

Compact I/O Accessories

Category	Cat. No.	Description
End cap	1769-ECL	Left-end cap for Compact I/O system
	1769-ECR	Right-end cap for Compact I/O system
Expansion cable	1769-CLL1	Left bank-to-left bank expansion 305 mm (1 ft)
	1769-CLL3	Left bank-to-left bank expansion 1 m (3.28 ft)
	1769-CRR1	Right bank-to-right bank expansion 305 mm (1 ft)
	1769-CRR3	Right bank-to-right bank expansion 1 m (3.28 ft)
	1769-CRL1	Right bank-to-left bank expansion 305 mm (1 ft)
	1769-CRL3	Right bank-to-left bank expansion 1 m (3.28 ft)
Replacement terminal block	1769-RTBN10	10-pin NEMA terminal block
	1769-RTBN18	18-pin NEMA terminal block
Replacement door labels	1769-RL1	Replacement door labels for digital I/O, 2 per kit
	1769-RL2	Replacement door labels for analog and specialty I/O, 2 per kit
Replacement doors	1769-RD	Door replacement kit, 2 per kit
Replacement connector kit	1746-N3	Connector kit to terminate a cable, which connects field I/O devices to 32-point I/O modules, 1 connector and 40 terminals

End Caps

The final I/O bank in Compact system needs an end cap on the end without the expansion cable. The 1769-L23x controller comes with a right-end cap, so you do not need to order one separately.

Table 114 - Technical Specifications - 1769-ECL, 1769-ECR

Attribute	1769-ECL	1769-ECR
Current draw @ 5.1V	5 mA	
Current draw @ 24V	0 mA	
Weight, approx	130 g (0.286 lb)	
Location	Left end	Right end
North American temperature code	T3C	
IEC temperature code	N/A	T4
Enclosure type rating	None (open-style)	None (open-style)

Table 2 - Technical Specifications - 1769-IA8I

Attribute	1769-IA8I
Inputs	8 individually isolated
Voltage category	100/120V AC
Operating voltage range	79...132V AC, 47...63 Hz
Input delay, on	20 ms
Input delay, off	20 ms
Current draw @ 5.1V	90 mA
Heat dissipation, max	1.81 W
Off-state voltage, max	20V AC
Off-state current, max	2.5 mA
On-state voltage, min	79V AC
On-state current, min	5 mA @ 74V AC
On-state current, max	12 mA @ 120V AC
Inrush current, max ⁽¹⁾	250 mA
Input impedance, max	12 k Ω @ 50 Hz 10 k Ω @ 60 Hz
Isolation voltage	Verified by one of the following dielectric tests: 1517V AC for 1 s or 2145V DC for 1 s, input point to bus and group to group 132V AC 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)
IEC input compatibility	Type 1+
Replacement terminal block	1769-RTBN18 (1 per kit)
Replacement door label	1769-RL1 (2 per kit)
Replacement door	1769-RD (2 per kit)
Vendor ID code	1
Product type code	7
Product code	81
Enclosure type rating	None (open-style)

(1) A current limiting resistor can be used to limit inrush current; however, the operating characteristics of the AC input circuit are affected. If a 6.8 k Ω (2.5 W minimum) resistor is placed in series with the input, the inrush current is reduced to 35 mA. In this configuration, the minimum on-state voltage increases to 92V AC. Before adding the resistor in a hazardous environment, be sure to consider the operating temperature of the resistor and the temperature limits of the environment. The operating temperature of the resistor must remain below the temperature limit of the environment.

Table 4 - Technical Specifications - 1769-IA16

Attribute	1769-IA16
On-state voltage, min	79V AC
On-state current, min	5 mA @ 74V AC
On-state current, max	12 mA @ 120V AC
Inrush current, max ⁽¹⁾	250 mA
Input impedance, max	12 k Ω @ 50 Hz 10 k Ω @ 60 Hz
Isolation voltage	Verified by one of the following dielectric tests: 1517V AC for 1 s or 2145V DC for 1 s, input point to bus 132V AC 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
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)
IEC input compatibility	Type 1+
Replacement terminal block	1769-RTBN18 (1 per kit)
Replacement door label	1769-RL1 (2 per kit)
Replacement door	1769-RD (2 per kit)
Vendor ID code	1
Product type code	7
Product code	82
Enclosure type rating	None (open-style)

(1) A current limiting resistor can be used to limit inrush current; however, the operating characteristics of the AC input circuit are affected. If a 6.8 k Ω (2.5 W minimum) resistor is placed in series with the input, the inrush current is reduced to 35 mA. In this configuration, the minimum on-state voltage increases to 92V AC. Before adding the resistor in a hazardous environment, be sure to consider the operating temperature of the resistor and the temperature limits of the environment. The operating temperature of the resistor must remain below the temperature limit of the environment.

Table 5 - Certifications - 1769-IA16

Certification ⁽¹⁾	1769-IA16
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	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.

