CompactLogix Controller Revision 13

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

These release notes correspond to:

CompactLogix™ controller:	Firmware revision:
1769-L31, L32C, L35CR	Major revision 13, minor revision 33
1769-L32E, -L35E	Major revision 13, minor revision 34

IMPORTANT Previous revisions of this publication included information on the 1769-L20 and 1769-L30 CompactLogix controllers. That information has been removed.

For more information on the 1769-L20 and 1769-L30 controllers, see publication 1769-RN009, available at:

http://support.rockwellautomation.com/ControlFlash

Use this firmware release with:

Product:	Compatible version:
RSLogix™ 5000 programming software	13.00
RSLinx® software	2.42 (2.43 recommended for use with 1769-L35CR controller. For more information, see page 19.)
RSNetWorx™ for ControlNet™ software	4.21
RSNetWorx for DeviceNet™ software	4.21
RSNetWorx for EtherNet/IP software	4.21
1769-SDN firmware	2.2

Known Issues

IMPORTANT

With a 1769-L31 controller, you cannot bridge from one serial port to the other. You can bridge from either serial port to DeviceNet via the 1769-SDN module.

With a 1769-L32E controller, you cannot bridge from the serial port to the EtherNet/IP port, if you are using RSLinx, version 2.42. You must use BOOTP to configure the EtherNet/IP port. This issue does not exist if you use RSLinx software, version 2.43 or greater. This restriction does not exist on the 1769-L35E controller with any version of RSLinx.

These release notes provide this information:

For information about:	See this section:	On this page:
preliminary actions to take before you use this revision	Before You Update Your System	2
new features for CompactLogix controllers	Enhancements	3
changes to CompactLogix controllers	Changes	7
restrictions that no longer apply to CompactLogix controllers	Corrected Anomalies	9
restrictions for CompactLogix controllers	Restrictions	17
using electronic data sheets	Installing EDS Files	19
upgrading your CompactLogix with the most recent firmware	Loading Controller Firmware	20
additional memory requirements to update to this revision	Additional Memory Requirements	21
using hold last state and safe state with 1769 Compact I/O modules	Hold Last State and User-Defined Safe State Not Supported	22

Before You Update Your System

Before you update your controller or RSLogix 5000 software to this revision, do the following preliminary actions:

If:	Then:
Your controller is connected to a DH-485 network.	If the 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. We recommend that you use DH-485 communications as follows: • If you update the firmware of a controller while it is connected to a DH-485 network, communication on the network may stop. To prevent this, disconnect the controller from the DH-485 network before you update the firmware of the controller. • Logix5000 controllers should be used on DH-485 networks only when you wish to add these controllers to an existing DH-485 network. For new applications with Logix5000 controllers, DeviceNet, Ethernet, and ControlNet are the recommended networks.

Enhancements

This revision of CompactLogix controllers supports the enhancements described in Table 1.

Table 1 Enhancements

Enhancement:	Description:
1769-L32E and 1769-L35E only Support for Duplicate IP Address Detection	When you change the IP address or connect one of these controllers to an EtherNet/IP network, the controller checks to make sure that the IP address assigned to this controller is not the same as that for any other device already on the network.
1769-L32E and 1769-L35E only Support for Dynamic Host Configuration Protocol (DHCP) software	This software automatically assigns IP addresses to client stations logging onto a TCP/IP network.
1769-L32E and 1769-L35E only New Web Pages	With these controllers, you can use new web pages to monitor module diagnostics.
Support for 1769-L32C, -L35CR	This revision lets you use the 1769-L32C, -L35CR CompactLogix controllers.
Consumed Tag Trigger for Event Tasks	An event task performs a function only when a specific event (trigger) occurs. Whenever the trigger for the event task occurs, the event task: • interrupts any lower priority tasks • executes one time • returns control to where the previous task left off With the firmware revisions in this publication, the CompactLogix controller event task trigger can be: • consumed tag • EVENT instruction (also available with FW 12.x)
Support for 1769-L31 and 1769-L32E	This revision lets you use the 1769-L31 and 1769-L32E CompactLogix controllers.
Online Edits of Sequential Function Charts (SFC) and Structured Text (ST)	This revision lets you perform online editing of Sequential Function Chart (SFC) and Structured Text (ST) routines.

Table 1 Enhancements

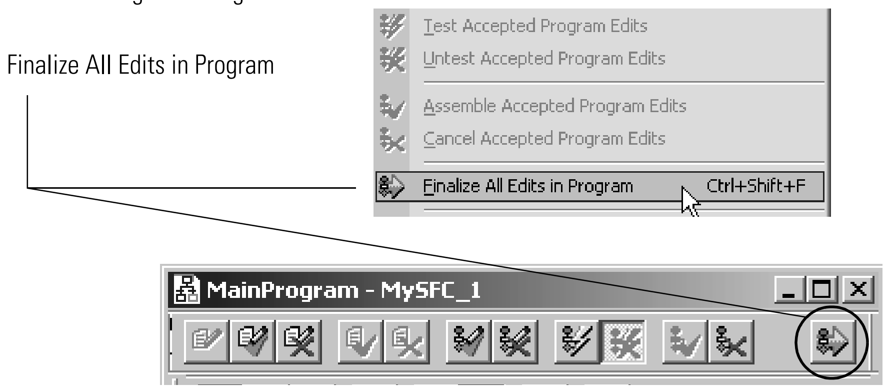
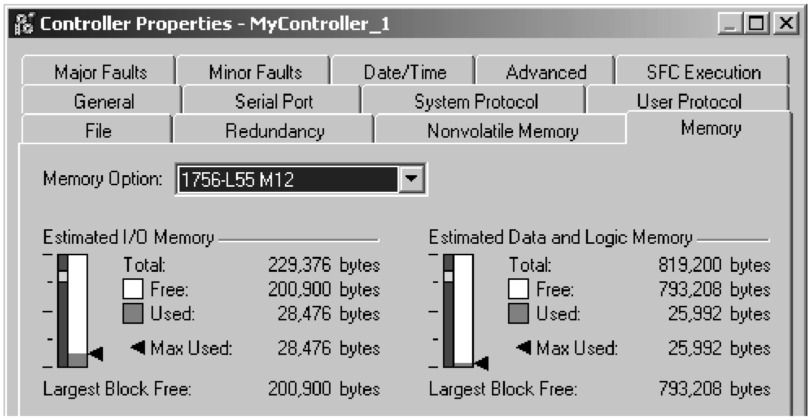
Enhancement:	Description:
Finalize All Edits in a program	The *Finalize All Edits in Program* option lets you make an online change to your logic *without* testing the change.  Finalize All Edits in Program Test Accepted Program Edits Untest Accepted Program Edits Assemble Accepted Program Edits Cancel Accepted Program Edits Finalize All Edits in Program Ctrl+Shift+F MainProgram - MySFC_1 When you choose *Finalize All Edits in Program:* • *All* edits in the program (pending and test), immediately download to the controller and begin execution. • The original logic is permanently removed from the controller. • Outputs that were in the original logic stay in their last state unless executed by the new logic (or other logic). • If your edits include an SFC, the SFC resets to the initial step and stored actions turn off.
Motion Calculate Slave Value (MCSV) instruction	Use the MCSV instruction in the following applications: • Position cam: electronic camming between two axes according to a specified cam profile • Time cam: electronic camming of an axis as a function of time, according to a specified cam profile The MCSV instruction returns the slave value within a specified cam profile for a given master value. The master value can be master position or time. Use that information to re-synchronize motion after a fault or to calculate dynamic phase corrections.

