Release Notes

1768 CompactLogix Controllers, Revision 18

CompactLogix Controllers Catalog Numbers
1768-L43, 1768-L45

Compact GuardLogix Controllers Catalog Numbers
1768-L43S, 1768-L45S

IMPORTANT   Before updating your controller, we strongly recommend that you review information pertinent to previous major firmware revisions. For example, when updating from revision 16.*x* to 18.*x*, view information for revisions 16 and 17 in these publications:

- CompactLogix Controllers, Revision 16 Release Notes, publication 1768-RN016

- CompactLogix Controllers, Revision 17 Release Notes, publication 1768-RN017

Firmware release notes contain material for all minor revisions subsequent to each major revision. If your controller, for example, is at revision 16.03, and not the last minor revision, 16.21, you should view all of the information for revision 16.03...16.21 before updating to revision 17.*x*.

Release notes are available at:
http://rockwellautomation.com/literature.

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About This Publication

This publication describes enhancements, anomalies (known and corrected), and restrictions for the 1768 CompactLogix controllers, revision 18.

Controllers and Revisions

Catalog No.	Major and Minor Revision Nos.
1768-L43	18.11
1768-L43S	
1768-L45	
1768-L45S	

Compatible Versions of Software

To use firmware revision 18.11, the following minimum software versions are required.

Software	Required Version
RSLinx Classic software	2.56 (CPR 9, SR2)
RSLinx Enterprise software	5.21(CPR 9, SR2)
RSLogix 5000 programming software	18.00 (CPR 9, SR2)
RSNetWorx for ControlNet software	10.00 (CPR 9, SR2)
RSNetWorx for DeviceNet software	
RSNetWorx for EtherNet/IP software	

Before You Begin

Consider this information before upgrading your controller firmware.

Avoid a Loss of Communication During the Firmware Upgrade

IMPORTANT	Loss of communication or power during a controller firmware flash upgrade may result in the controller's rejection of the new firmware. If the controller firmware upgrade fails due to those conditions described, the following corrective actions may be required:
	•Cycle controller power and successfully complete the flash upgrade.
	•If a nonrecoverable fault, then return the controller for factory repair.

System Preparations Required Before Upgrading

The following preliminary actions are required before upgrading your controller firmware.

If	Then
Your controller is close to its limits of memory	This revision may require more memory than previous revisions.
	• To see what components of your current project require more memory, see <u>page 17</u>.
	• RSLogix 5000 software, version 13.0 or later, lets you estimate the memory requirements of the controller offline.
	To update to this revision, you may have to use a controller with a larger amount of memory.
Your controller is connected to a DH-485 network	Disconnect it from the DH-485 network before you update the firmware of the controller. If you update the firmware of a controller while it is connected to a DH-485 network, communication on the network may stop.

Enhancements

These enhancements are available when firmware revision 18.11 is used with RSLogix 5000 software, version 18.

Enhancements with Firmware Revision 18.11

Enhancement	Description
Unicast I/O with EtherNet/IP Networks	You can configure a Logix5000 controller to communicate with other EtherNet/IP devices via Unicast communication. Unicast communication allows for direct point-to-point communication between two devices on a network. Unicast communication is useful when data does not need to be shared between multiple target devices. Support for Unicast communication is limited to standard I/O.
DF1 Radio Modem Broadcast Support	DF1 Radio Modem support has been expanded to include broadcast capability. The DF1 Radio Modem functionality was initially provided with version 16. With this expansion to include broadcast capabilities, you can configure a master or slave device to broadcast messages to all other stations in one instance.
High-integrity Add-On Instructions	With high-integrity Add-On Instructions, you can generate a unique signature ID based on the content of your instruction. This signature can be used to identify changes to the code, revision, data structures, and documentation associated with an Add-On Instruction. You can generate the signature by using the Add-On Instruction Definition dialog box. In addition, you can access the signature information programmatically for auditing purposes and transport Add-On Instructions between Logix controllers without impacting the signature. For more information about high-integrity Add-On Instruction signatures, see the Add-On Instruction Programming Manual, publication 1756-PM010.
Safety Add-On Instructions	Add-On Instructions are now available for use within the safety task of GuardLogix and Compact GuardLogix controllers. Logic within a safety Add-On Instruction follows the same rules that apply to logic in safety routines with regard to instructions and tags that are permitted. Safety Add-On Instructions can be SIL 3 certified with an approved certifying agency and reused without recertification as long as the signature of the safety Add-On Instruction is unchanged. Safety Add-On Instructions are included as part of the safety task signature, thus providing security of safety Add-On Instructions within a project. For more information about using safety Add-On Instructions, see these publications: • Logix5000 Controllers Add-On Instructions Programming Manual, publication 1756-PM010 • GuardLogix Controller Systems User Manual, publication 1756-RM093
Active Step Maintained During SFC Online Edit	Online edits to SFC routines do not always result in the SFC being reset to the initial step. Edits that alter the logic structure of the chart are the only edits that cause the SFC to reset to the initial step.

