

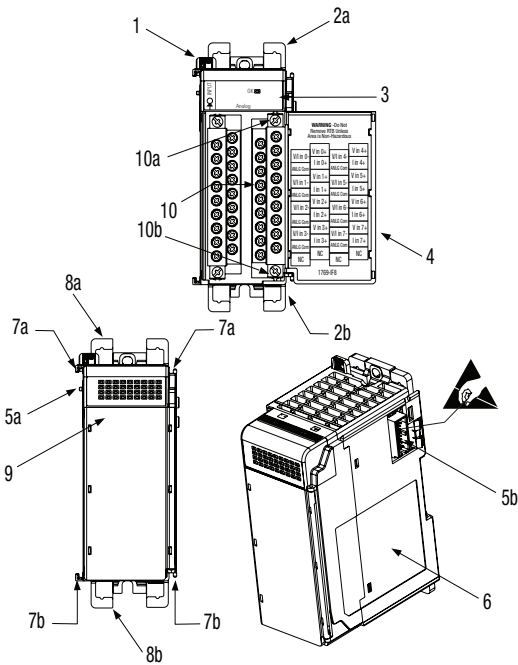


## **Compact I/O 1769-IF8 Analog Input Module**

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## Module Description



Item	Description
<b>1</b>	bus lever (with locking function)
<b>2a</b>	upper panel mounting tab
<b>2b</b>	lower panel mounting tab
<b>3</b>	module status LED
<b>4</b>	module door with terminal identification label
<b>5a</b>	movable bus connector with female pins
<b>5b</b>	stationary bus connector with male pins
<b>6</b>	nameplate label
<b>7a</b>	upper tongue-and-groove slots
<b>7b</b>	lower tongue-and-groove slots
<b>8a</b>	upper DIN rail latch
<b>8b</b>	lower DIN rail latch
<b>9</b>	write-on label (user ID tag)
<b>10</b>	removable terminal block (RTB) with finger-safe cover
<b>10a</b>	RTB upper retaining screw
<b>10b</b>	RTB lower retaining screw

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## Module Installation

Compact I/O is suitable for use in an industrial environment when installed in accordance with these instructions. Specifically, this equipment is intended for use in clean, dry environments (Pollution degree 2<sup>(1)</sup>) and to circuits not exceeding Over Voltage Category II<sup>(2)</sup> (IEC 60664-1).<sup>(3)</sup>

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## Prevent Electrostatic Discharge

**ATTENTION**

Electrostatic discharge can damage integrated circuits or semiconductors if you touch bus connector pins or the terminal block. Follow these guidelines when you handle the module:

- Touch a grounded object to discharge static potential.
- Wear an approved wrist-strap grounding device.
- Do not touch the bus connector or connector pins.
- Do not touch circuit components inside the module.
- If available, use a static-safe work station.
- When not in use, keep the module in its static-shield box.

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## Remove Power

**ATTENTION**

Remove power before removing or inserting this module. When you remove or insert a module with power applied, an electrical arc may occur. An electrical arc can cause personal injury or property damage by:

- sending an erroneous signal to your system's field devices, causing unintended machine motion
- causing an explosion in a hazardous environment

Electrical arcing causes excessive wear to contacts on both the module and its mating connector. Worn contacts may create electrical resistance.

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<sup>(1)</sup> Pollution Degree 2 is an environment where, normally, only non-conductive pollution occurs except that occasionally a temporary conductivity caused by condensation shall be expected.

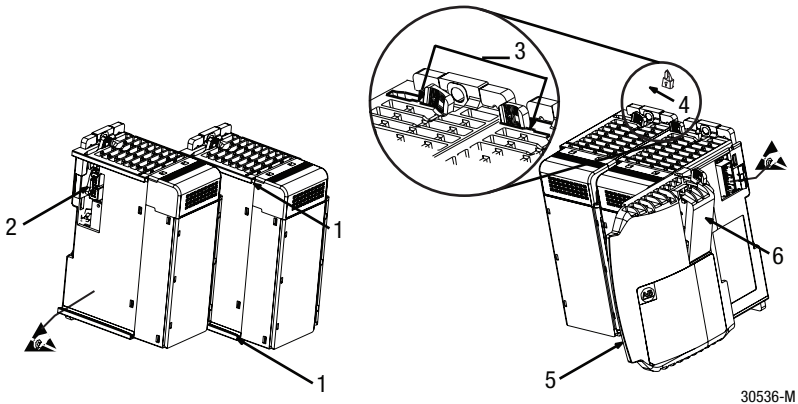
<sup>(2)</sup> Over Voltage Category II is the load level section of the electrical distribution system. At this level transient voltages are controlled and do not exceed the impulse voltage capability of the product's insulation.

