Installation Instructions

ControlLogix™ Controller and Memory Board

Catalog Number: 1756-L1, -L1M1, -L1M2, -L1M3, -L53, -L55, -L55M12, -L55M13, -L55M14, -L55M16, -L55M22, -L55M23, -L55M24, -M1, -M2, -M3, -M12, -M13, -M14, -M16, -M22, -M23, -M24

IMPORTANT Installation instructions ship with each component. If you want other documentation, you must order it separately. See page 52.

Are You Replacing a Controller That has Failed?

For abbreviated steps on how to replace a controller that you suspect has failed, see page 50.

Before You Begin

Use this document to install these ControlLogix components:

- controller
- memory board:
  - The memory board provides additional memory for your controller.
  - You can install only one memory board per controller.

File Name:
AB_ControlLogix_1756L1_L55_L6_M_install_D1101

Publication 1756-IN101E-EN-P - November 2001

Important User Information

Because of the variety of uses for the products described in this publication, those responsible for the application and use of these products must satisfy themselves that all necessary steps have been taken to assure that each application and use meets all performance and safety requirements, including any applicable laws, regulations, codes and standards. In no event will Allen-Bradley be responsible or liable for indirect or consequential damage resulting from the use or application of these products.

Any illustrations, charts, sample programs, and layout examples shown in this publication are intended solely for purposes of example. Since there are many variables and requirements associated with any particular installation, Allen-Bradley does not assume responsibility or liability (to include intellectual property liability) for actual use based upon the examples shown in this publication.

Allen-Bradley publication SGI-1.1, *Safety Guidelines for the Application, Installation and Maintenance of Solid-State Control* (available from your local Allen-Bradley office), describes some important differences between solid-state equipment and electromechanical devices that should be taken into consideration when applying products such as those described in this publication.

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Throughout this publication, notes may be used to make you aware of safety considerations. The following annotations and their accompanying statements help you to identify a potential hazard, avoid a potential hazard, and recognize the consequences of a potential hazard:

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.

ATTENTION

Identifies information about practices or circumstances that can 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.

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How to Handle ControlLogix Components

ATTENTION

Preventing Electrostatic Discharge

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.

You can install or remove ControlLogix components while chassis power is applied and the system is operating. If you remove the controller, all the devices owned by the controller go to their configured faulted state.

WARNING

When 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.

Repeated electrical arcing causes excessive wear to contacts on both the module and its mating connector. Worn contacts may create electrical resistance that can affect module operation.

Tools that You Need

To add a memory board to a controller, you need the following tools:

- #2 phillips screwdriver
- grounding wriststrap

What You Need to Do

Before you install a controller, do these preliminary steps:

☑ Install a ControlLogix chassis according to the *ControlLogix Chassis Installation Instructions*, publication 1756-IN080.

☑ Install a ControlLogix power supply according to the corresponding installation instructions:

Install this power supply:	According to this publication:
1756-PA72	*ControlLogix Power Supplies Installation Instructions*, publication 1756-5.67
1756-PB72	
1756-PA75	*ControlLogix Power Supplies Installation Instructions*, publication 1756-5.78
1756-PB75	
1756-PA75R	• *ControlLogix Redundant Power Supplies Installation Instructions*, publication 1756-IN573
1756-PB75R	• *ControlLogix Redundant Power Supplies Chassis Adapter Module Installation Instructions*, publication 1756-IN574

To install a controller, do these tasks:

- ☐ Make Sure that You Have All the Components
- ☐ Install the Memory Board (If Required)
- ☐ Install the Battery
- ☐ Install the Controller
- ☐ Update the Firmware of the Controller

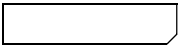
Make Sure that You Have All the Components

1. These components ship with the controller:

Component:	Description:
	1756-BA1 battery
	key
1756-L1 1756-L1M1 1756-L1M2	catalog number labels The catalog numbers on your labels may be different from the ones that are shown.

IMPORTANT If you have a 1756-L55 controller, you *must* install a memory board.

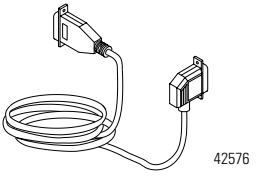
2. If you are installing a memory board, you also need the following components:

Component:	Description:
 40042	memory board
	memory board label

Use the following table to determine which memory board goes with your controller.

Use this memory board:	With this controller:		
	1756-L1, -L1Mx	1756-L53	1756-L55, -L55Mxx
1756-M1	✔		
1756-M2	✔		
1756-M3	✔		
1756-M12			✔
1756-M13			✔
1756-M14			✔
1756-M16			✔
1756-M22			✔
1756-M23			✔
1756-M24			✔

You may also use these components with the controller:

If you want to:	Then use this component:	
connect a device to the serial port of the controller (e.g., connect a computer to the controller)	1756-CP3 serial cable You may also use the 1747-CP3 cable from the SLC product family (If you use this cable, the controller door will not close.)	 42576
provide battery support for a 1756-L55Mxx controller longer than the time that is available with the 1756-BA1 battery	1756-BATM ControlLogix battery module	 31298

Install the Memory Board (If Required)

ATTENTION

If you have a 1756-L53 controller, *do not* take apart the controller or try to remove the memory board. If you remove or modify the memory board, you will irreparably damage the controller.

Are you going to add or replace a memory board?

If:	Then:
No	Go to "Install the Battery" on page 18.
Yes	Install the memory board.

