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Installation Instructions

FlexLogix Controller System

Catalog numbers 1794-L33, 1794-L34, 1794-FLA

Use this document as a guide for installing your FlexLogix™ controller system. This document provides installation instructions for both the FlexLogix controller (1794-L33, -L34) and the FlexLogix extended-local I/O adapter (1794-FLA). You should already be familiar with the FlexLogix system components. See the documentation references for additional information.

You must **FLASH upgrade the firmware** on your FlexLogix controller before you can use it. The controller ships with firmware revision 1.x but must be upgraded to match the version of RSLogix 5000 that you are using (e.g. if you are using RSLogix 5000 V11, you must upgrade your FlexLogix controller firmware to revision 11.x before using it). For more information on upgrading your controller's firmware, see page 22.

Tools That You Need

You need the following tools to install your FlexLogix controller system.

- slotted screwdriver
- phillips screwdriver
- mounting hardware (for mounting a DIN rail)
- drill (for mounting a DIN rail)
- needle-nose pliers

Obtain a User Manual

This product also has a user manual (pub. no. 1794-UM001). To view it, visit: **www.theautomationbookstore.com**. To purchase a manual, you can:

- contact your local distributor or Rockwell Automation representative
- visit **www.theautomationbookstore.com** and place an order
- call 800.963.9548 (USA/Canada) or 001.320.725.1574 (outside USA/Canada)

Publication 1794-IN002G-EN-P - January 2004

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://www.ab.com/manuals/gi) 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.

Reproduction of the contents of this manual, in whole or in part, without written permission of Rockwell Automation, Inc. is prohibited.

Throughout this manual 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 • recognize the consequence
SHOCK HAZARD 	Labels may be located on or inside the drive to alert people that dangerous voltage may be present.
BURN HAZARD 	Labels may be located on or inside the drive to alert people that surfaces may be dangerous temperatures.

Environment and Enclosure

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 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 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.

NOTE: See NEMA Standards publication 250 and IEC publication 60529, as applicable, for explanations of the degrees of protection provided by different types of enclosure. Also, see the appropriate sections in this publication, as well as the Allen-Bradley publication 1770-4.1 ("Industrial Automation Wiring and Grounding Guidelines"), for additional installation requirements pertaining to this equipment.

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.
- If available, use a static-safe workstation.
- When not in use, store the equipment in appropriate static-safe packaging.

European Hazardous Location Approval

European Zone 2 Certification (The following applies when the product bears the EEx Marking)

This equipment is intended for use in potentially explosive atmospheres as defined by European Union Directive 94/9/EC.

The LCIE (Laboratoire Central des Industries Electriques) certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of Category 3 equipment intended for use in potentially explosive atmospheres, given in Annex II to this Directive. The examination and test results are recorded in confidential report No. 28 682 010.

Compliance with the Essential Health and Safety Requirements has been assured by compliance with EN 50021.

IMPORTANT	When using this product, also consider the following: • This equipment is not resistant to sunlight or other sources of UV radiation. • The secondary of a current transformer shall not be open-circuited when applied in Class I, Zone 2 environments. • Equipment of lesser Enclosure Type Rating must be installed in an enclosure providing at least IP54 protection when applied in Class I, Zone 2 environments. • This equipment shall be used within its specified ratings defined by Allen-Bradley. • Provision shall be made to prevent the rated voltage from being exceeded by transient disturbances of more than 40% when applied in Class I, Zone 2 environments.

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 :**
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.	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.

The following information applies when operating this equipment in hazardous locations:		**Informations sur l'utilisation de cet équipement en environnements dangereux :**	
WARNING 	EXPLOSION HAZARD • 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.	**AVERTISSEMENT** 	RISQUE D'EXPLOSION • 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.

Removal and Insertion Under Power

The FlexLogix controller, the extended-local I/O adapter, the communication daughtercards, and the I/O terminal bases **cannot** be removed or inserted under power..

However, you can remove and insert FLEX I/O modules while backplane power is applied and the system is operating.

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.

Other Considerations

ATTENTION



Also consider the following before you install your FlexLogix controller:

- 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 (e.g. aluminum, plastic, etc.) that can corrode, oxidize, or are poor conductors, can result in improper or intermittent grounding.
- Power connection length should be less than 10 meters.

What You Need to Do

Before you can install a FlexLogix controller or extended-local adapter, you must:

☑ Install steel, 35 x 7.55mm DIN rails (A-B part number 199-DR1; 46277-3) where you want to place the FlexLogix system components.

The DIN rails for all FlexLogix system components, including all local and extended-local I/O modules, must be mounted on a common, conductive surface to ensure proper electromagnetic interference (EMI) performance. See 24 and 25 for approximate mounting dimensions and mounting clearances.

For more information about mounting DIN rails and splitting I/O across DIN rails, see the *FLEX I/O Product Data*, publication 1794-2.1

☑ Use DIN rail locks (A-B catalog number 1492-EA35) to meet the shock and vibrations specifications listed on 26. A pair of DIN locks comes with the controller.

☑ Mount an appropriate power supply on an appropriate DIN rail. See the specifications on 26.

To install a FlexLogix controller:

☐ Step 1: Verify That You Have All the Components, see page 9.

☐ Step 2: Install the Battery, see page 10.

☐ Step 3: Install Communication Daughtercards (optional), see page 11

☐ Step 4: Install the Controller, see page 12.

☐ Step 5: Install the Extended-Local Adapter (optional), see page 15.