Table 6 - Technical Specifications - 1769-IF4

Attribute	1769-IF4
Replacement terminal block	1769-RTBN18 (1 per kit)
Replacement door label	1769-RL2 series B (2 per kit)
Replacement door	1769-RD (2 per kit)
Vendor ID code	1
Product type code	10
Product code	35
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) Resolution is dependent upon your filter selection. The maximum resolution is achieved with either the 50 or 60 Hz filter selected.
- (3) 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 terminals.
- (4) For proper operation, both the plus and minus input terminals must be within $\pm 10V$ DC of analog common.
- (5) Includes offset, gain, nonlinearity, and repeatability error terms.
- (6) Repeatability is the ability of the input module to register the same reading in successive measurements for the same input signal.
- (7) Damage can occur to the input circuit if this value is exceeded.
- (8) If the optional 24V DC Class 2 power supply is used, the 24V DC current draw from the bus is 0 mA.

Table 7 - Response Speed - 1769-IF4

Filter Frequency	Cutoff Frequency	Step Response	Channel Update
50 Hz	13.1 Hz	60 ms	22 ms
60 Hz	15.7 Hz	50 ms	19 ms
250 Hz	65.5 Hz	12 ms	6 ms
500 Hz	131 Hz	6 ms	4 ms

Table 8 - Certifications - 1769-IF4

Certification ⁽¹⁾	1769-IF4
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	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.

Table 9 - Technical Specifications - 1769-IF4I

Attribute	1769-IF4I
Inputs	4 isolated differential
Input range	$\pm 10\text{V}$ $0 \dots 10\text{V}$ $0 \dots 5\text{V}$ $1 \dots 5\text{V}$ $0 \dots 20\text{ mA}$ $4 \dots 20\text{ mA}$
Full scale range ⁽¹⁾	$\pm 10.5\text{V}$ $-0.5 \dots 10.5\text{V}$ $-0.5 \dots 5.25\text{V}$ $0.5 \dots 5.25\text{V}$ $0 \dots 21\text{ mA}$ $3.2 \dots 21\text{ mA}$
Bus current draw	5V DC, 140 mA 24V DC, 110 mA
Heat dissipation, max	3.0 W
Converter type	Delta Sigma
Resolution ⁽²⁾	16 bits (unipolar) 15 bits plus sign (bipolar)
Rated working voltage ⁽³⁾	30V AC/30V DC
Common mode voltage range ⁽⁴⁾	$\pm 10\text{V}$ DC max per channel
Common mode rejection	> 60 dB @ 50 and 60 Hz with the 10 Hz filter selected
Normal mode rejection ratio	-50 dB @ 50 and 60 Hz with the 10 Hz filter selected
Input impedance	Voltage: 1 M Ω Current: 249 Ω
Accuracy ⁽⁵⁾	Voltage: $\pm 0.2\%$ full scale @ 25 °C (77 °F) Current: $\pm 0.35\%$ full scale @ 25 °C (77 °F)
Accuracy drift with temperature	Voltage: $\pm 0.003\%$ per °C Current: $\pm 0.0045\%$ per °C
Nonlinearity	$\pm 0.03\%$
Repeatability ⁽⁶⁾	$\pm 0.03\%$
Module error	Voltage: $\pm 0.3\%$ Current: $\pm 0.5\%$
Overload at input terminals, max ⁽⁷⁾	Voltage: $\pm 24\text{V}$ DC continuous, 0.1 mA Current: $\pm 28\text{ mA}$ continuous, $\pm 7.6\text{V}$ DC
Isolation voltage	500V AC or 710V DC for 1 minute (qualification test), group to bus 30V AC/30V DC working voltage (IEC Class 2 reinforced insulation) 500V AC or 710V DC for 1 minute or 250V continuous (optical and magnetic), channel to rack and channel to channel
Weight, approx	300 g (0.65 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)
Replacement terminal block	1769-RTBN18 (1 per kit)

Table 12 - Technical Specifications - 1769-IF4XOF2

Attribute	1769-IF4XOF2
Current draw @ 5.1V	120 mA
Current draw @ 24V	160 mA
Heat dissipation, max	3.03 W
Weight, approx	290 g (0.64 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)
Replacement terminal block	1769-RTBN18 (1 per kit)
Replacement door label	1769-RL2 series B (2 per kit)
Replacement door	1769-RD (2 per kit)
Vendor ID code	1
Product type code	10
Product code	33
Enclosure type rating	None (open-style)

Table 13 - 1769-IF4XOF2 Input Specifications

Attribute	1769-IF4XOF2
Inputs	4 differential or single-ended
Input range	0...10V 0...20 mA
Full scale range ⁽¹⁾	0...10.5V 0...21 mA
Converter type	Successive approximation
Resolution ⁽²⁾	8 bits plus sign
Response speed per channel	5 ms
Rated working voltage ⁽³⁾	30V AC/30V DC
Common mode voltage range ⁽⁴⁾	10V DC max per channel
Common mode rejection	> 60 dB @ 50 and 60 Hz with the 10 Hz filter selected
Input impedance	Current: 150 Ω Voltage: 150 k Ω
Accuracy ⁽⁵⁾	Current: $\pm 0.6\%$ full scale @ 25 °C (77 °F) Voltage: $\pm 0.7\%$ full scale @ 25 °C (77 °F)
Overall accuracy	Current: $\pm 0.8\%$ full scale @ 0...60 °C (32...140 °F) Voltage: $\pm 0.9\%$ full scale @ 0...60 °C (32...140 °F)
Accuracy drift with temperature	Current: $\pm 0.006\%$ per °C Voltage: $\pm 0.006\%$ per °C
Nonlinearity	$\pm 0.4\%$