To install the memory board:

- Determine if the Firmware Requires an Update
- Remove the Controller from the Chassis
- Remove the Side Plate of the Controller
- Remove the Existing Memory Board (If Any)
- Install the Memory Board
- Replace the Side Plate
- Attach Labels

Determine if the Firmware Requires an Update

Determine if you must update the firmware of the controller *before* you replace the board.

1. Is this a 1756-L55 or -L55Mxx controller?

If:	Then:
No	Go to "Remove the Controller from the Chassis" on page 11.
Yes	Go to step 2.

2. Are you replacing a memory board with a memory board that has a different catalog number? For example, are you replacing a 1756-M13 memory board with a 1756-M23 memory board?

If:	Then:
No	Go to "Remove the Controller from the Chassis" on page 11.
Yes	*Before* you replace the board, update the firmware of the controller: • Update the firmware to a revision that is compatible with the memory board that you will install. • See "Update the Controller" on page 28.

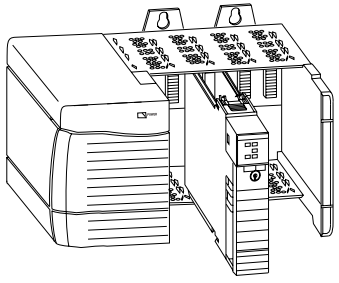
Remove the Controller from the Chassis

WARNING

When 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. On the top and bottom of the controller, press the locking tabs.

2. Slide the controller out of the chassis.



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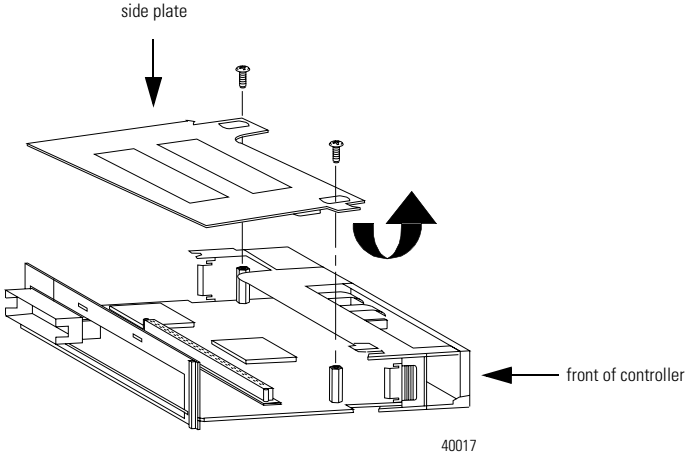
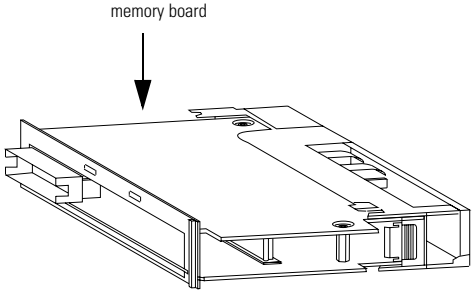
Remove the Side Plate of the Controller

1. Lay the controller on its side with the label facing up.
2. While wearing a grounding wriststrap, remove the two screws that attach the side plate to the controller.
3. Rotate the side plate up and unhook it from the controller.



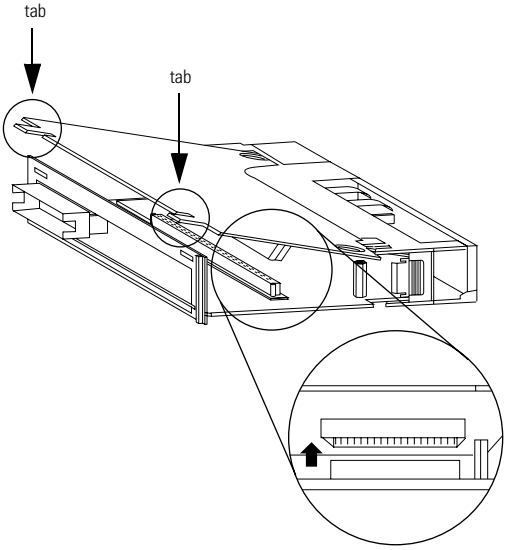
Remove the Existing Memory Board (If Any)



1. Does the controller already have a memory board?

If:	Then:
No	Go to "Install the Memory Board" on page 15.
Yes	Go to step 2.

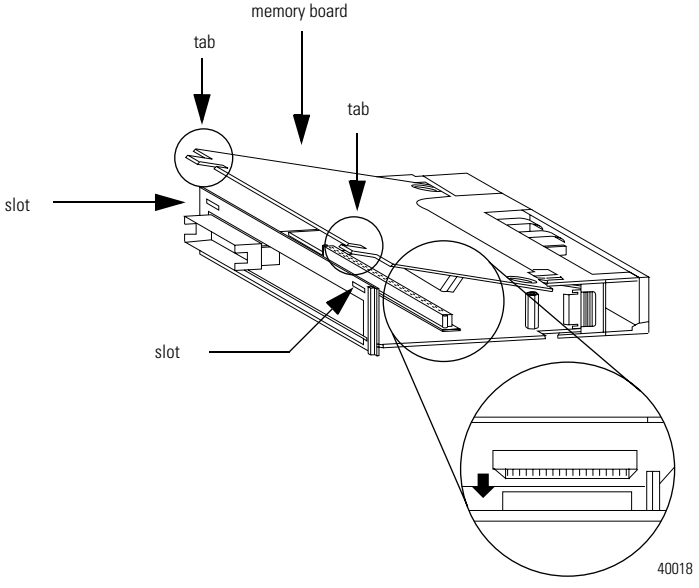
2. Pull the plastic back edge of the controller out slightly to clear the tabs on the memory board.



