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Installation Instructions

SLC 5/01 and SLC 5/02 Modular Processors

(Catalog Numbers 1747-L511, 1747-L514, and 1747-L524)

http://literature.rockwellautomation.com/idc/groups/literature/documents/in/1747-in011_-mu-p.pdf

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Inside . . .

For	See Page
Important User Information	4
Safety Considerations	5
Install	6
Apply Power to Your Processor	8
Load Your Software	8
Establish Communications with the Processor	8
Troubleshoot the Processor	9
Specifications	10
Battery Handling, Storage, and Transportation	12
Additional Resources	14

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Important User Information

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

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

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

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

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

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

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

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Safety Considerations

ATTENTION

Never install, remove, or wire any module while power is applied. Also, do not expose processor modules to surfaces or other areas that may typically hold an electrostatic discharge.

For general recommendations concerning installation safety requirements and safety related work practices, refer to the requirements specific to your region.

- Europe: Reference the standards found in EN 60204 and your national regulations.
- United States: Refer to NFPA 70E, Electrical Safety Requirements for Employee Workplaces.

IMPORTANT

Refer to page 12 for information on proper battery handling, storage, and transportation.

Hazardous Location Considerations

This equipment is suitable for use in Class I, Division 2, Groups A, B, C, D or non-hazardous locations only. The following WARNING statement applies to use in hazardous locations

WARNING

- Substitution of components may impair suitability for Class I, Division 2.
- Do not replace components or disconnect equipment unless power has been switched off or the area is known to be non-hazardous.
- Do not connect or disconnect components unless power has been switched off or the area is known to be non-hazardous.
- All wiring must comply with N.E.C. article 501-4(b).

Required Tools

- medium blade screwdriver
- programming equipment
- a 1747-PIC, 1784-KTX, or 1784-PCMK communication interfaces

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Install

The following sections provide information for installing:

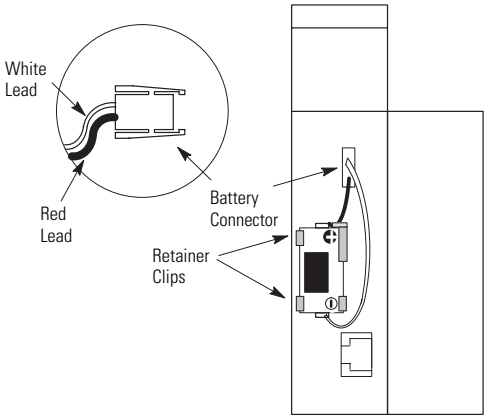
- the battery into the SLC 5/01 (1747-L511)
- the processor in to the chassis

Install the battery

IMPORTANT If your processor has a battery, make sure it is connected before installing your processor into the chassis. This provides memory backup for your processor should the controller power supply fail.

See page 12 for information regarding proper battery handling and storage.

1. Open the door of the processor.
2. Remove the jumper from the battery connector socket. Store the jumper in a safe place for possible future use without the battery.
3. Insert a new or replacement battery in the holder making sure it is held in by the retainer clips.
4. Plug the battery connector into the socket. See the figure below.



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5. Close the processor door

Install the Processor into the Chassis

ATTENTION

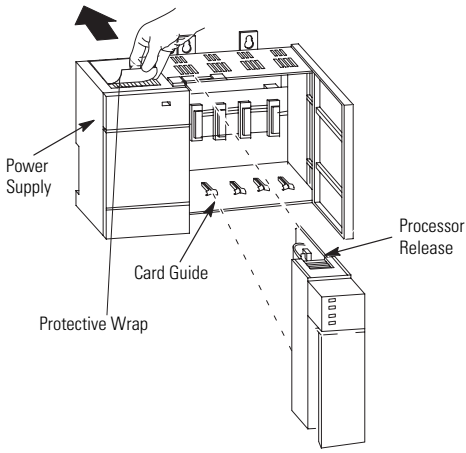
Never install, remove, or wire any module while power is applied. Also, do not expose processor modules to surfaces or other areas that may typically hold an electrostatic discharge.

Electrostatic discharge can damage integrated circuits or semiconductors if you touch backplane connector pins.

If the equipment is not installed and used as described in the SLC 500 Modular Hardware Style User Manual, publication 1747-UM011, the protection provided by the equipment may be impaired.

1. Turn off power to the chassis where you will insert the processor.

2. Align the circuit board of the processor with the card guide of slot 0 in the 1746 chassis.



3. Gently slide the processor in until both the top and bottom retainer clips are secured.

4. Remove the protective wrap after installing the processor.

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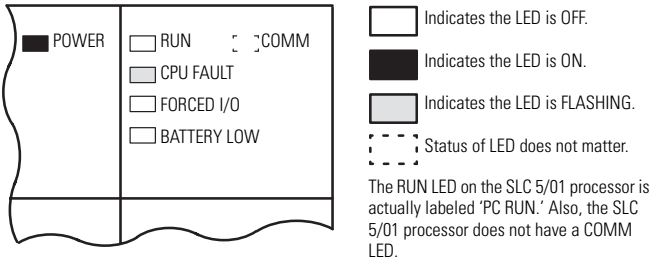
Apply Power to the Processor

To apply power to the processor:

1. Energize the chassis power supply.
2. Check the chassis power supply and processor LEDs. The power LED on the power supply should be on and the fault LED on the processor should be flashing.



Load Your Software

Refer to the programming software documentation.

