Reference Manual

PlantPAx
Process Automation System

# Rockwell Automation Library of Process Objects: PowerFlex 755 Drive (P_PF755)

Version 3.1





Allen-Bradley • Rockwell Software

Rockwell Automation

## 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.

No patent liability is assumed by Rockwell Automation, Inc. with respect to use of information, circuits, equipment, or software described in this manual.

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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). |

**Preface**

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## Notes:

This document is updated throughout for version 3.1 of the Rockwell Automation Library of Process Objects. Changes for this revision are marked by change bars shown in the right margin.

## Software Compatibility and Content Revisions

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

**Table 1 - Summary of Changes**

| Topic | Page |
|---|---|
| Changed title from 'PlantPAx® Library of Process Objects' to 'Rockwell Automation Library of Process Objects' | Front Cover |
| Changed version of Rockwell Automation Library of Process Objects from 3.0 to 3.1 | 5, 10, 11 |
| Visualization Files:<br>added Important note concerning the order in which files must be imported<br>Types table - added optional files | <br>10<br>11 |
| InOut Parameters table - added information on Fault Code list | 12 |
| Input Parameters table:<br>added 'Alias For' column and aliases<br>added MCmd_Acq, MCmd_Rel, OCmd_AcqLock, and OCmd_Unlock parameters<br>'Cfg_IOFaultSeverity' - changed level 4 alarm severity from 'Highest' to 'Urgent'<br>changed Alarm Severity from 1…4 to 1…1000<br>changed descriptions for multiple parameters affected by Cfg_PCmdClear | 14 |
| Output Parameters table:<br>added ''Err_', Ack_', 'Alm_', 'SrcQ_', and 'Nrdy_' parameter descriptions to bullet list<br>added 'Alias For' column and aliases<br>Val_Mode - changed data type from DINT to SINT<br>added Sts_MAcqRcvd, SrcQ_IO, SrcQ, and 10 'Nrdy_' parameters<br>'Val_Notify' - changed level 4 alarm severity from 'Highest' to 'Urgent' | 19 |
| Operations - added Simulation section | 25 |
| Programming Example:<br>added bit use in command word information<br>replaced image before step 7 | 26 |
| Status/Quality Indicators table:<br>added symbols and descriptions<br>added list of conditions under which Device Not Ready indicator appears<br>changed level 4 alarm severity from 'Highest' to 'Urgent'<br>changed Alarm Severity from 1…4 to 1…1000 | 33 |
| Alarm Indicators - changed level 4 alarm severity from 'Highest' to 'Urgent' | 36 |
| Operator faceplate:<br>added Interlock and Permissive indicators table<br>added Alarm Locations image | 43 |
| Trends Tab - added section | 59 |
| Alarm Severity Color Definitions table - changed level 4 alarm severity from 'Highest' to 'Urgent' | 61 |

For the latest compatible software information and to download the Rockwell Automation Library of 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

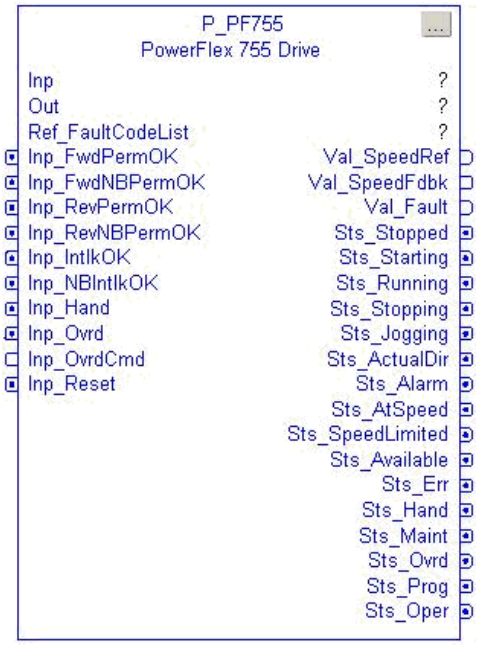
These documents contain additional information concerning related products from Rockwell Automation.

| Resource | Description |
|---|---|
| PlantPAx Process Automation System Selection Guide, publication PROCES-SG001 | Provides information to assist with equipment procurement for your PlantPAx system. |
| PlantPAx Process Automation 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) 3, 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. |
| 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-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. |

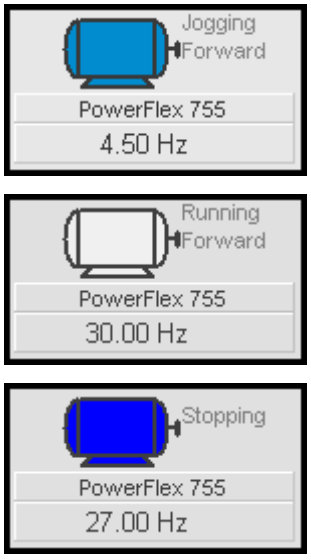
# PowerFlex 755 Drive (P_PF755)

The P_PF755 (PowerFlex 755 drive) object is used to operate one variable-speed motor by using a PowerFlex 755 AC variable frequency drive in a variety of modes and monitoring for fault conditions. The global objects and faceplate shown below are examples of the graphical interface tools for this Add-On Instruction.

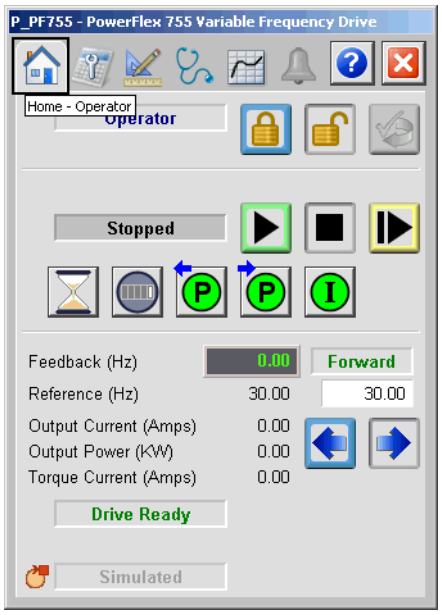
Add-On Instruction




Global Objects




Faceplate




## Guidelines

Use this instruction in these situations:

- You need to operate a motor connected to a PowerFlex 755 variable frequency AC drive that is communicating with the controller over an EtherNet/IP network.
- This instruction is designed to work with the following drives and configurations:
  - PowerFlex 755 drive
  - PowerFlex 753 drive with Ethernet card (catalog number 20-750-ENETR)

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_PF755 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.
- You are using a drive other than the PowerFlex 755 drive or the PowerFlex 753 drive with a 20-750-ENETR adapter. Instead, use these Add-On Instructions:
  - P_PF753 for the PowerFlex Drive with 20-COMM-E EtherNet/IP Interface
  - P_PF52x for the PowerFlex 523 or PowerFlex 525 Drive on an EtherNet/IP network
  - P_VSD for third-party drives, drives on other networks, or via hardwired I/O

## Functional Description

The P_PF755 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 whether 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, general drive status data, and a number of operating parameters.
- 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. Provide a configurable time to pulse the drive fault reset output when a reset command is received.
- Permissives (bypassable and non-bypassable) that are conditions that enable a drive start and Interlocks (bypassable and non-bypassable) that are conditions that stop the drive as well as prevent starting. Provide an alarm when an Interlock stops the drive. Provide maintenance 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, provide 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.
- The instruction 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_PF755_3_1-**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

The following files for this Add-On Instruction can be downloaded from the Product Compatibility and Download Center at http://www.rockwellautomation.com/rockwellautomation/support/pcdc.page.

**IMPORTANT** Files must be imported in the following order: image files, then global object files, and then graphic files. This order is required to properly configure the visualization files.

**Table 2 - P_PF755 Visualization File Types**

| Application Type | File Type | FactoryTalk View SE Software | FactoryTalk View ME Software | Description |
|---|---|---|---|---|
| Graphics - Displays | GFX | (RA-BAS) P_PF755-Faceplate | (RA-BAS-ME) P_PF755-Faceplate | The faceplate display used for the object. |
| | | (RA-BAS) P_PF755-Quick | (RA-BAS-ME) P_PF755-Quick | The Quick display used for the object. |
| | | (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 alarm faceplate display used for the object. |
| | | (RA-BAS) P_Alarm-Help | (RA-BAS-ME) P_Alarm-Help | P_Alarm information that is accessed from the P_PF755 Help faceplate. |
| | | (RA-BAS) P_Mode-Config | (RA-BAS-ME) P_Mode-Config | Display used to set Default mode. |
| | | (RA-BAS) P_Mode-Help | (RA-BAS-ME) P_Mode-Help | Mode information that is accessed from the P_PF755 Help faceplate. |
| | | (RA-BAS) P_VSD-Help | (RA-BAS-ME) P_VSD-Help | The P_VSD Help display used for the P_PF755 faceplate. |

**Table 2 - P_PF755 Visualization File Types**

| Application Type | File Type | FactoryTalk View SE Software | FactoryTalk View ME Software | Description |
|---|---|---|---|---|
| Optional Graphic Displays | GFX | (RA-BAS) P_Intlk-Faceplate | (RA-BAS-ME) P_Intlk-Faceplate | The interlock faceplate display used for the object.<br>Use this file if your PowerFlex 755 Drive has an associated P_Intlk object and you enable navigation to its faceplate from the PowerFlex 755 Drive faceplate. |
| | | (RA-BAS) P_IntlkPerm-Help | (RA-BAS-ME) P_IntlkPerm-Help | Interlock/Permissives Help information that is accessed from the P_Intlk or P_Perm Help faceplate.<br>Use this file if you use the PowerFlex 755 Drive Interlock or Permissive faceplate. |
| | | (RA-BAS) P_Perm-Faceplate | (RA-BAS-ME) P_Perm-Faceplate | The permissive faceplate display used for the object.<br>Use this file if your PowerFlex 755 Drive has an associated P_Perm object and you enable navigation to its faceplate from the PowerFlex 755 Drive faceplate. |
| | | (RA-BAS) P_ResInh-Faceplate | (RA-BAS-ME) P_ResInh-Faceplate | The Restart Inhibit faceplate display used for the object.<br>Use this file if your PowerFlex 755 Drive has an associated P_ResInh object and you enable navigation to its faceplate from the PowerFlex 755 Drive faceplate. |
| | | (RA-BAS) P_RunTime-Faceplate | (RA-BAS-ME) P_RunTime-Faceplate | The Run Time faceplate display used for the object.<br>Use this file if your PowerFlex 755 Drive has an associated P_RunTime object and you enable navigation to its faceplate from the PowerFlex 755 Drive faceplate. |
| Graphics - Global Objects | GGFX | (RA-BAS) P_VSD Graphics Library | (RA-BAS-ME) P_VSD Graphics Library | Variable speed drive display elements used on process displays. |
| | | (RA-BAS) Common Faceplate Objects | (RA-BAS-ME) Common Faceplate Objects | Global objects used on Process Object faceplates. |
| | | (RA-BAS) Process Faceplate Motor Objects | (RA-BAS-ME) Process Faceplate Motor Objects | Global objects used for Process Object motor faceplates. |
| | | (RA-BAS) Process Alarm Objects | (RA-BAS-ME) Process Alarm Objects | Global objects used for managing alarms on Process Object faceplates. |
| | | (RA-BAS) Process Help Objects | (RA-BAS-ME) Process Help Objects | Global objects used for help on 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 | Common global objects used for managing modes on Process Object faceplates. |
| Graphics - Images | PNG | 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 faceplates for all Process Objects.<br>When PNG graphic files are imported they are renamed like a BMP file but retain a PNG format. |
| HMI Tags | CSV | N/A | FTVME_PlantPAxLib_Tags_3_1_**00**.csv (1) | These tags must be imported into the FactoryTalk View ME project to support switching tabs on any Process Object faceplate. |

(1) The service release number (boldfaced) can change as service revisions are created.

# Controller Code

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

## PowerFlex 755 Drive InOut Structure

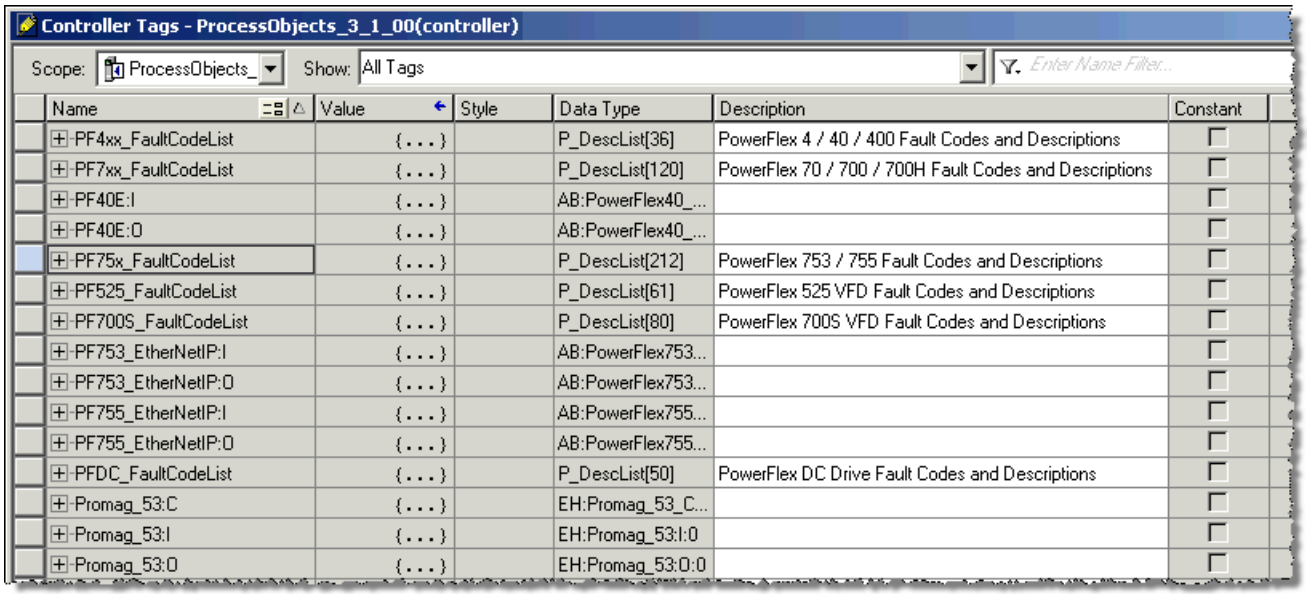
InOut parameters are used to link the Add-On Instruction to external tags that contain necessary data for the instruction to operate. These external tags must be of the data type shown.