Table 17 - Technical Specifications - 1769-IF4FX0F2F

Attribute	1769-IF4FX0F2F
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 series B (2 per kit)
Replacement door	1769-RD (2 per kit)
Vendor ID code	1
Product type code	10
Product code	43
Input words	10
Output words	4
Configuration words	42
Enclosure type rating	None (open-style)

Table 18 - 1769-IF4FX0F2F Input Specifications

Attribute	1769-IF4FX0F2F
Inputs	4 differential or single-ended
Input 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
Converter type	Successive approximation
Resolution ⁽²⁾	14 bits (unipolar) 14 bits plus sign (bipolar)
Rated working voltage ⁽³⁾	30V AC/30V DC
Common mode voltage range ⁽⁴⁾	±10V DC max per channel
Common mode rejection	> 70 dB @ 50 and 60 Hz with the 10 Hz filter selected
Input impedance	Current: 250 Ω Voltage: 220 kΩ
Accuracy ⁽⁵⁾	Current: ±0.2% full scale @ 25 °C (77 °F) Voltage: ±0.15% full scale @ 25 °C (77 °F)
Accuracy drift with temperature	Current: ±0.0045% per °C Voltage: ±0.003% per °C
Nonlinearity	±0.03%
Repeatability ⁽⁶⁾	±0.03%

Table 22 - Technical Specifications - 1769-IF8

Attribute	1769-IF8
Accuracy drift with temperature	Voltage: $\pm 0.003\%$ per $^{\circ}\text{C}$ Current: $\pm 0.0045\%$ per $^{\circ}\text{C}$
Nonlinearity	$\pm 0.03\%$
Repeatability ⁽⁶⁾	$\pm 0.03\%$
Module error	Voltage: $\pm 0.3\%$ Current: $\pm 0.5\%$
Overload at input terminals, max ⁽⁷⁾	Voltage: $\pm 30\text{V}$ DC continuous, 0.1 mA Current: ± 32 mA continuous, $\pm 7.6\text{V}$ DC
Isolation voltage	500V AC or 710V DC for 1 minute (qualification test), group to bus 30V AC/30V DC working voltage (IEC Class 2 reinforced insulation)
Weight, approx	450 g (0.99 lb)
Dimensions (HxWxD), approx	118 x 52.5 x 87 mm (4.65 x 2.07 x 3.43 in.) Height with mounting tabs 138 mm (5.43 in.)
Slot width	1.5
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 $^{\circ}\text{C}$ (194 $^{\circ}\text{F}$)
Replacement terminal block	1769-RTBN18 (1 per kit)
Replacement door label	1769-RL2 series B (2 per kit)
Replacement door	1769-RD (2 per kit)
Vendor ID code	1
Product type code	10
Product code	38
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) Resolution is dependent upon your filter selection. The maximum resolution is achieved with either the 50 or 60 Hz filter selected.
- (3) 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.
- (4) For proper operation, both the plus and minus input terminals must be within $\pm 10\text{V}$ DC of analog common.
- (5) Includes offset, gain, nonlinearity, and repeatability error terms.
- (6) Repeatability is the ability of the input module to register the same reading in successive measurements for the same input signal.
- (7) Damage can occur to the input circuit if this value is exceeded.

Table 23 - Response Speed - 1769-IF8

Filter Frequency	Update Time Per Channel	Update Time Per Module
10 Hz	100 ms	400 ms
50 Hz	30 ms	120 ms
60 Hz	30 ms	120 ms
250 Hz	9 ms	36 ms
500 Hz	6 ms	24 ms

Table 25 - Technical Specifications - 1769-IF16C

Attribute	1769-IF16C
Common mode voltage range ⁽⁴⁾	±10V DC max per channel
Common mode rejection	> 60 dB @ 50 and 60 Hz with the 16 Hz filter selected
Input impedance	249 Ω
Accuracy ⁽⁵⁾	±0.5% full scale @ 25 °C (77 °F)
Accuracy drift with temperature	±0.0045% per °C
Nonlinearity	±0.03%
Repeatability ⁽⁶⁾	±0.03%
Module error	1.25%
Overload at input terminals, max ⁽⁷⁾	±28 mA continuous, ±7.6V DC
Isolation voltage	500V AC or 710V DC for 1 minute (qualification test), group to bus 30V AC/30V DC working voltage (IEC Class 2 reinforced insulation)
Weight, approx	281 g (0.62 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)
Replacement terminal block	1769-RTBN18 (1 per kit)
Replacement door label	1769-RL2 series B (2 per kit)
Replacement door	1769-RD (2 per kit)
Vendor ID code	1
Product type code	10
Product code	47
Input words	22
Output words	2
Configuration words	98
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) Resolution is dependent upon your filter selection. The maximum resolution is achieved with either the 50 or 60 Hz filter selected.
- (3) 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.
- (4) For proper operation, both the plus and minus input terminals must be within ±10V DC of analog common.
- (5) Includes offset, gain, nonlinearity, and repeatability error terms.
- (6) Repeatability is the ability of the input module to register the same reading in successive measurements for the same input signal.
- (7) Damage can occur to the input circuit if this value is exceeded.

