

Digital DC Output Comparison

Specification	1794-OB8	1794-OB16	1794-OV16	1794-OV32	1794-OG16	1794-OC16
Thermal dissipation, max	11.2 BTU/hr @31.2V DC	18.1 BTU/hr @31.2V DC	14.3 BTU/hr @ 31.2V DC	8.53 BTU/hr @ 31.2V DC	3.41 BTU/hr @ 5.5V DC	12.6 BTU/hr @ 60V DC
Dimensions (HxWxD), approx	46 x 94 x 53 mm (1.8 x 3.7 x 2.1 in.) 94 x 94 x 69 mm (3.7 x 3.7 x 2.7 in.) installed					
Isolation voltage	50V continuous, I/O to system Tested to 850V DC for 1 s, I/O to system No isolation between individual channels		50V continuous Tested 1770V DC for 60 s, I/O to system No isolation between individual channels	50V (continuous), Basic Insulation Type, between field side and system Type tested at 707V DC for 60 s, between field side and system No isolation between individual channels		75V continuous, I/O to system Tested to 1900V DC for 1 s, I/O to system (No isolation between individual channels)

(1) OFF to ON delay is the time from a valid output ON signal to output energization. ON to OFF delay is the time from a valid output OFF signal to output de-energization.

FLEX I/O Digital DC Protected Output Modules

- 1794-OB16P provides 16 sourcing 1/2 Amp outputs self-protected against shorts, overloads, and over temperature. The faulted output will automatically return when the fault is removed. No feedback to the processor is provided.
- 1794-OB16PXT is the extended temperature version of the 1794-OB16P module. The module is conformal coated.
- 1794-OB8EP provides 8 sourcing 2 Amp outputs with electronic fuse type of overload protection, which opens when overloaded. The fuse can be 'reset' several ways. Fault status is provided to the processor.
- 1794-OB8EPXT is the extended temperature version of the 1794-OB8EP module. The module is conformal coated.
- 1794-OB32P provides 32 self-protected sourcing 1/2 Amp outputs in 2 groups of 16 outputs. Separate voltage sources can be used with each group.
- 1794-OV16P is the sinking version of the 1794-OB16P.

Digital DC Protected Output Comparison

Specification	1794-OB16P, 1794-OB16PXT	1794-OB8EP, 1794-OB8EPXT	1794-OB32P	1794-OV16P
Voltage, on-state output, nom	24V DC, sourcing			24V DC, sinking
Voltage, on-state output, min	10V DC	19V.2 DC	10V DC	
Voltage, on-state output, max	31.2V DC ⁽¹⁾		31.2V DC	
Voltage drop, on-state output, max	0.5V DC	0.2V DC	0.5V DC	0.2V DC
Terminal base unit	1794-TB2, 1794-TB3, 1794-TB3S, 1794-TB3K, 1794-TB3SK	1794-TB2, 1794-TB3, 1794-TB3S, 1794-TBN, 1794-TB3K, 1794-TB3SK, 1794-TBNK	1794-TB32, 1794-TB32S	1794-TB3, 1794-TB3S, 1794-TB3K, 1794-TB3SK
Current on-state output, min	1.0 mA per channel			

