SPCSO01_Oper.ctfVal	0
Out_Reset	Locat0:0011.PAx751A_CON_RBGGIO1_CO_SPCSO02_Oper.ctfVal	0
Out_Close	Locat0:0011.PAx751A_CON_RBGGIO1_CO_SPCSO03_Oper.ctfVal	0
Out_Open	Locat0:0011.PAx751A_CON_RBGGIO1_CO_SPCSO04_Oper.ctfVal	0
Out_Aux1	Locat0:0011.PAx751A_CON_RBGGIO1_CO_SPCSO05_Oper.ctfVal	0
Ref_Data	SEL_751A_Data	
Ref_TargetTripText	SEL_751A_AlarmText[0]	
Ref_Tgt3Txt	Instantaneous	
Ref_Tgt4Txt	PhaseOC	
Ref_Tgt5Txt	GrdNeutOC	
Ref_Tgt6Txt	NegSeq	
Ref_Tgt7Txt	OverUnderFreq	
Ref_Tgt8Txt	BreakerFailure	

Faceplate

raC_Dvc_SEL_751A_Test - SEL751A Description

Disabled

Enabled

Trip

Instantaneous

Phase Overcurrent

Gnd/Neu Overcurrent

Neg Seq Overcurrent

Over/Under Freq

Breaker Failure

...

Enabled

Disabled

Block Close

Breaker Closed

...

Breaker Open

Aux

Enable

No

Yes

Controller Code

Three Add-On Instructions represent each physical device. The first is generated by the ProSoft Configuration Manager. The second is a mapping Add-On Instruction that is used to map the data from the ProSoft configuration to the Trip Source (Primary HMI interface) Add-On Instruction. The third is the TripSource Add-On Instruction. The second and third are available for download from the Rockwell Automation® Intelligent Electronic Devices Toolkit from the PCDC.

InOut Structure for Trip Source Add-On Instruction

InOut parameters in [Table 67](#) are used to link the Add-On Instruction to external tags that contain necessary data for the instruction to operate. These external tags must be of the data type shown. These tags are representative of

the tags that are required for each SEL-751A relay, which is configured in your system.

Table 67 - SEL751A Relay

Name	Data Type	Description
Ref_Data	<Defined by device AOI>	Device data from the mapping Add-On Instruction, which maps the connections from the ProSoft gateway to the HMI tags.
Ref_TargetTripText	STRING	Alarm text to be displayed when active.
Ref_Tgt3Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.
Ref_Tgt4Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.
Ref_Tgt5Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.
Ref_Tgt6Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.
Ref_Tgt7Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.
Ref_Tgt8Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.

Remote Bit Control Value Structure

Remote Bit Control Value parameters are used to link the Add-On Instruction to configurable input points in the physical device. Each bit is configurable via the vendor software of each device. [Table 68](#) has recommended uses for each bit.

Table 68 - Remote Bit Control - SEL751A Relay

Name	Description
CON_RBGGI01_CO_SPCS001_Oper_ctlVal	Lock/Unlock
CON_RBGGI01_CO_SPCS002_Oper_ctlVal	Target Reset
CON_RBGGI01_CO_SPCS003_Oper_ctlVal	Breaker Close
CON_RBGGI01_CO_SPCS004_Oper_ctlVal	Breaker Open
CON_RBGGI01_CO_SPCS005_Oper_ctlVal	AUX
CON_RBGGI01_CO_SPCS006_Oper_ctlVal	User Programmable
CON_RBGGI01_CO_SPCS007_Oper_ctlVal	User Programmable
CON_RBGGI01_CO_SPCS008_Oper_ctlVal	User Programmable

Mapping InOut Tags to Trip Source Add-On Instruction

Configure the SEL751A_TripSource Add-On Instruction.

1. Click the question mark next to Ref_PlantPAx751A and select the tag that was created by the ProSoft Configuration Manager for your device.
2. Click the question mark next to each Ref_Tgt#Txt and enter a string tag. These tags are intended to match the status indicators on the front panel of the device.
3. Once you type the tag name, if the tag is not already configured in the controller, you have to right-click and create a tag.
4. Click the question mark next to Ref_TargetTripText and select or create a String tag to be used for the final alarm message. The Trip Source Add-On Instruction selects from the Ref_Tgt#Txt strings based on the active trip source and copies that reference string to this target string.
5. For Output parameters, click the question mark next to each Output parameter and select the tag to be used when using RLL. For FBD, add an ORef configured with the appropriate I/O tag and connect the associated output parameter to the ORef.

raE_Dvc_SEL751A	SEL751A
raE_Dvc_SEL751A	...
Out_Enable	Local:0:0010.PAx751A_CON_RBGGIO1_CO_SPCS001_Oper.ctfVal
	0*
Out_Reset	Local:0:0011.PAx751A_CON_RBGGIO1_CO_SPCS002_Oper.ctfVal
	0*
Out_Close	Local:0:0011.PAx751A_CON_RBGGIO1_CO_SPCS003_Oper.ctfVal
	0*
Out_Open	Local:0:0011.PAx751A_CON_RBGGIO1_CO_SPCS004_Oper.ctfVal
	0*
Out_Aux1	Local:0:0011.PAx751A_CON_RBGGIO1_CO_SPCS005_Oper.ctfVal
	0*
Ref_Data	SEL751A_Data
Ref_TargetTripText	SEL751AText[0]
Ref_Tgt3Txt	Instantaneous
Ref_Tgt4Txt	PhaseOC
Ref_Tgt5Txt	GrdNeutOC
Ref_Tgt6Txt	NegSeq
Ref_Tgt7Txt	OverUnderFreq
Ref_Tgt8Txt	BreakerFailure

Using Visualization Files

See [Visualization Files on page 13](#) for detailed information.

Faceplates

The Operator tab is displayed when the faceplate is initially opened. Click the appropriate icon on the left of the faceplate to access a specific tab.

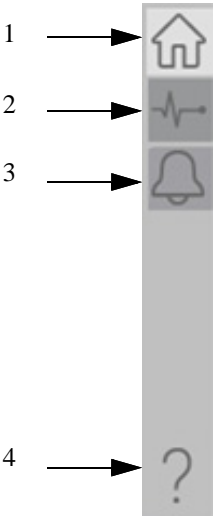


Table 69 - Tab Descriptions

Item	Description
1	Operator tab
2	Diagnostics tab
3	Alarms tab
4	Help

The faceplate provides the means for operators, maintenance workers, engineers, and others to interact with the instruction instance. This interaction provides a view of the status and values of the instruction instance and an ability to manipulate it through its commands and settings.

The faceplates that are shown in this section are from FactoryTalk® View SE. Any feature that is contained in the Studio 5000 View Designer® faceplates has the same functionality as used in the FactoryTalk View SE faceplates.



The Advanced Properties faceplates do not apply to Studio 5000 View Designer.

Operator Tab

The Faceplate initially opens to the Operator tab, sometimes called the Home tab. From here, an operator can monitor the device status and manually operate the device.

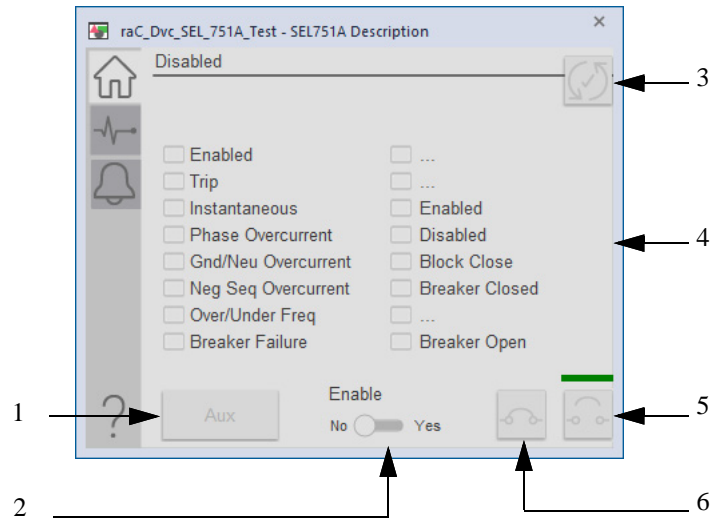


Table 70 - Operator Tab Description

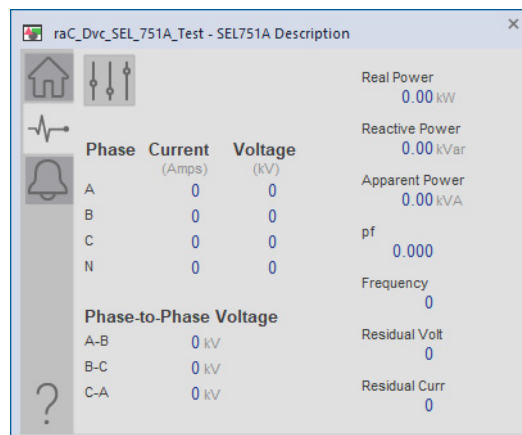
Item	Description
1	Click to toggle the AUX input to the device. This input is configurable in the device vendor software.
2	Click to enable/disable the device. To issue the commands to the device, enable the device. If the device is disabled, you can only monitor data from the device.
3	Click to reset the device. The status of the device is indicated on the faceplate.
4	Status Indicators
5	Click to open the circuit breaker.
6	Click to close the circuit breaker.

Diagnostics Tab

The diagnostics tab allows the operator to see the measurement values from the physical device.

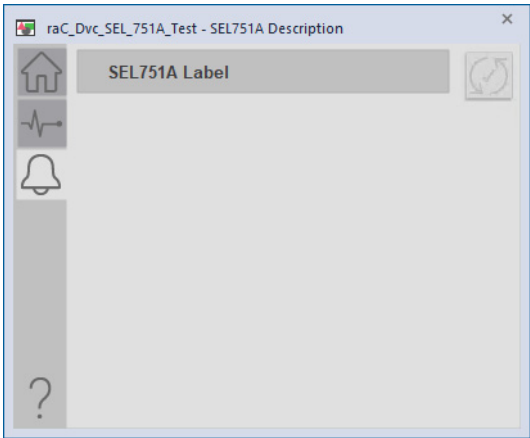
Diagnostics Tab

Readout of the measurement values from the SEL-751A.



Alarms

The Alarm tab displays the trip source alarm. The icon on the tab for the alarms page has an outline that changes color to show the current active alarm status.



Advanced Properties


Click the advanced properties icon  on the diagnostics page to display the advanced properties. The following screenshot shows the tabs that are available in the advanced properties display



Table 71 - Advanced Properties Tab Descriptions

Table 72 -

Item	Description
1	HMI Configuration
2	Diagnostics
3	Faults
4	Help

HMI Configuration Tab

The HMI configuration tab provides access to displayed text, and faceplate-to-faceplate navigation settings. Configure the description, label, tag, and security area for the device.

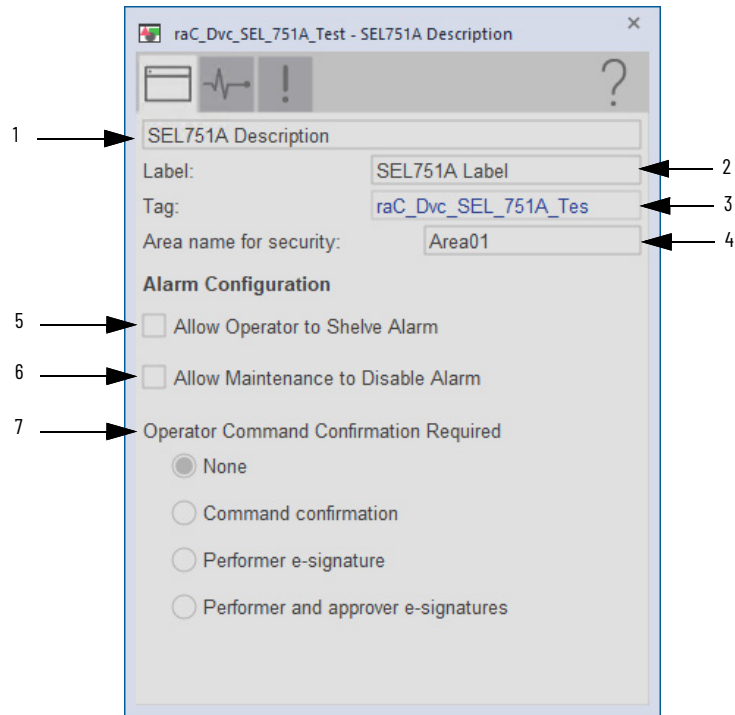
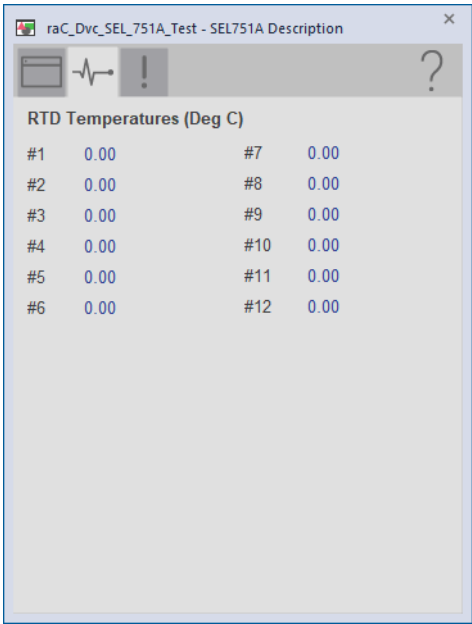


Table 73 - HMI Configuration Tab Description

Item	Action
1	Displays the device description to show on the faceplate title bar as configured for the extended tag property TripSourceA01Tag.@Description
2	The label to show on the graphic symbol as configured for the extended tag property TripSourceA01Tag.@Label.
3	The tag name to show on the faceplate and Tooltip.
4	The Area name for security based on the extended tag property TripSourceA01Tag.@Area.
5	Select to allow Operator to shelve the alarm.
6	Select to allow Maintenance to disable the alarm.
7	Select an option for Operator Command Confirmation Requirements.