Table 26 - Response Speed - 1769-IF16C

Filter Frequency	Step Response	Update per Input Pair	Update per Module
16 Hz	1550 ms	200 ms	1600 ms
50 Hz	500 ms	70 ms	560 ms
60 Hz	420 ms	60 ms	480 ms
315 Hz	90 ms	15 ms	120 ms
1365 Hz	35 ms	5 ms	40 ms

Table 28 - Technical Specifications - 1769-IF16V

Attribute	1769-IF16V
Inputs	16 single-ended
Input range	±10V 0...10V 0...5V 1...5V
Full scale range ⁽¹⁾	±10.5V -0.5...10.5V -0.5...5.25V 0.5...5.25V
Current draw @ 5.1V	190 mA
Current draw @ 24V	70 mA
Heat dissipation, max	2.4 W
Converter type	Sigma Delta
Resolution ⁽²⁾	16 bits (unipolar) 15 bits plus sign (bipolar)
Rated working voltage ⁽³⁾	30V AC/30V DC
Common mode voltage range ⁽⁴⁾	±10V DC max per channel
Common mode rejection	> 60 dB @ 50 and 60 Hz with the 16 Hz filter selected
Input impedance	> 1 MΩ
Accuracy ⁽⁵⁾	±0.35% full scale @ 25 °C (77 °F)
Accuracy drift with temperature	±0.03% per °C
Nonlinearity	±0.03%
Repeatability ⁽⁶⁾	±0.06%
Module error	1.0%
Overload at input terminals, max ⁽⁷⁾	±30 mA continuous, ±7.6V DC
Isolation voltage	500V AC or 710V DC for 1 minute (qualification test), group to bus 30V AC/30V DC working voltage (IEC Class 2 reinforced insulation)
Weight, approx	281 g (0.62 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)
Replacement terminal block	1769-RTBN18 (1 per kit)
Replacement door label	1769-RL2 series B (2 per kit)
Replacement door	1769-RD (2 per kit)
Vendor ID code	1
Product type code	10
Product code	46
Input words	22

Table 33 - Technical Specifications - 1769-IM12

Attribute	1769-IM12
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)
IEC input compatibility	Type 1+
Replacement terminal block	1769-RTBN18 (1 per kit)
Replacement door label	1769-RL1 (2 per kit)
Replacement door	1769-RD (2 per kit)
Vendor ID code	1
Product type code	7
Product code	83
Enclosure type rating	None (open-style)

- (1) A current limiting resistor can be used to limit inrush current; however, the operating characteristics of the AC input circuit are affected. If a 6.8 k Ω (2.5 W minimum) resistor is placed in series with the input, the inrush current is reduced to 35 mA. In this configuration, the minimum on-state voltage increases to 92V AC. Before adding the resistor in a hazardous environment, be sure to consider the operating temperature of the resistor and the temperature limits of the environment. The operating temperature of the resistor must remain below the temperature limit of the environment.

Table 34 - Certifications - 1769-IM12

Certification ⁽¹⁾	1769-IM12
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	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.

Table 35 - Technical Specifications - 1769-IQ16

Attribute	1769-IQ16
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)
IEC input compatibility	Type 1+
Replacement terminal block	1769-RTBN18 (1 per kit)
Replacement door label	1769-RL1 (2 per kit)
Replacement door	1769-RD (2 per kit)
Vendor ID code	1
Product type code	7
Product code	67
Enclosure type rating	None (open-style)

Table 36 - Certifications - 1769-IQ16

Certification ⁽¹⁾	1769-IQ16
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	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.

Table 37 - Technical Specifications - 1769-IQ16F

Attribute	1769-IQ16F
Isolation voltage	Verified by one of the following dielectric tests: 1200V AC for 1 s or 1697V DC for 1 s, input point to bus and group to group 75V 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)
IEC input compatibility	Type 1+
Replacement terminal block	1769-RTBN18 (1 per kit)
Replacement door label	1769-RL1 (2 per kit)
Replacement door	1769-RD (2 per kit)
Vendor ID code	1
Product type code	7
Product code	69
Enclosure type rating	None (open-style)

Table 38 - Certifications - 1769-IQ16F

Certification ⁽¹⁾	1769-IQ16F
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	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.

Table 39 - Technical Specifications - 1769-IQ32

Attribute	1769-IQ32
Dimensions (HxWxD), approx	118 x 52.5 x 87 mm (4.65 x 2.07 x 3.43 in.) Height with mounting tabs 138 mm (5.43 in.)
Slot width	1.5
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)
IEC input compatibility	Type 1+
Replacement terminal block	1769-RTBN18 (1 per kit)
Replacement door label	1769-RL1 (2 per kit)
Replacement door	1769-RD (2 per kit)
Vendor ID code	1
Product type code	7
Product code	68
Enclosure type rating	None (open-style)

Table 40 - Certifications - 1769-IQ32

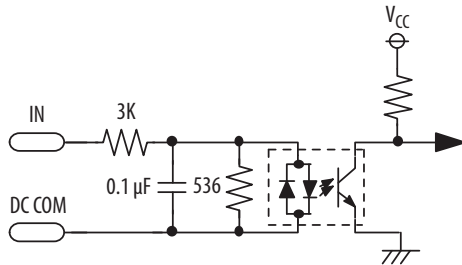
Certification ⁽¹⁾	1769-IQ32
c-UL	C-UL certified (under CSA C22.2 No. 142) UL 508 listed Class I, Division 2 Group A,B,C,D Hazardous Locations (UL 1604, C-UL under CSA C22.2 No. 213)
CE	CE compliant for all applicable directives
C-Tick	Australian Radiocommunications Act, compliant with: AS/NZS CISPR 11; 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.

