Reference Manual

PlantPAx
Distributed Control System

Rockwell Automation Library of Process Objects: PowerFlex 753 Drive (P_PF753)

Version 3.5

IMPORTANT This manual applies to the Rockwell Automation Library of Process Objects version 3.5 or earlier.

For Rockwell Automation Library of Process Objects version 5.0, see

- PROCES-RM200

For Rockwell Automation Library of Process Objects version 4.0 or later, use the following manuals:

- PROCES-RM013 contains logic instructions
- PROCES-RM014 contains display elements

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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.

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).

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Software Compatibility and Content Revisions

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For the latest compatible software information and to download the Rockwell Automation® Library or Process Objects, see the Product Compatibility and Download Center at http://www.rockwellautomation.com/rockwellautomation/support/pcdc.page.

For general library considerations, see Rockwell Automation Library of Process Objects, publication PROCES-RM002.

Additional Resources

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

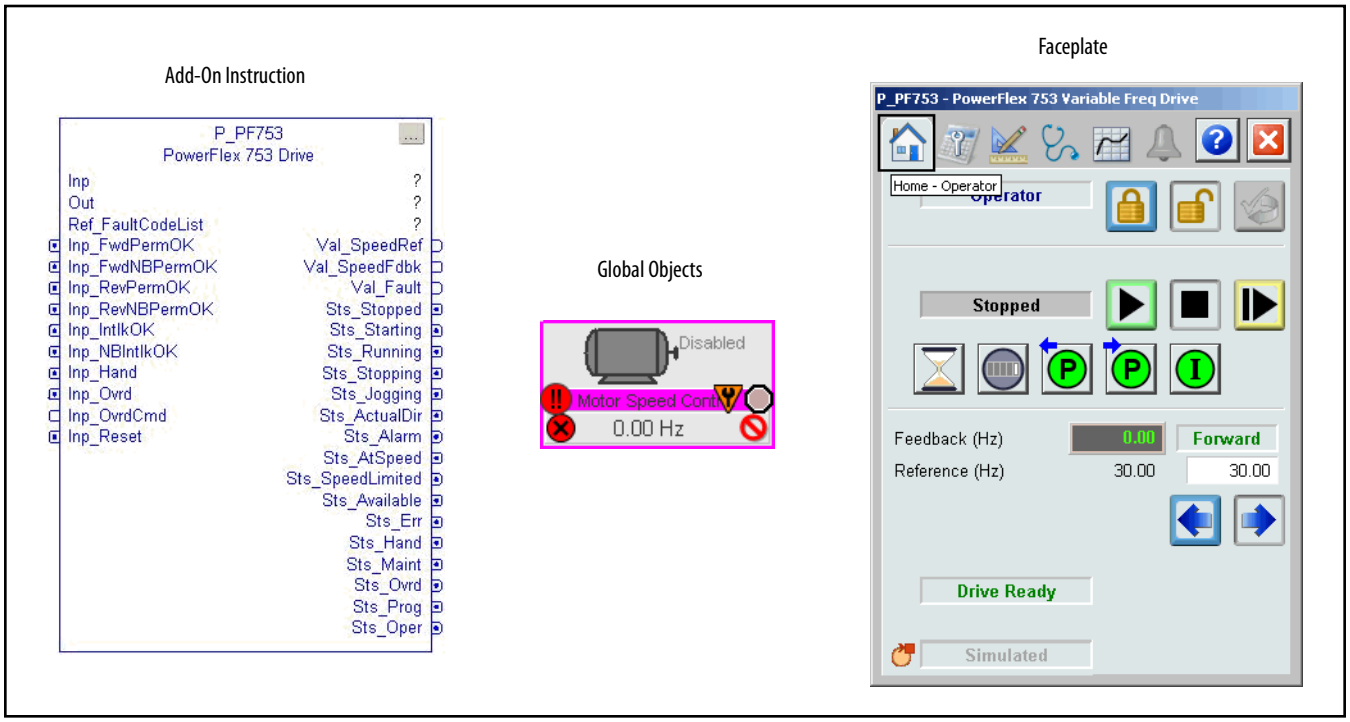
Resource	Description
PlantPAx® Distributed Control System Selection Guide, publication PROCES-SG001	Provides information to assist with equipment procurement for your PlantPAx system.
PlantPAx Distributed Control System Reference Manual, publication PROCES-RM001	Provides characterized recommendations for implementing your PlantPAx system.
Rockwell Automation Library of Process Objects, publication PROCES-RM002	Provides general considerations for the PlantPAx system library of process objects.
FactoryTalk® View Machine Edition User Manual, publication VIEWME-UM004	Provides details on how to use this software package for creating an automation application.
FactoryTalk View Site Edition User Manual, publication VIEWSE-UM006	Provides details on how to use this software package for developing and running human-machine interface (HMI) applications that can involve multiple users and servers, distributed over a network.
PowerFlex® 750-series Technical Data, publication 750-TD001	Shows the specifications and certifications for the PowerFlex 750-series AC drives.
PowerFlex 750-series AC Drives Installation Instructions, publication 750-IN001	Explains the steps for mechanical installation and for connecting incoming power, the motor, and basic I/O to the PowerFlex 750-series Adjustable Frequency AC drives.
PowerFlex 750-series AC Drives Programming Manual, publication 750-PM001	Provides basic information to install, start up, and troubleshoot PowerFlex 750-series Adjustable Frequency AC Drives.
Safe Speed Monitor Option Module for PowerFlex 750-series AC Drives Safety Reference Manual, publication 750-RM001	Explains how PowerFlex 750-series drives can be used in Safety Integrity Level (SIL) CL3, Performance Level [PL e], or Category (CAT) 4 applications.
PowerFlex 750-series AC Drives Reference Manual, publication 750-RM002	Provides details on the operation, parameters descriptions, and programming for PowerFlex 750-series AC drives.
Rockwell Automation Library of Process Objects: Common Alarm Block (P_Alarm) Reference Manual, publication SYSLIB-RM002	Details how to monitor an input condition to raise an alarm. Information includes acknowledging, resetting, inhibiting, and disabling an alarm. Generally the P_Alarm faceplate is accessible from the Alarms tab.

Resource	Description
Rockwell Automation Library of Process Objects: Interlocks with First Out and Bypass (P_Intlk) Reference Manual, publication SYSLIB-RM004	Explains how to collect (sum up) the interlock conditions that stop or de-energize a running or energized piece of equipment or prevent it from starting or being energized.
Rockwell Automation Library of Process Objects: Common Mode Block (P_Mode) Reference Manual, publication SYSLIB-RM005	Explains how to choose the Mode (owner) of an instruction or control strategy. The Mode instruction is usually embedded within other instructions to extend their functionality.
Rockwell Automation Library of Process Objects: Permissives with Bypass (P_Perm) Reference Manual, publication SYSLIB-RM007	Details how to collect permissive conditions to start a piece of equipment.
Rockwell Automation Library of Process Objects: Restart Inhibit for Large Motor (P_ResInh) Reference Manual, publication SYSLIB-RM009	Explains how to protect a large motor from damage caused by repeated starts.
Rockwell Automation Library of Process Objects: Run Time and Starts (P_RunTime) Reference Manual, publication SYSLIB-RM010	Explains how to accumulate the total run time and count of starts for a motor or other equipment.

You can view or download publications at http:/www.rockwellautomation.com/literature/. To order paper copies of technical documentation, contact your local Allen-Bradley distributor or Rockwell Automation sales representative.

PowerFlex 753 Drive (P_PF753)

The P_PF753 (PowerFlex 753 Drive) object is used to operate one variable-speed motor by using a PowerFlex 753 AC variable frequency drive in various modes, and monitoring for fault conditions. The global objects and following faceplate are examples of the graphical interface tools for this Add-On Instruction.



Guidelines

Use this instruction when you need to operate a motor connected to a PowerFlex 753 variable frequency AC drive that is communicating with the controller over an EtherNet/IP network.

This instruction is designed to work with the PowerFlex 753 drive and a 20-COMM-E EtherNet communication module.

Do **not** use this instruction in these situations:

- You need to operate a single-speed motor (running and stopped only). Use the P_Motor instruction instead.
- You need to operate a two-speed motor (fast, slow, and stopped only). Use the P_Motor2Spd instruction instead.
- You need to operate a simple reversing motor (forward, reverse, and stopped only). Use the P_MotorRev instruction instead.
- You need to operate a motor with multiple discrete speeds. You need specific logic for this motor. The P_PF753 instruction is designed for motors with continuously variable (analog) speed, not multiple discrete speed selections. You can use the P_D4SD or P_nPos instruction for motors with multiple discrete speeds.

- If your PowerFlex 753 drive uses the 20-750-ENETR EtherNet interface, use the P_PF755 instruction instead. The PowerFlex 753 drive with the 20-750-ENETR interface uses the same interface data structures as the PowerFlex 755 drive, giving you more data.
- If you are using a drive other than the PowerFlex 523, 525, 753, or 755, drive, use the P_VSD (generic variable-speed drive) instruction instead.

Functional Description

The P_PF753 instruction provides the following capabilities:

- Ownership of the drive through the standard P_Mode Add-On Instruction and modes.
- Ability to start and stop the drive and motor, control the drive speed (via speed reference), and monitor the drive run status and speed feedback to verify the drive is running or stopped. Provides alarms and drive shutdown for Fail to Start and Fail to Stop if the feedback does not follow the commanded state within a configured amount of time.
- Reading from the drive, the instruction displays drive faults, drive alarms, conditions that inhibit starting the drive, drive predictive maintenance data, and general drive status data.
- Ability to read a fault code from the drive and provide descriptive text of fault codes.
- Indication of Accelerating, Decelerating, At Speed, Warning, or Alarm status as received from the drive.
- Optional capability to support reversing drives, with commands for forward and reverse rotation, and display of actual rotation direction.
- Input and alarm for a drive fault condition and an output to send a drive fault reset to the drive. Provides a configurable time to pulse the drive fault reset output when a reset command is received.
- Permissives (bypassable and non-bypassable), which are conditions that let a drive start, and Interlocks (bypassable and non-bypassable), which are conditions that stop the drive as well as prevent starting. Provides an alarm when an Interlock stops the drive. Provides maintenance personnel the capability to bypass the bypassable Permissives and Interlocks.
- Maintenance personnel have the capability to disable (soft lock out) the drive. This capability is not a substitute for hard lockout/tagout (LOTO) procedures.
- Monitor an I/O fault input, and alarm on an I/O fault. The I/O fault condition can optionally de-energize the outputs to the drive, requiring a reset.
- In Override mode, provides an override state input that determines if the override is to run or stop the drive (default = stop), and, if the drive is to run, an override speed reference and direction.

- Provides simulation capability. Outputs to the drive are kept de-energized, but the object can be manipulated as if a working drive were present, including a basic ramp-up of speed feedback value on starting and ramp-down on stopping. The simulated ramp-up-to-speed time is configurable. This capability is often used for activities such as system testing and operator training.

Required Files

Add-On Instructions are reusable code objects that contain encapsulated logic that can streamline implementing your system. This lets you create your own instruction set for programming logic as a supplement to the instruction set provided natively in the ControlLogix® firmware. An Add-On Instruction is defined once in each controller project, and can be instantiated multiple times in your application code as needed.

Controller File

The P_PF753_3_5-**00**_RUNG.L5X rung import must be imported into the controller project to be used in the controller configuration. The service release number (boldfaced) can change as service revisions are created.

Visualization Files

This Add-On Instruction has associated visualization files that provide a common user interface. These files can be downloaded from the Product Compatibility and Download Center at http://www.rockwellautomation.com/rockwellautomation/support/pcdc.page.

IMPORTANT The visualization file dependencies require Process Library content imports to occur in a specific order as reflected in the following tables:

- Images
- Global Objects
- Standard Displays
- HMI Tags
- Macros

Images are external graphic files that can be used in displays. They must be imported for FactoryTalk View to make use of them.

When PNG files are imported, they are renamed by FactoryTalk View with a .bmp file extension, but retain a .png format.

Table 2 - Visualization Files: Images (.png)

FactoryTalk View SE Software	FactoryTalk View ME Software	Description
All .png files in the images folder	All .png files in the images folder	These are the common icons used in the global objects and standard displays for all Process Objects.

The Global Object files (.ggfx file type) in the following table are Process Library display elements 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.

Table 3 - Visualization Files: Global Objects (.ggfx)

FactoryTalk View SE Software	FactoryTalk View ME Software	Description
(RA-BAS) Common Faceplate Objects	(RA-BAS-ME) Common Faceplate Objects	Global objects used on process object faceplates.
(RA-BAS) P_VSD Graphics Library	(RA-BAS-ME) P_VSD Graphics Library	Drive global object device symbols used to build process graphics.
(RA-BAS) Process Alarm Objects	(RA-BAS-ME) Process Alarm Objects	Global objects used for managing alarms on process object faceplates.
(RA-BAS) Process Diagnostic Objects	(RA-BAS-ME) Process Diagnostic Objects	Diagnostic global objects used on process object faceplates.
(RA-BAS) Process Faceplate Motor Objects	(RA-BAS-ME) Process Faceplate Motor Objects	Motor global objects used on process object faceplates.
(RA-BAS) Process Help Objects	(RA-BAS-ME) Process Help Objects	Global objects used for all process objects help displays.
(RA-BAS) Process Interlock Objects	(RA-BAS-ME) Process Interlock Objects	Global objects used for managing interlocks and permissives on process object faceplates.
(RA-BAS) Process Mode Objects	(RA-BAS-ME) Process Mode Objects	Global objects used for managing modes on process object faceplates.

The Standard Display files (.gfx file type) in the following table are the Process Library displays that you see at runtime.

Table 4 - Visualization Files: Standard Displays (.gfx)

FactoryTalk View SE Software	FactoryTalk View ME Software	Description
(RA-BAS) Common-AnalogEdit	N/A	Faceplate used for analog input data entry. The FactoryTalk View ME faceplates use the native analog input data entry so no file is required.
(RA-BAS) P_Alarm-Faceplate	(RA-BAS-ME) P_Alarm-Faceplate	The faceplate that is used for managing alarms for the object.
(RA-BAS) P_Alarm-Help	(RA-BAS-ME) P_Alarm-Help	Alarm Help information that is accessed from the P_Alarm faceplate.
(RA-BAS) P_Mode-Config	(RA-BAS-ME) P_Mode-Config	The Configuration Display used to configure the P_Mode object.
(RA-BAS) P_Mode-Help	(RA-BAS-ME) P_Mode-Help	Mode Help information that is accessed from the Help faceplate.
(RA-BAS) P_PF753-Faceplate	(RA-BAS-ME) P_PF753-Faceplate	The faceplate that is used for the object
(RA-BAS) P_PF753-Quick	(RA-BAS-ME) P_PF753-Quick	The Quick display that is used for the object
(RA-BAS) P_Intlk-Faceplate	(RA-BAS-ME) P_Intlk-Faceplate	**Optional** The interlock faceplate used for the object. Use this file if your Discrete Output has an associated P_Intlk object and you enable navigation to its faceplate from the Discrete Output faceplate.
(RA-BAS) P_Perm-Faceplate	(RA-BAS-ME) P_Perm-Faceplate	**Optional** Permissive faceplate that is used for the object Use this file if your object has an associated P_Perm object and you enable navigation to the P_Perm faceplate from the object faceplate.

Table 4 - Visualization Files: Standard Displays (.gfx)

FactoryTalk View SE Software	FactoryTalk View ME Software	Description
(RA-BAS) P_ResInh-Faceplate	(RA-BAS-ME) P_ResInh-Faceplate	**Optional** Restart/inhibit faceplate display that is used for the object Use this file if your object has an associated P_ResInh object and you enable navigation to the P_ResInh faceplate from the object faceplate.
(RA-BAS) P_RunTime-Faceplate	(RA-BAS-ME) P_RunTime-Faceplate	**Optional** RunTime faceplate display that is used for the object Use this file if your object has an associated P_RunTime object and you enable navigation to the P_RunTime faceplate from the object faceplate.
(RA-BAS) Process Interlock Family-Help	(RA-BAS-ME) Process Interlock Family-Help	**Optional** Interlock/permissives help display that is used for the object Use this file if you use the P_Intlk or P_Perm faceplate.

HMI Tags are created in a FactoryTalk View ME application to support tab switching on Process Library faceplates. The HMI tags may be imported via the comma-separated values file (.csv file type) in the following table.

Table 5 - Visualization Files: HMI Tags (.csv)

FactoryTalk View SE Software	FactoryTalk View ME Software	Description
N/A	FTVME_PlantPAxLib_Tags_3_5_**xx**.csv where **xx** = the service release number.	These tags must be imported into the FactoryTalk View ME project to support switching tabs on any Process Object faceplate.

Controller Code

This section describes the parameter references for this Add-On Instruction.

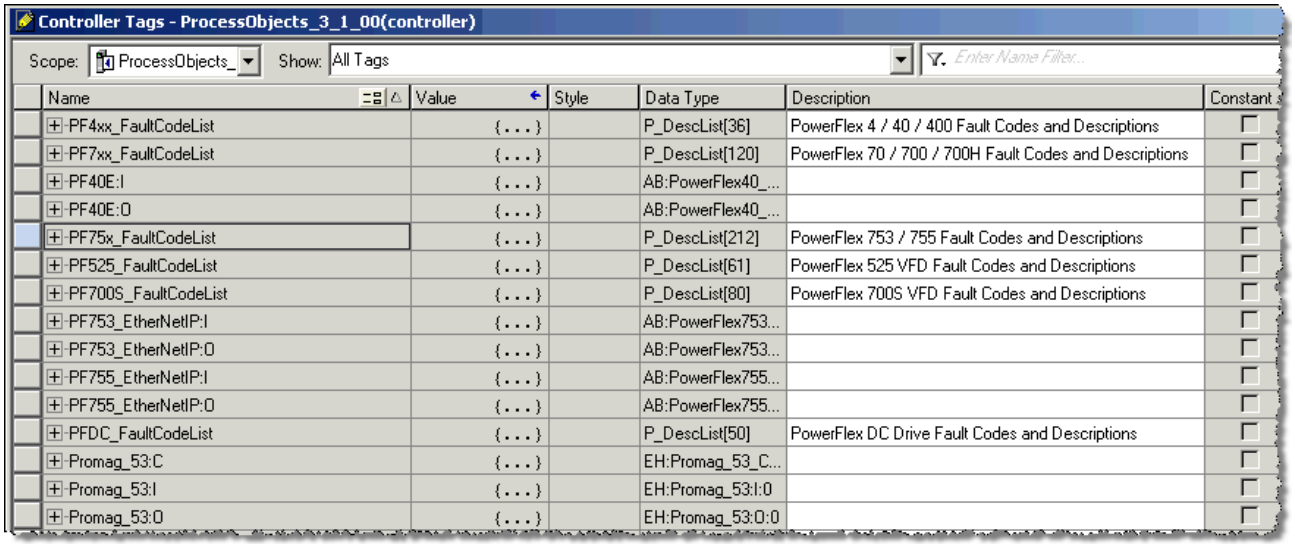
PowerFlex 753 Drive InOut Structure

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.