<sup>(3)</sup> Pollution Degree 2 and Over Voltage Category II are International Electrotechnical Commission (IEC) designations.

## System Assembly

The module can be attached to the controller or an adjacent I/O module *before* or *after* mounting. For mounting instructions, see “Panel Mounting” on page 6, or “DIN Rail Mounting” on page 7. To work with a system that is already mounted, see “Replacing a Single Module within a System” on page 7.

The following procedure shows you how to assemble the Compact I/O system.



1. Disconnect power.
2. Check that the bus lever of the module to be installed is in the unlocked (fully right) position.
3. Use the upper and lower tongue-and-groove slots (1) to secure the modules together (or to a controller).
4. Move the module back along the tongue-and-groove slots until the bus connectors (2) line up with each other.
5. Push the bus lever back slightly to clear the positioning tab (3). Use your fingers or a small screwdriver.

- To allow communication between the controller and module, move the bus lever fully to the left (4) until it clicks. Ensure it is locked firmly in place.

**ATTENTION**

When attaching I/O modules, it is very important that the bus connectors are securely locked together to ensure proper electrical connection.

- Attach an end cap terminator (5) to the last module in the system by using the tongue-and-groove slots as before.
- Lock the end cap bus terminator (6).

**IMPORTANT**

A 1769-ECR or 1769-ECL right or left end cap must be used to terminate the end of the communication bus.

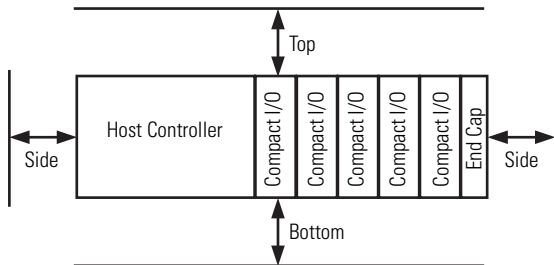
## Mounting Expansion I/O

**ATTENTION**

During panel or DIN rail mounting of all devices, be sure that all debris (metal chips, wire strands, etc.) is kept from falling into the module. Debris that falls into the module could cause damage on power up.

## Minimum Spacing

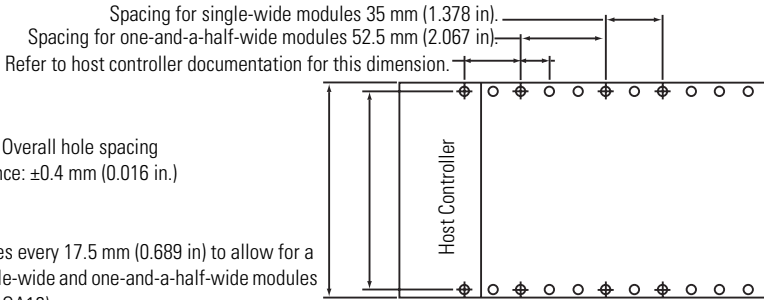
Maintain spacing from enclosure walls, wireways, adjacent equipment, etc. Allow 50 mm (2 in.) of space on all sides for adequate ventilation, as shown:



## Panel Mounting

Mount the module to a panel using two screws per module. Use M4 or #8 panhead screws. Mounting screws are required on every module.

### Panel Mounting Using the Dimensional Template



### Panel Mounting Procedure Using Modules as a Template

The following procedure allows you to use the assembled modules as a template for drilling holes in the panel. If you have sophisticated panel mounting equipment, you can use the dimensional template provided on page 6. Due to module mounting hole tolerance, it is important to follow these procedures:

1. On a clean work surface, assemble no more than three modules.
2. Using the assembled modules as a template, carefully mark the center of all module-mounting holes on the panel.
3. Return the assembled modules to the clean work surface, including any previously mounted modules.
4. Drill and tap the mounting holes for the recommended M4 or #8 screw.
5. Place the modules back on the panel and check for proper hole alignment.
6. Attach the modules to the panel using the mounting screws.

