



PowerFlex[®] 700H Drive Firmware (Revision 66.001)

These release notes correspond to major revision 66.001 of firmware for PowerFlex[®] 700H Drives.

Introduction

The following information is included in this document:

For information about:	See page:
Determining the Firmware Revision Level	1
Firmware Upgrades	1
Enhancements	3
Corrected Anomalies	12
Restrictions	14
Technical Support Options	15
Installation Assistance	15
New Product Satisfaction Return	15

Determining the Firmware Revision Level

To determine the firmware version for a PowerFlex 700H Drive, view parameter 29 [Control SW Ver].

Firmware Upgrades

This section describes the procedures necessary to flash upgrade your PowerFlex 700H drive firmware. You can download the required PowerFlex 700H Flash Update Tool and firmware on the Allen-Bradley Web Updates site located at <http://www.ab.com/support/abdrives/webupdate>.

Note: Control Flash and 1203-SSS and 1203-USB serial adapter support through the DPI are not yet available for PowerFlex 700H drives.



ATTENTION: Risk of drive damage exists if drive power is removed during the Boot Flash segment of the upgrade/download. To guard against damage, Do Not Remove Power to the drive until the download is complete and the drive has been reset.

Important: Once a flash update has been started, do not remove drive power until the download is complete and the drive has been reset. If power is removed during Boot Flash, the drive may be permanently damaged. A drive that has been damaged in this way cannot be repaired. If power is removed during Application Flash, the drive will remain in Boot and can be reflashed.

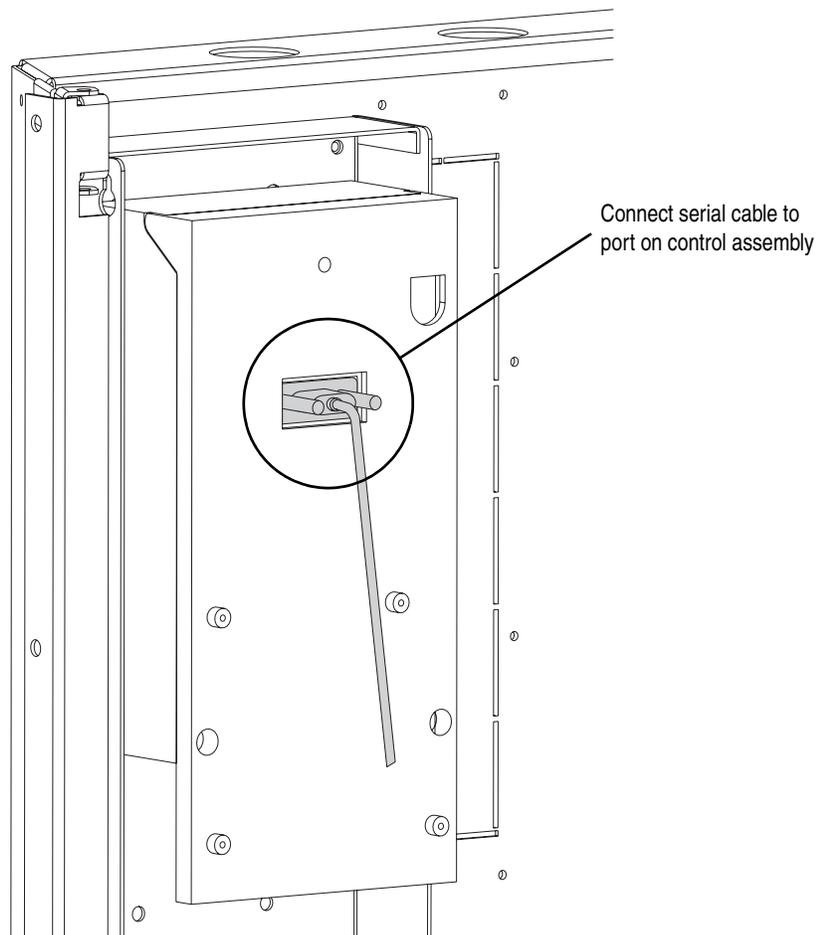
Using the PowerFlex Flash Update Tool

Important: The PowerFlex 700H Flash Update Tool is used with a straight serial cable with male-female connectors. Do not use a crossover cable (NULL Modem) cable. If your computer only has a USB port, you must obtain a USB to serial converter cable in order to complete this procedure.

Important: Shut down RSLinx before completing this procedure in order to avoid a COMM PORT error.

