Firmware Release Notes

PowerFlex® 700S Drives with Phase II Control (3.01)

These release notes correspond to major revision 3, minor revision 1 of firmware for PowerFlex 700S drives with Phase II control.

Introduction

These release notes provide the following information:

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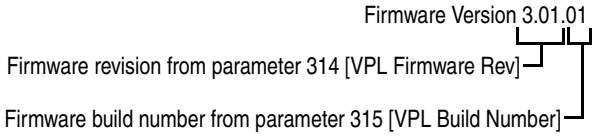
Determining Firmware Revision Level

To determine the firmware version for a PowerFlex 700S drive, view parameters 314 [VPL Firmware Rev] and 315 [VPL Build Number]. The firmware version is the combination of the data in these parameters.

Example:



Upgrading from Previous Releases

The boot code has been updated after the v2.xx release and the v2.xx release or later needs the updated boot code (boot v1.06). When the firmware is upgraded from the version before v2.xx (i.e., v1.12), the following procedure is required for upgrading the boot code along with the application code:

If the firmware is upgraded from the version after v2.xx (i.e., v2.03), upgrading the application only is required:

Upgrading from version 1.12 (or before 2.xx release)

1. Flash 700S2bt01_06.bin using 1203-SSS Series B and HyperTerminal.
2. Cycle the power (automatically).
3. HIM displays "No System Application..." error message - ignore this error.
4. Flash 700S2ap02_06.bin using 1203-SSS Series B and HyperTerminal.
5. Cycle the power (automatically).
6. HIM displays as normal.

Known Anomaly

Firmware revision 3.01 contains the following known anomaly:

Motion Time Keeper - No CST Detected

This is an anomaly with RSLogix™ 5000. An RSLogix program can produce an incorrect value for the coarse multiplier in the Config Data block. This causes an axis fault due to the controller and drive having different coarse update periods.

This anomaly has a work around. Change the Coarse Update Rate to another value and click the Apply button. Then set the Coarse Update Rate to the value needed and again click the Apply button. Next, down load the application program.

Corrected Anomalies

Firmware revision 3.01 contains the following corrections for anomalies:

Control Input Loss

This revision corrects an anomaly in the loss of control input when using Digital Inputs 4, 5 and 6 for Start/Stop and Run with no HIM attached and no 20-COMM module present in the drive.

Default Bit Set for High Horsepower Input Phase Loss

The High Horsepower Input Phase Loss event, parameter 370, has been re-configured to now cause a drive fault (default value changed from 1 - “Alarm” to 3 - “Flt RampStop”). This change was made to prevent single phase operation if a phase loss is experienced.

Drive Reset with Hi-Resolution Feedback Device

This version corrects an anomaly that would reset the drive due to the selection of port 0 for a feedback device, parameter 146 [FW TaskTime Sel] set to a value of 2 and parameter 222 [Mtr Fdbk Sel Pri] set to 2 “Sensorless”.

Enhance Field Weakening Control

This revision provides a more efficient method for entry and exit to/from the field weakening region.

Improve Motor Control Auto-Tune

The following parameters were added/changed to improve the Motor Control Auto-tuning function.

533 [Flux Gain Adjust] was added to allow the flux level used to enter the field weakening range to be adjusted.

552 [Slip Preload Val] was added to allow the Slip Gain value to be pre-loaded if the drive is powered down.

553 [Slip Slew Rate] was added to set the rate at which the Slip Gain regulator output transitions from the inactive state to the active state.

Increase the Maximum Brake Pulse and Brake Watts

This revision includes an increase in the maximum value of parameters 416 [Brake PulseWatts] and 417 [Brake Watts].

Motor Auto-Tune and Power Mismatch Fault

The Motor Auto Tune function was enhanced to provide better auto-tuning performance for this revision. Also, the Horse Power fault received due to a power mismatch between the motor nameplate value and the motor test result has been removed.

Negative Numbers for Falling Edge Triggers in Trend Function

This revision provides for the selection of negative numbers in the Trend Trigger Bit, parameter 565, for a falling edge trigger in the Trend function.

Position Enable Now Turns Off with DriveLogix

Revision 3.01 corrects an anomaly where by the position regulator status, parameter 741 [Position Status], bit 7 [Regulator On] remained active (true)

when the position regulator absolute mode, parameter 740 [Position Control], bit 7 [[AbsoluteMode] was turned off when used with a DriveLogix controller.

Registration Function Interface to Optional Feedback Card

This revision allows the use of a feedback option on board trigger inputs. This applies to the Heidenhain and Multi-Device Interface (MDI) feedback options.

Enhancements

This revision contains the following new features and/or enhancements:

Add/Subtract User Functions

The add/subtract blocks have been added in the revision to allow addition and subtraction of floating point parameters.

