Release Notes

AB QUALITY **Allen-Bradley**

1769 CompactLogix Controllers, Revision 18

Controller Catalog Numbers 1769-L31, 1769-L32C, 1769-L32E, 1769-L35CR, 1769-L35E

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 1769-RN016

- CompactLogix Controllers, Revision 17 Release Notes, publication 1769-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://www.rockwellautomation.com/literature.

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About This Publication

This publication describes enhancements, anomalies (known and corrected), and restrictions for the 1769 CompactLogix controllers, revision 18.

Table 1 - Controllers and Revisions

Cat. No.	Major and Minor Revision No.
1769-L31	18.12
1769-L32C	
1769-L32E	
1769-L35CR	
1769-L35E	

Compatible Versions of Software

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

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

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 with the battery disconnected for 2 or 3 minutes, then successfully complete the flash upgrade.
	• If a nonrecoverable fault occurs, then return the controller for factory repair.

Before Upgrading a 1769-L32E or 1769-L35E Controller

We recommend that you complete the following tasks before attempting to upgrade controller firmware from revision 16 or earlier to revision 18:

- First, check the status of the MS (module status) status indicator next to the Ethernet port. If it is flashing red before you begin the upgrade, additional action may be required.

  Contact Rockwell Automation Technical Support for more information.

- Modify the Port Configuration for the Ethernet card so that the Network Configuration Type is set to Static and assign a valid IP address.

- If RSWho is actively browsing the controller through an Ethernet or serial connection, close the RSWho window to stop the browse.

- If other controllers are messaging to the 1769-L32E or 1769-L35E controller, take the other controllers off the network or put them in Program mode.

- If there are controllers consuming tags from the 1769-L32E or 1769-L35E controller, remove them from the network.

- If there are HMI devices connected to the controller, disconnect them from the network or shut them down.

IMPORTANT	If you cannot perform the tasks listed above before attempting a controller firmware upgrade, Ethernet traffic on the controller's Ethernet port may cause the ControlFLASH utility to time out during the firmware upgrade.
	If the timeout is not handled properly, you may render the Ethernet port on the controller inoperable, requiring you to return the controller to Rockwell Automation for repair.
	In the event that a ControlFLASH timeout occurs, the software displays an error dialog box indicating that the `Target Device failed to report the new revision number', or that the upgrade `Failed to begin update to the target device'.
	If those error dialog boxes display, check the MS status indicator. If the indicator is flashing red, the upgrade is still in progress and should not be interrupted. Do not cycle power to the controller while the status indicator is flashing red.
	If the upgrade completes, the controller power cycles itself and indicates the upgrade is complete with a solid green MS status indicator. The time required to complete the upgrade is dependent on the level of Ethernet traffic.
	If the controller does not complete the upgrade, the MS status indicator continues flashing red. In this case, contact Rockwell Automation Services and Support.

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 page 22. • 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 and later is used with RSLogix 5000 software, version 18 and later.

Table 2 - Enhancements with Revision 18.11

Enhancement	Description
RPI of Individual 1769 I/O Modules Is Configurable	With firmware revision 18.11, each 1769 I/O module on a CompactBus can be configured with its own Requested Packet Interval (RPI). With previous revisions, all of the 1769 I/O modules on a CompactBus had to use the same RPI.
Controllers Round RPI to Nearest Whole Value	With firmware revision 18.11, the 1769 CompactLogix controllers round decimal values to whole integers. For example, if you specify the RPI to be 2.5 ms, the controller rounds the RPI value down to 2.0 ms. With previous revisions, the control used the exact RPI value entered, even if it was a decimal, as the RPI for all the I/O modules on the CompactBus.
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 revision 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.
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.
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. You can configure these options for the External Access attribute. • Read/Write • Read Only • None Use the Constant attribute 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 versions 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.

Table 2 - Enhancements with Revision 18.11

Enhancement	Description
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 in these firmware revisions:

- Corrected Anomalies with Revision 18.12
- Corrected Anomalies with Revision 18.11

Table 3 - Corrected Anomalies with Revision 18.12

Cat. No.	Description
1769-L31, 1769-L32C, 1769-L32E, 1769-L35CR, 1769-L35E	**CORRECTED:** Under Certain power-cycling conditions, when the on and off times of the controller are typically 10 seconds or less, the controller can power up with no program loaded. The controller will be in one of two states: • The OK and DCH0 status indicators will be green and the others will be off. • The OK status indicators will be blinking red, the DCH0 status indicator will be green, and the others will be off. The controller will have logged a Type 1 Code 60 major recoverable fault. When attempts are made to upload debug information from the controller, no information can be uploaded. To recover, re-download the application. Lgx00112038, Lgx00112578, Lgx00115382

