

PowerFlex[®] 755 Drives (revision 3.005)

These release notes correspond to major revision 3, minor revision 5 of firmware for PowerFlex 755 drives.

Introduction

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Determining Firmware Revision Level

This section describes procedures to determine the firmware revision of your PowerFlex 755 drive.

Using the Drive LCD HIM

1. Access the Status screen, which is displayed on HIM power up.

Figure 1 - Status Screen



FW Revision is listed under -Main Control Board; see Figure 2.

Figure 2 - Device Version Information Screen



Using DriveExplorer Lite/Full

IMPORTANT	You need DriveExplorer version 6.01 or later to interface with the
	PowerFlex 755 drive. To obtain the latest version, visit the Allen-
	Bradley Web Updates site located at
	http://www.ab.com/support/abdrives/webupdate.

- 1. Launch DriveExplorer and go online with the PowerFlex 755 drive. To connect to the drive, use a 1203-USB converter, a 1203-SSS converter, or an EtherNet/IP network connection.
- 2. In the Devices hardware view, select the PowerFlex 755 drive.

Once selected, information regarding the PowerFlex 755 drive is shown in the right panel including the current firmware revision number.



Using DriveExecutive

IMPORTANT	You need DriveExecutive version 5.01 or later to interface with the
	PowerFlex 755 drive. To obtain the latest version, visit the Allen-
	Bradley Web Updates site located at
	http://www.ab.com/support/abdrives/webupdate.

- 1. Launch DriveExecutive and go online with the PowerFlex 755 drive. To connect to the drive, use a 1203-USB converter, a 1203-SSS converter, or an EtherNet/IP network connection.
- In the Drives hardware view, select the PowerFlex 755 drive (1 in Figure 3 on page 4).
- 3. Click the information icon (2 in <u>Figure 3</u>) to display the drive's Properties dialog box.

In the Properties dialog box the "Revision:" field (③ in <u>Figure 3</u>) will show the drive's current firmware revision number.



Figure 3 - Accessing the PowerFlex 755 Drive Firmware Revision Number

Firmware Flashing

This section describes procedures to flash upgrade your drive firmware. Flash kits for drives are provided on the Allen-Bradley Web Updates site located at <u>http://www.ab.com/support/abdrives/webupdate</u>.

Flashing can be performed using a 1203-USB or 1203-SSS converter. For information on connecting either converter to your drive, refer to the 1203-USB USB Converter User Manual, publication <u>DRIVES-UM001</u> or the 1203-SSS Smart Self-powered Serial Converter User Manual, publication <u>20COMM-UM001</u>.

Installing the Flash Kit

- Install the flash kit utility from the Allen-Bradley Web Updates site for the PowerFlex 755 drive, which includes the latest version of the ControlFLASH utility and deploys firmware files for using HyperTerminal on your computer.
- **2.** You are now ready to use DriveExplorer, DriveExecutive, ControlFLASH or HyperTerminal to update the drive. Refer to the respective section below and follow the instructions.

Using DriveExplorer Lite/Full to Flash Update

- With the Flash Kit installed (see <u>Installing the Flash Kit</u>), launch DriveExecutive and go online (via a 1203-USB or 1203-SSS converter) with the PowerFlex 755 drive.
- 2. In the Devices hardware view, select the PowerFlex 755 drive (1) in Figure 4).
- 3. Click the information icon (2 in <u>Figure 4</u>) to display the drive's Properties dialog box.

In the Properties dialog box, click the Component Details tab (③ in Figure 4).

Figure 4 - Accessing the Component Details Tab of the Properties Dialog Box



5. With the Main Control Board selected, click Flash Update.

-	Print
	Print
	a the bass
- L E	
	Flash Update.
10.00	

IMPORTANT Flash updating the device firmware may cause the device to load defaults. It is recommended that you save the setting to your PC before proceeding.

