

1756 ControlLogix I/O Specifications

1756 Series Catalog Numbers

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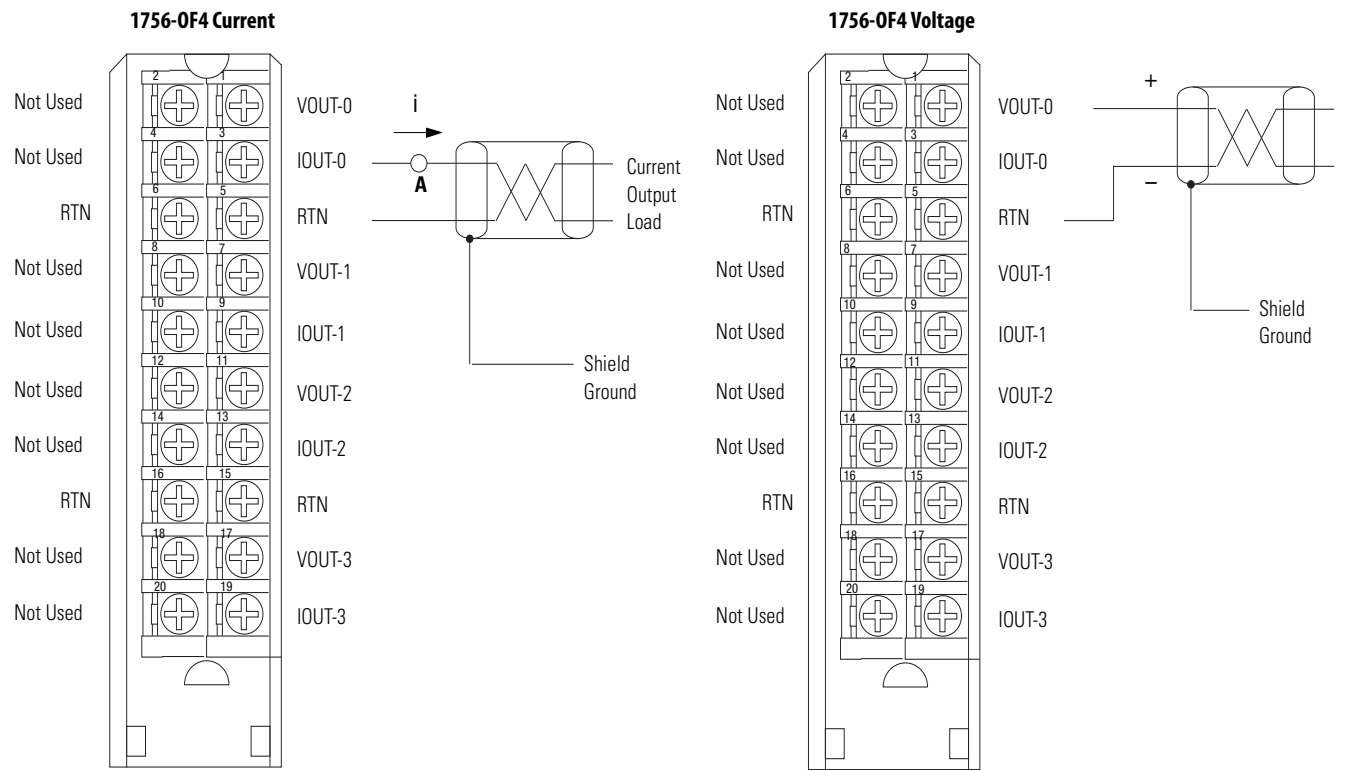
The ControlLogix® architecture provides a wide range of input and output modules to span many applications, from high-speed digital to process control. The ControlLogix architecture uses Producer-Consumer technology, which allows input information and output status to be shared among multiple ControlLogix controllers.

Each ControlLogix I/O module mounts in a ControlLogix chassis and **requires** either a removable terminal block (RTB) or a 1492 interface module (IFM) to connect all field-side wiring. RTBs and IFMs are not included with the I/O modules. They must be ordered separately.



1756-OF4

ControlLogix voltage/current output analog module



- Place additional loop devices (such as strip chart recorders) at the A location noted above.
 - All terminals marked RTN are connected internally.
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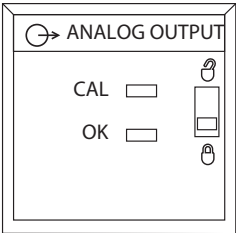


Table 164 - Signal and User Counts - 1756-OF4

Range	Low Signal and User Counts	High Signal and User Counts
0...20 mA	0 mA -32768 counts	21.2916 mA 32767 counts
±10V	-10.4336V -32768 counts	10.4336V 32767 counts

Table 165 - Technical Specifications - 1756-0F4

Attribute	1756-0F4
Outputs	4 voltage or current outputs
Output range	$\pm 10\text{V}$ 4...20 mA
Resolution	Voltage: 15 bits across 10.5V, 320 $\mu\text{V/bit}$ Current: 15 bits across 21mA, 650 nA/bit
Current draw @ 5.1V	150 mA
Current draw @ 24V	120 mA
Total backplane power	5.8 W
Power dissipation, max	3.25 W, 4 channel current
Thermal dissipation	10.91 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 21mA 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	Better than 0.05% of range from 4...21 mA, -10.4...10.4V
Calibration interval	12 months typical
Offset drift	50 $\mu\text{V}/^\circ\text{C}$ 100 nA/ $^\circ\text{C}$
Gain drift with temperature	Voltage: 25 ppm/ $^\circ\text{C}$, 520 $\mu\text{V}/^\circ\text{C}$ Current: 50 ppm/ $^\circ\text{C}$, 1050 $\mu\text{A}/^\circ\text{C}$
Module error	Voltage: 0.15% of range Current: 0.3% of range
Module scan time	12 ms floating point 8 ms integer
Data format	Integer mode (left justified, 2s 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
Wire category	2 ⁽¹⁾
North American temperature code	T4A
IEC temperature code	T4
Enclosure type	None (open-style)

(1) Use this conductor category information for planning conductor routing as described in the system-level installation manual. See the Industrial Automation Wiring and Grounding Guidelines, publication [1770-4.1](#).

Table 166 - Environmental Specifications - 1756-OF4

Attribute	1756-OF4
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...60 °C (32...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	CISPR 11, Class A
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
EFT/B immunity IEC 61000-4-4	±2 kV at 5 kHz on shielded signal ports
Surge transient immunity IEC 61000-4-5	±2 kV line-earth (CM) on shielded signal ports
Conducted RF immunity IEC 61000-4-6	10V rms with 1 kHz sine-wave 80% AM from 150 kHz...80 MHz on shielded signal ports

Table 167 - Certifications - 1756-0F4

Certification⁽¹⁾	1756-0F4
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.
CE	European Union 2004/108/EC 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 2006/95/EC LVD, compliant with: EN 61131-2; Programmable Controllers (Clause 11)
C-Tick	Australian Radiocommunications Act, compliant with: AS/NZS CISPR 11; Industrial Emissions
Ex	European Union 94/9/EC ATEX Directive, compliant with: • EN 60079-15; Potentially Explosive Atmospheres, Protection "n" • EN 60079-0; General Requirements II 3 G Ex nA IIC T4 X Gc
FM	FM Approved Equipment for use in Class I Division 2 Group A,B,C,D Hazardous Locations
KC	Korean Registration of Broadcasting and Communications Equipment, compliant with: Article 58-2 of Radio Waves Act, Clause 3

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