

Installation Instructions

Original Instructions



Allen-Bradley

by ROCKWELL AUTOMATION

FLEX I/O 240V AC Digital Input and Output Modules

Catalog Numbers 1794-IM16, 1794-OM16

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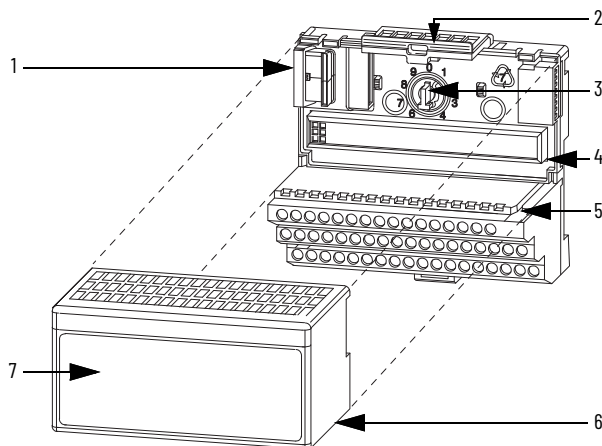
Summary of Changes

This publication contains the following new or updated information. This list includes substantive updates only and is not intended to reflect all changes.

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Overview

The FLEX™ I/O 240V AC digital input and output modules mount on a FLEX I/O terminal base.



	Description		Description
1	Flexbus connector	5	Groove
2	Latching mechanism	6	Alignment bar
3	Keyswitch	7	Module
4	Terminal base		

Install Your Module



ATTENTION: During mounting of all devices, be sure that all debris (metal chips, wire strands, and so on) is kept from falling into the module. Debris that falls into the module could cause damage on power-up.

1. Rotate the keyswitch (3) on the terminal base (4) clockwise to position 8 as required for this type of module.
2. Make sure that the Flexbus connector (1) is pushed all the way to the left to connect with the adjacent terminal base or adapter. **You cannot install the module unless the connector is fully extended.**
3. Make sure that the pins on the bottom of the module are straight so that they align properly with the connector in the terminal base.
4. Position the module (7) with its alignment bar (6) aligned with the groove (5) on the terminal base.
5. Press firmly and evenly to seat the module in the terminal base unit. The module is seated when the latching mechanism (2) is locked into the module.

Connect Wiring for 1794-IM16

Mount the 1794-IM16 module on a 1794-TBN terminal base.

1. Connect individual input wiring to terminals 0...15 on the 16...33 row (B), and on the 34...51 row (C) as indicated in [Table 1](#). Auxiliary terminal blocks are required to distribute 240V AC power (L1) to each device.
2. Connect 240V AC power (L1) to terminal 34 on the 34...51 row (C).
3. Connect 240V AC common (L2) to terminal 16 on the 16...33 row (B).
4. If daisy chaining power to the next terminal base, connect a jumper from terminal 51 (240V AC L1) on this base unit to terminal 34 on the next base unit.
5. If continuing AC common to the next base unit, connect a jumper from terminal 33 (240V common L2) on this base unit to terminal 16 on the next base unit.

Connect Wiring for 1794-OM16

Mount the 1794-OM16 module on a 1794-TBN or 1794-TBNF terminal base.

1. Connect individual output wiring to terminals 0...15 on the 16...33 row (B), and the 34...51 row (C) as indicated in [Table 1](#).
2. Auxiliary terminal blocks are required to connect the associated L2 common for each channel. Connect the L2 side of the load together and then connect to L2 on the power supply.
3. Connect 240V AC power L1 to terminal 34 on the 34...51 row (C).
4. Connect 240V AC common L2 to terminal 16 on the 16...33 row (B).
5. If daisy chaining power to the next terminal base, connect a jumper from terminal 51 (240V AC L1) on this base unit to terminal 34 on the next base unit.
6. If continuing 240V AC common (L2) to the next base unit, connect a jumper from terminal 33 (240V AC common L2) on this base unit to terminal 16 on the next base unit.

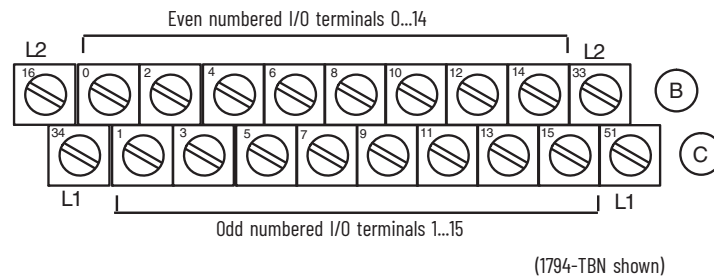
IMPORTANT Total current draw through terminal base connection is limited to 10 A. Separate power connections to each terminal base may be necessary.