Table 7 - P_PF753 Drive InOut Parameters

Tag Name	Data Type	Description
Inp	P_PF753_Inp	Common part of PowerFlex 753 input assembly.
Out	P_PF753_Out	Common part of PowerFlex 753 output assembly.
Ref_FaultCodeList	P_DescList[*]	Array tag containing list of fault codes (DINT) and their descriptions (STRING_40).

The figure below shows the drive fault table tags that are in each template.



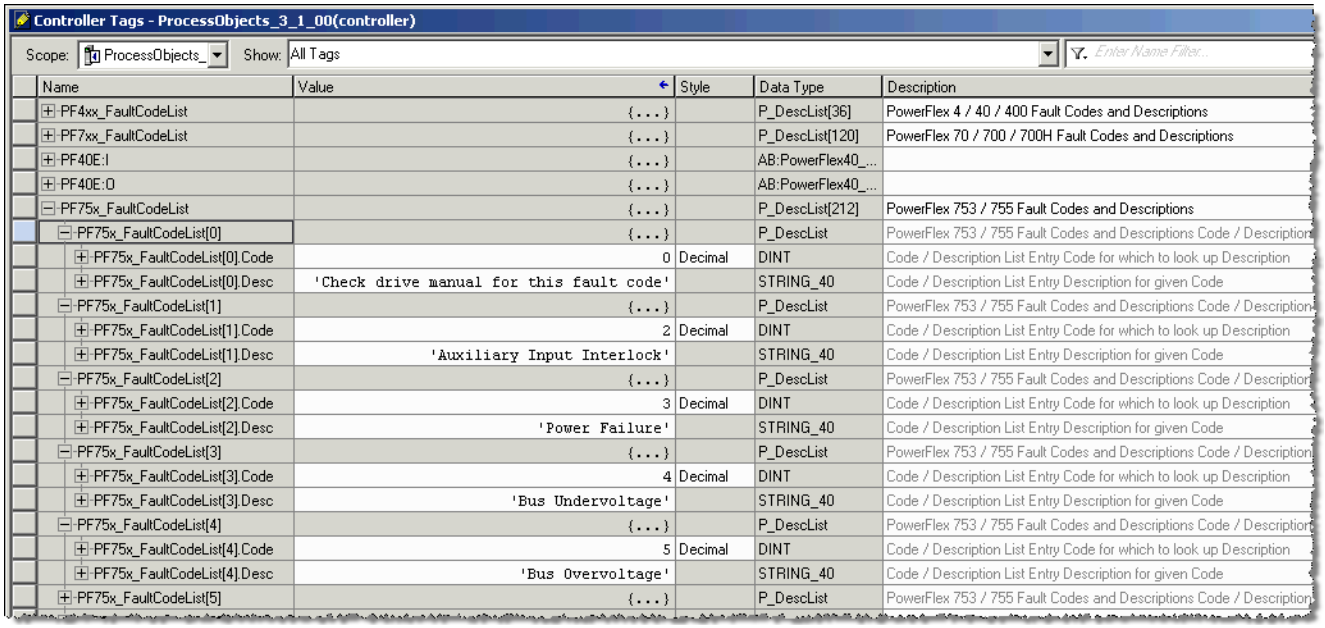
Controller Tags - ProcessObjects_3_1_00(controller)

Scope: ProcessObjects_ Show: All Tags Enter Name Filter...

Name	Value	Style	Data Type	Description	Constant
PF4xx_FaultCodeList	{...}		P_DescList[36]	PowerFlex 4 / 40 / 400 Fault Codes and Descriptions	
PF7xx_FaultCodeList	{...}		P_DescList[120]	PowerFlex 70 / 700 / 700H Fault Codes and Descriptions	
PF40E:I	{...}		AB:PowerFlex40_...		
PF40E:O	{...}		AB:PowerFlex40_...		
PF75x_FaultCodeList	{...}		P_DescList[212]	PowerFlex 753 / 755 Fault Codes and Descriptions	
PF525_FaultCodeList	{...}		P_DescList[61]	PowerFlex 525 VFD Fault Codes and Descriptions	
PF700S_FaultCodeList	{...}		P_DescList[80]	PowerFlex 700S VFD Fault Codes and Descriptions	
PF753_EtherNetIP:I	{...}		AB:PowerFlex753...		
PF753_EtherNetIP:O	{...}		AB:PowerFlex753...		
PF755_EtherNetIP:I	{...}		AB:PowerFlex755...		
PF755_EtherNetIP:O	{...}		AB:PowerFlex755...		
PFDC_FaultCodeList	{...}		P_DescList[50]	PowerFlex DC Drive Fault Codes and Descriptions	
Promag_53:C	{...}		EH:Promag_53_C...		
Promag_53:I	{...}		EH:Promag_53:I:0		
Promag_53:O	{...}		EH:Promag_53:O:0		

To display fault descriptions for the PowerFlex 753 drive, you must enter the name of the Fault Code List (first column) in the P_PF753 Ref_FaultCodeList parameter.

Each fault code list has preset codes and descriptions that provide human-readable descriptions of drive fault conditions.



Controller Tags - ProcessObjects_3_1_00(controller)

Scope: ProcessObjects_ Show: All Tags Enter Name Filter...

Name	Value	Style	Data Type	Description
PF4xx_FaultCodeList	{...}		P_DescList[36]	PowerFlex 4 / 40 / 400 Fault Codes and Descriptions
PF7xx_FaultCodeList	{...}		P_DescList[120]	PowerFlex 70 / 700 / 700H Fault Codes and Descriptions
PF40E:I	{...}		AB:PowerFlex40_...	
PF40E:O	{...}		AB:PowerFlex40_...	
PF75x_FaultCodeList	{...}		P_DescList[212]	PowerFlex 753 / 755 Fault Codes and Descriptions
PF75x_FaultCodeList[0]	{...}		P_DescList	PowerFlex 753 / 755 Fault Codes and Descriptions Code / Description
PF75x_FaultCodeList[0].Code	0	Decimal	DINT	Code / Description List Entry Code for which to look up Description
PF75x_FaultCodeList[0].Desc	'Check drive manual for this fault code'		STRING_40	Code / Description List Entry Description for given Code
PF75x_FaultCodeList[1]	{...}		P_DescList	PowerFlex 753 / 755 Fault Codes and Descriptions Code / Description
PF75x_FaultCodeList[1].Code	2	Decimal	DINT	Code / Description List Entry Code for which to look up Description
PF75x_FaultCodeList[1].Desc	'Auxiliary Input Interlock'		STRING_40	Code / Description List Entry Description for given Code
PF75x_FaultCodeList[2]	{...}		P_DescList	PowerFlex 753 / 755 Fault Codes and Descriptions Code / Description
PF75x_FaultCodeList[2].Code	3	Decimal	DINT	Code / Description List Entry Code for which to look up Description
PF75x_FaultCodeList[2].Desc	'Power Failure'		STRING_40	Code / Description List Entry Description for given Code
PF75x_FaultCodeList[3]	{...}		P_DescList	PowerFlex 753 / 755 Fault Codes and Descriptions Code / Description
PF75x_FaultCodeList[3].Code	4	Decimal	DINT	Code / Description List Entry Code for which to look up Description
PF75x_FaultCodeList[3].Desc	'Bus Undervoltage'		STRING_40	Code / Description List Entry Description for given Code
PF75x_FaultCodeList[4]	{...}		P_DescList	PowerFlex 753 / 755 Fault Codes and Descriptions Code / Description
PF75x_FaultCodeList[4].Code	5	Decimal	DINT	Code / Description List Entry Code for which to look up Description
PF75x_FaultCodeList[4].Desc	'Bus Overvoltage'		STRING_40	Code / Description List Entry Description for given Code
PF75x_FaultCodeList[5]	{...}		P_DescList	PowerFlex 753 / 755 Fault Codes and Descriptions Code / Description

For a complete list of fault codes for the PowerFlex 753 Drive, refer to the PowerFlex 750 Series AC Drivers Programming Manual, publication 750-PM001.

PowerFlex 753 Drive Input Structure

Input parameters include the following:

- Input data elements (Inp_) are typically used to connect field inputs from I/O modules or signals from other objects.
- Configuration data elements (Cfg_) are used to set configurable capabilities and features of the instruction.
- Command data elements (PCmd_, OCmd_, MCmd_) are used by program logic, operators, and maintenance personnel to request instruction actions.
- Setting data elements (PSet_, OSet_, MSet_) are used by program logic, operators, and maintenance personnel to establish runtime setpoints, thresholds, and so forth. Set_ data elements (without a leading P, O, or M) establish runtime settings regardless of role or mode.

Table 8 - P_PF753 Drive Input Parameters

Input Parameter	Data Type	Alias For	Default	Description
EnableIn	BOOL		1	**Ladder Diagram:** If the rung-in condition is true, the instruction's Logic routine executes. If the rung-in condition is false, the instruction's EnableInFalse routine executes. **Function Block Diagram:** If true, or not connected, the instruction's Logic routine executes. If the parameter is exposed as a pin and wired, and the pin is false, the instruction's EnableInFalse routine executes. **Structured Text:** No effect. The instruction's Logic routine executes.
Inp_FwdPermOK	BOOL		1	1 = Permissives OK, drive can start Forward.
Inp_FwdNBPermOK	BOOL		1	1 = Non-Bypassable Permissives OK, drive can start Forward.
Inp_RevPermOK	BOOL		1	1 = Permissives OK, drive can start Reverse.
Inp_RevNBPermOK	BOOL		1	1 = Non-bypassable Permissives OK, motor can start Reverse.
Inp_IntlkOK	BOOL		1	1 = Interlocks OK, drive can start/run.
Inp_NBIntlkOK	BOOL		1	1 = Non-bypassable Interlocks OK, drive can start/run.
Inp_IOFault	BOOL		0	Input communication status: 0 = OK, 1 = fail
Inp_Sim	BOOL		0	Simulation input. When set to 1, the instruction keeps outputs de-energized (zero) and simulates a working drive. When set to 0, the instruction operates the drive normally.
Inp_Hand	BOOL		0	1 = Request to acquire Hand mode 0 = Release Hand mode
Inp_Ovrd	BOOL	Mode.Inp_Ovrd	0	1 = Request to Acquire Override mode 0 = Release Override mode
Inp_OvrdCmd	SINT		0	Override mode command: 0 = None 1 = Stop 2 = Start Fwd 3 = Start Rev
Inp_OvrdSpeed	REAL		0.0	Value to set Speed Reference in Override mode (SpeedRef engineering units).
Inp_Reset	BOOL		0	1 = Reset drive fault conditions and latched Alarms.

Table 8 - P_PF753 Drive Input Parameters

Input Parameter	Data Type	Alias For	Default	Description
Cfg_HasReverse	BOOL		0	1 = Drive can be run reverse. 0 = Forward only.
Cfg_HasJog	BOOL		0	1 = Drive Jog Command enabled/visible. 0 = Drive Jog Command not allowed.
Cfg_AllowLocal	BOOL		0	1 = Allow Local Start/Stop without alarm. 0 = Start/Stop from HMI/program only.
Cfg_HasFwdPermObj	BOOL		0	1 = Tells HMI a forward permissive object (for example, P_Perm) is used for Inp_FwdPermOK and navigation to the permissive object's faceplate is enabled. **IMPORTANT:** The name of the Forward Permissive object in the controller must be this object's name with the suffix '_FwdPerm.' For example, if your P_PF753 object has the name 'PF753123', then its Forward Permissive object must be named 'PF753123_FwdPerm'.
Cfg_HasRevPermObj	BOOL		0	1 = Tells HMI a reverse permissive object (for example, P_Perm) is used for Inp_RevPermOK and navigation to the permissive object's faceplate is enabled. **IMPORTANT:** The name of the Reverse Permissive object in the controller must be this object's name with the suffix '_RevPerm'. For example, if your P_PF753 object has the name 'PF753123', then its Reverse Permissive object must be named 'PF753123_RevPerm'.
Cfg_HasIntlkObj	BOOL		0	1 = Tells HMI an interlock object (for example, P_Intlk) is used for Inp_IntlkOK and navigation to the interlock object's faceplate is enabled. **IMPORTANT:** The name of the Interlock object in the controller must be this object's name with the suffix '_Intlk'. For example, if your P_PF753 object has the name 'PF753123', then its Interlock object must be named 'PF753123_Intlk'.
Cfg_HasResInhObj	BOOL		0	1 = Tells HMI a restart inhibit object (for example, P_ResInh) is connected and navigation to the restart inhibit object's faceplate is enabled. **IMPORTANT:** The name of the Restart Inhibit object in the controller must be this object's name with the suffix '_ResInh'. For example, if your P_PF753 object has the name 'PF753123', then its Restart Inhibit object must be named 'PF753123_ResInh'.
Cfg_HasRunTimeObj	BOOL		0	1 = Tells HMI a runtime object (for example, P_RunTime) is connected and navigation to the runtime object's faceplate is enabled. **IMPORTANT:** The name of the runtime object in the controller must be this object's name with the suffix '_RunTime'. For example, if your P_PF753 object has the name 'PF753123', then its runtime object must be named 'PF753123_RunTime'.
Cfg_SetTrack	BOOL		1	This parameter is used to set up bumpless behavior of setting parameters when switching modes. When this parameter is 1, in Program mode the operator settings track the program settings; in Operator mode the program settings track the operator settings; and the simulation inputs match the output values (transitions are bumpless). When this parameter is 0, the operator settings and program settings are not modified by this instruction. In this case, when the mode is changed, the effective value of the setting can change depending on the program-set and operator-set values.
Cfg_SetTrackOvrdHand	BOOL		0	1 = Program/Operator settings track Override/Hand mode settings.
Cfg_PCmdClear	BOOL	Mode.Cfg_PCmdClear	1	When this parameter is 1, program commands are cleared once they are acted upon. When set to 0, program commands remain set until cleared by the application program logic. **IMPORTANT:** Clearing this parameter online can cause unintended program command execution.
Cfg_ProgDefault	BOOL	Mode.Cfg_ProgDefault	0	This parameter defines the default mode. When this parameter is 1, the mode defaults to Program if no mode is being requested. When this parameter is 0, the mode defaults to Operator if no mode is being requested. **IMPORTANT:** Changing this parameter online can cause unintended mode changes.

Table 8 - P_PF753 Drive Input Parameters

Input Parameter	Data Type	Alias For	Default	Description
Cfg_OperStopPrio	BOOL		0	1 = OCmd_Stop has priority, accepted any time. If OCmd_Stop stops the drive in a mode other than Maintenance or Operator, a reset is required to start. 0 = OCmd_Stop only in Operator or Maintenance mode.
Cfg_OCmdResets	BOOL		0	1 = New Operator drive command resets fault. If OCmd_Stop stops the drive in a mode other than Maintenance or Operator, a reset is required to start. 0 = Reset required to clear fault.
Cfg_OvrdPermIntlk	BOOL		0	1 = Override ignores Bypassable Permissive/ Interlock. 0 = Always use Permissive/ Interlock.
Cfg_ShedOnFailToStart	BOOL		1	1 = Stop motor and alarm on Fail to Start. 0 = Alarm only on Fail to Start. **IMPORTANT:** If a condition is configured to shed the device to the Stopped state on a fault, a reset is required to clear the shed fault to command the drive to a state other than Stopped.
Cfg_ShedOnIOFault	BOOL		1	1 = Stop motor and alarm on I/O Fault. 0 = Alarm only on I/O Fault. **IMPORTANT:** If a condition is configured to shed the device to the Stopped state on a fault, a reset is required to clear the shed fault to command the drive to a state other than Stopped.
Cfg_SimScaleEU	BOOL		0	1 = In simulation, scale Speed Ref engineering units to Speed feedback engineering units.
Cfg_SimScaleRaw	BOOL		0	1 = In simulation, scale Speed Ref engineering units to raw, then raw to Speed feedback engineering units.
Cfg_HasFailToStartAlm	BOOL	FailToStart.Cfg_Exists	0	These parameters determine whether the corresponding alarm exists and is evaluated or if the alarm does not exist and is not used. When these parameters are 1, the corresponding alarm exists.
Cfg_HasFailToStopAlm		FailToStop.Cfg_Exists		
Cfg_HasIntlkTripAlm		IntlkTrip.Cfg_Exists		
Cfg_HasDriveFaultAlm		DriveFault.Cfg_Exists		
Cfg_HasIOFaultAlm		IOFault.Cfg_Exists		
Cfg_FailToStartResetReqd	BOOL	FailToStart.Cfg_ResetReqd	0	These parameters determine whether a reset is required to clear the alarm status. When these parameters are 1, the alarm is latched ON when the alarm occurs. After the alarm condition returns to normal, a reset is required to clear the alarm status (for example, OCmd_Reset, Inp_Reset, or Drivefault.OCmd_Reset are required to clear Alm_DriveFault alarm after the alarm is set and the value returns to normal). When these parameters are 0, no reset is required and the alarm status is cleared when the alarm condition returns to normal. **IMPORTANT:** If the reset clears the alarm, it also acknowledges the alarm.
Cfg_FailToStopResetReqd		FailToStop.Cfg_ResetReqd		
Cfg_IntlkTripResetReqd		IntlkTrip.Cfg_ResetReqd		
Cfg_DriveFaultResetReqd		DriveFault.Cfg_ResetReqd		
Cfg_IOFaultResetReqd		IOFault.Cfg_ResetReqd		
Cfg_FailToStartAckReqd	BOOL	FailToStart.Cfg_AckReqd	1	These parameters determine whether an acknowledgement is required for an alarm. When these parameters are 1, the acknowledge (ack) bit is cleared when the alarm occurs. An acknowledge command (for example, PCmd_FailAck or Fail.OCmd_Ack) is required to acknowledge the alarm. When set to 0, the Acknowledge bit is set when an alarm occurs indicating an acknowledged alarm and no acknowledge command is required.
Cfg_FailToStopAckReqd		FailToStop.Cfg_AckReqd		
Cfg_IntlkTripAckReqd		IntlkTrip.Cfg_AckReqd		
Cfg_DriveFaultAckReqd		DriveFault.Cfg_AckReqd		
Cfg_IOFaultAckReqd		IOFault.Cfg_AckReqd		