The following parameters were added/changed to support this function:

- 1000 [UserFunct Enable], new bit 5 “AddSub Math”
- 1096 [AddSub 1 Input]
- 1097 [AddSub 1 Add]
- 1098 [AddSub 1 Subtrct]
- 1099 [AddSub 1 Result]
- 1100 [AddSub 2 Input]
- 1101 [AddSub 2 Add]
- 1102 [AddSub 2 Subtrct]
- 1103 [AddSub 2 Result]
- 1104 [AddSub 3 Input]
- 1105 [AddSub 3 Add]
- 1106 [AddSub 3 Subtrct]
- 1107 [AddSub 3 Result]

Add Second DInt to Real Conversion User Function

This revision adds parameters to allow a second user function for conversion of DInt to Real data values.

The following parameters were added to support this function:

- 1150 [DInt2Real2 In]
- 1151 [DInt2Real2 Scale]
- 1152 [DInt2Real2Result]

Add SynchLink™ Comm format 14: 1A-3D-14B

This revision includes a new communication format for receiving SynchLink data which will allow the drive to receive position data that can be used as a position reference.

The following parameter changes were made to support this function:

- 905 [SL Rx CommFormat] and 910 [SL Tx Comm Frmt], option 14 - 1A, 3D, 14B is new.

Analog Input Loss Detection

This revision adds the ability to determine the drive's response to an analog input loss.

The following parameters were added/changed to support this function:

- 1093 [Analog In 1 Loss] is new
- 1094 [Analog In 2 Loss] is new
- 1095 [Analog In 3 Loss] is new
- 322 [Exception Event3] was changed to include bit 29 [AnlgIn1 Loss], bit 30 [AnlgIn2 Loss] and bit 31 [AnlgIn3 Loss]

The following new faults were added to support this function:

- 94 - Analog In 1 Loss
- 95 - Analog In 2 Loss
- 96 - Analog In 3 Loss

First Differential Speed Feedback Input for Inertia Adaptation

This revision adds the first difference feedback selection input for Inertia Adaptation.

The following parameter was changed to support this function:

- 132 [Inert Adapt Sel], bit 2 [First Diff]

Flux Current Out of Range Fault Added and Horse Power Fault Eliminated in Autotune

This revision adds a Flux Current Out of Range fault which replaces the Horsepower Fault in the Autotune function. Bit 17 of parameter 465 will be set to indicate that the Flux Current calculation is out of range if the flux current value is greater than 90% of rated motor current.

The following parameter was changed to support this function:

- 465 [MC Diag Error 3], bit 17 [IFlux Range]

Heidenhain Encoder Interface (Endat 24 bit Single-Turn)

This version adds support for the Heidenhain Absolute Angle encoders RCN727 and RCN827. The Heidenhain feedback option must be upgraded to version 2.01 in order for this feature to work.

The following parameter changes were made to support this function:

- 264 [Heidenhain0 Stat], bit 14 was changed from [Endat BootEr] to [Bootup Error] and bit 15 [FW VersionErr] is new
- 266 [Heidn Encdr Type]. The default value and maximum value have been changed.

LED Statuses Display on HIM and in Application Programs

With this revision you can now monitor LED statuses, including the main controller, SynchLink and DriveLogix5370 from a HIM or an application program (e.g., DriveExplorer™). This feature is only available with DriveLogix version 15.03 or later. Refer to HIM LED Status Options Not Supported on page 18 for more information.

The following new parameter was added to support this function:

- 554 [LED Status]

Motion Planner (Trapezoidal Point-to-Point Position Control)

The Point-to-Point Motion Planner function was added to this revision. This function allows the drive to execute point-to-point position moves using a Trapezoidal profile. Adjustments can be made to the acceleration, deceleration and S-curve times.

The following parameters were added/changed to support this function:

- 147 [FW Functions En], bit 19 [MotinPlanner]
- 149 [FW FunctionsActl], bit 19 [MotinPlanner]
- 1130 [PPMP Pos Command]
- 1131 [PPMP Pos Mul]
- 1132 [PPMP Pos Div]
- 1133 [PPMP Scaled Cmd]
- 1134 [PPMP Control]
- 1135 [PPMP Status]
- 1136 [PPMP Rev Spd Lim]
- 1137 [PPMP Fwd Spd Lim]
- 1138 [PPMP Over Ride]
- 1139 [PPMP Accel Time]
- 1140 [PPMP Decel Time]
- 1141 [PPMP SCurve Time]
- 1142 [PPMP Spd Output]
- 1143 [PPMP Pos Output]
- 1144 [PPMP Pos To Go]

- 1145 [PPMP TP Select]
- 1146 [PPMP TP DataDInt]
- 1147 [PPMP TP DataReal]

Motor Overload Thermal Retention (NEC Requirement)

This revision adds the ability to retain motor temperature information after the drive is powered down. This feature is enabled by setting bit 20 “Motor OL Ret” of parameter 153 [Control Options]. When the drive is powered up, the stored motor temperature value is used as an initial value for the motor overload function. If the feature is disabled, the initial value for the motor temperature is zero (0). The stored motor temperature value can be reset to zero by toggling bit 20 of parameter 153 from “1” to “0”, and back to “1”.

