MANUFACTURER DOCUMENT PACKAGE

Manufacturer's Manual

Reference package for procurement and maintenance review

ALLEN-BRADLEY

1746-OW16

16-POINT RELAY OUTPUT MODULE

Used with the applicable SLC 500 configuration.

REFERENCE PACKAGE

OFFICIAL DOCUMENT

Selected official manufacturer pages follow this cover.

Source: Rockwell 1746-IN027D, SLC 500 Digital I/O

Installation Instructions

Allen-Bradley

SLC 500 Digital I/O Modules

Input Catalog Numbers 1746-IA4, 1746-IA8, 1746-IA16, 1746-IB8, 1746-IB16, 1746-IC16, 1746-IG16, 1746-IH16, 1746-IM4, 1746-IM8, 1746-IM16, 1746-IN16, 1746-ITB16, 1746-ITV16, 1746-IV8, 1746-IV16

Output Catalog Numbers 1746-OA8, 1746-OA16, 1746-OAP12, 1746-OB8, 1746-OB6EI, 1746-OB16, 1746-OB16E, 1746-OBP8, 1746-OBP16, 1746-OG16, 1746-OV8, 1746-OV16, 1746-OVP16, 1746-OW4, 1746-OW8, 1746-OW16, 1746-OX8

Combination Input/Output Catalog Numbers 1746-IO4, 1746-IO8, 1746-IO12, 1746-IO12DC

Table of Contents

Topic	Page
Important User Information	2
North American Hazardous Location Approval	3
Environment and Enclosure	4
Prevent Electrostatic Discharge	4
Install and Remove the Module	5
Octal Label Kit Installation (for PLC processors only)	6
Wiring Diagrams	17
Apply the Octal Filter Label	6
Apply the Octal Door Label	6
Removable Terminal Blocks	6
Recovery From Blown Fuse/Processor Fault/Processor Shutdown	13
Replacement Fuse Recommendations	13
Replace Fuses	14
Electronically Protected Modules (1746-OB6EI and 1746-OB16E)	14
Specifications	29

Install and Remove the Module

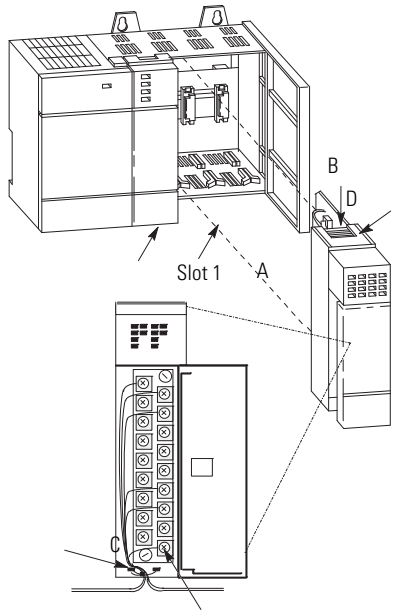
ATTENTION: Never install, remove, or wire modules with power applied to chassis.

IMPORTANT The first slot of the chassis is reserved for the processor or the 1747-ASB module.

Follow these steps to install the module:

1. Disconnect power.
2. Align the circuit board of module with the chassis card guide. (A)
3. Slide the module into the chassis until the bottom tabs lock into place. (B)
4. Route the wires down and away from the module, securing them with the wire tie. (C)
5. Cover all unused slots with Card Slot Filler, catalog number 1746-N2, to keep the chassis free from debris.
6. To remove the module, press and hold the module release located on each self-locking tab, and slide the module out of the chassis slot. (D)

