

Installation Instructions

1769-L31 CompactLogix Controller

Catalog Number 1769-L31

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Important User Information

Solid state equipment has operational characteristics differing from those of electromechanical equipment. Safety Guidelines for the Application, Installation and Maintenance of Solid State Controls (Publication SGI-1.1 available from your local Rockwell Automation sales office or online at <http://literature.rockwellautomation.com>) describes some important differences between solid state equipment and hard-wired electromechanical devices. Because of this difference, and also because of the wide variety of uses for solid state equipment, all persons responsible for applying this equipment must satisfy themselves that each intended application of this equipment is acceptable.





In no event will Rockwell Automation, Inc. be responsible or liable for indirect or consequential damages resulting from the use or application of this equipment.

The examples and diagrams in this manual are included solely for illustrative purposes. Because of the many variables and requirements associated with any particular installation, Rockwell Automation, Inc. cannot assume responsibility or liability for actual use based on the examples and diagrams.

No patent liability is assumed by Rockwell Automation, Inc. with respect to use of information, circuits, equipment, or software described in this manual.

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Throughout this manual, when necessary, we use notes to make you aware of safety considerations.

WARNING 	Identifies information about practices or circumstances that can cause an explosion in a hazardous environment, which may lead to personal injury or death, property damage, or economic loss.
IMPORTANT	Identifies information that is critical for successful application and understanding of the product.
ATTENTION 	Identifies information about practices or circumstances that can lead to personal injury or death, property damage, or economic loss. Attentions help you identify a hazard, avoid a hazard and recognize the consequences.
SHOCK HAZARD 	Labels may be on or inside the equipment (for example, drive or motor) to alert people that dangerous voltage may be present.
BURN HAZARD 	Labels may be on or inside the equipment (for example, drive or motor) to alert people that surfaces may reach dangerous temperatures.

Environment and Enclosure Information

ATTENTION

This equipment is intended for use in a Pollution Degree 2 industrial environment, in overvoltage Category II applications (as defined in IEC publication 60664-1), at altitudes up to 2000 meters (6562 feet) without derating.

This equipment is considered Group 1, Class A industrial equipment according to IEC/CISPR Publication 11. Without appropriate precautions, there may be potential difficulties ensuring electromagnetic compatibility in other environments due to conducted as well as radiated disturbance.

This equipment is supplied as open-type equipment. It must be mounted within an enclosure that is suitably designed for those specific environmental conditions that will be present and appropriately designed to prevent personal injury resulting from accessibility to live parts. The enclosure must have suitable flame-retardant properties to prevent or minimize the spread of flame, complying with a flame spread rating of 5VA, V2, V1, V0 (or equivalent) if non-metallic. The interior of the enclosure must be accessible only by the use of a tool. Subsequent sections of this publication may contain additional information regarding specific enclosure type ratings that are required to comply with certain product safety certifications.

In addition to this publication, see:

- Industrial Automation Wiring and Grounding Guidelines, publication [1770-4.1](#) for additional installation requirements
- NEMA Standards publication 250 and IEC publication 60529, as applicable, for explanations of the degrees of protection provided by different types of enclosure.

Prevent Electrostatic Discharge

ATTENTION



This equipment is sensitive to electrostatic discharge, which can cause internal damage and affect normal operation. Follow these guidelines when you handle this equipment:

- Touch a grounded object to discharge potential static.
 - Wear an approved grounding wriststrap.
 - Do not touch connectors or pins on component boards.
 - Do not touch circuit components inside the equipment.
 - Use a static-safe workstation, if available.
 - Store the equipment in appropriate static-safe packaging when not in use.
-

ATTENTION



This product is grounded through the DIN rail to chassis ground. Use zinc plated yellow-chromate steel DIN rail to assure proper grounding. The use of other DIN rail materials (for example, aluminum or plastic) that can corrode, oxidize, or are poor conductors, can result in improper or intermittent grounding. Secure DIN rail to mounting surface approximately every 200 mm (7.8 in.) and use end-anchors appropriately.

WARNING



If you insert or remove the module while backplane power is on, an electrical arc can occur. This could cause an explosion in hazardous location installations.

Be sure that power is removed or the area is nonhazardous before proceeding.

WARNING



When you connect or disconnect the battery an electrical arc can occur. This could cause an explosion in hazardous location installations. Be sure that the area is nonhazardous before proceeding.

For Safety information on the handling of lithium batteries, including handling and disposal of leaking batteries, see Guidelines for Handling Lithium Batteries, publication [AG 5-4](#)

WARNING



If you connect or disconnect the serial cable with power applied to this module or the serial device on the other end of the cable, an electrical arc can occur. This could cause an explosion in hazardous location installations.