**Table 3 - P_PF755 Drive InOut Parameters**

| Tag Name | Data Type | Description |
|---|---|---|
| Inp | P_PF755_Inp | Common part of PowerFlex 755 input assembly. |
| Out | P_PF755_Out | Common part of PowerFlex 755 output assembly. |
| Ref_FaultCodeList | P_DescList[*] | Array tag containing list of fault codes (DINT) and their descriptions (STRING_40). |

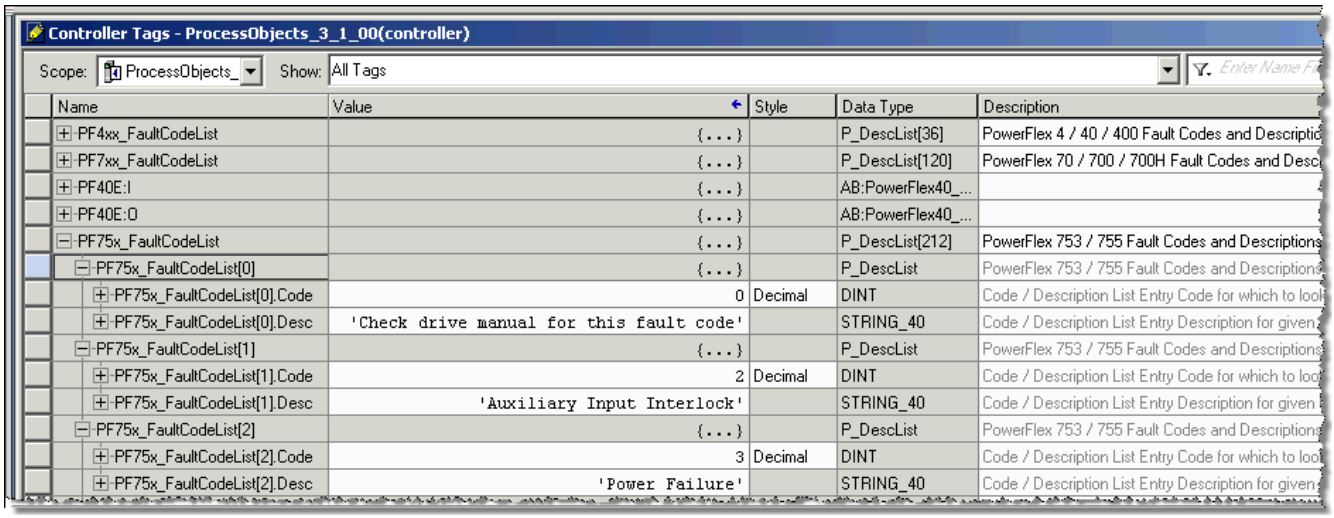
**TIP** The above User-defined Types (UDTs) and the Array tag containing the list of PowerFlex 755 fault codes and descriptions are included in the RUNG import that brings in the P_PF755 Add-On Instruction. See the programming example on page 26 for details.

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




Make sure the tag 'PF75x_FaultCodeList' is entered in the P_PF755 Ref_FaultCodeList parameter.

Each fault Code List provide pre-configured fault codes and descriptions for a given drive family.




For a complete list of Fault Codes for the PowerFlex 755 Drive, refer to the PowerFlex 750-series AC Drives Programming Manual, publication 750-PM001.

## PowerFlex 755 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 4 - P_PF755 Drive Input Parameters**

| Input Parameter | Data Type | Alias For | Default | Description |
|---|---|---|---|---|
| EnableIn | BOOL | | 1 | **Ladder Diagram:**<br>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.<br>**Function Block Diagram:**<br>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.<br>**Structured Text:**<br>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, drive 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:<br>0 = OK<br>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.<br>0 = Release Hand mode. |
| Inp_Ovrd | BOOL | Mode.Inp_Ovrd | 0 | 1 =Request to acquire Override mode.<br>0 = Release Override mode. |
| Inp_OvrdCmd | SINT | | 0 | Override mode command:<br>0 = None<br>1 = Stop<br>2 = Start forward<br>3 = Start reverse |
| Inp_OvrdSpeed | REAL | | 0.0 | Value to set speed reference in Override mode (SpeedRef engineering units). |
| Inp_Reset | BOOL | | 0 | Input parameter used to programatically reset alarms. When set to 1, all alarms requiring reset are reset. |
| Cfg_HasReverse | BOOL | | 0 | 1 = Drive can be run reverse.<br>0 = Forward only. |
| Cfg_HasJog | BOOL | | 0 | 1 = Drive jog command enabled/visible.<br>0 = Drive jog command not allowed. |
| Cfg_AllowLocal | BOOL | | 0 | 1 = Allow local Start/Stop without alarm.<br>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.<br>**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_PF755 object has the name 'Drive123', then its Forward Permissive object must be named 'Drive123_FwdPerm'. |

**Table 4 - P_PF755 Drive Input Parameters**

| Input Parameter | Data Type | Alias For | Default | Description |
|---|---|---|---|---|
| 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.<br>**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_PF755 object has the name 'Drive123', then its Forward Permissive object must be named 'Drive123_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.<br>**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_PF755 object has the name 'Drive123', then its interlock object must be named 'Drive123_Intlk'. |
| Cfg_HasResInhObj | BOOL | | 0 | 1 = Tells HMI an restart inhibit object is connected, is used to accumulate data, and navigation to the restart inhibit object's faceplate is enabled.<br>**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_PF755 object has the name 'Drive123', then its restart inhibit object must be named 'Drive123_ResInh'. |
| Cfg_HasRunTimeObj | BOOL | | 0 | 1 = Tells HMI an runtime object is connected and navigation to the runtime object's faceplate is enabled.<br>**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_PF755 object has the name 'Drive123', then its runtime object must be named 'Drive123_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<br>the program settings track the operator settings; and the simulation inputs match the output values (transitions are bumpless).<br>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 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.<br>**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.<br>**IMPORTANT:** Changing this parameter online can cause unintended mode changes. |
| Cfg_OperStopPrio | BOOL | | 0 | 1 = OCmd_Stop available in any mode.<br>0 = OCmd_Stop only in Operator and Maintenance modes. |
| Cfg_OCmdResets | BOOL | | 0 | 1 = New Operator drive command, resets fault.<br>0 = Reset required to clear fault. |
| Cfg_OvrdPermIntlk | BOOL | | 0 | 1 = Override ignores bypassable permissives/interlocks.<br>0 = Always use permissives/interlocks. |
| Cfg_ShedOnFailToStart | BOOL | | 1 | 1 = Stop motor and alarm on Fail to Start.<br>0 = Alarm only on Fail to Start.<br>**IMPORTANT:** If a condition is configured to shed the device to the Off state on a fault, a reset is required to clear the shed fault to command the drive to a state other than Off. |

**Table 4 - P_PF755 Drive Input Parameters**

| Input Parameter | Data Type | Alias For | Default | Description |
|---|---|---|---|---|
| Cfg_ShedOnIOFault | BOOL | | 1 | 1 = Stop motor and alarm on I/O Fault.<br>0 = Alarm only on I/O Fault.<br>**IMPORTANT:** If a condition is configured to shed the device to the Off state on a fault, a reset is required to clear the shed fault to command the drive to a state other than Off. |
| Cfg_HasFailToStartAlm | BOOL | FailToStart.Cfg_Exists | 0 | These parameters determine whether the corresponding alarm exists and is checked or if the alarm does not exist and is not used. When these parameter 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, PCmd_Reset, OCmd_Reset, or Inp_Reset are required to clear Alm_FailtoStart after the alarm is set and the value returns to normal). When these parameter are 0, no reset is required and the alarm status is cleared when the alarm condition returns to normal.<br>**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_FailtoStartAck) are 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 | | |
| Cfg_FailToStartSeverity | INT | FailToStart.Cfg_Severity | 1000 | These parameters determine the severity of each alarm that gauges the color and symbol that are used to indicate alarm status on the faceplate and global object.<br>The following are valid values:<br>1…250 = Low<br>251…500 = Medium<br>501…750 = High<br>751…1000 = Urgent<br>**IMPORTANT:** These severity priorities drive only the indication on the global object and faceplate. The Alarm & Events definition severity drives the color and symbol that is used on the alarm banner and alarm summary as well a the value returned by the FactoryTalk Alarm and Events software display commands. |
| Cfg_FailToStopSeverity | | FailToStop.Cfg_Severity | 1000 | |
| Cfg_IntlkTripSeverity | | IntlkTrip.Cfg_Severity | 250 | |
| Cfg_DriveFaultSeverity | | DriveFault.Cfg_Severity | 1000 | |
| Cfg_IOFaultSeverity | | IOFault.Cfg_Severity | 1000 | |
| 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_SpeedEUMin | REAL | | 0.0 | Speed reference and feedback minimum in engineering units (for scaling). |
| Cfg_SpeedEUMax | REAL | | 60.0 | Speed reference and feedback maximum in engineering units (for scaling). |
| Cfg_SpeedRawMin | REAL | | 0.0 | Speed reference and feedback minimum in drive units (Hz or RPM) (for scaling). |
| Cfg_SpeedRawMax | REAL | | 60.0 | Speed reference and feedback maximum in drive units (Hz or RPM) (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. |
| Cfg_MaxJogT | REAL | | 0 | Maximum jog time (seconds) 0 = Unlimited. |

**Table 4 - P_PF755 Drive Input Parameters**

| Input Parameter | Data Type | Alias For | Default | Description |
|---|---|---|---|---|
| Cfg_OperKeep | SINT | | 2#0000_0000 | Operator keeps control in Program mode:<br>Bit .0 = Reference<br>Bit .1 = Start/stop<br>Bit .2 = Forward/reverse<br>Bit .3 = OutDatalink |
| Cfg_ProgKeep | SINT | | 2#0000_0000 | Program keeps control in Operator mode:<br>Bit .0 = Reference<br>Bit .1 = Start/stop<br>Bit .2 = Forward/reverse<br>Bit .3 = OutDatalink |
| 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<br>PCmd_Stop<br>PCmd_Fwd<br>PCmd_Rev | BOOL | | 0 | When Cfg_PCmdClear is 1:<br>• Set PCmd_Start to 1 to start the Drive<br>• Set PCmd_Fwd to 1 to run the drive in the forward direction<br>• Set PCmd_Rev to 1 to run the motor in the reverse direction<br>• Set PCmd_Stop to 1 to stop the motor<br>• These parameters are reset automatically<br>When Cfg_PCmdClear is 0:<br>• Set PCmd_Start to 1 to start the drive<br>• Set PCmd_Rev to 0 to run the drive in the forward direction<br>• Set PCmd_Rev to 1 to run the drive in the reverse direction<br>• Set PCmd_Start to 0 to stop the driver<br>• PCmd_Stop and PCmd_Fwd are not used<br>• These parameters do not reset automatically |
| PCmd_Acq<br>PCmd_Rel | BOOL | Mode.PCmd_Acq<br>Mode.PCmd_Rel | 0 | When Cfg_PCmdClear is 1:<br>• Set PCmd_Acq to 1 to Acquire<br>• Set PCmd_Rel to 1 to Release<br>• These parameters reset automatically<br>When Cfg_PCmdClear is 0:<br>• Set PCmd_Acq to 1 to Acquire<br>• Set PCmd_Acq to 0 to Release<br>• PCmd_Rel is not used<br>• These parameters do not reset automatically |
| PCmd_Lock<br>PCmd_Unlock | BOOL | Mode.PCmd_Lock<br>Mode.PCmd_Unlock | 0 | When Cfg_PCmdClear is 1:<br>• Set PCmd_Lock to 1 to Lock<br>• Set PCmd_Unlock to 1 to Unlock<br>• These parameters are reset automatically<br>When Cfg_PCmdClear is 0:<br>• Set PCmd_Lock to 1 to Lock<br>• Set PCmd_Lock to 0 to Unlock<br>• PCmd_Unlock is not used<br>• These parameters do not reset automatically |
| PCmd_Reset | BOOL | | 0 | • Set PCmd_Reset to 1 to reset all alarms requiring reset<br>• This parameter is always reset automatically |
| PCmd_FailToStartAck<br>PCmd_FailToStopAck<br>PCmd_IntlkTripAck<br>PCmd_DriveFaultAck<br>PCmd_IOFaultAck | BOOL | FailToStart.PCmd_Ack<br>FailToStop.PCmd_Ack<br>IntlkTrip.PCmd_Ack<br>DriveFault.PCmd_Ack<br>IOFault.PCmd_Ack | 0 | • Set PCmd_<Alarm>Ack to 1 to Acknowledge alarm<br>• These parameters are reset automatically |

