Available 1769 I/O Modules

I/O Type	Cat. No.	Page	Cat. No.	Page
AC digital	1769-IA8I 1769-IA16 1769-IM12	6 8 35	1769-OA8 1769-OA16	57 60
DC digital	1769-IG16 1769-IQ16 1769-IQ16F 1769-IQ32 1769-IQ32T 1769-IQ6XOW4	33 37 39 41 43 45	1769-OB8 1769-OB16 1769-OB16P 1769-OB32 1769-OB32T 1769-OG16 1769-OV16 1769-OV32T	63 64 67 69 72 90 92 94
Contact	1769-OW8 1769-OW8I	96 98	1769-OW16	100
Analog	1769-IF4 1769-IF4I 1769-IF4XOF2 1769-IF4FXOF2F 1769-IF8 1769-IF16C 1769-IF16V 1769-IR6 1769-IT6	10 13 16 19 24 28 30 48 53	1769-OF2 1769-OF4 1769-OF4CI 1769-OF4VI 1769-OF8C 1769-OF8V	74 76 79 82 85 87
Specialty	1769-ARM 1769-ASCII	102 103	1769-BOOLEAN 1769-HSC	105 109

Table 1 - Environmental Specifications - 1769 I/O Modules

Attribute	1769-IA8I, 1769-IA16, 1769-IM12, 1769-OA8, 1769-OA16, 1769-IQ16, 1769-IQ16F, 1769-IQ32, 1769-IQ6XOW4, 1769-OB8, 1769-OB16, 1769-OB16P, 1769-OB32, 1769-OV16, 1769-OW8, 1769-OW8I, 1769-OW16 1769-IF4, 1769-IF4XOF2, 1769-IR6, 1769-IT6 1769-ARM, 1756-HSC	1769-IG16, 1769-IQ32T, 1769-OB32T, 1769-OG16, 1769-OV32T 1769-IF4I, 1769-IF8, 1769-IF16C, 1769-IF16V, 1769-OF2, 1769-OF4CI, 1769-OF4VI, 1769-OF8C, 1769-OF8V, 1769-IF4FXOF2F 1769-ASCII, 1769-BOOLEAN
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)	0…60 °C (32…140 °F)
Temperature, storage 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)	-40…85 °C (-40…185 °F)
Relative humidity IEC 60068-2-30 (Test Db, Unpackaged Nonoperating Damp Heat)	5…95% noncondensing	5…95% noncondensing
Vibration IEC 60068-2-6 (Test Fc, Operating)	Operating: 5 g @ 10…500 Hz Relay operating: 2 g	5 g @ 10…500 Hz
Shock, operating IEC 60068-2-27 (Test Ea, Unpackaged Shock)	Panel mount 30 g DIN rail mount 20 g	Panel mount 30 g DIN rail mount 20 g
Shock, relay operating IEC 60068-2-27 (Test Ea, Unpackaged Shock)	Panel mount 7.5 g DIN rail mount 5 g	—
Shock, nonoperating IEC 60068-2-27 (Test Ea, Unpackaged Shock)	Panel mount 40 g DIN rail mount 30 g	Panel mount 40 g DIN rail mount 30 g

(6) 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, a 10V DC input signal and 20V DC potential above ground at the input terminal.
(7) If the optional 24V DC Class 2 power supply is used, the 24V DC current draw from the bus is 0 mA.

