CompactLogix Controllers Revision 12

Catalog Numbers 1769-L20, 1769-L30, 1769-L35E

These release notes correspond to:

CompactLogix controller:	Firmware revision:
1769-L35E	Major revision 12 minor revision 38
1769-L20, -L30	Major revision 12, minor revision 16

Use this firmware release with:

Product:	Compatible version:
RSLogix 5000 programming software	12.01 (upgrading to 12.02 recommended)
RSLinx software	2.42

These release notes provide this information:

(1) You must verify backplane memory use to make sure that the controller can support the proposed system.

Publication 1769-RN006F-EN-E - October 2004

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 contains the enhancements listed in Table 1:

Table 1 Enhancements

Enhancement:	Description:
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 The trigger can be an EVENT instruction.
Cache Up to 32 Connections	This revision lets you cache up to 32 connections, regardless of the type of Message (MSG) instruction (block transfer, etc.). *Previous* revisions let you cache up to 16 connections for block-transfer MSGs and 16 connections for other types of MSGs.
Support for 1769-L35E	This revision lets you use the 1769-L35E CompactLogix controller.

Changes

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

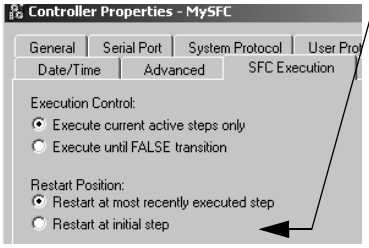
CompactLogix 1769-L35E Rev. 12.28
CompactLogix 1769-L20, -L30 Rev. 12.16

Table 2 Changes

<table>
<tr><th>Change:</th><th>Description:</th></tr>
<tr><td>Out-of-range subscript no longer produces a fault during prescan</td><td>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.</td></tr>
<tr><td>Wind Up High and Low of an Enhanced PID (PIDE) function block act differently</td><td>In the enhanced PID (PIDE) function block instruction, the wind up inputs now produce the following response from the instruction:
<table>
<tr><th>If this input is on (1):</th><th>Old response:</th><th>New response:</th></tr>
<tr><td>WindupHIn</td><td>output could not increase</td><td>output can not integrate in a positive direction</td></tr>
<tr><td>WindupLIn</td><td>output could not decrease</td><td>output can not integrate in a negative direction</td></tr>
</table></td></tr>
<tr><td>Improvements in how an SFC restarts after its execution is aborted</td><td>This revision provides better handling of situations where the execution of a sequential function chart (SFC) was aborted due:

• loss of power
• controller entered the faulted mode (flashing red OK LED)

Regardless of this setting, the SFC always restarts at the initial step after a change from faulted mode (flashing red OK LED) to run/remote run mode.</td></tr>
<tr><td>Zero Max. Decel, produces error</td><td>If you execute a motion instruction on an axis whose maximum deceleration = 0, the instruction errors and returns an error code = 54.

Important: By default, the maximum deceleration of a virtual axis = 0.</td></tr>
</table>

Corrected Anomalies

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

CompactLogix 1769-L35E Rev. 12.38

Table 3 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-L35E Rev. 12.37

Table 4 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.
In SFCs Configured for Auto Reset, Stored Actions Were Not Properly Postscanned	When an SFC was configured for Automatic Reset and an Action uses a stored qualifier (S, SD, SL, DS), when a reset action (R qualifier) executed, the action that was being reset would not be postscanned. Lgx00047407

CompactLogix 1769-L35E Rev. 12.32

CompactLogix 1769-L20, -L30 Rev. 12.16

Table 5 Corrected Anomalies

Anomaly:	Description:
Backplane-generated faults on 1769-L35E controllers held outputs in last state rather than turning all outputs off.	With a 1769-L35E controller, 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-L35E Rev. 12.28