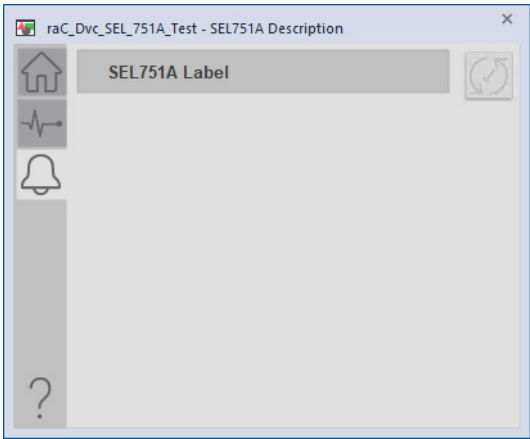
Diagnostics Tab

Readout of the temperatures from the 12 RTD inputs that are available in the SEL-751A.



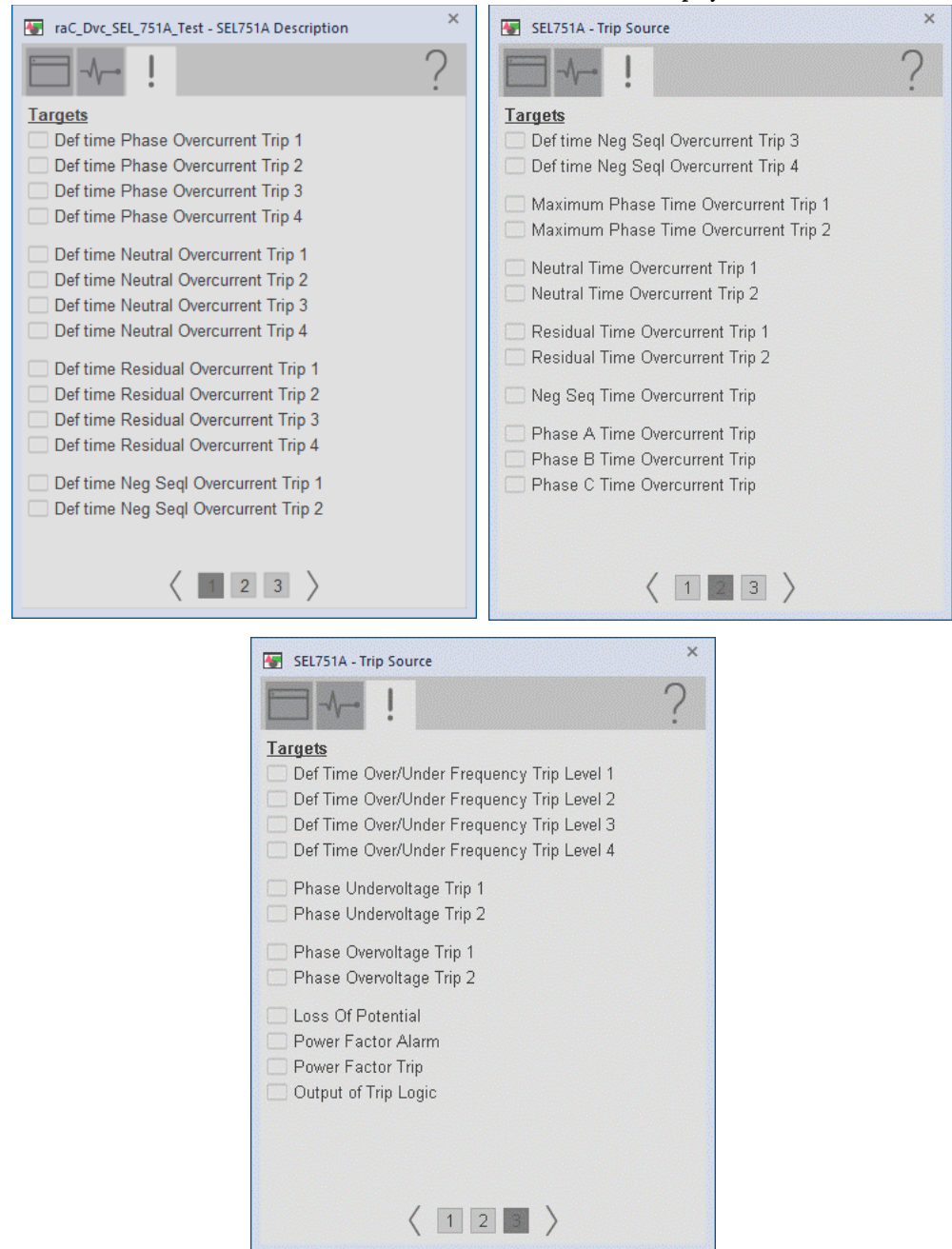
Alarms

The Alarm tab displays the trip source alarm. The icon on the tab for the alarms page has an outline that changes color to show the current active alarm status.



Faults Tab

The Faults tab shows which alarms are active from the physical device.



Help Button

Press the help button on the faceplates to access help for the faceplate.

The help file to launch is configurable using the URL extended tag property of the trip source Add-On Instruction tag.

Notes:

SEL 787 Object



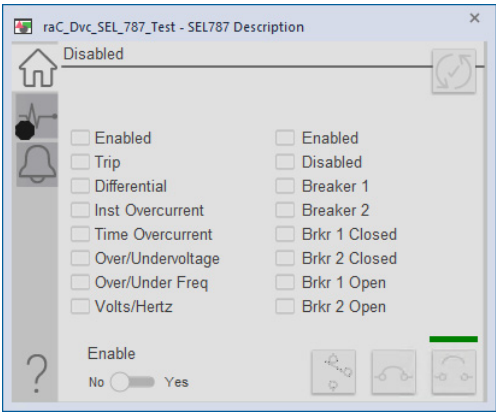
The Schweitzer Engineering Labs 787 is a transformer protection relay. This device provides comprehensive transformer protection for a three-winding transformer. This device is able to provide indications of differential faults, winding overcurrent, over/under frequency, and more. The device also provides multiple fundamental metering data including voltage, current, frequency, power, and so on.

This instruction monitors one SEL787 relay. Alarms are provided when the device experiences a protection-related trip. The instruction also provides capabilities for locking, and to open and close the breaker. It is also possible to switch between the two available breakers.

Add-On Instruction



Faceplate



Controller Code

Three Add-On Instructions represent each physical device. The first is generated by the ProSoft Configuration Manager. The second is a mapping Add-On Instruction that is used to map the data from the ProSoft configuration to the Trip Source (Primary HMI interface) Add-On Instruction. The third is the TripSource Add-On Instruction. The second and third are available for download from the Rockwell Automation® Intelligent Electronic Devices Toolkit from the PCDC.

InOut Structure for Trip Source Add-On Instruction

InOut parameters in [Table 74](#) are used to link the Add-On Instruction to external tags that contain necessary data for the instruction to operate. These

external tags must be of the data type shown. These tags are representative of the tags that are required for each SEL-787 relay, which is configured in your system.

Table 74 - SEL787 Relay

Name	Data Type	Description
Ref_Data	<Defined by device AOI>	Device data from the mapping Add-On Instruction, which maps the connections from the ProSoft gateway to the HMI tags.
Ref_TargetTripText	STRING	Alarm text to be displayed when active.
Ref_Tgt3Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.
Ref_Tgt4Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.
Ref_Tgt5Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.
Ref_Tgt6Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.
Ref_Tgt7Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.
Ref_Tgt8Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.

Remote Bit Control Value Structure

Remote Bit Control Value parameters are used to link the Add-On Instruction to configurable input points in the physical device. Each bit is configurable via the vendor software of each device. The following table has recommended uses for each bit.

Name	Description
CON_RBGGI01_CO_SPCS001_Oper_ctlVal	Lock/Unlock
CON_RBGGI01_CO_SPCS002_Oper_ctlVal	Target Reset
CON_RBGGI01_CO_SPCS003_Oper_ctlVal	Breaker Close
CON_RBGGI01_CO_SPCS004_Oper_ctlVal	Breaker Open
CON_RBGGI01_CO_SPCS005_Oper_ctlVal	Breaker Select
CON_RBGGI01_CO_SPCS006_Oper_ctlVal	User Programmable
CON_RBGGI01_CO_SPCS007_Oper_ctlVal	User Programmable
CON_RBGGI01_CO_SPCS008_Oper_ctlVal	User Programmable

Mapping InOut Tags to Trip Source Add-On Instruction

Configure the SEL787_TripSource Add-On Instruction.

1. Click the question mark next to Ref_PlantPAx787 and select the tag that was created by the ProSoft Configuration Manager for your device.
2. Click the question mark next to each Ref_Tgt#Txt and enter a string tag. These tags are intended to match the status indicators on the front panel of the device.
3. Once you type the tag name, if the tag is not already configured in the controller, you have to right-click and create a tag.
4. Click the question mark next to Ref_TargetTripText and select or create a String tag to be used for the final alarm message. The Trip Source Add-On Instruction selects from the Ref_Tgt#Txt strings based on the active trip source and copies that reference string to this target string.
5. For Output parameters, click the question mark next to each Output parameter and select the tag to be used when using RLL. For FBD, add an ORef configured with the appropriate I/O tag and connect the associated output parameter to the ORef.

raC_Dvc_SEL_787	
raC_Dvc_SEL_787	SEL_787
Out_Enable	Local:0:0009.PAx787_CON_RBGGIO1_CO_SPCSO01_Oper.ctfVal
Out_Reset	Local:0:0009.PAx787_CON_RBGGIO1_CO_SPCSO02_Oper.ctfVal
Out_Close	Local:0:0009.PAx787_CON_RBGGIO1_CO_SPCSO03_Oper.ctfVal
Out_Open	Local:0:0009.PAx787_CON_RBGGIO1_CO_SPCSO04_Oper.ctfVal
Out_Select	Local:0:0010.PAx787_CON_RBGGIO1_CO_SPCSO05_Oper.ctfVal
Ref_Data	SEL_787_Data
Ref_TargetTripText	SEL_787_AlarmText[0]
Ref_Tgt3Txt	Differential
Ref_Tgt4Txt	Instantaneous
Ref_Tgt5Txt	Time
Ref_Tgt6Txt	OverUnderVoltage
Ref_Tgt7Txt	OverUnderFreq
Ref_Tgt8Txt	VoltsHertz

Using Visualization Files

See [Visualization Files on page 13](#) for detailed information.

Faceplates

The Operator tab is displayed when the faceplate is initially opened. Click the appropriate icon on the left of the faceplate to access a specific tab.

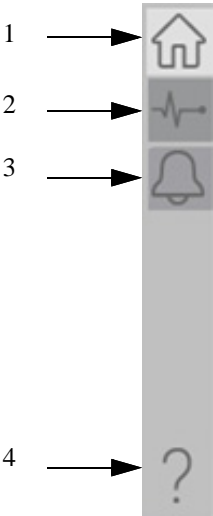


Table 75 - Tab Descriptions

Item	Description
1	Operator tab
2	Diagnostics tab
3	Alarms tab
4	Help

The faceplate provides the means for operators, maintenance workers, engineers, and others to interact with the instruction instance. This interaction provides a view of the status and values of the instruction instance and an ability to manipulate it through its commands and settings.

The faceplates that are shown in this section are from FactoryTalk® View SE. Any feature that is contained in the Studio 5000 View Designer® faceplates has the same functionality as used in the FactoryTalk View SE faceplates.



The Advanced Properties faceplates do not apply to Studio 5000 View Designer.

Operator Tab

The Faceplate initially opens to the Operator tab, sometimes called the Home tab. From here, an operator can monitor the device status and manually operate the device.

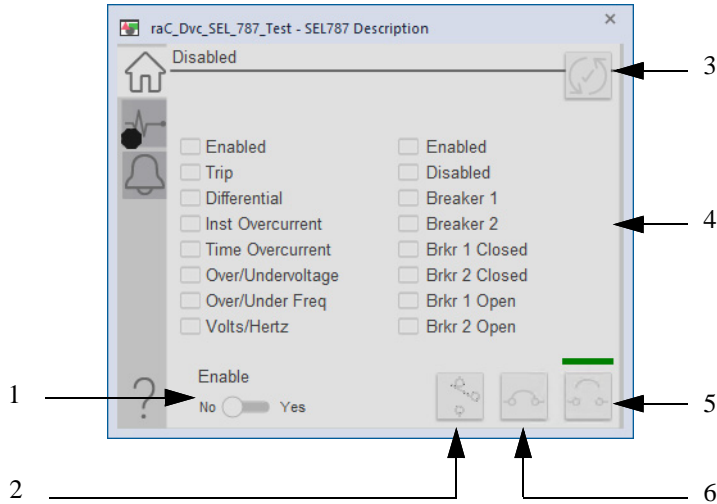


Table 76 - Operator Tab Description

Item	Description
1	Click to enable/disable the device. To issue the commands to the device, enable the device. If the device is disabled, you can only monitor data from the device.
2	Click to toggle control between breaker 1 and breaker 2.
3	Click to reset the device. The status of the device is indicated on the faceplate.
4	Status Indicators
5	Click to open the circuit breaker.
6	Click to close the circuit breaker.

Diagnostics Tab

The diagnostics tab allows the operator to see the measurement values from the device.

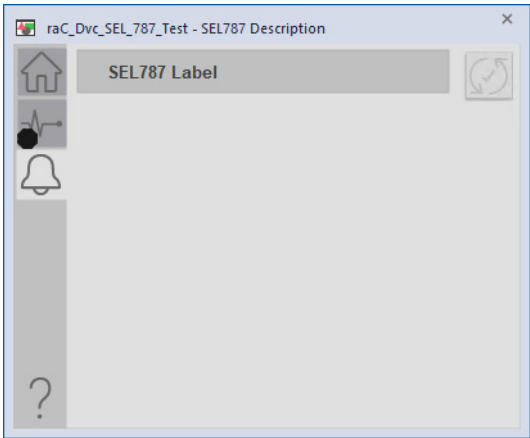
Diagnostics Tab

Readout of the measurement values from the SEL-787.



Alarms

The Alarm tab displays the trip source alarm. The icon on the tab for the alarms page has an outline that changes color to show the current active alarm status.



Advanced Properties


Click the advanced properties icon  on the diagnostics page to display the advanced properties. The following screenshot shows the tabs that are available in the advanced properties display



Table 77 - Advanced Properties Tab Descriptions

Item	Description
1	HMI Configuration
2	Diagnostics
3	Faults
4	Help

HMI Configuration Tab

The HMI configuration tab provides access to displayed text, and faceplate-to-faceplate navigation settings. Configure the description, label, tag, and security area for the device.