6. From the list of available updates, select "v3.005.xxx" and click Next >.

Select Flash Update - PowerFlex 755	×
Flash Update File Location	
C:\Program Files\ControlFLASH\0001\008c\0890	Browse
Available Flash Updates	
v2.004.148 PF755LPApp	
<beck next=""></beck>	Cancel

7. Follow the remaining prompts until the flash update procedure completes and displays the new firmware revision.

Using DriveExecutive to Flash Update

- 1. With the Flash Kit installed (see Installing the Flash Kit), launch DriveExecutive and go online (via a 1203-USB or 1203-SSS converter) with the PowerFlex 755 drive.
- 2. In the Drives hardware view, select the PowerFlex 755 drive (**0** in <u>Figure 3</u> <u>on page 4</u>).
- 3. Click the information icon (2 in Figure 3) to display the drive's Properties dialog box.

- 4. In the Properties dialog box, click the Component Details tab (3 in Figure 3).
- 5. With the PowerFlex 755 drive selected, click Flash Update.

PowerFlex 755 Properties		×
General Status and Feedback Process Display Component Details		
PowerFlex 755 PowerFlex 755 Power Board Power Board	Flash Update Save as CSV Compatible Devices: Not Supported Serial Number: 202D8C7A Manufacturing Date: February 3, 2010	

6. From the list of available devices, select the PowerFlex 755 drive and click Next >.

Select De	vice To	Update				×
Select a de load default Note: Only o	vice to flash s. It is recom levices that a 10.91.24.1 a 10.91.24.1 a 20.HIM.xt I - DeviceNe	update. Flash upda mended that you sa support Flash will b 11 x 755 (Revision 2.0 6 (Revision 1.0 at (Revision 1.0	ting the device fi ave the settings t e shown in the d 103) 105) 103)	irmware may caus o your PC before evice tree.	e the device to proceeding.	
Harmony Path	x USME	QTJSVOREN2IAB_	ETHIP-1\10.91.	24.111 Next >	Close	
IMPO	RTANT	Flash updating th defaults. It is reco proceeding.	ne device firmwa ommended that	are may cause the you save the sett	e device to load ting to your PC b	efore

7. From the list of available updates, select "v3.005.xxx" and click Next >.

Select Flash Update - PowerFlex 755		×
Flash Update File Location		
C:\Program Files\ControlFLASH\0001\008c\0890		Browse
Available Flash Updates		
v2.004.148 PF755LPApp		
1		
<back< td=""><td>Next></td><td>Cancel</td></back<>	Next>	Cancel

8. Follow the remaining screen prompts until the flash update procedure completes and displays the new firmware revision.

Using ControlFLASH to Flash Update

- With the Flash Kit installed (see <u>Installing the Flash Kit on page 4</u>), launch ControlFLASH by selecting Start > (All) Programs > Flash Programming Tools > ControlFLASH.
- 2. On the ControlFLASH Welcome screen, click Next >.

Welcome to Co	ntrolFLASH
Control FLASH	Welcome to ControlFLASH, the firmware update tool. ControlFLASH needs the following information from you before it can begin updating a device. 1.The Catalog Number of the target device. 2.The Network Configuration parameters (optional). 3.The Network Path to the target device. 4.The Firmware Revision for this update.
	< Back Next > Cancel Help

3. The Catalog Number dialog box appears. From the list, choose the communication device you will use to update the PowerFlex 755 drive. In the figure below, the embedded EtherNet device is selected.

Once the appropriate communication device is selected, click Next >.

Catalog Numb	er
Instantive very second	Enter the catalog number of the target device:
l titi ininin title ninini.tett	PowerFlex 755 LP via 750-Series Comms
Control FLASH	PowerFlex 700VC Series B PowerFlex 700VC Series B via 20-COMM-Q PowerFlex 755 HP via 1769-SM1 Compact I/O PowerFlex 755 HP via 20-COMM-Q / 20K-CNETG PowerFlex 755 HP via 750-Series Comms PowerFlex 755 LP via 1769-SM1 Compact I/O PowerFlex 755 LP via 1769-SM1 Compact I/O PowerFlex 755 LP via 20-COMM-Q / 20K-CNETGI PowerFlex 755 LP via 20-COMM-Q / 20K-CNETGI PowerFlex 755 LP via DPI Comms
	< Back Next > Cancel Help

- 4. Now that the correct communication device has been selected, you must select which device is being updated. With the Select the PowerFlex... dialog box displayed, follow these steps.
- a. Expand the hardware view for the communication path you are using (1 in Figure 5).
- b. Select the drive icon that represents the PowerFlex 755 drive you are updating (2 in Figure 5).
- **c.** Click **OK** (**6** in <u>Figure 5</u>).