3. Gently separate and remove the memory board from the controller.

Install the Memory Board

1. Place the memory board over the connector and slide the memory board into the controller.



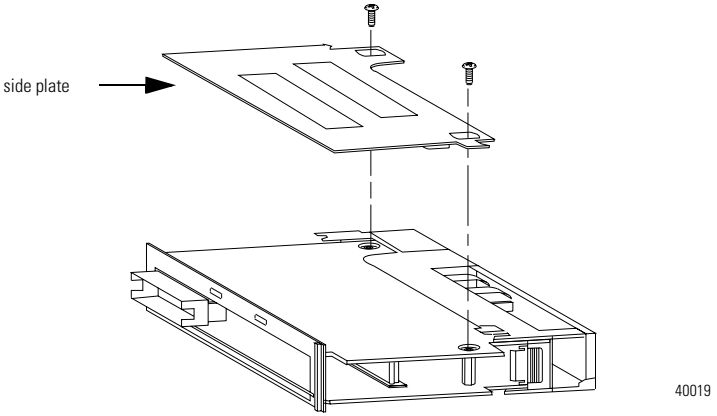
2. Pull the plastic back edge of the controller out slightly to clear the tabs of the memory board.

3. Line up the connectors.

4. Place your hands on the boards over the connectors and gently squeeze them together.

5. Make sure that the tabs on the memory board extend through the slots on the plastic housing of the controller.

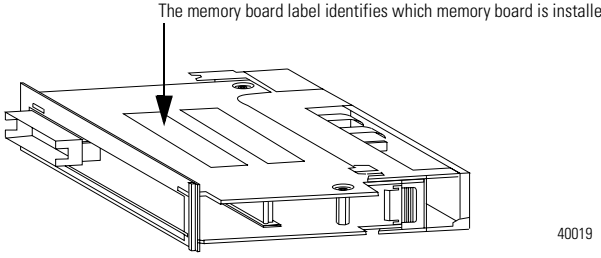
Replace the Side Plate



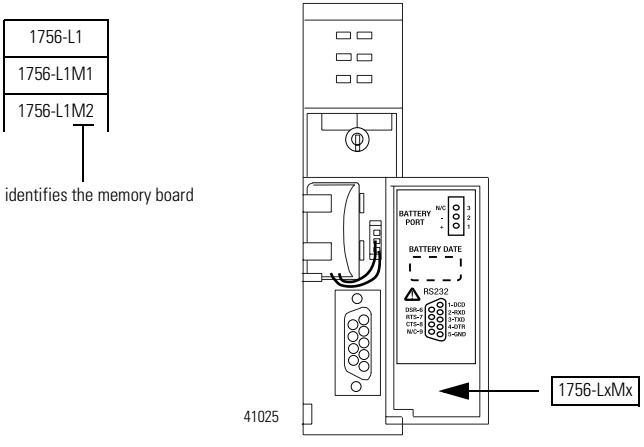
1. Line up the hinge tabs on the side plate with the slots in the plastic housing of the controller.
2. Gently press the side plate against the controller.
3. Replace the screws.

Attach Labels

1. Place the memory board label on the side of the controller.



2. From the sheet of catalog labels, peel off the label that corresponds to the memory board that you installed. (E.g., If you installed an M2 memory board, peel off the 1756-L1M2 label.)



3. Place the catalog number label on the inside of the controller door.

Install the Battery

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, publication AG 5-4.

1. Are you using a 1756-BATM battery module?

If:	Then:
No	Go to step 4.
Yes	Go to step 2.

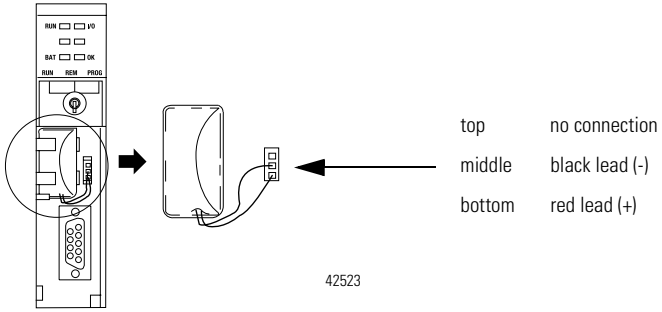
2. Install the battery module. See the *ControlLogix Battery Module Installation Instructions,* publication 1756-IN576.

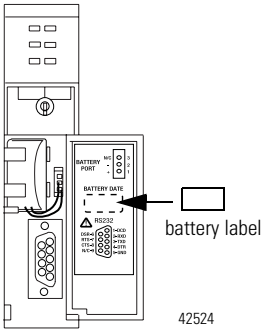
3. Go to “Install the Controller” on page 21.