The system firmware is named RPF700HAV66001.vcn and is the only file required for this update. The standard application firmware is bundled with system firmware and does not require a separate download or flash.

1. Connect the serial cable from your computer to the port on the front of the 700H control assembly as shown below.



2. Start the PowerFlex 700H Flash Update Tool and follow the screen prompts until the flash procedure is completed and the new firmware version is displayed.

Enhancements

This section describes the enhancements included in this revision:

Ability for HIM to Control Speed Reference, Start and Jog in Two-Wire Control Mode

The ability to issue a speed reference only or a speed reference, and start and jog commands from the HIM while in manual mode and two-wire control mode has been added in this release.

The following parameter changes have been made to support this new feature.

- Bit 1 “Manual Mode” was added to parameter 192 [Save HIM Ref].

Bit 6 “Heatsink Temp” of Parameter 211 [Drive Alarm 1] Implemented

Bit 6 “Heatsink Temp” of parameter 211 [Drive Alarm 1] was added in firmware version 3.001 but was not active. This bit has been activated in this firmware version.

Cyclic Redundancy Check (CRC) Added for Automatic Device Replacement (ADR) Functionality

This feature provides a checksum value that indicates whether or not a change in drive programming has occurred and is required for the ADR functionality provided with DeviceNet. This value can be read in parameter 203 [Drive Checksum].

Dynamic Selection of User Parameter Sets

The ability to dynamically select a User Set has been added for this firmware release. This feature can be used if frequent or automated control of the User Sets is required by an application. Dynamic Mode is required not only to meet application requirements, but also to avoid non-volatile memory write cycle limitations. In this mode, either a parameter (typically controlled by the network) or digital inputs are used to quickly transfer a complete User Set to RAM without affecting any non-volatile memory.

The following parameter additions/changes have been made to support this new feature.

- The following new parameters were added: 204 [Dyn UserSet Cnfg], 205 [Dyn UserSet Sel] and 206 [Dyn UserSet Actv].
- Options 41 “UserSet Sel1” and 42 “UserSer Sel2” were added to [Digital Inx Sel], parameters 361-366.
- Bit 11 “UserSetCflct” was added to parameter 212 [Drive Alarm 2].
- The new Type 2 Alarm 139 “UserSetCflct” was added.

Fan Control Option Added

The ability to turn off the main cooling fans under certain conditions has been added. For 480V AC / 650V DC drives, when the drive is stopped and the heatsink temperature has dropped below the limit of 55° C for 60 seconds the cooling fans will turn off. Also, for 690V AC / 932V DC drives, when the DC bus voltage drops below 1000V, the cooling fans will turn off after a four minute delay. If this functionality is not enabled, the fans run whenever the drive is energized.

The following parameter has been added to support this new feature.

- 465 [Fan Control]

[Fault x Subcode] Parameters Added to Further Define Faults

The new [Fault x Subcode] parameters have been added to provide additional details for certain faults. For example, if parameter 243 [Fault 1 Code] displays “12” and the new parameter 543 [Fault 1 Subcode] displays “275”, an over current fault (F12) has occurred in the U phase of the power unit. Refer to “Fault and Alarm Descriptions” in Chapter 3 of the *PowerFlex 700H AC Drives Programming Manual*, publication 20C-PM001... for more information on fault subcodes.

The following parameters have been added to support this new feature:

- 543 [Fault 1 Subcode]
- 545 [Fault 2 Subcode]
- 547 [Fault 3 Subcode]
- 549 [Fault 4 Subcode]
- 551 [Fault 5 Subcode]
- 553 [Fault 6 Subcode]
- 555 [Fault 7 Subcode]
- 557 [Fault 8 Subcode]

Increased Maximum Value of [Motor Poles] to 18

The maximum value of parameter 49 [Motor Poles] has been changed to 18 in order to accommodate 18 pole motors.

“RunFwd Level” and “RunRev Level” Options Added to Digital Inputs

Options 44 “RunFwd Level” and 45 “RunRev level” were added to the digital inputs, parameters 361-366. These options allow you to program the drive to start without a “Run” command after the following conditions are met in the drive:

- **Use with Enable** - With a digital input programmed as “Enable” and another as either of the new “RunFwd Level” or “RunRev Level” options, the drive can be started by transitioning the “Run” input and will continue to run as long as both the “Enable” and “RunFwd Level” or “RunRev level” inputs are asserted. When the “Enable” input is removed, the drive “disconnects” from the motor and the motor coasts. When the “Enable” input is asserted again and the “RunFwd Level” or “RunRev Level” input is still asserted the drive will run without the need to transition the “Run” input.
- **Use with Fault** - With a digital input programmed as either of the new “RunFwd Level” or “RunRev Level” options, the drive can be started by transitioning the “Run” input. If the drive faults, the drive “disconnects” from the motor and the motor coasts. When the fault is cleared and the “RunFwd Level” or “RunRev Level” input is still asserted the drive will run without the need to transition the “Run” input. If, however, a “Stop” input is used to reset faults, the “RunFwd Level” or “RunRev Level” input must be transitioned.

