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 (when a relay module is used in the system)
Shock	Operating: 30G, 11 ms panel mounted (20G, 11 ms DIN rail mounted) Relay Operation: 7.5G panel mounted (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 the system power supply.)
Recommended Input/Output Cable	Belden™ 8761 (shielded)
Max. Input/Output Cable Length	200m (656 feet) Exceeding cable length reduces accuracy. For more information, see the Compact Combination Analog Module User Manual, publication number 1769-UM008A-EN-P.
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.
Field Calibration	None required
Vendor I.D. Code	1
Product Type Code	10
Product Code	33
Agency Certification	• C-UL certified (under CSA C22.2 No. 142) • UL 508 listed • CE and C-Tick compliant for all applicable directives
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

Specification	1769-IF4XOF2
Electrical /EMC:	*The module has passed testing at the following levels:*
ESD Immunity (IEC61000-4-2)	• 4 kV contact, 8 kV air, 4 kV indirect
Radiated Immunity (IEC61000-4-3)	• 10 V/m , 80 to 1000 MHz, 80% amplitude modulation, +900 MHz keyed carrier
Fast Transient Burst (IEC61000-4-4)	• 2 kV, 5kHz
Surge Immunity (IEC61000-4-5)	• 1 kV galvanic gun
Conducted Immunity (IEC61000-4-6)	• 10 V, 0.15 to 80MHz(1)

(1) 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

Input Specification	1769-IF4XOF2
Number of Inputs	4 differential or single-ended
Analog Normal Operating Ranges(1)	Voltage: 0 to 10V dc Current: 0 to 20 mA
Full Scale Analog Ranges(1)	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 10V between inputs and analog common
Normal Mode Rejection Ratio	none
Input Impedance	Voltage Terminal: 150K Ω (nominal) Current Terminal: 150 Ω (nominal)
Overall Accuracy(4) at 25°C	Voltage Terminal: ±0.7% full scale Current Terminal: ±0.6% full scale
Overall Accuracy at 0 to 60°C	Voltage Terminal: ±0.9% full scale Current Terminal: ±0.8% full scale
Accuracy Drift with Temperature	Voltage Terminal: ±0.006% per °C Current Terminal: ±0.006% per °C
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.

Input Specification	1769-IF4XOF2
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)
Channel Diagnostics	Over-range by bit reporting

(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 may occur to the input circuit if this value is exceeded.

Output Specifications

Output 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(1)	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 inductance 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 kΩ at 10V dc
Max. Inductive Load (Current Outputs)	0.1 mH
Max. Capacitive Load (Voltage Outputs)	1 µF
Overall Accuracy at 25°C(2)	Voltage Terminal: ±0.5% full scale Current Terminal: ±0.5% full scale
Overall Accuracy at 0 to 60°C	Voltage Terminal: ±0.6% full scale Current Terminal: ±1.0% full scale
Accuracy Drift with Temperature	Voltage Terminal: ±0.01% full scale per °C Current Terminal: ±0.01% full scale per °C

Output Specification	**1769-IF4XOF2**
Output Ripple(3) range 0 to 50 kHz (referred to output range)	±0.05%
Non-linearity (in percent full scale)	±0.4%
Repeatability(4) (in percent full scale)	±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
Output 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)
Channel Diagnostics	Over-range by bit reporting

(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.

Hazardous Location Considerations

This equipment is suitable for use in Class I, Division 2, Groups A, B, C, D or non-hazardous locations only. The following WARNING statement applies to use in hazardous locations.

WARNING

EXPLOSION HAZARD

- Substitution of components may impair suitability for Class I, Division 2.
- Do not replace components or disconnect equipment unless power has been switched off or the area is known to be non-hazardous.
- Do not connect or disconnect components unless power has been switched off or the area is known to be non-hazardous.
- This product must be installed in an enclosure.
- All wiring must comply with N.E.C. article 501-4(b).

Environnements dangereux

Cet équipement est conçu pour être utilisé dans des environnements de Classe 1, Division 2, Groupes A, B, C, D ou non dangereux. La mise en garde suivante s'applique à une utilisation dans des environnements dangereux.

AVERTISSEMENT

DANGER D'EXPLOSION

- La substitution de composants peut rendre cet équipement impropre à une utilisation en environnement de Classe 1, Division 2.
- Ne pas remplacer de composants ou déconnecter l'équipement sans s'être assuré que l'alimentation est coupée et que l'environnement est classé non dangereux.
- Ne pas connecter ou déconnecter des composants sans s'être assuré que l'alimentation est coupée ou que l'environnement est classé non dangereux.
- Ce produit doit être installé dans une armoire.