The following parameters were added/changed to support this function:

- 153 [Control Options], bit 20 [Motor OL Ret]
- 341 [Mtr I2T Count]

On/Off Delay Timers for Digital Outputs

This revision adds On/Off delay timers for use with digital outputs. Each digital output now has two user-controlled timers associated with it. One timer (the ON timer) defines the delay time between a FALSE to TRUE transition (condition appears) on the output condition and the corresponding change in state of the digital output. The second timer (the OFF timer) defines the delay time between a TRUE to FALSE transition (condition disappears) on the output condition and the corresponding change in the state of the digital output.

The following new parameters were added to support this function:

- 848 [Dig Out1 On Time]
- 849 [Dig Out1 OffTime]
- 853 [Dig Out2 On Time]
- 854 [Dig Out2 OffTime]
- 858 [Rly Out3 On Time]
- 859 [Rly Out3 OffTime]

On-Off Delay Timer User Functions

This revision adds On/Off delay timers for use with user functions. This feature provides the ability to set delay timers for two channels: two channels ON, or two channels OFF, or one channel ON and one channel OFF. The ON timer defines the delay time between a FALSE to TRUE transition (condition appears) on the output condition and the corresponding change in state of an input/output. The second timer (the OFF timer) defines the delay time between a TRUE to FALSE transition (condition disappears)

on the output condition and the corresponding change in the state of the digital output.

The following parameters were added/changed to support this function:

- 1000 [UserFunct Enable], new bit 6 “Delay Timer”
- 1108 [DelayTimer1 Data]
- 1109 [DelayTimer1 Bit]
- 1110 [DelayTimer1PrSet]
- 1111 [DelayTimer1Accum]
- 1112 [DelayTimer1Stats]
- 1113 [DelayTimer2 Data]
- 1114 [DelayTimer2 Bit]
- 1115 [DelayTimer2PrSet]
- 1116 [DelayTimer2Accum]
- 1117 [DelayTimer2Stats]

Phase Lock Loop

This revision adds a Phase Lock Loop (PLL), which provides a closed loop position control system. This loop acts on the difference between a reference (encoder) input and the feedback from the output of a virtual encoder. The PLL can maintain a precise phase relationship between input and output.

Virtual master reference

A virtual master reference is provided when position and velocity references are electronically generated and sent to all drives to follow. There is no physical shaft or encoder to generate the reference. Each drive is electronically position locked to a virtual reference. That reference is generated by a virtual encoder.

Real master reference

A real master reference is provided when position and velocity references are generated by an encoder attached to and following a physical shaft. The encoder’s signals are sent to all drives to follow. The encoder signal must first be conditioned before it is sent out to the following drives. The real master encoder is conditioned and re-generated by a PLL.

The following parameters were added/changed to support this function:

- 54 [Inertia TrqLpfBW]
- 147 [FW Functions En], bit 24 [PhaseLockLp]
- 149 [FW FunctionsActl], bit 24 [PhaseLockLp]
- 717 [PLL TP Select]
- 718 [PLL TP DataDInt]
- 719 [PLL TP DataReal]
- 720 [PLL Control]
- 721 [PLL Position Ref]
- 722 [PLL BandWidth]
- 723 [PLL Rev Input]
- 724 [PLL Rev Output]
- 725 [PLL EPR Input]
- 726 [PLL EPR Output]
- 727 [PLL VirtEncdrRPM]
- 728 [PLL Ext Spd Ref]
- 729 [PLL Ext SpdScale]
- 730 [PLL LPFilter BW]
- 731 [PLL Posit Out]
- 732 [PLL Posit OutAdv]
- 733 [PLL FiltPositOut]
- 734 [PLL Speed Out]
- 735 [PLL SpeedOut Adv]

Security Aware Function

The Security Aware function has been added in this revision and allows a secure enabled device (e.g., PLC, etc.) to control a drive. When a drive is Security Aware enabled, a HIM or other communication device cannot be used to change parameters. However, the Stop button on a HIM, or other communication device, can be used to stop the drive.

The following new parameters were added to support this function:

- 669 [Write Mask]
- 712 [Write Mask Act]
- 713 [Logic Mask Act]
- 714 [Port Mask Act]

Skip Rotate Autotune in V/Hz Mode

This revision removes the option of using rotate Autotune for the V/Hz mode from the Start Up Menu. The Start Up Menu now only allows static motor tuning tests in V/Hz mode.

Slip Frequency Tuning in Start-Up Menu

This revision adds the Slip Frequency Auto Tune function to the Motor Tests and the Start Up Menu. This test allows the drive to establish the slip frequency. This value is displayed in parameter 486 [Rated Slip Freq].