5. In the Multiple Assemblies Found display box, select "Port *x*-PowerFlex 755" from the list and click **OK**.

Multiple Assemblies Found	×
Multiple assemblies exist within this device. Plea choose the assembly that you would like to upda from the list below.	se ste
Port 0 • PowerFlex 755 Port 1 • 20+HM-x6 Port 2 • Not Present Port 3 • Not Present Port 4 • DeviceNet Port 5 • I/0 Module 24V Port 6 • Dual Encoder	•
OK Cancel	

6. In the Firmware Revision dialog box, select "v3.005..." from the list of available updates and click Next >.

Firmware Revi	sion
Control FLASH	Catalog Number: PowerFlex 755 LP via 750-Series Com Serial Number: 202D8C7A Current Revision: 2.003 Select the new revision for this update: Revisi Restricti V 2.004 Show All Restrictions
	Current Folder: c:\program files\controlflash
	< Back Next > Cancel Help

7. Follow the remaining prompts until the flash procedure completes and displays the new firmware revision.

Using HyperTerminal to Flash Update

Important: The HyperTerminal process **takes at least one hour to complete.**

1. With the Flash Kit installed (see <u>Installing the Flash Kit on page 4</u>), access and launch HyperTerminal as shown below.



- 2. A New Connection dialog box appears.
 - a. Enter the connection device name in the Name field or select an icon from the library.
 - b. Click **OK** once you have finished.



- 3. A Connect To dialog box appears,
 - a. Use the "Connect using:" drop-down menu to select the appropriate connection device.
 - b. Click **OK** once you have finished.

Connect To)	? ×
🧞 hig		
Enter details for	the phone number that you wa	nt to dial:
Country/region:	United States (1)	7
Area code:	1	
Phone number:		
Connect using:	NmeaDev0	-
	NmeaDev0 COM7 NmeaDev1	
	NmeaDev2	
	COM5 COM3 COM4 TCP/IP (Winsock)	

- 4. A Properties dialog box will appear for the selected connection device.
 - a. Use any of the drop-down menus to change the various port settings.
 - b. Click **OK** once you have finished.

COM4 Properties	? ×
Port Settings	
Bits per second: 115200	
Data bits: 8	
Parity: None	
Stop bits: 1	
Flow control: Xon / Xotf	
Restore Defau	ilts
OK Cancel A	Apply

5. After you click OK, you will get a blank screen.

Press **Enter** on your computer keyboard so the following test screen appears.



- 6. From the Main Menu, select the flash upgrade (● in <u>Figure 6</u>) by pressing the number 3 key on your computer keyboard.
- Additonal text appears. From the Flash Upgrade menu, select the PowerFlex 775 drive (2 in Figure 6) by pressing the number 0 key on your computer keyboard.
- Additonal text appears. After reading the conditions, select Yes (③ in Figure 6) to proceed by pressing the letter Y key on your computer keyboard.





The terminal program will start displaying the letter "C". This signals the XMODEM protocol that the download may proceed.



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IMPORTANT You have one minute to complete steps 9...14 or HyperTerminal will return to step 5, where you must repeat steps 5...8.

- **TIP** To cancel the flash update at any time, press **CTRL-X**.
- 9. Select Transfer > Send File to display the Send File dialog box.

🔏 test :	1 - Hyr	perTe	rminal		
File Edi	t View	Call	Transfer	Help	
	03	<u>=0 🔁</u>	đ		

- **10.** Click **Browse** and navigate to one of the following locations:
 - For PowerFlex 755 drive frames 2...7, go to C: > Program Files > ControlFLASH > 0001 > 0086 > 0890
 - For PowerFlex 755 drive frames 8 and larger, go to
 C: > Program Files > ControlFLASH > 0001 > 0086 > 0C90

- Search within the appropriate subfolder until the "PF755_LP_App_v3_005_xxx.dpi" file appears in the Select File to Send list.
- 12. With the file name highlighted, click **Open** so it appears in the Filename data field in the Send File dialog box.