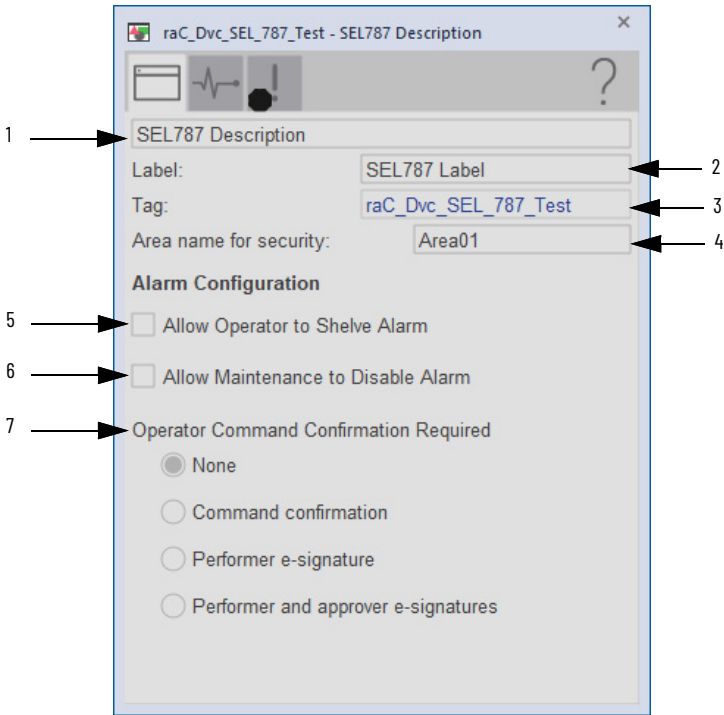
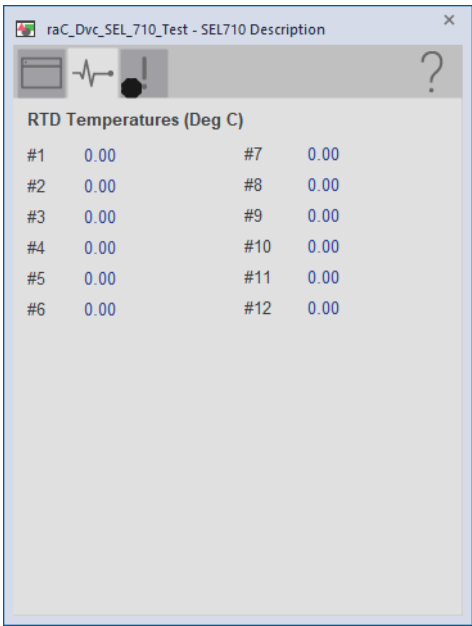


Table 78 - HMI Configuration Tab Description

Item	Action
1	Displays the device description to show on the faceplate title bar as configured for the extended tag property TripSourceA01Tag.@Description
2	The label to show on the graphic symbol as configured for the extended tag property TripSourceA01Tag.@Label.
3	The tag name to show on the faceplate and Tooltip.
4	The Area name for security based on the extended tag property TripSourceA01Tag.@Area.
5	Select to allow Operator to shelve the alarm.
6	Select to allow Maintenance to disable the alarm.
7	Select an option for Operator Command Confirmation Requirements.

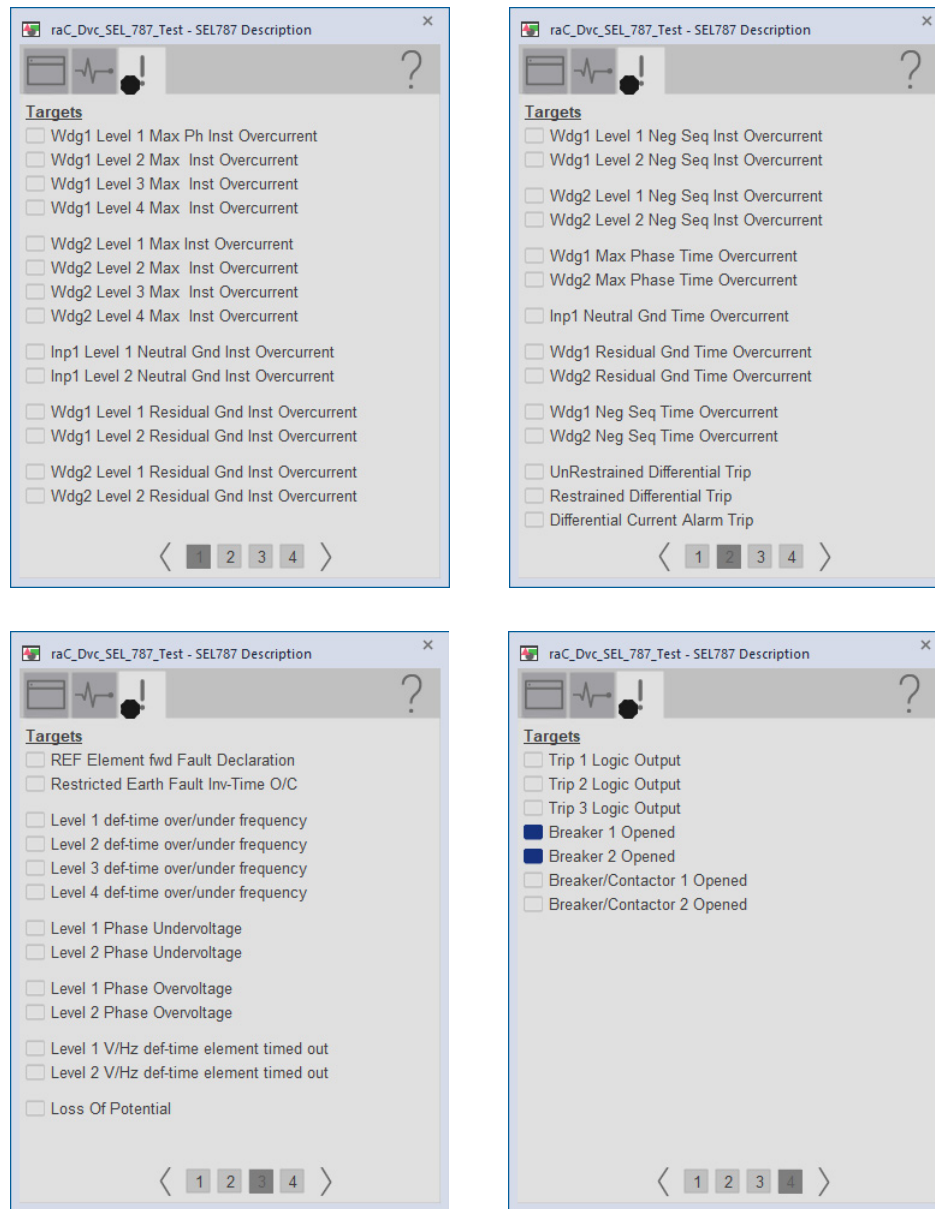
Diagnostics Tab

Readout of the 12 RTD inputs that are available in the SEL-787.



Faults Tab

The faults tab shows which alarms are active from the device.



Help Button

Press the help button on the faceplates to access help for the faceplate.

The help file to launch is configurable using the URL extended tag property of the trip source Add-On Instruction tag.

Notes:

ABB EMAX2 Using IED 61850 Object



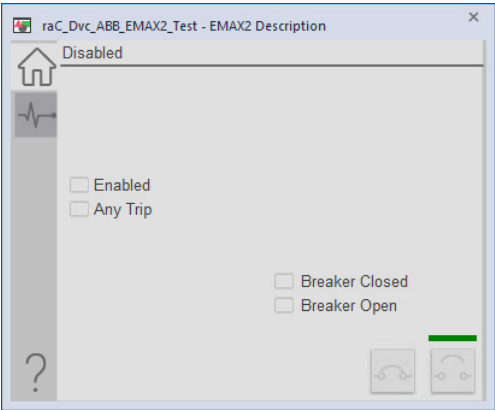
The ABB EMAX2 power circuit breaker provides a user the benefits of a power circuit breaker that is combined with the intelligence of a device. The ABB EMAX2 contains an electronic trip unit that can communicate with upstream control systems via a number of protocols and standards. When equipping the ABB EMAX2 with IEC 61850 communications, you can configure various MMS and GOOSE communications that allow SCADA/monitoring communications. Those communications also allow high-speed interlocking. This chapter discusses how to integrate the EMAX2 that communicates via IEC 61850 for SCADA purposes to the PlantPax® system.

This instruction monitors one ABB EMAX2 breaker communication via IEC 61850. The instruction provides the capability to open and close the breaker.

Add-On Instruction



Faceplate



Controller Code

Three Add-On Instructions represent each physical device. The first is generated by the ProSoft Configuration Manager. The second is a mapping Add-On Instruction that is used to map the data from the ProSoft configuration to the Trip Source (Primary HMI interface) Add-On Instruction. The third is the TripSource Add-On Instruction, The second and third are available for download from the Rockwell Automation® Intelligent Electronic Devices Toolkit from the PCDC.

InOut Structure for ProSoft Add-On Instruction

InOut parameters in [Table 79](#) are used to link the Add-On Instruction to external tags that contain necessary data for the instruction to operate. These external tags must be of the data type shown. These tags are representative of the tags that are required for each ABB EMAX2 breaker, which is configured in your system.

Table 79 - EMAX2 Breaker

Name	Data Type	Description
CBWink	BOOL	Diagnostic to blink status indicator for CB location
CBClose	BOOL	Close Circuit Breaker
CBOpen	BOOL	Open Circuit Breaker

InOut Structure for Rockwell Automation Toolkit Download

[Table 80](#) shows the InOut parameters that are available from the Rockwell Automation Intelligent Electronic Devices Toolkit Folder in the PCDC. These external tags must be of the data type shown.

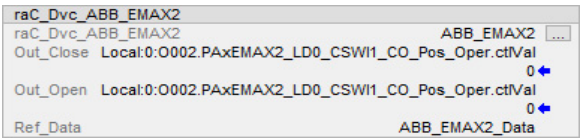
Table 80 - EMAX2 TripSource

Name	Data Type	Description
EMAX2CB	_0526:002B_0101_82C511B0:I:0	Device Input Data Structure
EMAX2CB	_0526:002B_0101_82C511B0:O:0	Device Output Data Structure

Mapping InOut Tags to Trip Source Add-On Instruction

Configure the EMAX2_TripSource Add-On Instruction.

1. Click the question mark next to Ref_PlantPAx857 and select the tag that was created by the ProSoft Configuration Manager for your device.
2. Click the question mark next to each Ref_Tgt#Txt and enter a string tag. These tags are intended to match the status indicators on the front panel of the device.
3. Once you type the tag name, if the tag is not already configured in the controller, you have to right-click and create a tag.
4. Click the question mark next to Ref_TargetTripText and select or create a String tag to be used for the final alarm message. The Trip Source Add-On Instruction selects from the Ref_Tgt#Txt strings based on the active trip source and copies that reference string to this target string.
5. For Output parameters, click the question mark next to each Output parameter and select the tag to be used when using RLL. For FBD, add an ORef configured with the appropriate I/O tag and connect the associated output parameter to the ORef.



Using Visualization Files

See [Visualization Files on page 13](#) for detailed information.

Faceplates

The Operator tab is displayed when the faceplate is initially opened. Click the appropriate icon on the left of the faceplate to access a specific tab.




Table 81 - Tab Descriptions

Table 82 -

Item	Description
1	Operator tab
2	Diagnostics tab
3	Help

The faceplate provides the means for operators, maintenance workers, engineers, and others to interact with the instruction instance. This interaction provides a view of the status and values of the instruction instance and an ability to manipulate it through its commands and settings.

The faceplates that are shown in this section are from FactoryTalk® View SE. Any feature that is contained in the Studio 5000 View Designer® faceplates has the same functionality as used in the FactoryTalk View SE faceplates.

 The Advanced Properties faceplates do not apply to Studio 5000 View Designer.

Operator Tab

The Faceplate initially opens to the Operator tab, sometimes called the Home tab. From here, an operator can monitor the device status and manually operate the device when it is in Operator mode.

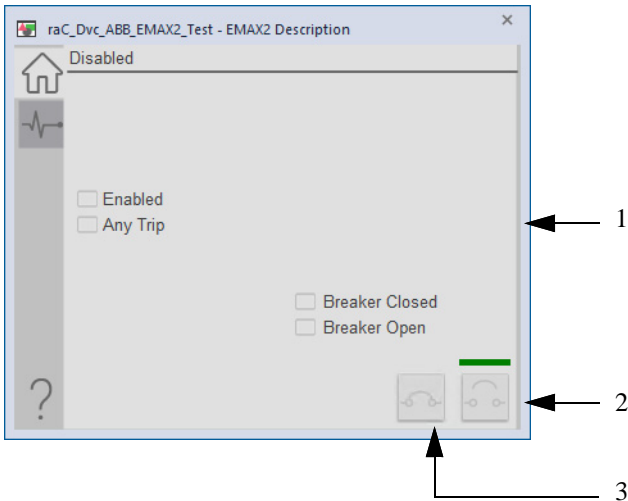


Table 83 - Operator Tab Description

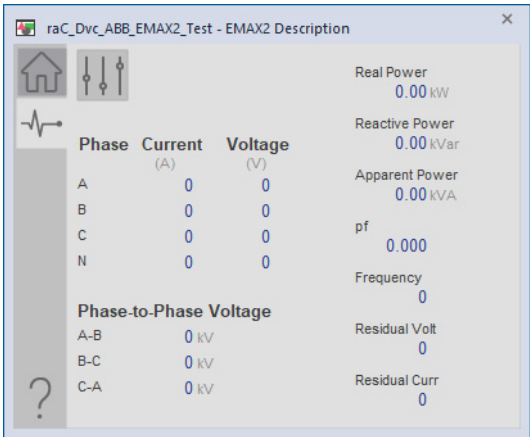
Item	Description
1	Status Indicators
2	Click to open the circuit breaker.
3	Click to close the circuit breaker.

Diagnostics Tab

The diagnostics tab allows the operator to see the measurement values from the physical device.

Diagnostics Tab

Readout of the measurement values from the EMAX2.



Advanced Properties


Click the advanced properties icon  on the diagnostics page to display the advanced properties. The following screenshot shows the tabs that are available in the advanced properties display



Table 84 - Advanced Properties Tab Descriptions

Table 85 -

Item	Description
1	HMI Configuration
2	Faults
3	Help

HMI Configuration Tab

The HMI configuration tab provides access to displayed text, and faceplate-to-faceplate navigation settings. Configure the description, label, tag, and security area for the device.