Establish Communications with the Processor

To establish communication with your processor:

1. Connect the 1747-PIC to the processor and your personal computer.
2. Set the communication parameters of the software to match the default parameters of the processor:
   - DH-485
   - 19.2K baud
   - Node Address = 1

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Troubleshoot the Processor

Refer to the Troubleshooting chapter in the SLC 500 Modular Hardware Style User Manual, publication 1747-UM011.

In addition refer to the SLC 500 Instruction Set Reference Manual, publication 1747-RM001. This manual contains explanations and examples for the entire instruction set as well as for all status words and bits. It also contains explanations for all possible fault codes found in status word S:6.

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Specifications

General Specifications

Specification	SLC 5/01 (1747-L511, -L514)	SLC 5/02 (1747-L524)
Program memory	1K or 4K instructions	4K instructions
Additional data storage	0	
Maximum I/O capacity	3940 discrete inputs 3940 discrete outputs	4096 discrete inputs 4096 discrete outputs
Max. local chassis/slots	3/30	
Programming software	RSLogix 500	
Programming instructions	52	71
Typical scan time(1)	8 ms/K	4.8 ms/K
Bit execution (XIC)	4 µs	2.4 µs
DH-485 communication(2)	receive	receive or initiate
Power supply loading @ 5V dc	90 mA	
Power supply loading @ 24V dc	0 mA(3)	
Program scan hold-up time	20 ms to 3 s (dependent on power supply loading)	
Noise immunity	NEMA Standard ICS 2-230	
Vibration	Displacement: 0.015 inch, peak-to-peak at 5-57 Hz Acceleration: 2.5 g at 57-2000 Hz	
Shock (operating)	30 g	
Memory module backup options	1747-M1, -M2	1747-M2

(1) The scan times are typical for a 1K ladder logic program consisting of simple ladder logic and communication servicing. Actual scan times depend on your program size, instructions used, and the communication protocol.

(2) A 1747-PIC is required when connecting to the DH-485 channel for programming.

(3) This applies to the processor only. When using the DH-485 port to supply power to a peripheral device such as a 1747-AIC and 1747-PIC, the current draw is 60 mA DC and 20 mA DC respectively.

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Environmental Specifications

Specification	Value
Ambient temperature rating	Operating: 0 °C...+ 60 °C (32 °F...140° F) Storage: 40 °C...85° C (-40 °F...185° F)
Humidity	5 to 95% without condensation

Certifications

Certification	Value
	c-UL-us listed Class 1, Groups A, B, C or D, division 2 CE compliant for all applicable directives C-Tick marked for all applicable acts

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Battery Handling, Storage, and Transportation (Cat. No. 1747-BA)

Battery Handling

ATTENTION

Do not charge the batteries. An explosion could result or cells could overheat causing burns.

Do not open, puncture, crush, or otherwise mutilate the batteries. An explosion may result and/or toxic, corrosive, and flammable liquids would be exposed.

Battery Storage

Store the lithium batteries in a cool, dry environment, typically +20° C to +25° C (+68° F to +77° F) and 40% to 60% relative humidity.

Battery Transportation

One or Two Batteries

You can ship up to two batteries together within the United States without restriction. Regulations governing shipment to or within other countries may differ.

Three or More Batteries

Procedures for the transportation of three or more batteries shipped together within the United States are specified by the Department of Transportation (DOT) in the Code of Federal Regulations, CFR49, “Transportation.” An exemption to these regulations, DOT - E7052, covers the transport of certain hazardous materials classified as flammable solids. This exemption authorizes transport of lithium batteries by motor vehicle, rail freight, cargo vessel, and cargo-only aircraft, providing certain conditions are met. Transport by passenger aircraft is not permitted.

Shipment of depleted batteries for disposal may be subject to specific regulation of the countries involved or to regulations endorsed by those countries, such as the

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IATA Restricted Articles Regulations of the International Air Transport Association, Geneva, Switzerland.

IMPORTANT Regulations for transportation of lithium batteries are periodically revised.

ATTENTION Do not incinerate or dispose of lithium batteries in general trash collection. Explosion or violent rupture is possible. Batteries should be collected for disposal in a manner to prevent against short circuiting, compacting, or destruction of case integrity and hermetic seal.

For disposal, batteries must be packaged and shipped in accordance with transportation regulations, to a proper disposal site. The U.S. Department of Transportation authorizes shipment of "Lithium batteries for disposal" by motor vehicle only in regulation 173.1015 of CFR 49 (effective January 5, 1983). For additional information contact:

U.S. Department of Transportation
Research and Special Programs Administration
400 Seventh Street, S.W.
Washington, D.C. 20590

Although the Environmental Protection Agency at this time has no regulations specific to lithium batteries, the material contained may be considered toxic, reactive, or corrosive. The person disposing of the material is responsible for any hazard created in doing so. State and local regulations may exist regarding the disposal of these materials.

For a lithium battery material safety data sheet, contact the manufacturer.

Sanyo Energy Corporation 600 Supreme Drive Bensenville, IL 60106 USA	or	Tadarand Electronics 2 Seaview Blvd. Port Washington, NY 11050 USA

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Additional Resources

For	Refer to this document	Pub. No.
A more detailed description on how to install and use your modular SLC 500 system.	SLC 500 Modular Hardware Style User Manual	1747-UM011
A reference manual that contains status file data, instruction set, and troubleshooting information.	SLC 500 Instruction Set Reference Manual	1747-RM001

If you would like a manual, you can:

- download a free electronic version from the internet: http://literature.rockwellautomation.com
- purchase a printed manual by contacting your local Allen-Bradley distributor or Rockwell Automation representative

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Rockwell Automation Support

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

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

Installation Assistance

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

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

New Product Satisfaction Return

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

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

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