This function is only valid using two-wire control mode. Once a digital input is programmed as any of the “Run Level” options, the start on the HIM module will not function.

Security Features Added

This new feature provides write access protection for individual communication ports in the drive and whether network security is controlling the ports. This security technology can be used with any DPI capable device. Example communication peripheral devices include:

- 20-COMM-E EtherNet/IP v2.002 (or higher)
- 20-COMM-C/-Q ControlNet v2.001 (or higher)
- 20-COMM-D DeviceNet v2.001 (or higher)
- 20-COMM-S DF1 v1.003 (or higher)

The following drive software tools support this security technology.

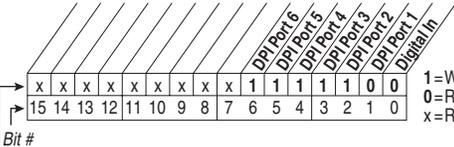
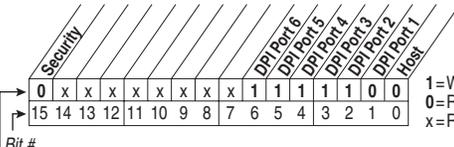
- DriveExplorer v4.04 (or higher)
- DriveTools SP v4.01 (or higher)

The following parameters have been added to support the security feature.

- 595 [Port Mask Act]
- 596 [Write Mask Cfg]
- 597 [Write Mask Act]
- 598 [Logic Mask Act]

Bit 1 “DPI Port 1” (HIM) set to 0 “Read Only” by Default for DPI Security Parameters 596 and 597

Bit 1 “DPI Port 1” for parameters 596 [Write Mask Cfg] and 597 [Write Mask Act] are set to 0 “Read Only” by default. With this default setting, drive parameter values changes will not be allowed from the HIM (DPI Port 1).

File	Group	No.	Parameter Name & Description	Values	Related
COMMUNICATIONS	Security	596	<p>[Write Mask Cfg]</p> <p> Enables/disables write access (parameters, links, etc.) for DPI ports. Changes to this parameter only become effective when power is cycled, the drive is reset or bit 15 of parameter 597 [Write Mask Act], transitions from “1” to “0.”</p>  <p>1 = Write Permitted 0 = Read Only x = Reserved</p> <p>Bit #</p> <p>Factory Default Bit Values</p>		
		597	<p>[Write Mask Act]</p> <p>Read Only</p> <p>Status of write access configuration for DPI ports. When bit 15 is set, network security is controlling the write mask instead of parameter 596 [Write Mask Cfg].</p>  <p>1 = Write Permitted 0 = Read Only x = Reserved</p> <p>Bit #</p> <p>Factory Default Bit Values</p>		