Table 74 - Certifications - 1769-OF2

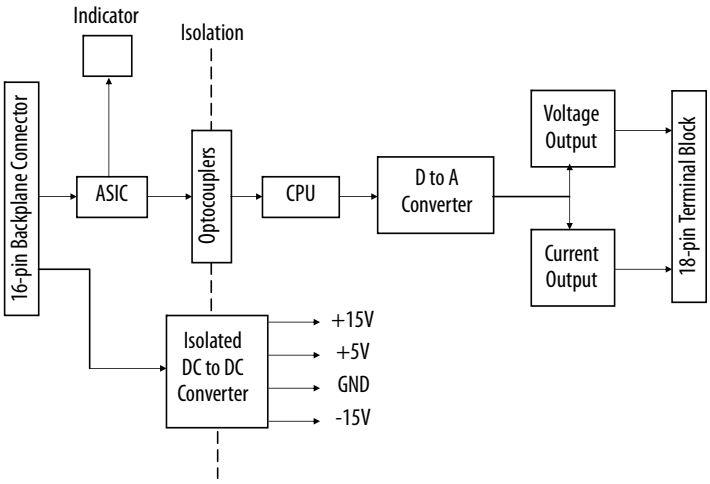
Certification[1]	1769-OF2
c-UL	C-UL certified (under CSA C22.2 No. 142) UL 508 listed Class I, Division 2 Group A,B,C,D Hazardous Locations (UL 1604, C-UL under CSA C22.2 No. 213)
CE	CE compliant for all applicable directives
C-Tick	C-Tick compliant for all applicable directives Australian Radiocommunications Act, compliant with: • AS/NZS CISPR 11; Industrial Enclosure

(1) When marked. See the Product Certification link at http://www.rockwellautomation.com/global/certification/overview.page for Declarations of Conformity, Certificates, and other certification details.

1769-OF4

Compact voltage/current output analog module

Simplified Schematic



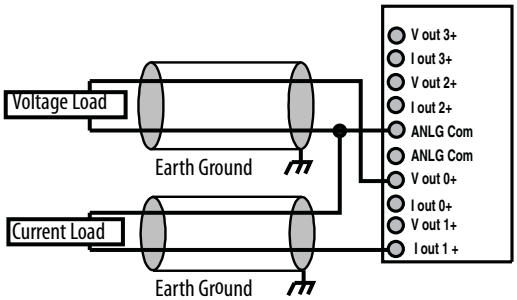


Table 75 - Technical Specifications - 1769-OF4

Attribute	1769-OF4
Outputs	4 single-ended
Output range	±10V 0…10V 0…5V 1…5V 0…20 mA 4…20 mA
Full scale range[1]	±10.5V -0.5…10.5V -0.5…5.25V 0.5…5.25V 0…21 mA 3.2…21 mA
Resolution	15 bits plus sign unipolar and bipolar
Current draw @ 5.1V	120 mA
Current draw @ 24V	170 mA

Table 75 - Technical Specifications - 1769-0F4

Attribute	1769-0F4
Heat dissipation, max	2.86 W
Conversion rate (all channels), max	Interrupts not enabled: 2.5 ms Interrupts enabled: 3.8 ms
Step response to 63%[2]	2.9 ms
Resistive load	Current: 0…600 Ω (includes wire resistance) Voltage: 1 KΩ or greater
Inductive load, max	0.1 mH (current load) 1.0 µF (voltage load)
Field calibration	None required
Accuracy[3]	0.5% full scale at 25 °C (77 °F)
Accuracy drift with temperature	±0.0086% of full scale per °C
Output ripple[4]	±0.05% @ 0…50 kHz
Nonlinearity	±0.05%
Repeatability[5]	±0.05%
Module error 0…60 °C (32…140 °F)	+/-0.8% of full scale
Output impedance	Voltage output: < 1 Ω Current output: > 1 MΩ
Open and short-circuit protection	Yes
Short-circuit protection, max	40 mA
Output overvoltage protection	Yes
Output response at system power up and power down	2.5…-1.0V DC spike for < 15 ms
Rated working voltage[6]	30V AC/30V DC
Isolation voltage	510V AC or 720V DC for 1 minute (qualification test), output group to bus 30V AC/30V DC working voltage (IEC Class 2 reinforced insulation)
Weight, approx	280 g (0.61 lb)
Dimensions (HxWxD), approx	118 x 35 x 87 mm (4.65 x 1.38 x 3.43 in.) Height with mounting tabs 138 mm (5.43 in.)
Slot width	1
Module location	DIN rail or panel mount
Power supply	1769-PA2, 1769-PB2, 1769-PA4, 1769-PB4
Optional 24V DC Class 2 power supply voltage range[7]	20.4…26.4V DC
Power supply distance rating	8 modules
Terminal screw torque	0.68 N•m (6 lb•in)
Retaining screw torque	0.46 N•m (4.1 lb•in)
Wire size	(22…14 AWG) solid (22…16 AWG) stranded
Wire type	Cu-90 °C (194 °F)
Replacement terminal block	1769-RTBN18 (1 per kit)
Replacement door label	1769-RL2 (2 per kit)
Replacement door	1769-RD (2 per kit)
Vendor ID code	1
Product type code	10
Product code	48
Input words	5