Be sure that power is removed or the area is nonhazardous before proceeding.

WARNING

When you insert or remove the CompactFlash Card while power is on, an electrical arc can occur. This could cause an explosion in hazardous location installations.

Be sure that power is removed or the area is nonhazardous before proceeding.

North American Hazardous Location Approval

The following information applies when operating this equipment in hazardous locations.	Informations sur l'utilisation de cet équipement en environnements dangereux.
<p>Products marked "CL I, DIV 2, GP A, B, C, D" are suitable for use in Class I Division 2 Groups A, B, C, D, Hazardous Locations and nonhazardous locations only. Each product is supplied with markings on the rating nameplate indicating the hazardous location temperature code. When combining products within a system, the most adverse temperature code (lowest "T" number) may be used to help determine the overall temperature code of the system. Combinations of equipment in your system are subject to investigation by the local Authority Having Jurisdiction at the time of installation.</p>	<p>Les produits marqués "CL I, DIV 2, GP A, B, C, D" ne conviennent qu'à une utilisation en environnements de Classe I Division 2 Groupes A, B, C, D dangereux et non dangereux. Chaque produit est livré avec des marquages sur sa plaque d'identification qui indiquent le code de température pour les environnements dangereux. Lorsque plusieurs produits sont combinés dans un système, le code de température le plus défavorable (code de température le plus faible) peut être utilisé pour déterminer le code de température global du système. Les combinaisons d'équipements dans le système sont sujettes à inspection par les autorités locales qualifiées au moment de l'installation.</p>
<p>WARNING</p> 	<p>EXPLOSION HAZARD -</p> <ul style="list-style-type: none"> • Do not disconnect equipment unless power has been removed or the area is known to be nonhazardous. • Do not disconnect connections to this equipment unless power has been removed or the area is known to be nonhazardous. Secure any external connections that mate to this equipment by using screws, sliding latches, threaded connectors, or other means provided with this product. • Substitution of components may impair suitability for Class I, Division 2. • If this product contains batteries, they must only be changed in an area known to be nonhazardous.
<p>AVERTISSEMENT</p> 	<p>RISQUE D'EXPLOSION -</p> <ul style="list-style-type: none"> • Couper le courant ou s'assurer que l'environnement est classé non dangereux avant de débrancher l'équipement. • Couper le courant ou s'assurer que l'environnement est classé non dangereux avant de débrancher les connecteurs. Fixer tous les connecteurs externes reliés à cet équipement à l'aide de vis, loquets coulissants, connecteurs filetés ou autres moyens fournis avec ce produit. • La substitution de composants peut rendre cet équipement inadapté à une utilisation en environnement de Classe I, Division 2. • S'assurer que l'environnement est classé non dangereux avant de changer les piles.

Before You Begin

Use this document as a guide for installing the controller.



Consider the following when planning your CompactLogix system:

- The CompactLogix controller is always the leftmost module in the system.
- The controller must be located within four modules of the system power supply. Some I/O modules may be located up to eight modules away from the power supply. See the documentation for your 1769 I/O modules for details.
- The 1769-L31 controller supports as many as 16 I/O modules in a maximum of 3 I/O banks with 2 expansion cables.
- Each I/O bank requires its own power supply.
- Only one controller can be used in a CompactLogix system.
- A 1769-ECR right end cap or 1769-ECL left end cap is required to terminate the end of the communication bus.

These components ship with the controller.

IMPORTANT

The 1769-BA battery is the only battery you can use with the 1769-L31 controller.

Component	Description
	1769-BA battery
	1747-KY controller key

You can also use these components with the controller:

- 1756-CP3 or 1747-CP3 serial cable to connect a device to the RS-232 port
- 1784-CF64 or 1784-CF128 industrial CompactFlash card to add nonvolatile memory

Connect the 1769-BA Battery

The controller is shipped with the 1769-BA battery packed separately. To connect the battery, follow this procedure.

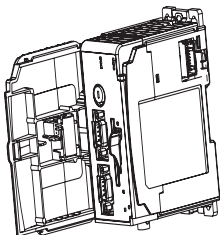
ATTENTION

The 1769-BA battery is the only battery you can use with the 1769-L31 controllers. The 1747-BA battery is not compatible with the 1769-L31 controllers and can cause problems.

WARNING

When you connect or disconnect the battery, an electrical arc can occur. This could cause an explosion in hazardous location installations. Be sure that power is removed or the area is nonhazardous before proceeding. For safety information on the handling of lithium batteries, including handling and disposal of leaking batteries, see Guidelines for Handling Lithium Batteries Technical Data, publication [AG-5.4](#).