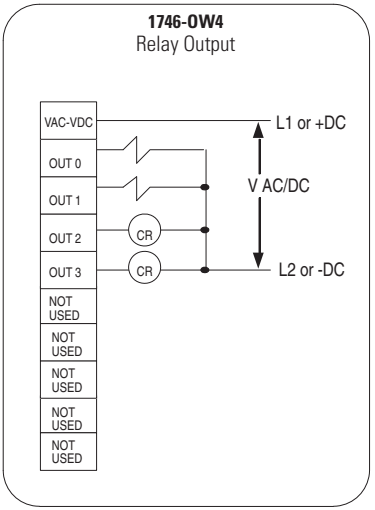
Module Installation

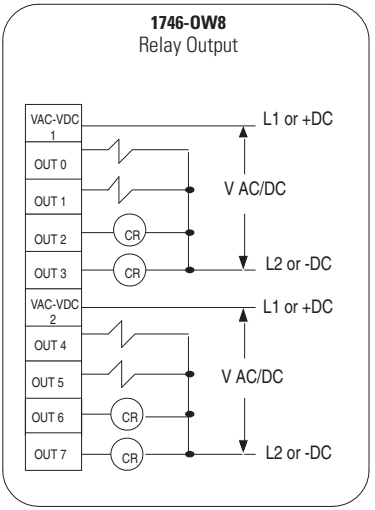


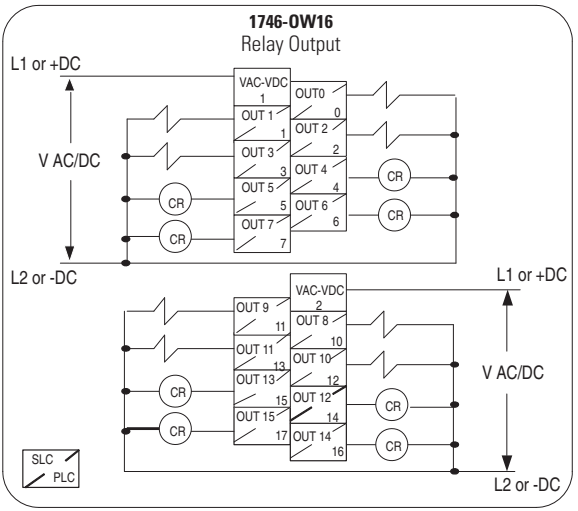
Max 2 mm^2 (14 AWG)
Max 2 wires per terminal
Max torque: 0.9 Nm (8 lb-in.)

Relay Contact Output Modules Wiring Diagrams

1746-OW4, 1746-OW8, 1746-OW16







Specifications

General Specifications

Attribute	Value
Temperature, operating	0...60 °C (32...140 °F)[3]
Temperature, nonoperating	-40...85 °C (-40...185 °F)
Operating humidity	5...95% (noncondensing)
Noise immunity	NEMA standard ICS 2-230
Vibration, operating	Displacement 0.015 in. peak @ 5...57 Hz Acceleration 2.5 g @ 57...2000 Hz
Shock, operating	30 g (all modules except relay contact) 10 g (relay contact modules: 1746-OWx, 1746-OX8, and combination I/O modules)
Isolation[1]	1500V
Agency certification	UL listed CSA certified or C-UL approved as indicated by product marking CE compliant for all applicable directives when product or packaging is marked C-Tick marked for all applicable acts
Hazardous environment class[2]	Class I, Division 2 Hazardous Environment UL-A196, CSA, C-UL

(1) Electro-optical isolation between I/O terminals and control logic.

(2) Some modules are classified Class 1, Division 2 by CSA only or C-UL only as shown in the specification table for the respective module.

(3) Temperature is for air surrounding the SLC 500 system. Temperature range exceptions are indicated with certain modules.

Heat Dissipation

The following tables contain values for the heat dissipated by each I/O module. Use them to calculate the total amount of heat dissipated by your SLC 500 control system. For details on how to calculate total heat dissipation, refer to the SLC 500 Modular Hardware Style User Manual, publication 1747-UM011. Please note the following definitions:

- Watts per point – the heat dissipation that can occur in each field wiring point when energized at nominal voltage.
- Minimum Watts – the amount of heat dissipation that can occur when there is no field power present.
- Total Watts – the Watts per point multiplied by the number of points, plus the minimum Watts (with all points energized).