Send File
Folder: C:\Program Files\ControlFLASH\0001\0086\0890 Filename:
C:\Program Files\ControlFLASH\0001\0086\0 Browse
Xmodem 🗸
Send Close Cancel

- 13. In the Protocol box, select "Xmodem."
- 14. Click Send.

A dialog box appears and reports the update progress, which **takes about one hour for HyperTerminal to complete.** When it is complete, the message "Flash Complete" appears.

Xmode	m file sen	nd for test1		
Sending:	C:\Program Fi	les\ControlFLASH	\0001\0086\0	0890\PF755_LP_App_v2_0
Packet:	4787	Error checking:	CRC	
Retries:	0	Total retries:	0	1
Last error:				
File:				598K of 4242K
Elapsed:	00:09:23	Remaining:	00:57:15	Throughput: 1086 cps
				Cancel cps/bps

- **15.** Press any key to continue.
- 16. Press the Enter key to return to the main menu.

Enhancements

This section describes the enhancements in this revision.

Additional Voltage and Current Ratings

The following ratings have been added to the Frame Rating Tables in this revision of firmware:

PWM Frequency	Voltage	Code	LD Current (A)	LD Power (Hp)	ND Current (A)	ND Power (Hp)	HD Current (A)	HD Power (Hp)
2 kHz	480V	D800	960	800	800	700	710	600
		D960	1045	900	960	800	795	700
		D1K0	1135	1000	1045	900	800	750
		D1K2	1365	1100	1135	1000	960	800
		D1K3	1420	1250	1365	1100	1045	900
		D1K4	1540	1350	1420	1250	1135	1000
	400V	C910	1040	560	910	500	750	400
		C1K0	1090	630	1040	560	880	500
	C1K1	1175	710	1090	630	910	500	
		C1K2	1465	800	1175	710	1040	560
		C1K4	1480	850	1465	800	1090	630
		C1K5	1600	900	1480	850	1175	710
4 kHz	480V	D840		700		625		540
		D950		790		700		600
		D1K0		855		790		660
		D1K2		1030		895		700
		D1K3		1110		1030		790
		D1K4		1160		1075		895
	400V	C900		785		665		555
		C1K0		850		785		660
		C1K1		885		825		685
		C1K2		1090		945		785
		C1K4		1155		1090		845
		C1K5		1205		1115		930

Parallel Power Structures

This revision of firmware adds features that accommodate the use of parallel power structures. These features allow for the operation of the drive while one power structure is disconnected, and for the rerating of the drive as power structures are added or subtracted.

Flying Start - Frequency Search for Frames 2...7

This revision of firmware adds the Sweep (Frequency Search) mode to Flying Start. This mode is helpful for applications with multiple motors per drive and applications with filters between the drive and motor.

Select this mode by placing a value of 2 - "Sweep" in parameter 356 [FlyingStart Mode].

Interior Permanent Magnet (IPM) Motor with Feedback

This revision of firmware adds the ability to control an Interior Permanent Magnet (IPM) motor. This control requires the use of motor speed or position feedback device and feedback option module, such as the single encoder module (20-750-ENC-1) dual encoder module (20-750-DENC-1) or universal feedback board (20-750-UFB-1).

Select this control mode by selecting a value of 10 - "IPM FV" in parameter 35 [Motor Ctrl Mode].

Adjustable Voltage Boost

This revision of firmware adds the Adjustable Voltage Boost feature. This feature is useful for starting high torque motors in the volts per hertz control mode.

Use this feature by configuring parameters 1131 [AdjVltgConfig] through 1152 [Min Adj Voltage].

Auto/Manual HIM Preload

This revision of firmware adds the ability to configure the drive to switch smoothly from an automatic (communicated) speed reference to manual speed reference produced by the Human Interface Module (HIM). When the drive is commanded to switch from the automatic (communicated) speed reference to the manual reference via a digital input, it preloads the last value from the speed feedback into the HIM. Then the operator can modify the manual reference on the HIM. This avoids a step change in speed that would otherwise occur from the switch.

Use this feature by configuring parameters 328 [Alt Man Ref Sel], 331 [Manual Preload], 172 [DI Manual Ctrl], and 563 [DI ManRefSel].

This feature requires revision 1.008 of HIM firmware or later.

Stop Dwell

This revision of firmware adds the stop dwell feature, which sets an adjustable delay time between detecting zero speed and disabling the speed and torque regulators, when responding to a stop command.