Table 8 - P_PF753 Drive Input Parameters

Input Parameter	Data Type	Alias For	Default	Description
Cfg_FailToStartSeverity	INT	FailToStart.Cfg_Severity	1000	These parameters determine the severity of each alarm. This drives the color and symbol that are used to indicate alarm status on the faceplate and global object. The following are valid values: 1…250 = Low 251…500 = Medium 501…750 = High 751…1000 = Urgent **IMPORTANT:** For FactoryTalk View software version 7.0, these severity parameters drive the indication only on the global object and faceplate. The Alarms and Events definition of severity drives the color and symbol that is used on the alarm banner and alarm summary as well as the value returned by FactoryTalk Alarms and Events display commands.
Cfg_FailToStopSeverity		FailToStop.Cfg_Severity		
Cfg_IntlkTripSeverity		IntlkTrip.Cfg_Severity	250	
Cfg_DriveFaultSeverity		DriveFault.Cfg_Severity	1000	
Cfg_IOFaultSeverity		IOFault.Cfg_Severity		
Cfg_MinSpdRef	REAL		0.0	Minimum Speed Reference in engineering units (for limiting).
Cfg_MaxSpdRef	REAL		60.0	Maximum Speed Reference in engineering units (for limiting).
Cfg_SpeedRefRawMin	DINT		0	Speed Reference Minimum in Drive (raw) Units (for scaling).
Cfg_SpeedRefRawMax	DINT		60000	Speed Reference Maximum in Drive (raw) Units (for scaling).
Cfg_SpeedRefEUMin	REAL		0.0	Speed Reference Minimum in Engineering Units (for scaling).
Cfg_SpeedRefEUMax	REAL		60.0	Speed Reference Maximum in Engineering Units (for scaling).
Cfg_SpeedFdbkRawMin	DINT		0	Speed Feedback Minimum in Drive (raw) Units (for scaling).
Cfg_SpeedFdbkRawMax	DINT		60000	Speed Feedback Maximum in Drive (raw) Units (for scaling).
Cfg_SpeedFdbkEUMin	REAL		0.0	Speed Feedback Minimum in Engineering Units (for scaling).
Cfg_SpeedFdbkEUMax	REAL		60.0	Speed Feedback Maximum in Engineering Units (for scaling).
Cfg_SimRampT	DINT		10	Time to ramp speed feedback when in Simulation (seconds).
Cfg_FailToStartT	DINT		15	Time after Start to get Run Feedback before Fault (seconds).
Cfg_FailToStopT	DINT		15	Time after Stop to drop Run Feedback before Fault (seconds).
Cfg_ResetPulseT	DINT		2	Time to pulse Out_Reset to clear drive fault (seconds).
Cfg_MaxJogT	REAL		0.0	Maximum jog time (seconds, 0 = unlimited).
Cfg_OperKeep	SINT		2#0000_0000	Operator keeps control in Program mode: Bit .0 = Reference, Bit .1 = Start/Stop, Bit .2 = Forward/Reverse
Cfg_ProgKeep	SINT		2#0000_0000	Program keeps control in Operator mode: Bit .0 = Reference, Bit .1 = Start/Stop, Bit .2 = Forward/Reverse
PSet_SpeedRef	REAL		0.0	Program Setting of Speed Reference (engineering units).
PSet_Owner	DINT		0	Program Owner Request ID (non-zero) or Release (zero).
OSet_SpeedRef	REAL		0.0	Operator Setting of Speed Reference (engineering units).
PCmd_Start	BOOL		0	When Cfg_PCmdClear is 1: • Set PCmd_Start to 1 to start the drive • Set PCmd_Stop to 1 to stop the drive • These parameters are reset automatically When Cfg_PCmdClear is 0: • Set PCmd_Start to 1 to start the drive • Set PCmd_Start to 0 to stop the drive • PCmd_Stop is not used • These parameters do not reset automatically
PCmd_Stop				

Table 8 - P_PF753 Drive Input Parameters

Input Parameter	Data Type	Alias For	Default	Description
PCmd_Fwd	BOOL		0	When Cfg_PCmdClear is 1: • Set PCmd_Fwd to 1 to select the forward direction • Set PCmd_Rev to 1 to select the reverse direction • These parameters are reset automatically When Cfg_PCmdClear is 0: • Set PCmd_Rev to 0 to select the forward direction • Set PCmd_Rev to 1 to select the reverse direction • PCmd_Fwd is not used • These parameters do not reset automatically
PCmd_Rev				
PCmd_Acq	BOOL	Mode.PCmd_Acq	0	When Cfg_PCmdClear is 1: • Set PCmd_Acq to 1 to Acquire • Set PCmd_Rel to 1 to Release • These parameters reset automatically When Cfg_PCmdClear is 0: • Set PCmd_Acq to 1 to Acquire • Set PCmd_Acq to 0 to Release • PCmd_Rel is not used • These parameters do not reset automatically
PCmd_Rel		Mode.PCmd_Rel		
PCmd_Lock	BOOL	Mode.PCmd_Lock	0	When Cfg_PCmdClear is 1: • Set PCmd_Lock to 1 to Lock • Set PCmd_Unlock to 1 to Unlock • These parameters reset automatically When Cfg_PCmdClear is 0: • Set PCmd_Lock to 1 to Lock • Set PCmd_Lock to 0 to Unlock • PCmd_Unlock is not used • These parameters do not reset automatically
PCmd_Unlock		Mode.PCmd_Unlock		
PCmd_Reset	BOOL		0	• Set PCmd_Reset to 1 to reset all alarms requiring reset • This parameter is always reset automatically
PCmd_FailToStartAck	BOOL	FailToStart.PCmd_Ack	0	• Set PCmd_<Alarm>Ack to 1 to Acknowledge alarm • The parameter is reset automatically
PCmd_FailToStopAck		FailToStop.PCmd_Ack		
PCmd_IntlkTripAck		IntlkTrip.PCmd_Ack		
PCmd_DriveFaultAck		DriveFault.PCmd_Ack		
PCmd_IOFaultAck		IOFault.PCmd_Ack		
PCmd_FailToStartSuppress	BOOL	FailToStart.PCmd_Suppress	0	When Cfg_PCmdClear is 1: • Set PCmd_<Alarm>Suppress to 1 to suppress alarm • Set PCmd_<Alarm>Unsuppress to 1 to unsuppress alarm • These parameters reset automatically When Cfg_PCmdClear is 0: • Set PCmd_<Alarm>Suppress to 1 to suppress alarm • Set PCmd_<Alarm>Suppress to 0 to unsuppress alarm • PCmd_<Alarm>Unsuppress is not used • These parameters do not reset automatically
PCmd_FailToStopSuppress		FailToStop.PCmd_Suppress		
PCmd_IntlkTripSuppress		IntlkTrip.PCmd_Suppress		
PCmd_DriveFaultSuppress		DriveFault.PCmd_Suppress		
PCmd_IOFaultSuppress		IOFault.PCmd_Suppress		
PCmd_FailToStartUnsuppress		FailToStart.PCmd_Unsuppress		
PCmd_FailToStopUnsuppress		FailToStop.PCmd_Unsuppress		
PCmd_IntlkTripUnsuppress		IntlkTrip.PCmd_Unsuppress		
PCmd_DriveFaultUnsuppress		DriveFault.PCmd_Unsuppress		
PCmd_IOFaultUnsuppress		IOFault.PCmd_Unsuppress		

Table 8 - P_PF753 Drive Input Parameters

Input Parameter	Data Type	Alias For	Default	Description
PCmd_FailToStartUnshelve	BOOL	FailToStart.PCmd_Unshelve	0	• Set PCmd_<Alarm>Unshelve to 1 to Unshelve alarm • The parameter is reset automatically
PCmd_FailToStopUnshelve		FailToStop.PCmd_Unshelve		
PCmd_IntlkTripUnshelve		IntlkTrip.PCmd_Unshelve		
PCmd_DriveFaultUnshelve		DriveFault.PCmd_Unshelve		
PCmd_IOFaultUnshelve		IOFault.PCmd_Unshelve		
OCmd_Start	BOOL		0	Operator command to start drive.
OCmd_Stop	BOOL		0	Operator command to stop drive.
OCmd_Jog	BOOL		0	Operator command to jog drive (not cleared by instruction if Cfg_MaxJogT = 0).
OCmd_Fwd	BOOL		0	Operator command to set direction to Forward.
OCmd_Rev	BOOL		0	Operator command to set direction to Reverse.
OCmd_Bypass	BOOL		0	Operator command to bypass all bypassable interlocks and permissives.
OCmd_Check	BOOL		0	Operator command to check (not bypass) all interlocks and permissives.
MCmd_Disable	BOOL		0	Maintenance command to disable drive.
MCmd_Enable	BOOL		0	Maintenance command to enable (allow to run) drive.
MCmd_Acq	BOOL	Mode.MCmd_Acq	0	Maintenance command to acquire ownership (Operator/Program/Override to Maintenance).
MCmd_Rel	BOOL	Mode.MCmd_Rel	0	Maintenance command to release ownership (Maintenance to Operator/Program/Override).
OCmd_AcqLock	BOOL	Mode.OCmd_AcqLock	0	Operator command to acquire (Program to Operator)/lock ownership.
OCmd_Unlock	BOOL	Mode.OCmd_UnlockRel	0	Operator command to unlock/release (Operator to Program) ownership.
OCmd_Reset	BOOL		0	Operator command to reset all alarms requiring reset and trigger a drive reset if the drive is faulted.
OCmd_ResetAckAll	BOOL		0	Operator command to acknowledge and reset all alarms and latched Shed conditions.

PowerFlex 753 Drive Output Structure

Output parameters include the following:

- Output data elements (Out_) are the primary outputs of the instruction, typically used by hardware output modules; however, they can be used by other application logic.
- Value data elements (Val_) are numeric outputs of the instruction for use by the HMI. Values can also be used by other application logic or software packages.
- Source and Quality data elements (SrcQ_) are outputs of the instruction used by the HMI to indicate PV source and quality.
- Status data elements (Sts_) are bit outputs of the instruction for use by the HMI. Status bits can also be used by other application logic.
- Error data elements (Err_) are outputs of the instruction that indicate a particular configuration error. If any Err_ bit is set then the Sts_Err configuration error summary status is set and the Invalid Configuration indicator is displayed on the HMI.
- Not Ready data elements (Nrdy_) are bit outputs of the instruction for use by the HMI for displaying the Device Not Ready indicator.
- Alarm data elements (Alm_) are outputs of the instruction that indicate a particular alarm has occurred.
- Acknowledge data elements (Ack_) are outputs of the instruction that indicate the corresponding alarm has been acknowledged.
- Ready data elements (Rdy_) are bit outputs of the instruction used by the HMI to enable or disable Command buttons and Setting entry fields.

Table 9 - P_PF753 Drive Output Parameters

Output Parameter	Data Type	Alias For	Description
EnableOut	BOOL		Enable Output: The EnableOut signal is not manipulated by this instruction. Its output state always reflects EnableIn Input state.
Val_SpeedRef	REAL		Speed Reference (target) to drive.
Val_SpeedFdbk	REAL		Speed Feedback (actual) from drive.
Val_SpeedRefSrc	DINT		Speed Reference Source (enumeration) 1 = Reference A 2 = Reference B 3 = Preset 3 4 = Preset 4 5 = Preset 5 6 = Preset 6 7 = Preset 7 16…31 = Manual Reference Settings
Val_SpeedRefRaw	REAL		Copy of Speed Reference Output (in Raw units) for faceplate.
Val_SpeedFdbkRaw	REAL		Copy of Speed Feedback Input (in Raw units) for faceplate.
Val_SpeedRefEUMin	REAL		Minimum of Speed Reference = MIN (Cfg_SpeedFdbkEUMin, Cfg_SpeedFdbkEUMax). (engineering units)
Val_SpeedRefEUMax	REAL		Maximum of Speed Reference = MAX (Cfg_SpeedFdbkEUMin, Cfg_SpeedFdbkEUMax). (engineering units)
Val_SpeedFdbkEUMin	REAL		Minimum of Speed Feedback = MIN (Cfg_SpeedFdbkEUMin, Cfg_SpeedFdbkEUMax). (engineering units)

Table 9 - P_PF753 Drive Output Parameters

Output Parameter	Data Type	Alias For	Description
Val_SpeedFdbkEUMax	REAL		Maximum of Speed Feedback = MAX (Cfg_SpeedFdbkEUMin, Cfg_SpeedFdbkEUMax). (engineering units)
Val_LastFaultCode	DINT		Last drive fault code (enumeration) (Par 951).
SrcQ_IO	SINT		I/O signal source and quality.
SrcQ			Final source and quality: GOOD 0 = I/O live and confirmed good quality 1 = I/O live and assumed good quality 2 = No feedback configured, assumed good quality TEST 8 = Device simulated 9 = Device loopback simulation 10 = Manually entered value UNCERTAIN 16 = Live input, off-specification 17 = Value substituted at device/bus 18 = Value substituted by maintenance (Has and not Use) 19 = Shed, using last good value 20 = Shed, using replacement value BAD 32 = Signal failure (out-of-range, NaN, invalid combination) 33 = I/O channel fault 34 = I/O module fault 35 = Bad I/O configuration (for example, scaling parameters)
Val_Cmd	SINT		Device command: 0 = None 1 = Stop 2 = Start forward 3 = Start reverse 4 = Jog forward 5 = Jog reverse
Val_Fdbk	SINT		Device feedback: 0 = Stopped 1 = Running forward 2 = Running reverse 3 = Accelerating 4 = Decelerating
Val_Sts	SINT		Device Confirmed Status: 0= Powerup/Unknown 1 = Stopped 2 = Running forward 3 = Running reverse 4 = Jogging forward 5 = Jogging reverse 6 = Stopping 7 = Starting forward 8 = Starting reverse 33 = Disabled
Val_Fault	SINT		Device fault status: 0 = None 16 = Fail to Start 17 = Fail to Stop 18 = Drive Fault 32 = I/O Fault 34 = Configuration Error

Table 9 - P_PF753 Drive Output Parameters

Output Parameter	Data Type	Alias For	Description
Val_Mode	SINT	Mode.Val	The current mode is shown with status bits and also as an enumeration 'Val_Mode' as follows: 0 = No mode 1 = Hand 2 = Maintenance 3 = Override 4 = Program (locked) 5 = Operator (locked) 6 = Program (unlocked, Operator is default) 7 = Operator (unlocked, Program is default) 8 = Program (unlocked, Program is default) 9 = Operator (unlocked, Operator is default)
Val_Owner	DINT		Current Object Owner ID (0 = not owned).
Val_Notify	SINT		Current alarm level and acknowledgement (enumeration): 0 = No alarm 1 = Alarm cleared: a reset or acknowledge is required 2 = Low (acknowledged) 3 = Low (unacknowledged) 4 = Medium (acknowledged) 5 = Medium (unacknowledged) 6 = High (acknowledged) 7 = High (unacknowledged) 8 = Urgent (acknowledged) 9 = Urgent (unacknowledged)
Sts_Stopped	BOOL		1 = Drive requested to stop and is confirmed stopped.
Sts_Starting	BOOL		1 = Drive requested to run and awaiting run feedback.
Sts_Running	BOOL		1 = Drive requested to run and is confirmed running.
Sts_Stopping	BOOL		1 = Drive requested to stop and awaiting stopped feedback.
Sts_Jogging	BOOL		1 = Drive requested to jog.
Sts_CommandDir	BOOL		1 = Drive commanded to Forward. 0 = Reverse.
Sts_ActualDir	BOOL		1 = Drive actual direction is Forward. 0 = Reverse.
Sts_Accel	BOOL		1 = Drive is accelerating.
Sts_Decel	BOOL		1 = Drive is decelerating.
Sts_NotReady	BOOL		1 = Drive is Not Ready (cannot be started), check alarms, stops, faults.
Sts_Alarm	BOOL		1 = Drive has an alarm (see drive display or manual).
Sts_AtSpeed	BOOL		1 = Drive is running at reference speed.
Sts_SpeedLimited	BOOL		1 = Speed Reference setting exceeds configured Max/Min limit.
Sts_DriveSts1	DINT		Drive Status Word #1 (bit mapped) Par 935).
Sts_DriveSts2	DINT		Drive Status Word #2 (bit mapped) (Par 936).
Sts_FaultStsA	DINT		Drive Fault Status A (bit mapped) (Par 952).
Sts_FaultStsB	DINT		Drive Fault Status B (bit mapped) (Par 953).
Sts_PMSts	DINT		Predictive Maintenance status (bit mapped) (Par 469).
Sts_StartInhibits	DINT		Drive Start Inhibit reasons (bit mapped) (Par. 933).
Sts_Available	BOOL		1 = Drive available for control by automation (Program).
Sts_Bypass	BOOL		1 = Bypassable Interlocks and Permissives are bypassed.

Table 9 - P_PF753 Drive Output Parameters

Output Parameter	Data Type	Alias For	Description
Sts_BypActive	BOOL		1 = Bypassing active (Bypassed or Maintenance).
Sts_Disabled	BOOL		1 = Drive is disabled.
Sts_NotRdy	BOOL		1 = Motor is Not Ready to Run (independent of mode), check interlocks and permissives.
Nrdy_Disabled	BOOL		1 = Device Not Ready: • Device disabled by Maintenance • Configuration error • Interlock not OK • Permissive not OK • Operator State 0 priority command requires reset • Device Failure (Shed Requires Reset) • I/O Fault (Shed requires reset) • Device tripped (Drive Fault) • Drive not ready • Device Logic disabled/no mode
Nrdy_CfgErr			
Nrdy_Intlk			
Nrdy_Perm			
Nrdy_OperPrio			
Nrdy_Fail			
Nrdy_IOFault			
Nrdy_Trip			
Nrdy_DriveNR			
Nrdy_NoMode			
Sts_MaintByp	BOOL		1 = A Maintenance Bypass is active, display icon.
Sts_AlmInh	BOOL		1 = An alarm is Shelved, Disabled or Suppressed, display icon.
Sts_Err	BOOL		1 = Error in configuration: see detail bits for reason.
Err_Timer	BOOL		1 = Error in configuration: Invalid Check or Reset Pulse Time (use 0…2,147,483).
Err_Sim	BOOL		1 = Error in configuration: simulation timer preset: use 0…2,147,483).
Err_Alarm	BOOL		1 = Error in configuration: Alarm Minimum On time or severity.
Err_FdbkRaw	BOOL		1 = Error in configuration: Speed feedback raw minimum = maximum.
Err_FdbkEU	BOOL		1 = Error in configuration: Speed feedback engineering units minimum = maximum.
Err_RefLim	BOOL		1 = Error in configuration: Speed Ref Limit minimum > maximum.
Err_RefEU	BOOL		1 = Error in configuration: Speed Ref engineering units minimum = maximum.
Err_RefRaw	BOOL		1 = Error in configuration: Speed Ref Raw minimum = maximum.
Sts_Hand	BOOL	Mode.Sts_Hand	1 = Mode is Hand (supersedes Operator, Program, Override, and Maintenance).
Sts_Maint	BOOL	Mode.Sts_Maint	1 = Mode is Maintenance (supersedes Operator, Program, and Override).
Sts_Ovrd	BOOL	Mode.Sts_Ovrd	1 = Mode is Override (supersedes Operator and Program).
Sts_Prog	BOOL	Mode.Sts_Prog	1 = Mode is Program (automatic).
Sts_Oper	BOOL	Mode.Sts_Oper	1 = Mode is Operator (manual).
Sts_ProgOperLock	BOOL	Mode.Sts_ProgOperLock	1 = Program or operator has requested mode Lock.
Sts_NoMode	BOOL	Mode.Sts_NoMode	1 = No mode (disabled because EnableIn is False).
Sts_MAcqRcvd	BOOL	Mode.Sts_MAcqRcvd	1 = Maintenance Acquire command received this scan.
Sts_FailToStart	BOOL	FailToStart.Inp	1 = Drive failed to start.
Sts_FailToStop		FailToStop.Inp	1 = Drive failed to stop.
Sts_IntlkTrip		IntlkTrip.Inp	1 = Drive was stopped by an Interlock Not OK (One-Shot).
Sts_DriveFault		DriveFault.Inp	1 = Drive Fault (see drive display or manual).
Sts_IOFault		IOFault.Inp	I/O Comm Fault status (0 = OK, 1 = Bad).