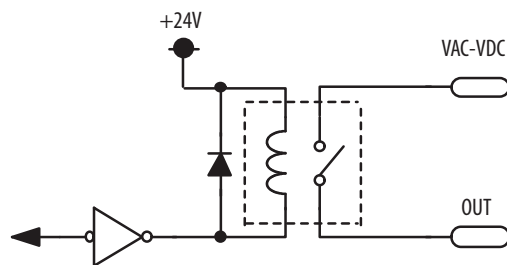
1769-IQ6X0W4

Compact combination 24V DC sink/source input and AC/DC relay output module

Simplified Input Circuit Diagram



Simplified Output Circuit Diagram



1769-IQ6X0W4

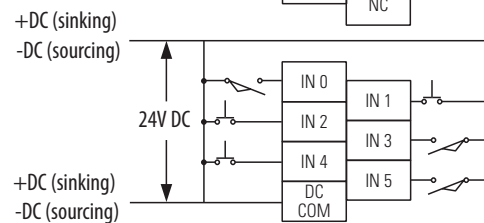
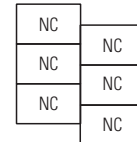
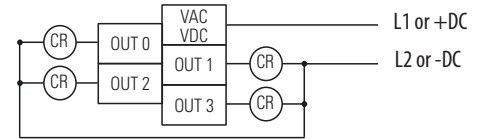


Table 43 - Technical Specifications - 1769-IQ6X0W4

Attribute	1769-IQ6X0W4
Current draw @ 5.1V	105 mA
Current draw @ 24V	50 mA
Heat dissipation, max	2.75 W
Off-state voltage, max	11V DC
Isolation voltage	Verified by one of the following dielectric tests: 1200V AC for 1 s or 1697V DC for 1 s, input group to bus, output group to bus, and input group to output group 75V 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
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)
IEC input compatibility	Type 1+
Replacement terminal block	1769-RTBN18 (1 per kit)
Replacement door label	1769-RL1 (2 per kit)

Table 51 - Technical Specifications - 1769-IR6

Attribute	1769-IR6
Terminal screw torque	0.68 N•m (6 lb•in)
Retaining screw torque	0.46 N•m (4.1 lb•in)
Recommended cable	2-wire configuration: Belden 9501 or equivalent 3-wire configuration: Belden 9533 or equivalent 4-wire configuration: Belden 83503 or equivalent
Wire size	(22...14 AWG) solid (22...16 AWG) stranded
Wire type	Cu-90 °C (194 °F)
IEC input compatibility	Type 1+
Replacement terminal block	1769-RTBN18 (1 per kit)
Replacement door label	1769-RL2 series B (2 per kit)
Replacement door	1769-RD (2 per kit)
Vendor ID code	1
Product type code	10
Product code	37
Enclosure type rating	None (open-style)

- (1) Accuracy is dependent upon the Analog/Digital converter output rate selection, excitation current selection, data format, and input noise.
(2) Repeatability is the ability of the input module to register the same reading in successive measurements for the same input signal.
(3) Open-circuit detection time is equal to channel update time.

Table 52 - RTD Accuracy and Temperature Drift - 1769-IR6

RTD Type		Scaled Accuracy Max 25 °C (77 °F) with Calibration	Scaled Accuracy Max 0...60 °C (32...140 °F) with Calibration	Temperature Drift Max from 25 °C (77 °F) without Calibration
Copper 426	10 Ω	± 0.6 °C (1.08 °F)	± 1.1 °C (1.98 °F)	± 0.032 °C/°C (0.032 °F/°F)
Nickel 618	120 Ω	± 0.2 °C (± 0.36 °F)	± 0.4 °C (± 0.72 °F)	± 0.012 °C/°C (± 0.012 °F/°F)
Nickel 672	120 Ω	± 0.2 °C (± 0.36 °F)	± 0.4 °C (± 0.72 °F)	± 0.012 °C/°C (± 0.012 °F/°F)
Nickel-Iron 518	604 Ω	± 0.3 °C (± 0.54 °F)	± 0.5 °C (± 0.9 °F)	± 0.015 °C/°C (± 0.015 °F/°F)
Platinum 385	100 Ω	± 0.5 °C (± 0.9 °F)	± 0.9 °C (± 1.62 °F)	± 0.026 °C/°C (± 0.026 °F/°F)
	200 Ω	± 0.5 °C (± 0.9 °F)	± 0.9 °C (± 1.62 °F)	± 0.026 °C/°C (± 0.026 °F/°F)
	500 Ω	± 0.5 °C (± 0.9 °F)	± 0.9 °C (± 1.62 °F)	± 0.026 °C/°C (± 0.026 °F/°F)
	1000 Ω	± 0.5 °C (± 0.9 °F)	± 0.9 °C (± 1.62 °F)	± 0.026 °C/°C (± 0.026 °F/°F)
Platinum 3916	100 Ω	± 0.4 °C (± 0.72 °F)	± 0.8 °C (± 1.44 °F)	± 0.023 °C/°C (± 0.023 °F/°F)
	200 Ω	± 0.4 °C (± 0.72 °F)	± 0.8 °C (± 1.44 °F)	± 0.023 °C/°C (± 0.023 °F/°F)
	500 Ω	± 0.4 °C (± 0.72 °F)	± 0.8 °C (± 1.44 °F)	± 0.023 °C/°C (± 0.023 °F/°F)
	1000 Ω	± 0.4 °C (± 0.72 °F)	± 0.8 °C (± 1.44 °F)	± 0.023 °C/°C (± 0.023 °F/°F)