Use this feature by configuring parameter, 392 [Stop Dwell Time]. The value of this parameter defines the dwell time in seconds.

Customer Configurable Response to HIM Communications Loss

This revision of firmware adds an enhancement that allows customers to configure the drive's response to a HIM DPI communication loss on DPI ports 1 through 3. The configuration options are similar to those for communication faults on network communications adapters.

Use this feature by configuring parameters 865 [DPI Pt1 Flt Actn] through 867 [DPI Pt3 Flt Actn] and 868 [DPI Pt1 Flt Ref] through 870 [DPI Pt3 Flt Ref].

This feature requires a new enhanced style HIM (20-HIM-A6, 20-HIM-C6S). This feature will not work with older contemporary 7-Class HIM's (20-HIM-A3, 20-HIM-A5, 20-HIM-C3S, 20-HIM-C5S).

Initial MOP Values

This revision of firmware adds an enhancement to the MOP functionality that makes it possible for customers to configure the MOP to have an initial value other than the last value saved "At Power Down" or "At Stop."

Use this feature by configuring parameter 566 [MOP Init Select] and 567 [MOP InitStpt].

Hand-Off-Auto Start

This revision of firmware adds a new digital input function that allows for handoff-auto control. It functions like a three-wire start signal; with the exception, that it does not require the DI Stop to be high for a full input cycle before the drive looks for a rising edge on DI HOA Start.

Use this feature by configuring parameter 176 [DI HOA Start].

Test Voltage Pulse Width Adjustment for PM Offset Test

This revision of firmware contains an enhancement, to the Static Encoder Offset Test in the Autotune procedure for surface mount permanent magnet motors. The test accommodates longer voltage pulse widths.

Corrected Anomalies

This section describes the anomalies corrected in this revision.

Drive Status Data in CIP Motion Mode

Updates to some drive information data did not reach the controller under certain conditions. This information included the DC bus status (AxisName.DCBusUpStatus) and the guard OK status (AxisName.GuardOKStatus). These functions performed properly in the drive, but the controller did not always receive status information.

Certain data is only transferred between the controller and drive when data has changed. There is a mechanism which performs the handshaking and verification of this data transfer between the controller and the drive. There was an issue with this verification mechanism when there were missed messages between the drive and the controller. This anomaly has been corrected.

Soft Reset

This anomaly existed in firmware revision 3.003, which was a pre-production release. If the drive was using the sleep wake mode or Start on Power-up mode, and the conditions for drive starting were present at the time of a soft reset (reset from HIM or software); the drive would start. In previous revisions and revisions going forward, the drive will not start until the conditions for start are removed and re-established after soft reset is received.

Multicast Messages Cause Synch Fault

When a new node is added to an Ethernet switch (this has occurred on Stratix 8000 switch, which is recommended in the CIP Motion Reference Architecture), the switch sends out a high volume of multicast messages and the PowerFlex 755 drives would respond with a CIP Motion Synch Fault.

Max Pole Count

The motor pole count was incorrectly limited to 20, in frame 8 drives.

Pepperl+Fuchs Linear Position Encoder and Universal Feedback Board

The anomaly concerned the interaction with a Pepperl+Fuchs Linear Position Encoder and the Universal Feedback Board (UFB). The Pepperl+Fuchs linear position encoder communicates to the UFB using the Synchronous Serial Interface (SSI). The reading head on the linear position encoder reads the code rail and sends the position to the UFB. When the code rail is not in the reading head, the reading head sends an out-of-rail alarm to the UFB.

When the anomaly occurred, the UFB would cease communicating with the linear position encoder. The UFB would not re-establish communication when the code rail entered the reading head, and the drive did not receive position feedback data.

Three things could trigger the anomaly:

- The drive was powered up when the code rail was not in the reading head.
- There was a command to initialize the UFB when the code rail was not in reading head.
- Change to the value of a parameter in the UFB that can only be modified when the drive is stopped when the code rail was not in the reading head (this causes a command to initialize the UFB).

This would occur regardless of the settings for parameters 9 [FB0 Loss Cfg] and 39 [FB1 Loss Cfg]. Even if you configured the drive to ignore the feedback loss or alarm in response to the feedback loss, the UFB would stop communicating to the linear position encoder.

