



Logix5550 Controller

Before You Begin

Use this document as a guide for installing and powering-up your Logix5550™ controller. You should already be familiar with the ControlLogix™ system components. See the documentation references for detailed information.

Tools that you need

- 1/4" slotted (#2) or phillips screwdriver
- 1/8" slotted screwdriver
- mounting tab hardware (for mounting the chassis)
- drill (for mounting the chassis)
- needle-nose pliers

IMPORTANT

Installation instructions ship with each ControlLogix component. If you want the Logix5000 User Manual or other ControlLogix documentation, you must order them separately. Refer to "Other Publications" on page 19.

Important User Information

Because of the variety of uses for the products described in this publication, those responsible for the application and use of this control equipment 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.

The illustrations, charts, sample programs and layout examples shown in this guide 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 manual we use notes to make you aware of safety considerations:

ATTENTION



Identifies information about practices or circumstances that can lead to personal injury or death, property damage or economic loss

Attention statements help you to:

- identify a hazard
- avoid a hazard
- recognize the consequences

IMPORTANT

Identifies information that is critical for successful application and understanding of the product.

Allen-Bradley, ControlLogix, DH+, Logix5000, Logix5550, PLC-5, and SLC are trademarks of Rockwell Automation.

ControlNet is a trademark of ControlNet International, Ltd.

DeviceNet is a trademark of the Open DeviceNet Vendor Association.

Ethernet is a trademark of Digital Equipment Corporation, Intel, and Xerox Corporation.

CSA is a trademark of the Canadian Standards Association

European Communities (EC) Directive Compliance

If this product has the CE mark it is approved for installation within the European Union and EEA regions. It has been designed and tested to meet the following directives.

EMC Directive

This product is tested to meet the Council Directive 89/336/EC Electromagnetic Compatibility (EMC) by applying the following standards, in whole or in part, documented in a technical construction file:

- EN 50081-2 EMC — Generic Emission Standard, Part 2 — Industrial Environment
- EN 50082-2 EMC — Generic Immunity Standard, Part 2 — Industrial Environment

This product is intended for use in an industrial environment.

Low Voltage Directive

This product is tested to meet Council Directive 73/23/EEC Low Voltage, by applying the safety requirements of EN 61131-2 Programmable Controllers, Part 2 - Equipment Requirements and Tests. For specific information required by EN 61131-2, see the appropriate sections in this publication, as well as the Allen-Bradley publication *Industrial Automation Wiring and Grounding Guidelines*, publication 1770-4.1.

This equipment is classified as open equipment and must be mounted in an enclosure during operation to provide safety protection.

Handling the ControlLogix system components

Take these precautions to guard against ESD damage:

ATTENTION



Electrostatic discharge can damage the components. Follow these guidelines:

- 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 controller
 - if available, use a static-safe work station
 - when not in use, store each component in the anti-static packaging in which it was shipped
-

You can install or remove ControlLogix system 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.

ATTENTION



When you insert or remove a module while backplane power is on, an electrical arc may occur. An electrical arc can cause personal injury or property damage by:

- sending an erroneous signal to your system's actuators causing unintended machine motion or loss of process control
- causing an explosion in a hazardous environment

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.

What you need to do

Before you can install a Logix5550 controller, you must perform these actions:

- Install a ControlLogix chassis according to the *ControlLogix Chassis Installation Instructions*, publication 1756-5.80
- Install a ControlLogix power supply according to the corresponding installation instructions:

| Install this power supply: | According to this publication: |
|----------------------------|---|
| 1756-PA72 | <i>ControlLogix Power Supplies Installation Instructions</i> , publication 1756-5.1 |
| 1756-PB72 | |
| 1756-PA75 | <i>ControlLogix Power Supplies Installation Instructions</i> , publication 1756-5.78 |
| 1756-PB75 | |

To install a Logix5550 controller, you must perform these actions:

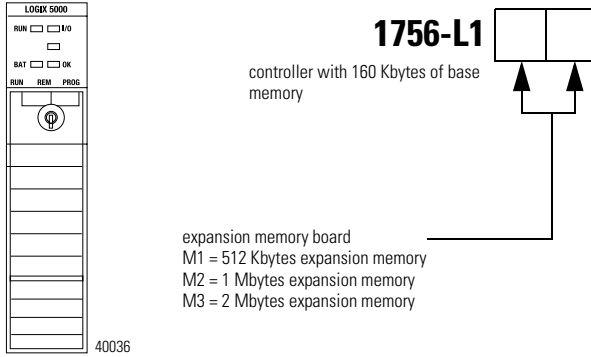
- Verify that you have all the components
- Install the battery
- Install expansion memory (if any)
- Install the Logix5550 controller

After you have installed a Logix5550 controller, you may perform these actions:

- Make an RS-232 connection to the controller
- Select the operating mode of the controller
- Interpret the controller LEDs

Verify that you have all the components

You can order the Logix5550 controller with or without additional system memory.



These components ship with the Logix5550 controller:

Component:

1756-BA1 battery



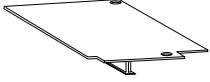
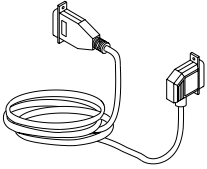
key



catalog number label



In addition, you may need these components:

| Component: | | Description: |
|-------------------|--|--|
| system memory |  40042 | 1756-M1 512 Kbytes expansion memory |
| | | 1756-M2 1 Mbytes expansion memory |
| | | 1756-M3 2 Mbytes expansion memory |
| serial cable |  40043 | 1756-CP3 You can also use the 1747-CP3 cable from the SLC product family. |

Install the battery

ATTENTION

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

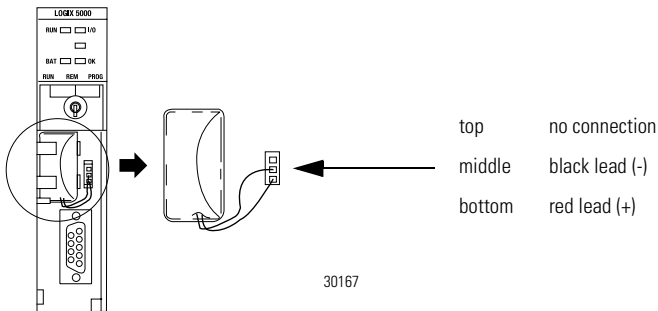


ATTENTION

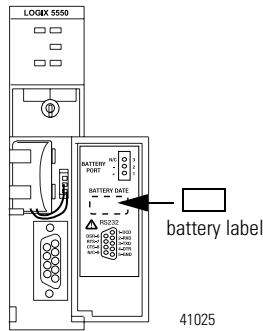
For safety information on the handling of lithium batteries, including the handling and disposal of leaking batteries, refer to *Guidelines for Handling Lithium Batteries*, publication AG-5.4.



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 controller door.



ATTENTION



To prevent possible battery leakage, you *must* replace a battery, even if it is still good, according to the following schedule:

If the rack inlet temperature is: Replace the battery within:

| | |
|--------------|-------------------------|
| 0° to 35° C | No required replacement |
| 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.

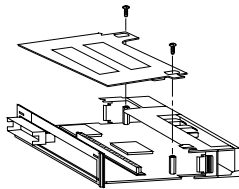
Install expansion memory (if any)

TIP



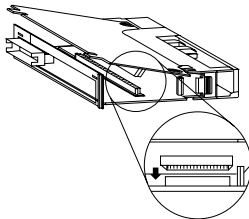
For additional information, refer to *Logix5550 Memory Board Installation Instructions*, publication 1756-5.33.

1. Remove the side plate of the controller.



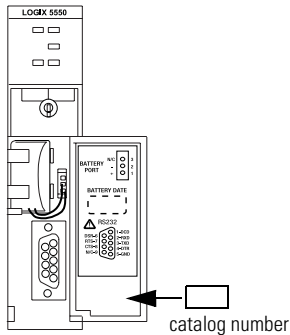
40017

2. Attach the memory board.



40018

3. Attach the appropriate catalog number label to inside of controller door.



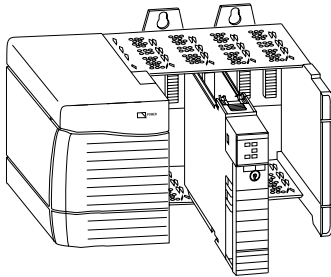
41025

4. Replace the side plate of the controller.

Install the Logix5550 controller

You can place the Logix5550 controller in any slot. You can use multiple Logix5550 controllers in the same chassis.