Table 1 Enhancements

<table>
<tr><th>Enhancement:</th><th>Description:</th></tr>
<tr><td>Estimate Memory Information Offline
View Memory Information Online</td><td>To estimate how much controller memory your project requires, use the <i>Memory</i> tab of the controller properties dialog box. For each of the memory areas of your controller, it lets you estimate number of bytes of:
<ul><li>free (unused) memory</li><li>used memory</li><li>largest free contiguous block of memory</li></ul>


Memory Option: 1756-L55 M12

Estimated I/O Memory
Total: 229,376 bytes
□ Free: 200,900 bytes
▨ Used: 28,476 bytes
◄ Max Used: 28,476 bytes
Largest Block Free: 200,900 bytes

Estimated Data and Logic Memory
Total: 819,200 bytes
□ Free: 793,208 bytes
▨ Used: 25,992 bytes
◄ Max Used: 25,992 bytes
Largest Block Free: 793,208 bytes

When online with a controller, the <i>Memory</i> tab shows the actual memory usage of the controller. The tab includes a <i>Max Used</i> entry for each type of memory. The <i>Max Used</i> values show the peak of memory usage as communications occur.</td></tr>
<tr><td>Improved Performance of Simple Structured Text Statements</td><td>The controller now executes simple structured text (ST) assignments and comparisons faster than previous revisions.
<table>
<tr><th>For this:</th><th>This is simple:</th><th>This is NOT simple:</th></tr>
<tr><td>assignment</td><td>A:= B;</td><td>A:= -B;
A:= B + C;
A:= sin(B);</td></tr>
<tr><td>comparison (=, <, <=, >, >=, <>)</td><td>A > B
A = B</td><td>A > -B
A > (B + C)
A > sin(B)</td></tr>
</table></td></tr>
</table>

Table 1 Enhancements

<table>
<tr><th>Enhancement:</th><th>Description:</th></tr>
<tr><td>For some non-recoverable faults, the controller produces a major fault and may be able to log diagnostic information.</td><td>If the controller detects a non-recoverable fault that was <i>not</i> caused by its hardware, the controller now responds as follows:
<table>
<tr><th>If the controller:</th><th>Then:</th></tr>
<tr><td>has a CompactFlash socket</td><td>The controller clears the project from its memory and produces a major fault (flashing red OK LED)</td></tr>
<tr><td>has <i>no</i> CompactFlash socket</td><td>The controller <i>initially</i> shows a solid red OK LED. After you cycle power to the controller, it produces a major fault (flashing red OK LED).</td></tr>
</table>
In either case, the controller still clears the project from memory. The fault code that it displays depends on whether you have installed a CompactFlash card in the controller.
<table>
<tr><th>Type</th><th>Code</th><th>Cause</th><th>Recovery Method</th></tr>
<tr><td>1</td><td>60</td><td>For a controller with <i>no</i> CompactFlash card installed, the controller:
• detected a non-recoverable fault
• cleared the project from memory</td><td>1. Clear the fault.
2. Download the project.
3. Change to remote run/run mode.
If the problem persists:
1. Before you cycle power to the controller, record the state of the OK and RS232 LEDs.
2. Contact Rockwell Automation support. See the back of this publication.</td></tr>
<tr><td>1</td><td>61</td><td>For a controller with a CompactFlash card installed, the controller:
• detected a non-recoverable fault
• wrote diagnostic information to the CompactFlash card
• cleared the project from memory</td><td>1. Clear the fault.
2. Download the project.
3. Change to remote run/run mode.
If the problem persists, contact Rockwell Automation support. See the back of this publication.</td></tr>
</table>
In <i>previous</i> revisions:
• The controller would <i>not</i> go to faulted mode or display a fault code for the type of situation described above.
• Controllers with a CompactFlash socket showed a solid red OK LED.</td></tr>
</table>

Changes

Changes are organized by firmware revision in which the change occurred.