After you install the FlexLogix controller, you can:

☐ Make an RS-232 Connection to the Controller, see page 18.

☐ Select the Operating Mode of the Controller see page 21.

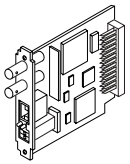
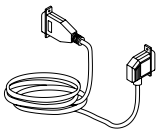
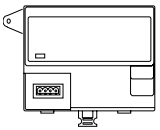
☐ Monitor the Controller LEDs, see page 22.

Step 1: Verify That You Have All the Components

These components ship with the FlexLogix controller:

- 1756-BA1 battery and label
- key
- one spring-clip connector plug for 24V power connection
- one screw-terminal connector plug for 24V power connection
- two 1492-EA35 DIN rail locks

The system components you have depend on your application. You might have:

FlexLogix System Component:	Description:
communication card 	1788-CNC, -CNCR for ControlNet communications 1788-CNF, -CNFR for ControlNet communications 1788-DNBO for DeviceNet communications 1788-ENBT for EtherNet/IP communications
serial cable 	1756-CP3 You can also use the 1747-CP3 cable from the SLC product family.
FlexLogix extended-local adapter 	1794-FLA
extended- local I/O cable 	1794-CE1 (1 foot) 1794-CE3 (3 foot)

Step 2: Install the Battery

ATTENTION



Only install a 1756-BA1 battery. If you install a different battery, you may damage the controller.

WARNING

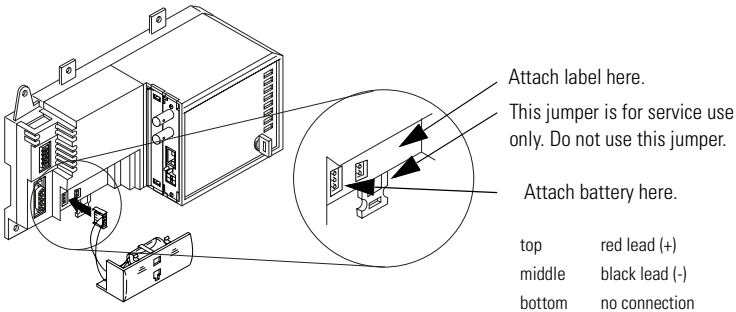


For safety information on the handling of lithium batteries, including the handling and disposal of leaking batteries, see *Guidelines for Handling Lithium Batteries*, publication AG-5.4.
Store batteries in a cool, dry environment. We recommend 25°C with 40% to 60% relative humidity. You may store batteries for up to 30 days between -45° to 85°C, such as during transportation. To avoid possible leakage, do not store batteries above 60°C for more than 30 days.

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, publication AG 5-4.

1. Install a 1756-BA1 battery.



2. Attach the battery label:
   a. Write on the battery label the date you install the battery.
   b. Attach the label to the inside of the battery compartment.

Step 3: Install Communication Daughtercards (optional)

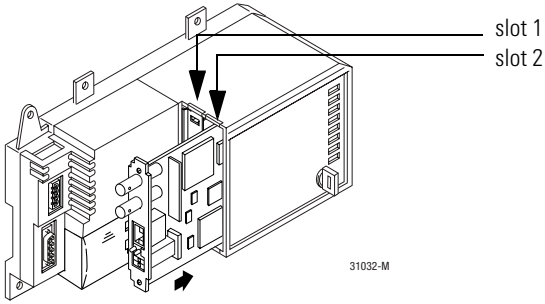
WARNING



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

For specific information about configuring the communication card (such as setting a node address), see the installation instructions for the communication card.

1. Turn off power to the controller.
2. If necessary, remove the blank cover from the communication slot.
3. Slide the communication card into the communication slot. Be sure to line up the card with the card guides in the controller.



4. Record which slot you use for the communication card. You need the slot number when you develop your controller application.
5. Secure the card with the screws to ensure proper grounding. Do not over-tighten the screws. The maximum torque for the card screws is 4.8 to 5.2 inch pounds (0.5 to 0.6 Nm)
6. After the controller is installed (see page 12), connect the network cable.

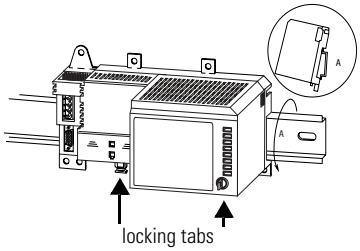
Removing a Communication Card

If you need to remove a communication card from the controller:

1. Turn off power to the controller.
2. Disconnect all cables from the communication card.
3. Loosen the card screws from the communication card.
4. Remove the card from the controller.
5. Replace the card with a blank cover or a different communication card.

Step 4: Install the Controller

1. Position the FlexLogix controller on the DIN rail at a 5° angle and rotate the controller onto the DIN rail.

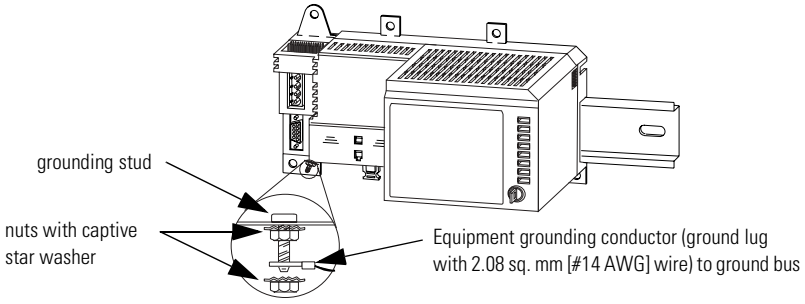


IMPORTANT You can mount the FlexLogix controller either vertically or horizontally (as shown).