**Table 4 - P_PF755 Drive Input Parameters**

| Input Parameter | Data Type | Alias For | Default | Description |
|---|---|---|---|---|
| PCmd_FailToStartSuppress | BOOL | FailToStart.PCmd_Suppress | 0 | When Cfg_PCmdClear is 1:<br>• Set PCmd_<Alarm>Suppress to 1 to suppress alarm<br>• Set PCmd_<Alarm>Unsuppress to 1 to unsuppress alarm<br>• These parameters reset automatically<br>When Cfg_PCmdClear is 0:<br>• Set PCmd_<Alarm>Suppress to 1 to suppress alarm<br>• Set PCmd_<Alarm>Suppress to 0 to unsuppress alarm<br>• PCmd_<Alarm>Unsuppress is not used<br>• 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 | BOOL | FailToStart.PCmd_Unsuppress | 0 | |
| PCmd_FailToStopUnsuppress | | FailToStop.PCmd_Unsuppress | | |
| PCmd_IntlkTripUnsuppress | | IntlkTrip.PCmd_Unsuppress | | |
| PCmd_DriveFaultUnsuppress | | DriveFault.PCmd_Unsuppress | | |
| PCmd_IOFaultUnsuppress | | IOFault.PCmd_Unsuppress | | |
| PCmd_FailToStartUnshelve | BOOL | FailToStart.PCmd_Unshelve | 0 | • Set PCmd_<Alarm>Unshelve to 1 to Unshelve alarm<br>• These parameters are 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 (permit to run) drive. |
| MCmd_Acq | BOOL | Mode.MCmd_Acq | 0 | Maintenance Command to Acquire Ownership (Operator/Program/Overload to Maintenance). |
| MCmd_Rel | BOOL | Mode.MCmd_Rel | 0 | Maintenance Command to Release Ownership (Maintenance to Operator/ Program/Overload). |
| 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. |
| OCmd_ResetAckAll | BOOL | | 0 | Operator command to acknowledge and reset all alarms and latched shed conditions. |

## PowerFlex 755 Drive Output Structure

Output parameters include the following:

- 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. Status bits can also be used by other application logic.
- 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 5 - P_PF755 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_OutCurrent | REAL | | Output current (amps) (Par 7). |
| Val_TorqCurrFdbk | REAL | | Torque current feedback (Par 5). |
| Val_OutPower | REAL | | Output power (kW) (Par 9). |
| Val_OvldC | REAL | | Overload count (%) (Par 940). |
| Val_Temp | REAL | | Drive temperatore (degree C) (Par 944). |
| Val_ElapsedMWHr | REAL | | Elapsed megawatt hours (MWh) (Par 13). |
| Val_ElapsedRunT | REAL | | Elapsed run time (hrs) (Par 15). |
| Val_SpeedRefSrc | DINT | | Speed reference source (enumeration):<br>1 = Reference A<br>2 = Reference B<br>3 = Preset 3<br>4 = Preset 4<br>5 = Preset 5<br>6 = Preset 6<br>7 = Preset 7<br>16…31 = Manual Reference Settings |
| Val_SpeedEUMin | REAL | | Minimum of speed reference = minimum (Cfg_SpeedFdbkEUMin, Cfg_SpeedFdbkEUMax). |

**Table 5 - P_PF755 Drive Output Parameters**

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

**Table 5 - P_PF755 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:<br>0 = No mode<br>1 = Hand<br>2 = Maintenance<br>3 = Override<br>4 = Program (locked)<br>5 = Operator (locked)<br>6 = Program (unlocked, Operator is default)<br>7 = Operator (unlocked, Program is default)<br>8 = Program (unlocked, Program is default)<br>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):<br>0 = No alarm<br>1 = Alarm cleared: a reset or acknowledge is required<br>2 = Low (acknowledged)<br>3 = Low (unacknowledged)<br>4 = Medium (acknowledged)<br>5 = Medium (unacknowledged)<br>6 = High (acknowledged)<br>7 = High (unacknowledged)<br>8 = Urgent (acknowledged)<br>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.<br>0 = Reverse. |
| Sts_ActualDir | BOOL | | 1 = Drive actual direction is forward.<br>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 maximum/minimum 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 5 - P_PF755 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 due to the following:<br>• Device disabled by Maintenance<br>• Configuration error<br>• Interlock not OK<br>• Permissive not OK<br>• Operator Stop priority command requires reset<br>• Device failure (shed requires reset),<br>• I/O Fault (shed requires reset)<br>• Device tripped (Drive Fault)<br>• Drive not ready<br>• 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 = Maintenance bypass is active, display icon. |
| Sts_AlmInh | BOOL | | 1 = Alarm is shelved, disabled, or suppressed, display icon. |
| Sts_ShedResetReqd | BOOL | | 1 = A latched Shed condition requires reset to run motor. |
| 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_EU | BOOL | | 1 = Error in Configuration: Speed reference and feedback engineering units minimum = engineering units maximum. |
| Err_Raw | BOOL | | 1 = Error in Configuration: Speed reference and feedback raw minimum = raw maximum. |
| Err_RefLim | BOOL | | 1 = Error in Configuration: Speed reference clamping limit minimum > maximum. |
| Sts_Hand | BOOL | Mode.Sts_Hand | 1 = Mode is Hand (supersedes Maintenance, Override, Program, Operator). |
| Sts_Maint | BOOL | Mode.Sts_Maint | 1 = Mode is Maintenance (supersedes Override, Program, Operator). |
| Sts_Ovrd | BOOL | Mode.Sts_Ovrd | 1 = Mode is Override (supersedes Program, Operator). |
| Sts_Prog | BOOL | Mode.Sts_Prog | 1 = Mode is Program (auto). |
| 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 Communication fault status:<br>0 = OK<br>1 = Bad |

**Table 5 - P_PF755 Drive Output Parameters**

| Output Parameter | Data Type | Alias For | Description |
|---|---|---|---|
| Alm_FailToStart | BOOL | FailToStart.Alm | 1 = Drive failed to start alarm. |
| Alm_FailToStop | | FailToStop.Alm | 1 = Drive failed 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_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 | |
| 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 | |
| Rdy_Start | BOOL | | 1 = Ready to receive OCmd for Start, Stop, Jog, Fwd, Rev, 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 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 acknowledgement. |
| Rdy_SpeedRef | BOOL | | 1 = Ready to receive OSet_SpeedRef (enables data entry field). |
| P_PF755 | BOOL | | Unique parameter name for auto-discovery. |

### PowerFlex 755 Drive Local Configuration Tags

Configuration parameters that are arrayed, 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 RSLogix™ 5000 software 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 RSLogix 5000 software export/import functionality.

**Table 6 - P_PF755 Drive Local Configuration Tags**

| Tag Name | Data Type | Default | Description |
|---|---|---|---|
| Cfg_Desc | STRING_40 | 'PowerFlex 755 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_Tag | STRING_20 | 'P_PF755' | Tagname 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

The P_PF755 Add-On Instruction uses the following standard modes, implemented by using an embedded P_Mode Add-On Instruction.

| Graphic Symbol | Description |
|---|---|
| Operator mode | Control of the device is owned by the Operator. Operator Commands (OCmd_) and Operator Settings (OSet_) from the HMI are accepted. |
| Program mode | Control of the device is owned by Program logic. Program Commands (PCmd_) and Program Settings (PSet_) are accepted. |
| Override mode | Control of the device is owned by priority logic, superseding 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 mode | Control of the device is owned by Maintenance. Operator Commands and Settings from the HMI are accepted. Bypassable interlocks and permissives are bypassed, and device timeout checks are not processed. |
| Hand mode | Control of the device is owned by hardwired logic or other logic outside the instruction. 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 for more information on EnableInFalse processing. |

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

## Alarms

The P_PF755 instruction uses the following alarms, implemented by using embedded P_Alarm Add-On Instructions.

| Alarm | P_Alarm Name | Description |
|---|---|---|
| Fail to Start | FailToStart | Raised if the drive has and is using run feedback, an attempt is made to start the drive, and the run feedback does not indicate the drive running within the configured time. |
| Fail to Stop | FailToStop | Raised if the drive has and is using run feedback, an attempt is made to stop the drive, and the run feedback does not indicate the drive stopped within the configured time. |
| I/O Fault | IOFault | Raised if the Inp_IOFault input is true. |
| Drive Fault | DriveFault | Raised if the Inp_Faulted input is true. Enables display of the Drive Fault code. |
| Interlock Trip | IntlkTrip | Raised if the drive is running and an interlock causes it to stop. If interlocks are not bypassed, a non-bypassable interlock not OK or a bypassable interlock not OK stops the drive. If interlocks are bypassed, only a non-bypassable interlock not OK stops the drive. |

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

## Simulation

Simulation in P_PF755 de-energizes the outputs, ignores inputs, and provides the feedback of a working drive. It lets you operate the Add-On Instruction as if it were a working drive, even if no drive is physically present.

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.

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

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. Refer to their specifications for details.<br>On Powerup, the drive is treated as if it had been Commanded to Stop. |
| Postscan (SFC Transition) | No SFC Postscan logic is provided. |

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

# Programming Example

This example uses the P_PF755 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 for your application to use.

Bits used by Add-On Instruction.

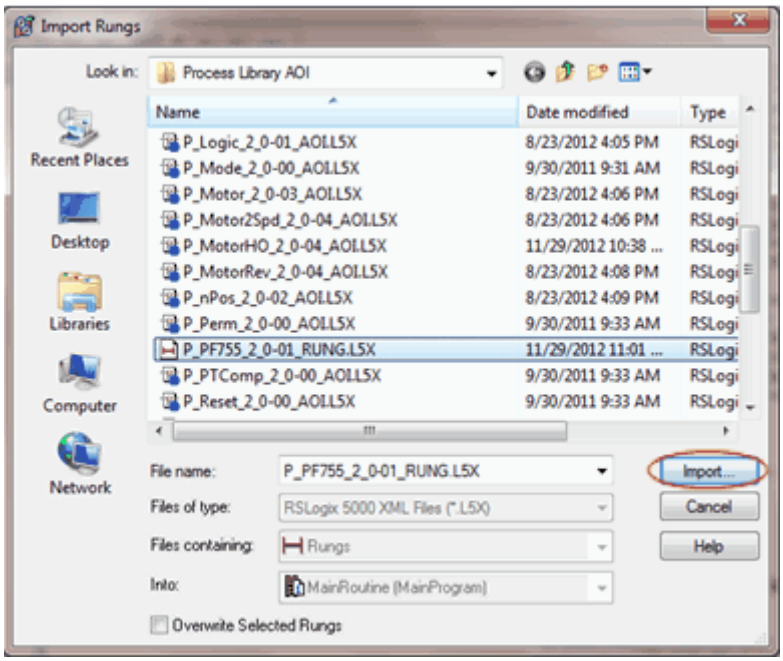
Bits not used by Add-On Instruction and available for use.

| | | | |
|---|---|---|---|
| MyP_PF755_Out | {...} | | P_PF755_Out |
| MyP_PF755_Out.LogicCommand | 2#0000_0000_0000_0000_0000_0000_0001_0000 | Binary | DINT |
| MyP_PF755_Out.LogicCommand_Stop | 0 | Decimal | BOOL |
| MyP_PF755_Out.LogicCommand_Start | 0 | Decimal | BOOL |
| MyP_PF755_Out.LogicCommand_Jog1 | 0 | Decimal | BOOL |
| MyP_PF755_Out.LogicCommand_ClearFaults | 0 | Decimal | BOOL |
| MyP_PF755_Out.LogicCommand_Forward | 1 | Decimal | BOOL |
| MyP_PF755_Out.LogicCommand_Reverse | 0 | Decimal | BOOL |
| MyP_PF755_Out.LogicCommand_Manual | 0 | Decimal | BOOL |
| MyP_PF755_Out.LogicCommand_AccelTime1 | 0 | Decimal | BOOL |
| MyP_PF755_Out.LogicCommand_AccelTime2 | 0 | Decimal | BOOL |
| MyP_PF755_Out.LogicCommand_DecelTime1 | 0 | Decimal | BOOL |
| MyP_PF755_Out.LogicCommand_DecelTime2 | 0 | Decimal | BOOL |
| MyP_PF755_Out.LogicCommand_SpdRefSel0 | 0 | Decimal | BOOL |
| MyP_PF755_Out.LogicCommand_SpdRefSel1 | 0 | Decimal | BOOL |
| MyP_PF755_Out.LogicCommand_SpdRefSel2 | 0 | Decimal | BOOL |
| MyP_PF755_Out.LogicCommand_CoastStop | 0 | Decimal | BOOL |
| MyP_PF755_Out.LogicCommand_CLimitStop | 0 | Decimal | BOOL |
| MyP_PF755_Out.LogicCommand_Run | 0 | Decimal | BOOL |
| MyP_PF755_Out.LogicCommand_Jog2 | 0 | Decimal | BOOL |
| MyP_PF755_Out.Reference | 0.0 | Float | REAL |

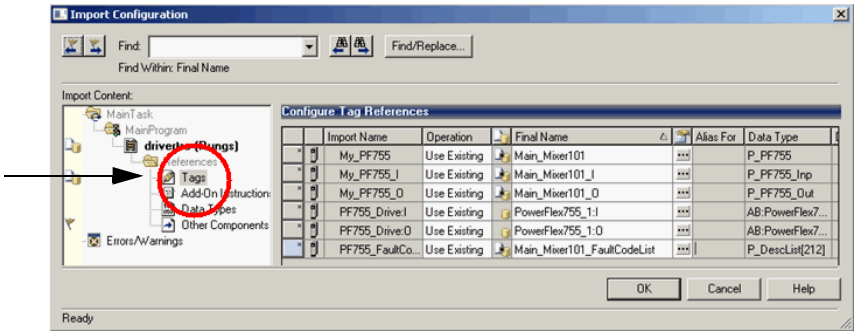
Follow these steps to import the P_PF755 rung into your project.