Enhancements with Firmware Revision 18.11

Enhancement	Description
Data Access Control	Two new tag attributes are available: the External Access and Constant attributes. The External Access attribute defines how an external application (that is, an application outside of RSLogix 5000 software or your application code), such as an HMI, historian, or OPC data server, can access a tag. Options you can configure for the External Access attribute include: • Read/Write • Read Only • None The Constant attribute is used to keep the tag from being altered by the controller program or by specified users of RSLogix 5000 software. To keep the program from altering the tag, check the Constant attribute in the Tag Properties dialog box or in the Tag Editor. For complete functionality of the Data Access Control enhancements, you must use the software revisions listed in Compatible Versions of Software on page 2. For more information about tag data access attributes, see the Logix5000 Controllers I/O and Tag Data Programming Manual, publication 1756-PM004.
RPI Limitations and Negotiated Default for Multicast	An RPI limit can be set for produced/consumed tags in applications where multicast communication connections are used. When this option is configured, a producing controller verifies that the RPI of incoming connections are within the produced tag settings. If the consuming tag's RPI falls outside the configured range, a producing controller will reject the incoming RPI and may provide an RPI (default) to the consuming controller. This feature is not available with safety produced/consumed tags. For more information about RPI Limitations see the Produced and Consumed Tags Programming Manual, publication 1756-PM011.
Attributes of Add-On Instructions Available	You can configure GSV and SSV instructions to obtain attributes of Add-On Instructions. This enhancement provides that capability to program the controller to access Add-On Instruction definitions. For more information about the Add-On Instruction attributes, see the Add-On Instructions Programming Manual, publication 1756-PM010. Lgx00105714, Lgx00095246
False Execution Time of Add-On Instructions Improved	With previous revisions, the false execution time of an Add-On Instruction was dependent on the number of parameters (input, output, and inout) configured for the instruction. The more parameters configured, the longer the false execution time of the Add-On Instruction. With revision 18.11, the false execution time of an Add-On Instruction is now constant if a scan false routine is not created. To determine the false execution time of Add-On Instructions based on your controller, reference the values published in the Logix5000 Controllers Execution Time and Memory Use Reference Manual, publication 1756-RM087. Lgx00101630, Lgx00091647, Lgx00085092

Corrected Anomalies

These anomalies have been corrected with firmware revision 18.11.

Corrected Anomalies with Firmware Revision 18.11

Catalog No.	Description
1768-L43, 1768-L45	Forcing the I/O status word is unsuccessful.
	When you attempt to force the input status word, the force is unsuccessful though RSLogix 5000 software indicates the force is enabled.
	With firmware revision 18.11, forces are applied as expected.
	Lgx00086933
	A velocity spike may occur when a MCCD instruction is executed.
	Under certain application conditions, you may see a velocity spike if you are using termination type 4 or 5 with coordinated moves and you execute an MMD instruction on the last iteration of a move.
	For more information about this anomaly, see the Technical Note titled "Possible Velocity Spike When a Motion Coordinated Change Dynamics (MCCD) Instruction is Executed", #53928, in the Technical Support Knowledgebase (available at http://www.rockwellautomation.com/knowledgebase/).
	With firmware revision 18.11, the potential velocity spike has been corrected.
	Lgx00088802
	Deleting program tags while online is successful, even though they are being referenced by RSLinx software and should not be deleted.
	RSLogix 5000 software and Logix5000 controller firmware provide the ability to delete program tags while online with the controller. As a precaution, the firmware checks the tag to verify that is not in use (that is, the tag is not being scanned or referenced) by RSLinx Classic or Enterprise software. If the tag is being used by RSLinx software, the deletion is not allowed and an error dialog box indicates "Failed to delete tag".
	However, with certain tags, the deletion is always allowed - even if the tag is being used by RSLinx software. Tag types that are always deleted, even if being used by RSLinx software, include:
	• Motion Axis • Motion Group • Digital Alarm • Analog Alarm • Message
	With firmware revision 18.11, tags being used by RSLinx software cannot be deleted while online with the controller.
	Lgx00086136, Lgx00085678
	SSV class name SerialPort, attribute PendingComDriverID, does not set.
	With revision 18.11, attempts to use a SSV instruction to set the SerialPort class, PendingComDriverID attribute, are successful.
	Lgx00073954