Table 75 - Technical Specifications - 1769-OF4

Attribute	1769-OF4
Output words	5
Configuration words	32
Enclosure type rating	None (open style)

(1) The over- or under-range flag comes on when the normal operating range (over/under) is exceeded. The module continues to convert the analog input up to the maximum full scale range. The flag automatically resets when within the normal operating range.
(2) Step response is the time between when the D/A converter was instructed to go from minimum to full range until the device is at 63% of full range.
(3) Includes offset, gain, drift, nonlinearity, and repeatability error terms.
(4) Output ripple is the amount that a fixed output varies with time, which assumes a constant load and temperature.
(5) 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.
(6) 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, a10V DC input signal and 20V DC potential above ground at the input terminal.
(7) If the optional 24V DC Class 2 power supply is used, the 24V DC current draw from the bus is 0 mA.

Table 76 - Certifications - 1769-OF4

Certification[1]	1769-OF4
c-UL	C-UL certified (under CSA C22.2 No. 142) UL 508 listed Class I, Division 2 Group A,B,C,D Hazardous Locations (UL 1604, C-UL under CSA C22.2 No. 213)
CE	CE compliant for all applicable directives
C-Tick	C-Tick compliant for all applicable directives Australian Radiocommunications Act, compliant with: • AS/NZS CISPR 11; Industrial Enclosure

(1) When marked. See the Product Certification link at http://www.rockwellautomation.com/global/certification/overview.page for Declarations of Conformity, Certificates, and other certification details.

