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ALLEN BRADLEY 1746-IV8 DATASHEET

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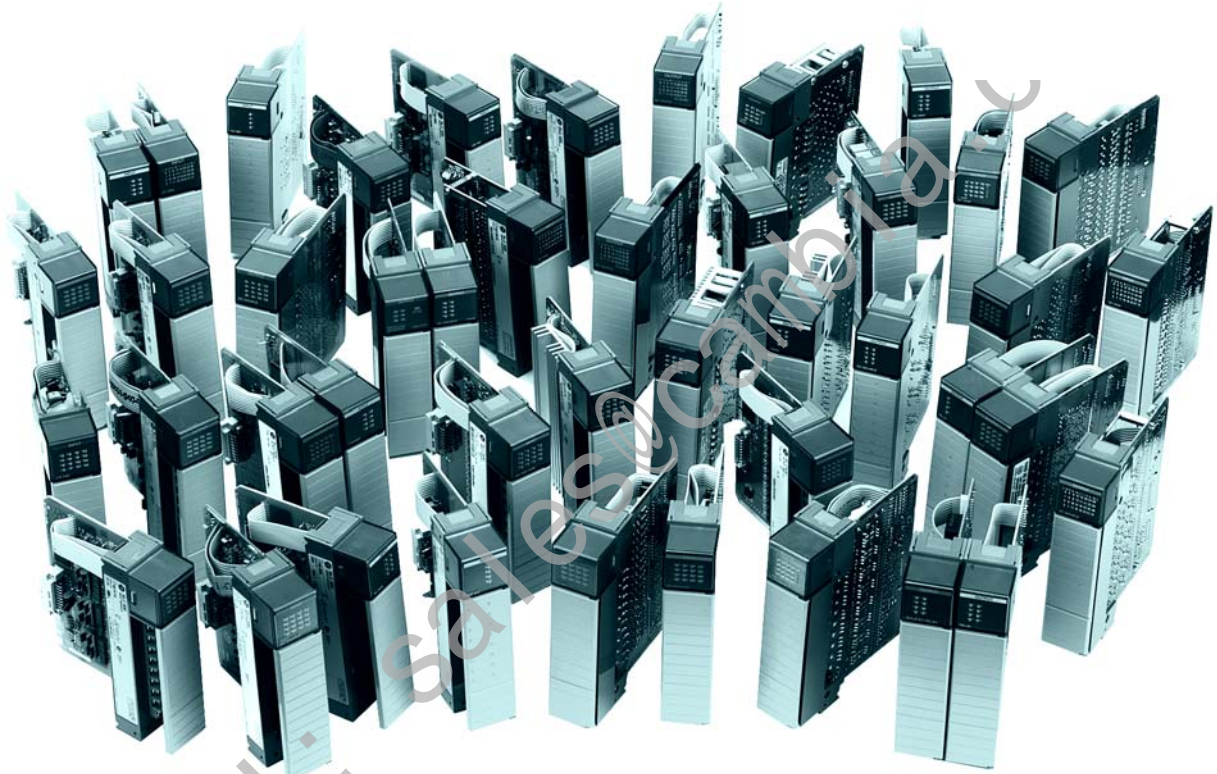
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Step 1 - Select:

- *I/O modules – available in a variety of densities and voltage options. Some modules have diagnostic features, individually isolated inputs/outputs or electronic protection.*
- *interface modules (IFMs) or prewired cables (optional)*

Select SLC 500 I/O Modules

Digital I/O modules, analog I/O modules, and specialty temperature, counting, process control, and BASIC language modules are available to help you create a custom solution for your application.



1746 Digital I/O modules

Digital I/O modules are available with 4, 8, 16, or 32 channels and in a wide variety of I/O voltages (including AC, DC, and TTL). Combination modules with 2 inputs/2 outputs, 4 inputs/4 outputs, and 6 inputs/6 outputs are also available.

Terminals on the 4, 8, 12, and 16-channel modules have self-lifting pressure plates that accept two 14 AWG (2 mm²) wires. LED indicators on the front of each module display the status of each I/O point.