Corrected Anomalies with Firmware Revision 18.11

Catalog No.	Description
1768-L43, 1768-L45	Using an SSV instruction to set a task priority of 0 results in unexpected execution times. If you use a SSV instruction to set a task's priority at 0 (by using the class name Task, attribute Priority), abnormal task execution times result. This is because tasks cannot have a priority of 0 (permissible priority values are 1…15). With firmware revision 18.11, you cannot set a task priority to 0 using an SSV instruction. Attempting to set a task priority to 0 via the SSV instruction results in a minor fault. Lgx00105709, Lgx00076850
	Setting the Read/Write Buffer size parameter before enabling the Echo Mode does not result in a message echo. In the User Protocol tab of the Controller Properties dialog box, if the Read/Write Buffer size is specified before Echo Mode is checked, the message echo does not execute. For the message echo to execute, first check Echo Mode, then specify the Read/Write Buffer size. With firmware revision 18.11, you can specify the Read/Write Buffer size and set the Echo Mode in any order to achieve a message echo. Lgx00087052, Lgx00087176
	If you attempt to change the RPI of I/O modules in the I/O configuration tree while in Run or Program mode, the new RPI is not applied. Instead the RPI remains at the interval set when the program was downloaded. To work around this issue and implement the new RPI, you have to Inhibit and Uninhibit the connection or cycle power to the controller. With firmware revision 18.11, attempting to edit the RPI of I/O while in Run or Program mode (online) is successful without further intervention. Lgx00101628, Lgx00089942
	RMPS instruction in a continuous task does not countdown. If a RMPS instruction is used in a continuous task and a Soak Time value greater than 1024 minutes is specified, the countdown (SoakTimeLeft) does not countdown and the RMPS instruction appears to stop executing. This anomaly does not occur if the RMPS is used in a periodic task or the continuous task program is run in SoftLogix 5800 or RSEmulator 5000 software. To workaround this anomaly, either: • use multiple soaks to achieve your total soak times greater than 1024 minutes. • use the RMPS in periodic task that has a Period on 10 ms or greater. This anomaly has been resolved with firmware revision 18.11. You can use an RMPS instruction in a continuous task with a Soak Time value greater than 1024 minutes. Lgx00100678, Lgx00085036, Lgx00083654

Corrected Anomalies with Firmware Revision 18.11

Catalog No.	Description
1768-L43, 1768-L45	Axis StoppingStatus bit is incorrect for the MAS(All) instruction with Coordinated Motion.
	If you execute a MAS of Type=ALL on motion that started with an MCLM instruction, the Axis.StoppingStatus bit briefly transitions to true but then transitions back to false and remains in that state until the axis comes to a complete stop.
	With firmware revision 18.11, the StoppingStatus bit of the MAS(All) instruction updates correctly.
	Lgx00085033
	The controller log has been updated so that completing a partial import while online, or adding I/O online no longer is identified as 'Partial Import Online or Add I/O Online modified controller'.
	Instead, the completion of a partial import while online or adding I/O while online is indicated by a 'Transaction Commit' entry in the controller log. Other transactions that are conducted may also cause a 'Transaction Commit' entry to be logged in the controller log. These transactions include the following:
	• Completing an SFC edit while online that does not result in a reset of the Sequential Function Chart.
	• Accepting any pending edits to the routine.
	• Creating a tag.
	• Creating a module or editing module properties.
	• Deleting components.
	• Modifying tag properties.
	• Conducting a partial import online.
	• Copying, pasting, or cutting any tag or program elements.
	• Moving tags between collections.
	Lgx00098523, Lgx00094306
	The Modular Multivariable Control (MMC) instruction may not use the second or third control variable (CV) parameters to achieve the process variable (PV) setpoint when certain limits are specified for the CV.
	In applications where the MMC function block is used to control one PV through manipulation of up to three CVs, only the first CV is manipulated by the instruction if the CVxEUMax, CVEUMin, CVxHLimit, and CVxLLimit input parameters for the first CV are set at conflicting values. These input parameters conflict when the CVxHLimit or CVxLLimit keeps the CV clamped at a value inside the range specified with the CVxEUMax and CVxEUMin parameters. If the CV does not extend outside the CVxEUMax and CVxEUMin parameters, the second and third CVs of the MMC instruction are not used to manipulate the PV.
	With firmware revision 18.11, the second and third CVs of the MMC instruction are manipulated, even if the first CV is within the range indicated by CVxHLimit and CVxLLimit.
	Lgx00100721, Lgx00091924
	Setting the WallClockTime to an invalid value by using an SSV instruction results in a Major Nonrecoverable Fault (MNRF).
	With firmware revision 18.11, if a WallClockTime object's DateTime attribute is invalid, a minor fault results.
	Lgx00101632, Lgx00097459

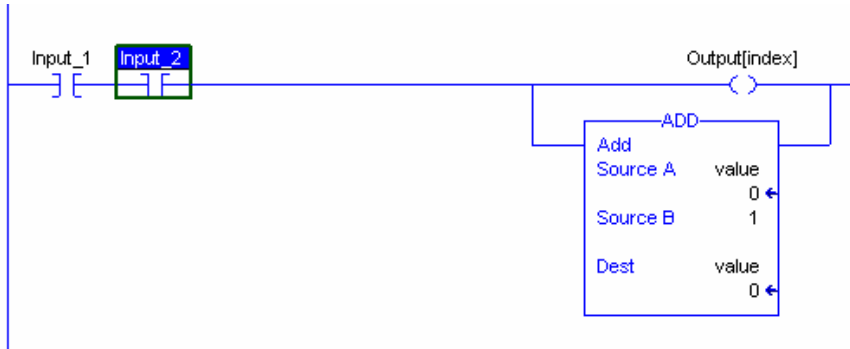**Corrected Anomalies with Firmware Revision 18.11**