CompactLogix 1769-L31, -L32E, -L35E Rev. 13.19

Table 2 Changes

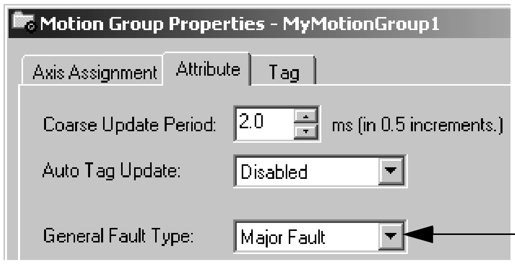
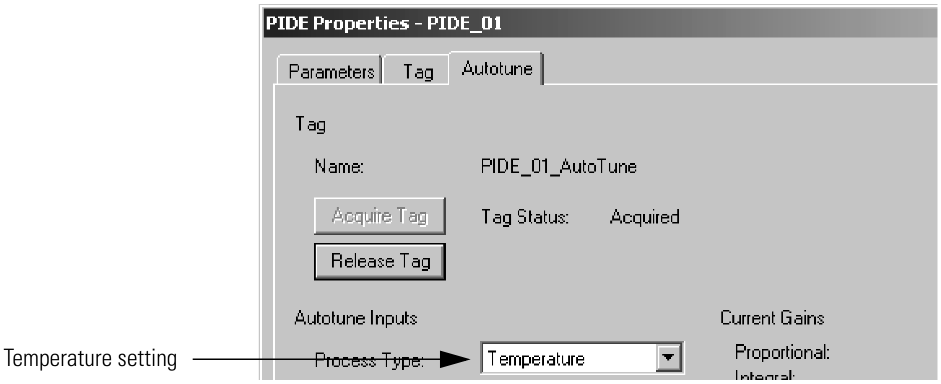
Change:	Description:
In a Message (MSG) instruction, you cannot set or clear certain status bits.	*Do not* set or clear the following members of a Message (MSG) instruction: • EW • ER • DN • ST • Flags **Important**: If your logic currently manipulates any of the above members of a MSG instruction, your controller *may* operate differently when you update to this revision. If you set or clear one of those bits, RSLogix 5000 software displays the change. But the MSG instruction ignores the change and continues to execute based on the internally-stored value of those bits.
Motion planner no longer waits for consumed data to start flowing	The motion planner now begins execution immediately, regardless of whether or not it is receiving data via a consumed axis. In previous revisions, a consumed axis caused the motion planner to delay its execution until data started flowing from the producing controller. Under the following *combination* of circumstances, the motion task of the controller failed to start at all: • The system included 2 controllers in the same chassis. • Each controller produced an axis for the other controller.
For Function Block Instructions that use periodic timing, DeltaT now includes the fractional portion of the task's period	If your function block instruction uses the periodic timing mode, the controller *no longer* truncates the fractional portion of a task's period to produce the delta time (DeltaT). In previous revisions, the controller truncated the fractional portion of the task's period.
While in Program mode, a motion group fault no longer produces a major fault	As an option, you can configure a motion group to produce a *major fault* any time the group detects a motion fault.  Motion Group Properties - MyMotionGroup1 Axis Assignment Attribute Tag Coarse Update Period: 2.0 ms (in 0.5 increments.) Auto Tag Update: Disabled General Fault Type: Major Fault Major fault setting With this revision, a motion group that is configured to produce a major fault produces a major fault *only* if the controller is in run/remote run mode. In *previous* revisions, the motion group could produce a major fault while the controller was in program/remote program mode. For example, a store to nonvolatile memory interrupts the execution of the motion planner, which produces a fault.

Table 2 Changes

Change:	Description:
Out-of-range subscript no longer produces a fault during prescan	During prescan, the controller automatically clears any faults due to an array subscript that is beyond the range of the array (out of range). In *previous* revisions, this produced a major fault.
Autotune now uses a non-integrating process model for temperature processes	When you autotune an Enhanced PID (PIDE) function block with the Process Type = Temperature, autotune now uses a non-integrating process model to estimate tuning constants. This gives better tuning constants for most application.  PIDE Properties - PIDE_01 Name: PIDE_01_AutoTune Tag Status: Acquired Process Type: Temperature Parameters Tag Autotune Tag Acquire Tag Release Tag Autotune Inputs Current Gains Proportional: Integral: Temperature setting In previous revisions, autotune used an integrating process model.
You *must* place a label (LBL) instruction at the start of a rung	If your logic includes a Label (LBL) instruction, make sure the instruction is the first instruction on the rung. If it is *not*, move the LBL instruction to the beginning of the rung. Otherwise, the routine will *not* verify. In previous revisions, RSLogix 5000 software let you place the LBL instruction elsewhere on the rung. But the controller always executed the instruction as if it were at the beginning of the rung.
Reduction in the prescan time of projects with many jump to subroutine (JSR) instructions	During a prescan, the controller no longer prescans a routine more than once. Once it prescans a routine, the controller does not prescan the routine again during that prescan. In previous revisions, the controller would prescan a routine as often as it was called in logic. For projects with many calls to subroutines, this could produce a very long prescan and cause a watchdog timeout fault.

Corrected Anomalies

The corrected anomalies are organized by the firmware revision that corrected them.

CompactLogix 1769-L32E, -L35E Rev. 13.34

CompactLogix 1769-L31, -L32C, -L35CR Rev. 13.33

Table 3 Corrected Anomalies

Save to CompactFlash Did Not Complete Properly	Saving a project to CompactFlash did not always complete. The LEDs on the controller would continue to flash until you cycled power. Lgx00047687, Lgx00047577
MSG Read of User Defined Structure Greater Than 500 Bytes Did Not Return Any Data	A MSG read of a user defined structure that contained more than 500 bytes should have read some data before determining that the structure was too large. Lgx00050774
Large MSG Instructions	This revision of CompactLogix firmware adds more stringent range checks when reading to or writing from tags. This could cause some MSG instructions that worked in previous firmware revisions to not work in this revision of firmware. For example, use a CIP Generic MSG instruction to perform a Get Attribute Single service. The attribute is 4 bytes in length. Assume the destination tag is an INT data type (2 bytes in length). In previous releases of firmware, the MSG instruction places the first 2 bytes of the attribute in the destination tag. In this revision of firmware, the MSG instruction errors because the destination tag is not large enough. To correct this error, change the destination tag to a DINT data type.
Large SLC Typed Write MSG Instructions	This revision of CompactLogix firmware limits the maximum packet size of SLC typed write MSGs to 216 bytes. Previously, these messages had a maximum size of 224 bytes. This could cause some MSG instructions that worked in previous firmware revisions to not work in this revision of firmware. Lgx00052949
Programmatic Change of MSG Status Bits Could Cause the MSG to Appear Remain Active (.EN Set)	If you programmatically reset the .DN or .ER bits of a MSG due to the asynchronous nature of the MSG, the MSG could appear to remain active (.EN set). In fact, the MSG was not active. The MSG required manual intervention to trigger it to execute again. This firmware revision removes the need for manual intervention to trigger the MSG to execute again. Lgx00053112

