



Installation Instructions

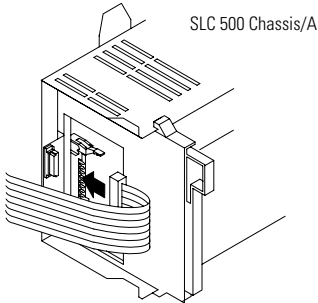
SLC 500 Power Supplies

Catalog Numbers 1746-P1, 1746-P2, 1746-P3, 1746-P4, 1746-P5, 1746-P6, 1746-P7



Install the Chassis Interconnect Cable (optional)

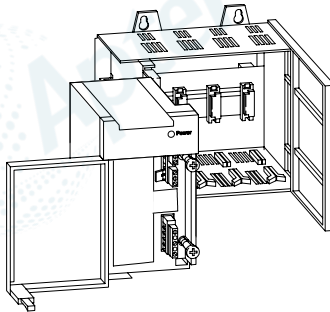
To connect up to three SLC 500 chassis together, install the chassis interconnect cable before installing the power supply.



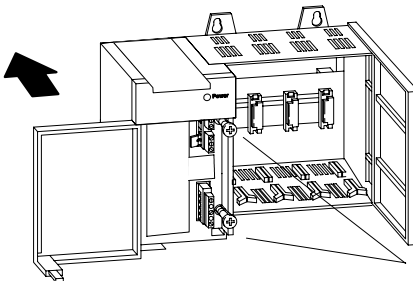
For more information, see the SLC 500 Modular Hardware Style User Manual, publication 1747-UM011.

Power Supply Installation

1. Align the circuit board of the power supply with the card guides on the left side of the chassis.



2. Slide the power supply in until it is flush with the chassis. Then fasten the power supply to the chassis.



Use these screws to fasten the power supply to the chassis with 1.2 Nm (11 lb-in) torque, max.

Power Supply Wiring

TIP



For more information on wiring, see Allen-Bradley Programmable Controller Grounding and Wiring Guidelines, publication 1770-4.1.

Refer to publication 1746-IN016, for chassis installation and grounding requirements.

1. Place the input voltage jumper to match the input voltage. (This does not apply to the 1746-P3, 1746-P5, 1746-P6, and 1746-P7 power supplies, which do not have a jumper.)

ATTENTION

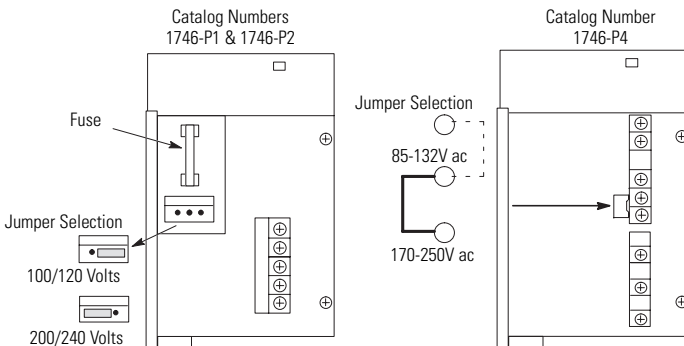


Set the input jumper before applying power. Hazardous voltage is present on exposed pins when power is applied; contact with the pin may cause injury to personnel.

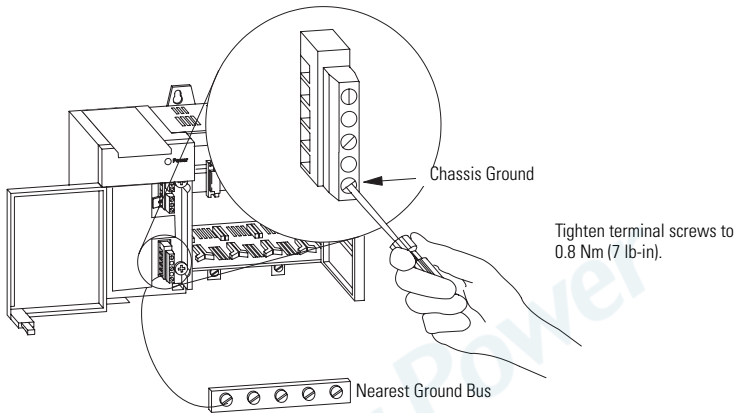
WARNING



If you connect or disconnect the wiring to the terminal blocks or if you insert or remove the power supply while power is on, an electrical arc can occur. This could cause an explosion in hazardous location installations. Be sure that power is removed or the area is nonhazardous before proceeding.