The test requires that the motor be run at near 50% (High Horsepower frames 9 - 12) and 85% (Low Horsepower frames 1 - 6) speeds. The test repeats three times.

The following parameters were added/changed to support this function:

- 150 [Logic State Mach]
- 153 [Control Options], bit 29 [Slip Test En]
- 157 [Logic Ctrl State], bits 22 and 23
- 165 [Tune Test Status], value 7 “Slip Test”
- 510 [FVC Mode Config], bit 10 [SlipSlewRtEn] and 11 [SlipPrloadEn]

Speed Limited Adjustable Torque (SLAT) Min/Max Mode Control

This revision adds Speed Limited Adjustable Torque (SLAT) Min/Max Mode controls to allow for applications that require a robust transition from a torque mode to a speed mode of operation.

The following parameters were added/changed to support this function:

- 110 [Speed/TorqueMode], new values 7 ”SLAT Minimum” and 8 “SLAT Maximum”
- 119 [SLAT ErrorSetpnt]
- 120 [SLAT Dwell Time]

Support Frame 12 (Star-Coupler Parallel Drive)

This revision adds support for the PowerFlex 700S AC Drive Frame 12 at 480v AC/650v DC for the following ratings:

Amps	Cat. Code	HP (kW) - ND
820	820	700 (450)
920	920	800 (500)
1030	1K0	900 (500)

The following parameters were changed to support this function:

- 420 [Pwr Strct Mode], bit 3 [Parallel Drv]
- 322 [Exception Event3]
- 328 {Alarm Status 3]

The following new faults were added to support this function:

- 76 - HiHP HardwareVer
- 77 - HiHP CurrUnblnce
- 78 - HiHP VoltUnblnce

New and Changed Parameters

Table A below lists the parameter differences between revision 3.01 and the revision 2.04 of firmware. Refer to *PowerFlex 700S High Performance AC Drive Phase II Control - User Manual*, publication 20D-UM006 for details.

Table A Parameter Changes

Parameter Number [Name]	What Changed
49 [Selected SpdRefA]	This parameter is new and allows viewing of Speed Reference A, parameter 27, from a HIM
50 [Selected SpdRefB]	This parameter is new and allows viewing of Speed Reference B, parameter 28, from a HIM
54 [Inertia TrqLpfBW]	This parameter is new and supports the new Phase Lock Loop feature
81 [Spd Reg P Gain]	The maximum value was changed from 600 to 3000
84 [SpdReg AntiBckup]	This parameter was changed to non-linkable
92 [SpdReg P Gain Mx]	The maximum value was changed from 600 to 3000
110 [Speed/TorqueMode]	Options 7 ”SLAT Minimum” and 8 “SLAT Maximum” are new and support SLAT control
119 [SLAT ErrorSetpnt]	This parameter is new and is used for SLAT Min/Max Mode Control
120 [SLAT Dwell Time]	This parameter is new and is used for SLAT Min/Max Mode Control
132 [Inert Adapt Sel]	Bit 2 [First Diff] is new and supports First Differential Speed Feedback Input for Inertia Adaptation
147 [FW Functions En]	• Bit 19 [MotinPlanner] is new and is used to enable the Point-to-Point Motion Planner function • Bit 24 [PhaseLockLp] is new and is used to enable the Phase Lock Loop feature
149 [FW FunctionsActl]	• Bit 19 [MotinPlanner] is new and is used to display the actual state of the Point-to-Point Motion Planner function • Bit 24 [PhaseLockLp] is new and is used to display the actual state of the Phase Lock Loop feature
150 [Logic State Mach]	Option 8 “Slip Test” is new and supports the new Slip Frequency Auto-tuning feature
153 [Control Options]	• Bit 20 [Motor OL Ret] is new and is used to enable Motor Over-Load Retention • Bit 21 [Inrt TrqLPEn] is new and is used to enable Inertia Compensation Torque Output Low Pass Filter • Bit 29 [Slip Test En] is new and is used to enable Slip Frequency Auto-tuning
157 [Logic Ctrl State]	• Bit 22 [Slip Test En] is new and is used to support Slip Frequency Auto-tuning • Bit 23 [S Tst FulSpd] is new and is used to support Slip Frequency Auto-tuning
165 [Tune Test Status]	Option 7 was changed from “Mtr+Sys J” to “Slip Test” and is used to support Slip Frequency Auto-tuning
222 [Mtr Fdbk Sel Pri]	This parameter was changed to non-linkable
223 [Mtr Fdbk Sel Alt]	This parameter was changed to non-linkable
224 [TachSwitch Level]	This parameter was changed to non-linkable
259 [Stegmann0 Cnfg]	This parameter was changed to non-linkable
263 [Heidenhain0 Cnfg]	This parameter was changed to non-linkable
264 [Heidenhain0 Stat]	Bit 14 was changed from [Endat BootEr] to [Bootup Error] and Bit 15 [FW VersionErr] is new
266 [Heidn Encdr Type]	The default value and maximum value have been changed
306 [DC Bus Voltage]	The maximum value was changed from 1000.0000 to 1170.0000