1. On the Controller Organizer, add your PowerFlex drive to the I/O Configuration and name the drive.
2. Under Tasks, click + 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_PF755 instruction and click Import.

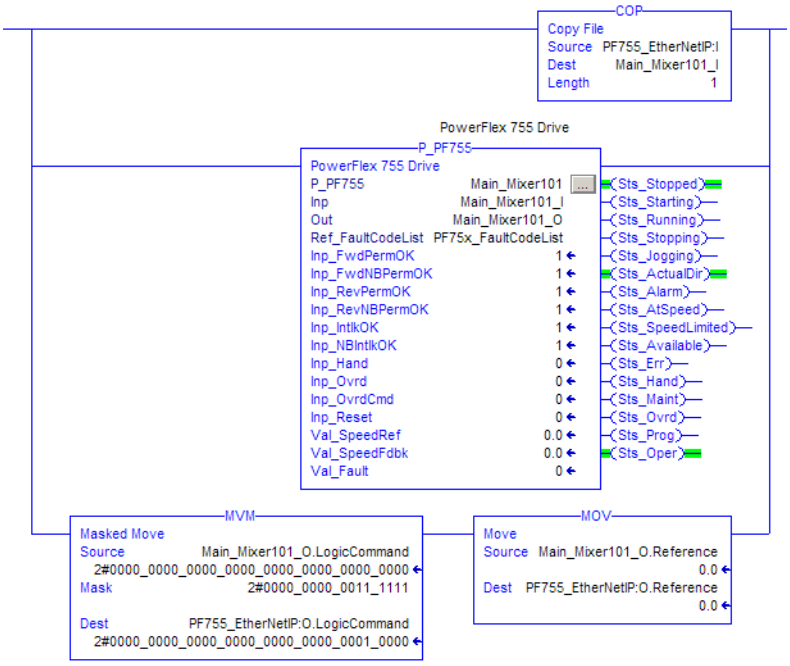



During the import process you can name the tags for the routine in the Import Configuration dialog box.




6. Click Tags in the Import Content tree 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.

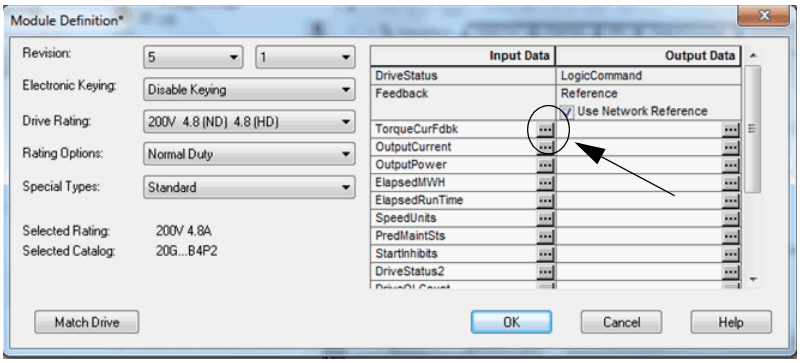



7. Right-click the PowerFlex drive in the I/O Configuration and choose Properties.

   The Module Properties dialog box appears.

8. Click Change.

   The Module Definition dialog box appears.




9. Click Browse (...) in the Input Data column.

   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, which 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 of the DataLinks.

    The required DataLinks to add to your project are:

    - Torque Current Feedback (Par 5)
    - Output Current (Par 7)
    - Output Power (Par 9)
    - Elapsed MWH (Par 13)
    - Elapsed Run time (Par 15)
    - Speed Units (Par 300)
    - Predictive Maintenance Status (Par 469)
    - Start Inhibits (Par 933)
    - Drive Status 2 (Par 936)
    - Drive Overload Count (Par 940)
    - Drive Temperature (C) (Par 944)
    - Last Fault Code (Par 951)
    - Fault Status A (Par 952)
    - Fault Status B (Par 953)

    The last two datalinks are not used by this instruction and are available for your application.

## Display Elements

The P_PF755 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 7 - P_PF755 Drive Display Elements Description**

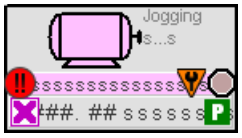
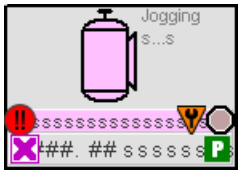
| Display Element Name | Display Element | Description |
|---|---|---|
| GO_P_VSD_R |  | These display elements show the different motor positions. |
| GO_P_VSD_U |  | |
| GO_P_VSD_D |  | |
| GO_P_VSD_Blower_R |  | These display elements show the different blower positions. |
| GO_P_VSD_Blower_L |  | |
| GO_P_VSD_Blower_U |  | |
| GO_P_VSD_Blower_D |  | |
| GO_P_VSD_Conveyer_R |  | This display element illustrates a conveyer. |

**Table 7 - P_PF755 Drive Display Elements Description**

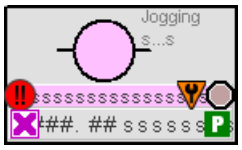
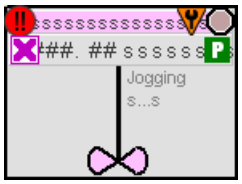
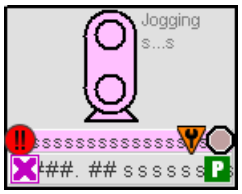
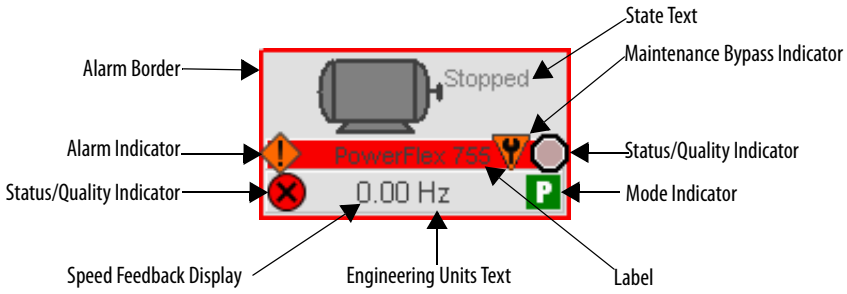
| Display Element Name | Display Element | Description |
|---|---|---|
| GO_P_VSD_Inline_U |  | These display elements show the different inline motor positions. |
| GO_P_VSD_Inline_R |  | |
| GO_P_VSD_Inline_L |  | |
| GO_P_VSD_Inline_D |  | |
| GO_P_VSD_Pump_R |  | These display elements show the different pump positions. |
| GO_P_VSD_Pump_L |  | |
| GO_P_VSD_Pump_U |  | |
| GO_P_VSD_Agitator_D |  | This display element illustrates an agitator. |
| GO_P_VSD_Mixer_U |  | This display elements shows a mixer. |

**Table 7 - P_PF755 Drive Display Elements Description**

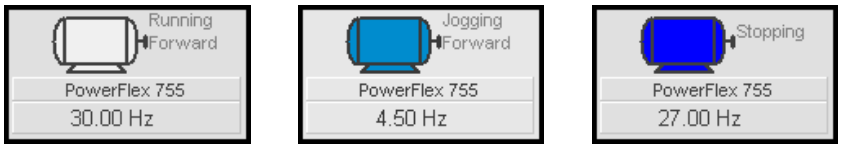
| Display Element Name | Display Element | Description |
|---|---|---|
| GO_P_VSD_RPump_U |  | This display element shows a rotary gear pump. |
| GO_P_VSD_Fan_D |  | This display element shows a fan. |

Common attributes of the P_PF755 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.

| Colorfif | State |
|---|---|
| Blue | Stopping |
| Dark gray | Stopped |
| Light blue | Jogging |
| Blue | Starting |
| White | Running |

## Status/Quality Indicators

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

| Graphic Symbol | Description |
|---|---|
|  | Invalid configuration |
|  | I/O Fault |
|  | Device not Ready |
|  | I/O uncertain |
|  | Speed reference limited to minimum/maximum |
|  | Drive is at target speed |
|  | Drive is accelerating |
|  | Drive is decelerating |
|  | Drive is disabled |
| No symbol displayed | I/O quality good and configuration valid |

**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 755 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 Raw Minimum and Raw Maximum scaling parameters are set to the same value.
- The Speed 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 Speed Ramp Time is set to a value less than zero or greater than 2,147,483 seconds.
- An Alarm Minimum On 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 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 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 755 Drive Instruction, the Device Not Ready indicator appears under the following conditions:

- Device has been disabled by Maintenance.
- There is a configuration error.
- An Interlock or Permissive is not OK.
- Operator state 0 priority command requires reset.
- There has been a device failure or I/O Fault and Shed requires reset.
- Device has tripped and generated a Drive Fault.
- Drive is not ready.
- Device logic is disabled or there is no mode.

## Maintenance Bypass Indicator

This symbol appears to the right of the Label to indicate that a Maintenance Bypass has been activated.

| Graphic Symbol | Description |
|---|---|
|  | A Maintenance Bypass is active |
| No symbol displayed | No Maintenance Bypass active |

**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 755 Drive Instruction, the Maintenance Bypass Indicator appears when the bypassable interlocks and permissives have been bypassed.

## Mode Indicators

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

| Graphic Symbol | Description |
|---|---|
| Transparent | Operator mode (if the default mode is Operator and in Operator mode, 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 in Program mode, 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 completely transparent; therefore, no mode indicators appear if the device is in its default mode. This behavior can be changed by replacing these mode indicators with images that are not completely transparent.

## Alarm Indicators

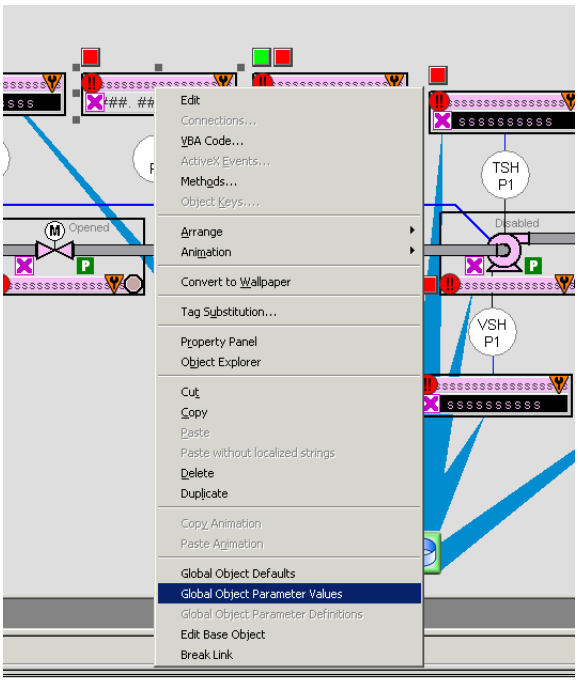
One of these symbols appears to the left of the Label to indicate the described alarm condition. The alarm border and label background blink if Acknowledgement of an alarm condition is required.

| 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. |

## Using Display Elements

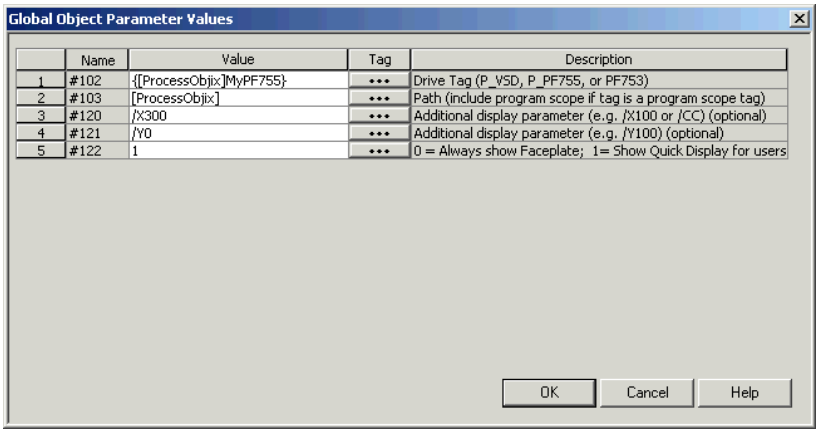
The global objects for P_PF755 can be found in the global object file (RA-BAS) P_VSD Graphics Library.ggfx. Follow these steps to use a global object.