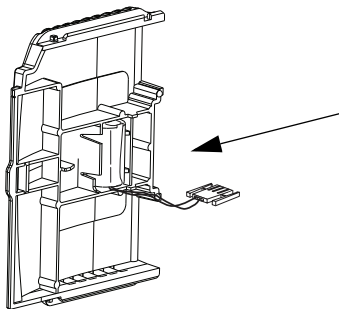
1. Remove the battery door by sliding it forward.

**IMPORTANT**

Do not remove the plastic insulation covering the battery. The insulation is necessary to protect the battery contacts.

2. Insert the battery connector into the black receptacle on the board.
The connector is keyed for installation with the correct polarity.

3. Insert the battery into the door, as shown.



4. Slide the battery door back until it clicks into position.

Install a 1784-CF64 or 1784-CF128 Industrial CompactFlash Card (optional)

ATTENTION

Do not remove the CompactFlash card while the controller is reading from or writing to the card, as indicated by a flashing green CF status indicator. This could corrupt the data on the card or in the controller, as well as corrupt the latest firmware in the controller.

The optional industrial CompactFlash card provides nonvolatile memory for a CompactLogix controller. The card is not required for controller operation.

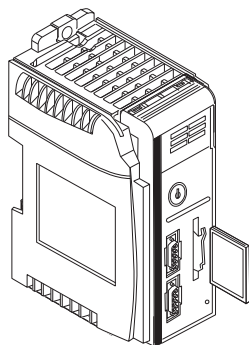
Follow this procedure to install the card.

WARNING

When you insert or remove the CompactFlash Card while power is on, an electrical arc can occur. This could cause an explosion in hazardous location installations.
Be sure that power is removed or the area is nonhazardous before proceeding.

1. Push the locking tab to the right.

2. Insert the industrial CompactFlash card into the socket on the front of the controller, noting that the label of the CompactFlash card faces toward the left.
3. Match the orientation arrow on the card with the arrow on the front of the controller.
4. To remove the CompactFlash card, push the locking tab away from the CompactFlash card and pull the CompactFlash card from the socket.



Assemble the System

The controller can be attached to an adjacent I/O module or power supply before or after mounting.

This procedure shows you how to install the controller in a CompactLogix system.

WARNING

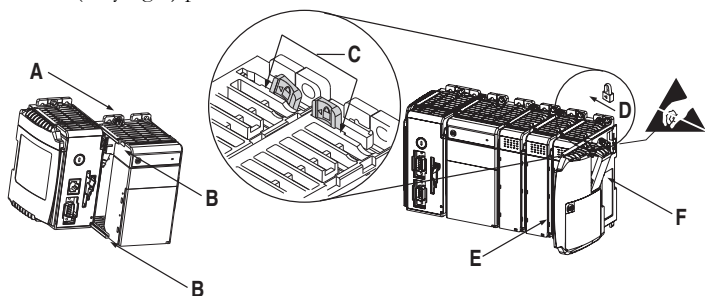
The CompactLogix controller is not designed for removal and insertion under power.

If you insert or remove the module while backplane power is on, an electrical arc can occur. This could cause an explosion in hazardous location installations.

Be sure that power is removed or the area is nonhazardous before proceeding.

1. Disconnect line power.

2. Check that the lever of the adjacent module (A) is in the unlocked (fully right) position.



3. Use the upper and lower tongue-and-groove slots (B) to secure the modules together.
4. Move the module back along the tongue-and-groove slots until the bus connectors line up with each other.
5. Use your fingers or a small screwdriver to push the module's bus lever back slightly to clear the positioning tab (C).
6. Move the module's bus lever fully to the left (D) until it clicks, being sure it is locked firmly in place.

ATTENTION



When attaching the controller, power supply, and I/O modules, make sure the bus connectors are securely locked together to be sure of proper electrical connection.

7. Attach an end cap terminator (E) to the last module in the system by using the tongue-and-groove slots as before.
8. Lock the end cap bus terminator (F).

Mount the System

Maintain spacing from enclosure walls, wireways, and adjacent equipment. Allow 50 mm (2 in.) of space on all sides, as shown. This provides ventilation and electrical isolation. Dimensions are in mm (in.) in the figure.

ATTENTION



When attaching the controller, power supply, and I/O modules, make sure the bus connectors are securely locked together to be sure of proper electrical connection.

