

# Product Details and Certifications

## Cross Reference RA Part Number: 1746-IM16 C

 **Product: 1746-IM16**

Description: 1746 SLC System, 16 Ch-AC Input Module for Programmable Controller



Representative Photo Only (actual product may vary based on configuration sections)

### ***I/O MODULES AND HARDWARE***

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Bulletin Number	1746 SLC 500 I/O Module
Number of Inputs	16
Points per Common	16
Voltage Category	200/240V AC
Operating Voltage Range	170...265V AC @ 47...63 Hz
Backplane Current (mA) @ 5V	85 mA
Backplane Current (mA) @ 24V	0 mA
Nominal Input Current	12 mA @ 240V AC
Voltage, Off-State Input, Max	50V AC
Current, Off-State Input, Max	2 mA

**Sourcing DC Output Modules**

Specifications	1746-OB6EI	1746-OB8	1746-OB16	1746-OB16E	1746-OB32	1746-OB32E	1746-OBP8 <sup>(4)</sup>	1746-OBP16
Voltage drop, on-state output, max.	1.0V @ 2.0 A	1.2V @ 1.0 A	1.2V @ 0.5 A	1.0V @ 0.5 A	1.2V @ 0.5 A		1.0V @ 2.0 A	1.0V @ 1.0 A
Load current, min.	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA
Leakage current, off-state output, max	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA
Signal on delay, max (resistive load)	1.0 ms <sup>(2)</sup>	0.1 ms	0.1 ms	1.0 ms <sup>(3)</sup>	0.1 ms	1.0 ms	1.0 ms <sup>(3)</sup>	0.1 ms <sup>(3)</sup>
Signal off delay, max (resistive load)	2.0 ms	1.0 ms	1.0 ms	1.0 ms	1.0 ms	2.0 ms	2.0 ms	1.0 ms
Continuous current per module	12.0 A @ 0...60 °C (32...140 °F)	8.0 A @ 30 °C (86 °F) 4.0 A @ 60 °C (140 °F)		8.0 A @ 0...60 °C (32...140 °F)			6.4 A @ 0...60 °C (32...140 °F)	
Continuous current per point	2.0 A @ 0...60 °C (32...140 °F) <sup>(3)</sup>	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)	1.0 A @ 30 °C (86 °F) 0.50 A @ 60 °C (140 °F) <sup>(4)</sup>	0.50 A @ 30 °C (86 °F) 0.25 A @ 60 °C (140 °F)		2.0 A @ 0...60 °C (32...140 °F) <sup>(4)</sup>	1.5 A @ 30 °C (86 °F) 1.0 A @ 60 °C (140 °F) <sup>(4)</sup>
Surge current per point for 10 ms <sup>(1)</sup>	4.0 A	3.0 A		2.0 A	1.0 A @ 30 °C (86 °F) 1.0 A @ 60 °C (140 °F)		4.0 A	

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

(2) Fast turn-off modules provide fast OFF delay for inductive loads. Comparative OFF delay times for 1746-OB8, 1746-OB16 and fast turn-off modules, when switching Bulletin 100-B110 (24 W sealed) contractor, are: 1746-OB8 and 1746-OB16 modules OFF delay = 152 ms; fast turn-off modules OFF delay = 47 ms.

(3) Fast off-delay for inductive loads is accomplished with surge suppressors on the 1746-OB6EI, 1746-OBP8 series B and later, 1746-OB16E series B and later, 1746-OBP16, and 1746-OBP16 modules. A suppressor at the load is not needed unless another contact is connected in series. If this is the case, a 1N4004 diode should be reverse-wired across the load. This defeats the fast turn-off feature.

(4) An external fuse can be used to protect this module from short circuits. Recommended fuse is SANO MQ 4-3.15 A, 5 x 20 mm.

(5) The 1746-OBP16 module features a fused common and blown fuse LED indicator.


**AC Input Modules**


Specifications	1746-IA4	1746-IA8	1746-IA16	1746-IM4	1746-IM8	1746-IM16	1746-IN16
Number of inputs	4	8	16	4	8	16	16
Points per common	5	8	16	4	8	16	16
Voltage category	100/120V AC			200/240V AC			24V AC/DC
Operating voltage range	85...132V AC @ 47...63 Hz			170...265V AC @ 47...63 Hz			10...30V AC 10...30V DC
Backplane current (mA) @ 5V	35 mA	50 mA	85 mA	35 mA	50 mA	85 mA	85 mA
Backplane current (mA) @ 24V	0 mA	0 mA	0 mA	0 mA	0 mA	0 mA	0 mA
Voltage, off-state input, max	30V AC			50V AC			3.0V DC 3.0V AC


**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. <sup>(1)</sup>	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 <sup>(5)</sup>
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 <sup>(1)</sup>	2 mA	2 mA	2 mA
Surge current per point, max <sup>(2)</sup>	10 A for 25 ms		17.0 A for 25 ms <sup>(6)</sup>
Signal on delay, max (resistive load) <sup>(3)</sup>	1 ms	1 ms	1 ms
Signal off delay, max (resistive load) <sup>(5)</sup>	11 ms	11 ms	11 ms
Continuous current per point <sup>(4)</sup>	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 $\Omega$ , 2 W resistor. For 240V AC operation, use a 15 k $\Omega$ , 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-UJM011](#) for more information on surge suppression.

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