Catalog No.	Description
1768-L43, 1768-L45	Attempts to use the FIND instruction to search a large string of characters results in a Major Recoverable Fault (MRF).
	If you attempt to use the ASCII FIND instruction to search a source-data string of 32,767 characters, or more, a major fault Type 4 Code 51 results.
	With firmware revision 18.11, the FIND instruction can successfully search a source-data string as large as 65,535 characters, the largest amount of characters that can be used in a string.
	Lgx00101633, Lgx00094007
	Use of an STOD instruction and a program upgrade from revision 16 to revision 17 results in the program-scan time increasing.
	When an STOD is used in an application that has been upgraded from revision 16 to revision 17, the program scan time dramatically increases due to an anomaly correction made to the STOD instruction in revision 17.
	With revision 18.11, the program-scan time returns to the time observed with version 16.
	Lgx000102979, Lgx00095528
	Completing a partial import of a project developed and run on a SoftLogix controller causes a Major Nonrecoverable Fault if certain instructions are used in the program.
	A Major Nonrecoverable Fault occurs on the controller when a program is developed and run on a SoftLogix controller, and then a partial import online is completed to a Logix5000 controller while the Logix5000 controller is in Run mode (online). A Major Nonrecoverable Fault occurs if the imported project contains these instructions: • Coordinated Control (CC) • Internal Model Control (IMC) • Modular Multivariable Control (MMC)
	The Major Nonrecoverable Fault occurs after the partial import is completed and the edits to the program are finalized.
	Lgx00103561, Lgx00102966
	Use of an FFU instruction in a SFC program results in a Major Nonrecoverable Fault (MNRF) when the last scan of the SFC is configured to Auto Reset.
	With firmware revision 18.11, this anomaly has been corrected.
	Lgx000103551, Lgx00096621
	When certain values are converted from a floating-point number to an integer, the Carry Status flag (S:C) is not set as expected for the value being converted.
	With firmware revision 18.11, the Carry Status flag is set when the conversion results in the generation of a carry-out of the most significant bit.
	Lgx00105710, Lgx00074175

Corrected Anomalies with Firmware Revision 18.11

Catalog No.	Description
1768-L43, 1768-L45	A Digital Alarm (ALMD) configured to trigger when the input condition of the alarm is false, does not trigger if the alarm condition is false when you conduct a a download or return to run mode. When the Condition parameter of the ALMD instruction is not set (that is, Input = 0) **and** either the program has recently been downloaded to the controller, or the controller has been changed from Run to Program and back to Run mode, the alarm is not activated (that is, the InAlarm bit is not set). These behaviors may result, depending on your application: • Programming designed to respond to the activated alarm is not executed. • Messages designed to be indicated at the operator station in response to the activated alarm are not indicated. • The alarm's history log does not indicate that the alarm was activated. If you choose not upgrade to this revision, you must toggle the Condition parameter from set (that is, Input = 1) to not set (that is, Input = 0) to activate the alarm. If your Condition parameter is set, then the alarm activates as expected after a download or change to the controller mode. Lgx000104437, Lgx00102840
	When an invalid Process Variable (PV) value, for example a positive infinity (INF) or not a number (NaN), is used by the Proportional Integral Derivative (PID) instruction, the PID instruction becomes stuck and control of the PV is lost. To reset the instruction and recover control, you have to access the .Data array of the PID instruction and clear any values that are invalid. The PID instruction would then begin to control the PV. With firmware revision 18.11, the instruction recognizes the invalid input value. It ignores the invalid value and the output of the PID instruction will not change. When developing your application, verify that the value passed into the PID instruction is valid. Lgx00105712, Lgx00082890
	Depending on the structure of your program, if your service communication is interrupted for longer than 300 ms (as determined by the System Overhead Time Slice setting) and a connection is in the process of closing, a major nonrecoverable fault (MNRF) may result. The connection that is closing could be a connection used for I/O, a message instruction, a forward open, and so on. With firmware revision 18.11, a connection in the process of closing during a service communication interrupt of >300 ms occurs does not cause a major nonrecoverable fault (MNRF). Lgx00103549, Lgx00098734

Corrected Anomalies with Firmware Revision 18.11

Catalog No.	Description
1768-L43, 1768-L45	When an SFC Reset (SFR) instruction that is executed specifies a target step that is not the initial step, and the step is anywhere below (but outside) a simultaneous branch, the chart will no longer execute. The chart will remain in the step it was reset to, and attempts to progress via a Transition, Force, or Step Through are unsuccessful. To begin executing the chart again, you must execute an SFR instruction to the initial step or to a step above the first simultaneous branch. With firmware revision 18.11, when an SFC is reset to a specified step the transitions occur as expected. Lgx00099968, Lgx00099132
	Fault handlers can be defined at the controller and program scope levels. These fault handlers are typically used to handle major recoverable faults that can occur during runtime execution of an application due to programming errors. A typical example of this would be handling indirect addressing that has gone out of range; MyTag[`index`], where `index` is larger than the size of the array. Faults can also be handled by the controller during pre-scan of the controller program on the transition to Run mode. Again, for example, the handling of indirect addressing that has gone out of range. There is an anomaly when these methods attempt to handle a fault. These are the possible ways the anomaly can manifest itself: • The controller will experience a major non-recoverable fault. I/O goes to their configured safe state, and the user application is cleared from memory. At this point, a Code 1 Type 60 or 61 major recoverable fault will be logged in the controller. This requires you to redownload the application. • Tag data corruption. • Online saving or uploading failures. • Anomalous program execution. For example, if a rung is being scanned false and there is an instruction that has false execution, the fault handler executes so the remainder of the rung will scan true. In the example below, the OTE instruction has an index out of range. After returning from the fault handler, the ADD instruction will execute, even though the rung input conditions are false. Lgx00105703, Lgx00100144, Lgx00101800, Lgx00102339, and Lgx00104782

Known Anomalies

These anomalies have been identified with firmware revision 18.11.