2. Connect the ground screw of the power supply to the nearest ground or ground bus. Use a 1.68 mm (#14 AWG) 75° Copper wire (Category 1 per Industrial Automation Wiring and Grounding Guidelines, publication 1770-4.1) and keep the leads as short as possible. The 1746-P4 is shown below.



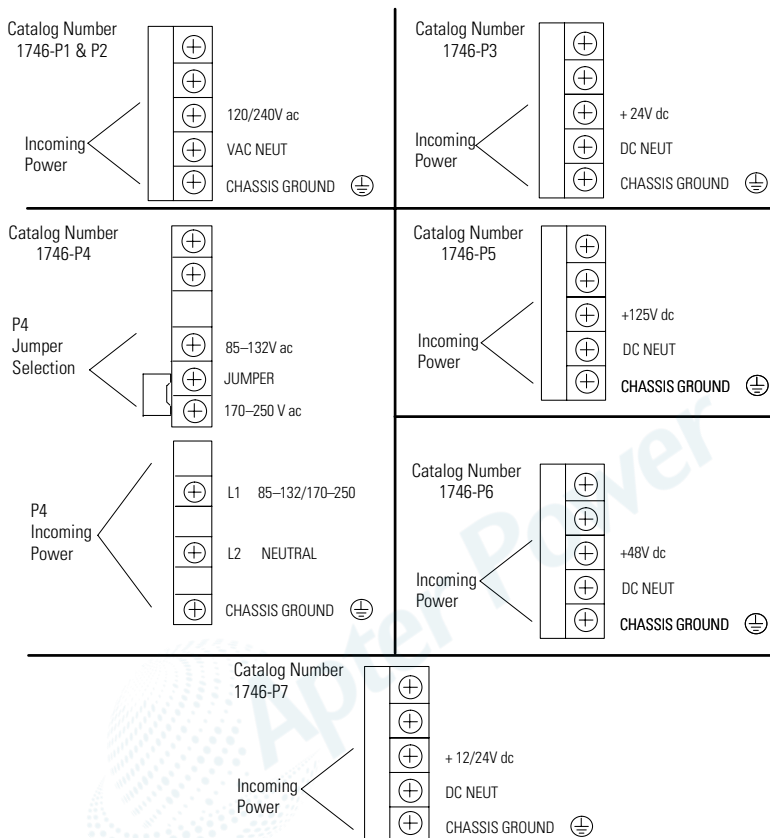
3. Refer to page 11 for special wiring considerations for the 1746-P3.
4. Connect incoming power. See illustration on page 10.

ATTENTION

Turn off incoming power before connecting wires; failure to do so could cause injury to personnel and/or equipment.

Use 1.68 mm (#14 AWG) Copper wire. Tighten terminal screws to 0.8 Nm (7 lb-in).