Table 9 - P_PF753 Drive Output Parameters

Output Parameter	Data Type	Alias For	Description
Alm_FailToStart	BOOL	FailToStart.Alm	1 = Drive Fail to Start alarm.
Alm_FailToStop		FailToStop.Alm	1 = Drive Fail to Stop alarm.
Alm_IntlkTrip		IntlkTrip.Alm	1 = Alarm: Drive stopped by an Interlock Not OK.
Alm_DriveFault		DriveFault.Alm	1 = Alarm: Drive Fault (see drive display or manual).
Alm_IOFault		IOFault.Alm	1 = I/O Fault alarm.
Ack_FailToStart	BOOL	FailToStart.Ack	1 = Fail to Start, Fail to Stop, Interlock Trip, Drive Fault, or I/O Fault alarm has been acknowledged.
Ack_FailToStop		FailToStop.Ack	
Ack_IntlkTrip		IntlkTrip.Ack	
Ack_DriveFault		DriveFault.Ack	
Ack_IOFault		IOFault.Ack	
Sts_FailToStartDisabled	BOOL	FailToStart.Disabled	1 = Fail to Start, Fail to Stop, Interlock Trip, Drive Fault, or I/O Fault alarm has been disabled (by maintenance).
Sts_FailToStopDisabled		FailToStop.Disabled	
Sts_IntlkTripDisabled		IntlkTrip.Disabled	
Sts_DriveFaultDisabled		DriveFault.Disabled	
Sts_IOFaultDisabled		IOFault.Disabled	
Sts_FailToStartShelved	BOOL	FailToStart.Shelved	1 = Fail to Start, Fail to Stop, Interlock Trip, Drive Fault, or I/O Fault alarm has been shelved (by operator).
Sts_FailToStopShelved		FailToStop.Shelved	
Sts_IntlkTripShelved		IntlkTrip.Shelved	
Sts_DriveFaultShelved		DriveFault.Shelved	
Sts_IOFaultShelved		IOFault.Shelved	
Sts_FailToStartSuppressed	BOOL	FailToStart.Suppressed	1 = Fail to Start, Fail to Stop, Interlock Trip, Drive Fault, or I/O Fault alarm has been suppressed (by program).
Sts_FailToStopSuppressed		FailToStop.Suppressed	
Sts_IntlkTripSuppressed		IntlkTrip.Suppressed	
Sts_DriveFaultSuppressed		DriveFault.Suppressed	
Sts_IOFaultSuppressed		IOFault.Suppressed	
Rdy_Start	BOOL		1 = Ready to receive Operator command: Start, Stop, Jog, Forward, Reverse, Bypass, or Check (enables HMI button).
Rdy_Stop			
Rdy_Jog			
Rdy_Fwd			
Rdy_Rev			
Rdy_Bypass			
Rdy_Check			
Rdy_Disable	BOOL		1 = Ready to receive MCmd_Disable or MCmd_Enable (enables HMI button).
Rdy_Enable			
Rdy_Reset	BOOL		1 = Ready to receive OCmd_Reset (enables HMI button).
Rdy_ResetAckAll	BOOL		1 = At least one alarm or latched Shed condition requires Reset or Acknowledged.
Rdy_SpeedRef	BOOL		1 = Ready to receive OSet_SpeedRef (enables data entry field).
P_PF753	BOOL		Unique Parameter Name for auto-discovery.

PowerFlex 753 Drive Local Configuration Tags

Configuration parameters that are array, string, or structure data types cannot be configured as parameters for Add-On Instructions. Configuration parameters of these types appear as local tags to the Add-On Instruction. Local tags can be configured through the HMI faceplates or in Studio 5000 Logix Designer® application by opening the Instruction Logic of the Add-On Instruction instance and then opening the Data Monitor on a local tag. These parameters cannot be modified by using controller logic or Logix Designer application export/import functionality.

Table 10 - Local Configuration Tags

Tag Name	Data Type	Default	Description
Cfg_Desc	STRING_40	'PowerFlex 753 Variable Frequency Drive'	Description for display on HMI. This string is shown in the title bar of the faceplate.
Cfg_FwdText	STRING_16	'Forward'	Name for forward direction, for example, 'Up', 'Forward'.
Cfg_Label	STRING_20	'Motor Speed Control'	Label for graphic symbol displayed on HMI. This string appears on the graphic symbol.
Cfg_RevText	STRING_16	'Reverse'	Name for reverse direction, for example, 'Down', 'Reverse'.
Cfg_SpeedFdbkEU	STRING_8	'Hz'	Speed feedback engineering units for display on HMI.
Cfg_SpeedRefEU	STRING_8	'Hz'	Speed reference engineering units for display on HMI.
Cfg_Tag	STRING_20	'P_PF753'	Tag name for display on HMI. This string is shown in the title bar of the faceplate.

Operations

This section describes the primary operations for Add-On Instructions.

Modes

This instruction uses the following standard modes, which are implemented by using an embedded P_Mode Add-On Instruction.

Table 11 - Modes

Mode	Description
Operator	The Operator owns control of the device. Operator commands (OCmd_) and Operator settings (OSet_) from the HMI are accepted.
Program	Program logic owns control of the device. Program commands (PCmd_) and Program settings (PSet_) are accepted.
Override	Priority logic owns control of the device and supersedes Operator and Program control. Override Inputs (Inp_OvrdCmd and other Inp_OvrdXxxx values) are accepted. If so configured, bypassable interlocks and permissives are bypassed.
Maintenance	Maintenance owns control of the device and supersedes Operator, Program, and Override control. Operator commands and settings from the HMI are accepted. Bypassable interlocks and permissives are bypassed, and device timeout checks are not processed.
Hand	Hardwired logic or other logic outside the instruction owns control of the device. The instruction tracks the state of the device for bumpless transfer back to one of the other modes.
No Mode	The device is disabled and has no owner because the EnableIn input is false. The main instruction Logic routine is not being scanned. See Execution section for more information on EnableInFalse processing.

IMPORTANT Instructions with Cfg_OperKeep and Cfg_ProgKeep keep some aspects of the device operation with the operator or program regardless of whether the main mode is Program or Operator mode.

See Rockwell Automation Library of Process Objects: Common Mode Block (P_Mode) Reference Manual, publication SYSLIB-RM005, for more information.

Alarms

This instruction uses the following alarms, which are implemented by using embedded P_Alarm and P_Gate Add-On Instructions.

Alarm Name	P_Alarm Name	P_Gate Name	Description
Drive Fault	DriveFault	None	Raised when the drive detects a fault and sets its Faulted status bit. Check the Fault Code and description to determine the cause. Issuing a Reset of this object will cause a Clear Fault command to be sent to the drive in an attempt to clear the fault.
Fail to Start	FailToStart	None	Raised when the drive has and is using run feedback, an attempt is made to start the drive, and the run feedback does not indicate that the drive is running within the configured time. If Fail to Start is configured as a shed fault, the drive is stopped and a reset is required in order to start the drive.
Fail to Stop	FailToStop	None	Raised when the drive has and is using run feedback, an attempt is made to stop the drive, and the run feedback does not indicate that the drive stopped within the configured time.
Interlock Trip	IntlkTrip	None	Raised when the drive is running and an interlock 'not OK' condition causes the drive to stop. If interlocks are not bypassed, a bypassable interlock or a non-bypassable interlock 'not OK' condition initiates an interlock trip. If interlocks are bypassed, only a non-bypassable interlock 'not OK' condition initiates an interlock trip.
I/O Fault	IOFault	None	Raised when the Inp_IOFault input is true. This input is usually used to indicate to the instruction that a communication failure has occurred for its I/O. If the I/O Fault is configured as a shed fault, the drive is stopped and not permitted to start until reset.

Parameters of the P_Alarm object can be accessed by using the following convention: [P_Alarm Name].[P_Alarm Parameter].

See Rockwell Automation Library of Process Objects: Common Alarm Block (P_Alarm) Reference Manual, publication SYSLIB-RM002, for more information.

Simulation

Simulation in P_PF753 disables the normal input and lets you operate the Add-On Instruction as if it were a working drive.

You must set the Inp_Sim parameter in the controller to '1' to enable simulation.

The Simulation icon  is displayed at the bottom left of the Operator faceplate, indicating the device is in simulation.

While in Simulation, you can use the controller to set the following parameters:

- Cfg_SimScaleEU = 0
  Cfg_SimScaleRaw = 0:

  Copy speed reference value directly to speed feedback.

  TIP Use this if reference and feedback are scaled the same.

- Cfg_SimScaleEU = 1
  Cfg_SimScaleRaw = 0:

  Scale the speed reference from the reference range to the feedback range.

  TIP Use this if the reference and feedback use different units but raw ranges are the same.

- Cfg_SimScaleEU = *
  Cfg_SimScaleRaw = 1:
  - Scale the speed reference to raw units.
  - Scale the raw speed reference to raw speed feedback units.
  - Scale the raw speed feedback to speed feedback engineering units.

  TIP Use this if raw ranges for feedback and reference are different.

You can also use Cfg_SimRampT to ramp the speed feedback (in seconds).

When you have finished in simulation, set the Inp_Sim parameter in the controller to '0' to return to normal operation.

Execution

The following table explains the handling of instruction execution conditions.

Condition	Description
EnableIn False (false rung)	Processing for EnableIn False (false rung) is handled the same as if the drive were Disabled by Command. The drive outputs are de-energized and the drive is shown as disabled on the HMI.
Powerup (prescan, first scan)	Processing of modes and alarms on Prescan and Powerup is handled by the embedded P_Mode and P_Alarm Add-On Instructions. See their specifications for details. On Powerup, the drive is treated as if it had been Commanded to Stop.
Postscan (SFC Transition)	No SFC Postscan logic is provided.

See the Logix5000™ Controllers Add-On Instructions Programming Manual, publication 1756-PM010, for more information.

Programming Example

This example uses the P_PF753 instruction to control the motor of a planetary mixer in a concrete batch plant.

In the drive command word, the Add-On Instruction uses bits .0 through .5 and does not use the rest of the bits in the 'Out' reference parameter in the InOut structure. These unused bit are available to use but must be configured before moving the drive command word to the drive output assembly.

Bits used by Add-On Instruction.

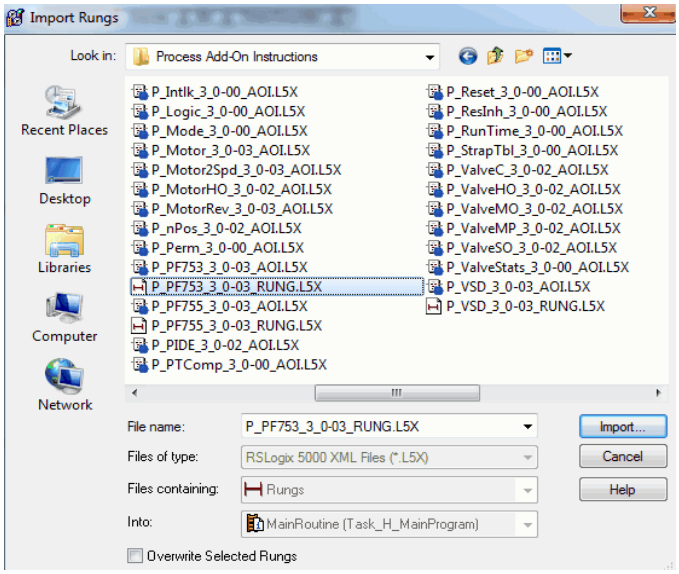
Bits not used by Add-On Instruction and available for use.

⊟	MyP_PF753_Out	{...}		P_PF753_Out
⊞	MyP_PF753_Out.LogicCommand	2#0000_0000_0001_0000	Binary	INT
	MyP_PF753_Out.LogicCommand_Stop	0	Decimal	BOOL
	MyP_PF753_Out.LogicCommand_Start	0	Decimal	BOOL
	MyP_PF753_Out.LogicCommand_Jog1	0	Decimal	BOOL
	MyP_PF753_Out.LogicCommand_ClearFaults	0	Decimal	BOOL
	MyP_PF753_Out.LogicCommand_Forward	1	Decimal	BOOL
	MyP_PF753_Out.LogicCommand_Reverse	0	Decimal	BOOL
	MyP_PF753_Out.LogicCommand_Manual	0	Decimal	BOOL
	MyP_PF753_Out.LogicCommand_AccelTime1	0	Decimal	BOOL
	MyP_PF753_Out.LogicCommand_AccelTime2	0	Decimal	BOOL
	MyP_PF753_Out.LogicCommand_DecelTime1	0	Decimal	BOOL
	MyP_PF753_Out.LogicCommand_DecelTime2	0	Decimal	BOOL
	MyP_PF753_Out.LogicCommand_SpdRefSel0	0	Decimal	BOOL
	MyP_PF753_Out.LogicCommand_SpdRefSel1	0	Decimal	BOOL
	MyP_PF753_Out.LogicCommand_SpdRefSel2	0	Decimal	BOOL
⊞	MyP_PF753_Out.Reference	50000	Decimal	DINT

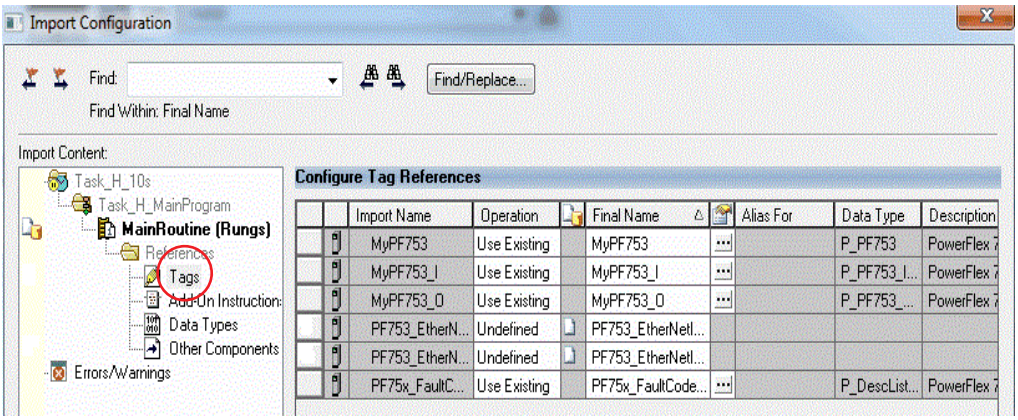
Follow these steps to import a rung to your project.

1. On the Controller Organizer, add your PowerFlex drive to the I/O Configuration and name the drive.
2. Under Tasks, click the plus sign (⊞) in front of Main Task.
3. Double-click Main_Routine to open this ladder logic routine.

4. Right-click one of the rungs and choose Import Rungs.
5. On the Import Rungs dialog box, select the P_PF753 instruction and click Import.

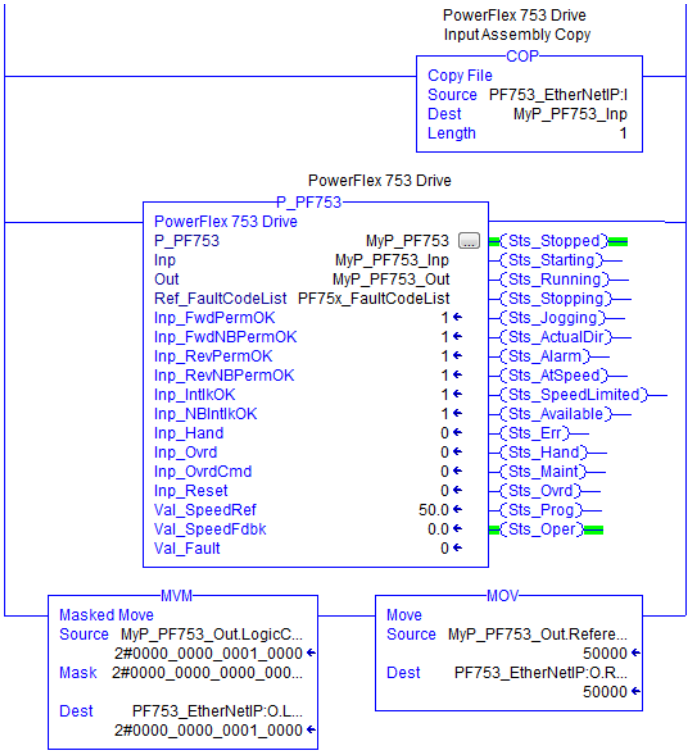


During the import process, you can name the tags for the routine in the Import Configuration dialog box.



6. In the Import Content tree, click Tags and type the names of the variables that match your process and the drive name in the Final Name column.

   Your ladder logic routine now looks like the example. Observe that the tag names and your drive's name are automatically placed in the instruction.



7. In the I/O Configuration, right-click the PowerFlex drive and choose Properties.

   The Module Properties dialog box appears.

8. Click Change.

   The Module Definition dialog box appears.

9. In the Input Data column, click Browse (...).

   The Parameter Properties dialog box appears.

10. From the pull-down menu, choose the port and parameter for each DataLink.

11. Click OK.

    The DataLinks that handle communication between the drive and controller, carry over to the Module Definition dialog box.