CompactLogix 1769-L20, -L30 Rev. 12.16

Table 6 Corrected Anomalies

Anomaly:	Description:
Power-up and restore from CompactFlash caused a non-recoverable fault.	A power-up from corrupt memory (e.g., due to a missing battery) and restore from CompactFlash could cause a non-recoverable fault in the controller after several minutes of power on time. You could then cycle power to the controller (to clear the non-recoverable fault) and the controller would behave normally. This release corrects this anomaly so that the restore from the CompactFlash works as expected.
Communication problems existed between a 1769-L35E controller and a 1734-AENT with I/O modules that had slot numbers greater than 31.	The 1769-L35E controller received connection timeout errors if there were 1734 I/O modules with slot numbers greater than 31. The virtual backplane was updated to accept slot numbers greater than 31.

Frequent access of memory statistics produced non-recoverable fault	The following *combination* of circumstances produced a non-recoverable fault (solid red OK LED):
	• Any of the following attributes were frequently read from the controller:
	  • largest contiguous block of additional free logic memory
	  • largest contiguous block of free I/O memory
	  • largest contiguous block of free data and logic memory
	• Other Message (MSG) instructions were executing.
	When the controller experiences a non-recoverable fault, it clears the project from memory.

Table 6 Corrected Anomalies

<table>
<tr><th>Anomaly:</th><th>Description:</th></tr>
<tr><td>During postscan a RET instruction might have returned unexpected values</td><td>During postscan, a Return (RET) instruction continued to pass return parameters. Under the following combination of circumstances, this might have produced unexpected values.

1. In a sequential function chart (SFC), multiple elements called the same subroutine at the same time and went inactive at the same time (e.g., an action called a subroutine several times, several paths of a simultaneous branch called the same subroutine).
2. The subroutine manipulated tag values and returned the values to the SFC via a RET instruction.
3. The SFC Execution—Last Scan of Active Steps option = Automatic Reset.

With the Automatic Reset option, the controller postcans the logic and subroutines of an SFC action when the action goes from active to inactive.

• If the SFC calls the subroutine multiple times, the controller postscans the subroutine multiple times.
• During postscan, the logic might not manipulate tag values. As a general rule, the postscan executes instructions as if all conditions are false.
• Without the manipulation of the values, the RET instruction returned the same value during each postscan. The values were left over from the last normal scan of the subroutine.

With this revision, a RET instruction no longer passes return parameters during postscan.</td></tr>
<tr><td>Controller ran out of memory for new tags</td><td>When memory that was previously used for logic, trends, or RSLinx DDE/OPC communication was freed up, the memory was no longer available for the creation of new tags. For example, stopping a trend frees up memory. But that memory was only available for new logic or trends. If the controller executed a significant number of trends, it no longer had any memory for new tags.</td></tr>
<tr><td>Controller fault handler or power-up handler produced unexpected operations</td><td>Under the following sequence of events, the controller might have produced unexpected operation:

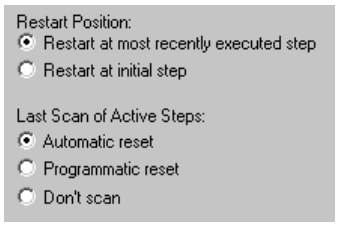
1. A project contained a program in either its Controller Fault Handler or Power-Up Handler.
2. The project was downloaded to the controller and executed (controller placed in run mode).
3. The project was taken offline and modified.
4. The offline project was re-downloaded to the controller, but the controller was left in program mode.
5. Either of the following occurred

<table>
<tr><th>Situation:</th><th>Actions:</th></tr>
<tr><td>Situation A</td><td>A. The project was stored to nonvolatile memory.
B. The controller was placed in run mode.
C. The project was loaded into the controller from nonvolatile memory.</td></tr>
<tr><td>Situation B</td><td>Power to the controller turned off and then turned back on.</td></tr>
</table>

In most instances, this produced a non-recoverable fault. When the controller experiences a non-recoverable fault, it clears the project from memory.</td></tr>
</table>

Table 6 Corrected Anomalies

<table>
<tr><th>Anomaly:</th><th>Description:</th></tr>
<tr><td>Enhanced PID (PIDE) function block did not integrate when the output saturated</td><td>The enhanced PID (PIDE) function block instruction did not integrate whenever the output saturated at 0%, 100%, or a user-specified limit. This anomaly was only present in earlier revisions of the 12.x of firmware.