#### NOTE

If mounting more modules, mount only the last one of this group and put the others aside. This reduces remounting time during drilling and tapping of the next group.

7. Repeat steps 1 to 6 for any remaining modules.

## DIN Rail Mounting

The module can be mounted using the following DIN rails: 35 x 7.5 mm (EN 50 022 - 35 x 7.5) or 35 x 15 mm (EN 50 022 - 35 x 15).

Before mounting the module on a DIN rail, close the DIN rail latches. Press the DIN rail mounting area of the module against the DIN rail. The latches will momentarily open and lock into place.

## Replacing a Single Module within a System

The module can be replaced while the system is mounted to a panel (or DIN rail). Follow these steps in order:

1. Remove power. See important note on page 3.
2. On the module to be removed, remove the upper and lower mounting screws from the module (or open the DIN latches using a flat-blade or phillips-style screwdriver).
3. Move the bus lever to the right to disconnect (unlock) the bus.
4. On the right-side adjacent module, move its bus lever to the right (unlock) to disconnect it from the module to be removed.
5. Gently slide the disconnected module forward. If you feel excessive resistance, check that the module has been disconnected from the bus and that both mounting screws have been removed (or DIN latches opened).

### NOTE

It may be necessary to rock the module slightly from front to back to remove it, or, in a panel-mounted system, to loosen the screws of adjacent modules.

6. Before installing the replacement module, be sure that the bus lever on the module to be installed, and on the right-side adjacent module are in the unlocked (fully right) position.
7. Slide the replacement module into the open slot.
8. Connect the modules together by locking (fully left) the bus levers on the replacement module and the right-side adjacent module.
9. Replace the mounting screws (or snap the module onto the DIN rail).

## Module Spare/Replacement Parts

- Terminal block, catalog number 1769-RTBN18 (1 per kit)

## Field Wiring Connections

### Grounding the Module

This product is intended to be mounted to a well-grounded mounting surface such as a metal panel. Additional grounding connections from the module's mounting tabs or DIN rail (if used), are not required unless the mounting surface cannot be grounded. Refer to *Industrial Automation Wiring and Grounding Guidelines*, Allen-Bradley publication 1770-4.1, for additional information.

### System Wiring Guidelines

Consider the following when wiring your system:

- All module commons (ANLG COM) are connected in the analog module. The analog common (ANLG COM) is not connected to earth ground inside the module.
- Do not use the analog module's NC terminals as connection points.
- Channels are not isolated from each other.
- Use Belden™ 8761, or equivalent, shielded wire.
- Under normal conditions, the drain wire and shield junction must be connected to earth ground via a panel or DIN rail mounting screw at the analog I/O module end. Keep the shield connection to ground as short as possible.<sup>(1)</sup>
- To ensure optimum accuracy, limit overall cable impedance by keeping your cable as short as possible. Locate the I/O system as close to your sensors or actuators as your application will permit.
- If multiple power supplies are used with analog inputs, the power supply commons must be connected.

<sup>(1)</sup> In environments where high-frequency noise may be present, it may be necessary to directly ground cable shields to earth at the module end and via a 0.1µF capacitor at the sensor end.