1769-0F4CI

Compact current output, individually isolated analog module

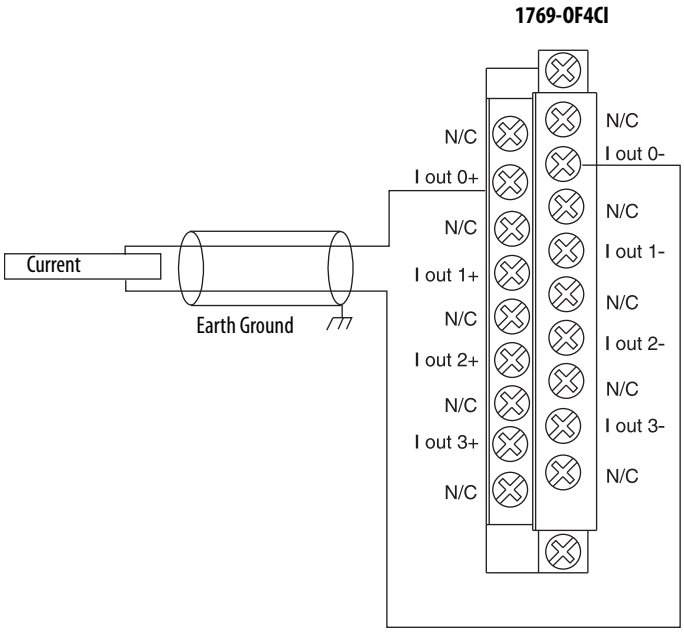


Table 77 - Technical Specifications - 1769-0F4CI

Attribute	1769-0F4CI
Outputs	4 differential, individually isolated
Output range	0…20 mA 4…20 mA
Full scale range(1)	0…21 mA 3.2…21 mA
Resolution	16 bits (unipolar) 0…20 mA: 15.91 bits, 0.323 μA/bit 4…20 mA: 15.59 bits, 0.323 μA/bit
Bus current draw	5V DC, 145 mA 24V DC, 120 mA
Heat dissipation, max	2.68 W
Conversion rate (all channels), max	110 ms
Limited voltage/current(2)	< 2.9 ms
Resistive load on current output	0…500 Ω (includes wire resistance)
Inductive load (current outputs), max	0.1 mH
Field calibration	None required
Accuracy(3)	±0.35% full scale @ 25 °C (77 °F)
Accuracy drift with temperature	±0.0058% FS per °C
Output ripple(4)	±0.05% @ 0…50 kHz
Nonlinearity	±0.05%
Repeatability(5)	±0.05%
Module error	±0.55%
Output impedance	>1 MΩ
Open and short-circuit protection	Yes

Table 77 - Technical Specifications - 1769-0F4CI

Attribute	1769-0F4CI
Short-circuit protection, max	21 mA
Output overvoltage protection	Yes
Output response at system powerup and power down	No current glitch
Rated working voltage(6)	30V AC/30V DC
Isolation voltage	500V AC or 710V DC for 1 min (qualification test), output group to bus 30V AC/30V DC working voltage (IEC Class 2 reinforced insulation)
Weight, approx	270 g (0.60 lb)
Dimensions (HxWxD), approx	118 x 35 x 87 mm (4.65 x 1.38 x 3.43 in.) Height with mounting tabs 138 mm (5.43 in.)
Slot width	1
Module location	DIN rail or panel mount
Power supply	1769-PA2, 1769-PB2, 1769-PA4, 1769-PB4
Power supply distance rating	8 modules
Terminal screw torque	0.68 N•m (6 lb•in)
Retaining screw torque	0.46 N•m (4.1 lb•in)
Wire size	(22…14 AWG) solid (22…16 AWG) stranded
Wire type	Cu-90 °C (194 °F)
Recommended cable	Belden 8761 (shielded)
Replacement terminal block	1769-RTBN18 (1 per kit)
Replacement door label	1769-RL2 (2 per kit)
Replacement door	1769-RD (2 per kit)
Vendor ID code	1
Product type code	10
Product code	45
Input words	6
Output words	5
Configuration words	32
Enclosure type rating	None (open style)

(1) The over- or under-range flag comes on when the normal operating range (over/under) is exceeded. The module continues to convert the analog input up to the maximum full scale range. The flag automatically resets when within the normal operating range.
(2) Step response is the time between when the D/A converter was instructed to go from minimum to full range until the device is at 63% of full range.
(3) Includes offset, gain, nonlinearity, and repeatability error terms.
(4) Output ripple is the amount that a fixed output varies with time, which assumes a constant load and temperature.
(5) Repeatability is the ability of the input module to register the same reading in successive measurements for the same input signal.
(6) 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, a 10V DC input signal and 20V DC potential above ground at the input terminal.

Environmental Specifications - 1769-0F4CI

Attribute	1769-0F4CI
Temperature, storage	-40…85 °C (-40…185 °F)
Temperature, operating	0…60 °C (32…140 °F)
Relative humidity	5…95% noncondensing
Altitude, operating	2000 m (6561 ft)
Vibration, operating	10…500 Hz, 5 g, 0.030 in. peak-to-peak
Shock, operating	30 g, 11 ms panel-mounted (20 g, 11 ms DIN rail-mounted)

Environmental Specifications - 1769-0F4CI

Attribute	1769-0F4CI
Shock, nonoperating	40 g panel-mounted (30 g DIN rail-mounted)
Radiated and conducted emissions IEC 61000-6-4 CISPR 11	Group 1, Class A
ESD immunity IEC 61000-4-2	4 kV contact 8 kV air 4 kV indirect
Radiated immunity IEC 61000-4-3	10V/m, 80…1000 MHz, 80% amplitude modulation
Burst, fast transient IEC 61000-4-4	2 kV, 5 kHz
Surge immunity IEC 61000-4-5	1 kV galvanic gun
Conducted immunity(1) IEC 61000-4-6	10V DC, 0.15…80 MHz

(1) Conducted immunity frequency range can be 150…30 MHz if the Radiated immunity frequency range is 30…1000 MHz.