The PIDE instruction is now integrates as follows:
<table><tr><th>If the output is at:</th><th>It integrates in a:</th></tr><tr><td>low output limit</td><td>positive direction</td></tr><tr><td>high output limit</td><td>negative direction</td></tr></table></td></tr>
<tr><td>Resetting an SFC produced a non-recoverable fault</td><td>The following combination of circumstances produced a non-recoverable fault (solid red OK LED):
An SFC called another SFC (SFC subroutine).
The SFC subroutine contained a simultaneous branch.
While the last step of the simultaneous branch in the SFC subroutine was executing, an SFC Reset (SFR) instruction reset the calling SFC.
SFC execution for the project was configured as follows: 
When the controller experiences a non-recoverable fault, it clears the project from memory.</td></tr>
<tr><td>PIDE function block failed to execute properly after import</td><td>If you imported a project from a previous revision, the enhanced PID (PIDE) function block instruction might have failed to correctly set the rate-of-change alarms for the process variable (PVROCPosAlarm, PVROCNegAlarm).

Under the following combination of circumstance, the enhanced PID (PIDE) function block instruction might have failed to update the control variable:
Timing mode = oversample mode
Logic toggled the EnableIn bit.
You imported the project from a previous revision.</td></tr>
<tr><td>ASCII Read and Write instructions produced non-recoverable fault</td><td>In some instances, ASCII Read (ARD, ARL) or ASCII Write (AWA, AWT) instructions produced a non-recoverable fault (solid red OK LED). This occurred because the controller failed to schedule internal, firmware tasks.

When the controller experiences a non-recoverable fault, it clears the project from memory.</td></tr>
</table>

CompactLogix 1769-L35E Rev. 12.26
CompactLogix 1769-L20, -L30 Rev. 12.14

Table 7 Corrected Anomalies

Anomaly:	Description:
LDL2 instruction produced inaccurate coefficients or non-recoverable fault	A Second-Order Lead Lag (LDL2) instruction might have produced the following when certain input parameters were = 0: • inaccurate internal coefficients • non-recoverable fault (solid red OK LED) Logix00036816
Wrong error message for too many connections	Firmware revisions 10.x erroneously lets you exceed 250 connections for the controller. If you update the project to a later revision, you will be unable to download the project. • In firmware revision 11.x, the error message for this situation was not useful in diagnosing the situation. • This revision provides a more meaningful error message. Logix00033501
Array subscript that was out of range produced non-recoverable fault	Under the following *combination* of circumstances, an array subscript produced a non-recoverable fault (solid red OK LED): • A CMP, CPT, FAL, or FSC instruction operated on an array. • A tag identified the subscript of the array (indirect address). • The indirect address used an expression to calculate the value for the array subscript. • The indirect address produced a subscript that was too large for the array. (This produced a major fault.) • The controller contained a fault routine that tried to clear the major fault. When the controller experiences a non-recoverable fault, it clears the project from memory. Logix00038663
S-Curve (SCRV) function block failed to act as a ramp	If the (JerkRate * DeltaT) ≥ AccelRate or DecelRate, the instruction failed to function as a ramp. Logix00029955
Enhanced PID (PIDE) function block failed to clamp control variable	When ZCOff = 0 and the error value crossed zero and remained within the ZCDeadband range, ZCDeadbandOn failed to remain =1. This prevented the instruction from clamping the control variable. Logix00030777
Enhanced PID (PIDE) function block failed to keep control variable at saturation	When a PIDE instruction drove the control variable to one of its limits (saturation), the instruction failed to keep the control variable at saturation long enough. • As soon as the process variable began to change, the PIDE instruction let the control variable leave its limit. • With this revision, the PIDE instruction more accurately keeps the control variable at its full output. Logix00036344
IP bit incorrectly indicated the status of a pending cam	If you waited too long to pend the next cam: • The IP bits of both the current cam and the pending cam were left on. • Neither cam was active. With this revision: • The IP bit of the current cam turns off and the PC bit turns on. • The pending cam is left pending. Logix00037666

Known Anomalies

The known anomalies are organized by the firmware revision in which they are known to exist.