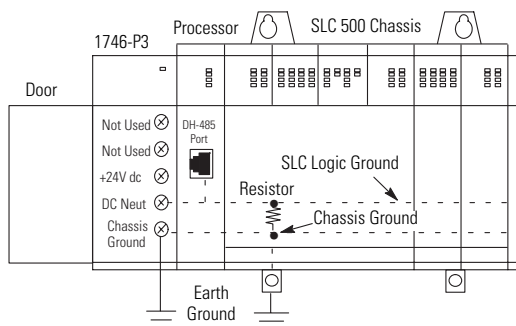
10 Installation Instructions



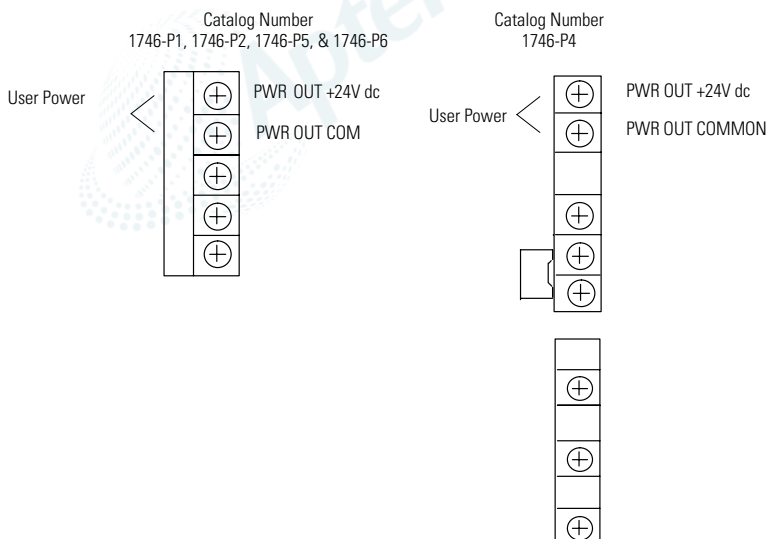
ATTENTION



Your SLC 500 power supply can be damaged by voltage surges when switching inductive loads such as motors, motor starters, solenoids, and relays. To avoid damage to your SLC 500 power supply in these applications, use an isolation transformer to isolate the power supply from harmful voltage surges.



- 5. (Optional)** For the 1746-P1, 1746-P2, 1746-P4, 1746-P5, and 1746-P6 power supplies, use PWR OUT +24V dc and PWR OUT COM terminals to power 24V dc sensors and loads. The terminals on the 1746-P1, 1746-P2, 1746-P5, and 1746-P6 power supplies provide an isolated, non-fused 200 mA, 24V dc power supply. The terminals on the 1746-P4 power supply provide an isolated, non-fused 1A, 24V dc power supply. (The 1746-P3 and 1746-P7 power supplies do not provide for an external power source.)



SLC 500 Operation with 24V dc User-power Overcurrent Condition

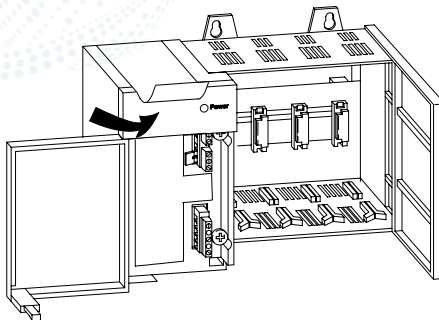
Cat. No.	SLC Operation	Recovery Procedure
1746-P1 series A (made in Japan)	Power supply shutdown, CPU Fault	Reload user program
1746-P1 series A (made in Malaysia-current production)	24V dc user shutdown, CPU continues	Correct overcurrent condition
1746-P2 series A, B	Power supply shutdown, CPU Fault	Reload user program
1746-P2 series C	24V dc user shutdown, CPU continues	Correct overcurrent condition
1746-P4 series A	Power supply shutdown, CPU Fault	Reload user program
1746-P5 series A	24V dc user shutdown, CPU continues	Correct overcurrent condition
1746-P6 series A	24V dc user shutdown, CPU continues	Correct overcurrent condition

ATTENTION



For 1746-P1 (made in Malaysia), 1746-P2 series C, 1746-P5 series A, and 1746-P6 series A power supplies, monitor the 24V dc user output with a 24V dc input channel to avoid unexpected operation due to 24V dc user power shutdown.

6. Remove the protective label.



Power Supply Undervoltage Operation

SLC 500 controllers continue to operate (hold-up) for a short period of time if the input voltage to the power supply drops below the recommended operating voltage range. The controller continues to scan the user program and control I/O during this time. CPU hold-up for each power supply is shown on pages 14 and 16.

SLC 500 controllers turn OFF (stop scanning and disable outputs) if input voltage to the power supply is removed or drops below the recommended operating range for a period exceeding the CPU hold-up time. The controller resumes operation automatically when the input voltage is restored to normal.

If the input voltage to the 1746-P7 power supply falls into a range of 4 to 9V for a period exceeding the CPU hold-up time, the controller turns OFF and will not turn back ON until input voltage is increased to 11V dc.

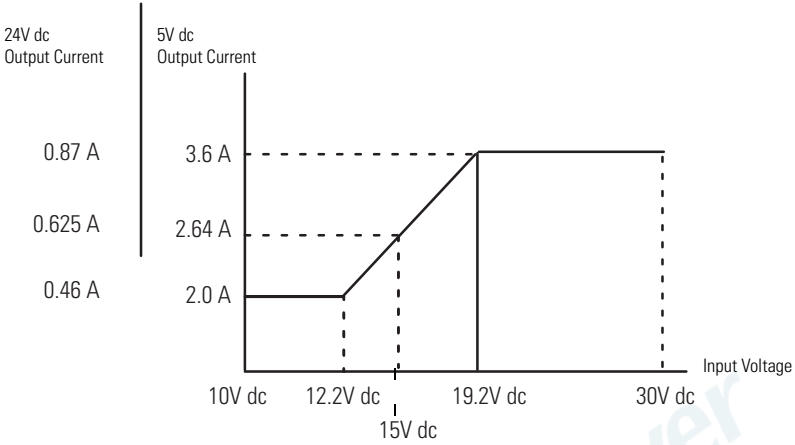
General Specifications (1746-P1, 1746-P2, 1746-P3, and 1746-P4)