Revision 1.015 of UFB firmware was created to correct this anomaly.

This revision of main control board firmware is needed if your application requires the drive to fault when the code rail is not in the reading head.

Power Structure Configuration Changes Not Detected on First Power Cycle after Flash Update

The drive would fail to recognize configuration changes to the power structure on the first power cycle after the drive firmware was updated. This only affected frame 8 drives.

Incorrect Option Parameter Settings after Device Conflict Resolved

When a device conflict was found and the new device accepted, the optionaccept code did not reset option module parameter values to defaults (although it did clear the option parameter Non Volatile Storage). If there was previously another option module in the slot, the new option module could have nondefault values in any parameters, which had non-default values in the old option module.

Improper Fault Code After Reset to Defaults on Ports 10 or 11

The drive would produce a fault F59 "Invalid Code" after the converter at port 11 or the inverter at port 10 was reset to defaults.

Interference between Simultaneous Non Volatile Storage (NVS) Rebuilds

When NVS rebuilds occurred at the same time for multiple option modules there could be interference. This could produce improper parameter values in the option modules after a power cycle.

Non-Volatile Storage Buffers for DeviceLogix and EtherNet/IP Port

After a power cycle, some parameters related to DeviceLogix and the EtherNet/ IP port could return to their default values. This was related to the size of the space allocated for DeviceLogix and EtherNet/IP parameters.

If you changed more DeviceLogix parameter values than the allotted space, some of those parameter values would not be stored in NVS and would return to their default values after a power cycle. If you downloaded a DeviceLogix configuration file or Ethernet/IP Port configuration file containing more parameter values than three-fourths of the allotted space, the download would fail and some of the parameters that should have downloaded would remain at their default values and/or return to their default values after a power cycle.

Non-Volatile Storage for I/O Option Modules and the EtherNet/IP Port

After a power cycle, some parameters related to I/O option modules and the EtherNet/IP port could return to their default values. This was related to a particular issue related to the addressing of NVS.

Parameters related to 115VAC I/O option modules include:6 [Dig Out Invert], 7 [Dig Out Setpoint], 10[RO0 Sel], 11 [RO0 Level Sel], 12 [RO0 Level], 14 [RO0 On Time], 15 [RO0 Off Time], 20 [RO1 Sel], 21 [RO1 Level Sel], 22 [RO1 Level], 24 [RO1 On Time], 25 [RO1 Off Time], 40 [PTC Cfg], 46 [Anlg In Sqrt], 53 [Anlg In0 LssActn], 55 [Anlg In0 FiltGn], 56 [Anlg In0 Filt BW], 63 [Anlg In1 LssActn], 65 [Anlg In1 FiltGn], 66 [Anlg In1 Filt BW], 71 [Anlg Out Abs], 75 [Anlg Out0 Sel], 76 [Anlg Out0 Stpt], 78 [Anlg Out0 DataHi], 79 [Anlg Out0 DataLo], 85 [Anlg Out1 Sel], 86 [Anlg Out1 Stpt], 88 [Anlg Out1 DataHi], 89 [Anlg Out1 DataLo].

Parameters related to the 24V I/O option modules with transistor outputs include: 2 [Dig In Filt Mask], 3 [Dig In Filt], 6 [Dig Out Invert], 7 [Dig Out Setpoint], 10 [RO0 Sel], 11 [RO0 Level Sel], 12 [RO0 Level], 14 [RO0 On Time], 15 [RO0 Off Time], 20 [RO1 Sel], 21 [RO1 Level Sel], 22 [RO1 Level], 24 [RO1 On Time], 25 [RO1 Off Time], 30 [TO1 Sel], 31 [TO1 Level Sel], 32 [TO1 Level], 34 [TO1 On Time], 35 [TO1 Off Time], 40 [PTC Cfg], 46 [Anlg In Sqrt], 53 [Anlg In0 LssActn], 55 [Anlg In0 FiltGn], 56 [Anlg In0 Filt BW], 63 [Anlg In1 LssActn], 65 [Anlg In1 FiltGn], 66 [Anlg In1 Filt BW], 71 [Anlg Out Abs], 75 [Anlg Out0 Sel], 76 [Anlg Out0 Stpt], 78 [Anlg Out0 DataHi], 79 [Anlg Out0 DataLo], 85 [Anlg Out1 Sel], 86 [Anlg Out1 Stpt], 88 [Anlg Out1 DataHi], 89 [Anlg Out1 DataLo].