2. Press the controller down onto the DIN rail until flush. The locking tabs will snap into position and lock the controller onto the DIN rail.

   If the controller does not lock in place, use a screwdriver or similar device to move the locking tabs down while pressing the controller onto the DIN rail. Release the locking tabs to lock the controller in place. If necessary, push up on the locking tabs to lock.

3. Ground the controller. The DIN rail and the common, conductive surface behind the DIN rail provide functional ground for the controller. Use the grounding stud to meet safety ground requirements.



For information about wiring and grounding, see the *Industrial Automation Wiring and Grounding Guidelines* publication 1770-4.1.

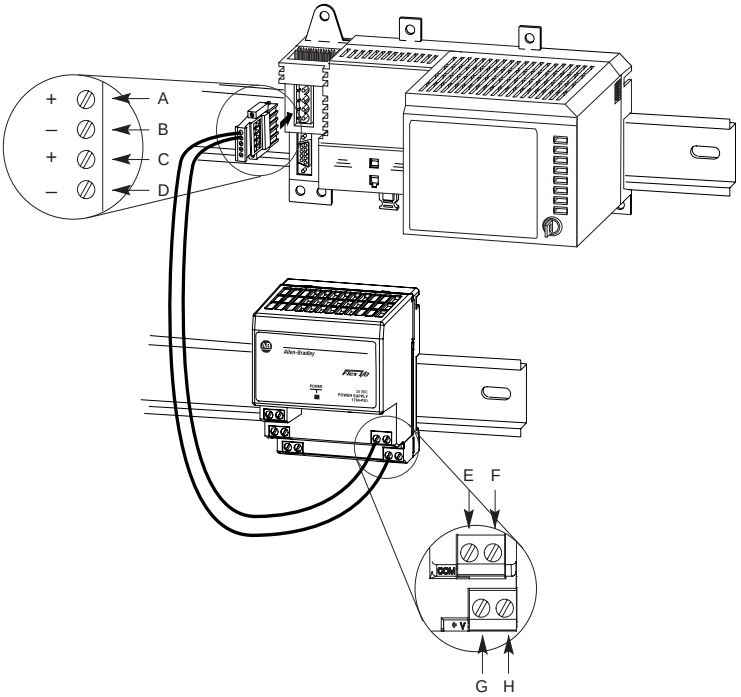
4. Make sure power is not applied to the power supply.

5. Connect the power supply to the controller. The graphic below and its related instructions describe a 1794-PS13 power supply.

WARNING



If you connect or disconnect wiring while the field-side 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.



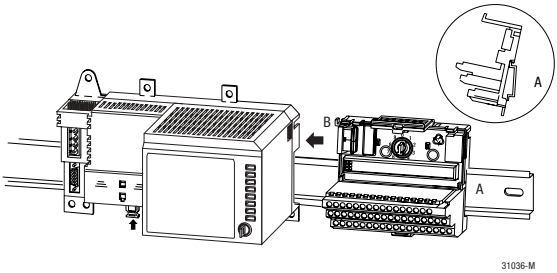
a. Connect +24V dc input to the top of the controller connector, terminal **A**, to the bottom, left power connector, terminal **G**.

b. Connect -24V common to top controller connector, terminal **B**, to the top, left power connector, terminal **E**.

c. Use connections **C** and **D** on the controller and connection **F** and **H** on the power supply to pass 24V dc power and common to the next module in the series, if required.

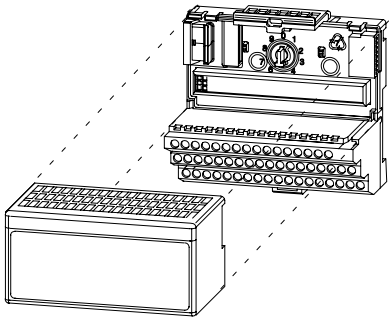
Use the screw-terminal connector plug that comes with the controller to meet the requirements for installations in Class I, Division 2 locations.

6. Mount the I/O terminal bases on the DIN rail.



For information about I/O terminal bases, see the *FLEX I/O Terminal Base Installation Instructions*, publication 1794-IN092.

7. Install the I/O modules.



To install an I/O module, see the installation instructions for that module.

Removing the controller

If you need to remove the controller, follow these steps:

1. Turn off power to the controller.

2. Disconnect all cables from the controller.

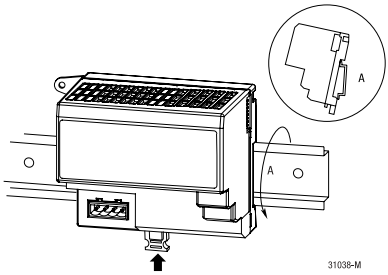
3. Remove the I/O module that is adjacent to the controller.

4. On the terminal base adjacent to the controller, slide the FLEXBUS connector away from the controller and remove the I/O terminal base.