ATTENTION

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

4. Install a 1756-BA1 battery.





5. Write on the battery label the date you install the battery.

6. Attach the label to the inside of the controller door.

ATTENTION

To prevent possible battery leakage, even if the BAT LED is off, replace a 1756-BA1 battery according to the following schedule:

If the temperature 1 in. below the chassis is:	Replace the battery within:
0° to 35° C	No replacement is required until the BAT LED turns on.
36° to 40° C	3 years
41° to 45° C	2 years
46° to 50° C	16 months
51° to 55° C	11 months
56° to 60° C	8 months

ATTENTION

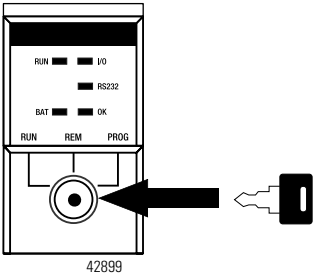
Store batteries in a cool, dry environment. We recommend 25°C with 40% to 60% relative humidity. You may store batteries for up to 30 days between -45° to 85°C, such as during transportation. To avoid possible leakage, *do not* store batteries above 60°C for more than 30 days.

Install the Controller

To install the controller:

- Turn the Keyswitch to the PROG Position
- Insert the Controller into the Chassis
- Check the BAT LED
- Check the OK LED

Turn the Keyswitch to the PROG Position



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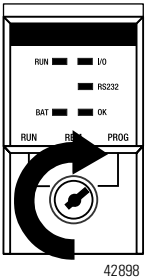
1. Insert the key into the controller.

2. Turn the key to the PROG position.



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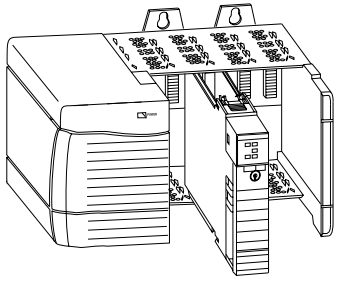
Insert the Controller into the Chassis

WARNING

When 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.

You can place the controller in any slot. You can use multiple controllers in the same chassis.

1. Align the circuit board with the top and bottom guides in the chassis.



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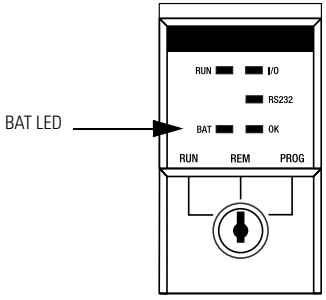
2. Slide the module into the chassis. The controller is fully installed when it is flush with the power supply or other installed modules and the top and bottom latches are engaged.

Check the BAT LED

1. Turn on the chassis power.



2. Is the BAT LED off?

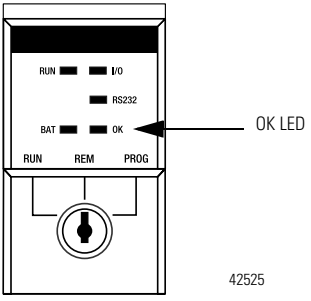
If:	Then:
Yes	Go to "Update the Firmware of the Controller" on page 26.
No	Go to step 3.

3. Check that the battery or battery module is correctly connected to the controller.

4. If the BAT LED remains on, install another battery.

5. If the BAT LED remains on after you complete step 4, contact your Rockwell Automation representative or local distributor.

Check the OK LED



1. What color is the OK LED?

If:	Then:	Actions:
Green	The controller is OK and its firmware has been updated.	No further actions are required. However, the revision of firmware must be compatible with your revision of RSLogix 5000 software.
Flashing red	The controller is OK but it requires a firmware update.	Go to "Update the Firmware of the Controller" on page 26.
Solid red	The memory board of the controller may not be compatible with the revision of firmware.	Go to step 2.

2. Is this a 1756-L55 or -L55Mxx controller?

If:	Then:
No	The controller is not operational. Contact your Rockwell Automation representative or local distributor.
Yes	Go to step 3.

3. Did you replace a memory board with a memory board that has a different catalog number? For example, did you replace a 1756-M13 memory board with a 1756-M23 memory board?

If:	Then:
No	The controller is not operational. Contact your Rockwell Automation representative or local distributor.
Yes	Go to step 4.

4. Re-install the previous memory board.

5. Update the firmware of the controller to a revision that is compatible with the memory board that you intend to install. See "Update the Firmware of the Controller" on page 26.

6. Install the new memory board.

7. What color is the OK LED?

If:	Then:
Green	No further actions are required. However, the revision of firmware must be compatible with your revision of RSLogix 5000 software.
Red	The controller is not operational. Contact your Rockwell Automation representative or local distributor.

Update the Firmware of the Controller

To update the firmware of the controller:

- Determine Which Firmware Revisions to Use
- Install a Firmware Upgrade Kit
- Update the Controller

Determine Which Firmware Revisions to Use

Use the following table to determine which firmware revisions to use with your controller and memory board combination:

For this controller and memory board:	Use this revision of firmware:
1756-L1	any
1756-L53	6.x or later
1756-L1M1	any
1756-L1M2	any
1756-L1M3	any
1756-L55M12	10.x or later
1756-L55M13	6.x or later
1756-L55M14	6.x or later
1756-L55M16	6.x or later
1756-L55M22	10.x or later
1756-L55M23	8.x or later
1756-L55M24	8.x or later

Install a Firmware Upgrade Kit

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 www.ab.com. Choose *Product Support*. Choose *Firmware Updates*.