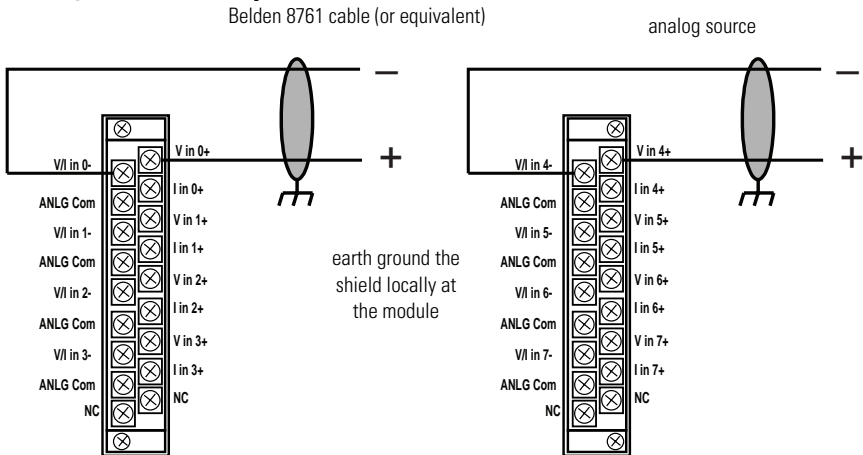


- The 1769-IF8 module does not provide loop power for analog inputs. Use a power supply that matches the input transmitter specifications.
- Differential analog inputs are more immune to noise than single-ended analog inputs.
- Voltages on  $V_{in+}$ ,  $V_{in-}$ , and  $I_{in+}$  of the 1769-IF8 module must be within  $\pm 10V$  dc of analog common.

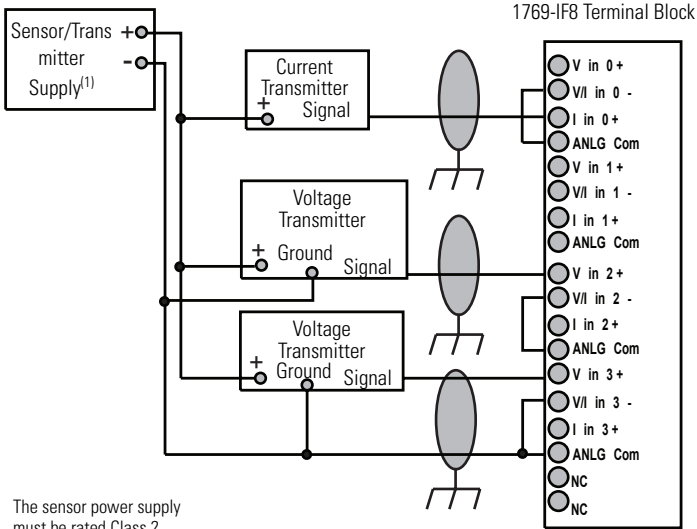
**ATTENTION**

Be careful when stripping wires. Wire fragments that fall into a module could cause damage at power up. Once wiring is complete, ensure the module is free of all metal fragments.

## Wiring Differential Inputs



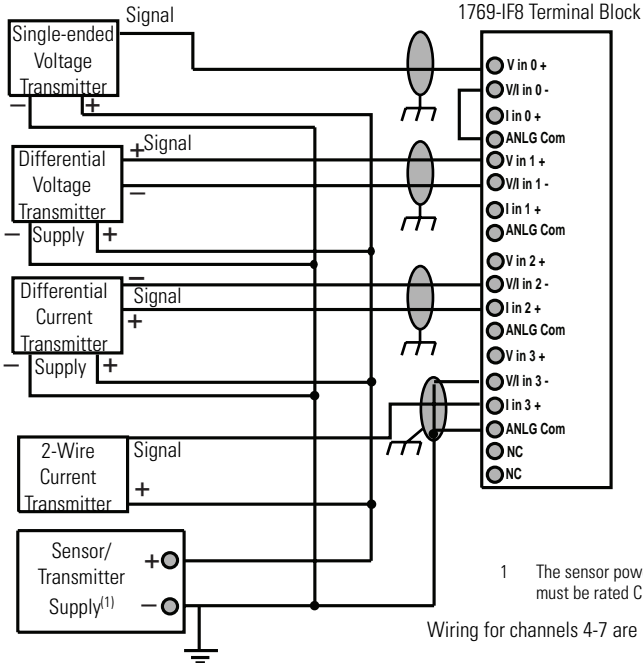
### Wiring Single-Ended Sensor/Transmitter Types



1 The sensor power supply must be rated Class 2.

Wiring for channels 4-7 are identical.

### Wiring Mixed Transmitter Types

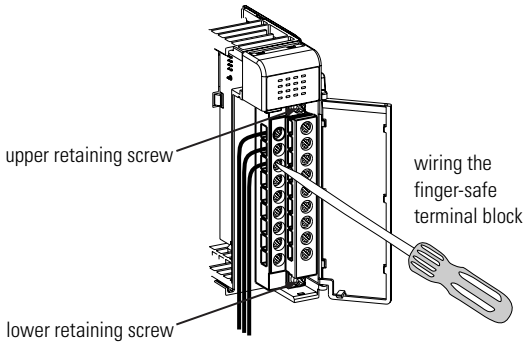


1 The sensor power supply must be rated Class 2.

Wiring for channels 4-7 are identical.