5. Remove the controller from the DIN rail.

Step 5: Install the Extended-Local Adapter (optional)

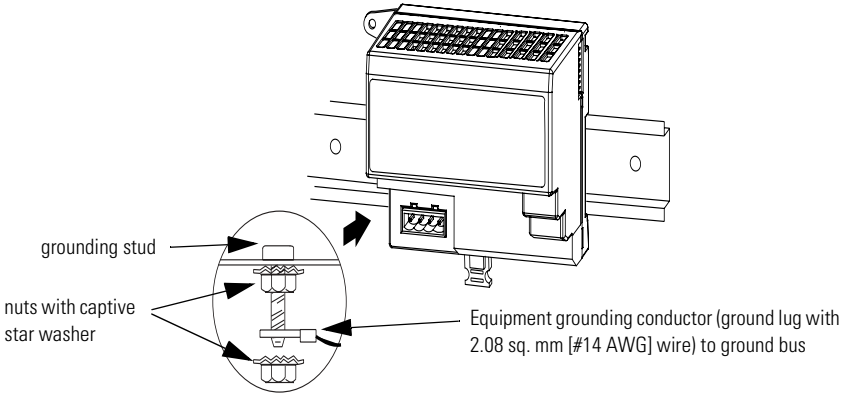
1. Position the 1794-FLA extended-local I/O adapter on the DIN rail at a 30° angle and rotate the adapter onto the DIN rail.



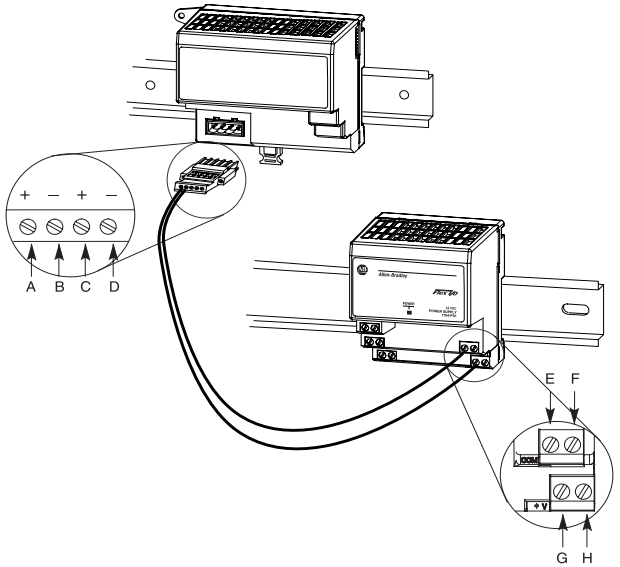
2. Press the adapter down onto the DIN rail until flush. The locking tab will snap into position and lock the adapter onto the DIN rail.

   If the adapter does not lock in place, use a screwdriver or similar device to move the locking tab down while pressing the adapter onto the DIN rail. Release the locking tab to lock the adapter in place. If necessary, push up on the locking tab to lock.

3. Ground the adapter. The adapter is grounded through the steel DIN rail and the common, conductive surface behind the DIN rail. Additionally, use the grounding stud.



4. Make sure power is not applied to the power supply. Connect the power supply to the adapter. This diagram and its related instructions describe a 1794-PS13 power supply.



a. Connect +24V dc input to the left adapter connector, terminal **A**, to the bottom, left power connector, terminal **G**.

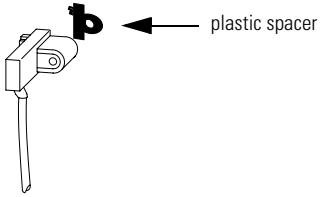
b. Connect -24V common to left adapter connector, terminal **B**, to the top, left power connector, terminal **E**.

c. Use connections **C** and **D** on the adapter and connection **F** and **H** on the power supply to pass 24V dc power and common to the next module in the series, if required.

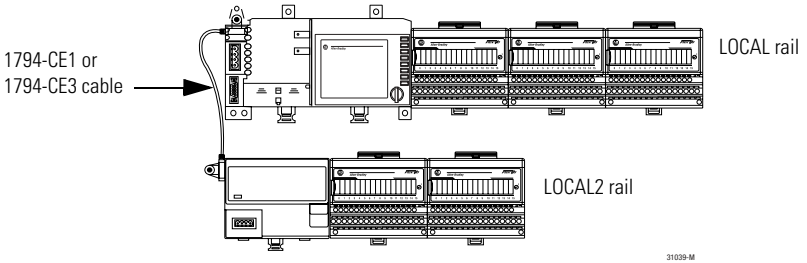
Use the screw-terminal connector plug that comes with the adapter to meet the requirements for installations in Class I, Division 2 locations.

5. Connect I/O terminal bases and I/O modules to the adapter the same way you connect them to the controller.

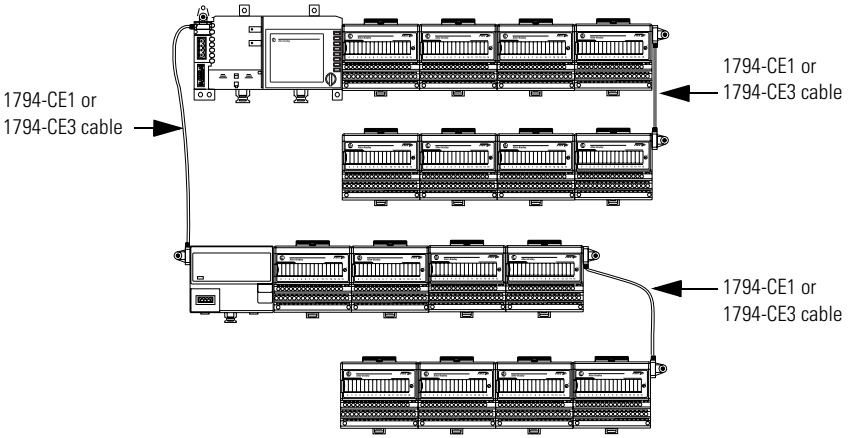
6. Remove the plastic spacer from both ends of the extended-local I/O cable (1794-CE1 or 1794-CE3).