Table 3 Corrected Anomalies

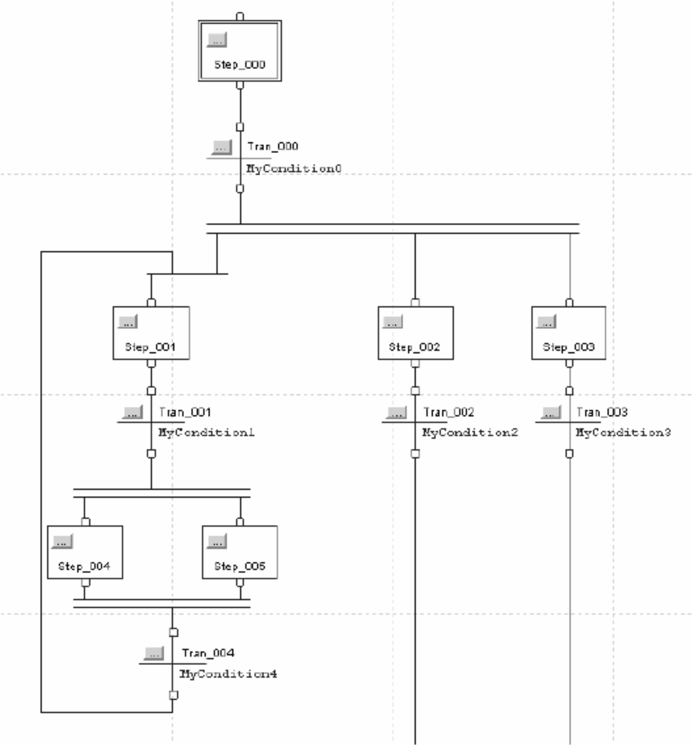
An SFC Could Execute the Wrong Step	If you had an SFC with nested simultaneous branches, the controller could begin execution at an unexpected step. Following the convergence of a nested simultaneous branch, if the SFC looped back to the initial step of the parent branch, instead of executing that step, the SFC could jump to a step of another path in the nested simultaneous branch. For example:  Step_000 Tran_000 MyCondition0 Step_001 Step_002 Step_003 Tran_001 MyCondition1 Tran_002 MyCondition2 Tran_003 MyCondition3 Step_004 Step_005 Tran_004 MyCondition4 Execution starts at Step_000. When Tran_000 becomes true, Step_001, Step_002 and Step_003 should become active. However, because the nested simultaneous branch in the left path converged and looped back to its parent step (Step_001), the active steps were actually **Step_005**, Step_002 and Step_003. Lgx00054785
The File Search Compare (FSC) Instruction Caused a Non-Recoverable Fault	The FSC instruction caused an non-recoverable fault if both these conditions occurred: • a major fault was declared from within the expression of an FSC instruction • the user fault routine cleared the fault When the user fault routine attempted to recover, information previously saved was not properly restored, which resulted in corrupted system registers and a non-recoverable fault. Lgx00055522
CONCAT Instruction Generated Minor Fault When the Length of the Data Equaled the Maximum Characters Allowed for the String	The CONCAT instruction incorrectly generated a minor fault (Type 4, Code 51) when the length of the data was equal to the maximum number of characters allowed for the string data type. Lgx00056558

Table 3 Corrected Anomalies

Controller Did Not Establish Connection to 1769-IR6 Module	If your application used a 1769-IR6 RTD/resistance input module, the CompactLogix controller failed to make a connection to the the module. Lgx00053548
Controller Failed to Connect to a 1769-ASCII Module if the Module Immediately Followed a 1769-SDN Module	If your application used any of the CompactLogix controllers and you set-up your local I/O rail with a 1769-ASCII module immediately following a 1769-SDN module, the CompactLogix controller failed to make a connection to the 1769-ASCII module. Lgx00054848
Controller Cleared User Program if Too Many Messages Were Sent To and From the Controller	Occasionally, the controller experienced a major unrecoverable fault if too many messages were sent to and from the controller. One consequence of the fault as that the controller cleared its user program. Lgx00056184
Controller Pauses User Program Execution Shortly After a Power-Up	Approximately 5 or 6 seconds after the controller began running the user program in Run mode following power-up, the controller stopped executing the user program for approximately 90 milliseconds to perform some communications network processing. If the Task Watchdog for the Continuous Task was set for less than 90 milliseconds more than the normal processing time, you could have seen a Major Fault, User Task Watchdog Timeout. Lgx00056571
Changing Serial Port Settings May Have Caused a Major Unrecoverable Fault	If you used an SSV instruction to change the controller's serial port settings, the controller occasionally experienced a major unrecoverable fault. Lgx00055321

CompactLogix 1769-L32E, -L35E Rev. 13.34

Occasionally the 1769-L32E or 1769-L35E Controller Failed to Establish Communication with the other Devices in the Applications	Occasionally at power-up, the 1769-L32E and 1769-L35E CompactLogix controllers failed to communicate with the other devices in your application. In the rare instance where the failure occurred, you could cycle power to the controller to correct this communication failure. Lgx00056415
Occasionally the 1769-L32E or 1769-L35E Controller Failed to Establish Communication with the other Devices in the Applications	Occasionally at power-up, the 1769-L32E and 1769-L35E CompactLogix controllers failed to communicate with the other devices in your application. In the rare instance where the failure occurred, you could cycle power to the controller to correct this communication failure. Lgx00056415