Table 1 - Wiring Connections for 1794-IM16 and 1794-OM16

1794-IM16		1794-OM16	
Input	1794-TBN	Output	1794-TBN, 1794-TBNF
	Input Terminal ⁽¹⁾		Output Terminal ⁽²⁾
Input 0	B-0	Output 0	B-0
Input 1	C-1	Output 1	C-1
Input 2	B-2	Output 2	B-2
Input 3	C-3	Output 3	C-3
Input 4	B-4	Output 4	B-4
Input 5	C-5	Output 5	C-5
Input 6	B-6	Output 6	B-6
Input 7	C-7	Output 7	C-7
Input 8	B-8	Output 8	B-8
Input 9	C-9	Output 9	C-9
Input 10	B-10	Output 10	B-10
Input 11	C-11	Output 11	C-11
Input 12	B-12	Output 12	B-12
Input 13	C-13	Output 13	C-13
Input 14	B-14	Output 14	B-14
Input 15	C-15	Output 15	C-15
240V AC L1	Power terminals C-34 and C-51 are internally connected together. Connect 240V AC L1 to C-34.		
240V AC L2	Common terminals B-16 and B-33 are internally connected together. Connect 240V AC common L2 to terminal B-16.		

(1) Auxiliary terminal blocks are required to distribute 240V AC power L1 to each device.
 (2) Auxiliary terminal blocks are required to connect the associated L2 common for each channel.

Figure 1 - 1794-TBN Terminal Base Wiring for 1794-IM16 and 1794-OM16



L1 = 240V AC - Connect to terminal C-34
 L2 = 240V AC common - Connect to terminal B-16
 Use B-33 and C-51 for daisy chaining to the next terminal base unit.

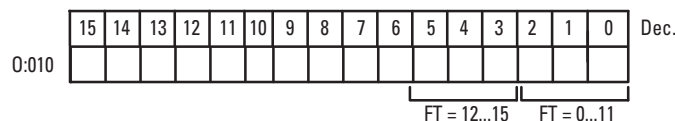
Configure Your AC Module

Table 2 - Image Table Memory Map for the 1794-OM16 Module

Dec.	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Oct.	17	16	15	14	13	12	11	10	7	6	5	4	3	2	1	0
Read	Not used - Set to 0															
Write	015	014	013	012	011	010	09	08	07	06	05	04	03	02	01	00
Where:	0 = Output															

Set the Input Filter Time for the 1794-IM16 Module

You can increase the input filter time (FT) for channels 00...15 by setting the corresponding bits in the output image table (complementary word) for the module.



Specifications - FLEX I/O 240V AC Output Module 1794-0M16

Attribute	Value
Number of outputs	16, nonisolated
Recommended terminal base unit	1794-TBN, 1794-TBNF, 1794-TBNK, 1794-TBNFK
Output voltage, min	159V AC
Output voltage, nom	240V AC
Output voltage, max	264V AC
Output current rating	4.0 A max per module ⁽¹⁾ (16 outputs @ 250 mA)
On-state current	500 mA @ 55 °C (131 °F) (50 mA min)
Surge current	7 A for 40 ms each, repeatable every 8 seconds
Off-state leakage, max	2.5 mA
Isolation voltage	250V (continuous), Basic Insulation Type, field side to backplane Type tested at 1530V AC for 60 s No isolation between individual channels
Output signal delay, max ⁽²⁾ Off-to-On On-to-Off	1/2 cycle 1/2 cycle
Flexbus current	116 mA @ 5V DC
Power dissipation, max	6 W @ 264V AC
Thermal dissipation, max	20.47 BTU/hr @ 264V A

- (1) If using 0.5 A outputs, alternate wiring so that no two 0.5 A outputs are next to each other.
 (2) Delay time is the time from the receipt of an output on or off command to the output actually turning on or off.



ATTENTION: 1794-0M16 module outputs are not fused. Fused outputs are recommended. If not using a 1794-TBNF terminal base and fusing is required, external fusing must be provided.

General Specifications

Attribute	Value
Terminal base screw torque	Determined by the installed terminal base
Dimensions, approx. (H x W x D)	94 x 94 x 91 mm (3.7 x 3.7 x 3.6 in.)
Weight, approx.	141 g (4.97 oz.) - 1794-IM16 108 g (3.81 oz.) - 1794-0M16
Indicators (field side)	16 yellow status indicators
External AC power supply voltage, nom	240V AC
External AC power voltage range	159...264V AC
Terminal base load current, max	10 A - For 1794-0M16 only
Pilot duty rating	C300 - For 1794-0M16 only
North American temp code	T4
Keyswitch position	8
Enclosure type rating	None (open-style)
Wire size	Determined by the installed terminal base
Wiring category ^{(1) (2)}	2 - on signal ports

- (1) Use this Conductor Category information for planning conductor routing. See the Industrial Automation Wiring and Grounding Guidelines, publication [1770-4.1](#).
 (2) Use this Conductor Category information for planning conductor routing as described in the appropriate System Level Installation Manual.

Environmental Specifications

Attribute	Value
Temperature, operating	IEC 60068-2-1 (Test Ad, Operating Cold), IEC 60068-2-2 (Test Bd, Operating Dry Heat), IEC 60068-2-14 (Test Nb, Operating Thermal Shock): 0...55 °C (32...131 °F)
Temperature, surrounding air, max.	55 °C (131 °F)
Temperature, nonoperating	IEC 60068-2-1 (Test Ab, Unpackaged Nonoperating Cold), IEC 60068-2-2 (Test Bb, Unpackaged Nonoperating Dry Heat), IEC 60068-2-14 (Test Na, Unpackaged Nonoperating Thermal Shock): -40...+85 °C (-40...+185 °F)
Relative humidity	IEC 60068-2-30 (Test Db, Unpackaged Damp Heat): 5...95% noncondensing
Vibration	IEC60068-2-6 (Test Fc, Operating): 5 g @ 10...500 Hz