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.




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.

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:<br>0 = Always show faceplate<br>1 = Show Quick Display for users without Maintenance access (Code C)<br>2 = Always show Quick Display |

## Quick Display

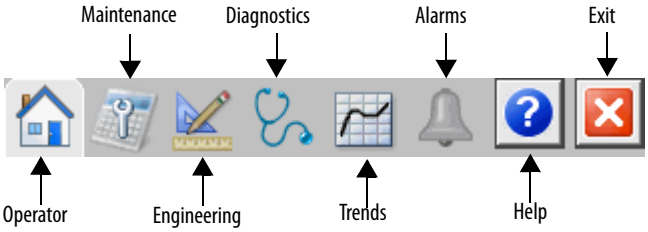
The Quick Display screen provides a means for operators to perform simple interactions with the P_PF755 instruction instance. From the Quick Display, you can navigate to the faceplate for full access for operation, maintenance, and configuration.

## Faceplate

The P_PF755 faceplate consists of six tabs and each tab consists of one or more pages.

The title bar of each 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.



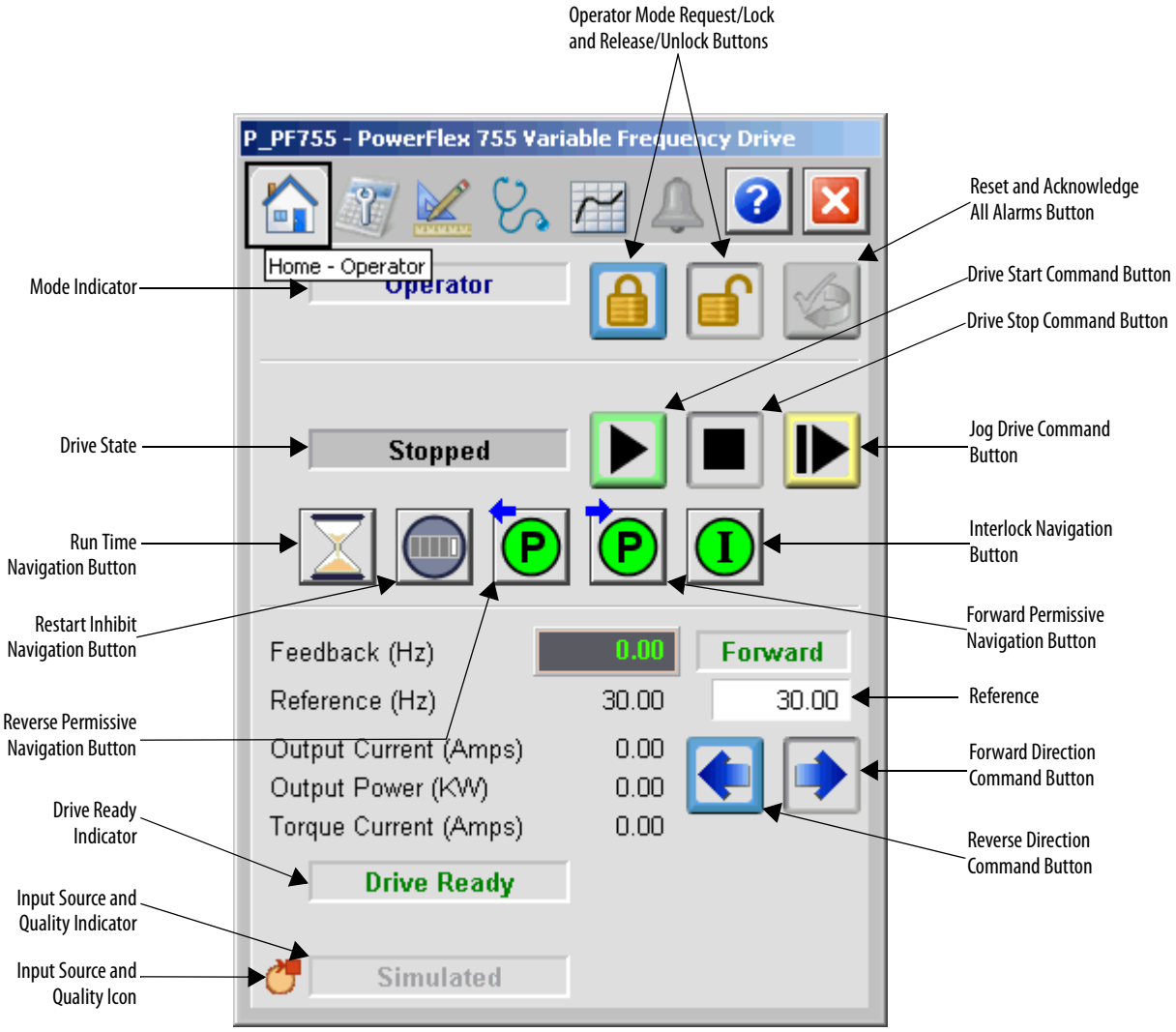

The faceplate provides the means for operators, maintenance personnel, engineers, and others to interact with the P_PF755 instruction instance, including viewing its status and values and manipulating it through its commands and settings. When a given input is restricted via FactoryTalk View security, 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.)
- Input Source and Quality indicator (See 'SrcQ' in the Output parameters table on page 20 for details).
- 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)
- Requested Direction (appears only if the drive is configured Can Run Reverse)
- Output current and output power
- Torque current




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

**Table 8 - 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. | |

**Table 8 - Operator Tab Description**

| Function | Action | Security |
|---|---|---|
|  | Click to reset and acknowledge all alarms. | Acknowledge Alarms (Code F) |
|  | Click to select forward direction. | Normal Operation of Devices (Code A) |
|  | Click to select reverse direction. | |
|  | Click to open the Restart Inhibit faceplate. | None |
|  | Click to open the Run Time faceplate. | |
|  | Click to open the Interlocks faceplate. | |
|  | Click to open the forward Permissive faceplate. | |
|  | Click to open the reverse Permissive faceplate. | |
| Reference (Hz) | Type the desired speed in engineering units. | Normal Operation of Devices (Code A) |

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 interlock or P_Perm permissive object). If the object is not configured in this way, the permissive/interlock icons 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 Run Time 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 Run Time button is not displayed.

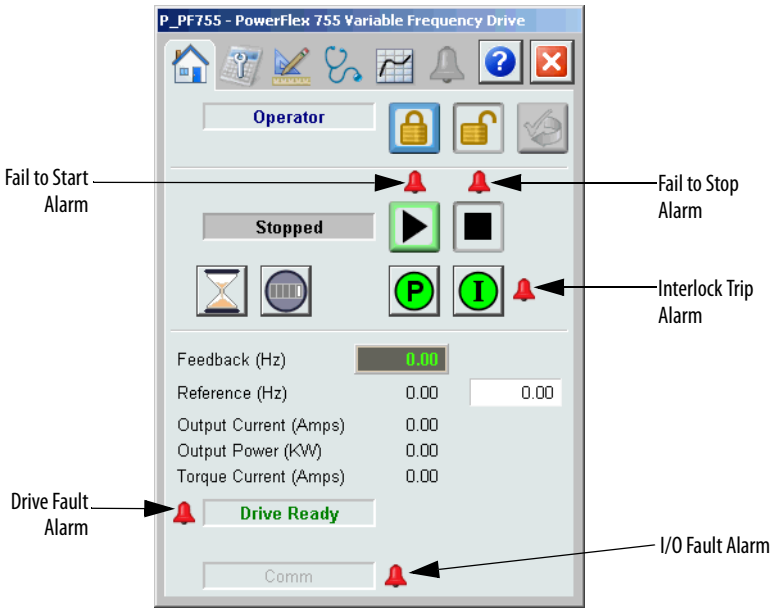
Refer to these publication for more information:

- 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 9 - 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 disabled (by Maintenance) |
|  | Alarm Shelved (by Operator) |

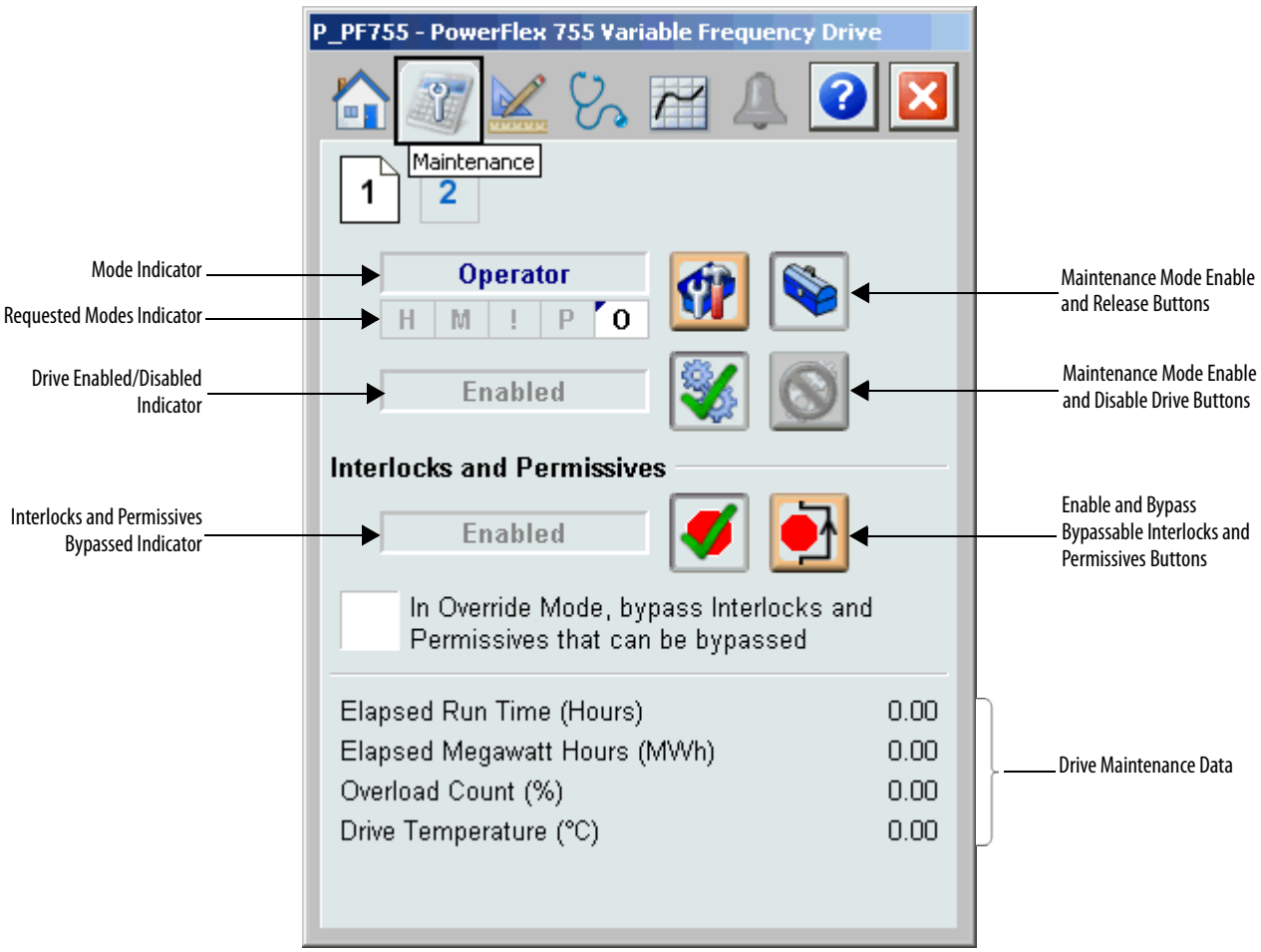
## Maintenance Tab

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.

*Maintenance Tab Page 1*

Page 1 of the Maintenance tab shows the following information:

- Current mode (Operator, Program, or Maintenance).
- Requested modes Indicator - This display highlights all of the modes that have been requested. The leftmost highlighted mode is the active mode.

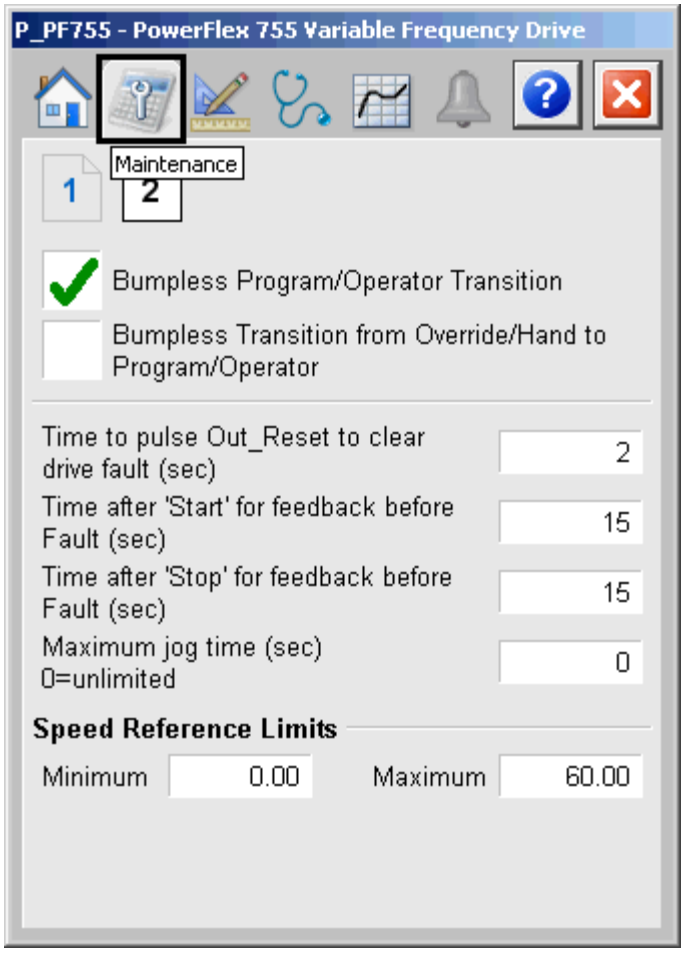


The following table shows the functions on the Maintenance tab.