CompactLogix 1769-L31 Rev. 13.33

Saving to CompactFlash Card Caused Major Unrecoverable Fault	With the 1769-L31 controller, if you save your user program to the CompactFlash card, the controller experienced a major unrecoverable fault. Lgx00051548

CompactLogix 1769-L31 Rev. 13.30

Table 4 Corrected Anomalies

Anomaly:	Description:
Saving User Project to CompactFlash Card Caused a Non-Recoverable Fault	An attempt to save the user program to the CompactLogix controller's 1784-CF64 CompactFlash card caused a non-recoverable fault on the controller. In projects using RSLogix 5000, version 13, you had to clear the fault from the controller, redownload the project and change to Run mode. In projects using RSLogix 5000, version 12 or earlier, you had to cycle power to the chassis, redownload the project and change to Run mode. Lgx00051844

CompactLogix 1769-L31 Rev. 13.30

CompactLogix 1769-L32E, -L35E Rev. 13.28

Table 5 Corrected Anomalies

Anomaly:	Description:
Outputs Were Uncontrolled After 1769 Bus Fault If Fault Handler Was Programmed to Ignore All Faults	If the Controller Fault Handler was programmed such that the CompactLogix controller ignored 1769 bus faults and a 1769 bus fault occurs, you lost control of any outputs operating on the 1769 bus. To configure the CompactLogix controller to ignore all faults, you must manually program the Controller Fault Handler routine using various instructions. A 1769 bus fault is indicated by Major Fault Type 3 and Major Fault Code 16. The 1769 bus faults if any 1769 I/O module on the bus faults. When the bus faults, the Controller Fault Handler executes and the CompactLogix controller behaves as configured, typically turning all I/O modules off until the fault is cleared. However, if you programmed your CompactLogix controller to ignore 1769 bus faults, when the 1769 bus faulted, the CompactLogix controller ignored the fault and remained in Run mode. In this case, the I/O was not turned off and the CompactLogix controller no longer controlled the outputs. The CompactLogix controller could not force the outputs to different values and had to transition to Program mode to turn the outputs off. Lgx00051453

CompactLogix 1769-L31, -L32E, -L35E Rev. 13.24

Table 6 Corrected Anomalies

Anomaly:	Description:
Subroutines Invoked from SFC Actions Were Not Properly Postscanned	A subroutine invoked from an SFC action was not properly postscanned when the SFC was configured for automatic reset. Instructions and assignments may not have set their data to postscan values. For example, an Output Energize (OTE) instruction may not have cleared its data during postscan. Lgx00047935
In SFCs Configured for Auto Reset, Stored Actions Were Not Properly Postscanned	When an SFC was configured for Automatic Reset and an Action used a stored qualifier (S, SD, SL, DS), when a reset action (R) executed, the action being reset was not postscanned. Lgx00047407

CompactLogix 1769-L31, -L32E, -L35E Rev. 13.21

Table 7 Corrected Anomalies

Anomaly:	Description:
Issue with time reported by real time clock caused controller to transition to safe state (i.e., clear memory).	During normal operation, the CompactLogix controller runs a background diagnostic to verify that the real time clock is working properly. When this anomaly occurred, the diagnostic indicated that the time reported by the real time clock was not what the controller expected it to be. In this case, the controller firmware interpreted the wrong clock time as a potential issue. By design, the controller transitioned to a safe state, clearing its memory and indicating that a major fault had occurred. The transition to a safe state was done as a preventative mechanism. **IMPORTANT**: This issue was **NOT** an issue with **hardware or controller memory**. Instead, this issue existed in the firmware diagnostic routine. The firmware revision specificed by this release note corrects this anomaly.
Loss of UID/UIE Behavior if a Fault Routine Executed	The controller uses an internal count to keep track of nesting UID/UIE instructions. When a UID is scanned, the count increments by one; when a UIE is scanned, the count decrements by one. The count is set to zero when a program completes execution. If a fault routine executed when the UID/UIE count was not zero, at the end of the fault routine, the controller set the UID/UIE count back to zero. Control was returned to the program with interrupts enabled when they should still be disabled. Lgx00046070

CompactLogix 1769-L31, -L32E, -L35E Rev. 13.19

Table 8 Corrected Anomalies

Anomaly:	Description:
1769 outputs were held in last state, rather than turning OFF, when faults occurred.	If 1769 I/O backplane faults or certain I/O module hardware faults occurred, outputs were held in their last state at the time of the fault condition rather than all outputs turning off. This only occurred with 1769 I/O backplane faults and certain I/O module hardware faults (e.g. loss of backplane termination, loss of 24V on an analog module configured to use external 24V, etc.) and not with general controller faults (e.g. Watchdog timeout).

CompactLogix 1769-L31, -L32E, -L35E Rev. 13.18

Table 9 Corrected Anomalies

Anomaly:	Description:
The controller did not support 32 consumed connections.	Over EtherNet/IP, previous revisions of the CompactLogix controllers supported only 25 connections.
The WallClockTime increased after power cycles.	When the CompactLogix controllers had power cycled, the controller wallclock time increased.
The WallClockTime changed to an invalid value after restoring from CompactFlash at power up.	If you use a CompactFlash card and have it set to “restore on power up,” you may have needed to reset the wallclock time. If maintaining an accurate wallclock time was crucial to your application, you either had to disable the “restore on power up” feature or use a combination of GSV and SSV instructions to check the wallclock time and, if necessary, reset it to a more accurate time.