Update the Controller

TIP

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

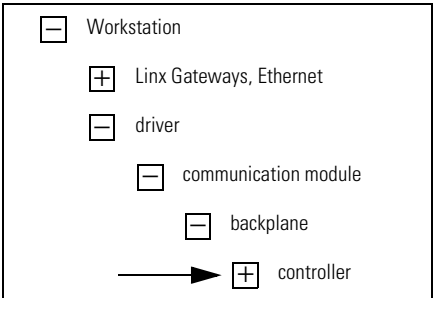
1. Connect the controller or chassis to the same network as your workstation.
2. Start ControlFLASH software.
3. Choose *Next* >.
4. Select the catalog number of the controller and choose *Next* >.
5. Expand the network until you see the controller.

IMPORTANT

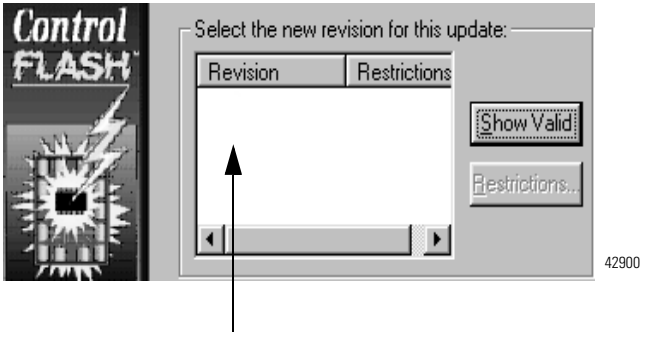
If the required network is not shown, first configure a driver for the network in RSLinx software.

To expand a network one level, do one of the following:

- Double-click the network.
- Select the network and press the → key.
- Click the + sign.



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*.

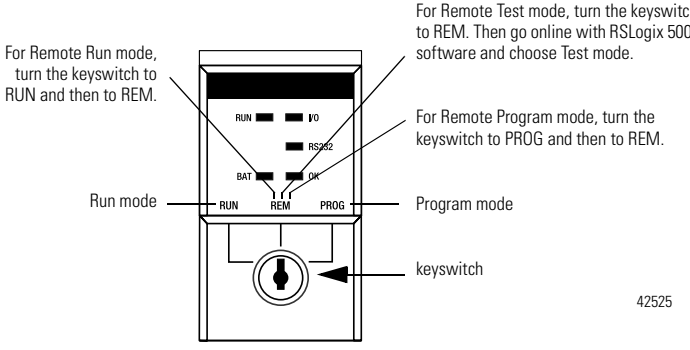
After the controller is updated, the status box displays *Update complete*.

9. Choose *OK*.

10. To close ControlFLASH software, choose *Cancel* and then *Yes*.

Keyswitch

Use the keyswitch to change the operating mode of the controller:



If you want to:	Select one of these modes:				
	Run	Remote			Program
		Run	Test	Program	
turn outputs to the state commanded by the logic of the project	✔	✔			
turn outputs to their configured state for Program mode			✔	✔	✔
execute (scan) tasks	✔	✔	✔		
change the mode of the controller through software		✔	✔	✔	
download a project		✔	✔	✔	✔
schedule a ControlNet network				✔	✔
while online, edit the project		✔	✔	✔	✔
send messages	✔	✔	✔		
send and receive data in response to a message from another controller	✔	✔	✔	✔	✔
produce and consume tags	✔	✔	✔	✔	✔

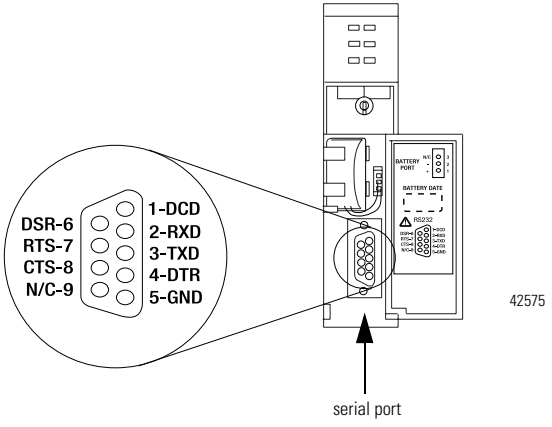
Serial (RS-232) Port

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.

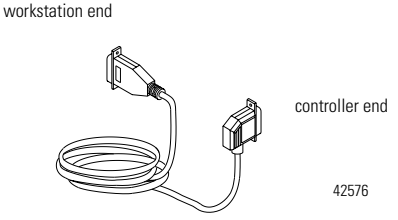
Make sure that power is removed or the area is nonhazardous before proceeding.

Use the serial port for RS-232 communication.



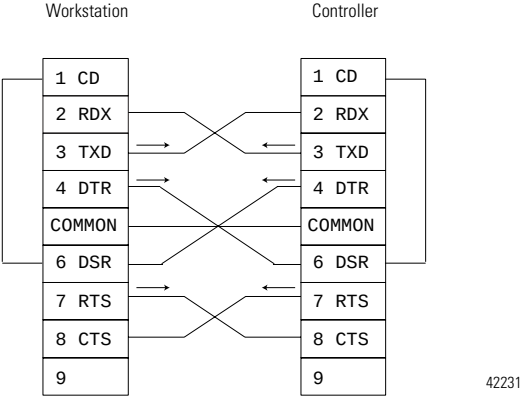
To connect a workstation to the serial port, use one of these cables:

- 1756-CP3 serial cable
- 1747-CP3 cable from the SLC product family (If you use this cable, the controller door will not close.)