Table 78 - Certifications - 1769-0F4CI

Certification(1)	1769-0F4CI
c-UL	C-UL certified (under CSA C22.2 No. 142) UL 508 listed UL listed for Class I, Division 2 Group A,B,C,D Hazardous Locations (ANSI/ISA 12.12.01-2007, 120-01,C-UL under CSA C22.2 No. 213)
CE	CE compliant for all applicable directives
C-Tick	C-Tick compliant for all applicable directives Australian Radiocommunications Act, compliant with: • AS/NZS CISPR 11; Industrial Enclosure

(1) When marked. See the Product Certification link at http://www.rockwellautomation.com/global/certification/overview.page for Declarations of Conformity, Certificates, and other certification details.

1769-0F4VI

Compact voltage output, individually isolated analog module

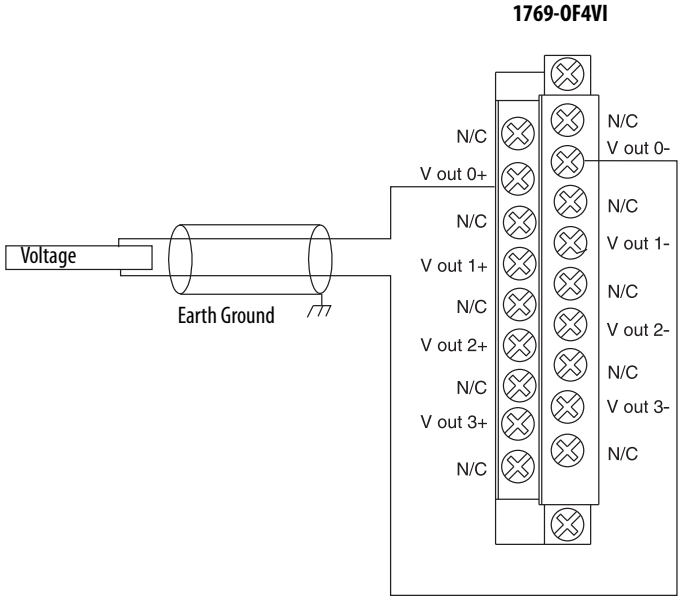


Table 79 - Technical Specifications - 1769-0F4VI

Attribute	1769-0F4VI
Outputs	4 differential, individually isolated
Output range[1]	±10V DC 0…10V DC 0…5V DC 1…5V DC
Full scale range	±10.5V DC -0.5…10.5V DC -0.5…5.25V DC 0.5…5.25V DC
Resolution	15 bits plus sign (bipolar) ±10V DC: 15.89 bits, 330 μV/bit 0…10V DC: 14.89 bits, 330 μV/bit 0…5V DC: 13.89 bits, 330 μV/bit 1…5V DC: 13.57 bits, 330 μV/bit
Bus current draw	5V DC, 145 mA 24V DC, 120 mA
Heat dissipation, max	2.0 W (all points-10 V into 2 k - worst case calculated
Conversion rate (all channels), max	120 ms
Limited voltage/current[2]	< 2.9 ms
Load output current, max	5 mA
Load range output	>= 2 kΩ
Capacitive load (voltage outputs), max	1 μF
Field calibration	None required
Accuracy[3]	±0.5% full scale @ 25 °C (77 °F)
Accuracy drift with temperature	±0.0086% FS per °C
Output ripple[4]	±0.05% @ 0…50 kHz