Parameter Number [Name]	What Changed
322 [Exception Event3]	The following bits are new: • Bit 11 [HH HW Ver] is used to indicate a High Horsepower Hardware Version fault • Bit 12 [HH CurUnblnc] is used to indicate a High Horsepower Output Current Unbalance fault • Bit 13 [HH VltUnblnc] is used to indicate a High Horsepower Bus Voltage Unbalance fault • Bit 29 [AnlgIn1 Loss] is used to indicate a Analog Input 1 Loss fault • Bit 30 [AnlgIn2 Loss] is used to indicate a Analog Input 2 Loss fault • Bit 31 [AnlgIn3 Loss] is used to indicate a Analog Input 3 Loss fault
325 [Fault Status 3]	The following bits are new: • Bit 11 [HH HW Ver] is used to indicate a High Horsepower Hardware Version fault • Bit 12 [HH CurUnblnc] is used to indicate a High Horsepower Output Current Unbalance fault • Bit 13 [HH VltUnblnc] is used to indicate a High Horsepower Bus Voltage Unbalance fault • Bit 29 [AnlgIn1 Loss] is used to indicate a Analog Input 1 Loss fault • Bit 30 [AnlgIn2 Loss] is used to indicate a Analog Input 2 Loss fault • Bit 31 [AnlgIn3 Loss] is used to indicate a Analog Input 3 Loss fault
328 [Alarm Status 3]	The following bits are new: • Bit 11 [NonCnfgFault] is used to indicate a non-configurable High Horsepower Hardware Version fault • Bit 12 [NonCnfgFault] is used to indicate a non-configurable High Horsepower Output Current Unbalance fault • Bit 13 [NonCnfgFault] is used to indicate a non-configurable High Horsepower Bus Voltage Unbalance fault • Bit 29 [NonCnfgFault] is used to indicate a non-configurable Analog Input 1 Loss fault • Bit 30 [NonCnfgFault] is used to indicate a non-configurable Analog Input 2 Loss fault • Bit 31 [NonCnfgFault] is used to indicate a non-configurable Analog Input 3 Loss fault
341 [Mtr I2T Count]	This parameter is new and us used to support the Motor Overload Thermal Retention feature
370 [HiHp InPhsLs Cfg]	The default value was changed from 1 to 3
412 [Power EE TP Sel]	Options 74 - 92 were changed and options 93 -111 are new
414 [Brake/Bus Cnfg]	Bits 5 [Fast Braking] and 6 [DC Braking] were added to support parameters 416 [Brake PulseWatts] and 417 [Brake Watts]. This parameter was also changed to non-linkable
416 [Brake PulseWatts]	The maximum value was changed to 100,000,000
417 [Brake Watts]	The maximum value was changed 500,000
420 [Pwr Strct Mode]	Bit 3 [Parallel Drv] is new and is used to support the start coupler for frame 12 drives only
465 [MC Diag Error 3]	The bit enumeration was changed to support Motor Control diagnostics
466 [MC TP1 Select]	New option values were added to support Motor Control diagnostics
475 [MC FaultTPSelect]	New option values were added to support Motor Control diagnostics
486 [Rated Slip Freq]	Changed the attributes to allow changing this parameter while the drive is running
490 [StatorInductance]	Changed the default value from 8192 to 4096

Parameter Number [Name]	What Changed
510 [FVC Mode Config]	Bits 10 [SlipSlewRtEn] and 11 [SlipPrloadEn] were added and support Slip Frequency tuning
511 [FVC2 Mode Config]	This parameter was changed to non-linkable
512 [PMag Mode Config]	This parameter was changed to non-linkable
514 [Test Mode Config]	This parameter was changed to non-linkable
533 [Flux Gain Adjust]	This parameter is new and is used to support Motor Control
549 [Vuv Fdbk Offset]	This parameter is now linkable
550 [Vvw Fdbk Offset]	This parameter is now linkable
551 [CurrFdbk AdjTime]	This parameter is new and is used to support Motor Control
552 [Slip Preload Val]	This parameter is new and is used to support Motor Control
553 [Slip Slew Rate]	This parameter is new and is used to support Motor Control
554 [LED Status]	This parameter is new and is used for the LED Status Display from HIM and Application Programs feature
669 [Write Mask]	This parameter is new and is used to support the Security Aware feature
712 [Write Mask Act]	This parameter is new and is used to support the Security Aware feature
713 [Logic Mask Act]	This parameter is new and is used to support the Security Aware feature
714 [Port Mask Act]	This parameter is new and is used to support the Security Aware feature
717 [PLL TP Select]	This parameter is new and supports the new Phase Lock Loop feature
718 [PLL TP DataDInt]	This parameter is new and supports the new Phase Lock Loop feature
719 [PLL TP DataReal]	This parameter is new and supports the new Phase Lock Loop feature
720 [PLL Control]	This parameter is new and supports the new Phase Lock Loop feature
721 [PLL Position Ref]	This parameter is new and supports the new Phase Lock Loop feature
722 [PLL BandWidth]	This parameter is new and supports the new Phase Lock Loop feature
723 [PLL Rev Input]	This parameter is new and supports the new Phase Lock Loop feature
724 [PLL Rev Output]	This parameter is new and supports the new Phase Lock Loop feature
725 [PLL EPR Input]	This parameter is new and supports the new Phase Lock Loop feature
726 [PLL EPR Output]	This parameter is new and supports the new Phase Lock Loop feature
727 [PLL VirtEncdrRPM]	This parameter is new and supports the new Phase Lock Loop feature
728 [PLL Ext Spd Ref]	This parameter is new and supports the new Phase Lock Loop feature
729 [PLL Ext SpdScale]	This parameter is new and supports the new Phase Lock Loop feature
730 [PLL LPFilter BW]	This parameter is new and supports the new Phase Lock Loop feature
731 [PLL Posit Out]	This parameter is new and supports the new Phase Lock Loop feature
732 [PLL Posit OutAdv]	This parameter is new and supports the new Phase Lock Loop feature