Known Anomalies with Firmware Revision 18.11

Catalog No.	Description
1768-L43S, 1768-L45S	The use of a safety tag with several multicast consuming controllers at varying firmware revisions can result in a connection timeout.
	If your application is configured with GuardLogix controllers consuming safety tags produced by a GuardLogix controller at revision 18.*x*, and the consuming controllers of one safety tag are at varying firmware revisions you may experience a connection timeout with error code 0x203. In the event of a connection timeout, all of the consuming controllers appear to connect to the tag and run for some time, but then the connection timeout occurs.
	If you use a single consumer of a safety tag, that consumer will connect and remain connected.
	To workaround this anomaly, set the revision of the producing controller to the same revision as the lowest revision of the consumers connecting to the safety tag. For example, if you have consuming GuardLogix controllers at revisions 17.*x* and 18.*x*, set the producing controller to revision 17.*x* to match the lowest revision of the consumers.
	Lgx00104877
1768-L43, 1768-L43S, 1768-L45, 1768-L45S	PI function block appears to stop executing as the output does not change and no instruction faults are logged.
	If the PI instruction is being used in Linear mode, this floating-point equation is used to calculate the ITerm.
	$$Kp \times Wld \times \frac{WldInput + WldInput_{n-1}}{2} \times DeltaT + ITerm_{n-1}$$
	Due to the use of the single-precision floating point values, it may be possible, depending on the values of WLD and KP, for the ITerm value to be small enough, less than 0.0000001, to be lost when adding to the $ITerm_{n-1}$.
	For more information regarding the PI instruction, see the Logix5000 Controllers Process Control and Drives Instructions User Manual, publication [1756-RM006](#).
	Lgx00070832
	Changes made to the Buffer Timeout value for FactoryTalk Alarm subscribers do not take effect until the existing buffer has been deleted.
	The FactoryTalk alarm buffer (stored in Logix controller memory) is designed to persist through power cycles. If you change the Buffer Timeout value (via the Communication Setup dialog in FactoryTalk View SE), the controller does not use the new timeout value until the existing buffer is deleted and then recreated. To force recreation of this buffer, you can either:
	• Redownload the project to the controller • Disconnect the FactoryTalk Alarm subscriber and leave it disconnected until the existing timeout expires.
	Lgx00069461

Known Anomalies with Firmware Revision 18.11

Catalog No.	Description
1768-L43, 1768-L43S, 1768-L45, 1768-L45S	Unsuccessful MSG execution results in subsequent unsuccessful messages in master/slave controller configurations. When a DF-1 serial connection is used between a master and slave controller, a MSG instruction is not successfully executed and an in-polling sequence error occurs if the master station address is not listed in the poll node list. However, with this anomaly, after the in-polling sequence error, subsequent MSG instructions are also unsuccessful. To workaround this anomaly, change the master controller's station address to a different value or re-execute the unsuccessful MSG instruction in Master Transmit mode and use the Between Station Polls parameter. Lgx00083882, Lgx00082610
	Under some rare occurrences, if a Motion Axis Move (MAM) instruction with Merge Enabled is activated during the deceleration segment of an active MAM instruction then the new MAM instruction **may** overshoot its programmed endpoint. The occurrence of the overshoot depends on the following factors: • The original MAM instruction's remaining travel distance at the time of the merge and the new MAM instruction's remaining travel distance • The relationship of the decel jerk of the new MAM instruction to the decel jerk of the original MAM instruction • If the original MAM instruction is decelerating Typically, the overshoot does not occur. If **either** of the following conditions exist, you will avoid the overshoot. • The new MAM instruction is programmed with Merge Disabled. If there is no other motion active at the time of the merge, then the Merge Disable results in the same operation as the Merge Enable. • The new MAM instruction has a slightly higher jerk (in Units/sec3) than the original MAM instruction. You should note, though, lower value of jerk in % of time results in higher value of jerk (in Units/sec3). Lgx00078822
	If a Motion Group Shutdown Reset (MGSR) instruction is executed while a Motion Group Shutdown (MGSD) is still executing, motion error #7, that is, Shutdown State Error, results. The purpose of an MGSR instruction is to bring an axis group out of the shutdown state. However, when the scenario described in the previous paragraph exists, the MGSR instruction is not executed because the shutdown procedure, initiated by the MGSD instruction, has precedence. Thus, the MGSR instruction generates motion error #7 because the shutdown procedure has not completed. The shutdown procedure must complete before any attempt to reset the shutdown. Lgx00095484
	Only in a program that is configured with Stop mode set to Fast Disable, the axis status bit 'DriveEnableStatus' is set to **true** for one coarse update after a Motion Group Stop (MGS) instruction transitions to the Process Complete (.PC) state. The axis status bit **should be false** when the MGS instruction transitions to the .PC state but **remains true**. You may need to delay initiation of other motion instructions until the enable status has cleared. Lgx00106782