Table 9 Corrected Anomalies

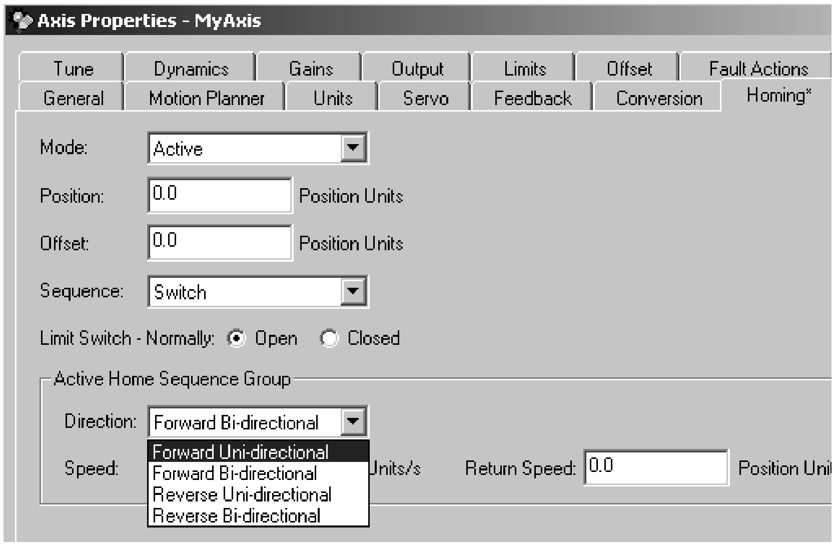
Anomaly:	**Description:**
uni-directional homing failed to complete	A Motion Axis Home (MAH) instruction sometime failed to complete (IP bit remained on) under the following axis configuration: • Return Speed = 0 • uni-directional homing (forward or reverse)  Axis Properties - MyAxis Tune Dynamics Gains Output Limits Offset Fault Actions General Motion Planner Units Servo Feedback Conversion Homing* Forward Uni-directional Forward Bi-directional Reverse Uni-directional Reverse Bi-directional Mode: Active Position: 0.0 Position Units Offset: 0.0 Position Units Sequence: Switch Limit Switch - Normally: ● Open ○ Closed Active Home Sequence Group Direction: Forward Bi-directional Speed: Units/s Return Speed: 0.0 Position Unit
unconditional MDR instruction did not re-execute	A Motion Disarm Registration (MDR) instruction failed to repeatedly execute under the following circumstances: • You placed the MDR instruction in a structured text routine. • You did *not* provide any conditions to control the execution of the instruction. (I.e., you programed it to execute continuously.) In those circumstances, the EN bit might have been left on after the first execution and the instruction no longer executed again. **Important**: In structured text, we recommend that you condition the instruction so that it only executes on a transition.

Table 9 Corrected Anomalies

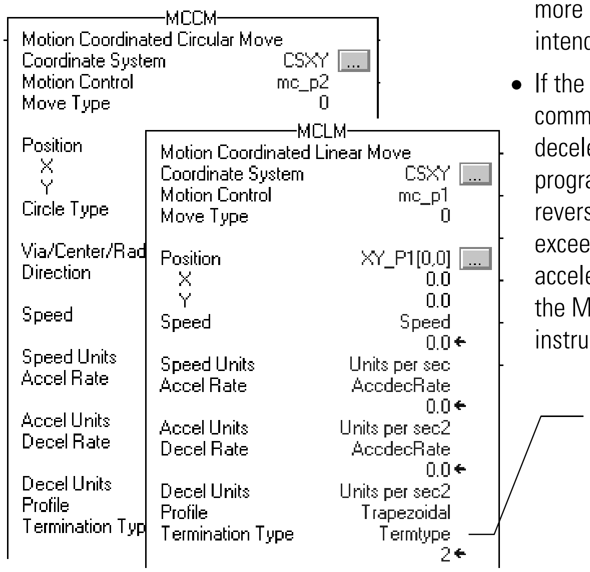
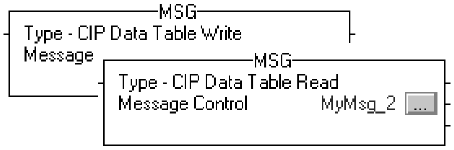
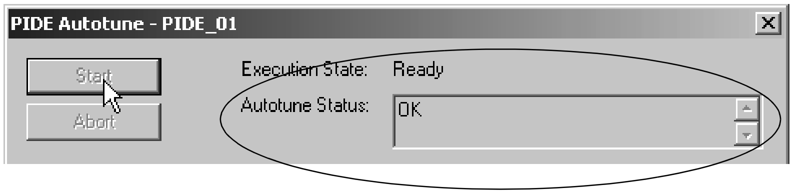
Anomaly:	Description:
blended moves produce smoother, more accurate motion	This revision improves the response of the axes when you blend the execution of Motion Coordinated Linear Move (MCLM) and Motion Coordinated Circular Move (MCCM) instructions.  MCCM Motion Coordinated Circular Move Coordinate System CSXY Motion Control mc_p2 Move Type 0 Position X Y Circle Type Via/Center/Rad Direction Speed Speed Units Accel Rate Accel Units Decel Rate Decel Units Profile Termination Typ MCLM Motion Coordinated Linear Move Coordinate System CSXY Motion Control mc_p1 Move Type 0 Position XY_P1[0,0] X 0.0 Y 0.0 Speed Speed 0.0← Speed Units Units per sec Accel Rate AccdecRate 0.0← Accel Units Units per sec2 Decel Rate AccdecRate 0.0← Decel Units Units per sec2 Profile Trapezoidal Termination Type Termtype 2← • If the Termination Type = command tolerance (2) or no deceleration (3), axes change more smoothly and follow the intended path more closely. • If the Termination Type = command tolerance (2) or no deceleration (3) and the program path direction is reversed, the instruction will exceed the specified acceleration/deceleration for the MCLM or MCCM instruction. Termination Type 0 = actual tolerance 1 = no settle 2 = command tolerance 3 = no deceleration
large message (MSG) instructions might have caused a non-recoverable fault	The following configuration of a Message (MSG) instruction might have produced a non-recoverable fault:  MSG Type - CIP Data Table Write Message MSG Type - CIP Data Table Read Message Control MyMsg_2 • Message type = CIP Data Table Read or Write • The instruction transferred > 240 bytes. • Communication was through the serial port. When the controller experiences a non-recoverable fault, it clears the project from memory.
during power up, the controller erroneously showed a red I/O LED	During power up, the controller sometimes showed a flashing red I/O LED when there was *no* problem
autotune produced unnecessary warnings	When you completed an autotune of an Enhanced PID (PIDE) function block instruction, the Autotune Status field sometimes showed warning messages that were incorrect (did *not* apply).  PIDE Autotune - PIDE_01 Execution State: Ready Autotune Status: OK