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



20880

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.

TIP

To install an I/O or communication module, refer to the documentation that comes with the module.

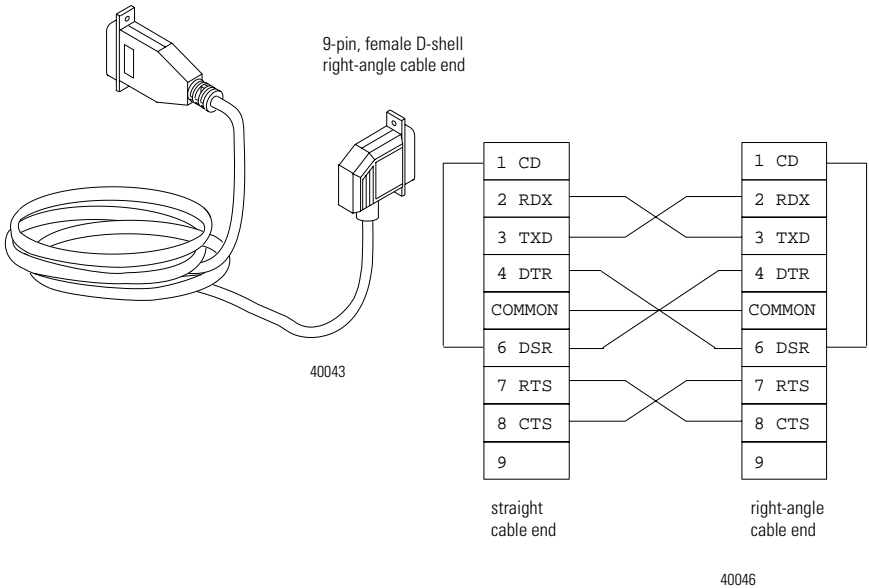


Make an RS-232 connection to the controller

1. Obtain a 1756-CP3 serial cable.

9-pin, male D-shell straight cable end

9-pin, female D-shell right-angle cable end



This cable must be shielded and tied to the connector housing at both ends.

TIP

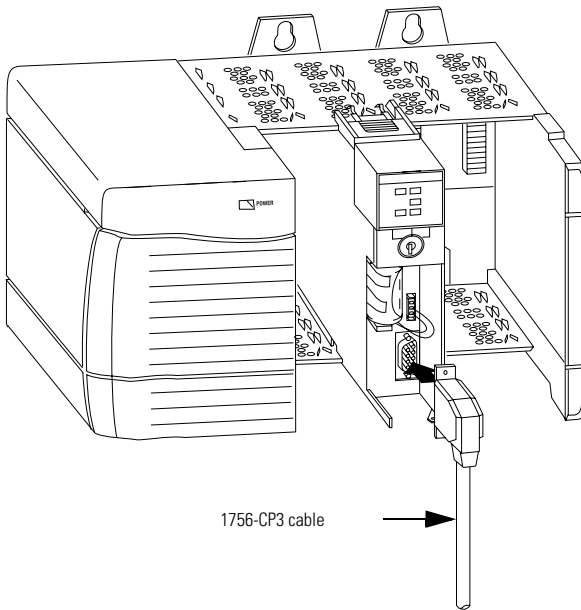


You can also use a 1747-CP3 cable (from the SLC product family), but once the cable is connected you cannot close the controller door.

2. Connect the cable to the controller.

ATTENTION

When you connect or disconnect the serial cable while backplane power is on, an electrical arc can occur. In hazardous locations, this could cause an explosion.