Output Modules Heat Dissipation

Catalog Numbers	Watts per Point	Minimum Watts	Total Watts
1746-OV8	0.775	0.675	6.90
1746-OV16	0.388	1.400	7.60
1746-OVP16	0.310	1.250	6.26
1746-OW4	0.133	1.310	1.90
1746-OW8	0.138	2.590	3.70
1746-OW16	0.033	5.170	5.70
1746-OX8	0.825	2.590	8.60

Combination Input/Output Modules Heat Dissipation

Catalog Numbers	Watts per Point	Minimum Watts	Total Watts
1746-IO4	0.27 per input point 0.133 per output point	0.75	1.60
1746-IO8	0.27 per input point 0.133 per output point	1.38	3.00
1746-IO12	0.27 per input point 0.133 per output point	2.13	4.60
1746-IO12DC	0.20 per input point 0.133 per output point	1.84	3.90

ATTENTION: To avoid potential damage to TTL modules, handle them by the ends of the module, not metallic surfaces. Electrostatic discharges can damage the module. Take care to prevent exposure of terminals or components to electrostatic charges.

Careful wire routing within the enclosure helps cut down electrical noise between I/O lines. Refer to the SLC 500 Modular Hardware Style User Manual, publication 1747-UM011, for recommended wiring procedures for TTL modules.

Limit cable length to 3 m (10 ft) per point for outputs in standard environments.

Refer to Allen-Bradley Programmable Controller Wiring and Grounding Guidelines, publication 1770-IN041, for complete information.

Relay Contact Modules

WARNING: Exposure to some chemicals may degrade the sealing properties of materials used in the following devices: Relay Epoxy.

Catalog	Relay
1746-OX8	K1…K8
1746-IO4	K1 and K2
1746-IO8	K1…K4
1746-IO12	K1…K6
1746-IO12DC	K1…K6
1746-OW4	K1…K4
1746-OW8	K1…K8
1746-OW16	K1…K16

It is recommended that the user periodically inspect these devices for any degradation of properties and replace the module if degradation is found.

Specifications – 1746-OW4, 1746-OW8, 1746-OW16, and 1746-OX8

Attribute	Value			
	1746-OW4[2]	1746-OW8[2]	1746-OW16[2][3]	1746-OX8[2][3]
Voltage category	AC/DC Relay			
Number of outputs	4	8	16	8
Points per common	4	4	8	Individually isolated

Specifications – 1746-OW4, 1746-OW8, 1746-OW16, and 1746-OX8

Attribute		Value			
		1746-OW4[2]	1746-OW8[2]	1746-OW16[2][3]	1746-OX8[2][3]
Voltage, operating	5V DC	5...125			
	24V DC	5...265			
Signal delay, max resistive load		On = 10.0 ms Off = 10.0 ms			
Backplane current consumption	5V DC	0.045 A	0.085 A	0.170 A	0.085 A
	24V DC	0.045 A	0.090 A	0.180 A	0.090 A
Off-state leakage, max		0 mA			
Load current, min		10 mA @ 5V DC			
Continuous current per point[1]		See Relay Contact Ratings on page 43.			
Continuous current per module		8.0 A AC 8.0 A /Common	16.0 A AC 8.0 A /Common	16.0 A AC 8.0 A /Common	[4]

(1) Recommended surge suppression: For relay contact outputs, refer to the SLC 500 Modular Hardware User Manual, publication 1747-UM011. Connecting surge suppressors across your external inductive load will extend the life of SLC 500 relay contacts.

(2) Certified for Class 1, Division 2 hazardous location by CSA.

(3) Removable terminal block.

(4) The continuous current per module must be limited so the module power does not exceed 1440V A.

Relay Contact Ratings

Relay Contact Ratings – 1746-IO4, 1746-IO8, 1746-IO12, and 1746-IO12DC

Voltages		Amperes[1]		Amperes[1] Continuous	Volt-Amperes	
		Make	Break		Make	Break
Volts (AC), max	120	15	1.5	2.5	1800	180
	240	7.5	0.75			
Volts (DC), max	125	0.22[2]		1.0	28	
	24	1.2[2]		2.0	28	

(1) The continuous current per module must be limited so the module power does not exceed 1440V A.

(2) For DC voltage applications, the make/break ampere rating for relay contacts can be determined by dividing 28VA by the applied DC voltage. For example, 28V A/48V DC = 0.58 A. For DC voltage applications less than 14V, the make/break ratings for relay contacts cannot exceed 2 A.