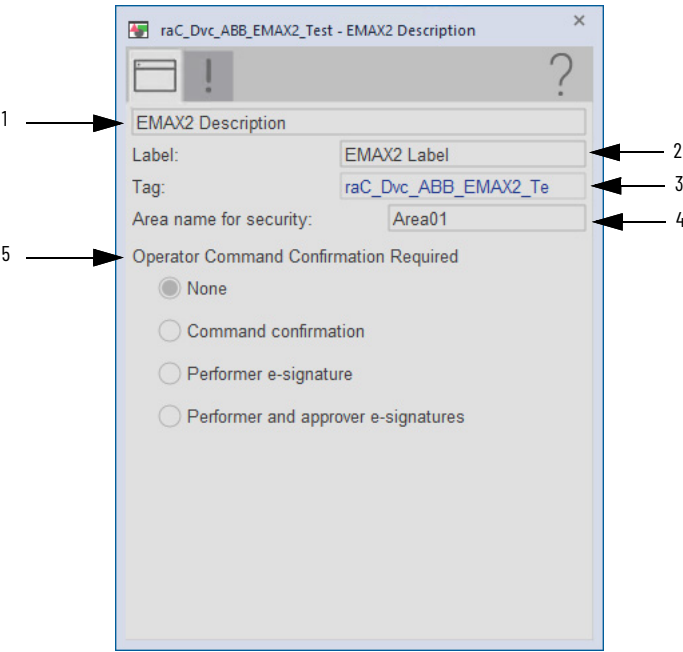
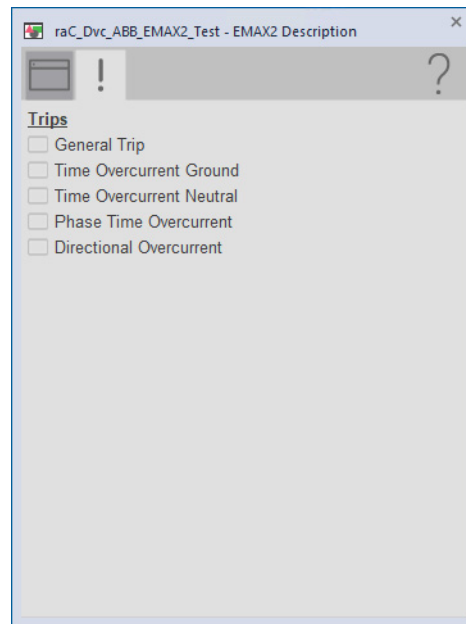


Table 86 - HMI Configuration Tab Description

Item	Action
1	Displays the device description to show on the faceplate title bar as configured for the extended tag property TripSourceA01Tag.@Description
2	The label to show on the graphic symbol as configured for the extended tag property TripSourceA01Tag.@Label.
3	The tag name to show on the faceplate and Tooltip.
4	The Area name for security based on the extended tag property TripSourceA01Tag.@Area.
5	Select an option for Operator Command Confirmation Requirements.

Faults Tab

The faults tab shows which alarms are active from the physical device.



Help Button

Press the help button on the faceplates to access help for the faceplate.

The help file to launch is configurable using the URL extended tag property of the trip source Add-On Instruction tag.

Notes:

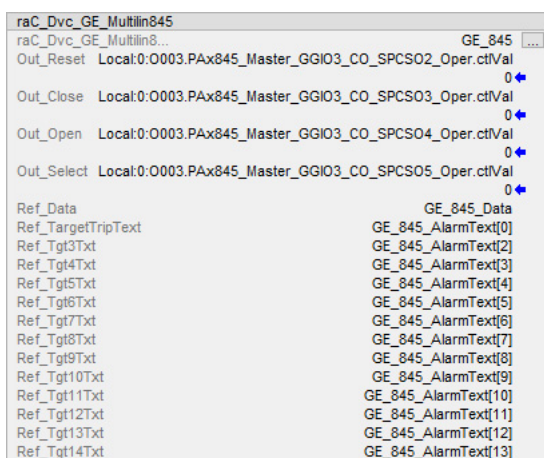
GE Multilin 845 Object



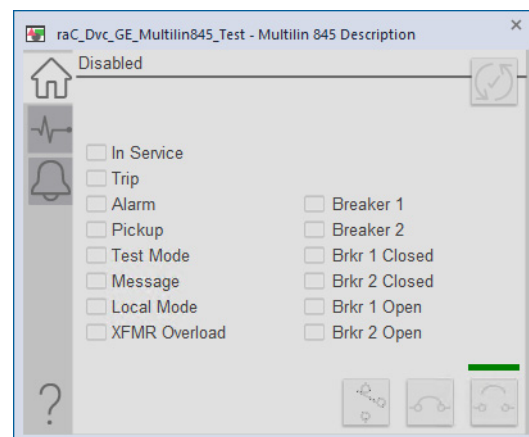
The General Electric (GE) 845 is a transformer differential protection relay with arc flash protection. This device provides comprehensive protection for multi-winding transformers. The GE 845 relay can provide indications of differential faults, winding overcurrent, over frequency, underfrequency, overvoltage, and various other protection features. The device also provides fundamental metering data, including (but not limited to) voltage, current, frequency, and power. The GE 845 can also provide various environmental measurements at its respective physical install location.

This Add-On Instruction monitors one GE 845 transformer protection relay. Alarms are provided when the device experiences a protection-related trip. The instruction also provides capabilities for opening and closing the breaker feature of the relay. The GE 845 provides two available breakers to switch between.

Add-On Instruction



Faceplate



Controller Code

Three Add-On Instructions represent each physical device. The first is generated by the ProSoft Configuration Manager. The second is a mapping Add-On Instruction that is used to map the data from the ProSoft configuration to the Trip Source (Primary HMI interface) Add-On Instruction. The third is the TripSource Add-On Instruction. The second and third are available for download from the Rockwell Automation® Intelligent Electronic Devices Toolkit from the PCDC.

InOut Structure for Trip Source Add-On Instruction

InOut parameters in [Table](#) are used to link the Add-On Instruction to external tags that contain necessary data for the instruction to operate. These external tags must be of the data type shown in the following table. These tags are representative of the tags that are required for each GE 845 relay, which is configured in your system.

GE 845 Add-On Instruction

Name	Data Type	Description
Ref_Data	<Defined by device AOI>	Device data from the mapping Add-On Instruction, which maps the connections from the ProSoft gateway to the HMI tags.
Ref_TargetTripText	STRING	Alarm text to be displayed when active.
Ref_Tgt3Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.
Ref_Tgt4Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.
Ref_Tgt5Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.
Ref_Tgt6Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.
Ref_Tgt7Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.
Ref_Tgt8Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.
Ref_Tgt9Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.
Ref_Tgt10Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.
Ref_Tgt11Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.
Ref_Tgt12Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.
Ref_Tgt13Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.
Ref_Tgt14Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.

Remote Bit Control Value Structure

Remote Bit Control Value parameters are used to link the Add-On Instruction to configurable input points in the physical device. Each bit is configurable via the vendor software of each device. [Table 87](#) has recommended uses for each bit.

Table 87 - Remote Bit Control - GE 845 Relay

Control Bit	Function
GGIO3_CO_SPCS01_Oper_ctlVal	Enable Relay Configuration
GGIO3_CO_SPCS02_Oper_ctlVal	Reset Relay
GGIO3_CO_SPCS03_Oper_ctlVal	Breaker Close
GGIO3_CO_SPCS04_Oper_ctlVal	Breaker Open
GGIO3_CO_SPCS05_Oper_ctlVal	Breaker Select

Mapping InOut Tags to Trip Source Add-On Instruction

Configure the GE 845_TripSource Add-On Instruction.

1. Click the question mark next to Ref_PlantPAx845 and select the tag that was created by the ProSoft Configuration Manager for your device.
2. Click the question mark next to each Ref_Tgt#Txt and enter a string tag. These tags are intended to match the status indicators on the front panel of the device.
3. Once you type the tag name, if the tag is not already configured in the controller, you have to right-click and create a tag.
4. Click the question mark next to Ref_TargetTripText and select or create a String tag to be used for the final alarm message. The Trip Source Add-On Instruction selects from the Ref_Tgt#Txt strings based on the active trip source and copies that reference string to this target string.
5. For Output parameters, click the question mark next to each Output parameter and select the tag to be used when using RLL. For FBD, add an ORef configured with the appropriate I/O tag and connect the associated output parameter to the ORef.

raC_Dvc_GE_Multilin845	GE_845
raC_Dvc_GE_Multilin8...	GE_845
Out_Reset	Local0:0003.PAx845_Master_GGIO3_CO_SPCS02_Oper.ctf/val
Out_Close	Local0:0003.PAx845_Master_GGIO3_CO_SPCS03_Oper.ctf/val
Out_Open	Local0:0003.PAx845_Master_GGIO3_CO_SPCS04_Oper.ctf/val
Out_Select	Local0:0003.PAx845_Master_GGIO3_CO_SPCS05_Oper.ctf/val
Ref_Data	GE_845_Data
Ref_TargetTripText	GE_845_AlarmText[0]
Ref_Tgt0Txt	GE_845_AlarmText[2]
Ref_Tgt1Txt	GE_845_AlarmText[3]
Ref_Tgt2Txt	GE_845_AlarmText[4]
Ref_Tgt3Txt	GE_845_AlarmText[5]
Ref_Tgt4Txt	GE_845_AlarmText[6]
Ref_Tgt5Txt	GE_845_AlarmText[7]
Ref_Tgt6Txt	GE_845_AlarmText[8]
Ref_Tgt7Txt	GE_845_AlarmText[9]
Ref_Tgt8Txt	GE_845_AlarmText[10]
Ref_Tgt9Txt	GE_845_AlarmText[11]
Ref_Tgt10Txt	GE_845_AlarmText[12]
Ref_Tgt11Txt	GE_845_AlarmText[13]

Using Visualization Files

See [Visualization Files on page 13](#) for detailed information.

Faceplates

The Operator tab is displayed when the faceplate is initially opened. Click the appropriate icon on the left of the faceplate to access a specific tab.

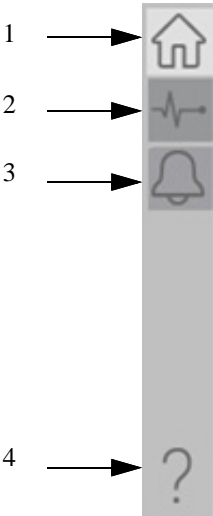


Table 88 - Tab Descriptions

Item	Description
1	Operator tab
2	Diagnostics tab
3	Alarm
4	Help

The faceplate provides the means for operators, maintenance workers, engineers, and others to interact with the instruction instance. This interaction provides a view of the status and values of the instruction instance and an ability to manipulate it through its commands and settings.

The faceplates that are shown in this section are from FactoryTalk® View SE. Any feature that is contained in the Studio 5000 View Designer® faceplates has the same functionality as used in the FactoryTalk View SE faceplates.



The Advanced Properties faceplates do not apply to Studio 5000 View Designer.

Operator Tab

The Faceplate initially opens to the Operator tab, sometimes called the Home tab. From here, an operator can monitor the device status and manually operate the device.

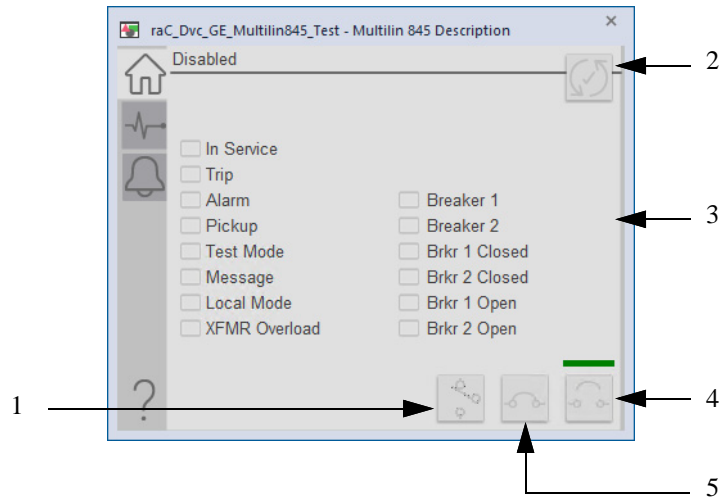


Table 89 - Operator Tab Description

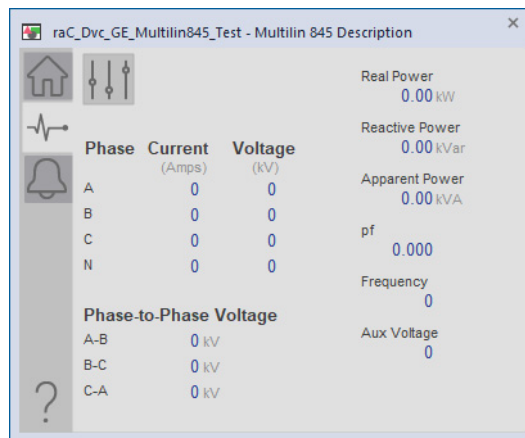
Item	Description
1	Click to toggle control between breaker 1 and breaker 2.
2	Click to reset the device. The status of the device is indicated on the faceplate.
3	Status Indicators
4	Click to open the circuit breaker.
5	Click to close the circuit breaker.

Diagnostics Tab

The Diagnostics tab allows the operator to see the measurement values from the physical device.

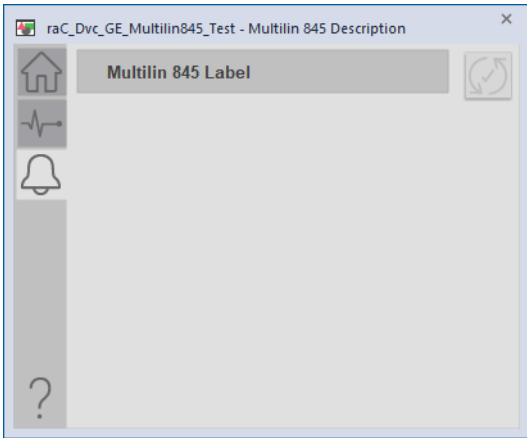
Diagnostics Tab

Readout of the measurement values from the GE 845.



Alarms

The Alarm tab displays the trip source alarm. The icon on the tab for the alarms page has an outline that changes color to show the current active alarm status.



