

Specifications

General Specifications

Specification	1769-IF4XOF2
Dimensions	118 mm (height) x 87 mm (depth) x 35 mm (width) height including mounting tabs is 138 mm 4.65 in. (height) x 3.43 in (depth) x 1.38 in (width) height including mounting tabs is 5.43 in.
Approximate Shipping Weight (with carton)	290g (0.64 lbs.)
Storage Temperature	-40°C to +85°C (-40°F to +185°F)
Operating Temperature	0°C to +60°C (32°F to +140°F)
Operating Humidity	5% to 95% non-condensing
Operating Altitude	2000 meters (6561 feet)
Vibration	Operating: 10 to 500 Hz, 5G, 0.030 in. peak-to-peak Relay Operation: 2G ⁽¹⁾
Shock	Operating: 30G, 11 ms panel mounted (20G, 11 ms DIN rail mounted) Relay Operation: 7.5G panel (5G DIN rail mounted) Non-Operating: 40G panel mounted (30G DIN rail mounted)
Bus Current Draw (max.)	120 mA at 5V dc 160 mA at 24V dc
Heat Dissipation	3.03 Total Watts (The Watts per point, plus the minimum Watts, with all points energized.)
System Power Supply Distance Rating	8 (The module may not be more than 8 modules away from a system power supply.)
Recommended I/O Cable	Belden™ 8761 (shielded)
Maximum I/O Cable Length	200m (656 feet) Exceeding cable length reduces accuracy. For more information, see "Effect of Transducer/Sensor Cable Length Impedance on Voltage Input Accuracy" on page 3-11 and "Effect of Device and Cable Output Impedance on Output Module Accuracy" on page 3-13.
Module OK LED	On: module has power, has passed internal diagnostics, and is communicating over the bus. Off: Any of the above is not true.
Agency Certification	C-UL certified (under CSA C22.2 No. 142) UL 508 listed CE and C-Tick compliant for all applicable directives
Vendor I.D. Code	1
Product Type Code	10
Product Code	33

Specification	1769-IF4XOF2
Hazardous Environment Class	Class I, Division 2, Hazardous Location, Groups A, B, C, D (UL 1604, C-UL under CSA C22.2 No. 213)
Radiated and Conducted Emissions	EN50081-2 Class A
<i>Electrical /EMC:</i>	<i>The module has passed testing at the following levels:</i>
ESD Immunity (IEC61000-4-2)	<ul style="list-style-type: none"> • 4 kV contact, 8 kV air, 4 kV indirect
Radiated Immunity (IEC61000-4-3)	<ul style="list-style-type: none"> • 10 V/m , 80 to 1000 MHz, 80% amplitude modulation, +900 MHz keyed carrier
Fast Transient Burst (IEC61000-4-4)	<ul style="list-style-type: none"> • 2 kV, 5kHz
Surge Immunity (IEC61000-4-5)	<ul style="list-style-type: none"> • 1kV galvanic gun
Conducted Immunity (IEC61000-4-6)	<ul style="list-style-type: none"> • 10V, 0.15 to 80MHz⁽²⁾

(1) When a relay module, such as the 1769-OW8, is used.

(2) Conducted Immunity frequency range may be 150 kHz to 30 MHz if the Radiated Immunity frequency range is 30 MHz to 1000 MHz.

Input Specifications

Specification	1769-IF4XOF2
Number of Inputs	4 differential or single-ended
Analog Normal Operating Ranges	Voltage: 0 to 10V dc Current: 0 to 20 mA
Full Scale ⁽¹⁾ Analog Ranges	Voltage: 0 to 10.5V dc Current: 0 to 21 mA
Converter Type	Successive Approximation
Resolution (max.)	8 bits plus sign (Sign is always positive)
Response Speed per Channel	5 ms
Rated Working Voltage ⁽²⁾	30V ac/30V dc
Common Mode Voltage ⁽³⁾	10V dc maximum per channel
Common Mode Rejection	greater than 60 dB at 60 Hz at 1V between inputs and analog common
Normal Mode Rejection	none
Input Impedance	Voltage Terminal: 150K Ω (nominal) Current Terminal: 150 Ω (nominal)
Overall Accuracy ⁽⁴⁾ at 25°C	Voltage Terminal: $\pm 0.7\%$ full scale Current Terminal: $\pm 0.6\%$ full scale
Overall Accuracy at 0 to 60°C	Voltage Terminal: $\pm 0.9\%$ full scale Current Terminal: $\pm 0.8\%$ full scale
Accuracy Drift with Temperature	Voltage Terminal: $\pm 0.006\%$ per °C Current Terminal: $\pm 0.006\%$ per °C