Table 53 - RTD Standards - 1769-IR6

RTD Type	$\alpha^{(3)}$	IEC-751 1983, Amend. 2 1995	DIN 43760 1987	SAMA ⁽⁴⁾ Standard RC21-4-1966	Japanese Industrial Standard JIS C1604- 1989	Japanese Industrial Standard JIS C1604- 1997	Minco ⁽⁵⁾
100 Ω Pt	0.00385	X	X			X	
200 Ω Pt	0.00385	X	X			X	
500 Ω Pt	0.00385	X	X			X	
1000 Ω Pt	0.00385	X	X			X	
100 Ω Pt	0.03916				X		
200 Ω Pt	0.03916				X		

Table 55 - Technical Specifications - 1769-IT6

Attribute	1769-IT6
CJC assembly accuracy	$\pm 1.0^{\circ}\text{C}$ ($\pm 1.8^{\circ}\text{F}$)
Nonlinearity (in percent full scale)	$\pm 0.03\%$
Open-circuit detection time	7 ms...2.1 s ⁽³⁾
Overload at input terminals, max	$\pm 35\text{V DC}$ continuous ⁽⁴⁾
Isolation voltage	720V DC for 1 min (qualification test) 30V AC/30V DC working voltage, group to bus
Weight, approx	276 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
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)
Recommended cable	2-wire configuration: Belden 9501 or equivalent 3-wire configuration: Belden 9533 or equivalent 4-wire configuration: Belden 83503 or equivalent
Wire size	(22...14 AWG) solid (22...16 AWG) stranded
Wire type	Cu-90 °C (194 °F)
IEC input compatibility	Type 1+
Replacement terminal block	1769-RTBN18 (1 per kit)
Replacement door label	1769-RL2 series B (2 per kit)
Replacement door	1769-RD (2 per kit)
Vendor ID code	1
Product type code	10
Product code	36
Enclosure type rating	None (open-style)

- (1) 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 30V DC input signal and 20V DC potential above ground at the input terminal.
- (2) For proper operation, both the plus and minus input terminals must be within $\pm 10\text{V DC}$ of analog common.
- (3) Open-circuit detection time is equal to the module scan time, which is based on the number of enabled channels, and the filter frequency of each channel.
- (4) Maximum current input is limited due to input impedance.

Table 56 - Repeatability at 25 °C (77 °F) - 1769-IT6

Input Type	Repeatability for 10 Hz Filter ⁽¹⁾⁽²⁾
Thermocouple J	$\pm 0.1^{\circ}\text{C}$ [$\pm 0.18^{\circ}\text{F}$]
Thermocouple N (-110...+1300 °C [-166...+2372 °F])	$\pm 0.1^{\circ}\text{C}$ [$\pm 0.18^{\circ}\text{F}$]
Thermocouple N (-210...-110 °C [-346...-166 °F])	$\pm 0.25^{\circ}\text{C}$ [$\pm 0.45^{\circ}\text{F}$]
Thermocouple T (-170...+400 °C [-274...+752 °F])	$\pm 0.1^{\circ}\text{C}$ [$\pm 0.18^{\circ}\text{F}$]
Thermocouple T (-270...-170 °C [-454...-274 °F])	$\pm 1.5^{\circ}\text{C}$ [$\pm 2.7^{\circ}\text{F}$]
Thermocouple K (-270...+1370 °C [-454...+2498 °F])	$\pm 0.1^{\circ}\text{C}$ [$\pm 0.18^{\circ}\text{F}$]
Thermocouple (-270...-170 °C [-454...-274 °F])	$\pm 2.0^{\circ}\text{C}$ [$\pm 3.6^{\circ}\text{F}$]
Thermocouple E (-220...+1000 °C [-364...+1832 °F])	$\pm 0.1^{\circ}\text{C}$ [$\pm 0.18^{\circ}\text{F}$]
Thermocouple E (-270...-220 °C [-454...-364 °F])	$\pm 1.0^{\circ}\text{C}$ [$\pm 1.8^{\circ}\text{F}$]
Thermocouples S and R	$\pm 0.4^{\circ}\text{C}$ [$\pm 0.72^{\circ}\text{F}$]

Table 61 - Technical Specifications - 1769-0A16

Attribute	1769-0A16
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-RL1 (2 per kit)
Replacement door	1769-RD (2 per kit)
Vendor ID code	1
Product type code	7
Product code	93
Enclosure type rating	None (open style)

- (1) Triac outputs turn on and off at AC line zero cross.
- (2) To limit the effects of leakage current through solid-state outputs, a loading resistor can be connected in parallel with your load. For 120V AC operation, use a 15 k Ω , 2 W resistor. For 240V AC operation, use a 5 k Ω , 5 W resistor.
- (3) If you connect surge suppressors across your external load, you extend the life of the triac outputs.