Attribute	Value			
	1746-P1	1746-P2	1746-P3	1746-P4
Line voltage	85...132/170...265V ac 47...63 Hz		19.2...28.8V dc	85...132/ 170...250V ac 47...63 Hz
Typical line power requirement	135VA	180VA	90VA	150VA
Inrush current, max	20 A			45 A
Internal current capacity	2 A at 5V dc 0.46 A at 24V dc	5 A at 5V dc 0.96 A at 24V dc	3.6 A at 5V dc 0.87 A at 24V dc	10.0 A at 5V dc 2.88 A at 24V dc ⁽¹⁾
Fuse protection ⁽²⁾	1746-F1 or equivalent ^{(3) (4)}	1746-F2 or equivalent ^{(3) (5)}	1746-F3 or equivalent ^{(3) (6)}	Fuse is soldered in place.
24V dc user-power current capacity	200 mA		Not applicable	1 A ⁽¹⁾
24V dc user-power voltage range	18...30V dc			20.4...27.6V dc
User-supplied overcurrent protection ⁽⁷⁾ , max	15 A		Not applicable	15 A
Temperature, ambient operating	0...60 °C (32...140 °F) Current capacity is derated 5% above 55 °C (131 °F).			0...60 °C (32...140 °F) no derating
Isolation ⁽⁸⁾	1800V ac RMS for 1 s		600V ac RMS for 1 s (version B or later)	2600V dc for 1 s
CPU hold-up time ⁽⁹⁾	20 ms (full load) 3000 ms (no load)		5 ms (full load) 1000 ms (no load)	20 ms (full load) 3000 ms (no load)

Attribute	Value			
	1746-P1	1746-P2	1746-P3	1746-P4
Certification (when product is marked)	UL Listed Industrial Control Equipment for Class 1, Division 2, Groups A, B, C, D Hazardous Locations			UL Listed Industrial Control Equipment
	C-UL Listed Industrial Control Equipment for Class 1, Division 2, Groups A, B, C, D Hazardous Locations			CSA Certified Process Control Equipment for Class 1, Div 2, Groups A, B, C, D Hazardous Locations
	CE ⁽¹⁰⁾ European Union 89/336/EEC EMC Directive, compliant with: EN 50082-2 Industrial Immunity EN50081-2 Industrial Emissions European Union 73/23/EEC LVD Directive, compliant with: EN61131-2 Programmable Controllers			
	C-Tick Australian Radiocommunications Act, compliant with: AS/NZS 2064 Industrial Emissions			

- (1) The combination of all output power (5V backplane, 24V backplane, and 24V user source) cannot exceed 70 W.
- (2) Power supply fuse is intended to guard against fire hazard due to short-circuit conditions. This fuse may not protect the supply from miswiring or excessive transient in the power line.
- (3) Fuse sizes specified are for end-devices only. Fuse size may need to be reduced depending on the size of circuit wiring.
- (4) Equivalent fuses: 250V-3A fuse, nagasawa ULCS-61ML-3, or BUSSMAN AGC 3.
- (5) Equivalent fuse: 250V-3A fuse, SANO SOC SD4, or BUSSMAN AGC 3.
- (6) Equivalent fuse: 125V-5A fuse, LITTLEFUSE 233.
- (7) Use time-delay type overcurrent protection in all ungrounded conductors.
- (8) Isolation is between input terminals and backplane.
- (9) CPU hold-up time is for 0V unless specified. Hold-up time is dependent on power supply loading.
- (10) See the Product Certification link at <http://ab.com> for Declarations of Conformity, Certificates, and other certification details.

1746-P7 Current Capacity



Physical Dimensions

Controller	Length, Approx. mm (in.)	Depth, Approx. mm (in.)	Height, Approx. mm (in.)
1746-P1	65 (2.56)	140 (5.70)	140 (5.51)
1746-P2	85 (3.35)		
1746-P3			
1746-P4	110 (4.33)	145 (5.70)	140 (5.51)
1746-P5	85 (3.35)	140 (5.70)	
1746-P6			
1746-P7			