Known Anomalies with Firmware Revision 18.11

Catalog No.	Description
1768-L43, 1768-L43S, 1768-L45, 1768-L45S	**IMPORTANT** This anomaly only occurs in SERCOS applications that use Kinetix SERCOS drives and linear motors. Under certain conditions, it is possible that the Real Time Axis attribute VelocityFeedback contains an incorrect value. The inaccuracy is the result of incorrect scaling of that attribute. Your program will have an incorrect value for the VelocityFeedback attribute if you follow these steps. 1. While offline, you write your RSLogix 5000 program and, as part of that program, the VelocityFeedback attribute is selected. 2. You save the program and download it to the controller. 3. You go online. The VelocityFeedback attribute value is incorrect because that attribute was enabled before the program was saved, downloaded and put online. Workaround - To avoid this anomaly, do not enable the VelocityFeedback attribute until the RSLogix 5000 program is online. Lgx00107793

Restrictions

These restrictions exist for 1768 CompactLogix controllers at revision 18.11.

Restrictions with Firmware Revision 18

Cat. No.	Description
1768-L43, 1768-L45, 1756-L43S, 1768-L45S	The end cap must be attached to the CompactLogix system before you upgrade the controller or I/O module.
	Use RSLinx Classic software, version 2.56, and RSLinx Enterprise software, version 5.21, or later, for best results with the new External Access tag attributes provided with RSLogix 5000 software, version 18, and controller firmware revision 18.11. Using earlier versions of RSLinx Classic and RSLinx Enterprise software may result in anomalous behavior from the data servers with the External Access options Read Only and None. For more information about tag data access attributes, see the Logix5000 Controllers I/O and Tag Data Programming Manual, publication 1756-PM004. Lgx00103263
	Enabling the time synchronization feature of a CompactLogix controller results in the controller becoming the local master. It does not result in controller becoming synchronized with other wall clock times in the system.
	If a 1769 I/O fault occurs, you must cycle power to the CompactLogix controller after clearing the major fault. I/O communication is not restored until after the power cycle. You should never use the fault handling routine to clear local I/O faults. You should clear local I/O faults manually on a per case basis, and then the controller should be power cycled.
	With RSLogix 5000 software, version 18, and controller firmware revision 18.11, the Fault/Program states for Compact I/O are not supported and cannot be configured using the Module Configuration dialog box. Since the CompactLogix system does not provide support for local modules to use the alternate outputs, do not configure the attributes or tags listed below. These tags are still created when you add the I/O modules to the configuration. **Attributes Tags to Avoid** <table><tr><td>**For Digital Output Modules**</td><td>**For Analog Output Modules**</td></tr><tr><td>• ProgToFaultEn • ProgMode • ProgValue • FaultMode • FaultValue</td><td>• CHxProgToFaultEn • CHxProgMode • CHxFaultMode • Where CHx = the channel number</td></tr></table> Lgx00086275
1768-L43S, 1768-L45S	We recommend that you configure the Compact GuardLogix controller so that it becomes the CST master. To do so, select Enable Time Synchronization on the Date/Time tab of the Controller Properties dialog box. If you do not configure the Compact GuardLogix controller to become the CST master and your project uses safety tags that are produced, I/O faults can occur when the project is downloaded. For more information about enabling the Compact GuardLogix controller to become the CST master, see the Compact GuardLogix Controllers User Manual, publication 1768-UM002. Lgx00104194

Install the Controller Revision

To install the latest CompactLogix controllers revision, go to http://support.rockwellautomation.com to download your revision. Then use the ControlFlash utility to upgrade your controller.

Alternatively, if you have installed RSLogix 5000 software, version 18, and related firmware, you may not need to complete the tasks described. The AutoFlash feature of RSLogix 5000 software, detects if your controller firmware needs upgraded upon a program download to the controller. If a firmware upgrade is necessary, AutoFlash will initiate an update.

After you have completed your firmware upgrade, you should complete these steps to verify that the upgrade was successful.

1. Cycle power to the controller.

2. Go online with the controller and view controller properties.

3. Verify that the firmware revision listed matches the firmware to which you intended to upgrade.

4. If the controller's firmware is not correct, initiate another firmware upgrade.

For more information about errors when completing a ControlFlash upgrade, see the ControlFlash Firmware Upgrade Kit Quick Start, publication 1756-QS105.

Additional Memory Requirements

This firmware revision may require more memory than previous revisions (for example, 10.*x*, 11.*x*). To estimate additional memory requirements for your application, you can either use the memory estimation tool provided with RSLogix 5000 software or the tables provided in these release notes.