Table 4 - Corrected Anomalies with Revision 18.11

Cat. No.	Description
1769-L32E, 1769-L35E	**CORRECTED:** Use of the controller within Ethernet connection limits, but at or near maximum limits, may result in No Buffer Memory, error code 0x301. If you are upgrading from an earlier firmware revision, and have previously used your controller at, or very near, the maximum Ethernet connection limits with produced/consumed tags, upgrading to firmware revision 17 may cause you to experience over-connection limit errors. This anomaly will be experienced only if your configured RPI rates are not binary multiples of 2 ms. This is because the CompactLogix controllers round the RPI down to the nearest binary multiple to make connections (for example, setting an RPI of 100 ms results in the controller sending data at 64 ms). With firmware revision 18.11, use of the controller at or near maximum limits does **not** result in a No Buffer Memory error. Lgx00087882

Table 4 - Corrected Anomalies with Revision 18.11

Cat. No.	Description
1769-L31, 1769-L32C, 1769-L32E, 1769-L35CR, 1769-L35E	**CORRECTED:** After clearing a fault due to missing I/O modules and cycling power to the CompactLogix controller, the program is lost from controller memory and no fault is logged. With firmware revision 18.11, cycling power after clearing a fault for missing I/O modules does not result in the program being lost from controller memory. Lgx000101634, Lgx00092026
	CORRECTED: 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
	CORRECTED: 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

Table 4 - Corrected Anomalies with Revision 18.11

Cat. No.	Description
1769-L31, 1769-L32C, 1769-L32E, 1769-L35CR, 1769-L35E	**CORRECTED:** 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 it is not in use (that is, the tag is not being scanned or referenced) by RSLinx Classic or RSLinx 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. These tag types are always deleted, even if being used by RSLinx software:
	• 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
	CORRECTED: SSV class name SerialPort, attribute PendingComDriverID, does not set.
	With firmware revision 18.11, attempts to use a SSV instruction to set the SerialPort class, PendingComDriverID attribute, are successful.
	Lgx00073954
	CORRECTED: Using an SSV instruction to set a task priority of 0 results in unexpected execution times.
	If you use an 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 by using an SSV instruction. Attempting to set a task priority to 0 via the SSV instruction results in a minor fault.
	Lgx00105709, Lgx00076850
	CORRECTED: Setting the Read/Write Buffer size parameter before checking 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 check Echo Mode in any order to achieve a message echo.
	Lgx00087052, Lgx00087176

Table 4 - Corrected Anomalies with Revision 18.11

Cat. No.	Description
1769-L31, 1769-L32C, 1769-L32E, 1769-L35CR, 1769-L35E	**CORRECTED:** RMPS instruction in a continuous task does not count down.
	If an 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 RSEmulate 5000 software.
	To work around this anomaly, do one of the following.
	• Use multiple soaks to achieve your total soak times greater than 1024 minutes.
	• Use the RMPS in a periodic task that has a Period of 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: 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

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Table 4 - Corrected Anomalies with Revision 18.11

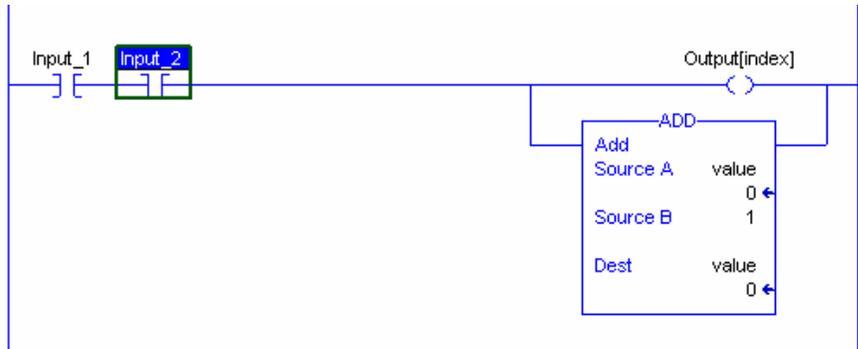| Cat. No.	Description
1769-L31, 1769-L32C, 1769-L32E, 1769-L35CR, 1769-L35E	**CORRECTED:** The Modular Multivariable Control (MMC) instruction may not use the second or third control variable (CV) parameters to achieve the process variable (PV) setpoint when certain limits are specified for the CV.
	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
	CORRECTED: 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: 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
	CORRECTED: 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