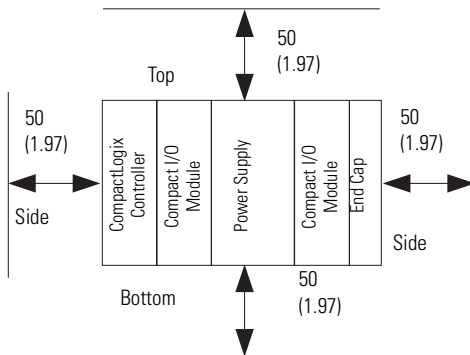
IMPORTANT

When mounting the CompactLogix system, either use screws to panel mount system or use DIN rail. Do **not** use both. Use of both mounting methods may cause hardware damage and cause the system to fail.

ATTENTION

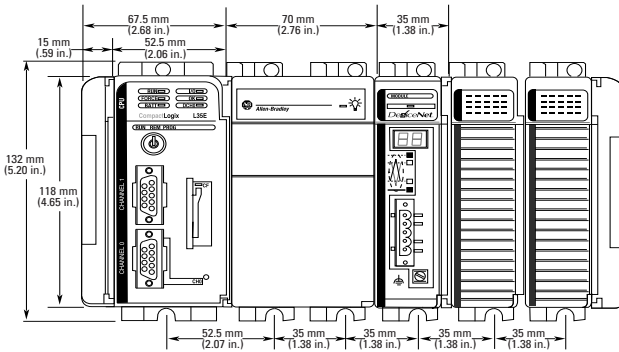


During panel or DIN rail mounting of all devices, be sure that all debris (such as metal chips or wire strands) is kept from falling into the controller. Debris that falls into the controller could cause damage while the controller is energized.



Product Dimensions

Dimensions are in mm (in.) in the figure. Hole spacing tolerance is ± 0.4 mm (0.016 in.)



IMPORTANT

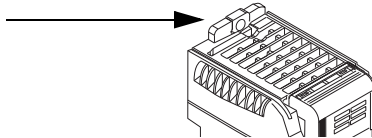
Compact I/O expansion cables have the same dimensions as the end caps. Expansion cables can be used on either the right or left end. A 1769-ECR right end cap or 1769-ECL left end cap terminates the end of the communication bus.

Panel Mounting

Mount the controller to a panel by using two screws per module. Use M4 or #8 panhead screws. Mounting screws are required on every module.

IMPORTANT

The grounding tab, located where you install the mounting screws, enables the module to be grounded when it is panel-mounted.



This procedure lets you use the assembled modules as a template for drilling holes in the panel. Due to module mounting hole tolerance, it is important to follow these procedures.

1. On a clean work surface, assemble no more than three modules.
2. Using the assembled modules as a template, carefully mark the center of all module-mounting holes on the panel.
3. Return the assembled modules to the clean work surface, including any previously mounted modules.
4. Drill and tap the mounting holes for the recommended M4 or #8 screw.
5. Place the modules back on the panel and check for proper hole alignment.

6. Attach the modules to the panel by using the mounting screws.

IMPORTANT

If mounting more modules, mount only the last one of this group and put the others aside. This reduces remounting time when you are drilling and tapping the next group of modules.

7. Repeat steps 1...6 for any remaining modules.

DIN Rail Mounting

The controller can be mounted on the following DIN rails:

- EN 50 022 - 35 x 7.5 mm (1.38 x 0.30 in.)
- EN 50 022 - 35 x 15 mm (1.38 x 0.59 in.)

Before mounting the controller on a DIN rail, close the DIN rail latches. Press the DIN rail mounting area of the controller against the DIN rail. The latches will momentarily open and lock into place.

ATTENTION



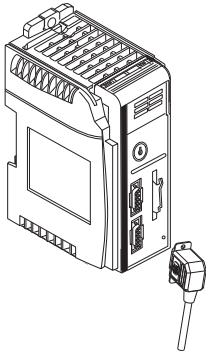
This product is grounded through the DIN rail to chassis ground. Use zinc plated yellow-chromate steel DIN rail to assure proper grounding. The use of other DIN rail materials (for example, aluminum or plastic) that can corrode, oxidize, or are poor conductors, can result in improper or intermittent grounding. Secure DIN rail to mounting surface approximately every 200 mm (7.8 in.) and use end-anchors appropriately.

This product is intended to be mounted to a well-grounded mounting surface such as a metal panel. Additional grounding connections from the controller's grounding tab or DIN rail (if used) are not required unless the mounting surface cannot be grounded.

Refer to Industrial Automation Wiring and Grounding Guidelines, Allen-Bradley, publication [1770-4.1](#) for additional information.

Make RS-232 Connections to the Controller

Connect the 9-pin female end of the serial cable to the serial port of the controller.