7. Connect the adapter to the controller.



The following diagram shows how you can also use the 1794-CE1, -CE3 cable to split a rail of I/O. You can split each rail only once. You can split a rail right after the controller (or adapter) or after any I/O module. For more information about the 1794-CE1, -CE3 cables, see the *Interconnect Cable Installation Instructions*, publication 1794-5.12.



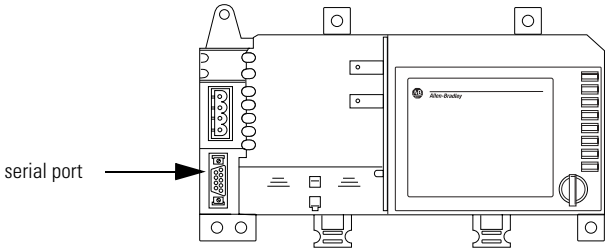
Removing the extended-local adapter

If you need to remove the adapter, follow these steps:

1. Turn off power to the adapter.
2. Disconnect all cables from the adapter.
3. Remove the I/O module that is adjacent to the adapter.
4. On the terminal base adjacent to the adapter, slide the FLEXBUS connector away from the adapter and remove the I/O terminal base.
5. Remove the adapter from the DIN rail.

Make an RS-232 Connection to the Controller

The RS-232 port is a non-isolated serial port built-in to the front of the controller.

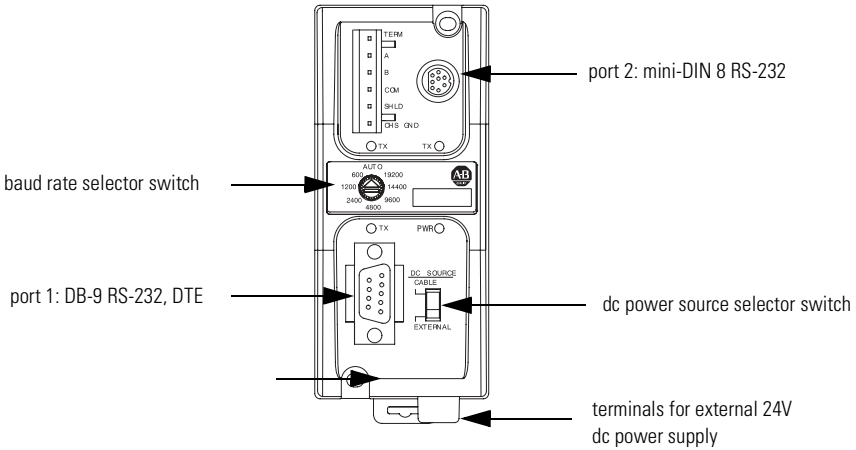


To connect to the serial port:

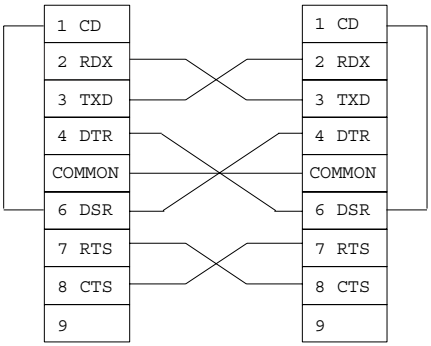
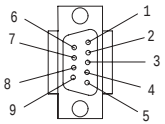
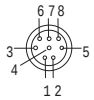
1. Determine whether you need an optical isolator.

   If you connect the controller to a device outside of the system's enclosure, consider installing an isolator between the controller and device.

   One possible isolator is the 1761-NET-AIC interface converter.



2. Select the appropriate cable.

Are you using an isolator?	Use this cable:
no	The 1756-CP3 cable attaches the controller directly to the controller.  If you make your own cable, it must be shielded and the shields must be tied to the metal shell (that surrounds the pins) on both ends of the cable. You can also use a 1747-CP3 cable (from the SLC product family). This cable has a taller right-angle connector housing than the 1756-CP3 cable.
yes	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.  DB-9 right-angle or straight cable end  8-pin, mini-DIN cable end

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	na	na

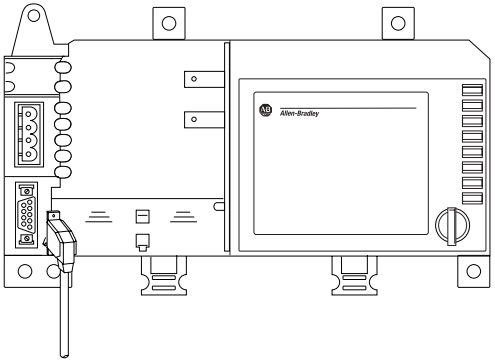
3. Connect the appropriate cable to the serial port on the controller.

WARNING

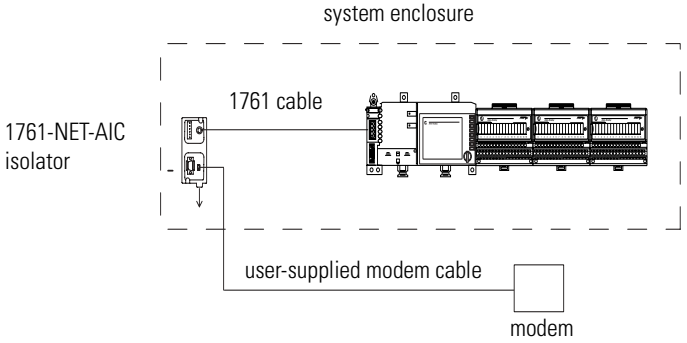


If you connect or disconnect the serial cable with power applied to this module or the serial device on the other end of the cable, an electrical arc can occur. This could cause an explosion in hazardous location installations.