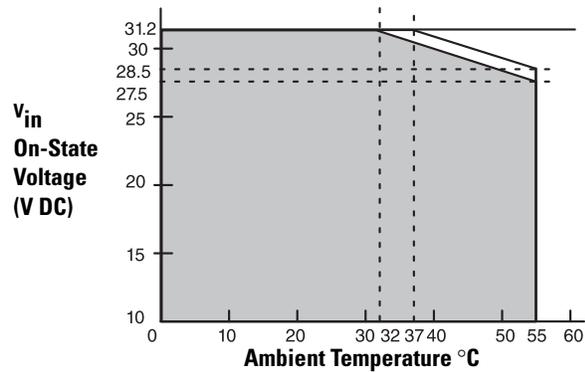
Digital DC Protected Output Comparison

Specification	1794-OB16P, 1794-OB16PXT	1794-OB8EP, 1794-OB8EPXT	1794-OB32P	1794-OV16P
Current, on-state output, max	500 mA per channel, 8 A per module	2.0 A per channel, 10 A per module	500 mA per channel, 14 A per module ⁽²⁾	500 mA per channel, 8 A per module
Leakage current, off-state output, max	0.5 mA			
Output surge current, max	1.5 A for 50 ms, repeatable every 2 s	4 A for 50 ms, repeatable every 3 s	2 A for 50 ms, repeatable every 2 s	
Output delay time, OFF to ON, max	0.5 ms	0.1 ms	0.5 ms	
Output delay time, ON to OFF, max	1.0 ms	0.1 ms	1.0 ms	
External DC supply voltage range	10...31.2V DC (5% AC ripple)	19.2...31.2V DC (5% AC ripple)	10...31.2V DC (5% AC ripple)	
External DC supply current range	25...75 mA	20...35 mA	103...273 mA	20...65 mA
Power dissipation, max	5.0 W @ 31.2V DC	5.5 W @ 31.2V DC	5.3 W @ 31.2V DC	4.2 W @ 31.2V DC
Thermal dissipation, max	17.0 BTU/hr @ 31.2V DC	18.8 BTU/hr @ 31.2V DC	18.1 BTU/hr @ 31.2V DC	14.3 BTU/hr @ 31.2V DC
Dimensions (HxWxD), approx	46 x 94 x 53 mm (1.8 x 3.7 x 2.1 in.) 94 x 94 x 69 mm (3.7 x 3.7 x 2.7 in.) installed			
Isolation voltage	50V (continuous), Basic Insulation Type Type tested at 2121V DC for 60 s, between field side and system No isolation between individual channels	50V (continuous), Basic Insulation Type Type tested at 850V DC for 60 s, between field side and system 1794-OB8EPXT: Type tested at 1500V AC for 60 s, between field side and system No isolation between individual channels		50V (continuous), Basic Insulation Type Type tested at 1770V DC for 60 s, between field side and system No isolation between individual channels

(1) See [1794-OB16P Derating Curve](#).

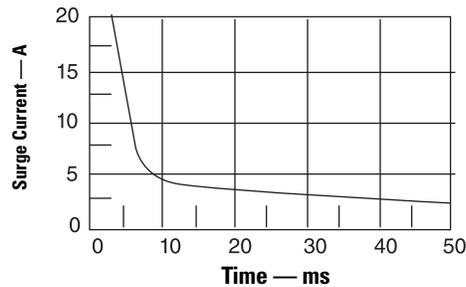
(2) 6.0 A total for channels 0...15; 8.0 A total for channels 16...31.

1794-OB16P Derating Curve



The area within the curve represents the safe operating range for the module under various conditions of user supplied 24V DC supply voltages and ambient temperatures.

= Normal mounting safe operating range included
 = Other mounting positions (including inverted horizontal, vertical) safe operating range

1794-OB8EP Output Minimum Surge**FLEX I/O Digital DC Diagnostic Modules**

1794-IB16D is the diagnostic version of the 1794-IB16.

1794-OB16D is the diagnostic version of the 1794-OB16.

The modules can detect open wire, short circuit, and reverse polarity of external power. When the module detects a fault, the module fault LED status indicator lights up, the corresponding red channel LED status indicator lights up, and the corresponding module error bit (open wire, short circuit, or reverse power bit) is set. The reporting function provides results of the diagnostics as bits in its data table.

The modules have 16-bi-color channel LED status indicators and one red module status indicator. These indicators are driven from the customer field side power.

Digital DC Diagnostic Input Module

Specification	1794-IB16D
Voltage, on-state input, min	10V DC, sinking
Voltage, on-state input, nom	24V DC
Voltage, on-state input, max	31.2 DC ⁽¹⁾
Voltage, off-state input, max	5.0V DC
Current, on-state input, nom	8.2 mA @ 24V DC
Current, on-state input, max	12.1 mA @ 31.2V DC
Terminal base unit	1794-TB32, 1794-TB32S
Input impedance, max.	3.1 k Ω
Current, on-state input, min	2.0 mA @ 10V DC
Current, off-state input, max	1.5 mA
Power dissipation, max	8.5 W @ 31.2V DC
Thermal dissipation, max	29 BTU/hr @ 31.2V DC
Detected reverse polarity voltage	10V min ⁽²⁾
Sensor voltage drop, max	2.2V DC

Digital DC Diagnostic Input Module

Specification	1794-IB16D
Current, sensor source, max	50 mA
Dimensions (HxWxD), approx	46 x 94 x 53 mm (1.8 x 3.7 x 2.1 in.) 94 x 94 x 69 mm (3.7 x 3.7 x 2.7 in.) installed
Isolation voltage	50V continuous, I/O to system Tested to 2121V DC for 1 s, I/O to system No isolation between individual channels

(1) See [1794-IB16D Derating Curves](#).

(2) Module must detect if the reverse polarity external power supply voltage is greater than the value.