Advanced Properties


Click the advanced properties icon  on the diagnostics page to display the advanced properties. The following screenshot shows the tabs that are available in the advanced properties display



Table 90 - Advanced Properties Tab Descriptions

Item	Description
1	HMI Configuration
2	Faults
3	Help

HMI Configuration Tab

The HMI configuration tab provides access to displayed text, and faceplate-to-faceplate navigation settings. Configure the description, label, tag, and security area for the device.

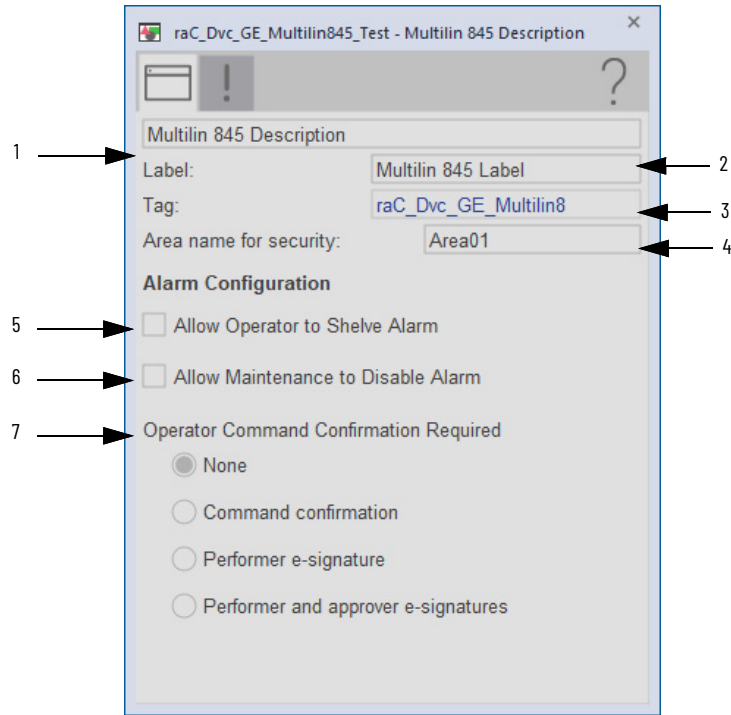
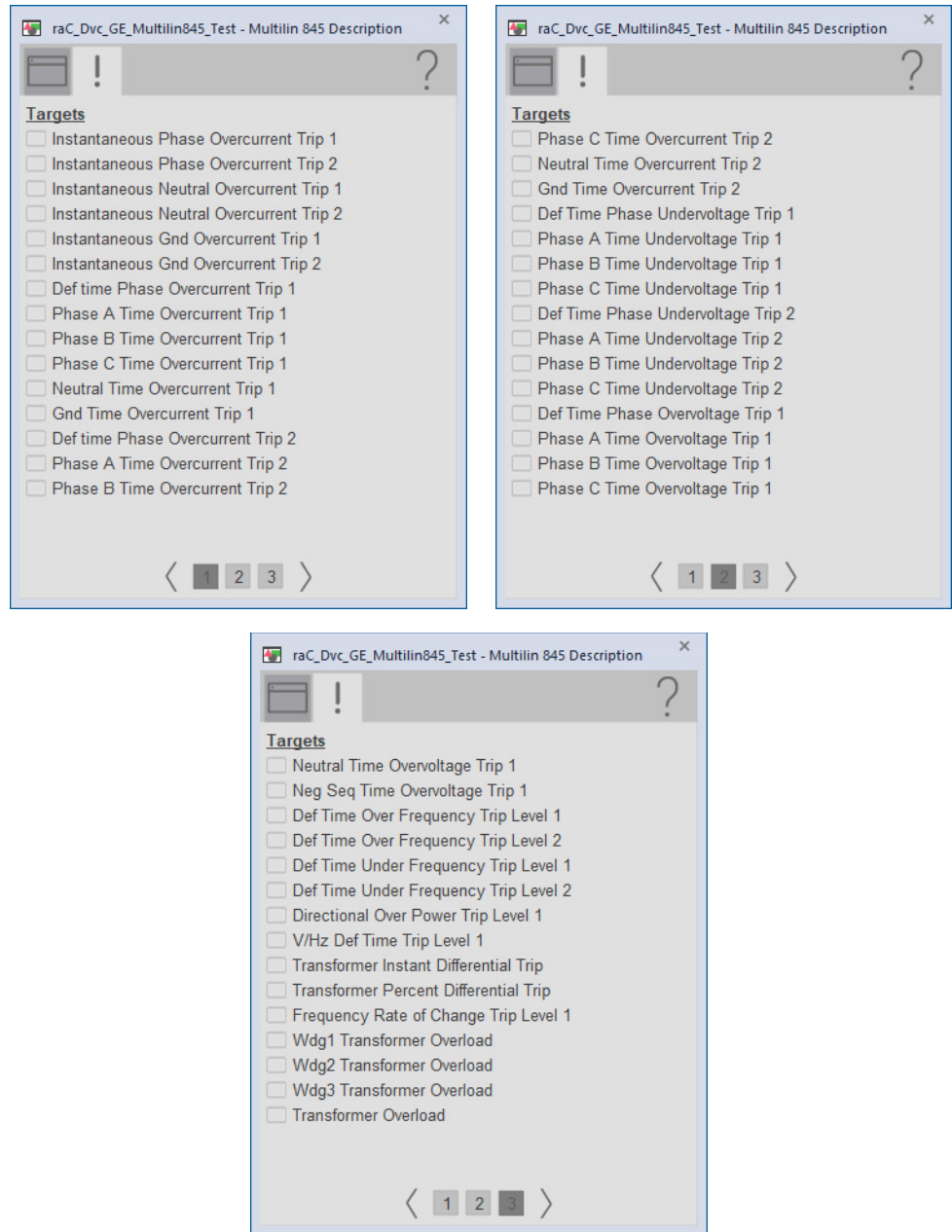


Table 91 - HMI Configuration Tab Description

Item	Action
1	Displays the device description to show on the faceplate title bar as configured for the extended tag property TripSourceA01Tag.@Description
2	The label to show on the graphic symbol as configured for the extended tag property TripSourceA01Tag.@Label.
3	The tag name to show on the faceplate and Tooltip.
4	The Area name for security based on the extended tag property TripSourceA01Tag.@Area.
5	Select to allow Operator to shelve the alarm.
6	Select to allow Maintenance to disable the alarm.
7	Select an option for Operator Command Confirmation Requirements.

Faults Tab

The Faults tab shows which alarms are active from the physical device.



Help Button

Press the help button on the faceplates to access help for the faceplate.

The help file to launch is configurable using the URL extended tag property of the trip source Add-On Instruction tag.

GE Multilin 850 Object



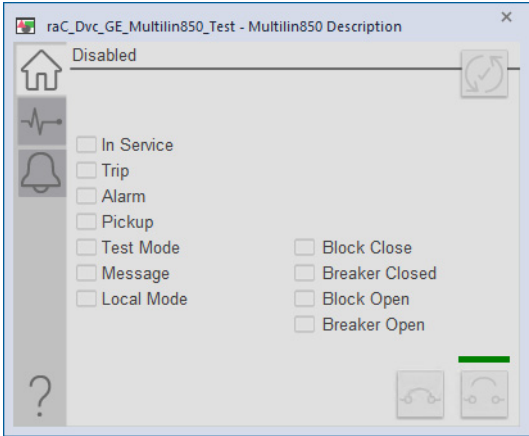
The General Electric (GE) 850 is a feeder protection relay with arc flash protection. This device is used to help protect an electrical bus from conditions of overcurrent, overvoltage, undervoltage, and other various protection features. The device also provides fundamental metering data, including (but not limited to) voltage, current, frequency, and power. The GE 850 can also provide various environmental measurements at its respective physical install location.

This Add-On Instruction monitors one GE 850 feeder protection relay. Alarms are provided when the device experiences a protection-related trip. The instruction also provides capabilities for opening and closing the breaker feature of the relay.

Add-On Instruction

raC_Dvc_GE_Multilin850	
raC_Dvc_GE_Multilin850	GE_850
Out_Reset	Local:0:0004.PAx850_Master_GGIO3_CO_SPCS02_Oper.ctfVal
	0
Out_Close	Local:0:0004.PAx850_Master_GGIO3_CO_SPCS03_Oper.ctfVal
	0
Out_Open	Local:0:0005.PAx850_Master_GGIO3_CO_SPCS04_Oper.ctfVal
	0
Ref_Data	GE_850_Data
Ref_TargetTripText	GE_850_AlarmText[0]
Ref_Tgt3Txt	GE_850_AlarmText[2]
Ref_Tgt4Txt	GE_850_AlarmText[3]
Ref_Tgt5Txt	GE_850_AlarmText[4]
Ref_Tgt6Txt	GE_850_AlarmText[5]
Ref_Tgt7Txt	GE_850_AlarmText[6]
Ref_Tgt8Txt	GE_850_AlarmText[7]
Ref_Tgt9Txt	GE_850_AlarmText[8]

Faceplate



Controller Code

Three Add-On Instructions represent each physical device. The first is generated by the ProSoft Configuration Manager. The second is a mapping Add-On Instruction that is used to map the data from the ProSoft configuration to the Trip Source (Primary HMI interface) Add-On Instruction. The third is the TripSource Add-On Instruction, The second and third are available for download from the Rockwell Automation® Intelligent Electronic Devices Toolkit from the PCDC.

InOut Structure for Trip Source Add-On Instruction

InOut parameters are used to link the Add-On Instruction to external tags that contain necessary data for the instruction to operate. These external tags must be of the data type shown in the following table. These tags are representative

of the tags that are required for each GE 850 relay, which is configured in your system.

Table 92 - GE 850 Add-On Instruction

Name	Data Type	Description
Ref_Data	<Defined by device AOI>	Device data from the mapping Add-On Instruction, which maps the connections from the ProSoft gateway to the HMI tags.
Ref_TargetTripText	STRING	Alarm text to be displayed when active.
Ref_Tgt3Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.
Ref_Tgt4Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.
Ref_Tgt5Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.
Ref_Tgt6Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.
Ref_Tgt7Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.
Ref_Tgt8Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.
Ref_Tgt9Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.

Remote Bit Control Value Structure

Remote Bit Control Value parameters are used to link the Add-On Instruction to configurable input points in the physical device. Each bit is configurable via the vendor software of each device. The following table has recommended uses for each bit.

Table 93 - Remote Bit Control - GE 850 Relay

Control Bit	Function
GGIO3_CO_SPCS01_Oper_ctlVal	Enable Relay Configuration
GGIO3_CO_SPCS02_Oper_ctlVal	Reset Relay
GGIO3_CO_SPCS03_Oper_ctlVal	Breaker Close
GGIO3_CO_SPCS04_Oper_ctlVal	Breaker Open

Mapping InOut Tags to Trip Source Add-On Instruction

Configure the GE 850_TripSource Add-On Instruction.

1. Click the question mark next to Ref_PlantPAx850 and select the tag that was created by the ProSoft Configuration Manager for your device.
2. Click the question mark next to each Ref_Tgt#Txt and enter a string tag. These tags are intended to match the status indicators on the front panel of the device.
3. Once you type the tag name, if the tag is not already configured in the controller, you have to right-click and create a tag.
4. Click the question mark next to Ref_TargetTripText and select or create a String tag to be used for the final alarm message. The Trip Source Add-On Instruction selects from the Ref_Tgt#Txt strings based on the active trip source and copies that reference string to this target string.
5. For Output parameters, click the question mark next to each Output parameter and select the tag to be used when using RLL. For FBD, add an ORef configured with the appropriate I/O tag and connect the associated output parameter to the ORef.

raC_Dvc_GE_Multilin850	
raC_Dvc_GE_Multilin8...	
Out_Reset	Local0:0004.PAx850_Master_GGIO3_CO_SPCSC
Out_Close	Local0:0004.PAx850_Master_GGIO3_CO_SPCSC
Out_Open	Local0:0005.PAx850_Master_GGIO3_CO_SPCSC
Ref_Data	
Ref_TargetTripText	GE_850
Ref_Tgt3Txt	GE_850
Ref_Tgt4Txt	GE_850
Ref_Tgt5Txt	GE_850
Ref_Tgt6Txt	GE_850
Ref_Tgt7Txt	GE_850
Ref_Tgt8Txt	GE_850
Ref_Tgt9Txt	GE_850

Using Visualization Files

See [Visualization Files on page 13](#) for detailed information.

Faceplates

The Operator tab is displayed when the faceplate is initially opened. Click the appropriate icon on the left of the faceplate to access a specific tab.

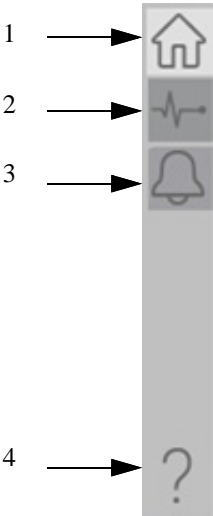



Table 94 - Tab Descriptions

Item	Description
1	Operator tab
2	Diagnostics tab
3	Alarms tab
4	Help

The faceplates that are shown in this section are from FactoryTalk® View SE. Any feature that is contained in the Studio 5000 View Designer® faceplates has the same functionality as used in the FactoryTalk View SE faceplates.

 The Advanced Properties faceplates do not apply to Studio 5000 View Designer.

Operator Tab

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

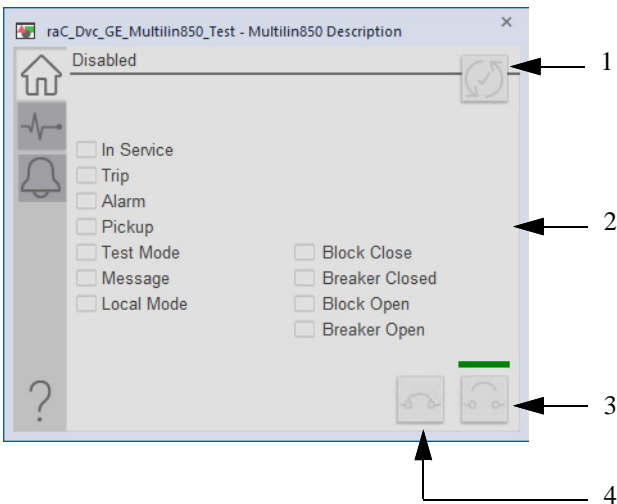


Table 95 - Operator Tab Description

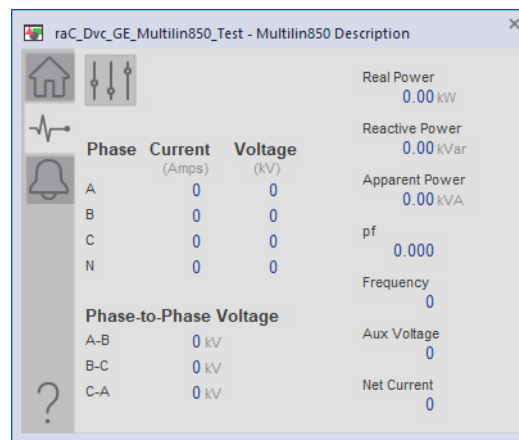
Item	Description
1	Click to reset the device. The status of the device is indicated on the faceplate.
2	Status Indicators
3	Click to open the circuit breaker.
4	Click to close the circuit breaker.