12. Repeat step 9 and step 10 until you have added all DataLinks.

    These are the required DataLinks to add to your project:

    - Predictive Maintenance Status (Port 0, Parameter 469)
    - Start Inhibits (Port 0, Parameter 933)
    - Drive Status 1 (Port 0, Parameter 935)
    - Drive Status 2 (Port 0, Parameter 936)
    - Last Fault Code (Port 0, Parameter 951)
    - Fault Status A (Port 0, Parameter 952)
    - Fault Status B (Port 0, Parameter 953)

Display Elements

The P_PF753 instruction uses the same HMI display elements that are used for the Variable Speed Drive (P_VSD) instruction.

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

Table 12 - P_PF753 Drive Display Elements Description

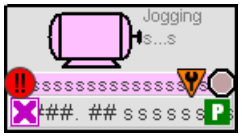
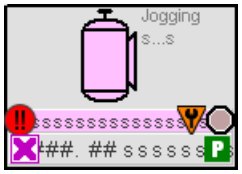
Display Element Name	Display Element	Description
GO_P_VSD_R		These display elements show the different motor positions (right, up, and down).
GO_P_VSD_U		
GO_P_VSD_D		
GO_P_VSD_Blower_R		These display elements show the different blower positions (right, left, up, and down).
GO_P_VSD_Blower_L		
GO_P_VSD_Blower_U		
GO_P_VSD_Blower_D		
GO_P_VSD_Conveyer_R		This display element illustrates a conveyer.

Table 12 - P_PF753 Drive Display Elements Description

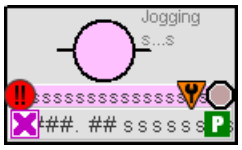
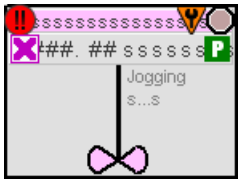
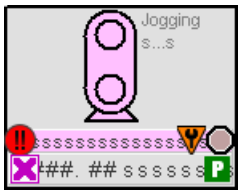
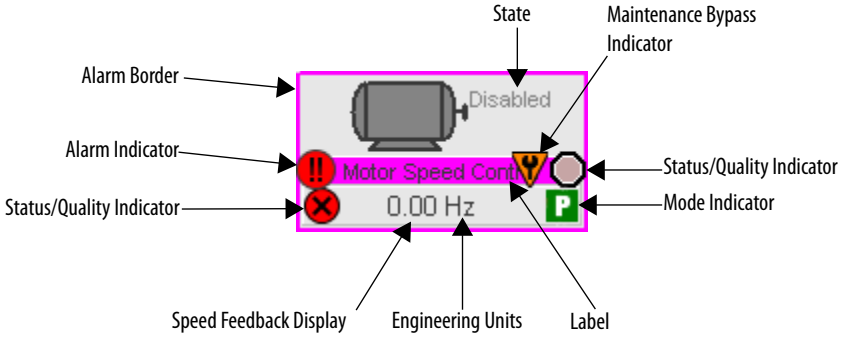
Display Element Name	Display Element	Description
GO_P_VSD_Inline_U		These display elements show the different inline motor positions (up, right, left, and down).
GO_P_VSD_Inline_R		
GO_P_VSD_Inline_L		
GO_P_VSD_Inline_D		
GO_P_VSD_Pump_R		These display elements show the different pump positions (left, up, and down).
GO_P_VSD_Pump_L		
GO_P_VSD_Pump_U		
GO_P_VSD_Agitator_D		This display element illustrates an agitator in the down position.
GO_P_VSD_Mixer_U		This display element shows a mixer in the up position.

Table 12 - P_PF753 Drive Display Elements Description

Display Element Name	Display Element	Description
GO_P_VSD_RPump_U		This display element shows a rotary gear pump in the up position.
GO_P_VSD_Fan_D		This display element shows a fan in the down position.

Common attributes of the P_PF753 global objects include the following:

- Graphical representation of the driven equipment
- Speed feedback display with engineering units
- Status/quality indicators
- Mode indicator
- Maintenance Bypass indicator
- State
- Label
- Color changing alarm border that blinks on unacknowledged alarm
- Alarm indicator that changes color with the severity of an alarm



State Indicators

The State Indicator text changes and the display element color changes depending on the state of the drive.

Color	State
Blue	Stopping
Dark gray	Stopped
Light blue	Jogging
Blue	Starting
White	Running

Status/Quality Indicators

One of these symbols appears on the graphic symbol when the described condition is true.

Graphic Symbol	Description
	Invalid configuration.
	Data quality bad/failure.
	Data Quality degraded: uncertain, test, simulation, substitution, or out of specification.
	The input or device has been disabled.
	Device not ready to operate.
	Speed reference limited to minimum/maximum.
	Motor is at target speed.
	Drive is accelerating.
	Drive is decelerating.

TIP When the Invalid Configuration Indicator appears, you can find what configuration setting is invalid by following the indicators. Click the graphic symbol to open the faceplate. The Invalid Configuration indicator appears next to the appropriate tab at the top of the faceplate to guide you in finding the configuration error. Once you navigate to the tab, the misconfigured item is flagged with this indicator or appears in a magenta box.

For the PowerFlex 753 Drive Instruction, the Invalid Configuration indicator appears under the following conditions:

- The Fail to Start check time, Fail to Stop check time, Reset Pulse time, or Maximum Jog time is set to a value less than zero or greater than 2,147,483 seconds.
- The Speed Feedback Raw Minimum and Raw Maximum scaling parameters are set to the same value.
- The Speed Feedback Scaled EU Minimum and EU Maximum scaling parameters are set to the same value.
- The Speed Reference Raw Minimum and Raw Maximum scaling parameters are set to the same value.
- The Speed Reference Scaled EU Minimum and EU Maximum scaling parameters are set to the same value.
- The Maximum Speed Reference clamp value is less than the Minimum Speed Reference clamp value, or either clamp value is less than zero.
- The Simulated Timer Preset is set to a value less than zero or greater than 2,147,483 seconds.
- An Alarm Minimum On Time or Shelf Time is set to a value less than zero or greater than 2,147,483 seconds.
- Alarm Severity is set to a value less than 1 or greater than 1000.

TIP When the Device Not Ready indicator appears, you can find what condition is preventing operation by following the indicators. Click the graphic symbol to open the faceplate. The Device Not Ready indicator appears next to the appropriate tab at the top of the faceplate to guide you in finding the condition. When you navigate to the tab, the condition preventing operation is flagged.

For the PowerFlex 753 Drive Instruction, the Device Not Ready indicator appears under the following conditions:

- Device has been disabled by Maintenance.
- There is a configuration error.
- Interlock or Permissive is not OK.
- Operator State 0 priority command requires reset.
- Device Failure and shed requires reset.
- I/O Fault and shed requires reset.
- Device has tripped (Device Fault).
- Drive is not ready.
- Device logic is disabled or there is no mode.

Mode Indicators

One of these symbols appears on the right side of the graphic symbol to indicate the mode of the object instruction.

Graphic Symbol	Description
Transparent	Operator mode (if the default mode is Operator and the current mode is Operator, the mode indicator is transparent).
	Operator mode (if the default mode is Program).
	Operator mode locked.
Transparent	Program mode (if the default mode is Program and the current mode is Program, the mode indicator is transparent).
	Program mode (if the default mode is Operator).
	Program mode locked.
	Override mode
	Maintenance mode.
	Hand mode
	No mode.

TIP The images provided for the Operator and Program default modes are transparent; therefore, no mode indicators are visible if the device is in its default mode. This behavior can be changed by replacing the image files for these mode indicators with images that are not transparent.

See Rockwell Automation Library of Process Objects: Common Mode Block (P_Mode) Reference Manual, publication SYSLIB-RM005, for more information.

Alarm Indicators

One of these symbols appears on the left side of the label to indicate the described alarm condition and the alarm border and label background change color. The alarm border and label background blink if acknowledgement of an alarm

condition is required. Once the alarm is acknowledged, the alarm border and label background remain the color that corresponds to the severity of the alarm.

Symbol	Border and Label Background	Description
	No change in color	Alarm Inhibit: an alarm is suppressed by the Program, disabled by Maintenance, or shelved by the Operator.
	White	Return to normal (no alarm condition), but a previous alarm has not been acknowledged.
	Blue	Low severity alarm.
	Yellow	Medium severity alarm.
	Red	High severity alarm.
	Magenta	Urgent severity alarm.
No symbol	No change in color	No alarm or alarm inhibit condition, and all alarms are acknowledged.

See Rockwell Automation Library of Process Objects: Common Alarm Block (P_Alarm) Reference Manual, publication SYSLIB-RM002, for more information.

Maintenance Bypass Indicator

This symbol appears to the right of the label to indicate that a maintenance bypass has been activated.

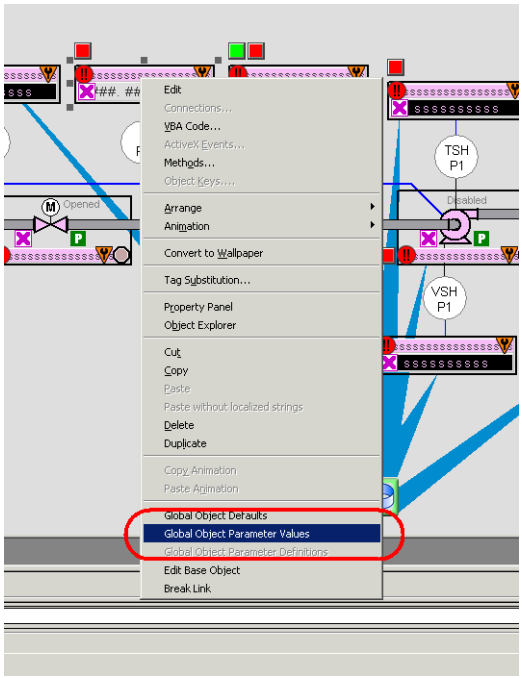
TIP When the Maintenance Bypass Indicator appears, you can find what condition was bypassed by following the indicators. Click the graphic symbol to open the faceplate. The Maintenance Bypass Indicator appears next to the appropriate tab at the top of the faceplate to guide you in finding the bypass.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

For the PowerFlex 753 Drive Instruction, the Maintenance Bypass Indicator appears when the bypassable interlocks and permissives have been bypassed.

Using Display Elements

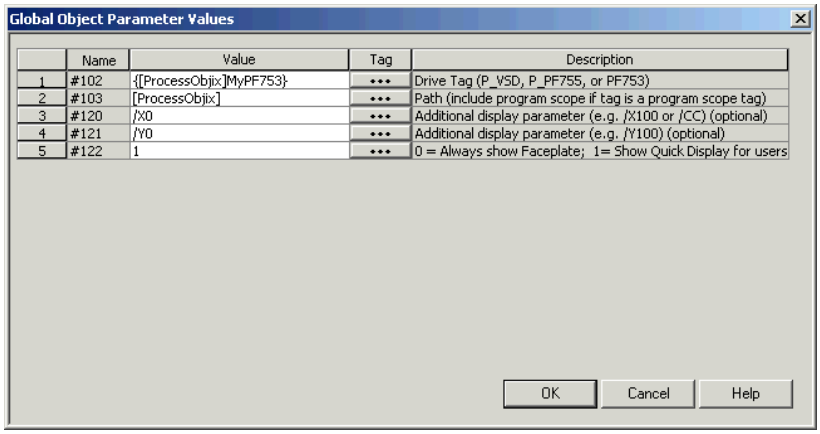
The global objects for P_PF753 can be found in the global object file (RA-BAS) P_VSD Graphics Library.ggfx. Follow these steps to use a global object.

1. Copy the global object from the global object file and paste it in the display file.



2. In the display, right-click the global object and choose Global Object Parameter Values.

   The Global Object Parameter Values dialog box appears.



The global object parameters are as follows.

Parameter	Required	Description
#102	Y	Object tag to point to the name of the associated object Add-On Instruction in the controller.
#103	Y	Path used for display navigation features to other objects. Include program scope if tag is a program scope tag.
#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. If defining X and Y coordinate, separate parameters so that X is defined by #120 and Y is defined by #121. This lets the same parameters be used in subsequent display commands originating from the faceplate.
#122	Y	These are the options for the global object display: 0 = Always show faceplate 1 = Show Quick Display for users without Maintenance access (Code C) 2 = Always show Quick Display

3. Type the tag or value in the Value column as specified in the Description column.

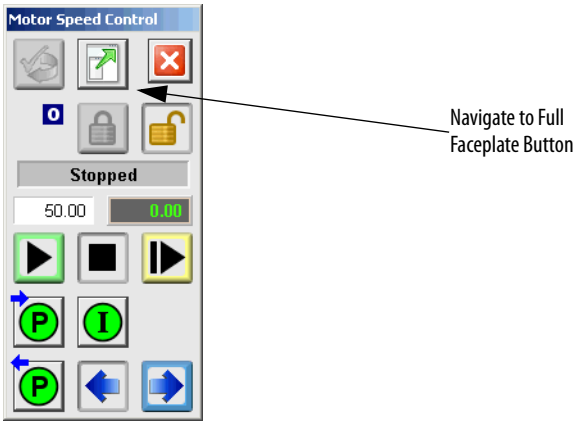
   TIP You can click the ellipsis (…) to browse and select a tag.

   Values for items marked '(optional)' can be left blank.

4. Click OK.

Quick Display

The Quick Display screen provides the means for operators to perform simple interactions with the P_PF753 instruction instance. From the Quick Display, you can navigate to the faceplate for full access for operation, maintenance, and configuration.

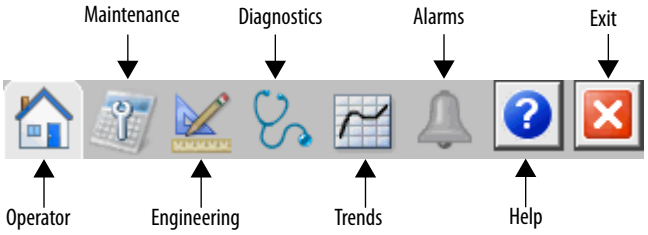


Faceplate

The P_PF753 faceplate consists of six tabs and each tab consists of one or more pages.

The title bar of the faceplate contains the value of local configuration tags Cfg_Tag and Cfg_Desc.

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



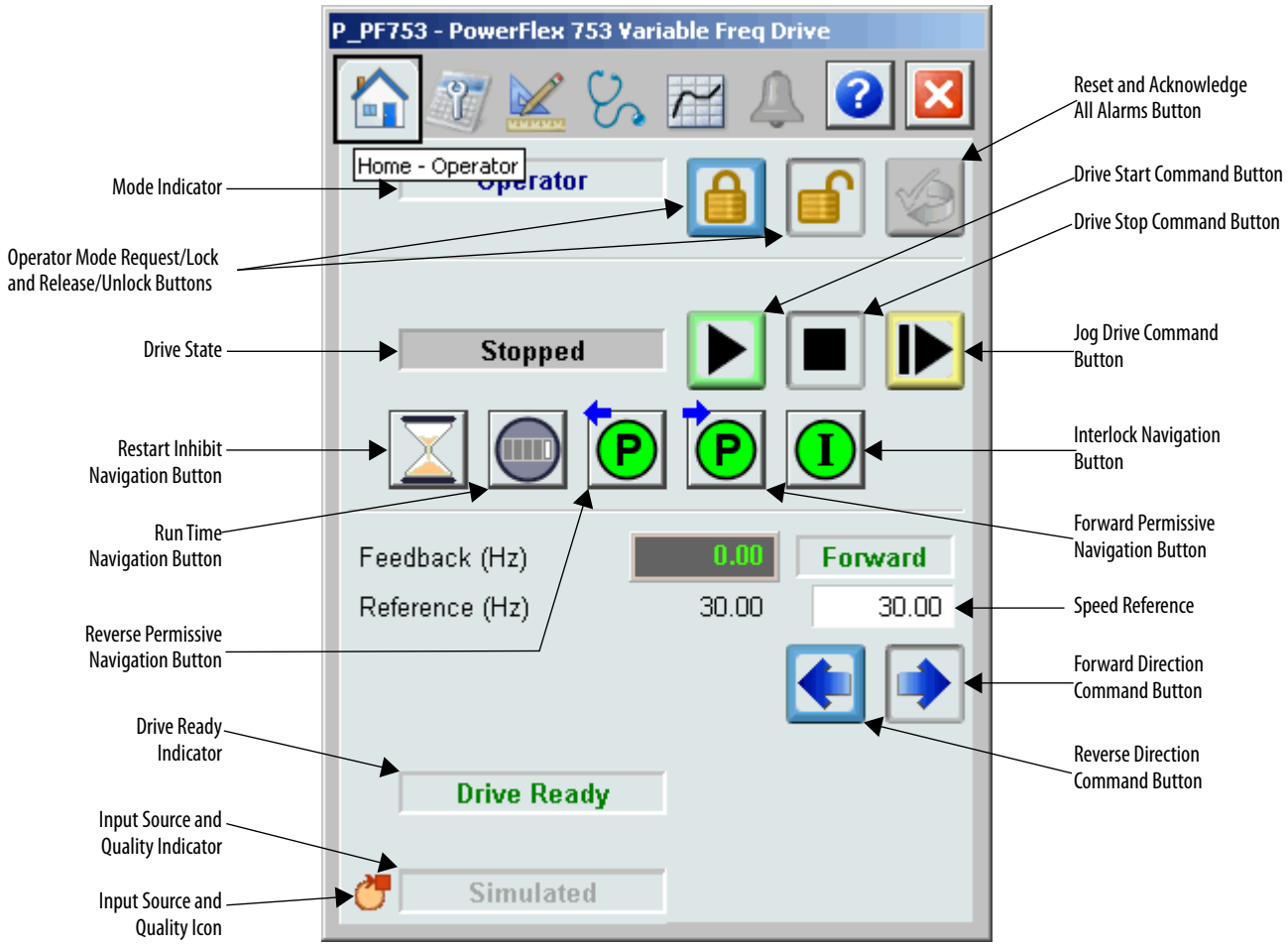
The faceplate provides the means for operators, maintenance personnel, engineers, and others to interact with the P_PF753 instruction instance, including viewing its status and values and manipulating it through its commands and settings. When a given input is restricted via FactoryTalk View security, the required user security-code letter is shown in the tables that follow.

Operator Tab

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

The Operator tab shows the following information:

- Current mode (Operator, Program, Override, Maintenance, or Hand)
- Requested mode indicator (appears only if the Operator or Program mode has been superseded by another mode)
- Drive State (Stopping, Stopped, Starting, Running, Disable, or I/O Fault)
- Drive Motion State (Accelerating, Decelerating, or At Speed)
- Drive Ready indicator (Drive Ready, Drive Not Ready, or Drive Faulted)
- Actual Speed and requested speed
- Actual Direction (appears only if the drive is configured Can Run Reverse)
- Input Source and Quality indicator (See 'SrcQ' in the Output parameters table on page 20 for details)
- Requested Direction (appears only if the drive is configured Can Run Reverse)



The following table shows the functions included on the Operator tab.