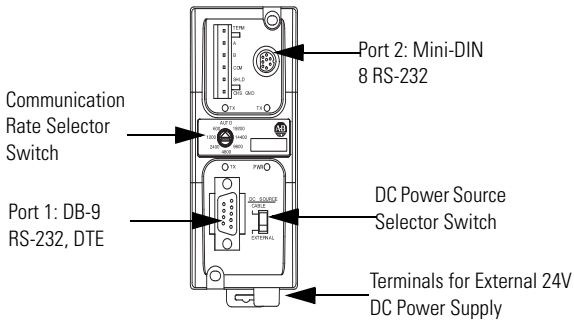
**WARNING**

If you connect or disconnect the serial cable with power applied to this module or the serial device on the other end of the cable, an electrical arc can occur. This could cause an explosion in hazardous location installations. Be sure that power is removed or the area is nonhazardous before proceeding.

Follow this procedure to connect to the serial port.

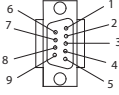

1. Determine whether you need an optical isolator.

Channel 0 is fully isolated and does not need a separate isolation device. Channel 1 is nonisolated. If you connect channel 1 to a device outside of the system's enclosure, consider installing an isolator (such as the 1761-NET-AIC interface converter) between the controller and device.



2. Select the appropriate cable.

Isolator Use	Cable
No	<p>The 1756-CP3 cable attaches the controller directly to the controller.</p> <p>If you make your own cable, it must be shielded and the shields must be tied to the metal shell surrounding the pins on the ends of the cable. You can also use a 1747-CP3 cable. This cable has a taller right-angle connector housing than the 1756-CP3 cable.</p>

Isolator Use	Cable																														
Yes	<p data-bbox="326 226 911 325">The 1761-CBL-AP00 cable (right-angle connector to controller) or the 1761-CBL-PM02 cable (straight connector to the controller) attaches the controller to port 2 on the 1761-NET-AIC isolator. The mini-DIN connector is not commercially available, so you cannot make this cable.</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div data-bbox="440 340 574 446">  </div> <div data-bbox="673 355 751 446">  </div> </div> <p data-bbox="321 446 616 476">DB-9 Right-angle or Straight Cable End</p> <p data-bbox="678 446 885 476">8-pin, Mini-DIN Cable End</p> <table border="1" data-bbox="315 491 839 824"> <thead> <tr> <th>Pin</th> <th>DB-9 End</th> <th>Mini-DIN End</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>DCD</td> <td>DCD</td> </tr> <tr> <td>2</td> <td>RxD</td> <td>RxD</td> </tr> <tr> <td>3</td> <td>TxD</td> <td>TxD</td> </tr> <tr> <td>4</td> <td>DTR</td> <td>DTR</td> </tr> <tr> <td>5</td> <td>Ground</td> <td>Ground</td> </tr> <tr> <td>6</td> <td>DSR</td> <td>DSR</td> </tr> <tr> <td>7</td> <td>RTS</td> <td>RTS</td> </tr> <tr> <td>8</td> <td>CTS</td> <td>CTS</td> </tr> <tr> <td>9</td> <td>N/A</td> <td>N/A</td> </tr> </tbody> </table>	Pin	DB-9 End	Mini-DIN End	1	DCD	DCD	2	RxD	RxD	3	TxD	TxD	4	DTR	DTR	5	Ground	Ground	6	DSR	DSR	7	RTS	RTS	8	CTS	CTS	9	N/A	N/A
Pin	DB-9 End	Mini-DIN End																													
1	DCD	DCD																													
2	RxD	RxD																													
3	TxD	TxD																													
4	DTR	DTR																													
5	Ground	Ground																													
6	DSR	DSR																													
7	RTS	RTS																													
8	CTS	CTS																													
9	N/A	N/A																													

Default Serial Configuration

Channel 0 and Channel 1 (both serial ports) have the following default communication configuration.

Parameter	Default
Protocol	DF1 Full-duplex
Communication Rate	19.2 Kbps
Parity	None
Station Address	0
Control Lines	No Handshaking
Error Detection	BCC
Embedded Responses	Auto Detect

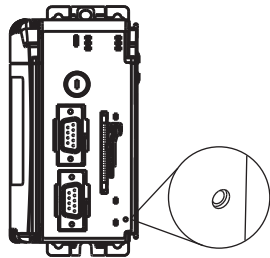
Parameter	Default
Duplicate Packet (Message) Detect	Enabled
ACK Timeout	50 (x 20 ms)
NAK Receive Limit	3 Retries
ENQ Transmit Limit	3 Retries
Data Bits	8
Stop Bits	1

Using the Channel 0 Default Communication Push Button

IMPORTANT

Only Channel 0 has a default communication push button.