32-channel I/O modules are equipped with a 40-pin, MIL-C-83503 type header and a removable wiring connector (1746-N3). The connector can be assembled with the wire type and length of your choice.

Output modules are available with solid-state AC, solid-state DC, and relay contact type outputs. High current solid-state output modules, catalog numbers 1746-OBP16, 1746-OVP16, and 1746-OAP12, have fused commons with a blown fuse LED indication. The

1746-OB16E, 1746-OB6EI, and 1746-OB32E modules provide electronic protection from short circuit and overload conditions.

Wiring of 16 and 32-channel modules can also be accomplished with a bulletin 1492 interface module and pre-wired cable. All 16-channel I/O modules and catalog numbers 1746-OX8, 1746-OBP8, 1746-OAP12, 1746-IO12 are equipped with color-coded removable terminal blocks.

Digital I/O Module Overview

Catalog Number	Voltage Category	I/O Points	Description	For Detailed Specifications, See
DC Modules				
1746-IB8	24V DC	8	Current Sinking DC Input Module	Sinking DC Input Modules page 11
1746-IB16	24V DC	16	Current Sinking DC Input Module	
1746-IB32	24V DC	32	Current Sinking DC Input Module	
1746-ITB16	24V DC	16	Fast Response DC Sinking Input Module	
1746-IC16	48V DC	16	Current Sinking DC Input Module	
1746-IH16	125V DC	16	Current Sinking DC Input Module	
1746-IV8	24V DC	8	Current Sourcing DC Input Module	Sourcing DC Input Modules page 12
1746-IV16	24V DC	16	Current Sourcing DC Input Module	
1746-IV32	24V DC	32	Current Sourcing DC Input Module	
1746-ITV16	24V DC	16	Fast Response DC Sourcing Input Module	
1746-IG16 ⁽¹⁾	5V DC	16	Current Sourcing TTL Input Module	
1746-OB6EI	24V DC	6	Electronically Protected Isolated Sourcing DC Output Module	Sourcing DC Output Modules page 13
1746-OB8	24V DC	8	Current Sourcing DC Output Module	
1746-OB16	24V DC	16	Current Sourcing DC Output Module	
1746-OB16E	24V DC	16	Electronically Protected Current Sourcing DC Output Module	
1746-OB32	24V DC	32	Current Sourcing DC Output Module	
1746-OB32E	24V DC	32	Electronically Protected Current Sourcing DC Output Module	
1746-OBP8	24V DC	8	High Current Sourcing DC Output Module	
1746-OBP16 ⁽²⁾	24V DC	16	High Current Sourcing DC Output Module	
1746-OV8	24V DC	8	Current Sinking DC Output Module	Sinking DC Output Modules page 12
1746-OV16	24V DC	16	Current Sinking DC Output Module	
1746-OV32	24V DC	32	Current Sinking DC Output Module	
1746-OVP16 ⁽²⁾	24V DC	16	High Current Sinking DC Output Module	
1746-OG16 ⁽¹⁾	5V DC	16	Current Sinking TTL Output Module	
AC Modules				

Digital I/O Module Overview

Catalog Number	Voltage Category	I/O Points	Description	For Detailed Specifications, See
1746-IA4	100/120V AC	4	120V AC Input Module	AC Input Modules page 14
1746-IA8	100/120V AC	8	120V AC Input Module	
1746-IA16	100/120V AC	16	120V AC Input Module	
1746-IM4	200/240V AC	4	240V AC Input Module	
1746-IM8	200/240V AC	8	240V AC Input Module	
1746-IM16	200/240V AC	16	240V AC Input Module	
1746-OA8	120/240V AC	8	120/240V AC Output Module	AC Output Modules page 15
1746-OA16	120/240V AC	16	120/240V AC Output Module	
1746-OAP12 ⁽²⁾	120/240V AC	12	High Current 120/240V AC Output Module	
AC/DC Modules				
1746-IN16	24V AC/DC	16	24V AC/DC Input Module	AC Input Modules page 14
1746-OW4 ⁽²⁾	AC/DC Relay	4	Relay (Hard Contact) Output Module	Relay Output Modules page 16
1746-OW8 ⁽²⁾	AC/DC Relay	8	Relay (Hard Contact) Output Module	
1746-OW16 ⁽²⁾	AC/DC Relay		Relay (Hard Contact) Output Module	
1746-OX8 ⁽²⁾	AC/DC Relay	8	Relay (Hard Contact) Output Module	
1746-IO4 ⁽²⁾	120V ac (Inputs) 100/120V AC (Relay Contact Outputs)	2 In 2 Out	Combination Input/Output Module	Combination I/O Modules page 17
1746-IO8 ⁽²⁾	120V AC (Inputs) 100/120V AC (Relay Contact Outputs)		Combination Input/Output Module	
1746-IO12 ⁽²⁾	120V AC (Inputs) 100/120V AC (Relay Contact Outputs)	4 In 4 Out	Combination Input/Output Module	
1746-IO12DC	24V DC (Inputs) 100/120V AC (Relay Contact Outputs)	6 In 6 Out	Combination Input/Output Module	