Table 13 - Operator Tab Description

Function	Action	Security
	Click to release Operator mode lock.	Manual Device Operation (Code B)
	Click to lock in Operator mode.	
	Click to request Program mode.	
	Click to request Operator mode.	
	Click to reset and acknowledge all alarms.	Acknowledge Alarms (Code F)
	Click to Start drive.	Normal Operation of Devices (Code A)
	Click to Stop drive.	
	Click to Jog drive.	
	Click to select forward direction.	
	Click to select reverse direction.	
	Click to open Reverse Permissive faceplate.	None
	Click to open Forward Permissive faceplate.	
	Click to open Interlock faceplate.	

Table 13 - Operator Tab Description

Function	Action	Security
	Click to open Runtime faceplate.	None
	Click to open Restart Inhibit faceplate.	
Reference (Hz)	Type the desired speed in engineering units.	

If the object is configured to have permissive and interlock objects (for example, Cfg_HasIntlkObj is true), the permissive and interlock indicators become buttons that open the faceplates of the source objects used as a permissive or interlock (often this is a P_Intlk or P_Perm object). If the object is not configured in this way, the permissive or interlock are indicators only.

The Operator tab also has a button to open the Restart Inhibit faceplate if the drive is configured to use the P_ResInh object (Cfg_HasResInh = 1). When the object is not configured to have an P_ResInh instruction, the Restart Inhibit button is not displayed.

The Operator tab also has a button to open the Runtime faceplate if the drive is configured to use the P_RunTime object (Cfg_HasRunTime = 1). When the object is not configured to have an P_RunTime instruction, the Runtime button is not displayed.

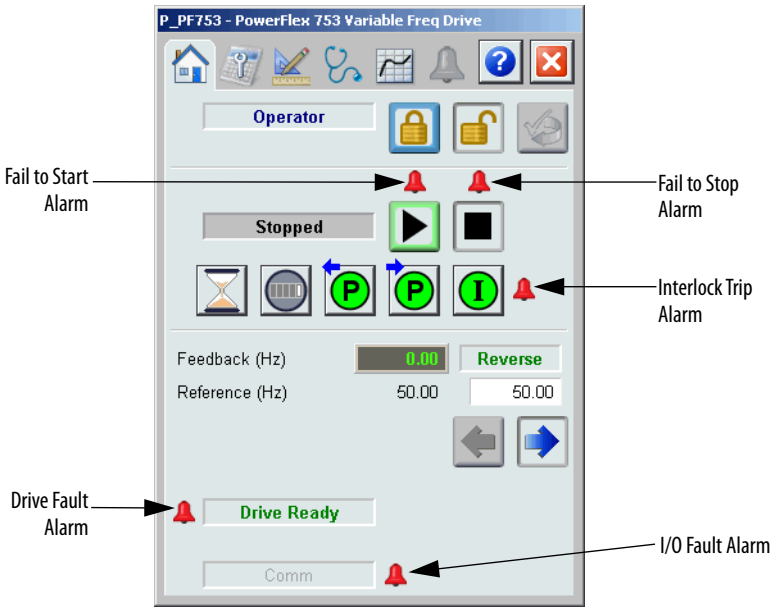
See these publications for more information:

- Rockwell Automation Library of Process Objects: Interlock with First Out and Bypass (P_Intlk) Reference Manual, publication SYSLIB-RM004
- Rockwell Automation Library of Process Objects: Permissives with Bypass (P_Perm) Reference Manual, publication SYSLIB-RM007
- Rockwell Automation Library of Process Objects: Restart Inhibit for Large Motor (P_ResInh) Reference Manual, publication SYSLIB-RM009
- Rockwell Automation Library of Process Objects: Runtime and Starts (P_RunTime) Reference Manual, publication SYSLIB-RM010

One of these symbols appears to indicate the described Interlock or Permissive condition.

Permissive Symbol	Interlock Symbol	Description
		One or more conditions not OK
		Non-bypassed conditions OK
		All conditions OK, bypass active
		All conditions OK

Alarm indicators appear on the Operator tab when the corresponding alarm occurs.



The following table shows the alarm status on the Operator tab.

Table 14 - Operator Tab Alarm Status

Graphic Symbol	Alarm Status
	In Alarm (Active Alarm)
	In Alarm and Acknowledged
	Out of Alarm but not Acknowledged
	Alarm Suppressed (by Program) (Alarm is logged but not displayed)
	Alarm Disabled (by Maintenance)
	Alarm Shelved (by Operator)

Maintenance Tab

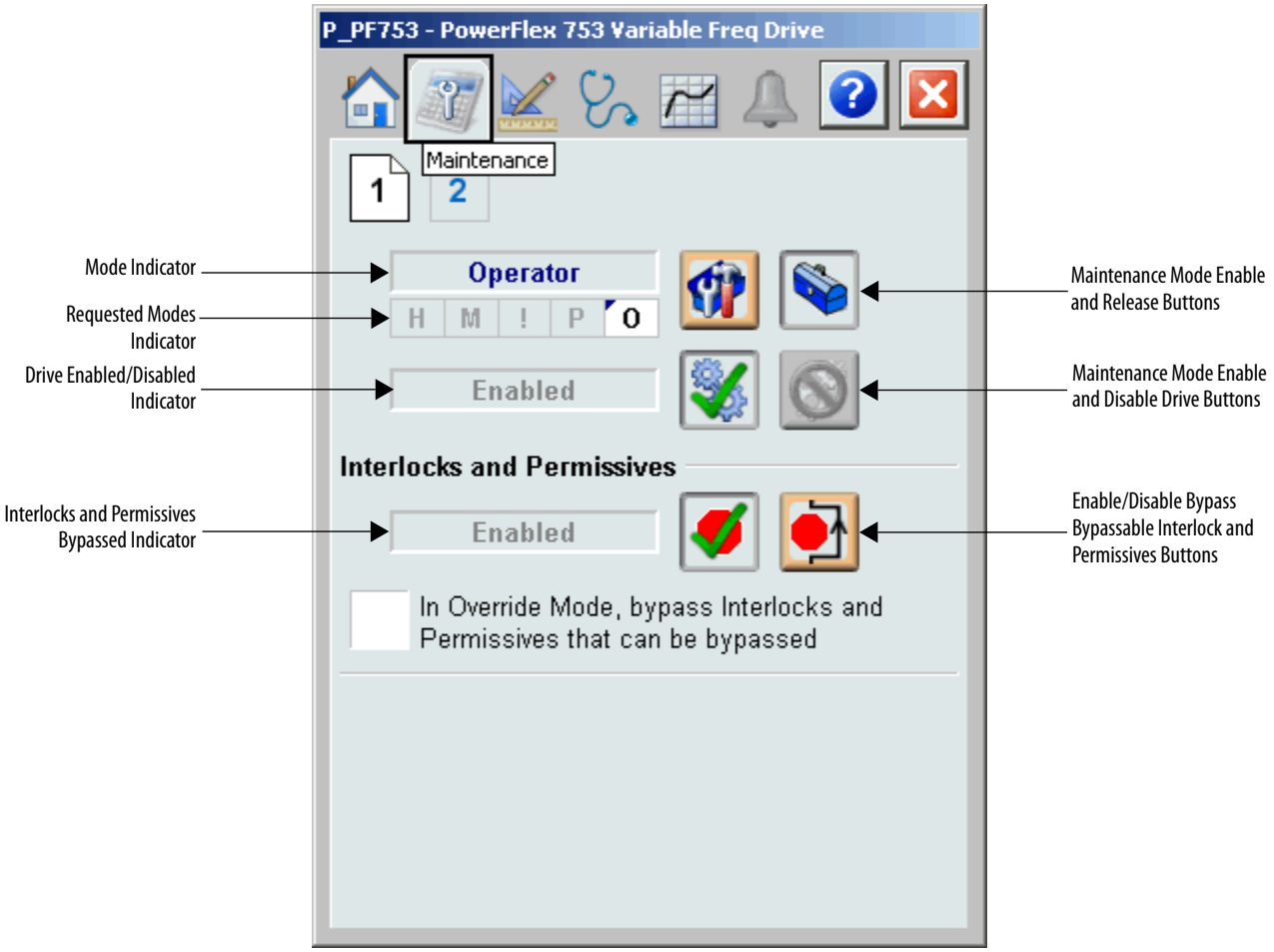
Maintenance personnel use the information and controls on the Maintenance tab to make adjustments to device parameters, troubleshoot and temporarily work around device problems, and disable the device for routine maintenance.

The Maintenance tab is divided into two pages.

Maintenance Tab Page 1

Page 1 of the Maintenance tab shows the following information:

- Current mode (Operator, Program, Override, Maintenance, or Hand).
- Requested modes Indicator - This display highlights all modes that have been requested. The leftmost highlighted mode is the active mode.
- Whether the motor is enabled or disabled.
- Interlock and Permissive Bypassed/Enabled indicator.



The following table shows the functions on page 1 of the Maintenance tab.

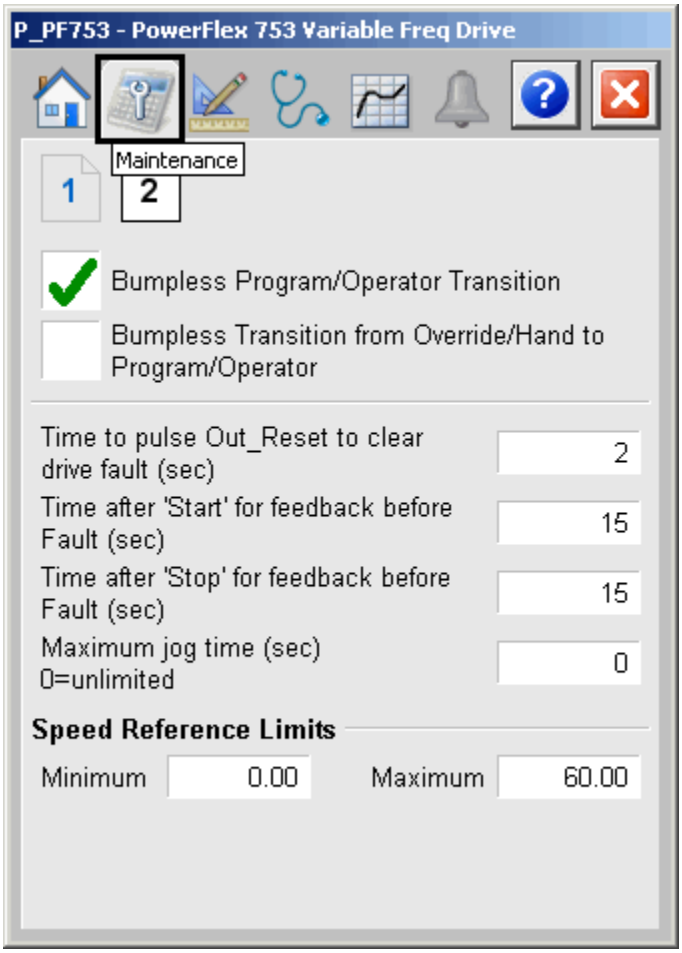
Table 15 - Maintenance Tab Page 1 Description

Function	Action	Security	Configuration Parameters
	Click for Maintenance mode.	Equipment Maintenance (Code C)	None
	Click to release Maintenance mode.		
	Click to enable drive.		
	Click to disable drive.		

Table 15 - Maintenance Tab Page 1 Description

Function	Action	Security	Configuration Parameters
	Click to enable checking of all interlocks and permissives.	Disable Alarms Bypass Permissives and Interlocks (Code H)	None
	Click to bypass checking of bypassable interlocks and permissives.		
In Override mode, bypass Interlocks and Permissives that can be bypassed	Check to have the bypassable interlocks and permissives bypassed in Override mode.		Cfg_OvrdPermIntlk

Maintenance Tab Page 2



The following table shows the functions on Page 2 of the Maintenance tab.

Table 16 - Maintenance Tab Page 2 Description

Function	Action	Security	Configuration Parameters
Bumpless Program/ Operator Transition	Check to have program settings, such as Speed Reference, track operator settings in Operator mode, and have operator settings track Program Settings in Program mode.	Equipment Maintenance (Code C)	Cfg_SetTrack
Bumpless Transition from Override/Hand to Program/Operator	Check to have the Program and Operator Speed Reference track the Override Speed Reference in Override mode or the actual speed in Hand mode.		Cfg_SetTrackOvrdHand
Time to pulse Out_Reset to clear drive fault (seconds)	Type the amount of time to hold the fault reset output true to reset a drive fault when a reset command is received.	Configuration & Tuning Maintenance (Code D)	Cfg_ResetPulseT
Time after 'Start' for Feedback before Fault (seconds)	Type the amount of time for the drive's run feedback to confirm the drive has started before raising a Fail to Start alarm.		Cfg_FailToStartT
Time after 'Stop' for Feedback before Fault (seconds)	Type the amount of time for the drive's run feedback to confirm the drive has stopped before raising a Fail to Stop alarm.	Configuration & Tuning Maintenance (Code D)	Cfg_FailToStopT
Maximum jog time (seconds) 0 = unlimited	Type the maximum time (in seconds) that the drive can be jogged by using OCmd_Jog. **IMPORTANT:** This value stops drive jogging if HMI communication is lost during a jog.		Cfg_MaxJogT
Speed Reference Limits (Minimum and Maximum)	Type the clamping limits for the speed reference. If a speed reference outside this range is entered, the speed is clamped at these limits and Sts_SpeedLimited is asserted.		• Cfg_MaxSpdRef • Cfg_MinSpdRef

Engineering Tab

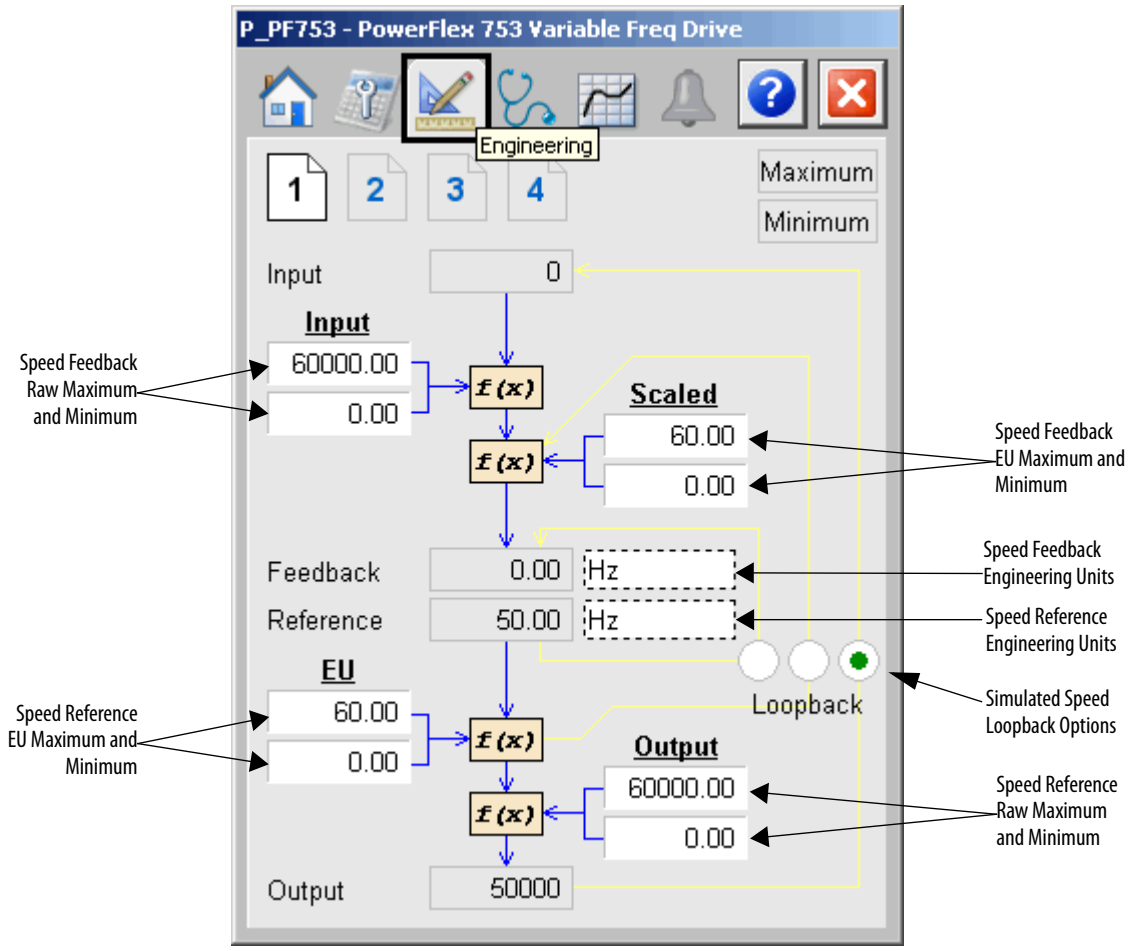
The Engineering tab provides access to device configuration parameters and ranges, options for device and I/O setup, displayed text, and faceplate-to-faceplate navigation settings, and for initial system commissioning or later system changes.

The Engineering tab is divided into four pages.

Engineering Tab Page 1

Page one of the Engineering tab is used to set the Speed Reference (output) scaling, from user Engineering Units that are used on the faceplate (typically Hz, RPM, or percent) to Raw Units (counts) sent to the drive, and to set the Speed Feedback (input) scaling, from Raw Units as received from the drive (counts) to Engineering Units for display (typically Hz, RPM, or Percent).

Check the manual for your drive to determine what count sent to the drive corresponds to your maximum speed reference, and what count received from the drive corresponds to your maximum speed feedback.