CompactLogix 1769-L20, -L30 Rev. 12.16

Table 8 Known Anomalies

Anomaly:	Description:
In SFCs Configured for Auto Reset, Stored Actions Are Not Properly Postscanned	When an SFC is configured for Automatic Reset and an Action uses a stored qualifier (S, SD, SL, DS), when a reset action (R qualifier) executes, the action that is being reset is not postscanned. Lgx00047407

1769-L35E Restrictions

When using a 1769-L35E controller, consider these restrictions:

Table 9 1769-L35E Restrictions

Restriction:	Description:
Controller only supports 25 connections	Over EtherNet/IP, the controller supports only 25 connections. Future controller revisions will increase this limitation to the originally planned 32 connections.
Power down banks of local I/O with the main bank	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.
CompactFlash card setting may cause 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 CompactFlash card structure	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 might not be able to support 4000 packets/second	In general, the 1769-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. When the Ethernet Port is heavily loaded, a MSG instruction in the associated controller might report a random error code instead of the correct error code that the MSG is not able to be sent. If you encounter a message error code that is not defined in the CIP error code table you should reduce the amount of traffic across the Ethernet Port in an attempt to rectify the error condition.

Installing EDS Files

If you are using RSLinx version 2.41.00, there are several EDS files that you must install before programming the controller through RSLogix 5000 programming software. With newer versions of RSLinx, this is not necessary. See the next page for the EDS files appropriate for each CompactLogix controller.

To install the EDS files:

1. Locate the appropriate EDS files. EDS files are available at either of the following locations:

   - RSLogix 5000 software CD
   - http://www.ab.com/networks/eds – Each EDS file has a specific location on the web. To find the URL addresses for each EDS file, see Table 10 on page 11.

2. Copy all the files to a temporary subdirectory on your hard drive.

3. Use the EDS Hardware Installation tool to install the EDS files. This tool is installed with RSLinx software under the RSLinx Tools directory. It is also installed with RSLogix 5000 software under the Utils directory.
   a. Shutdown all applications that use RSLinx.
   b. Shutdown RSLinx.
   c. Start the EDS Hardware Installation Tool by selecting: **Start->Programs->Rockwell Software->Tools->EDS Hardware Installation Tool.**
   d. Follow the on-screen instructions. Make sure to select **Register a directory of EDS files** and point to the directory you saved all the above EDS files.

EDS files for the 1769-L35E controller

Table 10

For:	Download this file:
1769-L35E controller	• 0001000E00410100.eds at: http://www.ab.com/networks/eds/XX/0001000E00410100.eds • 0001000E00410C00.eds at: http://www.ab.com/networks/eds/XX/0001000E00410C00.eds
1769-L35E Ethernet port	• 0001000C00780100.eds at: http://www.ab.com/networks/eds/EN/0001000C00780100.eds • 0001000C00780C00.eds at: http://www.ab.com/networks/eds/EN/0001000C00780C00.eds
1769 CompactBus	• 0001006C005B0100.eds at: http://www.ab.com/networks/eds/XX/0001006C005B0100.eds
1769 local adapter	• 0001000C00470C00.eds at: http://www.ab.com/networks/eds/XX/0001000C00470C00.eds
1769-SDN	• 0001000C00690200.eds at: http://www.ab.com/networks/eds/DN/0001000C00690200.eds

IMPORTANT All of these EDS files are required for the 1769-L35E system to operate correctly.