If you make your own serial cable:

- Limit the length to 15.2m (50 ft).
- Wire the connectors as follows:



- Attach the shield to both connectors

Agency Certifications

When marked, the controller and memory board have the following certifications:

Table 1 1756-L1, -L53, and -L55 controllers

Certification:	Description
UL	UL Listed Industrial Control Equipment
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[1]	European Union 89/336/EEC EMC Directive, compliant with: • EN 50081-2; Industrial Emissions • EN 50082-2; Industrial Immunity • EN 61326; Meas./Control/Lab., Industrial Requirements • EN 61000-6-2; Industrial Immunity
C-Tick[1]	Australian Radiocommunications Act, compliant with: AS/NZS 2064; Industrial Emissions
EEx[1]	European Union 94/9/EEC ATEX Directive, compliant with: EN 50021; Potentially Explosive Atmospheres, Protection "n"

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

Table 2 1756-Mx memory boards

Certification:	Description
UR	UL Recognized Component Industrial Control Equipment
CSA	CSA Accepted Component for Process Control Equipment
CSA	CSA Accepted Component for Process Control Equipment in Class I, Division 2 Group A,B,C,D Hazardous Locations
CE[1]	European Union 89/336/EEC EMC Directive, compliant with: • EN 50081-2; Industrial Emissions • EN 50082-2; Industrial Immunity • EN 61326; Meas./Control/Lab., Industrial Requirements • EN 61000-6-2; Industrial Immunity
C-Tick[1]	Australian Radiocommunications Act, compliant with: AS/NZS 2064; Industrial Emissions
EEx[1]	European Union 94/9/EEC ATEX Directive, compliant with: EN 50021; Potentially Explosive Atmospheres, Protection "n"

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

Specifications

Table 3 1756-L1, -L1Mx Controller

Description:	Value:			
	1756-L1	1756-L1M1	1756-L1M2	1756-L1M3
user available memory(1)	64K bytes	512K bytes	1M bytes	2M bytes
nonvolatile memory	no	no	no	no
peak backplane current +5.1V dc +24V dc	 0.65A 0.02A	 0.95A 0.02A	 1.05A 0.02A	 1.20A 0.02A
average power dissipation	3.3W	4.6W	4.8W	5.4W
average thermal dissipation	11.3 BTU/hr	15.6 BTU/hr	16.4 BTU/hr	18.4 BTU/hr
weight	10.0 oz.	12.5 oz.	12.5 oz.	12.7 oz.
operating temperature(2)	0° to 60° C (32 to 140° F)			
storage temperature(3)	-40° to 85° C (-40 to 185° F)			
relative humidity(4)	5% to 95% noncondensing			
vibration(5)	2g @ 10-500Hz			
shock(6)	Operating 30g Non-operating 50g			
emissions(7)	Group 1, Class A			
ESD immunity(8)	6kV contact discharges 8kV air discharges			
radiated RF immunity(9)	10V/m with 1kHz sine-wave 80%AM from 30MHz to 1000MHz 10V/m with 200Hz 50% Pulse 100%AM at 900Mhz			
EFT/B immunity(10)	±4kV at 2.5kHz on power ports ±2kV at 5kHz on communications ports			
conducted RF immunity(11)	10Vrms with 1kHz sine-wave 80%AM from 150kHz to 80MHz			

Table 3 1756-L1, -L1Mx Controller (Continued)

Description:	**Value:**			
	1756-L1	**1756-L1M1**	**1756-L1M2**	**1756-L1M3**
enclosure type rating	none (open-style)			
isolation voltage	30V Tested to withstand 500 Volts for 60 seconds			
programming cable	1756-CP3 or 1747-CP3 serial cable category 3[12]			
replacement battery	1756-BA1 0.59g lithium			

Table 4 1756-L53 Controller

Description:	Value:
user available memory[1]	1.5M bytes
nonvolatile memory	no
peak backplane current +5.1V dc +24V dc	 1.20A 0.02A
average power dissipation	5.4W
average thermal dissipation	18.4 BTU/hr
weight	12.7 oz.
operating temperature[2]	0° to 60° C (32 to 140° F)
storage temperature[3]	-40° to 85° C (-40 to 185° F)
relative humidity[4]	5% to 95% noncondensing
vibration[5]	2g @ 10-500Hz
shock[6]	Operating 30g Non-operating 50g
emissions[7]	Group 1, Class A
ESD immunity[8]	6kV contact discharges 8kV air discharges
radiated RF immunity[9]	10V/m with 1kHz sine-wave 80%AM from 30MHz to 1000MHz 10V/m with 200Hz 50% Pulse 100%AM at 900Mhz
EFT/B immunity[10]	±4kV at 2.5kHz on power ports ±2kV at 5kHz on communications ports
conducted RF immunity[11]	10Vrms with 1kHz sine-wave 80%AM from 150kHz to 80MHz
enclosure type rating	none (open-style)
programming cable	1756-CP3 or 1747-CP3 serial cable category 3[12]

Table 4 1756-L53 Controller (Continued)