Digital DC Diagnostic Output Module

Specification	1794-OB16D
Voltage, on-state output, min	10V DC, sinking
Voltage, on-state output, max	31.2 DC
Voltage drop, on-state output, max	0.5V DC @ 0.5 A
Terminal base unit	1794-TB3, 1794-TB3S, 1794-TB3K, 1794-TB3SK
Current, on-state output, min	2.0 mA per channel
Current, on-state output, max	500 mA per channel 8 A per module
Leakage current, off-state output, max	0.5 mA
Output surge current, max	2 A for 50 ms, repeatable every 2 s
External DC supply voltage range	10...31.2V DC (5% AC ripple)
External DC supply current range	56...78 mA
Power dissipation, max	4.8 W @ 31.2V DC
Thermal dissipation, max	16.4 BTU/hr @ 31.2V DC
Short circuit protection	Thermal shutdown (auto reset) ⁽¹⁾
Open wire detection, off-state leakage current	0.1 mA ⁽²⁾
Detect reverse polarity voltage, min	10V ⁽³⁾
Current, sensor source, max	Yes
Dimensions (HxWxD), approx	46 x 94 x 53 mm (1.8 x 3.7 x 2.1 in.) 94 x 94 x 69 mm (3.7 x 3.7 x 2.7 in.) installed
Isolation voltage	50V continuous, I/O to system Tested to 2121V DC for 1 s, I/O to system No isolation between individual channels

(1) Short circuit protection detection condition: when external power active, output signal active, and output port voltage less than 2V.

(2) When external power active and output signal inactive

(3) Module must detect if the reverse polarity external power supply voltage is greater than the value.

The frequency input module isolated power supply consists of 1 isolated 24V DC power supply that provides 2 current limited outputs of 30 mA maximum (1 for each channel).

24V DC Input Frequency Module

Specification	1794-IJ2, 1794-IJ2XT
Processing time	≤ 4 ms
Input frequency, max	1...32 kHz w/sine wave 1...32 kHz w/square wave input
Frequency value, max	32,767 or 3,276.7 (dependent on range)
Input pulse width, min	20 μs
Voltage, on-state input, min	10V (24V IEC+1 proximity, encoder input or switch inputs)
Voltage, on-state input, nom	24V DC
Voltage, on-state input, max	Limited to isolated 24V DC power supply
Current, on-state input, min	2.0 mA
Current, on-state input, nom	9.0 mA
Current, on-state input, max	10.0 mA
Voltage, off-state input, max	5.0V DC on 24V DC IEC1 + terminal
Current, off-state input, max	1.5 mA into 24V DC IEC1 + terminal
Wire-off detection	0.4 mA for proximity, encoder, or contact switch with 50 kW shunt resistor
Impedance, frequency input	>5 kΩ for 50 mV extended magnetic pickup >5 kΩ for 500 mV magnetic pickup >10 kΩ for 3V vortex flowmeter >10 kΩ for 6V vortex flowmeter >2.5 kΩ for 24V DC IEC1+ proximity or encoder input >2.5 kΩ for 24V DC contact switch input
Impedance, gate input	>5 kΩ for 50 mV extended magnetic pickup >5 kΩ for 500 mV magnetic pickup >2.5 kΩ for 24V DC IEC1+ proximity or encoder input >2.5 kΩ for 24V DC contact switch input
Output voltage source	Customer supplied
Voltage, on-state output, min	10V DC
Voltage, on-state output, nom	24V DC
Voltage, on-state output, max	31.2V DC
Current, on-state output, min	1.0 mA per output
Current, on-state output, max	1.0 A per channel sourced out of module ⁽¹⁾
Output surge current, max	2 A for 50 ms, repeatable every 2 s
Voltage drop, on-state output, max	0.9V dc @ 1 A
Output control	Outputs individually assignable to: Frequency % Full Scale Acceleration alarm
Output switching time	Triggered by frequency alarm or acceleration alarm Turn On: < 0.5 ms Turn Off: < 1 ms

FLEX I/O Remote I/O Adapter Specifications

Attribute	1797-BCNR
Temperature, operating	-20...70°C (-4...185°F)
ControlNet Ex system characteristics	$U_o = 7V$ $I_o = 55 \text{ mA @ } 52 \text{ KHz}$ $P_o = \text{negligible}$
Non Ex ControlNet characteristics	$U_n = 5V$ $U_m = 253V \text{ AC}$ $I = \text{not defined}$ $P = \text{not defined}$
ControlNet communication rate	5 Mbps
Transmission attenuation	-7.84 dB
Noxious Gas exposure	—
Dimensions (HxWxD), approx.	70 x 100 x 90 mm (2.76 x 3.94 x 3.55 in.)
Weight, approx.	0.2 kg (0.44 lbs)