Table 9 Corrected Anomalies

Anomaly:	Description:
ramp/soak (RMPS) instruction failed to initialize to the correct mode	On download, a Ramp/Soak (RMPS) Instruction now initializes to Operator Manual mode unless some other mode is requested. In *previous* revisions, the instruction failed to initialize to the correct mode. This lack of initialization could have caused the RMPS instruction to ignore the soak time for the first ramp/soak segment.
remote output module momentarily dropped its connection	The following *combination* of circumstances occasionally caused an output module to drop its connection to the controller and then re-establish the connection: • The module was in a remote chassis. • The module used a *Rack Optimization* communication format. • The controller also executed a Message (MSG) instruction that bridged across the backplane of that same remote chassis to another communication module. Occurred most frequently if the MSG instruction was *not* cached.

Known Anomalies

The known anomalies are organized by the catalog number in which they are known to exist.

CompactLogix 1769-L32E, -L35E only

Table 10 Known Anomalies

Anomaly:	Description:
Ethernet port may not be updated via CompactFlash.	For 1769-L35E controllers shipped with base firmware revision 1.06 or 1.10, if you update the firmware to revision 13 via CompactFlash, the Ethernet port firmware may not be updated. After updating from CompactFlash, remove the CompactFlash card and the battery, power down the controller for 1 minute, then power-up the controller. The controller will then correctly update the Ethernet port firmware.

Restrictions

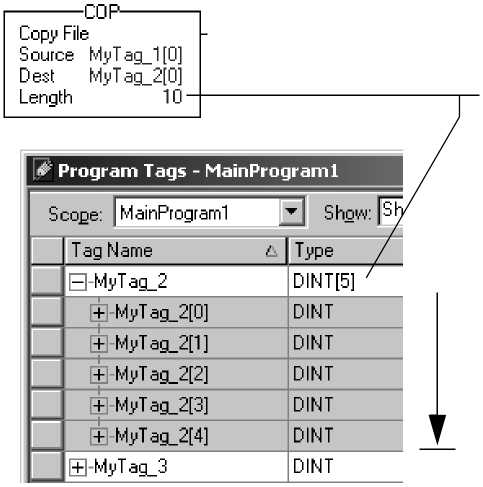
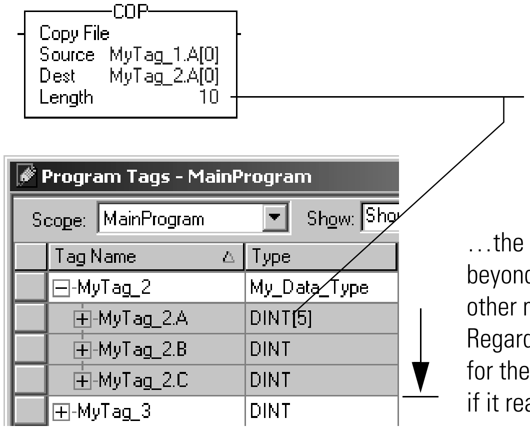
The restrictions are organized by the catalog number in which they exist.

CompactLogix 1769-L31, -L32C -L32E, -L35CR, -L35E

Table 11 Restrictions

Restriction:	Description:
Power down banks of local I/O when the main bank is powered down.	When powering down the main bank (the one with the controller), also power down any other banks of local I/O modules. Leaving additional banks of I/O modules powered on may result in major fault code 22 during the power-up process of the main bank.
Irregular power cycles can affect the wall clock time.	Irregular power cycles, such as brown outs, can affect the wall clock time. If you use the wall clock time for critical system timing, routinely synchronize the wall clock time to a master system clock using a GSV instruction.
If you have a CompactFlash card set to “restore on power up,” you may need to reset the wallclock time.	If you use a CompactFlash card and have it set to “restore on power up,” you may need to reset the wallclock time. If maintaining an accurate wallclock time is crucial to your application, either disable the “restore on power up” feature or use a combination of GSV and SSV instructions to check the wallclock time and, if necessary, reset it to a more accurate time.
Do not change or delete files in the structure on a CompactFlash card.	If you use a PC card reader to view the CompactFlash card, do not change or delete any files in the structure on the CompactFlash card. Also, make sure the close the PC card reader session before removing the CompactFlash card to avoid corrupting files.
Controller may not support 4000 packets/second.	In general, the 1769-L32E, -L35E controller can support 4000 packets/second via the EtherNet/IP port. It is possible that in some applications with larger packet sizes, the controller might not be able to support 4000 packets/second.