## Labeling the Terminals

A removable, write-on label is provided with the module. Remove the label from the door, mark the identification of each terminal with permanent ink, and slide the label back into the door. Your markings (ID tag) will be visible when the module door is closed.



## Removing the Finger-Safe Terminal Block

When wiring field devices to the module, it is not necessary to remove the terminal block. If you remove the terminal block, use the write-on label on the side of the terminal block to identify the module slot location and type. RTB position can be indicated by circling either the 'R' for right side or 'L' for left side.

To remove the terminal block, loosen the upper and lower retaining screws. The terminal block will back away from the module as you remove the screws. When replacing the terminal block, torque the retaining screws to 0.46 Nm (4.1 in-lbs).

## Wiring the Finger-Safe Terminal Block

When wiring the terminal block, keep the finger-safe cover in place.

1. Loosen the terminal screws to be wired.
2. Route the wire under the terminal pressure plate. You can use the bare wire or a spade lug. The terminals will accept a 6.35 mm (0.25 in.) spade lug.

### NOTE

The terminal screws are non-captive. Therefore, it is possible to use a ring lug [maximum 1/4 inch o.d. with a 0.139 inch minimum i.d. (M3.5)] with the module.

3. Tighten the terminal screw making sure the pressure plate secures the wire. Recommended torque when tightening terminal screws is 0.68 Nm (6 in-lbs).

### NOTE

If you need to remove the finger-safe cover, insert a screw driver into one of the square wiring holes and gently pry the cover off. If you wire the terminal block with the finger-safe cover removed, you will not be able to put it back on the terminal block because the wires will be in the way.

## Wire Size and Terminal Screw Torque

Each terminal accepts up to two wires with the following restrictions:

Wire Type		Wire Size	Terminal Screw Torque	Retaining Screw Torque
Solid	Cu-90°C (194°F)	#14 to #22 AWG	0.68 Nm (6 in-lbs)	0.46 Nm (4.1 in-lbs)
Stranded	Cu-90°C (194°F)	#16 to #22 AWG	0.68 Nm (6 in-lbs)	0.46 Nm (4.1 in-lbs)

## I/O Memory Mapping

### IMPORTANT

If you are using RSLogix 5000, version 15, please refer to RSLogix 5000, Version 15, Controller Tags on page 18.

### Input Data File

For each input module, slot x, words 0-7 in the input data file contain the analog values of the inputs.

Word	Bit Position															
	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
0	SGN	Analog Input Data Channel 0														
1	SGN	Analog Input Data Channel 1														
2	SGN	Analog Input Data Channel 2														
3	SGN	Analog Input Data Channel 3														
4	SGN	Analog Input Data Channel 4														
5	SGN	Analog Input Data Channel 5														
6	SGN	Analog Input Data Channel 6														
7	SGN	Analog Input Data Channel 7														
8	Nu	Time Stamp Value														
9	Nu	Nu	Nu	Nu	Nu	Nu	Nu	Nu	S7	S6	S5	S4	S3	S2	S1	S0
10	L3	H3	U3	O3	L2	H2	U2	O2	L1	H1	U1	O1	L0	H0	U0	O0
11	L7	H7	U7	O7	L6	H6	U6	O6	L5	H5	U5	O5	L4	H4	U4	O4

The bits are defined as follows:

- SGN = Sign bit in two's complement format
- Nu = Not used. Bit set to 0.
- Sx = General status bit for input channels 0 through 7.
- Lx = Low alarm flag bits for input channels 0 through 7.
- Hx = High alarm flag bits for input channels 0 through 7.
- Ux = Under-range flag bits for channels 0 through 7. When set, the input signal is under normal range or an open circuit condition exists, in the case of the 4-20 mA range.
- Ox = Over-range flag bits for channels 0 through 7.

## Output Data File

For each input module, slot x, word 0 in the output data file contains alarm unlatch control bits.