**Table 10 - Maintenance Tab 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. | | |
|  | Click to enable checking of all interlocks and permissives. | Disable Alarms Bypass Permissives and Interlocks (Code H) | |
|  | 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. | Engineering Configuration (Code E) | Cfg_OvrdPermIntlk |

*Maintenance Tab Page 2*




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

**Table 11 - 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 (sec) | Type the amount of time to hold Out_Reset true to reset a drive fault when a reset command is received. | Configuration & Tuning Maintenance (Code D) | Cfg_ResetPulseT |
| Time after Start to get Run Feedback before Fault (sec) | Type the amount of time to allow for the drive's run feedback to confirm the drive has started before raising a Fail to Start alarm. | | Cfg_FailToStartT |

**Table 11 - Maintenance Tab Page 2 Description**

| Function | Action | Security | Configuration Parameters |
|---|---|---|---|
| Time after Stop to drop Run Feedback before Fault (sec) | Type the amount of time to allow 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 (sec) 0 = unlimited | Type the maximum time (in seconds) that the drive can be jogged by using OCmd_Jog.<br><br>**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<br>• Cfg_MinSpdRef |

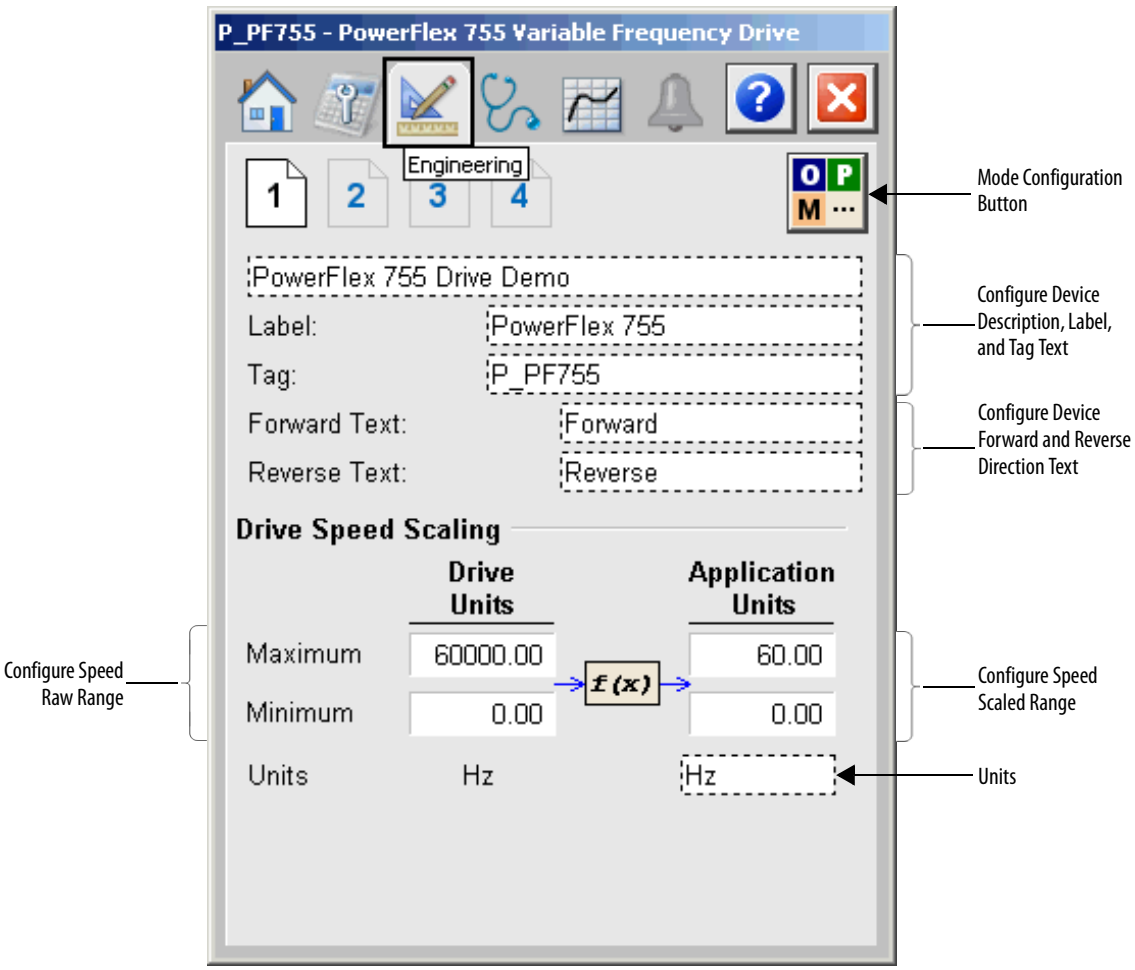
## Engineering Tab

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 1 of the Engineering tab lets you can configure the description, label, tag, and speed scaling for the drive.

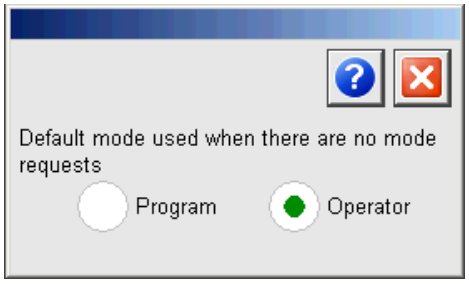


The following table lists the functions on the Engineering tab page 1.

**Table 12 - Engineering Tab Page 1 Description**

| Function | Action | Security | Configuration Parameters |
|---|---|---|---|
|  | Click to navigate to the Mode Configuration display. | None | See Mode Configuration display on page 51 |
| Description | Type the device description to show on the faceplate title bar. | Engineering Configuration (Code E) | Cfg_Desc |
| Label | Type the label to show on the Graphic Symbol. | | Cfg_Label |
| Tag | Type the tag name to show on the faceplate title bar and in the Tooltip.<br>**IMPORTANT:** Pausing the mouse over these fields displays a tool tip with the configured Logix tag/path. | | Cfg_Tag |
| Forward and Reverse Text | Type the text to display on the faceplate to indicate the direction of the drive. | | • Cfg_FwdText<br>• Cfg_RevText |
| Drive Units Maximum for the Raw Value | Type the engineering unit value for the maximum speed feedback from the drive. | | Cfg_SpeedRawMax |
| Drive Units Minimum for the Raw Value | Type the engineering unit value for the minimum speed feedback from the drive. (This value is usually zero. Do not enter a negative value for reversing drives. Reversing is handled separately.) | | Cfg_SpeedRawMin |
| Application Units Maximum for the Scaled Value | Type the engineering unit value for the maximum speed reference sent to the drive. | | Cfg_SpeedEUMax |
| Application Units Minimum for the Scaled Value | Type the engineering unit value for the minimum speed reference sent to the drive. (This value is usually zero. Do not enter a negative value for reversing drives. Reversing is handled separately.) | | Cfg_SpeedEUMin |
| Units | Type the text of the units of measure Engineering Units of the scaled speed feedback. (This is often 'Hz', 'RPM' or 'Percent'.) | | Cfg_SpeedFdbkEU |

*Mode Configuration Display*

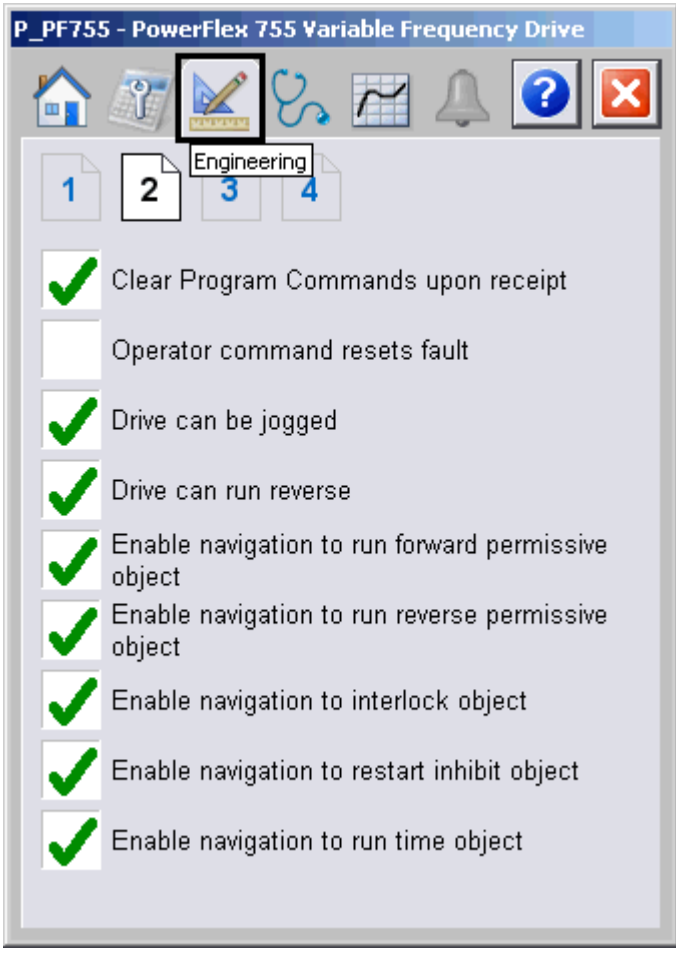



This display lets you select the default mode for the object by selecting the appropriate mode.

**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 2*



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

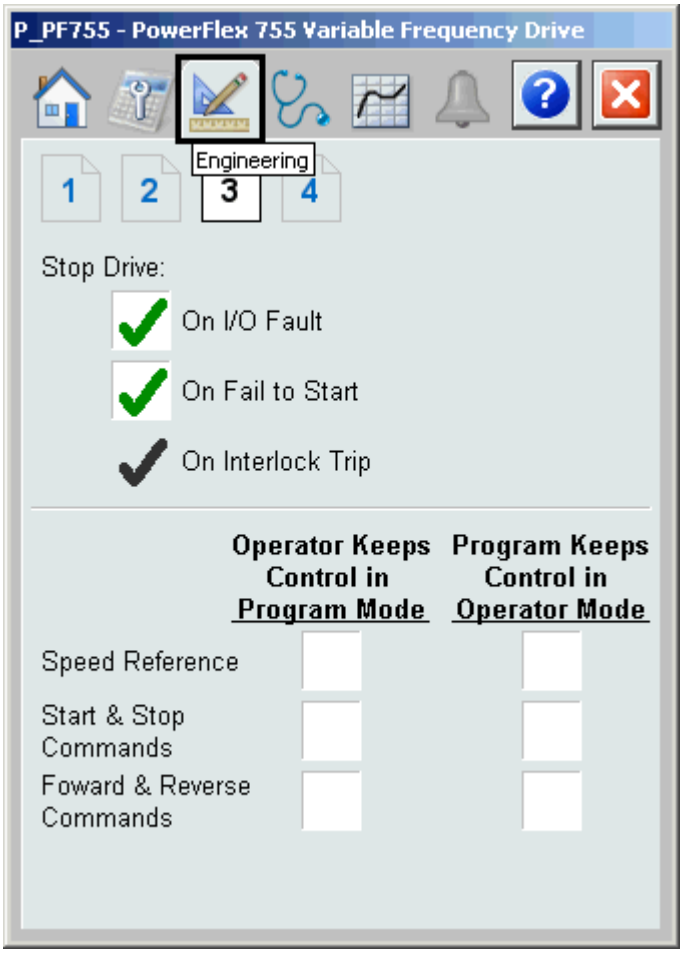
**Table 13 - Engineering Tab Page 2 Description**

| Function | Action | Security | Configuration Parameters |
|---|---|---|---|
| Clear Program Commands on Receipt | Check to use Edge-triggered Program Commands (default).<br>Clear the checkbox to use Level-triggered Program Commands. | Engineering Configuration (Code E) | Cfg_PCmdClear |
| Operator command resets fault | Check to permit the Operator Start or Stop command to reset any previous faults (I/O Fault, Fail to Start, Fail to Stop, Interlock Trip), then start or stop the motor.<br>Clear this checkbox if a reset is required to clear faults. | | Cfg_OCmdResets |
| Drive can be jogged | Check to enable Jog on the Operator tab so that the drive can be jogged from the faceplate. | | Cfg_HasJog |
| Drive can run reverse | Check to enable Forward and Reverse directions on the Operator tab so that the drive can be commanded to run forward or reverse. | | Cfg_HasReverse |
| 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 Forward Permissive faceplate.<br>**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_PF755 object has the name 'Drive123', then its Forward Permissive object must be named 'Drive123_FwdPerm'. | | Cfg_HasFwdPermObj |
| 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 Reverse Permissive faceplate.<br>**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_PF755 object has the name 'Drive123', then its Reverse Permissive object must be named 'Drive123_RevPerm'. | | Cfg_HasRevPermObj |