Diagnostics Tab

The diagnostics tab allows the operator to see the measurement values from the physical device.

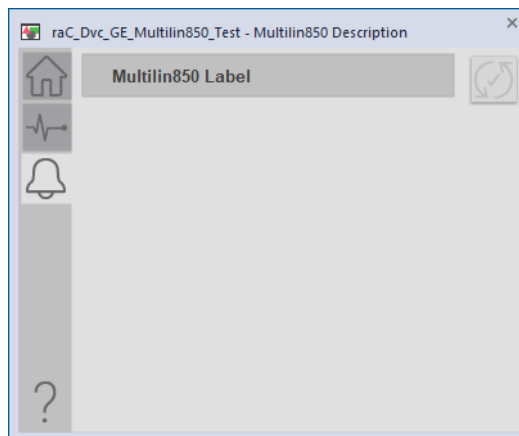
Diagnostics Tab

Readout of the measurement values from the GE 850.



Alarms

The Alarm tab displays the trip source alarm. The icon on the tab for the alarms page has an outline that changes color to show the current active alarm status.



Advanced Properties


Click the advanced properties icon  on the diagnostics page to display the advanced properties. The following screenshot shows the tabs that are available in the advanced properties display



Table 96 - Advanced Properties Tab Descriptions

Item	Description
1	HMI Configuration
2	Faults
3	Help

HMI Configuration Tab

The HMI configuration tab provides access to displayed text, and faceplate-to-faceplate navigation settings. Configure the description, label, tag, and security area for the device.

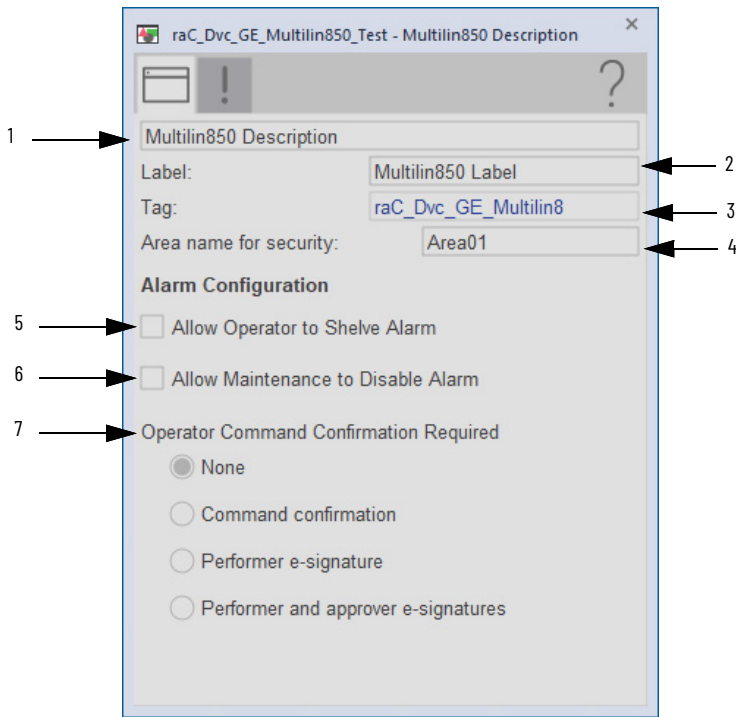


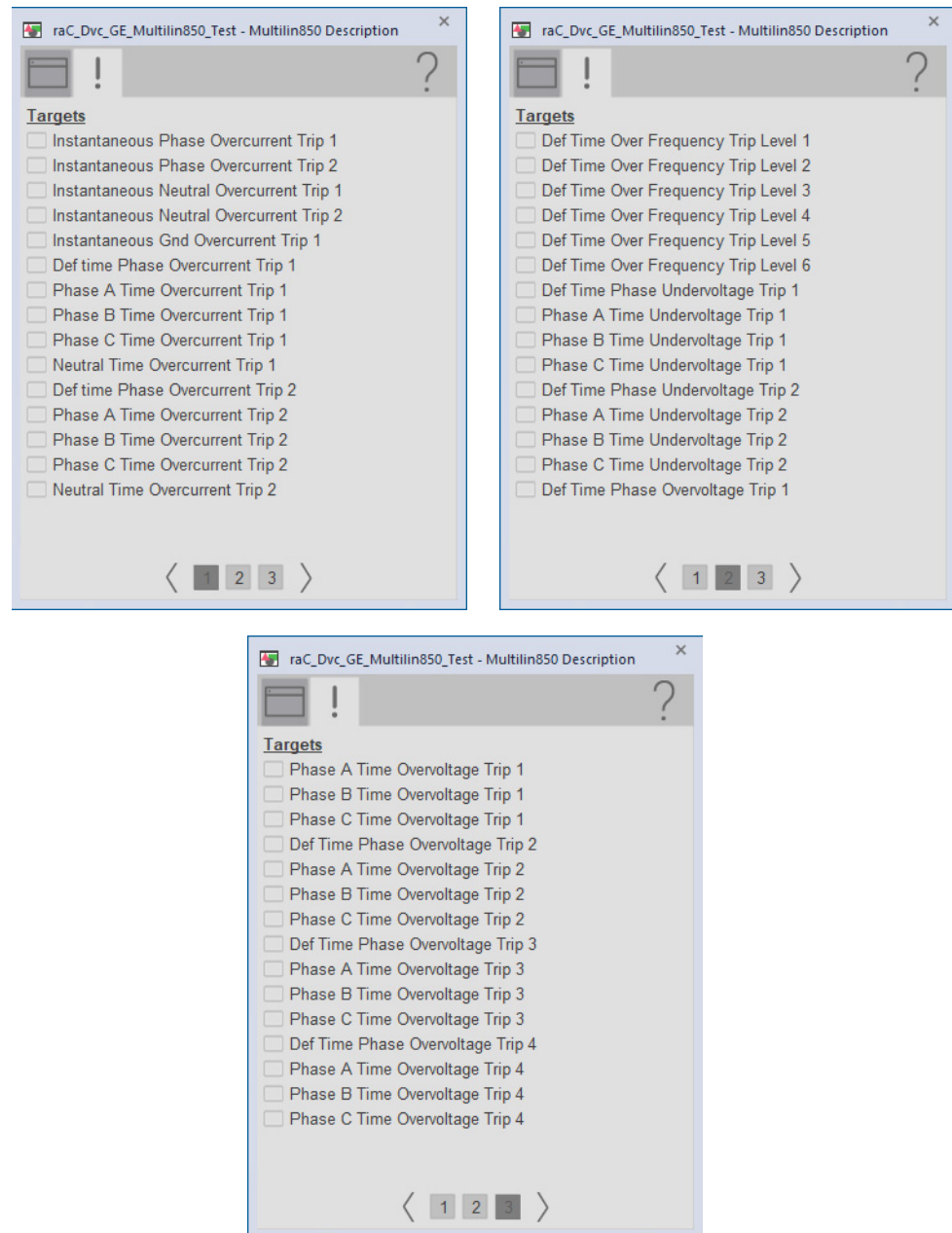
Table 97 - HMI Configuration Tab Description

Item	Action
1	Displays the device description to show on the faceplate title bar as configured for the extended tag property <code>TripSourceA0ITag.@Description</code>
2	The label to show on the graphic symbol as configured for the extended tag property <code>TripSourceA0ITag.@Label</code> .
3	The tag name to show on the faceplate and Tooltip.
4	The Area name for security based on the extended tag property <code>TripSourceA0ITag.@Area</code> .

Item	Action
5	Select to allow Operator to shelve the alarm.
6	Select to allow Maintenance to disable the alarm.
7	Select an option for Operator Command Confirmation Requirements.

Faults Tab

The faults tab shows which alarms are active from the physical device.



Help Button

Press the help button on the faceplates to access help for the faceplate.

The help file to launch is configurable using the URL extended tag property of the trip source Add-On Instruction tag.

GE Multilin 869 Object



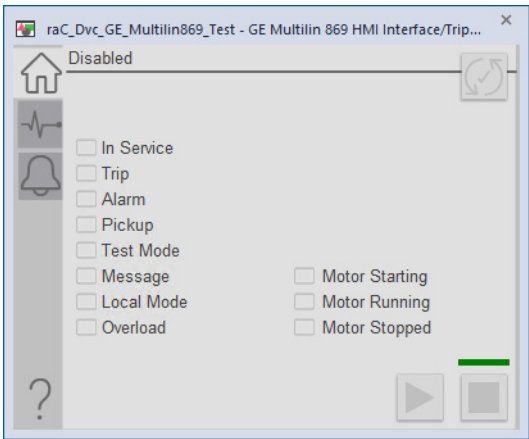
The General Electric (GE) 869 is a motor protection relay with arc flash protection. This device is designed for the protection, control, and management of medium- and large-induction and synchronous motors. The GE 869 relay provides advanced condition-based monitoring and diagnostics with high-end fault and disturbance recording. The device also provides fundamental metering data, including (but not limited to) voltage, current, frequency, and power. The GE 869 can also provide various environmental measurements at its respective physical install location.

This Add-On Instruction monitors one GE 869 motor protection relay. Alarms are provided when the device experiences a protection-related trip. The instruction also provides capabilities for starting and stopping the motor feature of the relay.

Add-On Instruction

raC_Dvc_GE_Multilin869	
raC_Dvc_GE_Multilin8...	GE_869
Out_Reset	Local:0:0006.PAx869_Master_GGIO3_CO_SPCS02_Oper.ctfVal
Out_Stop	Local:0:0006.PAx869_Master_GGIO3_CO_SPCS03_Oper.ctfVal
Out_Start	Local:0:0006.PAx869_Master_GGIO3_CO_SPCS04_Oper.ctfVal
Ref_Data	GE_869_Data
Ref_TargetTripText	GE_869_AlarmText[0]
Ref_Tgt3Txt	GE_869_AlarmText[2]
Ref_Tgt4Txt	GE_869_AlarmText[3]
Ref_Tgt5Txt	GE_869_AlarmText[4]
Ref_Tgt6Txt	GE_869_AlarmText[5]
Ref_Tgt7Txt	GE_869_AlarmText[6]
Ref_Tgt8Txt	GE_869_AlarmText[7]
Ref_Tgt9Txt	GE_869_AlarmText[8]
Ref_Tgt10Txt	GE_869_AlarmText[9]
Ref_Tgt11Txt	GE_869_AlarmText[10]

Faceplate



Controller Code

Three Add-On Instructions represent each physical device. The first is generated by the ProSoft Configuration Manager. The second is a mapping Add-On Instruction that is used to map the data from the ProSoft configuration to the Trip Source (Primary HMI interface) Add-On Instruction. The third is the TripSource Add-On Instruction, The second and third are available for download from the Rockwell Automation® Intelligent Electronic Devices Toolkit from the PCDC.

InOut Structure for Trip Source Add-On Instruction

InOut parameters in [Table 98](#) are used to link the Add-On Instruction to external tags that contain necessary data for the instruction to operate. These external tags must be of the data type shown. These tags are representative of

the tags that are required for each GE 869 relay, which is configured in your system.

Table 98 - GE 869 Add-On Instruction

Name	Data Type	Description
Ref_Data	<Defined by device AOI>	Device data from the mapping Add-On Instruction, which maps the connections from the ProSoft gateway to the HMI tags.
Ref_TargetTripText	STRING	Alarm text to be displayed when active.
Ref_Tgt3Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.
Ref_Tgt4Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.
Ref_Tgt5Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.
Ref_Tgt6Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.
Ref_Tgt7Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.
Ref_Tgt8Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.
Ref_Tgt9Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.
Ref_Tgt10Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.
Ref_Tgt11Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.

Remote Bit Control Value Structure

Remote Bit Control Value parameters are used to link the Add-On Instruction to configurable input points in the physical device. Each bit is configurable via the vendor software of each device. [Table 99](#) has recommended uses for each bit.

Table 99 - Remote Bit Control - GE 869 Relay

Control Bit	Function
GGIO3_CO_SPCS01_Oper_ctlVal	Reset Relay
GGIO3_CO_SPCS02_Oper_ctlVal	Motor Start
GGIO3_CO_SPCS03_Oper_ctlVal	Motor Stop

Mapping InOut Tags to Trip Source Add-On Instruction

Configure the GE 869_TripSource Add-On Instruction.

1. Click the question mark next to Ref_PlantPAX869 and select the tag that was created by the ProSoft Configuration Manager for your device.
2. Click the question mark next to each Ref_Tgt#Txt and enter a string tag. These tags are intended to match the status indicators on the front panel of the device.
3. Once you type the tag name, if the tag is not already configured in the controller, you have to right-click and create a tag.
4. Click the question mark next to Ref_TargetTripText and select or create a String tag to be used for the final alarm message. The Trip Source Add-On Instruction selects from the Ref_Tgt#Txt strings based on the active trip source and copies that reference string to this target string.
5. For Output parameters, click the question mark next to each Output parameter and select the tag to be used when using RLL. For FBD, add an ORef configured with the appropriate I/O tag and connect the associated output parameter to the ORef.

raC_Dvc_GE_Multilin869	GE_869
Out_Reset	Local:0:0006.PAx869_Master_GGIO3_CO_SPCSO2_Oper.ctfVal
	0
Out_Stop	Local:0:0006.PAx869_Master_GGIO3_CO_SPCSO3_Oper.ctfVal
	0
Out_Start	Local:0:0006.PAx869_Master_GGIO3_CO_SPCSO4_Oper.ctfVal
	0
Ref_Data	GE_869_Data
Ref_TargetTripText	GE_869_AlarmText[0]
Ref_Tgt3Txt	GE_869_AlarmText[2]
Ref_Tgt4Txt	GE_869_AlarmText[3]
Ref_Tgt5Txt	GE_869_AlarmText[4]
Ref_Tgt6Txt	GE_869_AlarmText[5]
Ref_Tgt7Txt	GE_869_AlarmText[6]
Ref_Tgt8Txt	GE_869_AlarmText[7]
Ref_Tgt9Txt	GE_869_AlarmText[8]
Ref_Tgt10Txt	GE_869_AlarmText[9]
Ref_Tgt11Txt	GE_869_AlarmText[10]

Using Visualization Files

See [Visualization Files on page 13](#) for detailed information.