Word	Bit Position															
	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
0	CL <sup>(1)</sup> L7	CL <sup>(2)</sup> H7	CL L6	CL H6	CL L5	CL H5	CL L4	CL H4	CL L3	CL H3	CL L2	CL H2	CL L1	CL H1	CL L0	CL H0

<sup>(1)</sup> CL Lx = Cancel Low Process Alarm Latch x. This lets you individually cancel each low process alarm latch. Cancel = 1.

<sup>(2)</sup> CL Hx = Cancel High Process Alarm Latch x. This lets you individually cancel each high process alarm latch.

## Configuration Data File

The manipulation of the bits from this file is normally done with programming software (e.g. RSLogix 500, RSNetworkx for DeviceNet, etc.) during initial configuration of the system. In that case, graphical screens are provided by the programmer to simplify configuration. However, some systems, like the 1769-ADN DeviceNet Adapter, also allow the bits to be altered as part of the control program, using communication rungs. In that case, it is necessary to understand the bit arrangement. Refer to the *Compact™ Analog I/O User Manual*, publication number 1769-UM002 for additional details.

Word	Bit Position															
	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
0	Real Time Sample Value															
1	ERTS	Reserved														
2	EC	Reserved			EA	AL	EI	Reserved			Input Filter Sel ChI0					
3	Reserved				Inpt Dta Fm ChI0			Reserved			Inpt Tp/RngeSel ChI0					
4	S	Process Alarm High Data Value Channel 0														
5	S	Process Alarm Low Data Value Channel 0														
6	S	Alarm Dead Band Value Channel 0														
7	Pad															
8	EC	Reserved			EA	AL	EI	Reserved			Inpt Filter Sel ChI1					
9	Reserved				Inpt Dta Fm ChI1			Reserved			Inpt Tp/RngeSel ChI1					
10	S	Process Alarm High Data Value Channel 1														
11	S	Process Alarm Low Data Value Channel 1														
12	S	Alarm Dead Band Value Channel 1														
13	Pad															
14	EC	Reserved			EA	AL	EI	Reserved			Input Filter Sel ChI2					
15	Reserved				Inpt Dta Fm ChI2			Reserved			Inpt Tp/RngeSel ChI2					
16	S	Process Alarm High Data Value Channel 2														
17	S	Process Alarm Low Data Value Channel 2														
18	S	Alarm Dead Band Value Channel 2														
19	Pad															
20	EC	Reserved			EA	AL	EI	Reserved			Input Filter Sel ChI3					
21	Reserved				Inpt Dta Fm ChI3			Reserved			Inpt Tp/RngeSel ChI3					
22	S	Process Alarm High Data Value Channel 3														
23	S	Process Alarm Low Data Value Channel 3														
24	S	Alarm Dead Band Value Channel 3														
25	Pad															
26	EC	Reserved			EA	AL	EI	Reserved			Input Filter Sel ChI4					

Word	Bit Position															
	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
27	Reserved					Inpt Dta Fm Chl4			Reserved				Inpt Tp/RngeSel Chl4			
28	S	Process Alarm High Data Value Channel 4														
29	S	Process Alarm Low Data Value Channel 4														
30	S	Alarm Dead Band Value Channel 4														
31	Pad															
32	EC	Reserved				EA	AL	EI	Reserved				Input Filter Sel Chl5			
33	Reserved					Inpt Dta Fm Chl5			Reserved				Inpt Tp/RngeSel Chl5			
34	S	Process Alarm High Data Value Channel 5														
35	S	Process Alarm Low Data Value Channel 5														
36	S	Alarm Dead Band Value Channel 5														
37	Pad															
38	EC	Reserved				EA	AL	EI	Reserved				Input Filter Sel Chl6			
39	Reserved					Inpt Dta Fm Chl6			Reserved				Inpt Tp/RngeSel Chl6			
40	S	Process Alarm High Data Value Channel 6														
41	S	Process Alarm Low Data Value Channel 6														
42	S	Alarm Dead Band Value Channel 6														
43	Pad															
44	EC	Reserved				EA	AL	EI	Reserved				Input Filter Sel Chl7			
45	Reserved					Inpt Dta Fm Chl7			Reserved				Inpt Tp/RngeSel Chl7			
46	S	Process Alarm High Data Value Channel 7														
47	S	Process Alarm Low Data Value Channel 7														
48	S	Alarm Dead Band Value Channel 7														
49	Pad															

- EC = Enable Channel
- Inpt Dta Fm Chlx = Input Data Format Select.
- EA = Enable Alarm.
- AL = Alarm Latch.
- EI = Enable Interrupt.
- Inpt Tp/Rnge Sel Chlx = Input Type/Range Select.
- Inpt Filter Sel Chlx = Input Filter Select.
- Reserved = Allows for future expansion.
- ERTS = Enable Real Time Sample.