Description:	Value:
battery	1756-BA1 0.59g lithium

Table 5 1756-L55M12 and -M13 Controllers

Description:	Value:	
	1756-L55M12	**1756-L55M13**
user available memory[1]	750K bytes	1.5M bytes
nonvolatile memory	no	no
peak backplane current +5.1V dc +24V dc	 1.23A 0.014A	 1.23A 0.014A
average power dissipation	5.6W	5.6W
average thermal dissipation	19.1 BTU/hr	19.1 BTU/hr
weight	12.5 oz.	12.5 oz.
operating temperature[2]	0° to 60° C (32 to 140° F)	
storage temperature[3]	-40° to 85° C (-40 to 185° F)	
relative humidity[4]	5% to 95% noncondensing	
vibration[5]	2g @ 10-500Hz	
shock[6]	Operating 30g Non-operating 50g	
emissions[7]	Group 1, Class A	
ESD immunity[8]	6kV contact discharges 8kV air discharges	
radiated RF immunity[9]	10V/m with 1kHz sine-wave 80%AM from 30MHz to 1000MHz 10V/m with 200Hz 50% Pulse 100%AM at 900Mhz	
EFT/B immunity[10]	±4kV at 2.5kHz on power ports ±2kV at 5kHz on communications ports	
conducted RF immunity[11]	10Vrms with 1kHz sine-wave 80%AM from 150kHz to 80MHz	
enclosure type rating	none (open-style)	

Table 5 1756-L55M12 and -M13 Controllers (Continued)

Description:	Value:	
	1756-L55M12	**1756-L55M13**
programming cable	1756-CP3 or 1747-CP3 serial cable category 3[12]	
replacement battery	1756-BA1 0.59g lithium	

Table 6 1756-L55M14 and -L55M16 Controllers

Description:	Value:	
	1756-L55M14	**1756-L55M16**
user available memory(1)	3.5M bytes	7.5M bytes (no more than 3.5M bytes of data)
nonvolatile memory	no	no
peak backplane current +5.1V dc +24V dc	 1.25A 0.014A	 1.48A 0.014A
average power dissipation	5.7W	6.3W
average thermal dissipation	19.4 BTU/hr	21.5 BTU/hr
weight	12.8 oz.	13.4 oz.
operating temperature(2)	0° to 60° C (32 to 140° F)	
storage temperature(3)	-40° to 85° C (-40 to 185° F)	
relative humidity(4)	5% to 95% noncondensing	
vibration(5)	2g @ 10-500Hz	
shock(6)	Operating 30g Non-operating 50g	
emissions(7)	Group 1, Class A	
ESD immunity(8)	6kV contact discharges 8kV air discharges	
radiated RF immunity(9)	10V/m with 1kHz sine-wave 80%AM from 30MHz to 1000MHz 10V/m with 200Hz 50% Pulse 100%AM at 900Mhz	
EFT/B immunity(10)	±4kV at 2.5kHz on power ports ±2kV at 5kHz on communications ports	
conducted RF immunity(11)	10Vrms with 1kHz sine-wave 80%AM from 150kHz to 80MHz	
enclosure type rating	none (open-style)	

Table 6 1756-L55M14 and -L55M16 Controllers (Continued)

Description:	Value:	
	1756-L55M14	**1756-L55M16**
programming cable	1756-CP3 or 1747-CP3 serial cable category 3[12]	
replacement battery	1756-BA1 0.59g lithium	

Table 7 1756-L55M22, -L55M23, and -L55M24 Controllers

Description:	Value:		
	1756-L55M22	**1756-L55M23**	**1756-L55M24**
user available memory[1]	750K bytes	1.5M bytes	3.5M bytes
nonvolatile memory	yes	yes	yes
peak backplane current +5.1V dc +24V dc	 1.23A 0.014A	 1.23A 0.014A	 1.25A 0.014A
average power dissipation	5.6W	5.6W	5.7W
average thermal dissipation	19.1 BTU/hr	19.1 BTU/hr	19.4 BTU/hr
weight	12.5 oz.	12.5 oz.	12.8 oz.
operating temperature[2]	0° to 60° C (32 to 140° F)		
storage temperature[3]	-40° to 85° C (-40 to 185° F)		
relative humidity[4]	5% to 95% noncondensing		
vibration[5]	2g @ 10-500Hz		
shock[6]	Operating 30g Non-operating 50g		
emissions[7]	Group 1, Class A		
ESD immunity[8]	6kV contact discharges 8kV air discharges		
radiated RF immunity[9]	10V/m with 1kHz sine-wave 80%AM from 30MHz to 1000MHz 10V/m with 200Hz 50% Pulse 100%AM at 900Mhz		
EFT/B immunity[10]	±4kV at 2.5kHz on power ports ±2kV at 5kHz on communications ports		
conducted RF immunity[11]	10Vrms with 1kHz sine-wave 80%AM from 150kHz to 80MHz		
enclosure type rating	none (open-style)		

Table 7 1756-L55M22, -L55M23, and -L55M24 Controllers

Description:	Value:		
	1756-L55M22	1756-L55M23	1756-L55M24
programming cable	1756-CP3 or 1747-CP3 serial cable category 3[12]		
replacement battery	1756-BA1 0.59g lithium		

(1) Amount of memory available after RSLogix 5000 software is connected and a null project is loaded

(2) 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)

(3) 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)

(4) IEC 60068-2-30 (Test Db, Un-packaged Non-operating Damp Heat):

(5) IEC60068-2-6 (Test Fc, Operating)

(6) IEC60068-2-27: Test Ea (Unpackaged shock, ES#002)

(7) CISPR 11

(8) IEC 61000-4-2

(9) IEC 61000-4-3

(10) IEC 61000-4-4

(11) IEC 61000-4-6

(12) See *Industrial Automation Wiring and Grounding Guidelines*, publication 1770-4.1.

ATTENTION

Environment and Enclosure

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.

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.

IMPORTANT

This equipment is not resistant to sunlight or other sources of UV radiation.

IMPORTANT The secondary of a current transformer shall not be open-circuited when applied in Class I, Zone 2 environments.