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Calibration	Not required. Accuracy is guaranteed by components.
Non-linearity (in percent full scale)	±0.4%
Repeatability ⁽⁵⁾	±0.4%
Input Channel Configuration	via wiring of devices, configuration software screen, or the user program (by writing a unique bit pattern into the module's configuration file). Refer to your controller's user manual to determine if user program configuration is supported.
Channel Diagnostics	Over range by bit reporting
Maximum Overload at Input Terminals ⁽⁶⁾	Voltage Terminal: 20V continuous, 0.1 mA Current Terminal: 32 mA continuous, 5V dc
Input Group to Bus Isolation	500V ac or 710V dc for 1 minute (qualification test) 30V ac/30V dc working voltage (IEC Class 2 reinforced insulation)

- (1) The over-range flag will come on when the normal operating range is exceeded. The module will continue to convert the analog input up to the maximum full scale range. The flag automatically resets when within the normal operating range.
- (2) Rated working voltage is the maximum continuous voltage that can be applied at the input terminal, including the input signal and the value that floats above ground potential (for example, 10V dc input signal and 20V dc potential above ground).
- (3) For proper operation, both the plus and minus input terminals must be within 0 to +10V dc of analog common.
- (4) Includes offset, gain, non-linearity and repeatability error terms.
- (5) Repeatability is the ability of the input module to register the same reading in successive measurements for the same input signal.
- (6) Damage to the input circuit may occur if this value is exceeded.

Output Specifications

Specification	1769-IF4XOF2
Number of Outputs	2 single-ended
Analog Normal Operating Ranges ⁽¹⁾	Voltage: 0 to 10V dc Current: 0 to 20 mA
Full Scale Analog Ranges	Voltage: 0 to 10.5V dc Current: 0 to 21 mA
Converter Type	Resistor String
Resolution (max.)	8 bits plus sign (Sign is always positive, Bit 15 = 0)
Response Speed per Channel	0.3 ms for rated resistance and rated inductors 3.0 ms for rated capacitance
Current Load on Voltage Output	10 mA max.
Resistive Load on Current Output	0 to 300 Ω (includes wire resistance)
Load Range on Voltage Output	>1 k Ω at 10V dc
Max. Inductive Load (Current Outputs)	0.1 mH

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Max. Capacitive Load (Voltage Outputs)	1 μ F
Overall Accuracy ⁽²⁾ at 25°C	Voltage Terminal: $\pm 0.5\%$ full scale Current Terminal: $\pm 0.5\%$ full scale
Overall Accuracy at 0 to 60°C	Voltage Terminal: $\pm 0.6\%$ full scale Current Terminal: $\pm 1.0\%$ full scale
Accuracy Drift with Temperature	Voltage Terminal: $\pm 0.01\%$ full scale per °C Current Terminal: $\pm 0.01\%$ full scale per °C
Output Ripple; ⁽³⁾ range 0 - 50 kHz (referred to output range)	$\pm 0.05\%$
Non-linearity (in percent full scale)	$\pm 0.4\%$
Repeatability ⁽⁴⁾ (in percent full scale)	$\pm 0.05\%$
Output Impedance	10 Ω (nominal)
Open and Short-Circuit Protection	Yes
Maximum Short-Circuit	Current: 40 mA
Maximum Open Circuit	Voltage: 15V
Output Response at System Power Up and Power Down	+2.0V dc to -1.0V dc spike for less than 6 ms
Rated Working Voltage	30V ac/30V dc
Channel Diagnostics	Over range by bit reporting
Output Group to Backplane Isolation	500V ac or 710V dc for 1 minute (qualification test) 30V ac/30V dc working voltage (IEC Class 2 reinforced insulation)

(1) The over-range flag will come on when the normal operating range is exceeded. The module will continue to convert the analog output up to the maximum full scale range. The flag automatically resets when within the normal operating range.

(2) Includes offset, gain, drift, non-linearity and repeatability error terms.

(3) Output ripple is the amount a fixed output varies with time, assuming a constant load and temperature.

(4) Repeatability is the ability of the output module to reproduce output readings when the same controller value is applied to it consecutively, under the same conditions and in the same direction.