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



4. If necessary, attach the controller to the isolator.

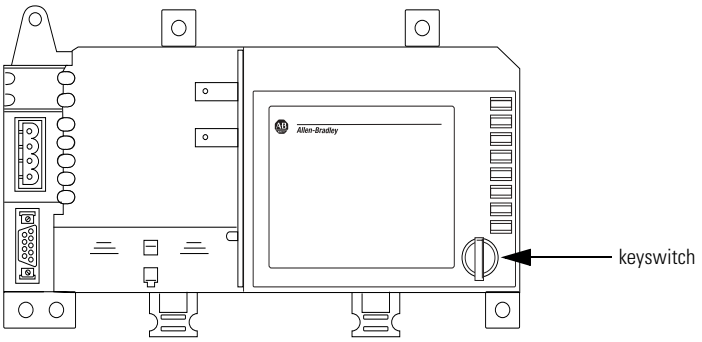


Select the Operating Mode of the Controller

1. Use this table to determine the operating mode of the controller:

If you want to:	Select one of these modes:				
	Run	Program	Remote		
			Run	Program	Test
turn outputs to the state commanded by the logic of the project	YES		YES		
turn outputs to their configured state for Program mode		YES		YES	YES
execute (scan) tasks	YES		YES		YES
change the mode of the controller through software			YES	YES	YES
download a project		YES		YES	
schedule a ControlNet network		YES		YES	
while online, edit the project		YES	YES	YES	YES

2. Turn the key on the front panel of the controller to select the mode.



To select:	Turn the key to:
Remote Run	RUN and then to REM
Remote Program	PROG and then to REM
Remote Test	REM and then go online and select Test mode via the programming software

Monitor the Controller LEDs

Indicator:	Color:	Description:
RUN	off	• no task(s) running • controller in Program mode
	green	• one or more tasks are running • controller is in Run mode
OK	off	no power applied
	red flashing	after initially installing the controller - the controller requires a FLASH upgrade to the proper firmware revision; see below. after the controller is operating - recoverable fault
	red	• controller faulted • clear faults, clear memory, or replace the controller
	green	controller OK
BATTERY	off	battery will support memory
	red	• battery may not support memory • replace battery
I/O	off	• controller project not downloaded (the condition after power up) • no I/O **or** communications configured
	green	communicating to **all** devices
	green flashing	one or more devices are not responding
LOCAL and LOCAL2	off	rail is inhibited
	green	communicating to **all** devices on that rail
	green flashing	one or more devices on that rail not responding
	red flashing	no modules exist on that rail
RS232	off	no activity
	green	data being received or transmitted
FORCE	off	no forces present
	amber	forces present

FLASH Upgrade the Controller's Firmware Revision

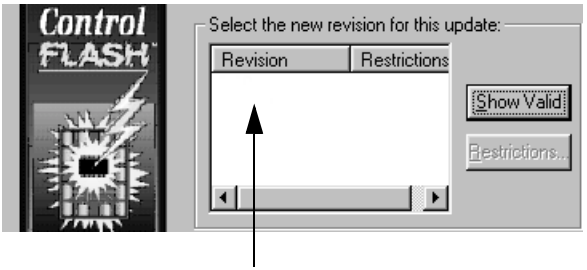
To update the firmware of a controller, first install a firmware upgrade kit.

- An upgrade kit ships on a supplemental CD along with RSLogix 5000 software.
- To download an upgrade kit, go to http://support.rockwellautomation.com. Choose **Firmware Updates**.

Update the Controller

TIP RSLogix 5000 software, revision 10.0 or later, lets you update controller firmware as part of the download sequence. To update the controller, download your project and follow the prompts of the software.

1. Connect the controller to the same network as your workstation.
2. Start ControlFLASH software.
3. Choose **Next >**.
4. Select the catalog number of the controller and choose **Next >**.
5. Expand the network until you see the controller. If the required network is not shown, first configure a driver for the network in RSLinx software.
6. Select the controller and choose **OK**.