EDS files for the 1769-L20, -L30 controllers

Table 11

For:	Download this file:
1769-L20 controller	• 0001000E002B0100.eds at http://www.ab.com/networks/eds/XX/0001000E002B0100.eds • 0001000E002B0C00.eds at http://www.ab.com/networks/eds/XX/0001000E002B0C00.eds
1769-L30 controller	• 0001000E002C0100.eds at http://www.ab.com/networks/eds/XX/0001000E002C0100.eds • 0001000E002C0C00.eds at http://www.ab.com/networks/eds/XX/0001000E002C0C00.eds
1769 local adapter	• 0001000C00470C00.eds at: http://www.ab.com/networks/eds/XX/0001000C00470C00.eds

Loading Controller Firmware

The controller ships without working firmware. You must download the current firmware before you can use the controller. Initially, the 1769-L35E firmware is only available on the support website. The 1769-L20, -L30 firmware 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 (only supported by the 1769-L35E controller).

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-L35E controller.

Loading 1769-SDN Firmware

If you are using a 1769-L35E controller and a 1769-SDN scanner for DeviceNet communications and want to take advantage of the new explicit messaging feature, you must also upgrade the scanner's firmware to revision 2.2 or later. The updated firmware is available with RSLogix 5000 software or you can download it from the support website. Use the ControlFlash utility (as described above) to load the firmware.

You must use a DeviceNet connection to update the 1769-SDN firmware to revision 2.2. After the firmware is updated to revision 2.2, subsequent updates to the 1769-SDN firmware can be initiated via a controller backplane connection.

Additional Memory Requirements

Revision 12.x *may* require more memory than previous revisions (e.g., 10.x, 11.x). To estimate the additional memory that your project *may* require, use Table 12:

Table 12

If you have this firmware revision (add *all* that apply):	Then add the following memory requirements to your project:			
	Component			**Increase per instance**
11.x or earlier	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
9.x or earlier	tag that uses the MESSAGE data type			376 bytes
7.x or earlier	project			1050 bytes
	tags			0.55 bytes
	messages that: • transfer more than 500 bytes of data • target a controller in the same chassis This memory is allocated only when the MSG instruction is enabled. To estimate, count the number of these messages that are enabled and/or cached at one time.			2000 bytes
6.x or earlier	base tags			24 bytes
	alias tags			16 bytes
	produced and consumed tags	**Data type**	**Bytes per tag**	
		DINT	4	12 bytes
		REAL	4	12 bytes
				3 x bytes/tag
				3 x bytes/tag
6.x	routines			68 bytes
5.x or earlier	routines			116 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.

1769-L20, 1769-L30 Controllers Only Verify I/O Layout by Adding Words of Backplane Memory Used

Each module in a CompactLogix system uses a set amount of backplane memory, in addition to the data that the module stores or transfers. Some modules require a considerable amount of backplane memory. Take this into account when designing your system because it affects how many modules a controller can support. Each CompactLogix controller supports 256, 16-bit words of backplane data. Table 13 shows how many backplane words each module uses:

Table 13

Catalog number:	Number of modules:	Number of words used:	Total number:
1769-IA8I		8	
1769-IA16		8	
1769-IM12		8	
1769-IQ16		8	
1769-IQ6XOW4		12	
1769-OA8		12	
1769-OA16		12	
1769-OB16		12	
1769-OB16P		12	
1769-OV16		12	
1769-OW8		12	
1769-OW8I		12	
1769-OW16		12	
1769-IF4		14	
1769-OF2		14	
1769-IF4XOF2		20	
1769-IR6		14	
1769-IT6		16	
1769-HSC		187 (35 words input, 34 words output, 118 words configuration)	
1769-SDN		76 plus total words in scanlist	
system overhead (per controller)		34	34
Total Words Required:[1]			

[1] The total words required cannot exceed 256 words.

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 with a hardware module 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 module up and running:

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

New Product Satisfaction Return

Rockwell tests all of 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:

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

www.rockwellautomation.com

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