Parameter Number [Name]	What Changed
733 [PLL FiltPositOut]	This parameter is new and supports the new Phase Lock Loop feature
734 [PLL Speed Out]	This parameter is new and supports the new Phase Lock Loop feature
735 [PLL SpeedOut Adv]	This parameter is new and supports the new Phase Lock Loop feature
740 [Position Control]	Added bits 24 - 29 to support the Homing function
741 [Position Status]	Added bits 13 - 15 to support the Homing function
742 [Position Ref Sel]	This parameter was changed to non-linkable
777 [PositionFdbk Sel]	This parameter was changed to non-linkable
796 [Posit Gear Ratio]	This parameter was changed to non-linkable
825 [Dig In1 Sel] 826 [Dig In2 Sel] 827 [Dig In3 Sel] 828 [Dig In4 Sel] 829 [Dig In5 Sel] 830 [Dig In6 Sel]	Option 39 “Home Switch” is new and supports the Point-to-Point Motion Planner function
848 [Dig Out1 On Time]	This parameter is new and supports the Digital Input Timer feature
849 [Dig Out1 OffTime]	This parameter is new and supports the Digital Input Timer feature
853 [Dig Out2 On Time]	This parameter is new and supports the Digital Input Timer feature
854 [Dig Out2 OffTime]	This parameter is new and supports the Digital Input Timer feature
858 [Rly Out3 On Time]	This parameter is new and supports the Digital Input Timer feature
859 [Rly Out3 OffTime]	This parameter is new and supports the Digital Input Timer feature
904 [SL Error Status]	This parameter was changed to non-linkable
905 [SL Rx CommFormat]	A new comm format option was added
906 [SL Rx DirectSel0]	This parameter was changed to non-linkable
907 [SL Rx DirectSel1]	This parameter was changed to non-linkable
908 [SL Rx DirectSel2]	This parameter was changed to non-linkable
909 [SL Rx DirectSel3]	This parameter was changed to non-linkable
910 [SL Tx CommFormat]	A new comm format option was added
911 [SL Tx DirectSel0]	This parameter was changed to non-linkable
912 [SL Tx DirectSel1]	This parameter was changed to non-linkable
913 [SL Tx DirectSel2]	This parameter was changed to non-linkable
914 [SL Tx DirectSel3]	This parameter was changed to non-linkable
1000 [UserFunct Enable]	Bit 5 [AddSub Math] and bit 6 [Delay Timer] were added to support the Add/Subtract and On-Off Delay Timer User Functions
1047 [DInt2Real1 In]	This parameter name changed from [DInt2Real In] to [DInt2Real1 In]
1048 [DInt2Real1 Scale]	This parameter name changed from [DInt2Real Scale] to [DInt2Real1 Scale]
1049 [DInt2Real1Result]	This parameter name changed from [DInt2RealResult] to [DInt2Real1Result]
1093 [Anlg In1LossCnfg]	This parameter is new and is used for Analog Input Loss configuration
1094 [Anlg In2LossCnfg]	This parameter is new and is used for Analog Input Loss configuration