The Channel 0 default communication push button is located on the front of the controller in the lower right corner as shown in the illustration. Use the Channel 0 default communication push button to change from the user-defined communication configuration to the default Communication mode. The Channel 0 default communication (DCH0) status indicator turns on (green, steady) to indicate that the default communication configuration is active.



IMPORTANT

The default communication push button is recessed. Before pressing the default communication push button, be sure to note the present communication configuration for Channel 0. Pushing the default communication push button resets all configured parameters back to their default settings.

To return the channel to its user-configured parameters, you must enter them manually while online with the controller or download them as part of an RSLogix 5000 software project file. To do this online with RSLogix 5000 software, access the Controller Properties dialog box and enter parameters on the Serial Port, System Protocol, and User Protocol tabs.

Install the Appropriate EDS Files

If you have RSLinx software, version 2.42 or later, the most current EDS files were installed with the software. If you are using an earlier version of RSLinx software, you might need to install EDS files.

You need EDS files for these devices:

- 1769-L31 controller
- 1769 CompactBus
- 1769 local adapter

All of these EDS files, except for the 1769 CompactBus file, are updated for each firmware revision. There is also a revision 1 of the controller EDS file that you need for new controllers. Each controller ships with revision 1 firmware. In order to update the firmware, you must have the revision 1 EDS file (0001000E00410100.eds) installed for the controller.

The EDS files are available on the RSLogix 5000 Enterprise Series software CD. The files are also available at <http://www.ab.com/networks/eds>.

Load the Controller Firmware

The controller ships without working firmware. You must download the current firmware before you can use the controller.

To load firmware, you can use the following:

- ControlFlash utility that ships with RSLogix 5000 programming software
- AutoFlash utility that launches through RSLogix 5000 software when you try to open or create a project and the controller does not have the current firmware
- CompactFlash card (catalog number 1784-CF64 or 1784-CF128) with valid memory already loaded

If you use the ControlFlash or AutoFlash utilities, you need a serial connection to the controller.

The firmware is available with RSLogix 5000 software or you can download it from the support website at <http://support.rockwellautomation.com>.

Follow these steps to download firmware from the support website.

1. In the left column (frame), click Technical Support.
2. Click Firmware Updates.
3. Select the firmware revision.
4. Enter the serial number of your RSLogix 5000 programming software.

Using the ControlFlash Utility to Load Firmware

You can use the ControlFlash utility to load firmware through a serial connection.

1. Make sure the appropriate network connection is made before starting.
2. Start the ControlFlash utility.
3. From the Welcome dialog box, click Next.
4. Choose the catalog number of the controller, and click Next.
5. Expand the network until you see the controller.

If the required network is not shown, configure a driver for the network in RSLinx software.

6. Choose the controller, and click OK.
7. Choose the revision level to which you want to update the controller, and click Next.
8. To start the update of the controller, click Finish and Yes.
After the controller is updated, the status dialog box displays Update complete.
9. Click OK.
10. To close the ControlFlash utility, click Cancel and Yes.

Using the AutoFlash Utility to Load Firmware

You can use the AutoFlash utility to load firmware through a serial connection.

1. Make sure the appropriate network connection is made before starting.
2. Use RSLogix 5000 programming software to create a controller project.
This automatically launches the AutoFlash utility.
3. Choose the catalog number of the controller, and click Next.
4. Expand the network until you see the controller.
If the required network is not shown, configure a driver for the network in RSLinx software.
5. Choose the controller, and click OK.
6. Choose the revision level to which you want to update the controller, and click Next.
7. To start the update of the controller, click Finish and Yes.
After the controller is updated, the status dialog box displays Update complete.
8. Click OK.
9. To close the AutoFlash utility, click Cancel and Yes.

Using a CompactFlash Card to Load Firmware

If you have an existing controller that is already configured and has firmware loaded, you can store the current controller user program and firmware on the CompactFlash card and use that card to update other controllers.

1. Use RSLogix 5000 software to store the controller user program and firmware of a currently configured controller to the CompactFlash card.
2. From the Controller Properties dialog box, click the Nonvolatile Memory tab.
3. Click Load Image On Powerup when you save to the card.
4. Remove the card and insert it into a controller that will use the same firmware and controller user program.

When you apply power to the second controller, the image stored on the CompactFlash card is loaded into the controller.

Select the Controller's Operating Mode

Use the keyswitch on the front panel of the controller to determine the controller's operating mode.