Use the Estimate Tool

To estimate the amount of memory required by your application, convert the project to the controller revision desired and use the Estimate tool available in the Memory tab of the Controller Properties.
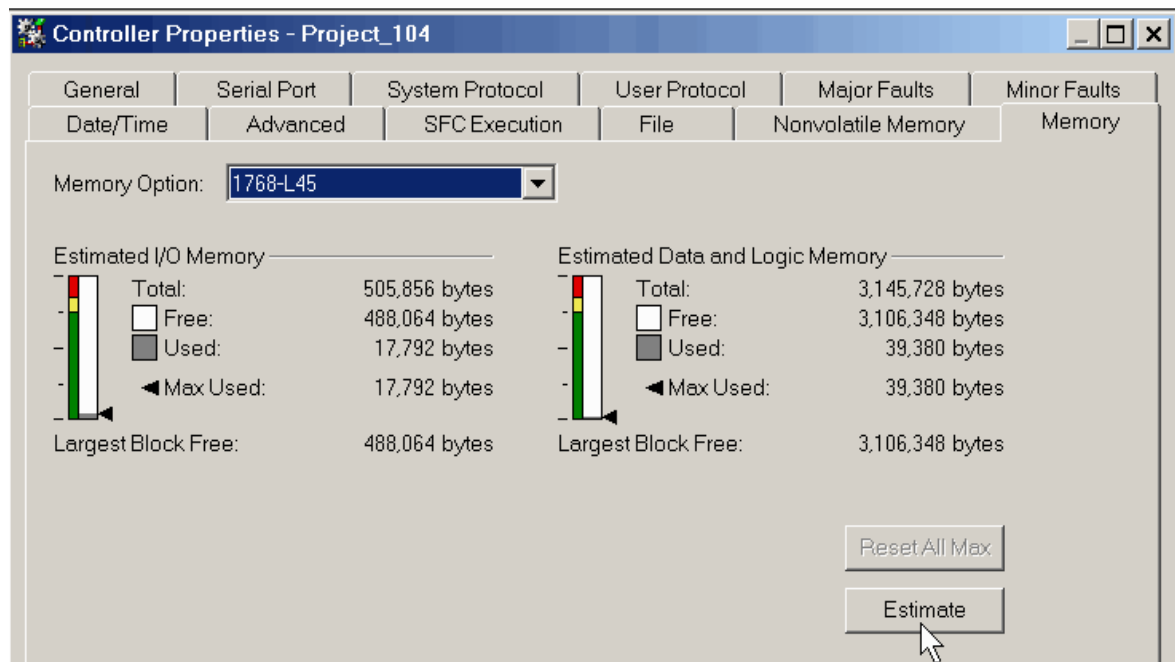
Estimate Based on Application Components

If you do not have the desired version of RSLogix 5000 software, use this table to estimate the additional memory that your project may require.

If you are upgrading your system through multiple firmware revisions, add all components your application uses for each of the revisions you upgrade through. For example, if you are upgrading from revision 15.*x* to revision 18.*x*, total your application components for revisions 15.*x* to 16.*x*, 16.*x* to 17.*x*, and 17.*x* to 18.*x*.

Additional Memory Requirements per Application Component

If you upgrade from revision (add all that apply)	Then add the following memory requirements to your project		Which comes from this type of memory	
	Component	**Increase/Decrease Per Instance**	**I/O**	**Data and Logic**
17.*x* to 18.*x*	Program	+ 8 bytes		✓
	Equipment Phase	+ 20 bytes		✓
	Add-On Instruction	+ 12 bytes		✓
	Each tag In addition, if you use a tag of the types listed below, increase the memory as indicated for each instance:	+ 4 bytes		✓
	Produced tag	+ 36 bytes + (24 bytes • number of consumers)	✓	
	Consumed tag	+ 24 bytes	✓	
	Data Access Control	+ 4 bytes per symbol		✓
	Tag that uses ALARM_ANALOG data type	- 20 bytes		✓
	Tag that uses ALARM_DIGITAL data type	+ 28 bytes		✓
	Tag that uses MOTION_GROUP data type	+ 76		✓
	Tag that uses AXIS_SERVO_DRIVE or AXIS_GENERIC_DRIVE data type	+ 786 bytes		✓
	Tag that uses AXIS data type other than AXIS_SERVO_DRIVE or AXIS_GENERIC_DRIVE	+ 818 bytes		✓
	Tag that uses COORDINATE_SYSTEM data type with no transform dimensions	+ 40 bytes		✓
	Tag that uses COORDINATE_SYSTEM data type with transform dimensions	+ 100 bytes		✓
	Module input connection	+ 20 bytes		✓
	Module output connection	+ 24 bytes		✓
	Safety controller	- 8 bytes		✓
	Safety partner	- 8 bytes		✓