Table 79 - Technical Specifications - 1769-OF4VI

Attribute	1769-OF4VI
Nonlinearity	±0.05%
Repeatability(5)	±0.05%
Module error	±0.8%
Output impedance	< 1 Ω
Open and short-circuit protection	Yes
Short-circuit protection, max	35 mA typical 42 mA, max
Output overvoltage protection	Yes
Output response at system powerup and power down	Powerup: ±1.2V DC spike for < 0.4 ms Power down: ±1.2V DC spike for 21 ms
Rated working voltage(6)	30V AC/30V DC
Isolation voltage	500V AC or 710V DC for 1 min (qualification test), output group to bus 30V AC/30V DC working voltage (IEC Class 2 reinforced insulation)
Weight, approx	270 g (0.60 lbs)
Dimensions (HxWxD), approx	118 x 35 x 87 mm (4.65 x 1.38 x 3.43 in.) Height with mounting tabs 138 mm (5.43 in.)
Slot width	1
Module location	DIN rail or panel mount
Power supply	1769-PA2, 1769-PB2, 1769-PA4, 1769-PB4
Power supply distance rating	8 modules
Terminal screw torque	0.68 N•m (6 lb•in)
Retaining screw torque	0.46 N•m (4.1 lb•in)
Wire size	(22…14 AWG) solid (22…16 AWG) stranded
Wire type	Cu-90 °C (194 °F)
Recommended cable	Belden 8761 (shielded)
Replacement terminal block	1769-RTBN18 (1 per kit)
Replacement door label	1769-RL2 (2 per kit)
Replacement door	1769-RD (2 per kit)
Vendor ID code	1
Product type code	10
Product code	42
Input words	6
Output words	5
Configuration words	32
Enclosure type rating	None (open style)

(1) The over- or under-range flag comes on when the normal operating range (over/under) is exceeded. The module continues to convert the analog input up to the maximum full scale range. The flag automatically resets when within the normal operating range.
(2) Step response is the time between when the D/A converter was instructed to go from minimum to full range until the device is at 63% of full range.
(3) Includes offset, gain, nonlinearity, and repeatability error terms.
(4) Output ripple is the amount that a fixed output varies with time, which assumes a constant load and temperature.
(5) Repeatability is the ability of the input module to register the same reading in successive measurements for the same input signal.
(6) 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, a 10V DC input signal and 20V DC potential above ground at the input terminal.

Table 80 - Environmental Specifications - 1769-OF4VI

Attribute	1769-OF4CI
Temperature, storage	-40…85 °C (-40…185 °F)
Temperature, operating	0…60 °C (32…140 °F)
Relative humidity	5…95% noncondensing
Altitude, operating	2000 m (6561 ft)
Vibration, operating	10…500 Hz, 5 g, 0.030 in. peak-to-peak
Shock, operating	30 g, 11 ms panel-mounted (20 g, 11 ms DIN rail-mounted)
Shock, nonoperating	40 g panel-mounted (30 g DIN rail-mounted)
Radiated and conducted emissions IEC 61000-6-4 CISPR 11	Group 1, Class A
ESD immunity IEC 61000-4-2	4 kV contact 8 kV air 4 kV indirect
Radiated immunity IEC 61000-4-3	10V/m, 80…1000 MHz, 80% amplitude modulation
Burst, fast transient IEC 61000-4-4	2 kV, 5 kHz
Surge immunity IEC 61000-4-5	1 kV galvanic gun
Conducted immunity(1) IEC 61000-4-6	10V DC, 0.15…80 MHz

(1) Conducted immunity frequency range can be 150…30 MHz if the Radiated immunity frequency range is 30…1000 MHz.

Table 81 - Certifications - 1769-OF4VI

Certification(1)	1769-OF4VI
c-UL	C-UL certified (under CSA C22.2 No. 142) UL 508 listed UL listed for Class I, Division 2 Group A,B,C,D Hazardous Locations (ANSI/ISA 12.12.01-2007, C-UL under CSA C22.2 No. 213)
CE	CE compliant for all applicable directives
C-Tick	C-Tick compliant for all applicable directives Australian Radiocommunications Act, compliant with: • AS/NZS CISPR 11; Industrial Enclosure

(1) When marked. See the Product Certification link at http://www.rockwellautomation.com/global/certification/overview.page for Declarations of Conformity, Certificates, and other certification details.