Variable Boost Voltage Function

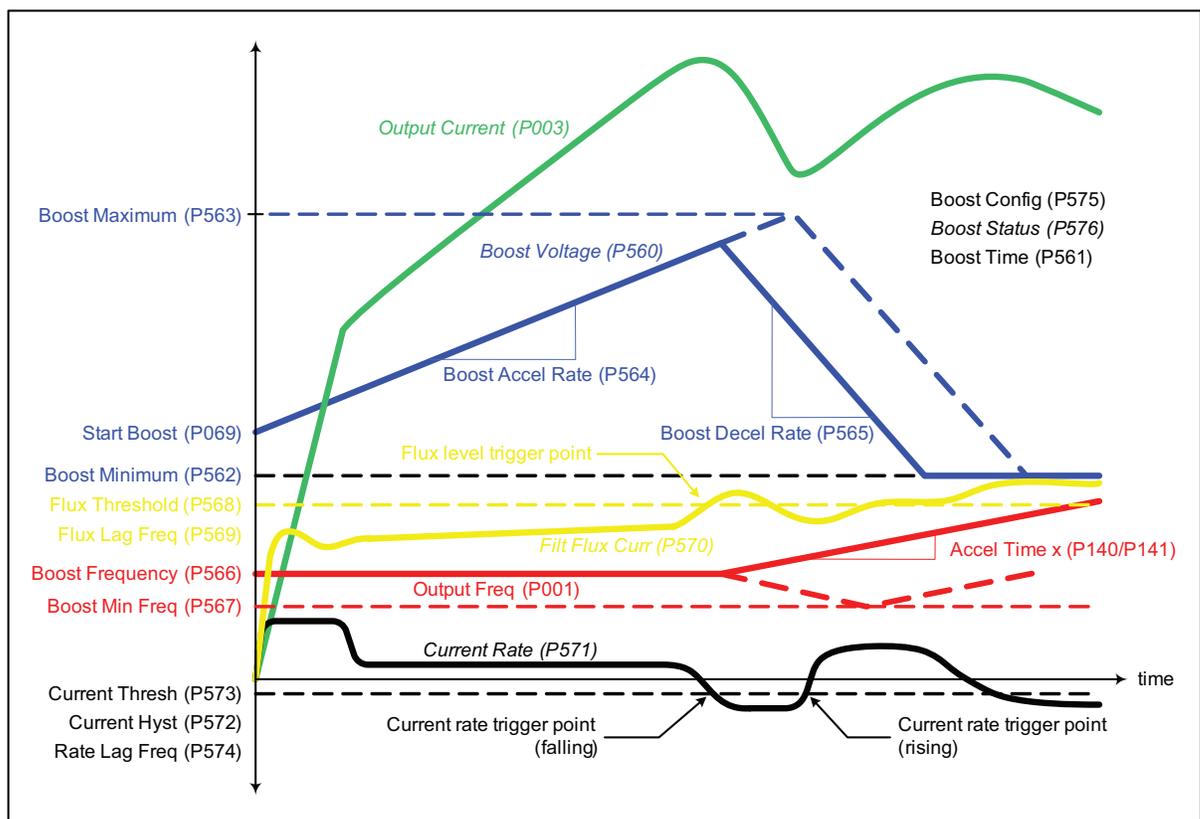
The Variable Boost Voltage function provides a reliable means of selecting the appropriate fixed-value boost voltage in V/Hz mode to allow a drive(s) to start a load with a high variable level of breakaway torque and to allow a drive(s) to start into a rotating load in order to provide a controlled deceleration when shutting down.

Configuration and Operation

To enable the variable boost voltage function:

1. Set parameter 53 [Motor Cntl Sel] = 2 "Custom V/Hz"
2. Set bit 0 "VB Enable" of parameter 575 [Boost Config] to "1"

Bit 0 "VB Enabled" of parameter 576 [Boost Status] is set to "1" when the above two conditions are met.



Immediately following a valid drive run command, the drive produces the motor voltage specified in parameter 69 [Start Boost] at the frequency specified in parameter 566 [Boost Frequency]. The actual motor boost voltage can be viewed in parameter 560 [Boost Voltage]. Parameter 23 [Speed Reference], regardless of the speed reference source, and parameter 2 [Commanded Speed], regardless of the linear ramp and S-curve settings,

are held at the value of [Boost Frequency]. The boost voltage (in [Boost Voltage]) ramps up at the value specified in parameter 69 [Start Boost] at the rate set in parameter 564 [Boost Accel Rate] (in volts per second) until the value of parameter 563 [Boost Maximum] is reached or one of the variable boost voltage trigger events occurs and bit 2 "Triggered" of parameter 576 [Boost Status] is set to "1" (true). When the maximum boost voltage value is reached or a trigger event occurs, [Boost Voltage] ramps down at the value specified in parameter 565 [Boost Decel Rate] (in volts per second) to the voltage value set in parameter 562 [Boost Minimum]. Whenever the drive is stopped, the value of [Boost Voltage] is reset to the value of parameter [Start Boost]. Coincident with a voltage trigger event, the commanded speed of the drive ramps according to the linear ramp and S-curve settings. Typically, the selected speed reference will be greater than the value set in [Boost Frequency], but is not required.

Boost voltage trigger event sources are individually enabled via bits in parameter 575 [Boost Config] with a corresponding status bit displayed in parameter 576 [Boost Status]. The boost voltage trigger events are derived from the following sources:

- The level of parameter 570 [Filt Flux Curr]
- The slope and level of parameter 571 [Current Rate]
- The level of parameter 1 [Output Freq]
- The level of parameter 560 [Boost Voltage] (always enabled)

Parameter 571 [Current Rate] is the derivative of the value of parameter 3 [Output Current] passed through a first order low-pass filter with a cutoff frequency equal to the value of parameter 574 [Rate Lag Freq]. The trigger event associated with this value is enabled by setting bit 1 "Current Rate" in parameter 575 [Boost Config]. The trigger condition is defined by the level of parameter 573 [Current Thresh] with a hysteresis band equal to the value of parameter 572 [Current Hyst]. In addition, the slope of [Current Rate] is set to either rising or falling via bit 2 "Rising Edge" in [Boost Config]. If these trigger conditions are met bit 3 "Current Trig" in [Boost Status] is set to "1" (true).