Table 4 - Corrected Anomalies with Revision 18.11

Cat. No.	Description
1769-L31, 1769-L32C, 1769-L32E, 1769-L35CR, 1769-L35E	**CORRECTED:** Completing a partial import of a project developed and run on a SoftLogix controller causes a Major Nonrecoverable Fault (MNRF) if certain instructions are used in the program. An MNRF 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). An MNRF occurs if the imported project contains these instructions: • Coordinated Control (CC) • Internal Model Control (IMC) • Modular Multivariable Control (MMC) The MNRF occurs after the partial import is completed and the edits to the program are finalized. Lgx00103561, Lgx00102966
	CORRECTED: Use of an FFU instruction in an SFC routine 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
	CORRECTED: 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: 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 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 to 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

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Table 4 - Corrected Anomalies with Revision 18.11

Cat. No.	Description
1769-L31, 1769-L32C, 1769-L32E, 1769-L35CR, 1769-L35E	**CORRECTED:** 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
	CORRECTED: 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 an MNRF.
	Lgx00103549, Lgx00098734
	CORRECTED: 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 SFC will no longer execute. The SFC remains in the step it was reset to, and attempts to progress via a Transition, Force, or Step Through are unsuccessful.
	To begin executing the SFC 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

Table 4 - Corrected Anomalies with Revision 18.11

Cat. No.	Description
1769-L31, 1769-L32C, 1769-L32E, 1769-L35CR, 1769-L35E	**CORRECTED:** 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 Nonrecoverable Fault (MNRF). 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 re-download 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.

Table 5 - Known Anomalies with Revision 18.11

Cat. No.	Description
1769-L31, 1769-L32E, 1769-L32C, 1769-L35E, 1769-L35CR	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 and Events subscribers do not take effect until the existing buffer has been deleted.
	The FactoryTalk Alarm and Events 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 box in FactoryTalk View SE software), 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 do one of the following:
	• Re-download the project to the controller
	• Disconnect the FactoryTalk Alarm and Events subscriber and leave it disconnected until the existing timeout expires.
	Lgx00069461
	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 work around 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

Restrictions

These restrictions exist for 1769 CompactLogix controllers at revision 18.11 and later.

Table 6 - Restrictions with Revision 18

Cat. No.	Description
1769-L31, 1769-L32E, 1769-L32C, 1769-L35E, 1769-L35CR	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 the 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. Never use the fault handling routine to clear local I/O faults. Clear local I/O faults manually on a per case basis, and then cycle power to the controller.
	With RSLogix 5000 software, version 18, and controller firmware revision 18.11, the Fault/Program states for Compact I/O modules are not supported and cannot be configured by using the Module Configuration dialog box.
	Because 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.
	Table 7 - Attribute Tags to Avoid
	<table><thead><tr><th>For Digital Output Modules</th><th>For Analog Output Modules</th></tr></thead><tbody><tr><td>• ProgToFaultEn • ProgMode • ProgValue • FaultMode • FaultValue</td><td>• CHxProgToFaultEn • CHxProgMode • CHxFaultMode • Where CHx = the channel number</td></tr></tbody></table>
	Lgx00086275
1769-L31, 1769-L32E, 1769-L32C, 1769-L35E, 1769-L35CR	Tasks are the basic scheduling mechanism for executing a program and are created as part of the project and program creation process. In addition to other internal tasks, the CompactLogix controllers have an internal task to provide communication with the 1769 I/O modules. This task executes periodically at the RPI selected in the properties of the CompactBus. If the task has not completed before it is time to execute again, a task overlap occurs. This task overlap causes the packaged controller to declare a minor fault of Type = 6 (Task Overlap), Code = 4 (VA task).
	You can use various strategies to resolve minor faults due to task watchdog timeout and/or task overlap. For more information, see RSLogix 5000 Online Help 'Identifying and Managing Tasks'. In the case of a minor fault caused by VA task overlap, increase the RPI until the overlap no longer occurs.
1769-L31	With a 1769-L31 controller, you cannot bridge from one serial port to the other. However, you can bridge from either serial port to the DeviceNet network via the 1769-SDN scanner.

