

Installation Instructions

Original Instructions



Allen-Bradley

by ROCKWELL AUTOMATION

FLEX I/O Digital DC Output Modules

Catalog Numbers 1794-OB8, 1794-OB8EP, 1794-OB16, 1794-OB16P, 1794-OB32P

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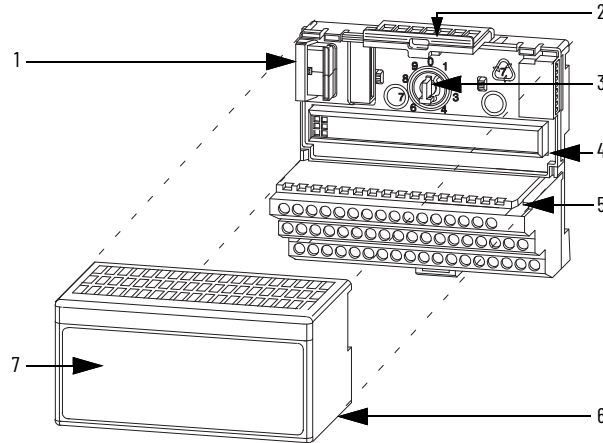
Summary of Changes

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 Digital DC Output module mounts on a 1794 terminal base.



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

Install Your Module



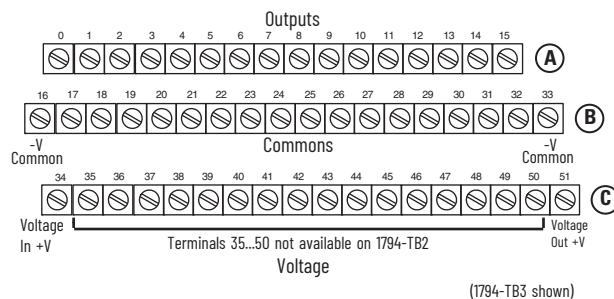
ATTENTION: During mounting of all devices, be sure that all debris (metal chips, wire strands, and so on) is kept from falling into the module. Debris that falls into the module could cause damage on power-up.

1. Rotate the keyswitch (3) on the terminal base (4) clockwise to position 2 as required for this type of module.
2. Make sure the Flexbus connector (1) is pushed all the way to the left to connect with the neighboring terminal base or adapter. **You cannot install the module unless the connector is fully extended.**
3. Make sure the pins on the bottom of the module are straight so 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-OB8, 1794-OB8EP, 1794-OB16, and 1794-OB16P

1. Connect individual output wiring to numbered terminals on the 0...15 row (A) as indicated in [Table 1](#).
1794-OB8 - Terminals 0...7; **1794-OB16** and **1794-OB16P** - terminals 0...15; **1794-OB8EP** - even numbered terminals 0...14.
2. Connect the associated -V output common to the corresponding terminal on the 16...33 row (B) for each output as indicated in [Table 1](#). Commons are internally connected together.
1794-OB8EP - connect associated output common to odd-numbered terminals on row A or associated terminals on row (B).
3. Connect +V DC power to terminal 34 on the 34...51 row (C).
4. Connect DC common 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 (+V DC) on this base unit to terminal 34 on the next base unit.
6. If continuing DC common to the next base unit, connect a jumper from terminal 33 (common) on this base unit to terminal 16 on the next base unit.

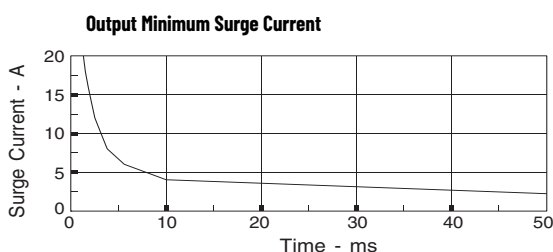
Figure 1 - Connect Wiring for 1794-TB2, 1794-TB3, and 1794-TB3S



Connect -V (Supply Common) to terminal B-16.
Use B-33 and C-51 for daisy chaining to next terminal base unit.
Total current draw through the terminal base is limited to 10 A.
Separate power connections to each terminal base may be necessary.

FLEX I/O Digital DC Output Modules Installation Instructions

Figure 4 - Surge Current for 1794-OB8EP



Specifications - 1794-OB16 and 1794-OB16P

Attribute	1794-OB16	1794-OB16P
Number of outputs	16, current, sourcing	
Recommended terminal base unit	1794-TB2, 1794-TB3, 1794-TB3S, 1794-TB3K, 1794-TB3SK	
On-state voltage, min	10V DC	
On-state voltage, nom	24V DC	
On-state voltage, max	31.2V DC (see Figure 5)	
Output current rating	8.0 A (16 outputs @ 0.5 A)	
On-state current, min per channel	1.0 mA	
On-state current, max per channel	500 mA	
On-state voltage drop, max	0.5V DC	
Surge current, repeatable every 2 seconds	2 A for 50 ms	1.5 A for 50 ms
Off-state leakage current, max	0.5 mA	
Isolation voltage	50V (continuous), Basic Insulation Type Tested at 850V DC for 1 s between user and system No isolation between individual channels	50V (continuous), Basic Insulation Type Type tested at 2121V DC for 60 s, between field side and system No isolation between individual channels
Output signal delay		
Off to On	0.5 ms	
On to Off	1.0 ms	
Flexbus current	80 mA @ 5V DC	60 mA @ 5V DC
Power dissipation, max	5.3 W @ 31.2V DC	5.0 W @ 31.2V DC
Thermal dissipation, max	18.1 BTU/hr @ 31.2V DC	17.0 BTU/hr @ 31.2V DC
Fusing	Module outputs are not fused. Fusing is recommended. If fusing is desired, you must provide external fusing. Use SAN-O MQ4-800mA fuses.	Outputs are electronically protected