Parameter 570 [Filt Flux Curr] is the drive calculated value of the unfiltered motor flux current (in parameter 352 [Flux Cur UnF]) passed through a first order low-pass filter with the cutoff frequency equal to the value specified in parameter 569 [Flux Lag Freq]. The trigger event associated with this value is enabled by setting bit 3 "Flux Level" in [Boost Config]. The trigger condition is defined by the level of parameter 568 [Flux Threshold]. If [Filt Flux Curr] is greater than or equal to the value of [Flux Threshold] then bit 4 "Flux Trigger" in [Boost Status] is set to "1" (true).

The third trigger source is derived from the value of parameter 1 [Output Freq] and is enabled via bit 4 "Minimum Freq" in [Boost Config]. If the value of [Output Freq] is less than or equal to the value of parameter 567 [Boost Min Freq] then bit 5 "Freq Trigger" of [Boost Status] is set to "1" (true).

If the boost voltage (set in [Boost Voltage]) reaches the value of parameter 563 [Boost Maximum] before any of the other trigger events cause the boost voltage to ramp down, then bit 6 "Max Boost" in [Boost Status] is set to "1" (true) and the boost voltage ramps down at the rate specified in parameter 565 [Boost Decel Rate] (in volts per second) to the value set in parameter 562 [Boost Minimum]. This trigger condition is always enabled and therefore has no corresponding bit in [Boost Config] and is not constrained by the time set in parameter 561 [Boost Time].

If any of the preceding trigger conditions are met and bit 0 "VB Enable" in [Boost Status] is set to "1" (true), then bit 2 "Triggered" in [Boost Status] is set to "1" (true). This bit and the trigger status bits are cleared (set to false) at the moment the drive starts. You may clear the individual trigger status bits at any time by toggling the corresponding enable bit in [Boost Config]. All trigger status bits are cleared if bit 0 "VB Enable" in [Boost Config] is cleared (set to "0").

Following a valid drive run command, the trigger sources, with the exception of the "Max Boost" trigger (based on the value of [Boost Maximum]), are not enabled until the amount of time specified in parameter 561 [Boost Time] has expired. When the value of [Boost Voltage] reaches the value of [Boost Maximum], the boost voltage begins ramping down and the output frequency is released from the value set in [Boost Frequency], regardless of [Boost Time].

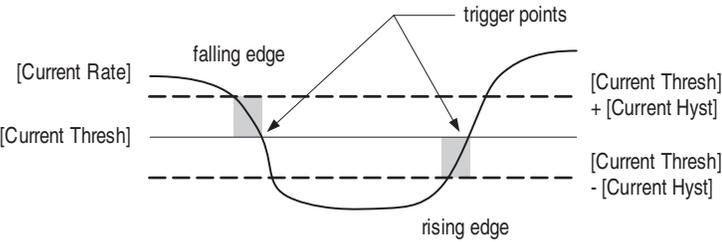
Variable Boost Function Parameters

The following parameters are included in this firmware version and support the Variable Boost Voltage function:

File	Group	No.	Parameter Name & Description	Values	Related
DYNAMIC CONTROL	Load Limits	187	[FlxCrcIStabGain] Flux circle stabilized gain.	Default: 5000 Min/Max: 0 / 10000	

File	Group	No.	Parameter Name & Description	Values	Related
MONITOR	Metering	350	[Motor Cur UnF] Displays the unfiltered motor current.	Default: Read Only Min/Max: -/+3276.7 Units: 0.1 Amps	
		351	[Torque Cur UnF] Displays the unfiltered torque current.	Default: Read Only Min/Max: -/+3276.7 Units: 0.1 Amps	
		352	[Flux Cur UnF] Displays the unfiltered flux current.	Default: Read Only Min/Max: -/+3276.7 Units: 0.1 Amps	