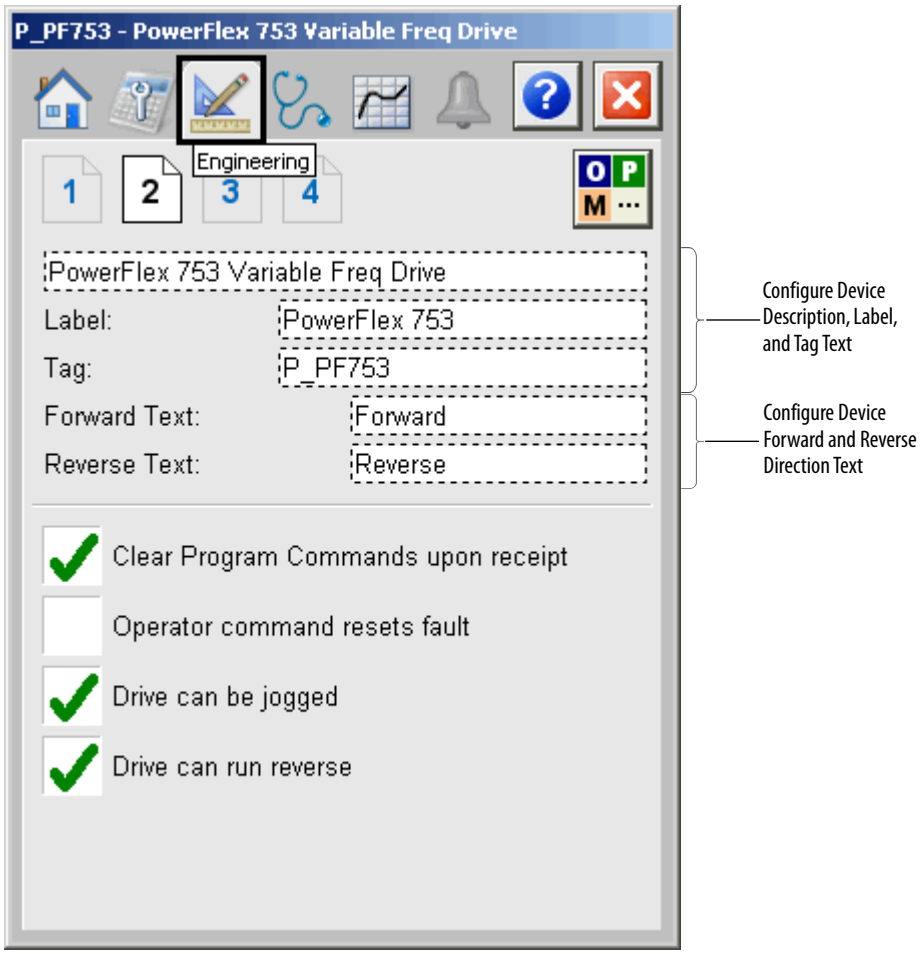


The following table lists the functions on page 1 of the Engineering tab.

Table 17 - Engineering Tab Page 1 Descriptions

Function	Action	Security	Configuration Parameters
Speed Feedback Raw Maximum/ Minimum	Type the raw input count that corresponds to the maximum and minimum (usually zero) speed feedback from the drive	Engineering Configuration (Code E)	Cfg_SpeedFdbkRawMax Cfg_SpeedFdbkRawMin
Speed Feedback EU Maximum/ Minimum	Type the engineering unit value for the maximum/minimum (usually zero) speed feedback from the drive. Do not enter a negative value for reversing drives. Reversing is handled separately.		Cfg_SpeedFdbkEUMax Cfg_SpeedFdbkEUMin
Speed Feedback Engineering Units	Type the text of the units of measure of the scaled speed feedback. (This is often Hz, RPM, or Percent.)		Cfg_SpeedFdbkEU
Speed Reference Engineering Units	Type the text of the units of measure of the scaled speed reference. (This is often Hz, RPM, or Percent.)		Cfg_SpeedRefEU
Speed Reference EU Maximum/ Minimum	Type the engineering unit value for the maximum/minimum (usually zero) speed reference sent to the drive. Do not enter a negative value for reversing drives. Reversing is handled separately.		Cfg_SpeedRefEUMax Cfg_SpeedRefEUMin
Speed Reference Raw Maximum/ Minimum	Type the raw output count that corresponds to the maximum/minimum (usually zero) speed reference sent to the drive.		Cfg_SpeedRefRawMax Cfg_SpeedRefRawMin
Simulated Speed Loopback Option Selection	Click the Loopback option that corresponds to how the speed feedback for the drive is to be determined from the speed reference when the drive is being simulated (Inp_Sim = 1). Click the left option to copy the speed reference in engineering units to the speed feedback. (The simulated feedback is ramped to act like a drive accelerating or decelerating.) Use this if the speed reference and speed feedback use the same scaling parameters Click the middle option to scale the simulated feedback from the speed reference engineering unit range to the speed feedback engineering unit range. Use this setting if the speed reference and speed feedback have different engineering ranges (for example, percent for reference and Hz for feedback), but the maximum reference (for example, 100%) corresponds to the maximum feedback (for example, 3600 RPM). Click the right option to scale the speed reference to raw units, scale the speed reference units to speed feedback raw units, and scale to speed feedback engineering units. Use this setting if the reference and feedback ranges do not correspond.		• Cfg_SimScaleEU • Cfg_SimScaleRaw

Engineering Tab Page 2



The following table shows the functions on the Engineering tab page 2.

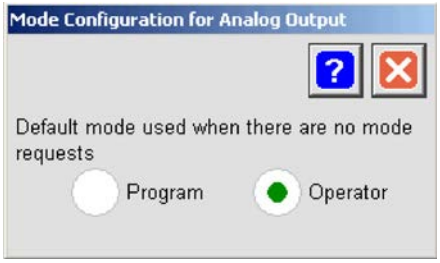
Table 18 - Engineering Tab Page 2 Description

Function	Action	Security	Configuration Parameters
	Click to navigate to the Mode Configuration display.	None	See Mode Configuration display on page 51.
Drive Description	Enter a Description of the drive that appears in the title bar of the faceplate.	Engineering Configuration (Code E)	Cfg_Desc
Label	Enter a Label for the drive that appears on the graphic symbol.		Cfg_Label
Tag	Enter a Tag for the drive that appears in the title bar of each faceplate.		Cfg_Tag
Forward text	Name for forward direction.		Cfg_FwdText
Reverse Text	Name for reverse direction.		Cfg_RevText
Clear Program Commands on Receipt	Check to have the P_PF753 instruction clear Program commands (PCmd) as soon as they are received (default).		Cfg_PCmdClear

Table 18 - Engineering Tab Page 2 Description

Function	Action	Security	Configuration Parameters
Operator command resets fault	Check to have a new operator drive command reset faults. Clear this checkbox if a reset is required to clear faults.	Engineering Configuration (Code E)	Cfg_OCmdResets
Drive can be jogged	Check to make the Jog command button visible on the Operator tab and enable the drive to be jogged from the faceplate.		Cfg_HasJog
Drive can run reverse	Check to make the forward and reverse direction command buttons visible on the Operator tab and enable the drive to run forward or reverse.		Cfg_HasReverse

Mode Configuration Display

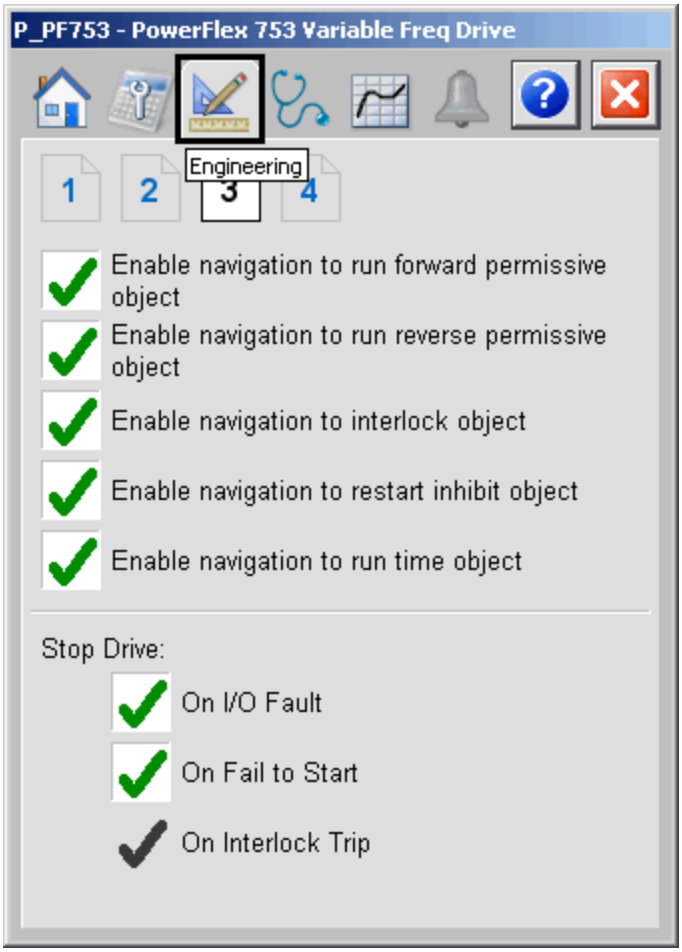


This display lets you select the default mode for the object by selecting the appropriate mode.

IMPORTANT If no mode is being requested, changing the default mode changes the mode of the instruction.

You must have FactoryTalk View security code E to select the default mode on this display.

Engineering Tab Page 3



The following table shows the functions on the Engineering tab page 3.

Table 19 - Engineering Tab Page 3 Description

Function	Action	Security	Configuration Parameters
Enable navigation to run forward permissive object	Check if a permissive object is connected to Inp_FwdPermOK. The Permissive indicator becomes a button that opens the permissive faceplate. **IMPORTANT:** The name of the Forward Permissive object in the controller must be this object's name with the suffix '_FwdPerm'. For example, if your P_PF753 object has the name 'Drive123', then its Forward Permissive object must be named 'Drive123_FwdPerm'.	Engineering Configuration (Code E)	Cfg_HasFwdPermObj

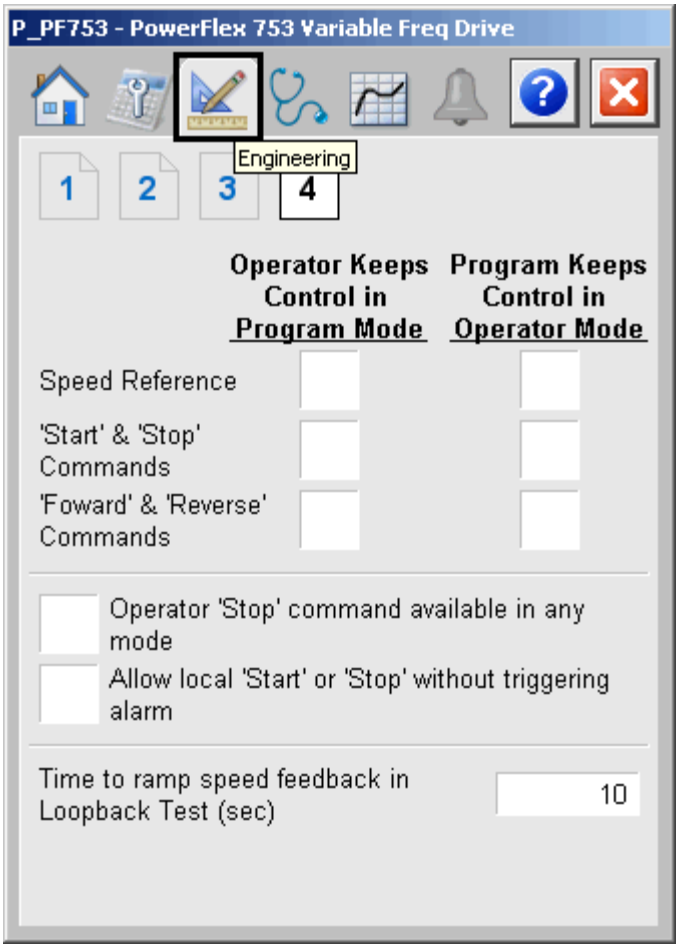
Table 19 - Engineering Tab Page 3 Description

Function	Action	Security	Configuration Parameters
Enable navigation to run reverse permissive object	Check if a permissive object is connected to Inp_RevPermOK. The Permissive indicator becomes a button that opens the permissive faceplate. **IMPORTANT:** The name of the Reverse Permissive object in the controller must be this object's name with the suffix '_RevPerm'. For example, if your P_PF753 object has the name 'Drive123', then its Reverse Permissive object must be named 'Drive123_RevPerm'.	Engineering Configuration (Code E)	Cfg_HasRevPermObj
Enable navigation to interlock object	Check if an interlock object is connected to Inp_IntlkOK. The Interlock indicator becomes a button that opens the interlock faceplate. **IMPORTANT:** The name of the Interlock object in the controller must be this object's name with the suffix '_Intlk'. For example, if your P_PF753 object has the name 'Drive123', then its Interlock object must be named 'Drive123_Intlk'.		Cfg_HasIntlkObj
Enable navigation to restart inhibit object	Check if a restart inhibit object is connected. The button that opens the Restart Inhibit faceplate appears. **IMPORTANT:** The name of the Restart Inhibit object in the controller must be this object's name with the suffix '_ResInh'. For example, if your P_PF753 object has the name 'Drive123', then its Restart Inhibit object must be named 'Drive123_ResInh'.		Cfg_HasResInhObj
Enable navigation to runtime object	Check if a runtime object is connected. The button that opens the runtime faceplate appears. **IMPORTANT:** The name of the runtime object in the controller must be this object's name with the suffix '_RunTime'. For example, if your P_PF753 object has the name 'Drive123', then its runtime object must be named 'Drive123_RunTime'.		Cfg_HasRunTimeObj

Table 19 - Engineering Tab Page 3 Description

Function	Action	Security	Configuration Parameters
Stop Drive on I/O Fault	Check to stop the drive if an I/O Fault is detected. Clear this checkbox to show only the I/O Fault Status/Alarm and not stop the drive if an I/O Fault is detected.	Engineering Configuration (Code E)	Cfg_ShedOnIOFault
Stop Drive on Fail to Start	Check to stop the drive on a failure to start. A reset is required before another start can be attempted. Clear this checkbox to show only the Fail to Start status and alarm on a failure to start. The outputs are not changed, so the instruction continues to attempt to start the motor.		Cfg_ShedOnFailToStart
Stop Drive on Interlock Trip	The drive always stops on an Interlock trip. This item cannot be cleared. It is displayed as a reminder that the Interlock Trip function always stops the drive.	None	None

Engineering Tab Page 4



The following table shows the functions on page 4 of the Engineering tab.

Table 20 - Engineering Tab Page 4 Description

Function	Action	Security	Configuration Parameters
Speed Reference - Operator keeps control in Program mode	Check to keep control of the drive Speed Reference with the Operator, even if the instruction is in Program mode. Clear this checkbox to have control of the drive Speed Reference follow the Instruction mode.	Engineering Configuration (Code E)	Cfg_OperKeep.0
Speed Reference - Program keeps control in Operator mode	Check to keep control of the drive Speed Reference with the Program, even if the instruction is in Operator mode. Clear this checkbox to have control of the drive Speed Reference follow the Instruction mode.		Cfg_ProgKeep.0

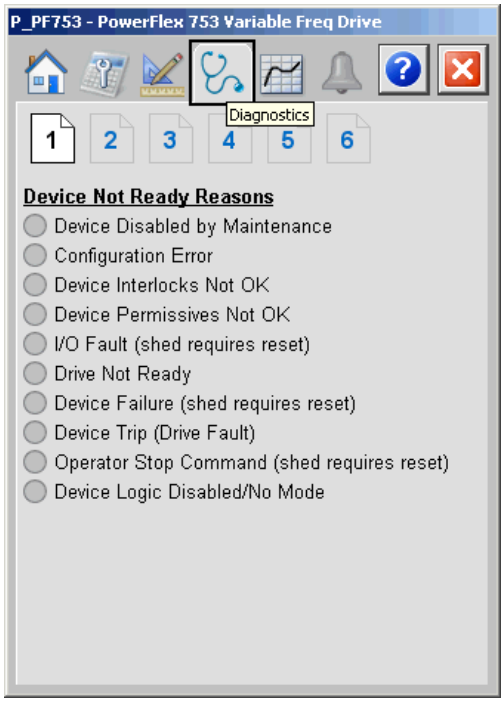
Table 20 - Engineering Tab Page 4 Description

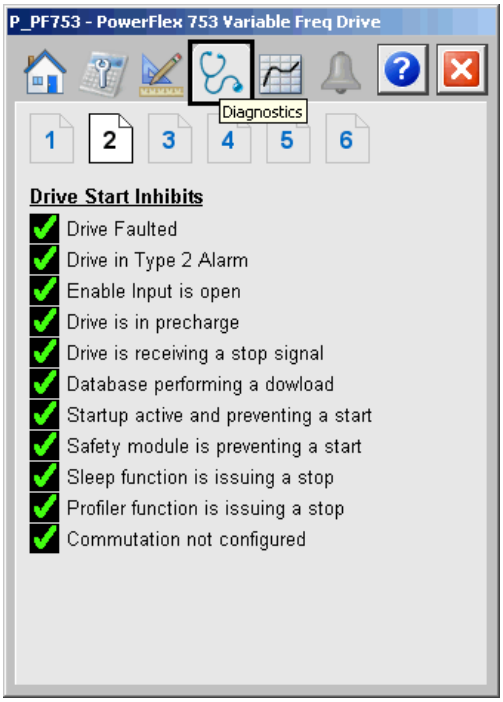
Function	Action	Security	Configuration Parameters
Start and Stop Commands - Operator keeps Control in Program mode	Check to keep the drive Start, Stop, and Jog (if used) commands with the Operator, even if the instruction is in Program mode. Clear this checkbox to have control of the drive Start, Stop, and Jog follow Instruction mode.	Engineering Maintenance (Code E)	Cfg_OperKeep.1
Start and Stop Commands - Program keeps Control in Operator mode	Check to keep control of the drive Start and Stop commands with the Program, even if the instruction is in Operator mode. **IMPORTANT**: The Program cannot Jog the drive, even if Jogging is enabled. Clear this checkbox to have control of the drive Start, Stop, and Jog follow Instruction mode.		Cfg_ProgKeep.1
Forward and Reverse Commands - Operator keeps Control in Program mode	Check to keep control of the drive Forward and Reverse commands, if used, with the Operator, even if the instruction is in Program mode. Clear this checkbox to have control of the drive Forward and Reverse commands follow the Instruction mode.		Cfg_OperKeep.2
Forward and Reverse Commands - Program keeps Control in Operator mode	Check to keep control of the drive Forward and Reverse commands (if used) with the Program, even if the instruction is in Operator mode. Clear this checkbox to have control of the of the drive Forward and Reverse commands follow the Instruction mode.		Cfg_ProgKeep.2
Operator 'Stop' command available in any mode	Check (= 1) so that the OCmd_Stop has priority and is accepted at any time regardless of instruction mode. Clear this checkbox (= 0) so that the OCmd_Stop works only in Operator or Maintenance mode. **IMPORTANT:** If OCmd_Stop is used to stop the drive in a mode other than Operator or Maintenance, a reset is required before the drive can be started.		Cfg_OperStopPrio
Allow local 'Start' or 'Stop' without triggering alarm	Check (= 1) to let local circuits start/stop the drive without an alarm. Clear this checkbox (= 0) to start/stop the drive from the HMI or program only.		Cfg_AllowLocal
Time to ramp speed feedback when in Loopback Test (seconds)	Enter the time, in seconds, to ramp speed feedback when in Loopback Test.		Cfg_SimRampT

Diagnostics Tabs

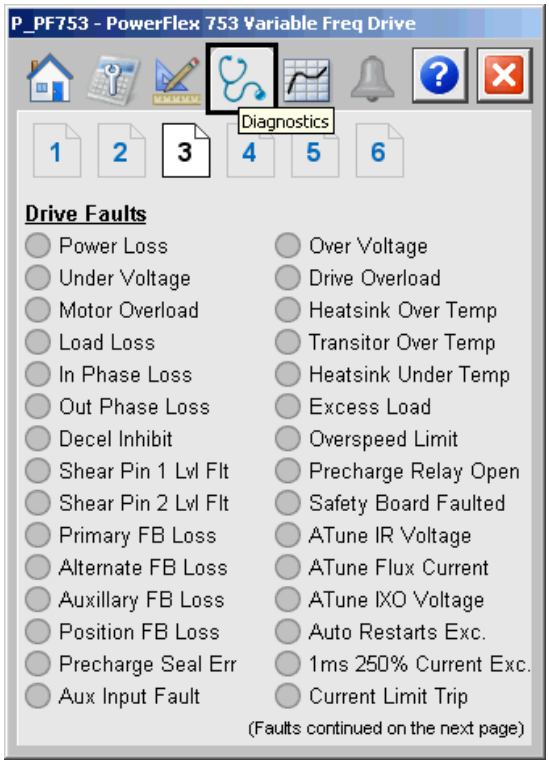
The Diagnostic tab provides indications that are helpful in diagnosing or preventing device problems, which can include specific reasons a device is 'Not Ready', device warnings and faults, warning and fault history, and predictive/preventive maintenance data.