(1) Not CE marked.

(2) Certified for Class 1, Division 2 hazardous location by C-UL only.

Sinking DC Input Modules

Specifications	1746-IB8	1746-IB16	1746-IB32	1746-IC16	1746-IH16 ⁽¹⁾	1746-ITB16
Number of Inputs	8	16	32	32	16	16
Points Per Common	8	16	8	8	16	16
Voltage Category	24V DC			48V DC	125V DC	24V DC
Operating Voltage Range	10...30V DC		15...30V DC @ 50 °C (122 °F) 15...26.4V DC @ 60 °C (140 °F)	30...60V DC @ 55 °C (131 °F) 30...55V DC @ 60 °C (140 °F)	90...146V DC ⁽²⁾	10...30V DC
Backplane Current (mA) @ 5V	50 mA	50 mA	50 mA	50 mA		
Backplane Current (mA) @ 24V	0 mA	0 mA	0 mA	0 mA	0 mA	0mA

AC Input Modules

Specifications	1746-IA4	1746-IA8	1746-IA16	1746-IM4	1746-IM8	1746-IM16	1746-IN16
Nominal input current	12 mA @ 120V AC			12 mA @ 240V AC			8 mA @ 24V DC 8 mA @ 24V AC
Current, off-state input, max.	2 mA	2 mA	2 mA	2 mA	2 mA	2 mA	1 mA (DC) 1 mA (AC)
Inrush current, max. ⁽¹⁾	0.8 A			1.6 A			0.02 A (AC only)
Inrush current time duration, max.	0.5 ms	0.5 ms	0.5 ms	0.5 ms	0.5 ms	0.5 ms	—
Signal on delay, max.	35 ms max	35 ms max	35 ms max	35 ms max	35 ms max	35 ms max	15 ms max (DC) 25 ms (AC)
Signal off delay, max	45 ms max	45 ms max	45 ms max	45 ms max	45 ms max	45 ms max	15 ms max (DC) 25 ms (AC)

(1) An AC input device must be compatible with SLC 500 input circuit inrush current. A current limiting resistor can be used to limit inrush current. However, the operating characteristics of the AC input circuit are affected.

AC Output Modules

Specifications	1746-OA8	1746-OA16	1746-OAP12
Number of outputs	8	16	12
Points per common	4	8	6 ⁽⁵⁾
Voltage category	120/240V AC		
Operating voltage range	85...265V AC @ 47...63 Hz		
Backplane current (mA) @ 5V	185 mA	370 mA	
Backplane current (mA) @ 24V	0 mA	0 mA	0 mA
Voltage drop, on-state output, max	1.50V @ 1.0 A	1.50V @ 0.50 A	1.2V @ 2.0 A
Load current, min	10 mA	10 mA	10 mA
Leakage current, off-state output, max ⁽¹⁾	2 mA	2 mA	2 mA
Surge current per point, max ⁽²⁾	10 A for 25 ms		17.0 A for 25 ms ⁽⁶⁾
Signal on delay, max (resistive load) ⁽³⁾	1 ms	1 ms	1 ms
Signal off delay, max (resistive load) ⁽⁵⁾	11 ms	11 ms	11 ms
Continuous current per point ⁽⁴⁾	1.0 A @ 30 °C (86 °F) 0.50 A @ 60 °C (140 °F)	0.50 A @ 30 °C (86 °F) 0.25 A @ 60 °C (140 °F)	2.0 A @ 30 °C (86 °F) 1.25 A @ 55 °C (131 °F) 1.0 A @ 60 °C (140 °F)
Continuous current per module	8.0 A @ 30 °C (86 °F) 4.0 A @ 60 °C (140 °F)		9.0 A @ 30 °C (86 °F) 6.0 A @ 60 °C (140 °F)