Faceplates

The Operator tab is displayed when the faceplate is initially opened. Click the appropriate icon on the left of the faceplate to access a specific tab.

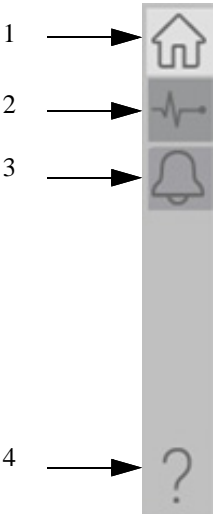



Table 100 - Tab Descriptions

Item	Description
1	Operator tab
2	Diagnostics tab
3	Alarms tab
4	Help

The faceplates that are shown in this section are from FactoryTalk® View SE. Any feature that is contained in the Studio 5000 View Designer® faceplates has the same functionality as used in the FactoryTalk View SE faceplates.

 The Advanced Properties faceplates do not apply to Studio 5000 View Designer.

Operator Tab

The Faceplate initially opens to the Operator tab, sometimes called the Home tab. From here, an operator can monitor the device status and manually operate the device.

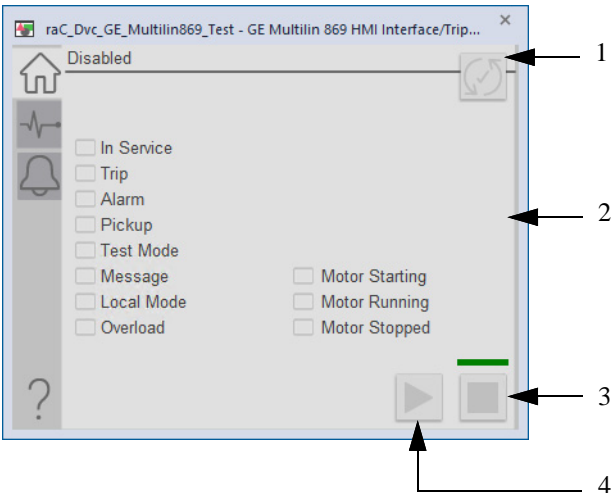


Table 101 - Operator Tab Description

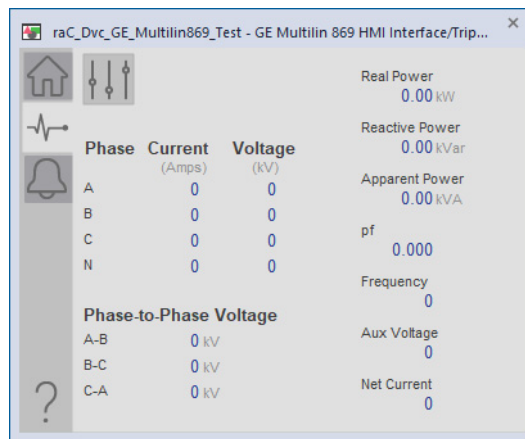
Item	Description
1	Click to reset the device. The status of the device is indicated on the faceplate.
2	Status Indicators
3	Click to stop the motor.
4	Click to start the motor.

Diagnostics Tab

The diagnostics tab allows the operator to see the measurement values from the physical device.

Diagnostics Tab

Readout of the measurement values from the GE 869.




Alarms

The Alarm tab displays the trip source alarm. The icon on the tab for the alarms page has an outline that changes color to show the current active alarm status.



Advanced Properties

Click the advanced properties icon  on the diagnostics page to display the advanced properties. The following screenshot shows the tabs that are available in the advanced properties display

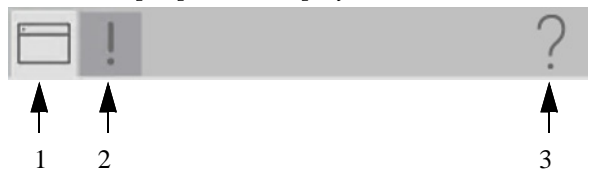


Table 102 - Advanced Properties Tab Descriptions

Item	Description
1	HMI Configuration
2	Faults
3	Help

HMI Configuration Tab

The HMI configuration tab provides access to displayed text, and faceplate-to-faceplate navigation settings. Configure the description, label, tag, and security area for the device.

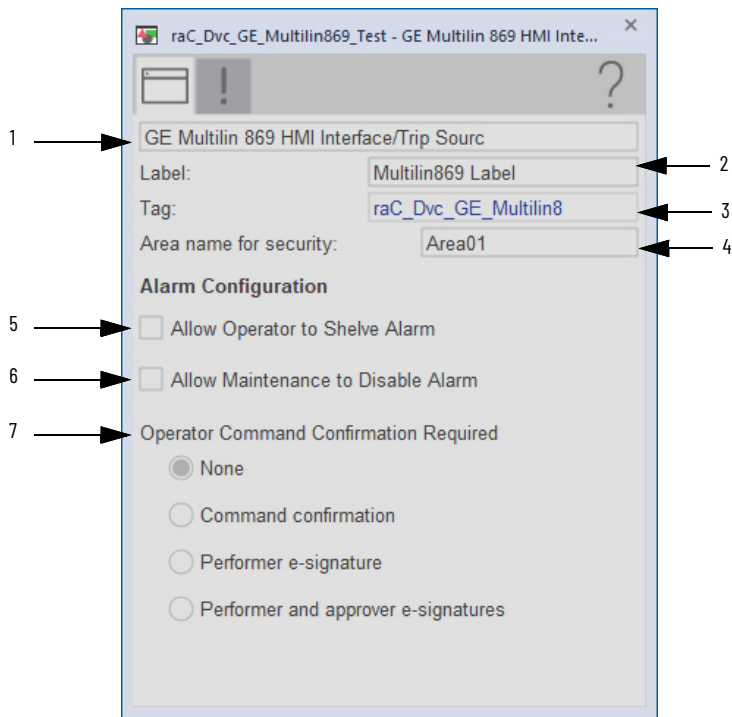


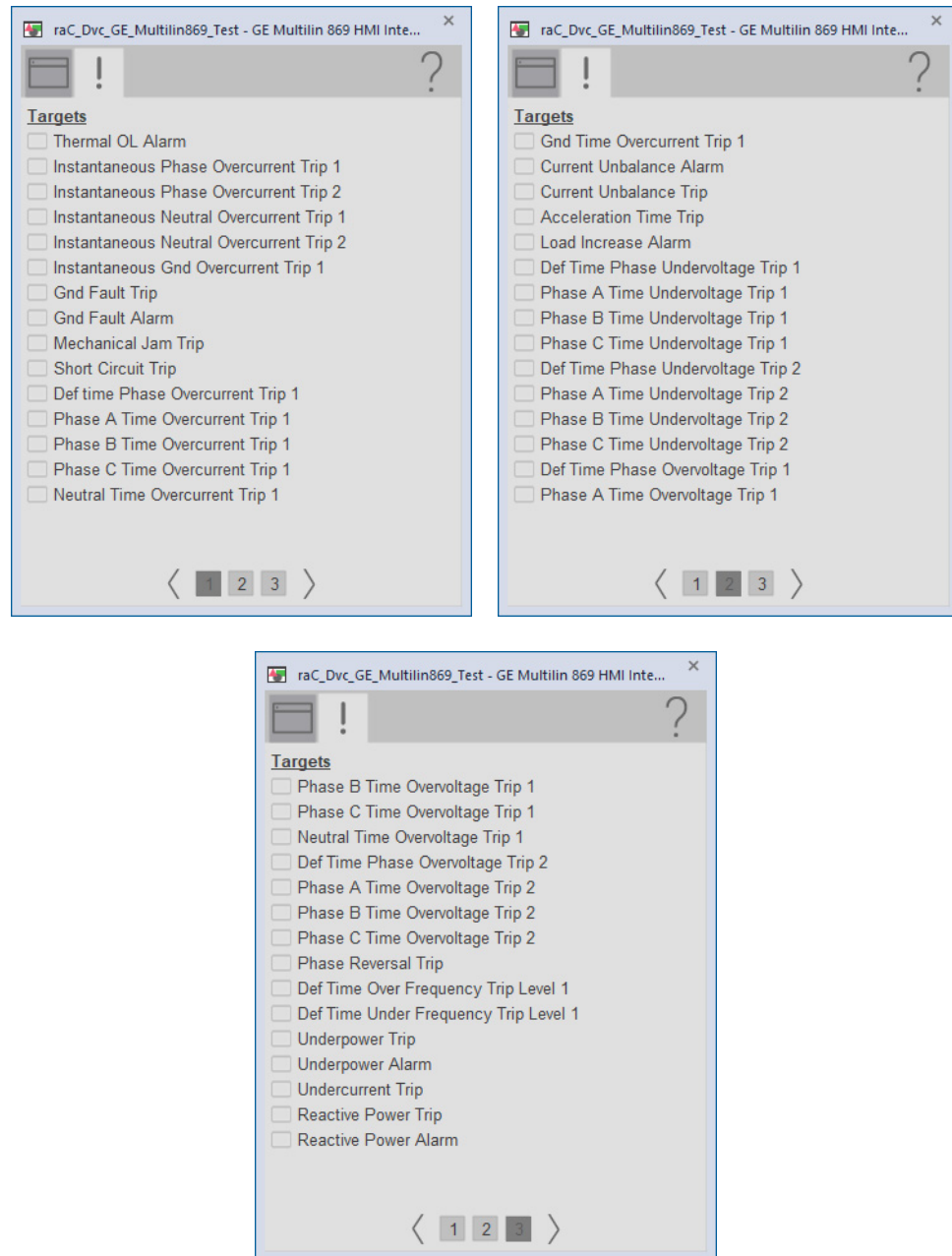
Table 103 - HMI Configuration Tab Description

Item	Action
1	Displays the device description to show on the faceplate title bar as configured for the extended tag property TripSourceA0ITag.@Description
2	The label to show on the graphic symbol as configured for the extended tag property TripSourceA0ITag.@Label.
3	The tag name to show on the faceplate and Tooltip.
4	The Area name for security based on the extended tag property TripSourceA0ITag.@Area.

Item	Action
5	Select to allow Operator to shelve the alarm.
6	Select to allow Maintenance to disable the alarm.
7	Select an option for Operator Command Confirmation Requirements.

Faults Tab

The faults tab shows which alarms are active from the physical device.



Help Button

Press the help button on the faceplates to access help for the faceplate.

The help file to launch is configurable using the URL extended tag property of the trip source Add-On Instruction tag.

GE Multilin 889 Object



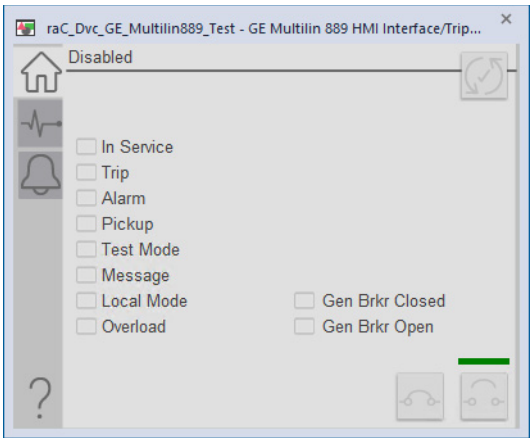
The General Electric (GE) 889 is a generator protection relay with arc flash protection. This device is designed to provide subcycle differential protection, control, and monitoring of primary and back-up generation equipment. The device also provides fundamental metering data including (but not limited to) voltage, current, frequency, and power. The GE 889 can also provide various environmental measurements at its respective physical install location.

This Add-On Instruction monitors one GE 889 generator protection relay. Alarms are provided when the device experiences a protection-related trip. The instruction also provides capabilities for opening and closing the breaker feature of the relay.

Add-On Instruction

raC_Dvc_GE_Multilin889	
raC_Dvc_GE_Multilin8...	GE_889
Out_Reset	Local:0:0007.PAx889_Master_GGIO3_CO_SPCS02_Oper.ctfVal
	0
Out_Close	Local:0:0008.PAx889_Master_GGIO3_CO_SPCS03_Oper.ctfVal
	0
Out_Open	Local:0:0008.PAx889_Master_GGIO3_CO_SPCS04_Oper.ctfVal
	0
Ref_Data	GE_889_Data
Ref_TargetTripText	GE_889_AlarmText[0]
Ref_Tgt3Txt	GE_889_AlarmText[2]
Ref_Tgt4Txt	GE_889_AlarmText[3]
Ref_Tgt5Txt	GE_889_AlarmText[4]
Ref_Tgt6Txt	GE_889_AlarmText[5]
Ref_Tgt7Txt	GE_889_AlarmText[6]
Ref_Tgt8Txt	GE_889_AlarmText[7]
Ref_Tgt9Txt	GE_889_AlarmText[8]
Ref_Tgt10Txt	GE_889_AlarmText[9]

Faceplate



Controller Code

Three Add-On Instructions represent each physical device. The first is generated by the ProSoft Configuration Manager. The second is a mapping Add-On Instruction that is used to map the data from the ProSoft configuration to the Trip Source (Primary HMI interface) Add-On Instruction. The third is the TripSource Add-On Instruction, The second and third are available for download from the Rockwell Automation® Intelligent Electronic Devices Toolkit from the PCDC.

InOut Structure for Trip Source Add-On Instruction

InOut parameters in [Table 104](#) are used to link the Add-On Instruction to external tags that contain necessary data for the instruction to operate. These external tags must be of the data type shown. These tags are representative of

the tags that are required for each GE 889 relay, which is configured in your system.

Table 104 - GE 889 Add-On Instruction

Name	Data Type	Description
Ref_Data	<Defined by device AOI>	Device data from the mapping Add-On Instruction, which maps the connections from the ProSoft gateway to the HMI tags.
Ref_TargetTripText	STRING	Alarm text to be displayed when active.
Ref_Tgt3Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.
Ref_Tgt4Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.
Ref_Tgt5Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.
Ref_Tgt6Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.
Ref_Tgt7Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.
Ref_Tgt8Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.
Ref_Tgt9Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.
Ref_Tgt10Txt	STRING	Alarm description for device front-plate status indicators, which is configurable through device vendor software.