File	Group	No.	Parameter Name & Description	Values	Related
APPLICATIONS	Boost Config	560	<p>[Boost Voltage]</p> <p>Displays the output value of the voltage-axis intercept of the V/Hz curve.</p> <p>When the variable boost function is enabled the value of [Boost Voltage] is ramped up/down according to the settings of the variable boost function when the drive is running.</p> <p>[Boost Voltage] is equal to parameter 69 [Start Boost] when the drive is stopped or when bit 0 "VB Enable", of parameter 575 [Boost Config], is set to "0".</p>	<p>Default: Read Only</p> <p>Min/Max: 0.0/Drive Rated Volts</p> <p>Units: 0.1 VAC</p>	
		561	<p>[Boost Time]</p> <p>Sets the time delay for which the variable voltage boost trigger becomes active following a drive start.</p> <p>The [Boost Time] begins counting down when the drive enters the run state. Valid trigger conditions may only be met in the time following the expiration of the [Boost Time] to cause a trigger event. This time delay does not affect the trigger condition associated with parameter 563 [Boost Maximum].</p>	<p>Default: 1.0 Secs</p> <p>Min/Max: 0.0/100.0 Secs</p> <p>Units: 0.1 Secs</p>	
		562	<p>[Boost Minimum]</p> <p>Sets the minimum voltage boost level for the variable boost voltage function.</p> <p>If parameter 560 [Boost Voltage] reaches the value of parameter 563 [Boost Maximum] or one of the variable boost voltage trigger events occurs, then [Boost Voltage] decelerates at the rate corresponding to the value set in parameter 565 [Boost Decel Rate].</p>	<p>Default: Based on Drive Rating</p> <p>Min/Max: 0.0/563 [Boost Maximum]</p> <p>Units: 0.1 VAC</p>	
		563	<p>[Boost Maximum]</p> <p>Sets the maximum voltage boost level for the variable boost voltage function.</p> <p>If parameter 560 [Boost Voltage] reaches the value of [Boost Maximum] then [Boost Voltage] decelerates at the rate corresponding to the value of parameter 565 [Boost Decel Rate].</p>	<p>Default: Based on Drive Rating</p> <p>Min/Max: 69 [Start Boost] / 71 [Break Voltage]</p> <p>Units: 0.1 VAC</p>	
		564	<p>[Boost Accel Rate]</p> <p>Sets the rate of acceleration of parameter 560 [Boost Voltage] for the variable boost voltage function.</p>	<p>Default: 0.75 V/s</p> <p>Min/Max: 0.01/327.67 V/s</p> <p>Units: 0.01 V/s</p>	
		565	<p>[Boost Decel Rate]</p> <p>Sets the rate of deceleration of parameter 560 [Boost Voltage] for the variable boost voltage function following a trigger event.</p>	<p>Default: 6.00 V/s</p> <p>Min/Max: 0.01/327.67 V/s</p> <p>Units: 0.01 V/s</p>	
		566	<p>[Boost Frequency]</p> <p>Sets the initial frequency reference for the variable boost voltage function.</p>	<p>Default: 0.8 Hz</p> <p>Min/Max: 0.5/10.0 Hz</p> <p>Units: 0.1 Hz</p>	
		567	<p>[Boost Min Freq]</p> <p>Sets the frequency reference trigger level for the variable boost voltage function.</p> <p>Bit 5 "Freq Trigger" of parameter 576 [Boost Status] is set to 1 when the value of parameter 1 [Output Freq] falls below [Boost Min Freq].</p> <p>To enable this threshold and trigger event set bits 0 "VB Enable" and 4 "Minimum Freq" in parameter 576 [Boost Config] to "1".</p>	<p>Default: 0.5 Hz</p> <p>Min/Max: 1.0/10.0 Hz</p> <p>Units: 0.1 Hz</p>	
		568	<p>[Flux Threshold]</p> <p>Sets the flux current trigger level for the variable boost voltage function.</p> <p>Bit 4 "Flux Trigger" of parameter 576 [Boost Status] is set to "1" when the value of parameter 570 [Filt Flux Curr] exceeds the value of this parameter.</p> <p>To enable this threshold and trigger event set the bits 0 "VB Enable" and 3 "Flux Level" in parameter 576 [Boost Config] to "1".</p>	<p>Default: 50% Drive Rated Amps</p> <p>Min/Max: 0.0/690.0</p> <p>Units: 0.1 Amps</p>	