(1) To limit the effects of leakage current through solid-state outputs, a loading resistor can be connected in parallel with your load. For 120V AC operation, use a 15 k Ω , 2 W resistor. For 240V AC operation, use a 15 k Ω , 5 W resistor.

(2) Repeatability is once every 1 s @ 30 °C (86 °F). Repeatability is once every 2 s @ 60 °C (140 °F).

(3) Triac outputs turn on at any point in the AC line cycle and turn off at AC line zero cross.

(4) Recommended surge suppression: For triac outputs when switching 120V AC inductive loads, use Harris Metal-oxide Varistor, model number V220MA2A. Refer to the SLC 500 Modular Hardware Style User Manual, publication [1747-UJ011](#) for more information on surge suppression.

(5) The 1746-OAP12 module features a fused common and blown fuse LED indicator.

Digital Input Modules

Catalog Number	Backplane Current (mA) @ 5V	Backplane Current (mA) @ 24V	Watts per point	Thermal dissipation, min.	Thermal dissipation, max.
1746-ITV16	85 mA	0 mA	0.200 W	0.425 W	3.625 W
1746-IV8	50 mA	0 mA	0.200 W	0.250 W	1.90 W
1746-IV16	85 mA	0 mA	0.200 W	0.425 W	3.60 W
1746-IV32	106 mA	0 mA	0.200 W	0.530 W	6.90 W

(1) Power supply loading for series D and later modules.

Digital Output Modules

Catalog Number	Backplane Current (mA) @ 5V	Backplane Current (mA) @ 24V	Watts per point	Thermal dissipation, min.	Thermal dissipation, max.
1746-OA8	185 mA	0 mA	1.00 W	0.925 W	9.00 W
1746-OA16	370 mA	0 mA	0.462 W	0.85 W	9.30 W
1746-OAP12	370 mA	0 mA	1.00 W	1.85 W	10.85 W
1746-OB8	135 mA	0 mA	0.775 W	0.675 W	6.90 W
1746-OB16	280 mA	0 mA	0.338 W	1.40 W	7.60 W
1746-OB32 ⁽¹⁾	190 mA	0 mA	0.078 W	2.26 W	4.80 W
1746-OBP8	135 mA	0 mA	0.300 W	0.675 W	3.08 W
1746-OBP16	250 mA	0 mA	0.310 W	1.25 W	6.21 W
1746-OB16E	135 mA	0 mA	0.338 W	1.40 W	7.60 W
1746-OB32E	190 mA	0 mA	0.078 W	2.26 W	4.80 W
1746-OG16	180 mA	0 mA	0.033 W	0.90 W	1.50 W
1746-OV8	135 mA	0 mA	0.775 W	0.675 W	6.90 W
1746-OV16	270 mA	0 mA	0.338 W	1.40 W	7.60 W
1746-OV32 ⁽¹⁾	190 mA	0 mA	0.078 W	2.26 W	4.80 W
1746-OVP16	250 mA	0 mA	0.310 W	1.25 W	6.21 W
1746-OW4	45 mA	45 mA	0.133 W	1.31 W	1.90 W
1746-OW8	85 mA	90 mA	0.138 W	2.59 W	3.70 W
1746-OW16	170 mA	180 mA	0.033 W	5.17 W	5.70 W
1746-OX8	85 mA	90 mA	0.825 W	2.59 W	8.60 W

(1) Power supply loading for series D and later modules.