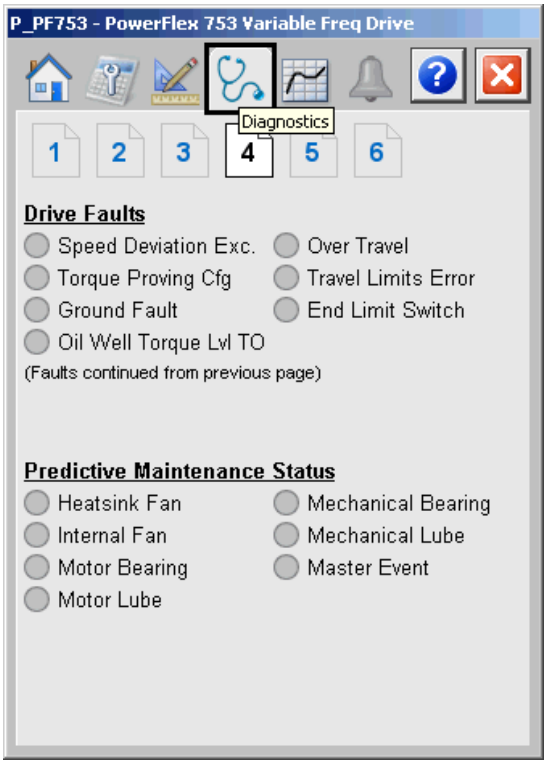
This tab is divided into six pages. Each page provides you with diagnostic feedback on the drive.

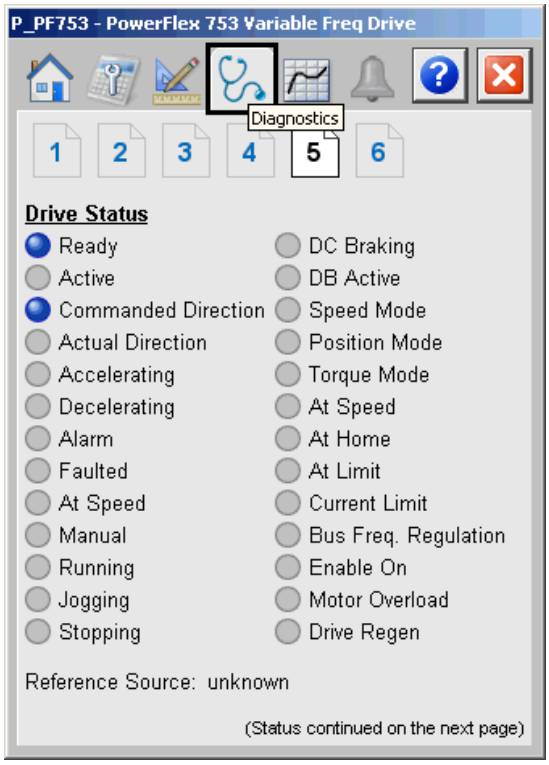


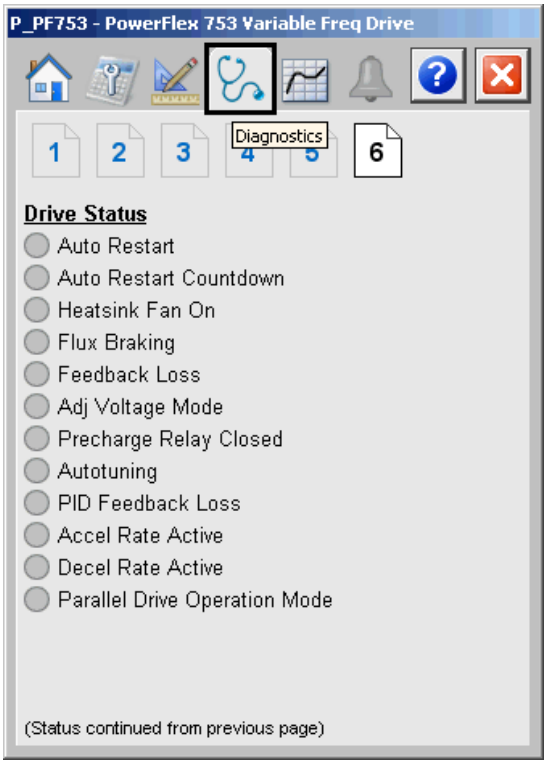


Diagnostic Tab (continued)



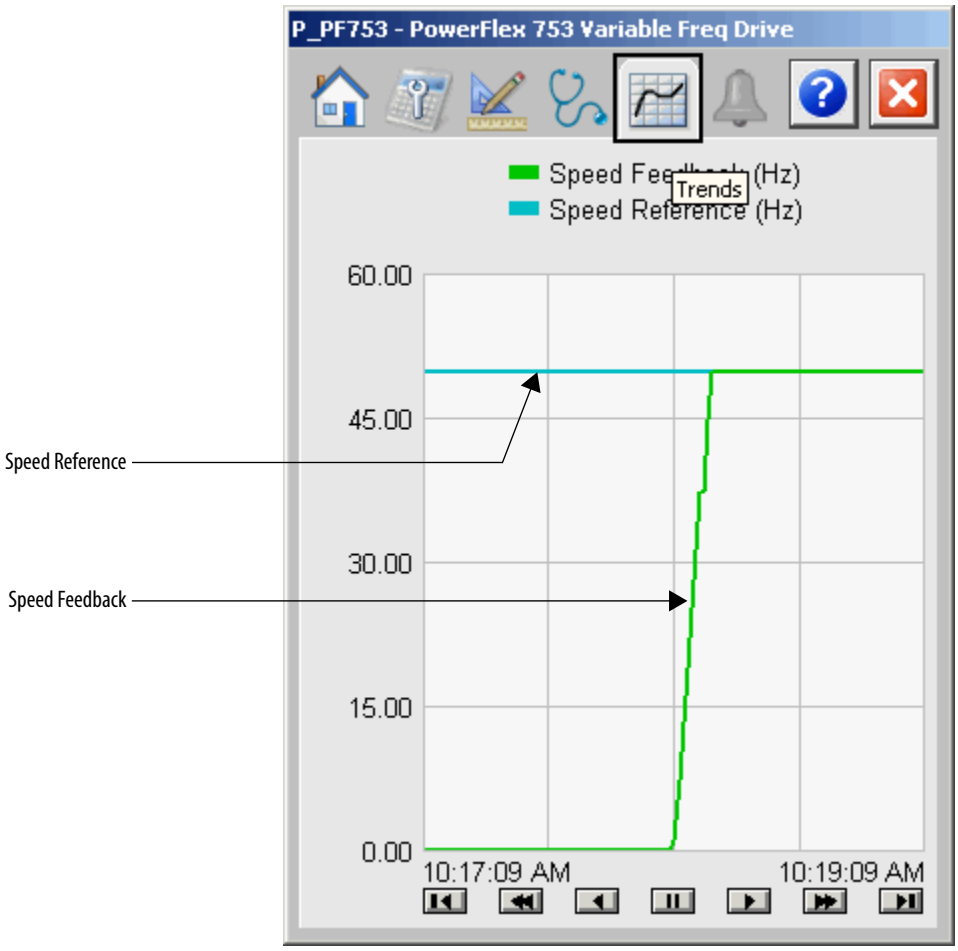






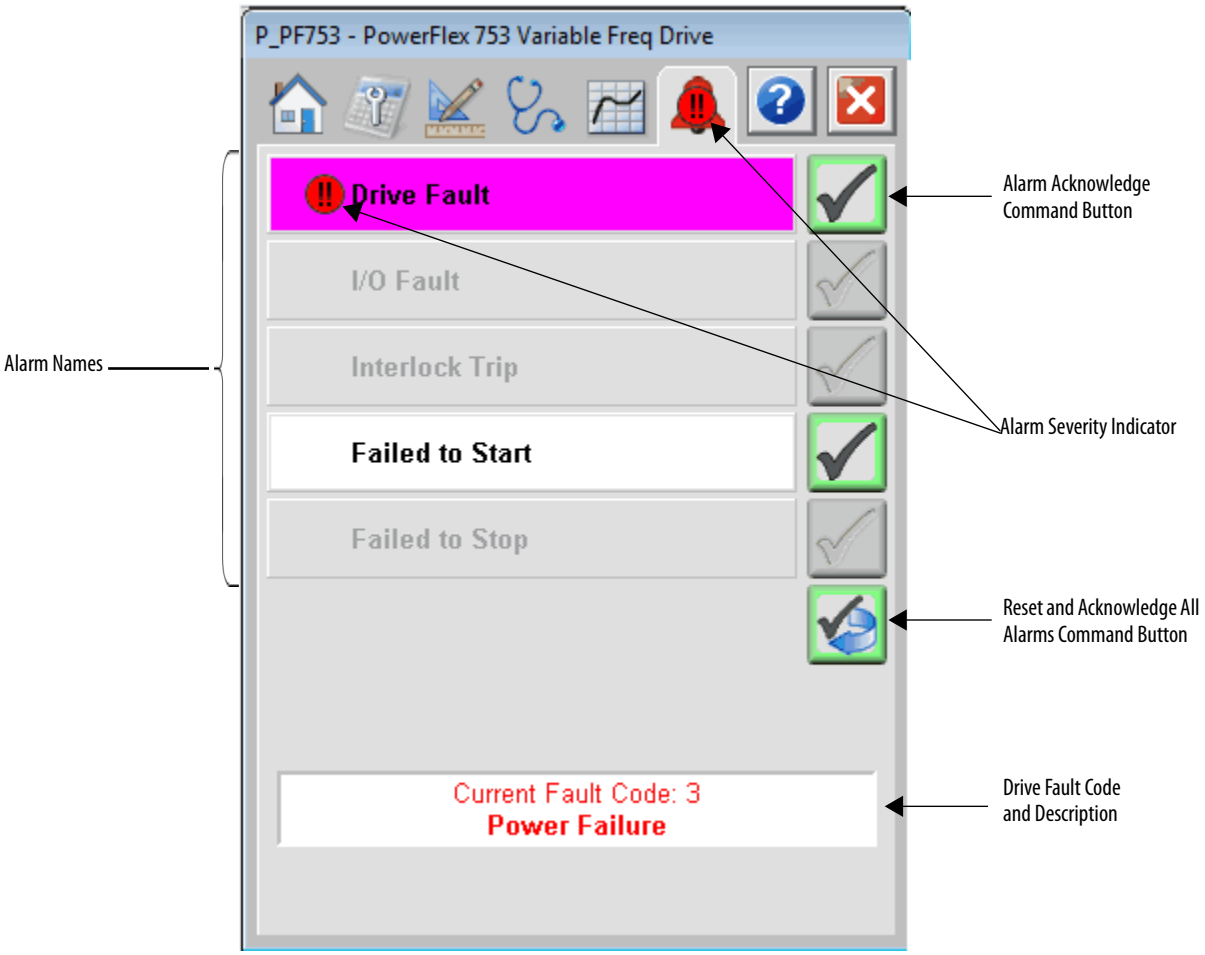
Trends Tab

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



Alarms Tab

The Alarms tab shows all available alarms for the device and their current status. From here, alarms can be acknowledged and reset. Click an alarm name to open the alarm detail faceplate for that alarm, where the alarm can be shelved by the operator, disabled by maintenance personnel, or configured by engineering.



Click an alarm name to open the P_Alarm faceplate for that alarm. From the P_Alarm faceplate, you can configure and perform additional operations on the alarm.

If an alarm is active, the panel behind the alarm changes color to match the severity of the alarm. The color of the bell icon at the top of the faceplate shows the severity of the highest active alarm, and the icon blinks if any alarm is unacknowledged or requires reset.

Table 21 - Alarm Severity Colors

Color	Definition
Magenta	Urgent
Red	High
Yellow	Medium
Blue	Low
White (bell icon)	Alarm has cleared but is unacknowledged
Background (Light Gray)	No alarm

The following table shows the functions on the Alarms tab.

Table 22 - Alarms Tab Description

Function	Action	Security
Alarm Name	Click an alarm name to open the associated P_Alarm faceplate.	None
	Click to acknowledge the alarm.	Acknowledge Alarms (Code F)
	Click to reset and acknowledge all alarms.	

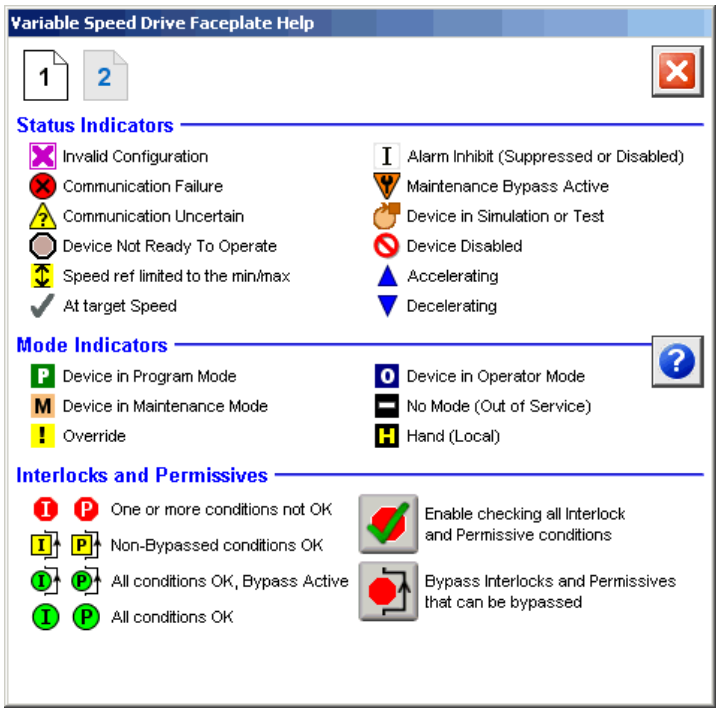
When the Reset and Acknowledge All Alarms button is enabled, the panel behind the alarm blinks, indicating the alarm requires acknowledgement or reset. The Alarm Acknowledge button is enabled if the alarm requires acknowledgment. Click the button with the check mark to acknowledge the alarm.

See Rockwell Automation Library of Process Objects: Common Alarm Block (P_Alarm) Reference Manual, publication SYSLIB-RM002, for more information.

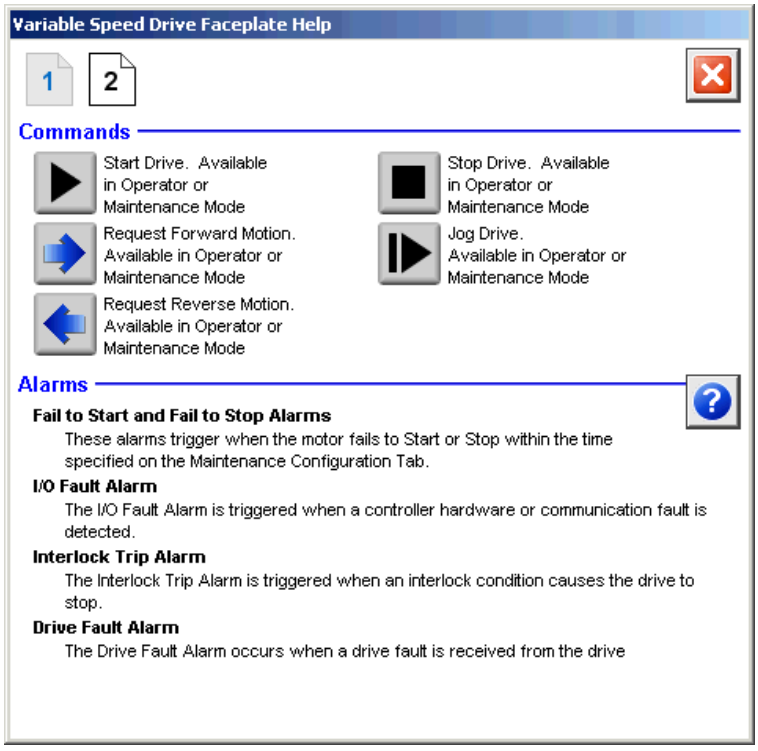
PowerFlex 753 Drive Faceplate Help

The Faceplate Help is divided into two pages.

Faceplate Help Page 1



Faceplate Help Page 2



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In addition, we offer multiple support programs for installation, configuration, and troubleshooting. For more information, contact your local distributor or Rockwell Automation representative, or visit http://www.rockwellautomation.com/services/online-phone.

Installation Assistance

If you experience a problem within the first 24 hours of installation, review the information that is contained in this manual. You can contact Customer Support for initial help in getting your product up and running.

United States or Canada	1.440.646.3434
Outside United States or Canada	Use the Worldwide Locator at http://www.rockwellautomation.com/rockwellautomation/support/overview.page, or contact your local Rockwell Automation representative.

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