Table 11 Restrictions

Restriction:	Description:
In a tag of a user-defined data type, an instruction may write past the end of an array	If you write too much data to an array that is within a user-defined data type, some instructions write beyond the array and into other members of the tag. **Example 1: Instruction Stops at the End of the Array**  COP Copy File Source MyTag_1[0] Dest MyTag_2[0] Length 10 Program Tags - MainProgram1 Scope: MainProgram1 Show: Sh Tag Name / Type ⊟-MyTag_2 / DINT[5] ⊞-MyTag_2[0] / DINT ⊞-MyTag_2[1] / DINT ⊞-MyTag_2[2] / DINT ⊞-MyTag_2[3] / DINT ⊞-MyTag_2[4] / DINT ⊞-MyTag_3 / DINT If the length is greater than the number of elements in the destination array… …the instruction stops at the end of the array. **Example 2: Instruction Writes Beyond the Array**  COP Copy File Source MyTag_1.A[0] Dest MyTag_2.A[0] Length 10 Program Tags - MainProgram Scope: MainProgram Show: Sho Tag Name / Type ⊟-MyTag_2 / My_Data_Type ⊞-MyTag_2.A / DINT[5] ⊞-MyTag_2.B / DINT ⊞-MyTag_2.C / DINT ⊞-MyTag_3 / DINT If the length is greater than the number of elements in the destination array… …the instruction writes data beyond the end of the array into other members of the tag. Regardless of the length specified for the instruction, it stops writing if it reaches the end of the tag. The following instructions write beyond the array into other members of the tag: BSL BSR COP CPS DDT FBC FFL FFU FLL GSV LFL LFU SQL SRT SSV This restriction also applies to *all previous revisions*. To prevent writing beyond the limits of the destination array, make sure the length operand of the instruction is less than or equal to the number of elements in the array.

Installing EDS Files

Depending the CompactLogix controller and RSLinx version you are using, you might need to install EDS files.

Table 12

For this controller:	If you have this version of RSLinx, the controller is fully supported and the required EDS files were installed with the software:
1769-L35CR	Version 2.43 or greater
1769-L31, 1769-L32E and 1769-L35E	Version 2.42 or greater

If you are using a version of RSLinx software that needs EDS files to be installed, you need the EDS files for:

- appropriate controller
- 1769-L35CR ControlNet port for a 1769-L35CR controller
- EtherNet/IP port for a 1769-L32E or 1769-L35E controller
- 1769 CompactBus
- 1769 local adapter

IMPORTANT

After the EDS files are installed, versions of RSLinx previous to those listed in Table 12 (i.e., 2.43 or greater for the 1769-L35CR controller and 2.42 or greater for the 1769-L31, 1769-L32E and 1769-L35E controllers), do not fully support the CompactLogix controllers.

To make sure your CompactLogix controller uses the full software support of RSLinx, use the versions listed in Table 12.

All of these EDS files, except for the 1769 CompactBus file, are updated for each firmware major revision. There is also a revision 1 of the EDS files that you need for new controllers. Each controller ships with revision 1 firmware. In order to update the firmware, you must have these revision 1 EDS files installed:

- 0001000E00410100.eds for the controller
- 0001000C00A00100.eds for the ControlNet port
- 0001000C00780100.eds for the EtherNet/IP port

The EDS files are available on the CD for RSLogix 5000 Enterprise Series software, version 13. The files are also available at:

http://www.ab.com/networks/eds.

Loading Controller Firmware

The controller ships without working firmware. You must download the current firmware before you can use the controller. The firmware for all CompactLogix controllers is available on the website and on the RSLogix 5000 CD. To load firmware, you can use:

- ControlFlash utility that ships with RSLogix 5000 programming software.
- AutoFlash that launches through RSLogix 5000 software when you try to open or create a project and the controller does not have the current firmware.
- a 1784-CF64 CompactFlash card with valid memory already loaded.

See the controller installation instructions for more information about using these utilities to load firmware.

- If you load firmware via an EtherNet/IP connection, browse through the Ethernet port, across the virtual backplane, and select the 1769-L32E, -L35E controller.
- If you load firmware via a ControlNet connection, browse through the ControlNet port, across the virtual backplane, and select the 1769-L35CR controller.

Additional Memory Requirements

Revision 13.0 or later *may* require more memory than previous revisions (e.g., 10.x, 11.x). To estimate the additional memory that your project *may* require, use the Table 13:

Table 13

If you have this firmware revision (add *all* that apply):	**Then add the following memory requirements to your project:**		
	Component		**Increase per instance**
12.x or earlier	I/O module with a comm format = *Rack Optimization*		90 bytes
	I/O module with a comm format = something other than *Rack Optimization* (i.e., direct connection)		144 bytes
	CompactLogix 1769 I/O module		170 bytes
	bridge module with a comm format = *None*		160 bytes
	bridge module with a comm format = *Rack Optimization*		220 bytes
11.x or earlier	tag that uses the MOTION_INSTRUCTION data type		4 bytes
	tag for an axis		
	If the data type is:	**And the tag is:**	
	AXIS_VIRTUAL	produced for another controller	264 bytes
		not produced for another controller	264 bytes
	output cam execution targets		648 bytes
	user-defined data type: • number of user-defined data types in the controller organizer ⇒ Data Types folder ⇒ User-Defined folder • *not* the use of that data type in tags		128 bytes
	indirect address (using a tag as the subscript for an array in an instruction, e.g., Array_A[Tag_B]). This memory change applies *only* if the array: • uses a structure as its data type • does *not* use one of these data types: CONTROL, COUNTER, PID, or TIMER • has only one dimension (e.g., UDT_1[5])		(-60 bytes)
10.x or earlier	programs		12 bytes
	routines		16 bytes

Hold Last State and User-Defined Safe State Not Supported

When 1769 Compact I/O modules are used as local I/O modules in a CompactLogix system, the local I/O modules do not support the Hold Last State or User-Defined Safe State features, even though you can configure these options in the programming software.

- If a local I/O module fails such that its communication to the controller is lost, or if any module is disconnected from the system bus while under power, the controller will go into the fault mode. All outputs turn off when the system bus or any module faults.

- RSLogix 5000 software creates tags for modules when you add them to the I/O configuration. The 1769 module tags define configuration (C) data type members which may include attributes for alternate outputs. CompactLogix does not enable local modules to use the alternate outputs. Do not configure the attributes listed below:

For digital output modules:	For analog output modules:
• ProgToFaultEn • ProgMode • ProgValue • FaultMode • FaultValue	• CH*x*ProgToFaultEn • CH*x*ProgMode • CH*x*FaultMode • where CHx = the channel number

Any 1769 Compact I/O modules used as remote I/O modules in a CompactLogix system do support the Hold Last State and User-Defined Safe State features.

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