Table 63 - Technical Specifications - 1769-0B8

Attribute	1769-0B8
Wire type	Cu-90 °C (194 °F)
Replacement terminal block	1769-RTBN18 (1 per kit)
Replacement door label	1769-RL1 (2 per kit)
Replacement door	1769-RD (2 per kit)
Vendor ID code	1
Product type code	7
Product code	70
Enclosure type rating	None (open style)

- (1) To limit the effects of leakage current through solid-state outputs, a loading resistor can be connected in parallel with your load. Use a 5.6 k Ω , 1/2 W resistor for transistor outputs, 24V DC operation.
 (2) Use a 1N4004 diode reverse-wired across the load for transistor outputs switching 24V DC inductive loads.

Table 64 - Certifications - 1769-0B8

Certification ⁽¹⁾	1769-0B8
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.

1769-0B16

Compact solid-state 24V DC source output module

Simplified Output Circuit Diagram

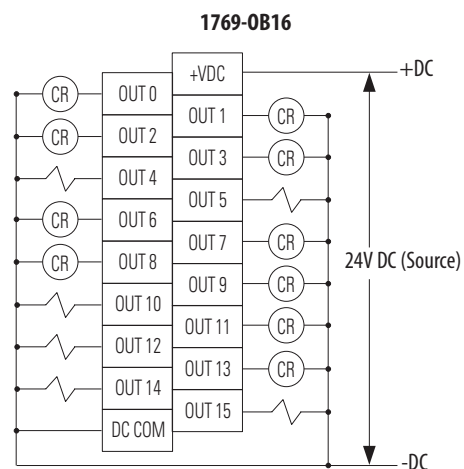
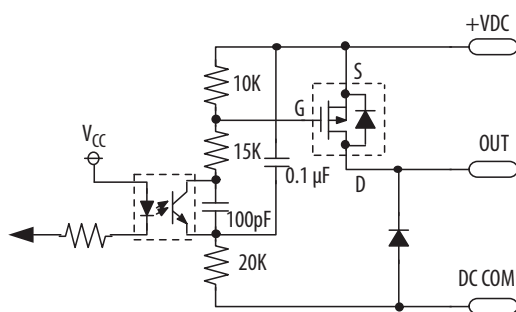


Table 65 - Technical Specifications - 1769-OB16

Attribute	1769-OB16
Outputs	16 (16 points/group)
Voltage category	24V DC source
Operating voltage range	20.4...26.4V DC
Output delay, on	0.1 ms
Output delay, off	1.0 ms
Current draw @ 5.1V	200 mA
Heat dissipation, max	2.11 W
Off-state leakage current, max ⁽¹⁾	1.0 mA @ 26.4V DC
On-state current, min	1.0 mA
On-state voltage drop, max	1.0V DC @ 1 A
Current per point, max	0.5 A @ 60 °C (140 °F) 1.0 A @ 30 °C (86 °F)
Current per module, max	4.0 A @ 60 °C (140 °F) 8.0 A @ 30 °C (86 °F)
Surge current ⁽²⁾	2.0 A for 10 ms, repeatable every 2 s
Isolation voltage	Verified by one of the following dielectric tests: 1200V AC for 1 s or 1697V DC for 1 s, output point to bus 75V 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
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-RL1 (2 per kit)
Replacement door	1769-RD (2 per kit)
Vendor ID code	1
Product type code	7
Product code	71
Enclosure type rating	None (open style)

(1) To limit the effects of leakage current through solid-state outputs, a loading resistor can be connected in parallel with your load. Use a 5.6 k Ω , 1/2 W resistor for transistor outputs, 24V DC operation.

(2) Use a 1N4004 diode reverse-wired across the load for transistor outputs switching 24V DC inductive loads.

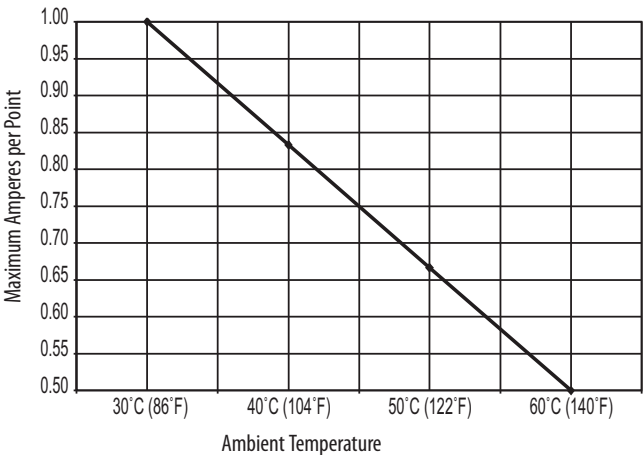
Table 67 - Technical Specifications - 1769-OB16P

Attribute	1769-OB16P
Wire type	Cu-90 °C (194 °F)
Replacement terminal block	1769-RTBN18 (1 per kit)
Replacement door label	1769-RL1 (2 per kit)
Replacement door	1769-RD (2 per kit)
Vendor ID code	1
Product type code	7
Product code	91
Enclosure type rating	None (open style)

- (1) To limit the effects of leakage current through solid-state outputs, a loading resistor can be connected in parallel with your load. Use a 5.6 k Ω , 1/2 W resistor for transistor outputs, 24V DC operation.
- (2) Use a 1N4004 diode reverse-wired across the load for transistor outputs switching 24V DC inductive loads.

