

Technical Specifications - 1756-OF8

Attribute	1756-OF8
Outputs	Eight voltage or current
Output range	$\pm 10V$ 0...20 mA
Resolution	15 bits across 21 mA - 650 nA/bit 15 bits across 10.4V - 320 μV /bit
Current draw @ 5.1V	150 mA
Current draw @ 24V	210 mA
Total backplane power	5.8 W
Voltage and current ratings	Backplane: 5.1V DC, 150mA max, 24V DC, 210mA max Output Voltage: -10...+10V Output Current: 4...20mA
Power consumption	5.8 W backplane power
Power dissipation	5.8 W to 3.15 W; 0 to 750 ohm loads
Thermal dissipation	16.78 BTU/hr
Open circuit detection	Current output only (Output must be set to >0.1 mA)
Overvoltage protection	24V DC
Short circuit protection	Electronically current limited to 21 mA or less
Drive capability	Voltage: > 2000 Ω Current: 0...750 Ω
Settling time	< 2 ms to 95% of final value with resistive loads
Calibrated accuracy @ 25 °C (77 °F)	Better than 0.05% of range from 4...21 mA, -10.4...10.4V
Calibration interval	12 months typical
Offset drift	50 $\mu V/^{\circ}C$ typical (Voltage mode) 0.1 $\mu A/^{\circ}C$ typical (Current mode)
Gain drift with temperature, max	Voltage: 25 ppm/ $^{\circ}C$ max Current: 50 ppm/ $^{\circ}C$ max
Module error	Voltage: 0.15% of range Current: 0.3% of range
Module scan time, min	12 ms floating point 8 ms integer
Data format	Integer mode (left justified, 2 s complement) IEEE 32-bit floating point
Module conversion method	R-Ladder DAC, monotonicity with no missing codes
Isolation voltage	250V (continuous), Reinforced insulation type, Output Channels to Backplane No isolation between individual Output Channels Routine tested at 1350V AC for 2 s
Module keying	Electronic, software configurable
Removable terminal block	1756-TBNH 1756-TBSH
RTB keying	User-defined mechanical
Slot width	1

Technical Specifications - 1756-OF8 (continued)

Attribute	1756-OF8
Wire size	1756-TBNH Single wire connection: 0.33...2.1 mm² (22...14 AWG) solid or stranded copper wire, rated at 105 °C (221 °F) or greater, 1.2 mm (3/64 in.) insulation max. Double wire connection: 0.33...1.3 mm² (22...16 AWG) solid or stranded copper wire, rated at 105 °C (221 °F) or greater, 1.2 mm (3/64 in.) insulation max. Do not wire more than two conductors on any terminal. 1756-TBSH Single wire connection, 0.33...2.1 mm² (22...14 AWG) solid or stranded shielded copper wire rated at 105 °C (221 °F), or greater, 1.2 mm (3/64 in.) insulation max. Do not wire multiple conductors on any terminal.
Terminal block torque specs	1756-TBNH: 1.36 N·m (12 lb·in)
Wiring category ⁽¹⁾	1 - on signal ports
North American temp code	T4A
ATEX temp code	T4
IECEx temp code	T4
Enclosure type	None (open-style)

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

Environmental Specifications - 1756-OF8

Attribute	1756-OF8
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 °C < Ta < +60 °C (+32 °F < Ta < +140 °F)
Temperature, surrounding air, max	60 °C (140 °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 IEC 60068-2-6 (Test Fc, Operating)	2 g @ 10...500 Hz
Shock, operating IEC 60068-2-27 (Test Ea, Unpackaged Shock)	30 g
Shock, nonoperating IEC 60068-2-27 (Test Ea, Unpackaged Shock)	50 g
Emissions	IEC 61000-6-4
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...2000 MHz 10V/m with 200 Hz 50% Pulse 100% AM @ 900 MHz 10V/m with 200 Hz 50% Pulse 100% AM @ 1890 MHz 3V/m with 1 kHz sine-wave 80% AM from 2000...2700 MHz

Environmental Specifications - 1756-OF8 (continued)

Attribute	1756-OF8
EFT/B immunity IEC 61000-4-4	±4 kV at 5 kHz on signal ports
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

Certifications - 1756-OF8

Certification ⁽¹⁾	1756-OF8
UL	UL Listed Industrial Control Equipment. See UL File E65584.
CSA	CSA Certified Process Control Equipment. See CSA File LR54689C. CSA Certified Process Control Equipment for Class I, Division 2 Group A,B,C,D Hazardous Locations. See CSA File LR69960C.
FM	FM Approved Equipment for use in Class I Division 2 Group A,B,C,D Hazardous Locations
CE	European Union 2014/30/EU EMC Directive, compliant with: • EN 61326-1; Meas./Control/Lab., Industrial Requirements • EN 61000-6-2; Industrial Immunity • EN 61000-6-4; Industrial Emissions • EN 61131-2; Programmable Controllers (Clause 8, Zone A & B) European Union 2014/35/EU LVD, compliant with: • EN 61010-2-201; Control Equipment Safety Requirements
RCM	Australian Radiocommunications Act, compliant with: EN 61000-6-4; Industrial Emissions
Ex	European Union 2014/34/EU ATEX Directive, compliant with: • EN 60079-0; General Requirements • EN 60079-15; Potentially Explosive Atmospheres, Protection "n" • II 3 G Ex nA IIC T4 Gc • DEMKO15ATEX1482X
IECEx	IECEx System, compliant with: • IEC 60079-0; General Requirements • IEC 60079-15; Potentially Explosive Atmospheres, Protection "n" • II 3 G Ex nA IIC T4 Gc • IECEx UL 15.0053X
KC	Korean Registration of Broadcasting and Communications Equipment, compliant with: Article 58-2 of Radio Waves Act, Clause 3
EAC	Russian Customs Union TR CU 020/2011 EMC Technical Regulation Russian Customs Union TR CU 004/2011 LV Technical Regulation

(1) When marked. See the Product Certification link at <http://www.ab.com> for Declarations of Conformity, Certificates, and other certification details.