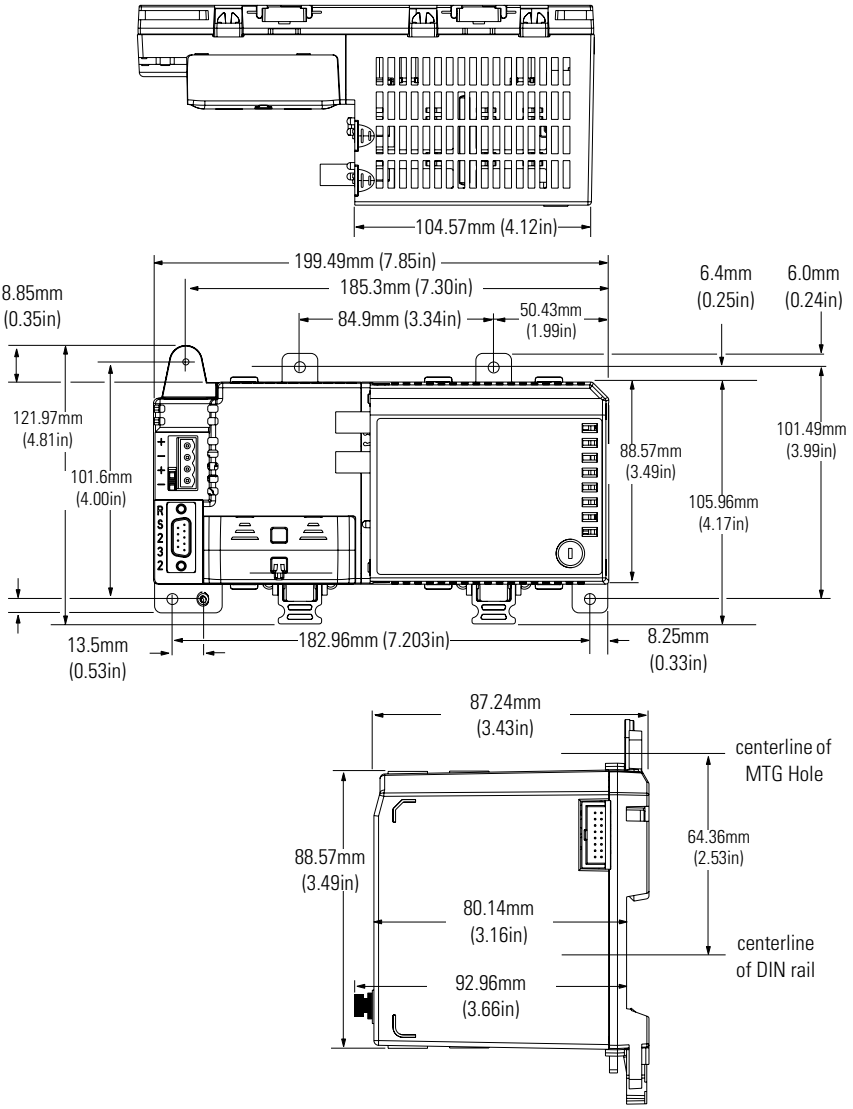
7. Select the revision level to which you want to update the controller and choose **Next >**.

IMPORTANT If the Revision list is empty, download a new upgrade kit. Some older upgrade kits do not work with new controllers.

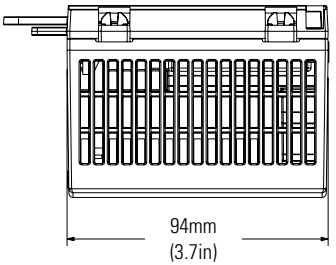
8. To start the update of the controller, choose **Finish** and then **Yes**.

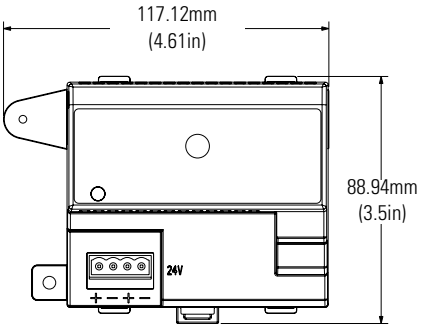
   After the controller is updated, the status box displays **Update complete**.
9. Choose **OK**.
10. To close ControlFLASH software, choose **Cancel** and then **Yes**.

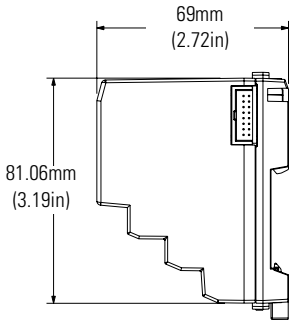
FlexLogix Controller Approximate Mounting Dimensions



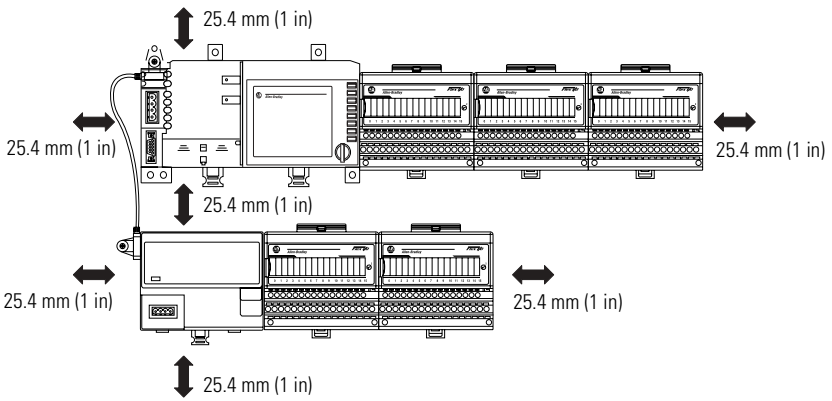
FlexLogix Extended-Local I/O Adapter Approximate Mounting Dimensions







Approximate Mounting Clearance



Other Publications

You can use the following manuals with this product:

Documents required for installation details:	Publication number:
Industrial Automation Wiring and Grounding Guidelines	1770-4.1
Flex 1794-PS3 Power Supply Installation Instructions	1794-5.71
Flex 1794-PS13 Power Supply Installation Instructions	1794-5.69
Flex I/O Terminal Base Installation Instructions	1794-5.16
1794-CE1, -CE3 Interconnect Cable Installation Instructions	1794-5.12
FLEX I/O and FLEX Integra I/O Technical Data	1794-2.1
Documents available for further reference	**Publication number:**
FlexLogix System User Manual	1794-UM001
Logix5000 Controllers Common Procedures Reference Manual	1756-PM001
Logix5000 Controllers General Instruction Set Reference Manual	1756-RM003
Guidelines for Handling Lithium Batteries	AG-5.4

You can obtain manuals at **www.theautomationbookstore.com**.