Keyswitch Position	Description	
RUN	<ul style="list-style-type: none"> •Upload projects. •Run the program and enable outputs. •You cannot create or delete tasks, programs, or routines. You cannot create or delete tags or edit online while the keyswitch is in the RUN position. •You cannot change the mode by using the programming software while the keyswitch is in the RUN position. 	
PROG	<ul style="list-style-type: none"> •Disable outputs. •Upload/download projects. •Create, modify, and delete tasks, programs, or routines. •The controller does not execute (scan) tasks while the keyswitch is in the PROG position. •You cannot change the mode through the programming software while the keyswitch is in the PROG position. 	
REM	<ul style="list-style-type: none"> •Upload/download projects. •Change between Remote Program, Remote Test, and Remote Run modes through the programming software. 	
	Remote Run	<ul style="list-style-type: none"> •The controller executes (scans) tasks. •Enable outputs. •Edit online.
	Remote Program	<ul style="list-style-type: none"> •Disable outputs. •Create, modify, and delete tasks, programs, or routines. •Download projects. •Edit online. •The controller does not execute (scan) tasks.
	Remote Test	<ul style="list-style-type: none"> •Execute tasks with outputs disabled. •Edit online.

Controller Status Indicators

Indicator	Status	Description
RUN	Off	The controller is in Program or Test mode.
	Solid green	The controller is in RUN mode.
FORCE	Off	No tags contain I/O force values. I/O forces are inactive (disabled).
	Solid amber	I/O forces are active (enabled). I/O force values may or may not exist.
	Flashing amber	One or more input or output addresses have been forced to an On or Off state, but the forces have not been enabled.
BAT	Off	The battery supports memory.
	Solid red	Either the battery is: <ul style="list-style-type: none"> • not installed. • 95% discharged and should be replaced.
I/O	Off	Either: <ul style="list-style-type: none"> • there are no devices in the I/O configuration of the controller. • the controller does not contain a project (controller memory is empty).
	Solid green	The controller is communicating with all the devices in its I/O configuration.
	Flashing green	One or more devices in the I/O configuration of the controller are not responding.
	Flashing red	The controller is not communicating to any devices. The controller is faulted.

Indicator	Status	Description
OK	Off	No power is applied.
	Flashing red	If the controller is new, the controller requires a firmware update. If the controller is not new, a major fault occurred. To clear the fault, either: <ul style="list-style-type: none">• turn the keyswitch from Prog to RUN to PROG.• go online with RSLogix 5000 software.
	Solid red	The controller detected a nonrecoverable fault, so it cleared the project from memory. Follow these steps to recover. <ol style="list-style-type: none">1. Cycle power to the chassis.2. Download the project.3. Change to RUN mode. If the OK status indicator remains solid red, contact your Rockwell Automation representative or local distributor.
	Solid green	Controller is OK.
	Flashing green	The controller is storing or loading a project to or from nonvolatile memory.

RS-232 Serial Port Status Indicators (Channel 0 and 1)

Indicator	Status	Description
DCH0	Off	Channel 0 is configured differently than the default serial configuration.
	Solid green	Channel 0 has the default serial configuration.
CH0	Off	No RS-232 activity.
	Flashing green	RS-232 activity.
CH1	Off	No RS-232 activity.
	Flashing green	RS-232 activity.

CompactFlash Card Status Indicator

ATTENTION


Do not remove the CompactFlash card while the controller is reading from or writing to the card, as indicated by a flashing green CF status indicator. This could corrupt the data on the card or in the controller, as well as corrupt the latest firmware in the controller.

Indicator	Status	Description
CF	Off	No activity.
	Flashing green	The controller is reading from or writing to the CompactFlash card.
	Flashing red	CompactFlash card does not have a valid file system.

Specifications

CompactLogix Controller - 1769-L31

Attribute	Value		
Communication ports	<table border="0"> <tr> <td>CH0 - RS-232 RS-232 DF1, DH-485, ASCII fully isolated 38.4 Kbps max</td> <td>CH1 - RS-232 RS-232 DF1, DH-485 nonisolated 38.4 Kbps max</td> </tr> </table>	CH0 - RS-232 RS-232 DF1, DH-485, ASCII fully isolated 38.4 Kbps max	CH1 - RS-232 RS-232 DF1, DH-485 nonisolated 38.4 Kbps max
CH0 - RS-232 RS-232 DF1, DH-485, ASCII fully isolated 38.4 Kbps max	CH1 - RS-232 RS-232 DF1, DH-485 nonisolated 38.4 Kbps max		
User memory	512 KB		
Nonvolatile memory	1784-CF64 or 1784-CF128 CompactFlash card		
Number of I/O modules, max	16 I/O modules		
Number of I/O banks, max	3 banks		
Backplane current	330 mA at 5V DC 40 mA at 24V DC		
Power dissipation	2.61 W		
Power supply distance rating	4 (The controller must be within four slot positions of the power supply.)		
North American temp code	T5		
Battery	1769-BA		
Weight, approx.	0.30 kg (0.66 lb)		
Programming cable	1747-CP3 or 1756-CP3		
Panel mounting screw torque (using M4 or #8 screws)	1.1...1.8 N•m (10...16 lb•in)		
Enclosure type rating	None (open style)		
Wiring category	2 on communication ports ⁽¹⁾		
Isolation voltage	30V (continuous), Basic Insulation Type Type tested at 710V DC for 60 s, RS232 channel 0 to system No isolation between RS232 channel 1 and system		