File	Group	No.	Parameter Name & Description	Values	Related
APPLICATIONS	Boost Config	569	[Flux Lag Freq] Sets the lag (cutoff) frequency of the parameter 5 [Flux Current] low pass filter. The output of this filter is displayed in parameter 570 [Filt Flux Curr].	Default: 0.60 Rads/Sec. Min/Max: 0.01/100.00 Rads/Sec. Units: 0.01 Rads/Sec.	
		570	[Filt Flux Curr] Filtered value of parameter 5 [Flux Current]. Parameter 569 [Flux Lag Freq] sets the cutoff frequency of the low-pass filter.	Default: Read Only Min/Max: 0.0 / 3276.7 Units: 0.1 Amps	
		571	[Current Rate] Output current rate of change.	Default: Read Only Min/Max: -/+1000.0 Amps/Sec. Units: 0.1 Amps/Sec.	
		572	[Current Hyst] Sets the hysteresis level around parameter 573 [Current Thresh] for the variable boost voltage function.	Default: 0.0 Amps/Sec. Min/Max: -/+100.0 Amps/Sec. Units: 0.1 Amps/Sec.	
		573	[Current Thresh] Sets the trigger level of parameter 571 [Current Rate] for the variable boost voltage function. The trigger is not active until the time specified in parameter 561 [Boost Time] time has expired following a drive start. <ul style="list-style-type: none"> When bit 2 "Rising Edge" of parameter 575 [Boost Config] = "0", the value of parameter 571 [Current Rate] must first fall below the value of [Current Thresh] + [Current Hyst], then fall below the value of [Current Thresh] in order to cause a boost voltage trigger event. When bit 2 "Rising Edge" of parameter 575 [Boost Config] = "1", the value of [Current Rate] must first rise above the value of [Current Thresh] - [Current Hyst], then rise above the value of [Current Thresh] in order to cause a boost voltage trigger event. 	Default: -25.0 A/s Min/Max: -/+1000.0 Amps/Sec. Units: 0.1 Amps/Sec.	
		574	[Rate Lag Freq] Sets the lag (cutoff) frequency of the low pass filter for parameter 571 [Current Rate]. The output of this filter is displayed in parameter 571 [Current Rate].	Default: 2.60 rads/Sec. Min/Max: 0.01/100.0 Rad/Sec. Units: 0.01 rad/Sec.	

File	Group	No.	Parameter Name & Description	Values	Related																																																			
APPLICATIONS	Boost Config	575	[Boost Config] Controls the variable boost function. <ul style="list-style-type: none"> Bit 0 "VB Enable" enables the variable boost voltage function. Bit 2 "Rising Edge" = 0 results in a falling edge trigger for bit 1 "Current Rate". 	<table border="1"> <thead> <tr> <th></th> <th>Reserved</th> <th>Minimum Freq</th> <th>Flux Level</th> <th>Rising Edge</th> <th>Current Rate</th> <th>VB Enable</th> </tr> </thead> <tbody> <tr> <td>Default</td> <td>x</td> <td>1</td> <td>1</td> <td>0</td> <td>1</td> <td>0</td> </tr> <tr> <td>Bit</td> <td>15</td> <td>14</td> <td>13</td> <td>12</td> <td>11</td> <td>10</td> <td>9</td> <td>8</td> <td>7</td> <td>6</td> <td>5</td> <td>4</td> <td>3</td> <td>2</td> <td>1</td> <td>0</td> </tr> </tbody> </table> <p>1 = Condition True 0 = Condition False</p>		Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Minimum Freq	Flux Level	Rising Edge	Current Rate	VB Enable	Default	x	x	x	x	x	x	x	x	x	x	x	1	1	0	1	0	Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	
			Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Minimum Freq	Flux Level	Rising Edge	Current Rate	VB Enable																																						
Default	x	x	x	x	x	x	x	x	x	x	x	1	1	0	1	0																																								
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0																																								
		576	[Boost Status] Status of the variable boost function. <ul style="list-style-type: none"> Bit 0 "VB Enable" = 1 indicates that the variable boost voltage function is enabled. When bit 1 "VB Timer" = 1, parameter 561 [Boost Time] has expired. Bit 2 "Triggered" is the bit-wise logical OR of bits 3 through 6. Bit 7 "Hold Freq" is true when the output frequency is being held at the value of parameter 566 [Boost Frequency]. 	Read Only <table border="1"> <thead> <tr> <th></th> <th>Reserved</th> <th>Reserved</th> <th>Reserved</th> <th>Reserved</th> <th>Reserved</th> <th>Reserved</th> <th>Reserved</th> <th>Reserved</th> <th>Hold Freq</th> <th>Max Boost</th> <th>Freq Trigger</th> <th>Flux Trigger</th> <th>Current Trig</th> <th>Triggered</th> <th>VB Timer</th> <th>VB Enabled</th> </tr> </thead> <tbody> <tr> <td>Default</td> <td>x</td> <td>x</td> <td>x</td> <td>x</td> <td>x</td> <td>x</td> <td>x</td> <td>x</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td>Bit</td> <td>15</td> <td>14</td> <td>13</td> <td>12</td> <td>11</td> <td>10</td> <td>9</td> <td>8</td> <td>7</td> <td>6</td> <td>5</td> <td>4</td> <td>3</td> <td>2</td> <td>1</td> <td>0</td> </tr> </tbody> </table> <p>1 = Condition True 0 = Condition False</p>		Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Hold Freq	Max Boost	Freq Trigger	Flux Trigger	Current Trig	Triggered	VB Timer	VB Enabled	Default	x	x	x	x	x	x	x	x	0	0	0	0	0	0	0	0	Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	
	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Hold Freq	Max Boost	Freq Trigger	Flux Trigger	Current Trig	Triggered	VB Timer	VB Enabled																																								
Default	x	x	x	x	x	x	x	x	0	0	0	0	0	0	0	0																																								
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0																																								