Parameter Number [Name]	What Changed
1095 [Anlg In3LossCnfg]	This parameter is new and is used for Analog Input Loss configuration
1096 [AddSub 1 Input]	This parameter is new and is used to support the Add/ Subtract User Function
1097 [AddSub 1 Add]	This parameter is new and is used to support the Add/ Subtract User Function
1098 [AddSub 1 Subtrct]	This parameter is new and is used to support the Add/ Subtract User Function
1099 [AddSub 1 Result]	This parameter is new and is used to support the Add/ Subtract User Function
1100 [AddSub 2 Input]	This parameter is new and is used to support the Add/ Subtract User Function
1101 [AddSub 2 Add]	This parameter is new and is used to support the Add/ Subtract User Function
1102 [AddSub 2 Subtrct]	This parameter is new and is used to support the Add/ Subtract User Function
1103 [AddSub 2 Result]	This parameter is new and is used to support the Add/ Subtract User Function
1104 [AddSub 3 Input]	This parameter is new and is used to support the Add/ Subtract User Function
1105 [AddSub 3 Add]	This parameter is new and is used to support the Add/ Subtract User Function
1106 [AddSub 3 Subtrct]	This parameter is new and is used to support the Add/ Subtract User Function
1107 [AddSub 3 Result]	This parameter is new and is used to support the Add/ Subtract User Function
1108 [DelTmr1 TrigData]	This parameter is new and is used to support the On-Off Delay Timer User Function
1109 [DelTmr1 Trig Bit]	This parameter is new and is used to support the On-Off Delay Timer User Function
1110 [DelayTimer1PrSet]	This parameter is new and is used to support the On-Off Delay Timer User Function
1111 [DelayTimer1Accum]	This parameter is new and is used to support the On-Off Delay Timer User Function
1112 [DelayTimer1Stats]	This parameter is new and is used to support the On-Off Delay Timer User Function
1113 [DelTmr2 TrigData]	This parameter is new and is used to support the On-Off Delay Timer User Function
1114 [DelTmr2 Trig Bit]	This parameter is new and is used to support the On-Off Delay Timer User Function
1115 [DelayTimer2PrSet]	This parameter is new and is used to support the On-Off Delay Timer User Function
1116 [DelayTimer2Accum]	This parameter is new and is used to support the On-Off Delay Timer User Function
1117 [DelayTimer2Stats]	This parameter is new and is used to support the On-Off Delay Timer User Function
1120 [Home Accel Time]	This parameter is new and is used to support the Point-to-Point Motion Planner function
1121 [Home Decel Time]	This parameter is new and is used to support the Point-to-Point Motion Planner function
1122 [Home Speed]	This parameter is new and is used to support the Point-to-Point Motion Planner function
1123 [Home Position]	This parameter is new and is used to support the Point-to-Point Motion Planner function

Parameter Number [Name]	What Changed
1125 [DC Brake Level]	This parameter is new and is used to support the Point-to-Point Motion Planner function
1126 [DC Brake Time]	This parameter is new and is used to support the Point-to-Point Motion Planner function
1130 [PPMP Pos Command]	This parameter is new and is used to support the Point-to-Point Motion Planner function
1131 [PPMP Pos Mul]	This parameter is new and is used to support the Point-to-Point Motion Planner function
1132 [PPMP Pos Div]	This parameter is new and is used to support the Point-to-Point Motion Planner function
1133 [PPMP Scaled Cmd]	This parameter is new and is used to support the Point-to-Point Motion Planner function
1134 [PPMP Control]	This parameter is new and is used to support the Point-to-Point Motion Planner function
1135 [PPMP Status]	This parameter is new and is used to support the Point-to-Point Motion Planner function
1136 [PPMP Rev Spd Lim]	This parameter is new and is used to support the Point-to-Point Motion Planner function
1137 [PPMP Fwd Spd Lim]	This parameter is new and is used to support the Point-to-Point Motion Planner function
1138 [PPMP Over Ride]	This parameter is new and is used to support the Point-to-Point Motion Planner function
1139 [PPMP Accel Time]	This parameter is new and is used to support the Point-to-Point Motion Planner function
1140 [PPMP Decel Time]	This parameter is new and is used to support the Point-to-Point Motion Planner function
1141 [PPMP SCurve Time]	This parameter is new and is used to support the Point-to-Point Motion Planner function
1142 [PPMP Spd Output]	This parameter is new and is used to support the Point-to-Point Motion Planner function
1143 [PPMP Pos Output]	This parameter is new and is used to support the Point-to-Point Motion Planner function
1144 [PPMP Pos To Go]	This parameter is new and is used to support the Point-to-Point Motion Planner function
1145 [PPMP TP Select]	This parameter is new and is used to support the Point-to-Point Motion Planner function
1146 [PPMP TP DataDInt]	This parameter is new and is used to support the Point-to-Point Motion Planner function
1147 [PPMP TP DataReal]	This parameter is new and is used to support the Point-to-Point Motion Planner function
1150 [DInt2Real2 In]	This parameter is new and is used for DInt to Real value conversion
1151 [DInt2Real2 Scale]	This parameter is new and is used for DInt to Real value conversion
1152 [DInt2Real2Result]	This parameter is new and is used for DInt to Real value conversion

Restrictions

DriveLogix Position Error Does Not Perform as Designed

This serves as a guideline for switching between different feedback channels when using DriveLogix Motion. Example: switching position feedback from an encoder to a Stegmann absolute feedback. Please refer to the *DriveLogix5730 Controller for PowerFlex 700S Drives with Phase II Control*, publication 20D-UM003, for details on the PowerFlex 700S to DriveLogix connections and related parameters.