Additional Memory Requirements per Application Component

If you upgrade from revision (add all that apply)	Then add the following memory requirements to your project		Which comes from this type of memory	
	Component	**Increase/Decrease Per Instance**	**I/O**	**Data and Logic**
17.x to 18.x	For each controller (> 1K bytes change):			
	1756-L6x, 1756-L6xS, 1756-L63XT	+ 16728 bytes		✓
	1768-L4x, 1768-L4xS	+ 14448 bytes		✓
	1769-L2x	+ 35084 bytes	✓	
	1769-L31	+ 14740 bytes	✓	
	1769-L32C, 1756-L35CR	+ 35400 bytes	✓	
	1769-L32E, 1756-L35E	+ 35036 bytes	✓	
	1789-L10, 1789-L30, 1789-L60	+ 4992	✓	
	PowerFlex 700S 2	+ 55340 bytes	✓	
16.x to 17.x	Task	+ 4 bytes		✓
	Program	+ 4 bytes		✓
	Equipment Phase	+ 8 bytes		✓
	LD Routine	+ 12 bytes		✓
	FBD Routine	- 8 bytes		✓
	SFC Routine	+ 28 bytes		✓
	ST Routine	+ 4 bytes		✓
	Add-On Instruction	- 12 bytes		✓
	If you use a tag of the types listed below, increase the memory as indicated for each instance:			
	Produced Tag	+ [4 bytes + (4 bytes • number of consumers)]	✓	
	Consumed Tag	+ 8 bytes	✓	
	Tag that uses MESSAGE data type	+ 4 bytes		✓
	Tag that uses ALARM_ANALOG data type	- 64 bytes		✓
	Tag that uses ALARM_DIGITAL data type	- 28 bytes		✓
	Tag that uses AXIS_SERVO_DRIVE or AXIS_GENERIC_DRIVE data type	- 34 bytes (2 bytes x number of output cam execution targets)		✓
	Tag that uses AXIS data type other than AXIS_SERVO_DRIVE or AXIS_GENERIC_DRIVE	- 52 bytes (2 bytes x number of output cam execution targets)		✓
	Tag that uses COORDINATE_SYSTEM data type of 2 dimensions with 2 transform dimensions	+ 20 bytes		✓
	Tag that uses COORDINATE_SYSTEM data type of 3 dimensions with 3 transform dimensions	+ 108 bytes		✓

Additional Memory Requirements per Application Component

If you upgrade from revision (add all that apply)	Then add the following memory requirements to your project		Which comes from this type of memory	
	Component	**Increase/Decrease Per Instance**	**I/O**	**Data and Logic**
15.*x* to 16.*x*	If you use a tag of the types listed below, increase the memory as indicated for each instance:			
	Tag that uses ALARM_ANALOG data type (with no associated tag references)	+ 16 bytes		✓
	Tag that uses ALARM_DIGITAL data type (with no associated tag references)	+ 4 bytes		✓
	Tag that uses ALARM_ANALOG data type (if associated tags are configured for the ALARM_ANALOG tag)	+ 22 bytes + (9 x the number of configured, associated tags) + (3 x the sum of the bytes used by the data type of each of the configured associated tags) For example, an analog alarm moved to V16.03 with two Associated Tags – one DINT (4 bytes) and one STRING (88 bytes) would need to add: 22 + 9(2) + 3(92) = 316 bytes		✓
	Tag that uses the COORDINATE_SYSTEM data type	+ 132 bytes		✓

Additional Resources

These documents contain additional information concerning related Rockwell Automation products.

Resource	Description
Logix5000 Controllers Common Procedures Reference Manual, publication 1756-PM001	Contains information specific to Add-On Instructions.
CompactLogix Controllers, Revision 16 Release Notes, publication 1768-RN016	Describes anomalies and enhancements related to controller revision 16.
CompactLogix Controllers, Revision 17 Release Notes, publication 1768-RN017	Describes anomalies and enhancements related to controller revision 17.
Add-On Instruction Programming Manual, publication 1756-PM010	Explains Add-On Instructions and related features.
GuardLogix Controller Systems User Manual, publication 1756-RM093	Provides information specific to the use of GuardLogix controllers and safety program elements.
Compact GuardLogix Controllers User Manual, publication 1768-UM002	Provides information specific to the use of Compact GuardLogix controllers and safety program elements.
Logix5000 Controllers I/O and Tag Data Programming Manual, publication 1756-PM004	Explains I/O and tag data. It also includes information about using the Data Access Control and External Access features.
Produced and Consumed Tags Programming Manual, publication 1756-PM011	Explains produced and consumed tags and includes information about RPI Limitations and Negotiated Default features.
Logix5000 Controllers Process Control and Drives Instructions Reference Manual, publication 1756-RM006	Contains information specific to the PI instruction.
ControlFlash Firmware Upgrade Kit Quick Start, publication 1756-QS105	Contains informations about firmware upgrades, installation instructions, and error messages.

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

Tech Notes and other resources are available at the Technical Support Knowledgebase, http://www.rockwellautomation.com/knowledgebase.

Rockwell Automation Support

Rockwell Automation provides technical information on the Web to assist you in using its 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 within the first 24 hours of installation, please review the information that's contained in this manual. You can also contact a special Customer Support number for initial help in getting your product up and running.

United States	1.440.646.3434 Monday – Friday, 8 a.m. – 5 p.m. EST
Outside United States	Please contact your local Rockwell Automation representative for any technical support issues.

New Product Satisfaction Return

Rockwell Automation tests all of its 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, follow these procedures.

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

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