Corrected Anomalies

This section describes the anomalies corrected in this revision:

“At Speed” Status Changes when Using an Analog Input Speed Reference

Anomaly:

When using an analog input to control speed, the display status on the HIM would change to Accelerating/Decelerating while the drive was actually “At Speed”.

Correction:

The system “At Speed” status is used to provide a stable “At Speed” on the HIM display.

Bit 0 of [Drive Alarm 2] Incorrectly Named

Anomaly:

Bit 0 “DigIn Test” of parameter 212 [Drive Alarm 2] is incorrectly named.

Correction:

The bit name was changed to “DigIn CflctA”.

Control I/O Card Version Numbers do not Display Correctly

Anomaly:

Certain control I/O cards do not display the proper version number when viewed from the HIM > Device Version menu.

Correction:

All I/O cards now display the correct version number.

Drive Changes from Manual to Auto Speed Reference After Power Cycle

Anomaly:

When the speed reference is controlled by a manual source (one of the digital inputs, parameters 361-366 [Digital Inx Sel], is set to 18 “Auto/Manual”) and power to the drive is cycled, the speed reference reverts to the auto source.

Correction:

A time delay was added to the Auto/Manual option for the digital inputs so that after power up to the drive the digital input set to Auto/Manual is scanned and maintains the appropriate speed reference source.

Frame 12 and 14 Drives do not Have Unique Configuration Codes in DriveTools SP

Anomaly:

Frame 12 and 14 drives do not have unique configuration codes in Drive Tools SP and causes certain database files to be unintentionally overwritten.

Correction:

Frame 12 and 14 drives have now been assigned unique configuration codes in DriveTools SP.

Parameters [Power Up Marker] and [Drive Ref Rslt] Contain Offline Values of Zero (0)

Anomaly:

The minimum and maximum values for parameters 242 [Power Up Marker] and 272 [Drive Ref Rslt] in the offline database are set to zero (0).

Correction:

The offline database files have been corrected for this firmware release and will now contain the correct minimum and maximum values for these parameters.

Restrictions

There are no known restrictions for this revision of firmware.

Technical Support Options

For U.S. Allen-Bradley Drives Technical Support:

Telephone:	(1) 262.512.8176
Fax:	(1) 262.512.2222
Email:	support@drives.ra.rockwell.com
Online:	www.ab.com/support/abdrives

Rockwell Automation also provides technical information on the web to assist you in using our products. At <http://support.rockwellautomation.com>, you can find technical manuals, a knowledge base of FAQs, technical and application notes, sample code and links to software service packs, and a MySupport feature that you can customize to make the best use of these tools.

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

Installation Assistance

If you experience a problem with a hardware module within the first 24 hours of installation, please review the information that's contained in this document. You can also contact a special Customer Support number for initial help in getting your module up and running:

United States	1.440.646.3223 Monday – Friday, 8am – 5pm EST
Outside United States	Please contact your local Rockwell Automation representative for any technical support issues.

New Product Satisfaction Return

Rockwell tests all of our products to ensure that they are fully operational when shipped from the manufacturing facility. However, if your product is not functioning and needs to be returned:

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

Allen-Bradley HMIs

www.rockwellautomation.com

Power, Control and Information Solutions Headquarters

Americas: Rockwell Automation, 1201 South Second Street, Milwaukee, WI 53204 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