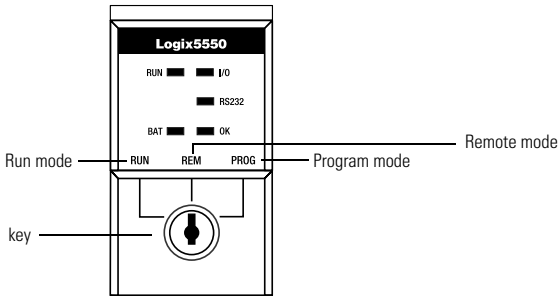
20884

Select the operating mode of the controller

- Use the following table to determine the required 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 | ✓ | | ✓ | | |
| 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 | | ✓ | ✓ | ✓ | ✓ |

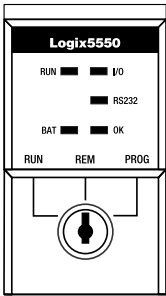
- Use the key on the front panel of the controller to select the required mode.



40002

| 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 |





Interpret the controller LEDs



40002

| Indicator: | Color: | Description: |
|------------|----------------|--|
| RUN | off | The controller is in Program or Test mode. |
| | green | The controller is in Run mode. |
| I/O | off | Either: <ul style="list-style-type: none"> • There are <i>no</i> devices in the I/O configuration of the controller. • The controller does <i>not</i> contain a project (controller memory is empty). |
| | green | The controller is communicating with all the devices in its I/O configuration. |
| | green flashing | One or more devices in the I/O configuration of the controller are <i>not</i> responding. |
| | red flashing | The chassis is bad. Replace the chassis. |
| RS232 | off | There is no activity. |
| | green flashing | Data is being received or transmitted. |
| BAT | off | The battery will support memory. |
| | red | The battery is <i>not</i> present or may <i>not</i> support memory. Replace the battery. |
| OK | off | No power is applied. |
| | red flashing | Recoverable fault |
| | red | Non-recoverable fault. To correct: <ol style="list-style-type: none"> 1. Cycle the chassis power. 2. Download the project. 3. Place the controller in Run mode. <p>If the problem continues to occur, contact your Rockwell Automation representative or local distributor.</p> |
| | green | The controller is OK. |

Specifications

| Description: | Specification: | | | |
|---|--|----------------|----------------|----------------|
| | 1756-L1 | 1756-L1M1 | 1756-L1M2 | 1756-L1M3 |
| user memory | 160 Kbytes | 512 Kbytes | 1 Mbytes | 2 Mbytes |
| backplane current +5V dc +24V dc | 0.65A 0.02A | 0.95A 0.02A | 1.05A 0.02A | 1.20A 0.02A |
| thermal dissipation | 10.2 BTU/hr | 12.8 BTU/hr | 13.7 BTU/hr | 14.5 BTU/hr |
| power dissipation | 3.0W | 3.75W | 4.0W | 4.25W |
| operating temperature | 0° to 60° C (32 to 140° F) | | | |
| storage temperature | -40° to 85° C (-40 to 185° F) | | | |
| relative humidity | 5% to 95% noncondensing | | | |
| vibration | 10 to 500 Hz 2.0 G maximum peak acceleration | | | |
| operating shock | 30G peak for 11ms | | | |
| storage shock | 50G peak for 11ms | | | |
| weight | 10.0 oz. | 12.5 oz. | 12.5 oz. | 12.7 oz. |
| programming cable | 1756-CP3 or 1747-CP3 serial cable category 3 ⁽¹⁾ | | | |
| battery | 1756-BA1 (PROMARK Electronics 94194801) 0.59g lithium | | | |
| Agency Certifications When product is marked: |  or  | | | |
| |  marked for all applicable directives | | | |
| |  Class I Div 2 Hazardous ⁽²⁾ | | | |
| user manual | 1756-6.5.12 | | | |
| documentation set | 1756-DPALEN | | | |

⁽¹⁾ See the *Industrial Automation Wiring and Grounding Guidelines*, publication 1770-4.1.

⁽²⁾ CSA certification - Class I, Division 2, Group A,B,C,D or nonhazardous locations

CSA Hazardous Location Approval

CSA certifies products for general use as well as for use in hazardous locations. Actual CSA certification is indicated by the prod label as shown below, and not by statements in any user documentation.

Example of the CSA certification product label:



CL I, DIV 2
GP A,B,C,D
TEMP



To comply with CSA certification for use in hazardous locations, the following information becomes a part of the product literature for this CSA-certified industrial control product.

- This equipment is suitable for use in Class I, Division 2, Groups A, B, C, D, or non-hazardous locations or
- The products having the appropriate CSA markings (that is, Class I, Division 2, Groups A, B, C, D) are certified for use in other equipment where the suitability of combination (that is, application or use) is determined by the CSA or the local inspection office having jurisdiction.