**Table 13 - Engineering Tab Page 2 Description**

| Function | Action | Security | Configuration Parameters |
|---|---|---|---|
| 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.<br>**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_PF755 object has the name 'Drive123', then its Interlock object must be named 'Drive123_Intlk'. | Engineering Configuration (Code E) | 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.<br>**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_PF755 object has the name 'Drive123', then its Restart Inhibit object must be named 'Drive123_ResInh'. | | Cfg_HasResInhObj |
| Enable navigation to run time object | Check if a runtime object is connected. The button that opens the Run Time faceplate appears.<br>**IMPORTANT:** The name of the Run Time object in the controller must be this object's name with the suffix '_RunTime'. For example, if your P_PF755 object has the name 'Drive123', then its Run Time object must be named 'Drive123_RunTime'. | | Cfg_HasRunTimeObj |

*Engineering Tab Page 3*




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

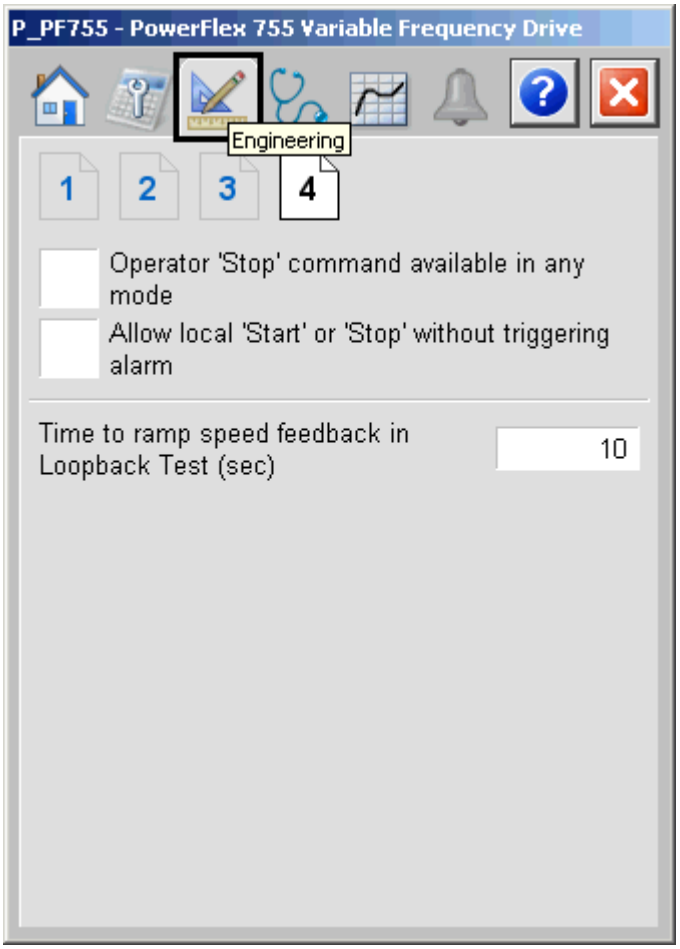
**Table 14 - Engineering Tab Page 3 Description**

| Function | Action | Security | Configuration Parameters |
|---|---|---|---|
| Stop Drive on I/O Fault | Check to stop the drive if an I/O Fault is detected.<br>Clear the 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 | This occurs when the bit is:<br>• On and a motor fail to start is detected, the motor is stopped. A reset is required before another start can be attempted.<br>• Off and a motor fail to start is detected, the instruction sets only the Sts_FailToStart status (and the Alm_FailToStart alarm, if so configured). The outputs are not changed, so the instruction continues to start the motor. | | Cfg_ShedOnFailToStart |

**Table 14 - Engineering Tab Page 3 Description**

| Function | Action | Security | Configuration Parameters |
|---|---|---|---|
| Stop Drive on Interlock Trip | The motor always stops on an interlock trip. This item cannot be unchecked. It is displayed as a reminder that the Interlock Trip function always trips the motor. | Engineering Configuration (Code E) | None |
| 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.<br>Clear this checkbox to have control of the drive Speed Reference follow the Instruction mode. | | 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.<br>Clear this checkbox to have control of the drive Speed Reference follow the Instruction mode. | | Cfg_ProgKeep.0 |
| Start & 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.<br>Clear this checkbox to have control of the drive Start, Stop, and Jog follow Instruction mode. | | Cfg_OperKeep.1 |
| Start & 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.<br>**IMPORTANT**: The Program cannot Jog the drive, even if Jogging is enabled.<br>Clear this checkbox to have control of the drive Start, Stop, and Jog follow Instruction mode. | | Cfg_ProgKeep.1 |
| Forward & 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.<br>Clear this checkbox to have control of the drive Forward and Reverse commands follow the Instruction mode. | | Cfg_OperKeep.2 |
| Forward & 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.<br>Clear this checkbox to have control of the of the drive Forward and Reverse commands follow the Instruction mode. | | Cfg_ProgKeep.2 |

*Engineering Tab Page 4*



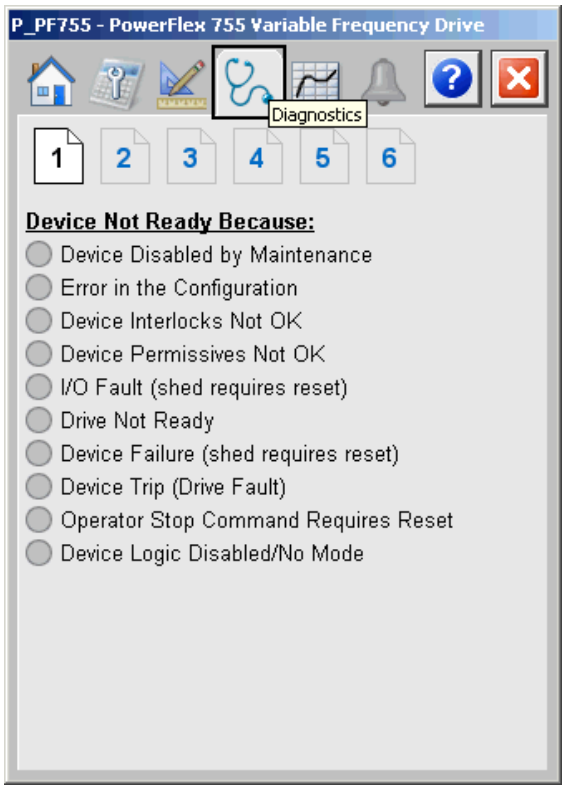

The following table shows the functions on page 4 of the Engineering tab.

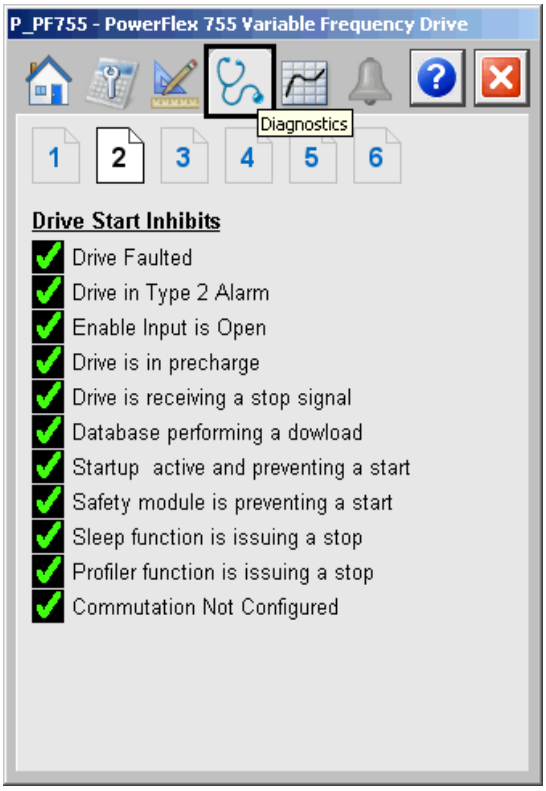
**Table 15 - Engineering Tab Page 4 Description**

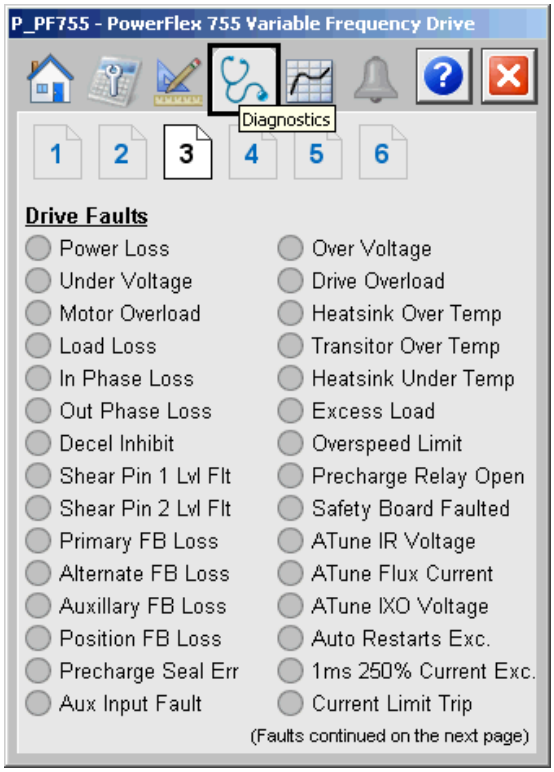
| Function | Action | Security | Configuration Parameters |
|---|---|---|---|
| Operator 'Stop' command available in any mode | Check (= 1) so that the OCmd_Stop has priority and is accepted at any time.<br>Clear this checkbox (= 0) so that the OCmd_Stop works only in Operator or Maintenance mode. | Engineering Maintenance (Code E) | Cfg_OperStopPrio |
| Allow local 'Start' or 'Stop' without triggering alarm | Check (= 1) to allow local start/stop without an alarm.<br>Clear this checkbox (= 0) to start/stop 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 Simulation. | | Cfg_SimRampT |