Specifications

Category:	FlexLogix controller (1794-L33, -L34)	FlexLogix extended-local I/O adapter (1794-FLA)
user memory	1794-L33 64 KBytes 1794-L34 512 KBytes	na
input voltage rating (nominal) range	 24V dc 19.2V to 31.2V dc (includes 5% ac ripple)	
isolation voltage (continuous-voltage withstand rating)	30V dc Qualification tested to withstand 850V dc for 60 seconds	
input current[1]	1.33A maximum at 19.2V dc 0.85A maximum at 24V dc	0.39A maximum at 19.2V dc 0.25A maximum at 24V dc
power dissipation[2]	25.5W maximum at 19.2V 20.4W maximum at 24V dc	7.5W maximum at 19.2V 6.0W maximum at 24V dc
backplane (FLEXBUS) current output	653mA maximum @ 5.1V dc	653mA maximum @ 5.1V dc
thermal dissipation	87BTU/hour @ 19.2V	25.6BTU/hour @ 19.2V
weight	1794-L33 .71 kg (1.56 lbs oz.) 1794-L34 .75 g (1.66 lbs.) (no communication cards installed)	.28 kg (.62 lbs.)

Category:	FlexLogix controller (1794-L33, -L34)	FlexLogix extended-local I/O adapter (1794-FLA)
power supply 	1794-PS3 or 1794-PS13 – In applications that must be compliant with CSA requirements, use a Separated Extra-Low Voltage (SELV) power supply that is compliant with IEC 61010.1, Annex H	
power conductors	60° C (140° F) minimum, copper #22 to #14 AWG (0.324 to 2.08 sq. mm) stranded 3/64 inch (1.2mm) insulation maximum length 10m or less category 3[2]	
power connector torque	5 to 7 inch-pounds (0.6 to 0.8Nm)	
battery	1756-BA1 (AB part number 94194801) 0.59g lithium	na
serial cable	1761-CBLPM02 to 1761-NET-AIC 1761-CBLPA00 to 1761-NET-AIC 1756-CP3 directly to controller 1747-CP3 directly to controller category 3[4]	na
extended local I/O cable	1794-CE1 cable (1 foot) 1794-CE3 cable (3 feet) category 3[2]	
DIN rail	steel, 35 x 7.55mm DIN rail A-B part number 199-DR1; 46277-3; EN 50022	
operating 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 to 60°C (32 to 140°F)	
storage temperature	IEC 60068-2-1 (Test Ab, Un-packaged Non-operating Cold), IEC 60068-2-2 (Test Bb, Un-packaged Non-operating Dry Heat), IEC 60068-2-14 (Test Na, Un-packaged Non-operating Thermal Shock): –40 to 85°C (–40 to 185°F)	
relative humidity	IEC 60068-2-30 (Test Db, Un-packaged Non-operating Damp Heat): 5 to 95% non-condensing	
vibration[3]	IEC60068-2-6 (Test Fc, Operating): 5g @ 10-500Hz	
shock[3] operating non-operating	IEC60068-2-27: (Test Ea, Unpackaged shock): 30g 50g	
emissions	CISPR 11: Group 1, Class A (with appropriate enclosure)	
ESD immunity	IEC 61000-4-2: 6kV contact discharges 8kV air discharges	

Category:	FlexLogix controller (1794-L33, -L34)	FlexLogix extended-local I/O adapter (1794-FLA)
radiated RF immunity	IEC 61000-4-3: 10V/m with 1kHz sine-wave 80%AM from 30MHz to 2000MHz 10V/m with 200Hz 50% Pulse 100%AM at 900Mhz	
EFT/B immunity	IEC 61000-4-4: ±4kV at 2.5kHz on power ports ±2kV at 5kHz on communications ports	
surge transient immunity	IEC 61000-4-5: ±2kV line-earth (CM) on shielded ports	
conducted RF immunity	IEC 61000-4-6: 10Vrms with 1kHz sine-wave 80%AM from 150kHz to 80MHz	
enclosure type rating	none (open-style)	
Certifications: (when product is marked)	UL — UL Listed Industrial Control Equipment c-UL-us — UL Listed for Class I, Division 2 Group A,B,C,D Hazardous Locations, certified for U.S. and Canada CSA — CSA Certified Process Control Equipment CSA — CSA Certified Process Control Equipment for Class I, Division 2 Group A,B,C,D Hazardous Locations CE[5] — European Union 89/336/EEC EMC Directive, compliant with: EN 50082-2; Industrial Immunity EN 61326; Meas./Control/Lab., Industrial Requirements EN 61000-6-2; Industrial Immunity EN 61000-6-4; Industrial Emissions C-Tick[5] — Australian Radiocommunications Act, compliant with: AS/NZS CISPR 11; Industrial Emissions EEx[5] — European Union 94/9/EEC ATEX Directive, compliant with: EN 50021; Potentially Explosive Atmospheres, Protection "n" (Zone 2)	

(1) This specification is also known as Power Consumption.

(2) This specification is also known as Heat Dissipation.

(3) To maintain these vibration and shock specifications, you must use DIN rail locks.

(4) Use this Conductor Category information for planning conductor routing. Refer to Publication 1770-4.1, "Industrial Automation Wiring and Grounding Guidelines".

(5) See the Product Certification link at www.ab.com for Declarations of Conformity, Certificates, and other certification details.

www.rockwellautomation.com

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