Temperature Derating - 1769-OB16P

1769-OB16P Maximum Amperes per Point Versus Temperature



1769-OB16P Maximum Amperes per Module Versus Temperature

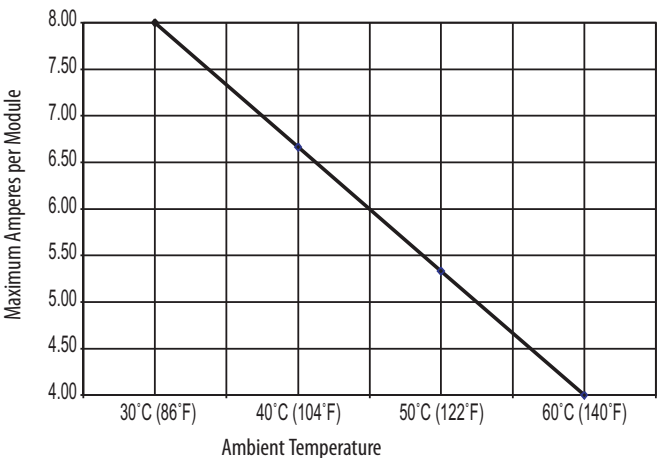


Table 69 - Technical Specifications - 1769-OB32

Attribute	1769-OB32
Heat dissipation, max	4.5 W
Off-state leakage current, max ⁽¹⁾	1.0 mA @ 26.4V DC
On-state current, min	1.0 mA
On-state voltage drop, max	1.0V DC @ 1 A
Current per point, max	0.5 A @ 60 °C (140 °F) 1.0 A @ 30 °C (86 °F)
Current per module, max	4.0 A @ 60 °C (140 °F) 8.0 A @ 30 °C (86 °F)
Surge current ⁽²⁾	2.0 A for 10 ms, repeatable every 2 s
Isolation voltage	Verified by one of the following dielectric tests: 1200V AC for 1 s or 1697V DC for 1 s, output point to bus 75V DC working voltage (IEC Class 2 reinforced insulation)
Weight, approx	450 g (0.992 lb)
Dimensions (HxWxD), approx	118 x 52.5 x 87 mm (4.65 x 2.07 x 3.43 in.) Height with mounting tabs 138 mm (5.43 in.)
Slot width	1.5
Module location	DIN rail or panel mount
Power supply	1769-PA2, 1769-PB2, 1769-PA4, 1769-PB4
Power supply distance rating	6 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-RL1 (2 per kit)
Replacement door	1769-RD (2 per kit)
Vendor ID code	1
Product type code	7
Product code	73
Enclosure type rating	None (open style)

(1) To limit the effects of leakage current through solid-state outputs, a loading resistor can be connected in parallel with your load. Use a 5.6 k Ω , 1/2 W resistor for transistor outputs, 24V DC operation.

(2) Use a 1N4004 diode reverse-wired across the load for transistor outputs switching 24V DC inductive loads.

Table 73 - Technical Specifications - 1769-OF2

Attribute	1769-OF2
Field calibration	None required
Accuracy ⁽³⁾	Voltage: $\pm 0.5\%$ full scale @ 25 °C (77 °F) Current: $\pm 0.35\%$ full scale @ 25 °C (77 °F)
Accuracy drift with temperature	Voltage: $\pm 0.0086\%$ per °C Current: $\pm 0.0058\%$ per °C
Output ripple ⁽⁴⁾	$\pm 0.05\%$ @ 0...50 kHz
Nonlinearity	$\pm 0.05\%$
Repeatability ⁽⁵⁾	$\pm 0.05\%$
Module error	Voltage: $\pm 0.8\%$ Current: $\pm 0.55\%$
Offset error	$\pm 0.05\%$
Output impedance	15 Ω
Open and short-circuit protection	Yes
Short-circuit protection, max	21 mA
Output overvoltage protection	Yes
Time to detect open wire condition (current mode)	10 ms, typical 13.5 ms, max
Output response at system powerup and power down	$\pm 5V$ DC spike for < 5 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	300 g (0.65 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	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.

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 K Ω or greater
Inductive load, max	0.1 mH (current load) 1.0 μ F (voltage load)
Field calibration	None required
Accuracy ⁽³⁾	0.5% full scale at 25 °C (77 °F)
Accuracy drift with temperature	$\pm$ 0.0086% of full scale per °C
Output ripple ⁽⁴⁾	$\pm$ 0.05% @ 0...50 kHz
Nonlinearity	$\pm$ 0.05%
Repeatability ⁽⁵⁾	$\pm$ 0.05%
Module error 0...60 °C (32...140 °F)	+/-0.8% of full scale
Output impedance	Voltage output: < 1 Ω Current output: > 1 M Ω
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 77 - Technical Specifications - 1769-OF4CI

Attribute	1769-OF4CI
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-OF4CI

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)