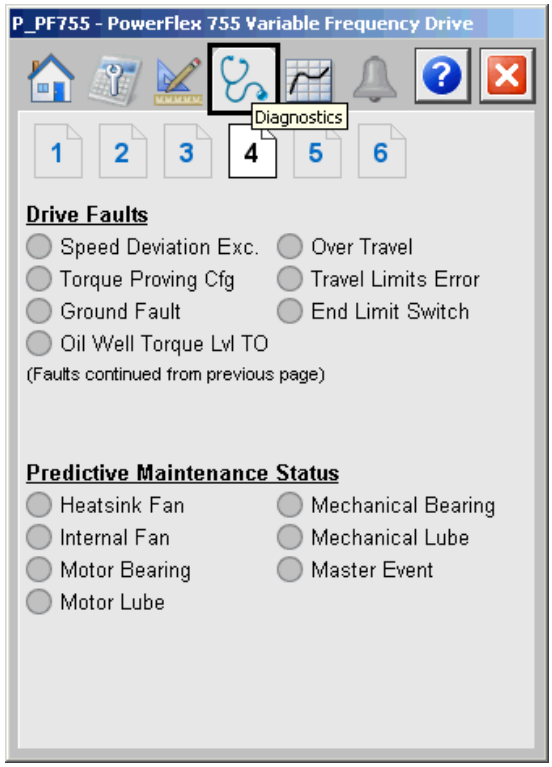
## Diagnostics Tab

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

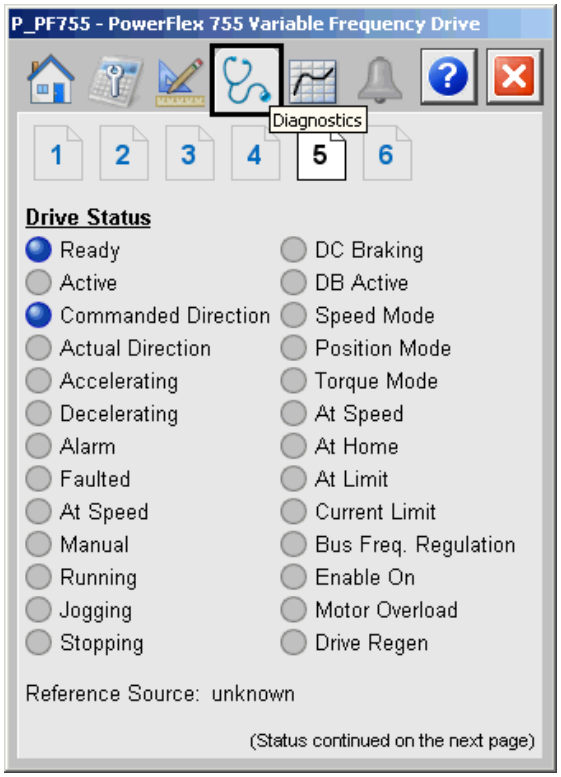


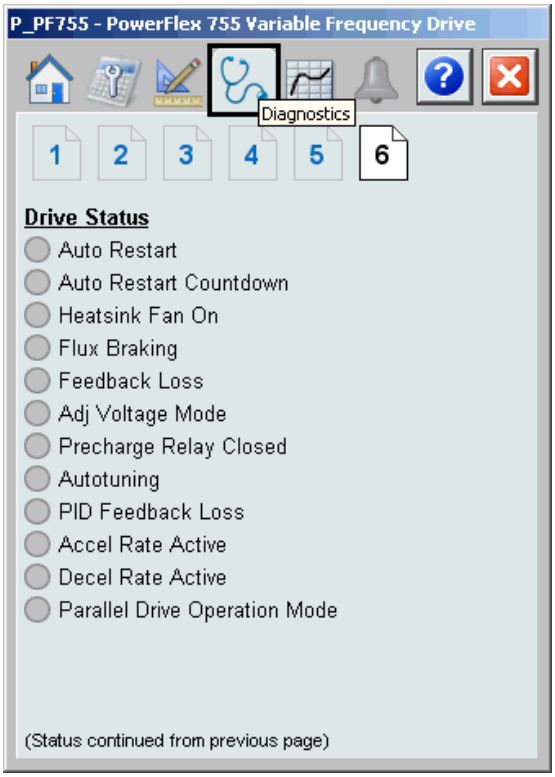



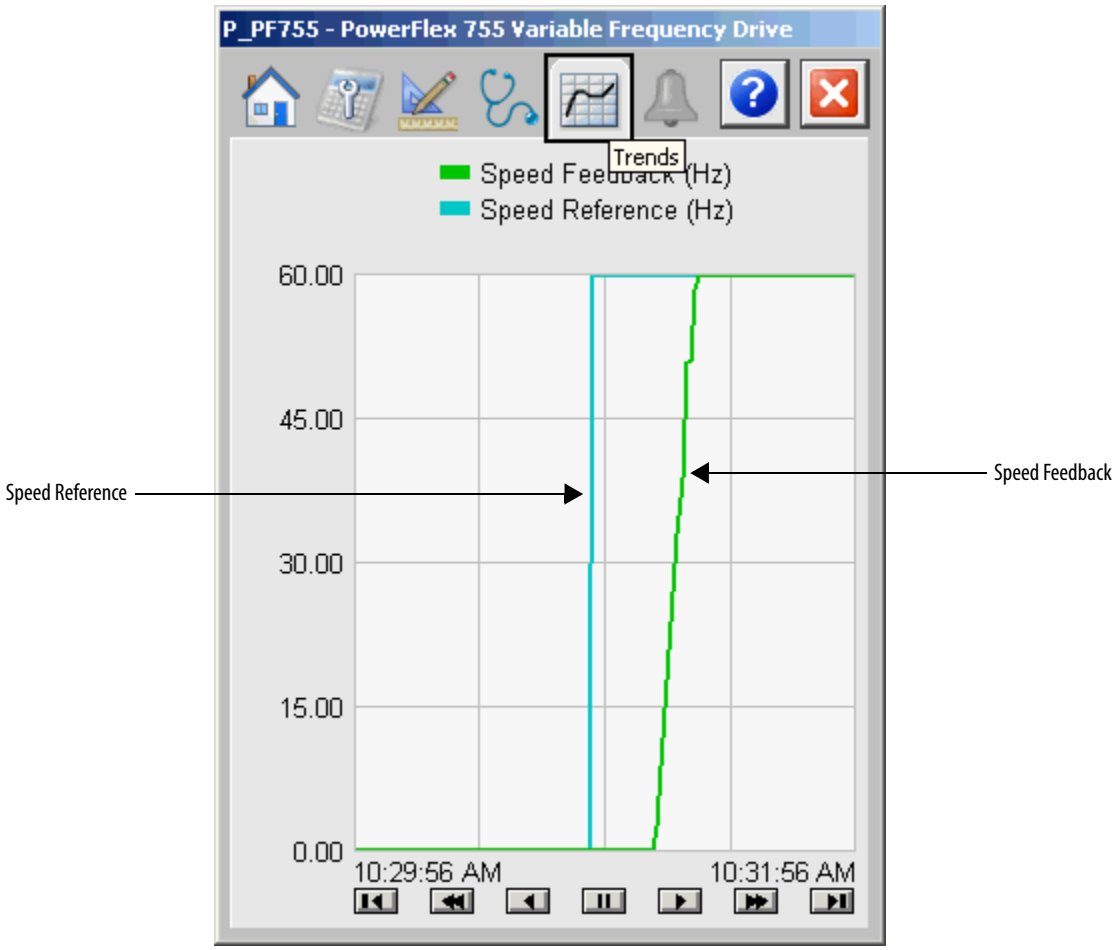
Diagnostic Pages 5 and 6.



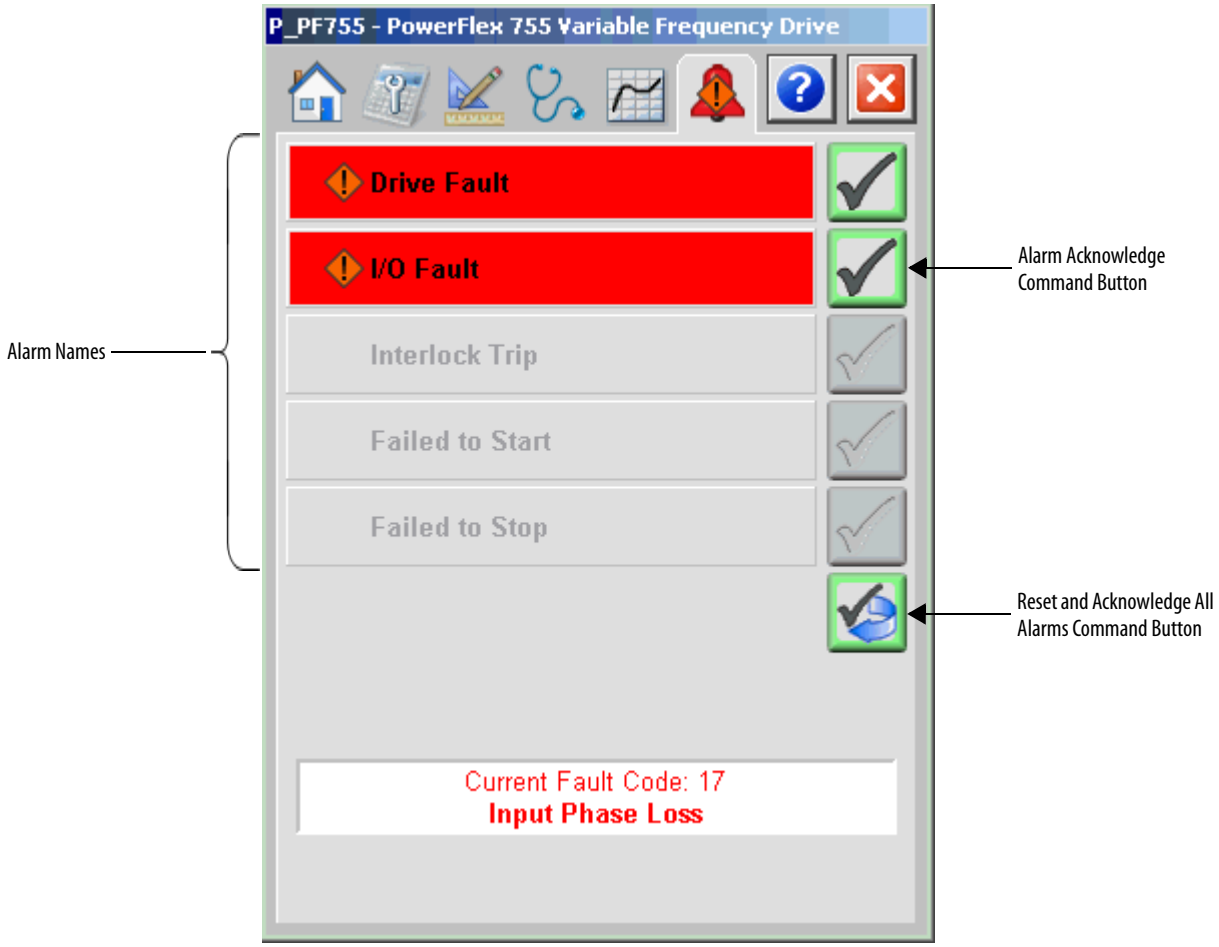
## Trends Tab

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 displays each configured alarm for the P_PF755 instruction. The icon on the tab for the alarms page changes color based on the current active alarms. A blinking alarm icon indicates that one or more alarms must be acknowledged or the device must be reset.




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 highest active alarm's severity, and the icon blinks if any alarm is unacknowledged or requires reset.

**Table 16 - Alarm Color Definitions**

| 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 17 - Alarms Tab Description**

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

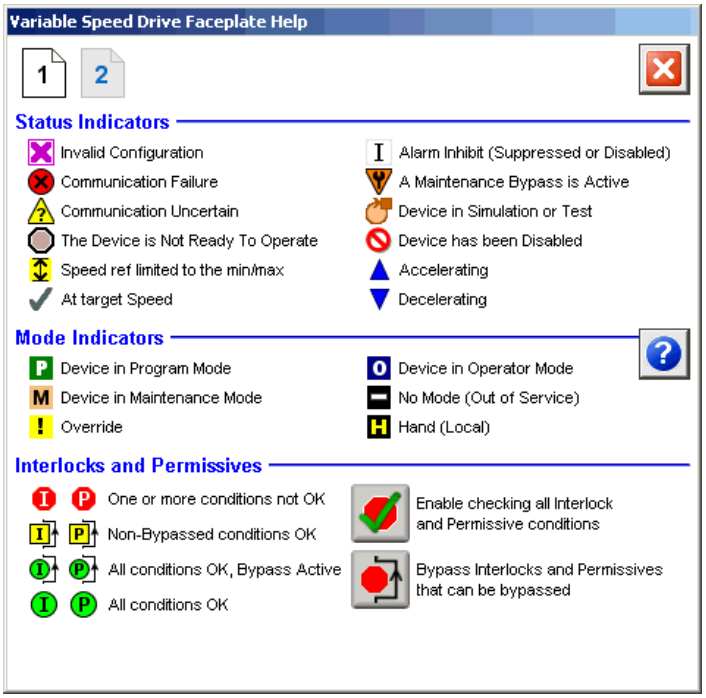
The Reset and Acknowledge All Alarms button is enabled, the panel behind the alarm blinks, and the Alarm Acknowledge button is enabled if the alarm requires acknowledgment. Click the button with the checkmark to acknowledge the alarm.

Refer to the Rockwell Automation Library of Process Objects: Common Alarm Mode (P_Alarm) Reference Manual, publication SYSLIB-RM002, for more information.

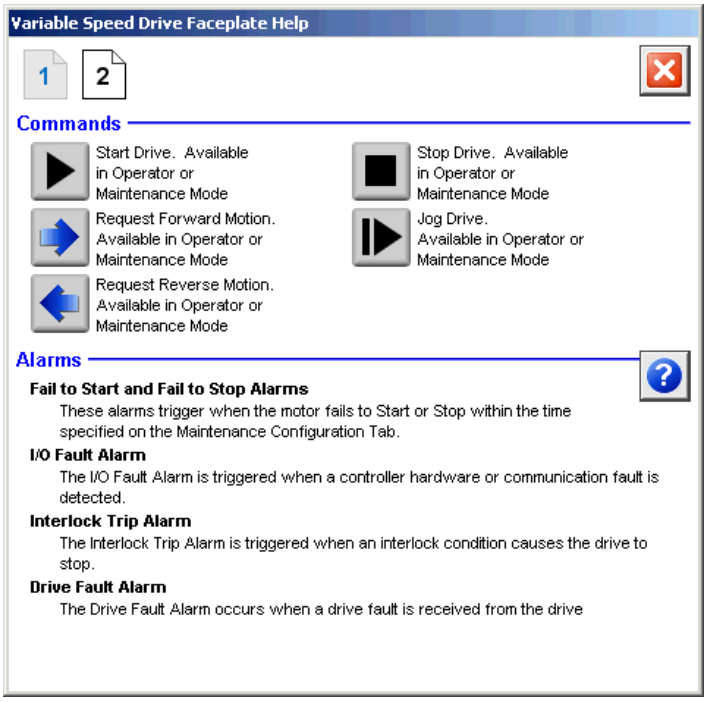
## PowerFlex 755 Drive Faceplate Help

The Faceplate Help is divided into two pages.

*Faceplate Help Page 1*




*Faceplate Help Page 2*



## Rockwell Automation Support

Rockwell Automation provides technical information on the Web to assist you in using its products. At http://www.rockwellautomation.com/support you can find technical and application notes, sample code, and links to software service packs. You can also visit our Support Center at https://rockwellautomation.custhelp.com/ for software updates, support chats and forums, technical information, FAQs, and to sign up for product notification updates.

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. |

### New Product Satisfaction Return

Rockwell Automation tests all of its products to help ensure that they are fully operational when shipped from the manufacturing facility. However, if your product is not functioning and needs to be returned, follow these procedures.

| | |
|---|---|
| United States | Contact your distributor. You must provide a Customer Support case number (call the phone number above to obtain one) to your distributor to complete the return process. |
| Outside United States | Please contact your local Rockwell Automation representative for the return procedure. |

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Your comments will help us serve your documentation needs better. If you have any suggestions on how to improve this document, complete this form, publication RA-DU002, available at http://www.rockwellautomation.com/literature/.

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