⁽¹⁾ Use this Conductor Category information for planning conductor routing. See Industrial Automation Wiring and Grounding Guidelines, publication [1770-4.1](#)

Environmental Specifications

Attribute	Value
Operational Temperature IEC 60068-2-1 (Test Ad, Operating Cold) IEC 60068-2-2 (Test Bd, Operating Dry Heat) IEC 60068-2-14 (Test Nb, Operating Thermal Shock)	0...60 °C (32 ...140 °F)
Storage Temperature IEC 60068-2-1 (Test Ab, Unpackaged Nonoperating Cold) IEC 60068-2-2 (Test Bb, Unpackaged Nonoperating Dry Heat) IEC 60068-2-14 (Test Na, Unpackaged Thermal Shock)	-40...85 °C (-40 ...185 °F)
Relative Humidity IEC 60068-2-30 (Test Db, Unpackaged Damp Heat)	5...95% noncondensing
Vibration IEC 60068-2-6 (Test Fc, Operating)	5 g @ 10...500 Hz
Shock IEC 60068-2-27 (Test Ea, Unpackaged Shock) DIN rail mount Panel mount	Operating: 20 g; Nonoperating: 30 g Operating: 30 g; Nonoperating: 40 g
Emissions - CISPR 11	Group 1, Class A
ESD Immunity - IEC61000-4-2	4 kV contact discharges, 8 kV air discharges
Radiated RF Immunity - IEC61000-4-3	10V/m with 1kHz sine-wave 80%AM from 80...2000 MHz 10V/m with 200 Hz 50% Pulse 100%AM at 900 MHz 10V/m with 200 Hz 50% Pulse 100%AM at 1890 MHz
EFT/B Immunity - IEC 61000-4-4	±2 kV at 5 kHz on communication ports
Surge Transient Immunity - IEC61000-4-5	Channel 0: ±2 kV line-earth (CM) on shielded communication ports Channel 1: ±1 kV line-earth (CM) on shielded communication ports
Conducted RF Immunity - IEC61000-4-6	10V rms with 1kHz sine-wave 80% AM from 150 kHz...80 MHz

Certifications

Certifications ⁽¹⁾ (when product is marked)	Value
c-UL-us	UL Listed Industrial Control Equipment, certified for US and Canada. See UL File E65584. UL Listed for Class 1, Division 2 Group A,B,C,D Hazardous Locations, certified for U.S. and Canada. See UL File E194810.
CE	European Union 2004/108/EC EMC Directive, compliant with: <ul style="list-style-type: none"> • EN 61326-1; Meas./Control/Lab., Industrial Requirements • EN 61000-6-2; Industrial Immunity • EN 61000-6-4; Industrial Emissions • EN 61131-2; Programmable Controllers (Clause 8, Zone A & B)
C-Tick	Australian Radio Communications Act, compliant with: <ul style="list-style-type: none"> • AS/NZS CISPR 11; Industrial Emissions

⁽¹⁾ See the Product Certification link at <http://www.ab.com> for Declarations of Conformity, Certificates, and other certification details.

Additional Resources

These documents contain additional information concerning related Rockwell Automation products.

Resource	Description
CompactLogix System User Manual, publication 1769-UM011	Describes planning, mounting, wiring, and troubleshooting your CompactLogix system
Logix5000 Controllers Common Procedures, publication 1756-PM001	Describes developing projects for Logix5000 controllers
Logix5000 Controllers General Instructions Reference Manual, publication 1756-RM003	Describes programming the controller for sequential applications
Logix5000 Controllers Process Control and Drives Instructions Reference Manual, publication 1756-RM006	Describes programming the controller for process or drives applications
Industrial Automation Wiring and Grounding Guidelines, publication 1770-4.1	Provides information on grounding and wiring Allen-Bradley programmable controllers
National Electrical Code - Published by the National Fire Protection Association of Boston, MA.	Describes wire sizes and types for grounding electrical equipment
Product Certifications website, http://www.ab.com	Provides declarations of conformity, certificates, and other certification details

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

Rockwell Automation Support

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

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

Installation Assistance

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

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

New Product Satisfaction Return

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

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

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