IMPORTANT The marking "ALCR" is to be considered "as applicable" to individual products.

IMPORTANT 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.

IMPORTANT This equipment must be powered by energy limited associated equipment as defined in EN 50021 when applied in Class I, Zone 2 environments.

IMPORTANT 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.

European Zone 2 Certification - 1756-L1, -L1M1, -L1M2, -L1M3, -L53, -L55M13, -L55M14, and -L55M16 Controllers

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

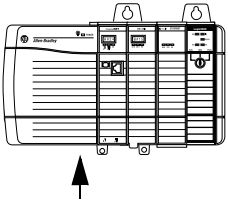
The LCIE (Laboratoire Central des Industries Electriques) certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of Category 3 equipment intended for use in potentially explosive atmospheres, given in Annex II to this Directive. The examination and test results are recorded in confidential report No. 28 682 101.

Compliance with the Essential Health and Safety Requirements has been assured by compliance with EN 50021 (1999).

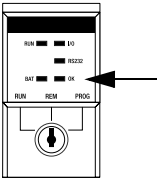
The following information applies when operating this equipment in hazardous locations:	**Informations sur l'utilisation de cet équipement en environnements dangereux :**
Products marked "CL I, DIV 2, GP A, B, C, D" are suitable for use in Class I Division 2 Groups A, B, C, D, Hazardous Locations and 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.

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.

Replace a Suspected Failed Controller

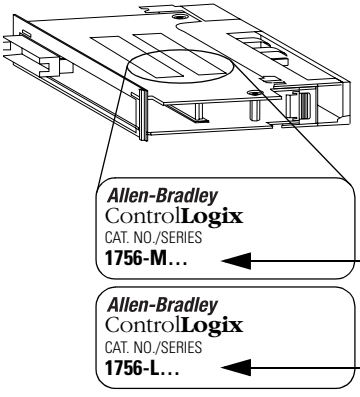


1. Cycle the power to the chassis.

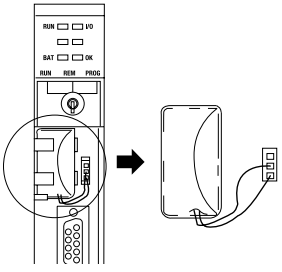


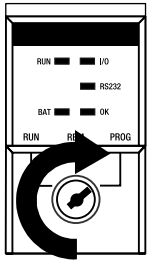
2. Make sure the OK LED is solid red. If the OK LED is *not* solid red, the controller *does not* require replacement.

3. Match the catalog numbers of the controllers and memory boards.

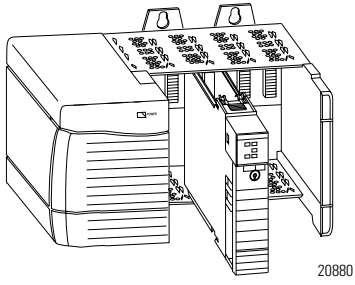


4. Install the battery.



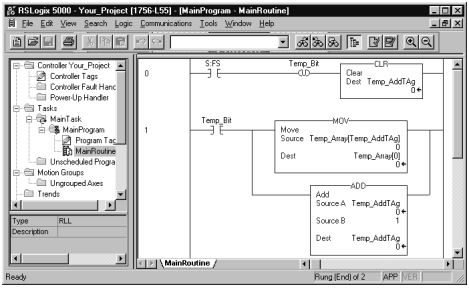


5. Insert the key and turn it to the PROG position.



6. Insert the controller into the chassis.

7. Update the firmware of the controller.



8. Download the RSLogix 5000 project to the controller.

Additional Manuals

This product has the following manuals:

- *Logix5000 Controllers Common Procedures*, publication 1756-PM001
- *Logix5000 Controllers General Instructions Reference Manual*, publication 1756-RM003
- *ControlLogix System User Manual*, publication 1756-UM001

If you want to:

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Corporate Headquarters
Rockwell Automation, 777 East Wisconsin Avenue, Suite 1400, Milwaukee, WI, 53202-5302 USA, Tel: (1) 414.212.5200, Fax: (1) 414.212.5201

Headquarters for Allen-Bradley Products, Rockwell Software Products and Global Manufacturing Solutions
Americas: Rockwell Automation, 1201 South Second Street, Milwaukee, WI 53204-2496 USA, Tel: (1) 414.382.2000, Fax: (1) 414.382.4444
Europe: Rockwell Automation SA/NV, Vorstlaan/Boulevard du Souverain 36-BP 3A/B, 1170 Brussels, Belgium, Tel: (32) 2 663 0600, Fax: (32) 2 663 0640
Asia Pacific: Rockwell Automation, 27/F Citicorp Centre, 18 Whitfield Road, Causeway Bay, Hong Kong, Tel: (852) 2887 4788, Fax: (852) 2508 1846

Headquarters for Dodge and Reliance Electric Products
Americas: Rockwell Automation, 6040 Ponders Court, Greenville, SC 29615-4617 USA, Tel: (1) 864.297.4800, Fax: (1) 864.281.2433
Europe: Rockwell Automation, Brühlstraße 22, D-74834 Elztal-Dallau, Germany, Tel: (49) 6261 9410, Fax: (49) 6261 17741
Asia Pacific: Rockwell Automation, 55 Newton Road, #11-01/02 Revenue House, Singapore 307987, Tel: (65) 351 6723, Fax: (65) 355 1733

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