Remote Bit Control Value Structure

Remote Bit Control Value parameters are used to link the Add-On Instruction to configurable input points in the physical device. Each bit is configurable via the vendor software of each device. [Table 105](#) has recommended uses for each bit.

Table 105 - Remote Bit Control - GE 889 Relay

Control Bit	Function
GGIO3_CO_SPCS01_Oper_ctlVal	Enable Relay Configuration
GGIO3_CO_SPCS02_Oper_ctlVal	Reset Relay
GGIO3_CO_SPCS03_Oper_ctlVal	Breaker Close
GGIO3_CO_SPCS03_Oper_ctlVal	Breaker Open

Mapping InOut Tags to Trip Source Add-On Instruction

Configure the GE 889_TripSource Add-On Instruction.

1. Click the question mark next to Ref_PlantPAx889 and select the tag that was created by the ProSoft Configuration Manager for your device.
2. Click the question mark next to each Ref_Tgt#Txt and enter a string tag. These tags are intended to match the status indicators on the front panel of the device.
3. Once you type the tag name, if the tag is not already configured in the controller, you have to right-click and create a tag.
4. Click the question mark next to Ref_TargetTripText and select or create a String tag to be used for the final alarm message. The Trip Source Add-On Instruction selects from the Ref_Tgt#Txt strings based on the active trip source and copies that reference string to this target string.
5. For Output parameters, click the question mark next to each Output parameter and select the tag to be used when using RLL. For FBD, add an ORef configured with the appropriate I/O tag and connect the associated output parameter to the ORef.

raC_Dvc_GE_Multilin889	GE_889
raC_Dvc_GE_Multilin8...	GE_889
Out_Reset Local:0:0007.PAx889_Master_GGIO3_CO_SPCSO2_Oper.ctfVal	0
Out_Close Local:0:0008.PAx889_Master_GGIO3_CO_SPCSO3_Oper.ctfVal	0
Out_Open Local:0:0008.PAx889_Master_GGIO3_CO_SPCSO4_Oper.ctfVal	0
Ref_Data	GE_889_Data
Ref_TargetTripText	GE_889_AlarmText[0]
Ref_Tgt3Txt	GE_889_AlarmText[2]
Ref_Tgt4Txt	GE_889_AlarmText[3]
Ref_Tgt5Txt	GE_889_AlarmText[4]
Ref_Tgt6Txt	GE_889_AlarmText[5]
Ref_Tgt7Txt	GE_889_AlarmText[6]
Ref_Tgt8Txt	GE_889_AlarmText[7]
Ref_Tgt9Txt	GE_889_AlarmText[8]
Ref_Tgt10Txt	GE_889_AlarmText[9]

Using Visualization Files

See [Visualization Files on page 13](#) for detailed information.

Faceplates

The Operator tab is displayed when the faceplate is initially opened. Click the appropriate icon on the left of the faceplate to access a specific tab.

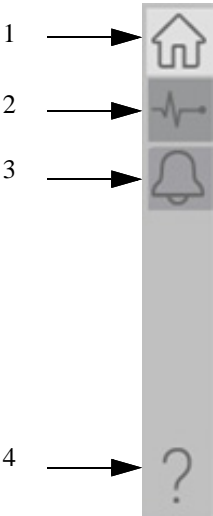



Table 106 - Tab Descriptions

Item	Description
1	Operator tab
2	Diagnostics tab
3	Alarms tab
4	Help

The faceplates that are shown in this section are from FactoryTalk® View SE. Any feature that is contained in the Studio 5000 View Designer® faceplates has the same functionality as used in the FactoryTalk View SE faceplates.

 The Advanced Properties faceplates do not apply to Studio 5000 View Designer.

Operator Tab

The Faceplate initially opens to the Operator tab, sometimes called the Home tab. From here, an operator can monitor the device status and manually operate the device.

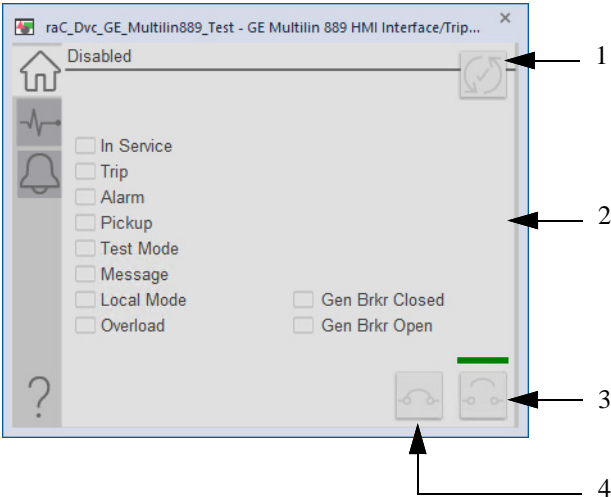


Table 107 - Operator Tab Description

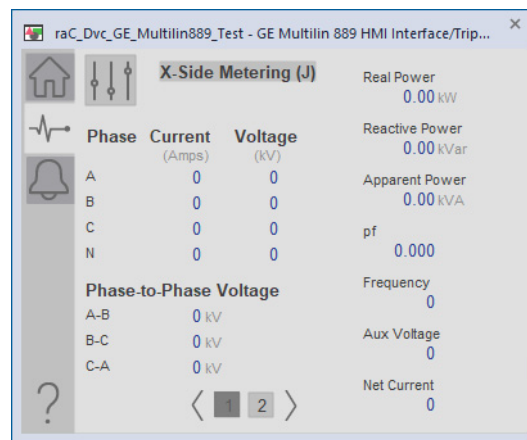
Item	Description
1	Click to reset the device. The status of the device is indicated on the faceplate.
2	Status Indicators
3	Click to open the circuit breaker.
4	Click to close the circuit breaker.

Diagnostics Tab

The diagnostics tab allows the operator to see the measurement values from the physical device.

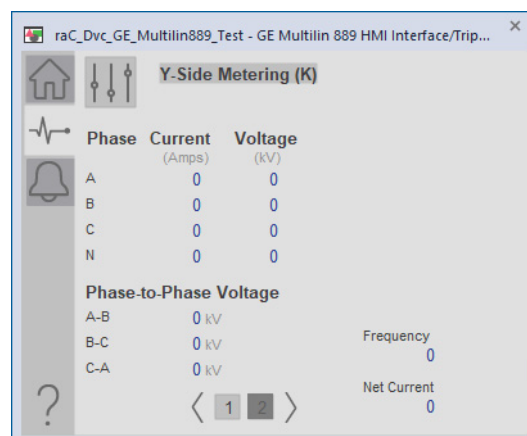
Diagnostics Tab Page 1

Readout of the X-side measurement values from the GE 889. This readout displays fundamental metering data that is associated with the X-side of the generator.



Diagnostics Tab Page 2

Readout of the Y-side measurement values from the GE 889. This readout displays fundamental metering data that is associated with the Y-side of the generator.



Alarms

The Alarm tab displays the trip source alarm. The icon on the tab for the alarms page has an outline that changes color to show the current active alarm status.



Advanced Properties


Click the advanced properties icon  on the diagnostics page to display the advanced properties. The following screenshot shows the tabs that are available in the advanced properties display



Table 108 - Advanced Properties Tab Descriptions

Item	Description
1	HMI Configuration
2	Faults
3	Help

HMI Configuration Tab

The HMI configuration tab provides access to displayed text, and faceplate-to-faceplate navigation settings. Configure the description, label, tag, and security area for the device.

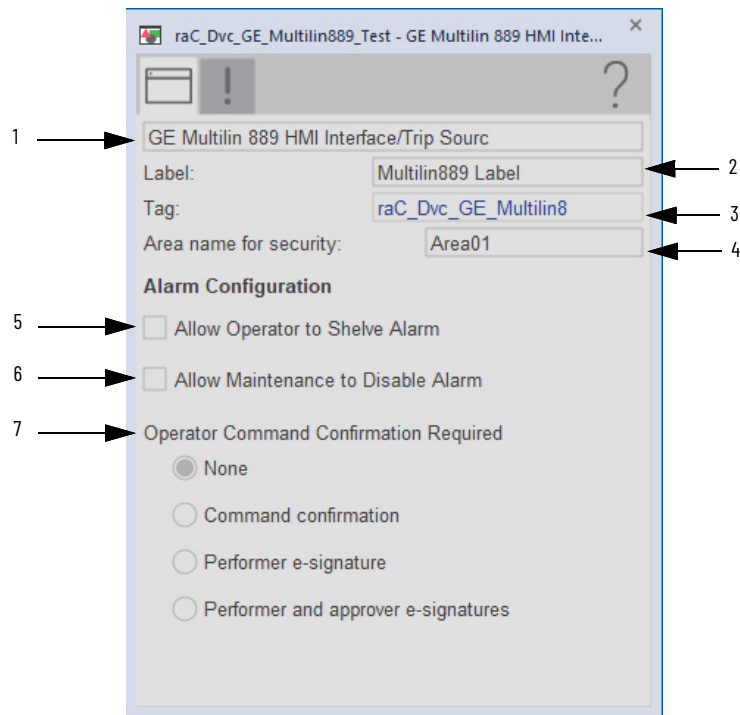
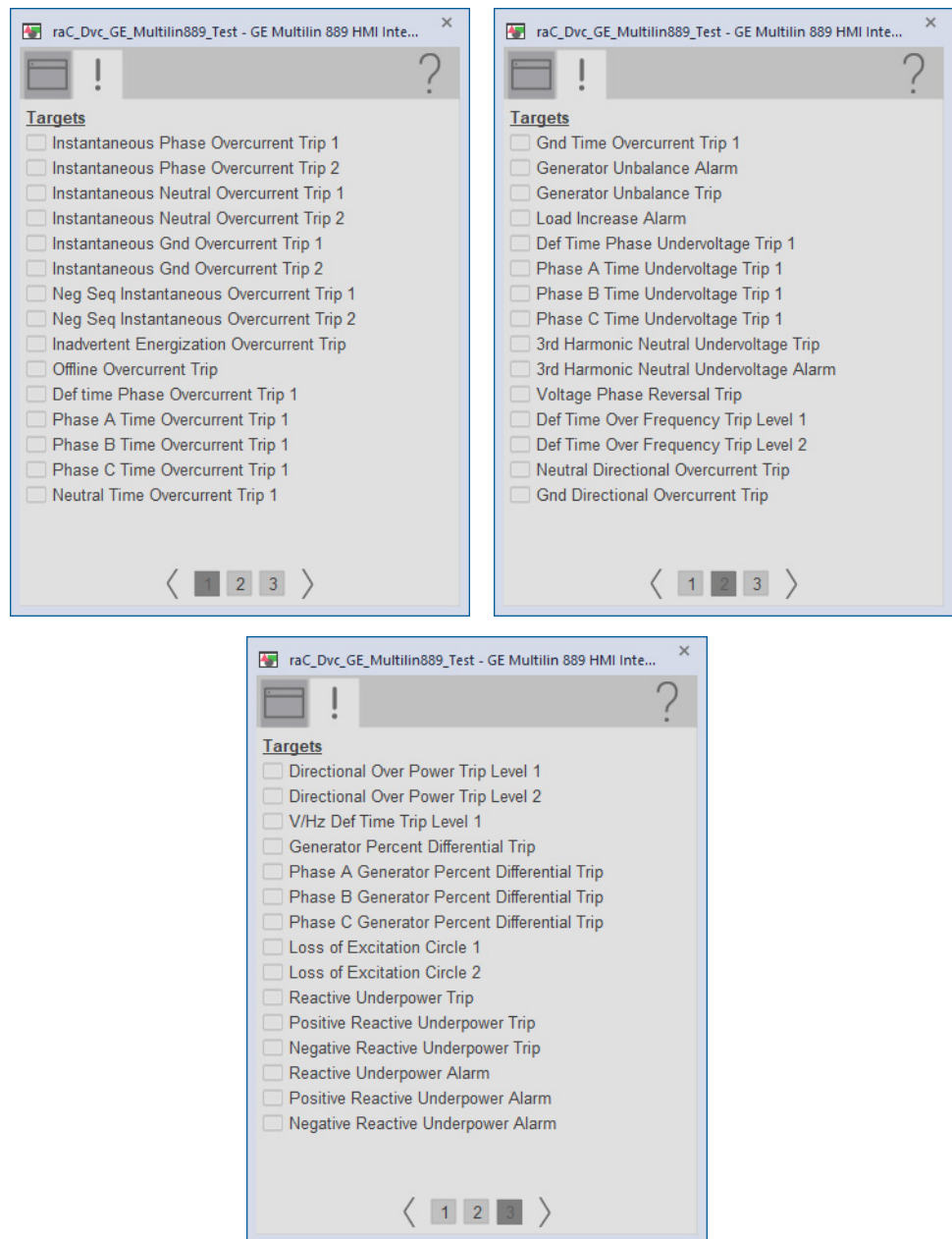


Table 109 - HMI Configuration Tab Descriptions

Item	Action
1	Displays the device description to show on the faceplate title bar as configured for the extended tag property <code>TripSourceA0ITag.@Description</code>
2	The label to show on the graphic symbol as configured for the extended tag property <code>TripSourceA0ITag.@Label</code> .
3	The tag name to show on the faceplate and Tooltip.
4	The Area name for security based on the extended tag property <code>TripSourceA0ITag.@Area</code> .
5	Select to allow Operator to shelve the alarm.
6	Select to allow Maintenance to disable the alarm.
7	Select an option for Operator Command Confirmation Requirements.

Faults Tab

The faults tab shows which alarms are active from the physical device.



Help Button

Press the help button on the faceplates to access help for the faceplate.

The help file to launch is configurable using the URL extended tag property of the trip source Add-On Instruction tag.

Rockwell Automation Support

Use these resources to access support information.

Technical Support Center	Find help with how-to videos, FAQs, chat, user forums, and product notification updates.	rok.auto/support
Knowledgebase	Access Knowledgebase articles.	rok.auto/knowledgebase
Local Technical Support Phone Numbers	Locate the telephone number for your country.	rok.auto/phonesupport
Literature Library	Find installation instructions, manuals, brochures, and technical data publications.	rok.auto/literature
Product Compatibility and Download Center (PCDC)	Download firmware, associated files (such as AOP, EDS, and DTM), and access product release notes.	rok.auto/pcdc

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