Parameters related to the 24V I/O option modules with relay outputs include: 2 [Dig In Filt Mask], 3 [Dig In Filt], 6 [Dig Out Invert], 7 [Dig Out Setpoint], 10 [RO0 Sel], 11 [RO0 Level Sel], 12 [RO0 Level], 14 [RO0 On Time], 15 [RO0 Off Time], 20 [RO1 Sel], 21 [RO1 Level Sel], 22 [RO1 Level], 24 [RO1 On Time], 25 [RO1 Off Time], 40 [PTC Cfg], 46 [Anlg In Sqrt], 53 [Anlg In0 LssActn], 55 [Anlg In0 FiltGn], 56 [Anlg In0 Filt BW], 63 [Anlg In1 LssActn], 65 [Anlg In1 FiltGn], 66 [Anlg In1 Filt BW], 71 [Anlg Out Abs], 75 [Anlg Out0 Sel], 76 [Anlg Out0 Stpt], 78 [Anlg Out0 DataHi], 79 [Anlg Out0 DataLo], 85 [Anlg Out1 Sel], 86 [Anlg Out1 Stpt], 88 [Anlg Out1 DataHi], 89 [Anlg Out1 DataLo].

Parameters related to the EtherNet/IP port include the datalink parameters (1 [DL From Net 01]...16 [DL From Net 16] and 17 [DL To Net 01]...32 [DL To Net 16]).

Logic Mask Did Not Affect Start at Power Up

The Start at Power Up function, which is configured by parameter 345 [Start AtPowerUp], would work regardless of the settings in parameter 324 [Logic Mask].

Erroneous Fault Reporting During Autotune Test

The DriveExplorer fault queue could indicate F12 "HW Over-current" after a reverse Autotune test. The HIM would not display the fault.

ControlFLASH Timed Out when Updating Drive

ControlFLASH would time out when updating the drive over EtherNet/IP with a Stratix 8000 switch. However, the drive would properly apply the flash update.

Parameter 1114 [Brake Test Torq] Was Missing from File and Group

Parameter 1114 [Brake Test Torq] was missing from the Torque Prove group in the Application parameter file in frame 8 drives. The parameter was in the general Linear List.

Missing Error When Drive NV Selected in Integrated Motion Mode

This anomaly affected customers using Integrated Motion on EtherNet/IP (CIP Motion). If you attempted to use Drive NV when configuring the motor on a motion axis with a PowerFlex 755, the drive would not return the appropriate error. This feature is not currently supported in the PowerFlex 755.

MRHD Motion Run Hookup Diagnostics

The .PC and .DN bits of a MHRD motion instruction would not behave properly. An additional 40 ms delay was required before executing another motion instruction.

Parameters 490 [HSFanElpsdLife] and 501 [InFanResetLog] Not Shown

Parameters 490 [HSFanElpsdLife] and 501 [InFanResetLog] were not displayed in frame 8 drives.

Know Anomalies

This section describes the known anomalies that are present in this revision:

Feedback Selection

The HIM startup on the PowerFlex 755 drive includes a feedback device selection step. Depending on the option modules installed, that step may first ask the user to choose a port, then a parameter. In some situations, the list of ports incorrectly shows multiple copies of "Port 0 - PowerFlex 755" followed by the feedback port/module.

The incorrect behavior happens only under the following conditions:

- It is the first time that startup feedback selection has been run since flashing the drive.
- The feedback module is a dual encoder or UFB and no other option modules are installed.
- A reset to defaults of the drive NVS parameters has not been performed since the drive was last flashed.

When the incorrect port list appears, it is still possible to successfully select the feedback module port by following one of these methods.

- Scroll past the multiple copies of Port 0 to reach the desired feedback module.
- Press the Esc soft key to back up one screen, then select "Feedback" and press the Enter soft key to display the port selection screen a second time. This time the correct list will be shown.