IMPORTANT

Due to the modular nature of a programmable control system, the product with the highest temperature rating determines the overall temperature code rating of a programmable control system in a Class I, Division 2, location. The temperature code rating is marked on the product label as shown.

Temperature code rating:



CL I, DIV 2
GP A,B,C,D
TEMP



Look for temperature code rating here.

The following warnings apply to products having CSA certification for use in hazardous locations.

Explosion hazard!

ATTENTION



- Substitution of components may impair suitability for Class I, Division 2.
- Do not replace components unless power has been switched off or the area is known to be non-hazardous.
- Do not disconnect equipment unless power has been switched off or the area is known to be non-hazardous.
- Do not disconnect connectors unless power has been switched off or the area is known to be non-hazardous. Secure any user-supplied connectors that mate to external circuits on this equipment by using screws, sliding latches, threaded connectors, or other means such that any connection can withstand a 15 Newton (3.4 lb.) separating force applied for a minimum of one minute.
- If the Product contains batteries, they must only be changed in an area known to be non-hazardous.

CSA logo is a registered trademark of the Canadian Standards Association.

Approbation d'utilisation dans des environnements dangereux par la CSA

La CSA certifie des produits pour une utilisation générale aussi bien que pour une utilisation en environnements dangereux. La certification CSA en vigueur est indiquée par l'étiquette produit et non par des indications dans la documentation utilisateur. Exemple d'étiquette de certification d'un produit par la CSA :



CL I, DIV 2
GP A,B,C,D
TEMP



Pour satisfaire à la certification CSA en environnements dangereux, les informations suivantes font partie intégrante de la documentation des produits de commande industrielle certifiés.

- Cet équipement ne convient qu'à une utilisation dans des environnements de Classe 1, Division 2, Groupes A, B, C, D ou non dangereux.
- Les produits portant le marquage CSA approprié (c'est-à-dire Classe 1, Division 2, Groupes A, B, C, D) sont certifiés pour une utilisation avec d'autres équipements, les combinaisons d'applications et d'utilisation étant déterminées par la CSA ou le bureau local d'inspection.

IMPORTANT

De par la nature modulaire des systèmes de commande programmables, le produit ayant le code de température le plus élevé détermine le code de température global du système dans un environnement de Classe I, Division 2. Le code de température est indiqué sur l'étiquette produit.

Code de température :



CL I, DIV 2
GP A,B,C,D
TEMP



Le code de température est indiqué ici.

Les avertissements suivants s'appliquent aux produits ayant la certification CSA pour une utilisation dans des environnements dangereux.

Risque d'explosion

ATTENTION



- La substitution de composants peut rendre ce matériel inadapté à une utilisation en environnement de Classe 1, Division 2.
- Couper le courant ou s'assurer que l'environnement est classé non dangereux avant de remplacer des composants.
- 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 fournis par l'utilisateur pour se brancher aux circuits externes de cet appareil à l'aide de vis, loquets coulissants, connecteurs filetés ou autres, de sorte que les connexions résistent une force de séparation de 15 Newtons (1,5 kg - 3,4 lb.) appliquée pendant au moins une minute.
- S'assurer que l'environnement est classé non dangereux avant de changer les pi

AVERTISSEMENT : Le sigle CSA est une marque déposée de la Canadian Standards Association.

Other Publications

This product has the following additional manuals:

- *Logix5000 Controllers User Manual*, publication 1756-6.5.12
- *Logix5000 Controllers General Instruction Set Reference Manual*, publication 1756-6.4.1
- *Logix5000 Controllers Motion Instruction Set Reference Manual*, publication 1756-6.4.3
- *Logix5550 Controller Import/Export Reference Manual*, publication 1756-6.8.4
- *Logix5550 Controller Converting PLC-5 or SLC 500 Logic to Logix5550 Logic Reference Manual*, publication 1756-6.8.5

You can obtain manuals as follows:

- download an electronic version or place an order from the Internet:
www.theautomationbookstore.com
- contact your local distributor or Rockwell Automation representative

Reach us now at www.rockwellautomation.com

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