Install the Controller Revision

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

Alternatively, if you have installed RSLogix 5000 software, version 17, and related firmware, you may not need to complete the tasks described. The AutoFlash feature of RSLogix 5000 software, version 17, 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.
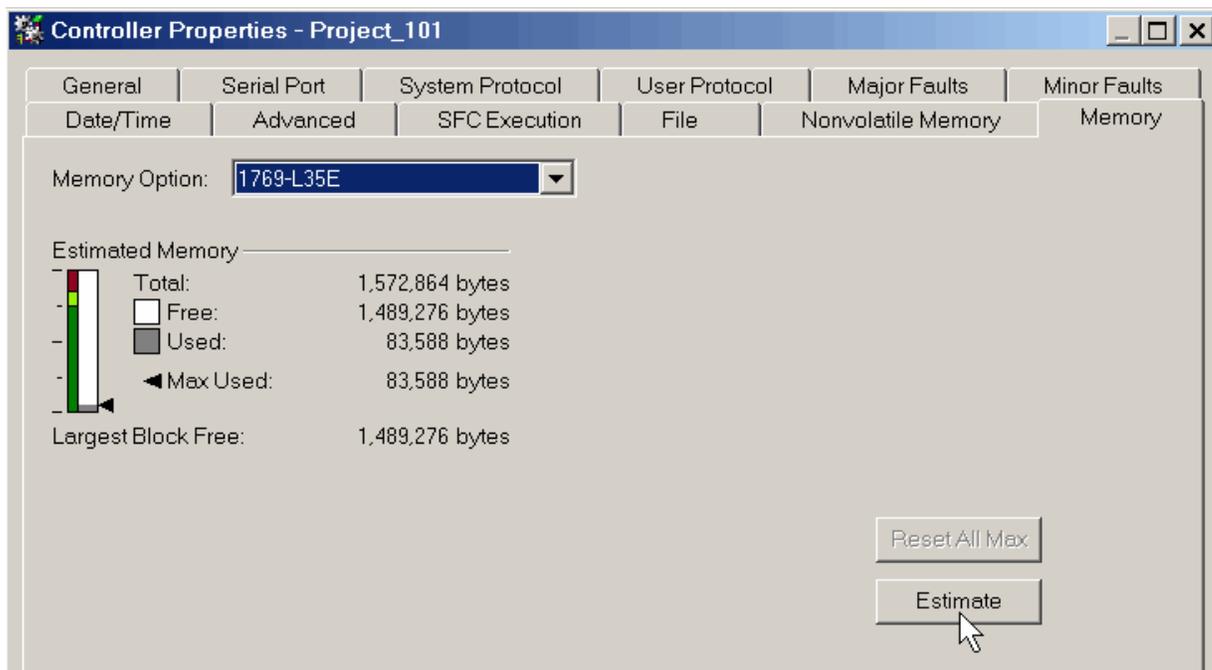
For more information about errors when completing a ControlFLASH upgrade, see the ControlFLASH Firmware Upgrade Kit Quick Start, publication 1756-QS105.

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*.

Table 8 - 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		✓

Table 8 - 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 (> 1 KB bytes change):			
	1756-L6*x*, 1756-L6*x*S, 1756-L63XT	+ 16,728 bytes		✓
	1768-L4*x*, 1768-L4*x*S	+ 14,448 bytes		✓
	1769-L2*x*	+ 35,084 bytes	✓	
	1769-L31	+ 14,740 bytes	✓	
	1769-L32C, 1756-L35CR	+ 35,400 bytes	✓	
	1769-L32E, 1756-L35E	+ 35,036 bytes	✓	
	1789-L10, 1789-L30, 1789-L60	+ 4992	✓	
	PowerFlex 700S	+ 55,340 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		✓

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Table 8 - 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		✓
14.*x* to 15.*x*	Input module	+ 4 bytes	✓	
	If you use a tag of the types listed below, increase the memory as indicated for each instance:			
	Produced tag	+ 12 bytes	✓	
	Consumed tag	+ 4 bytes	✓	
	Tag that uses COORDINATE_SYSTEM data type	+ 748 bytes		✓
	Tag the uses any AXIS data type	+ 800 bytes		✓
	Task	+ 20 bytes		✓
	Program or equipment phase	+ 24 bytes		✓
	Routine	+ 4 bytes		✓
	Serial port	+ 1120 bytes		✓
	Project	+ 4012 bytes		✓

Table 8 - 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**
13.*x* to 14.*x*	If you use a tag of the types listed below, increase the memory as indicated for each instance:			
	Tag that uses the COORDINATE SYSTEM data type	+ 60 bytes		✓
	Tag that uses any AXIS data type	+ 4 bytes		✓
12.*x* to 13.*x*	Program	+ 12 bytes		✓
	Task	+ 4 bytes		✓
	User-defined data type	+ 4 bytes		✓
	I/O module	+ 16 bytes	✓ (8 bytes)	✓ (8 bytes)
	If you use a tag of the types listed below, increase the memory as indicated for each instance:			
	Produced tag	+ 8 bytes	✓	
	Consumed tag	+ 8 bytes	✓	

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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 1769-RN016	Describes anomalies and enhancements related to controller revision 16.
CompactLogix Controllers, Revision 17 Release Notes, publication 1769-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.
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://www.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.

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