Specifications - 1794-OB32P

Attribute	Value
Number of outputs	32, current, sourcing
Recommended terminal base unit	1794-TB32, 1794-TB32S
On-state voltage, min	10V DC
On-state voltage, nom	24V DC
On-state voltage, max	31.2V DC
Output current rating	14.0 A max per module (6 A total for channels 0...15; 8 A total for channels 16...31)
On-state current, min per channel	1.0 mA
On-state current, max per channel	500 mA
On-state voltage drop, max	0.5V DC
Surge current	2 A for 50 ms, repeatable every 2 seconds
Off-state leakage current, max	0.5 mA
Isolation voltage	50V (continuous), Basic Insulation Type Type tested at 850V DC for 60 s, between field side and system No isolation between individual channels
Output signal delay	
Off to On	0.5 ms
On to Off	1.0 ms
Flexbus current	80 mA @ 5V DC
Power dissipation, max	5.3 W @ 32.1V DC
Thermal dissipation, max	18.1 BTU/hr @ 31.2V DC
Fusing	Outputs are electronically protected.

General Specifications

Attribute	1794-0B8	1794-0B8EP	1794-0B16	1794-0B16P	1794-0B32P
Off-state voltage, max	31.2V DC				
Terminal base screw torque	Determined by the installed terminal base				
Keyswitch position	2				
Indicators (field side indication)	8 yellow status indicators	8 yellow status indicators 8 red fault indicators	16 yellow status indicators	16 yellow status indicators	32 yellow status indicators
External DC power supply voltage, nom	24V DC				
External DC power voltage range	19.2...31.2V DC (includes 5% AC ripple)	19.2...31.2V DC (includes 5% AC ripple)	19.2...31.2V DC (includes 5% AC ripple)	10...31.2V DC (includes 5% AC ripple)	10...31.2V DC (includes 5% AC ripple)
External DC power supply current	25 mA @ 24V DC (10...35 mA)	80 mA @ 24V DC	49 mA @ 24V DC (20...65 mA)	60 mA @ 24V DC (25...75 mA)	219 mA @ 24V DC (104 mA @ 10V DC; 278 mA @ 31.2V DC)
Wiring category ⁽¹⁾	2 - on signal ports				
Wire size	Determined by installed terminal base				
Dimensions, approx. (H x W x D) (with module installed)	94 x 94 x 69 mm (3.7 x 3.7 x 2.7 in.)				
Weight, approx.	73 g (2.57 oz.)	104 g (3.66 oz.)	78 g (2.75 oz.)	74 g (2.61 oz.)	85 g (2.99 oz.)
Enclosure type rating	None (open-style)				
North American temp code	T4A	T4A	T4A	T3C	T3C
UKEX/ATEX temp code	T4	T4	T4	T3	-
IECEX temp code	T4	T4	T4	T3	-

(1) Use this Conductor Category information for planning conductor routing. See the Industrial Automation Wiring and Grounding Guidelines, publication [1770-4.1](#).

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): -20...+55 °C (-4...+131 °F) - 1794-0B8, 1794-0B8EP, 1794-0B16, 1794-0B16P 0...55 °C (32...131 °F) - 1794-0B32P
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% non-condensing
Vibration	IEC60068-2-6 (Test Fc, Operating): 5 g @ 10...500 Hz
Shock, operating	IEC60068-2-27 (Test Ea, Unpackaged shock): 30 g
Shock, nonoperating	IEC60068-2-27 (Test Ea, Unpackaged shock): 50 g
Emissions	CISPR 11: Group 1, Class A (with appropriate enclosure)
ESD immunity	IEC 61000-4-2: 6 kV contact discharges 8 kV air discharges
Radiated RF immunity	IEC 61000-4-3: 10V/m with 1 kHz sine-wave 80% AM from 80...6000 MHz
EFT/B immunity	IEC 61000-4-4: ±2 kV @ 5 kHz on power ports - 1794-0B8, 1794-0B16, 1794-0B32P ±3 kV @ 5 kHz on power ports - 1794-0B8EP, 1794-0B16P ±2 kV @ 5 kHz on signal ports - 1794-0B8, 1794-0B16, 1794-0B32P ±3 kV @ 5 kHz on signal ports - 1794-0B8EP, 1794-0B16P
Surge transient immunity	IEC 61000-4-5: ±1 kV line-line(DM) and ±2 kV line-earth(CM) on signal ports
Conducted RF immunity	IEC 61000-4-6: 10V rms with 1 kHz sine-wave 80% AM from 150 kHz...80 MHz