Procedure for switching between feedback types

1. Setup the Drive and DriveLogix for motion use.
2. Calculate the Conversion Constant and Position Unwind Constants for the Axis feedback devices you will be using. Create tags for the Conversion Constants as Real and Position Unwind as DINT for each of the feedback being used.
3. For the Conversion Constant change an SSV instruction will be used with the following attributes. Class Name = Axis, Instance Name = “Axis Name”, Attribute Name = Conversion Constant, Source = “Conversion Constant tag created in the previous step”. An SSV instruction for the Position Unwind will be the same construction with the following changes, Attribute Name = PositionUnwind, Source = “Position Unwind tag created”.
4. Changing Parameter 777 [Position FdbkSel], in the drive, must be done via a message instruction. Do NOT attempt to use a Datalink to this parameter. Two messages should be created to switch parameter 777 between feedback devices.
5. The rungs must be conditioned to only operate when the axis is disabled and the drive is not running. A one shot must be used to keep the SSV instructions from continually attempting to change the values.

High Horsepower Drives Require DC Bus Dynamic Brake

When Flying Start is used for PowerFlex 700S High Horsepower drives, frames 9 - 13, the drive must be equipped with a DC Bus Dynamic Brake Unit on order to eliminate possible DC Bus Overvoltage faults.

HIM Downloads

You must use the Block method for the HIM download function. The standard method sets the values of some Power Board EEPROM parameters to default values instead of user values.

HIM LED Status Options Not Supported

This function allows the HIM to display the status of the board mounted LEDs for the PowerFlex 700S and DriveLogix. The following LED status option for parameter 554 [LED Status] is not supported:

- Bit 15 [DL ComActive] - RS232 activity

HIM Stop During Motion Move

If the HIM commands a stop while the drive is executing a motion move, the DriveLogix controller gets no indication the move has been stopped. The drive will complete the move when the HIM commands a start. This occurs because there is no position following error alarm in the controller. To avoid this situation, configure parameters 696 [Motn PositErrTol] and 399 [Positin Err Cnfg] to create an alarm when position error exceeds reasonable limits. Then configure the communication format so the controller consumes parameter 328 [Alarm Status 3] and write ladder logic that cancels motion commands when parameter 328 [Alarm Status 3] / bit 20 [Posit Err] turns on. In addition, configure parameter 671 [Start Mask] so the drive does not recognize a start command from the HIM.

Motion Arm Registration (MAR) Command

The MAR command works for registration for one input but not for both. This limits the usefulness of Drivelogix motion. Using the MAR instruction always produces an error 13 (no extended code) when registration input 2 is selected as a trigger.

Motion Arm Watch (MAW) Command

The MAW command only works on the controlled axis. The follower axis is the axis most likely to use this instruction. The MAW command produces an error 13 (no extended code) when the follower axis is selected.

Motion Homing Incompatible with Resolver Feedback Option

The homing function of Logix based Motion Control is not compatible with the Resolver Feedback Option Card. Registration information does not properly transfer from the drive to the controller.

Motion Registration Incompatible with Feedback Options

The registration functions of Logix based Motion Control are not compatible with the following feedback options: Hi-Resolution (Stegmann) Feedback Option Card, Resolver Feedback Option Card or Multi-Device Interface Option Card. New value and registration status information does not transfer from parameter 257 [Opt 0 Regis Ltch] to the status bits in the axis tag of the controller.

Point-to-Point Motion Planner “Done” Bit Does Not Always Turn On

The Status word “Done” bit is not consistent. When bit11 [Done], in parameter 1135 [PPMP Status], does not come on the Position to go and Position Output, toggle between 1 and -1. This does not keep you from doing another move. This could mess someone up on determining the next move. This is parameter 1135 bit 11 does not always set when the Motion Planner move is completed.

Remove HIM During Firmware Flash

You must remove the HIM when using the 1203-SSS Smart Self-powered Serial Converter, or any 20-COMM communication adapter to flash-update drive firmware.

Notes:

www.rockwellautomation.com

Power, Control and Information Solutions Headquarters

Americas: Rockwell Automation, 1201 South Second Street, Milwaukee, WI 53204-2496 USA, Tel: (1) 414.382.2000, Fax: (1) 414.382.4444
Europe/Middle East/Africa: Rockwell Automation, Vorstlaan/Boulevard du Souverain 36, 1170 Brussels, Belgium, Tel: (32) 2 663 0600, Fax: (32) 2 663 0640
Asia Pacific: Rockwell Automation, Level 14, Core F, Cyberport 3, 100 Cyberport Road, Hong Kong, Tel: (852) 2887 4788, Fax: (852) 2508 1846

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