Delta Junction Temp at Zero Speed

The protection algorithms in frame 8...9 drives create false 168 "PWM Freq Reduced" exception events when running at zero speed. These can occur when the drive is first energizing the motor and establishing motor flux.

Support for Changing Permanent Magnet Direction Test Current

You cannot change the level of current used during the direction test on a permanent magnet motor while in Integrated Motion on EtherNet/IP (CIP Motion) mode. It is set at 10%. If the system requires more than 10% to turn the motor, it will fail to perform the test.

Restrictions and Compatible Revisions

The following restrictions apply to this revision of firmware:

Max Output Frequency Limited to 590Hz

This revision of drive firmware places a limit on the maximum output frequency of the drive. In previous versions of drive firmware the maximum operating frequency of the drive was 650Hz. The new maximum output frequency limit is 590Hz. If a previous application allows for a maximum output frequency greater than 590Hz, the drive will ramp to the command frequency set point and once it reaches a value greater than 590Hz for a period of time greater than 16ms the drive will trip on a Fault 31, "Over-Freq".

Implementation of Secure Flash

With this revision of drive firmware, an encryption layer with digital signature has been attached to the drive firmware flash file. This encryption layer will not allow the flashing of firmware files that have not been digitally signed by Rockwell Automation. When flashing from a revision of firmware that is not digitally signed, users will first need to flash up to V11.001 to enable the secure flash feature to read the digital signature. Once at V11.001, a customer can flash to any desired firmware revision level that has a secure digital signature. Previous versions of drive firmware that don't have a secure digital signature embedded in the flash file will display the error shown below when a flash is attempted.

Status:	An error occurred du An error occurred or retry. If the flash up support@drives.ra.r	ring Flash Update you cancelled the date fails again, i ockwell.com or (20	e: FAILURE (e flash upda please conta 52) 512-817	ON PROGRAM te. If you did act Drives Teo 6.	MING. not cance hnical Sup;	l, please port at
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Series A Frame 8 Drives Can Not Use Revision 3 Firmware

Revision 3.xxx is not compatible with Series A frame 8 drives. Revision 3.xxx is compatible with Series A frame 2...7 drives and Series B frame 8...9 drives.

Auto/Manual HIM Preload Requires New HIM Firmware

The new Auto/Manual HIM Preload feature requires firmware in the HIM that is newer than 1.007.

Customer Configurable Response to HIM Communications Loss

The Customer Configurable Response to HIM Communications Loss feature requires a new enhanced style HIM (20-HIM-A6, 20-HIM-C6S). This feature will not work with older contemporary 7-Class HIM's (20-HIM-A3, 20-HIM-A5, 20-HIM-C3S, 20-HIM-C5S).

Embedded EtherNet/IP Port Requires Quality of Service (QoS)

With this firmware revision, the drive's embedded EtherNet/IP port requires the EtherNet/IP scanner to use a compatible method of specifying Quality of Service (QoS). The following table details the compatible products and firmware revisions.

Product	Compatible Rev. No.		
DriveLogix 5730 Embedded Ethernet Port	Rev. 3.004		
CompactLogix (1769-L2x/L3x)	Rev. 17.03		
ControlLogix (1756-ENBT)	Rev. 4.005		
CompactLogix (1768-ENBT)	Rev. 2.001		
FlexLogix (1788-ENBT)	Rev. 2.004		
ControlLogix 1756-EN2T (F)(XT)	No Update needed		
SoftLogix I/O Messaging	No Update needed		

Rockwell Automation Support

To assist you, Rockwell Automation provides technical information on the web. At <u>http://www.rockwellautomation.com/support</u>, you can find technical manuals, a knowledge base of Frequently Asked Questions (FAQs), technical and application notes, sample code and links to software service packs, and a MySupport feature you can customize to best use these tools.

If you experience a problem, please review product documentation. For further help, contact a Customer Support representative:

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United States	(1) 262.512.8176 • Monday – Friday, 7am – 6pm CST
Outside United States	Please contact your local Rockwell Automation representative for any technical support issues.

TechConnect Support programs are available for an additional level of technical phone support for installation, configuration, and troubleshooting. For more information, contact your local distributor or Rockwell Automation representative, or visit <u>http://www.rockwellautomation.com/support</u>.

www.rockwellautomation.com

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