Define	To Select	Make these bit settings															
		15	14	13	12	11	10	9	8	7-4	3	2	1	0			
Input Filter Selection/ -3 dB Frequency	60 Hz													0	0	0	0
	50 Hz													0	0	0	1
	10 Hz													0	0	1	0
	250 Hz													0	0	1	1
	500 Hz													0	1	0	0
Enable Interrupt	Enable										1						
	Disable										0						
Process Alarm Latch	Enable								1								
	Disable								0								
Enable Process Alarms	Enable							1									
	Disable							0									
Enable Channel	Enable	1															
	Disable	0															

Define	Indicate this	These bit settings										
		15-11	10	9	8	7-4	3	2	1	0		
Input Range Select	-10 to +10V dc								0	0	0	0
	0 to 5V dc								0	0	0	1
	0 to 10V dc								0	0	1	0
	4 to 20 mA								0	0	1	1
	1 to 5V dc								0	1	0	0
	0 to 20 mA								0	1	0	1
Input Data Select	Raw/Proportional Counts		0	0	0							
	Engineering Units		0	0	1							
	Scaled for PID		0	1	0							
	Percent Range		0	1	1							

## RSLogix 5000, Version 15, Controller Tags

Use the following controller tags with RSLogix 5000, version 15.

### Channel 0 and 1 Configuration Data

Channel 0 and 1 configuration data is shown below. The same information applies to all channels.

-	Local:1:C	AB:1769_IF8:C:0	
+	Local:1:C.RTSInterval	INT	Decimal
	Local:1:C.RTSEn	BOOL	Decimal
+	Local:1:C.Ch0Filter	SINT	Decimal
	Local:1:C.Ch0AlarmInterruptEn	BOOL	Decimal
	Local:1:C.Ch0AlarmLatchEn	BOOL	Decimal
	Local:1:C.Ch0AlarmEn	BOOL	Decimal
	Local1:C.Ch0En	BOOL	Decimal
+	Local:1:C.Ch0Range	SINT	Decimal
+	Local:1:C.Ch0DataFormat	SINT	Decimal
+	Local:1:C.Ch0HAlarmLimit	INT	Decimal
+	Local:1:C.Ch0LAlarmLimit	INT	Decimal
+	Local:1:C.Ch0AlarmDeadband	INT	Decimal
+	Local:1:C.Ch1Filter	SINT	Decimal
	Local:1:C.Ch1AlarmInterruptEn	BOOL	Decimal
	Local:1:C.Ch1AlarmLatchEn	BOOL	Decimal
	Local:1:C.Ch1AlarmEn	BOOL	Decimal
	Local:1:C.Ch1En	BOOL	Decimal
+	Local:1:C.Ch1Range	SINT	Decimal
+	Local:1:C.Ch1DataFormat	SINT	Decimal
+	Local:1:C.Ch1HAlarmLimit	INT	Decimal
+	Local:1:C.Ch1LAlarmLimit	INT	Decimal
+	Local:1:C.Ch1AlarmDeadband	INT	Decimal

Tag Name	To Select	Make These Bit Settings <sup>(1)</sup>								
		15-8	7	6	5	4	3	2	1	0
Ch#Filter	60 Hz							0	0	0
	50 Hz							0	0	1
	10 Hz							0	1	0
	250 Hz							0	1	1
	500 Hz							1	0	0
Ch#AlarmInterruptEn	Enable									1
	Disable									0
Ch#AlarmLatchEn	Enable									1
	Disable									0
Ch#AlarmEn	Enable									1
	Disable									0
Ch#En	Enable									1
	Disable									0
Ch#Range	-10...+10V dc							0	0	0
	0...5V dc							0	0	1
	0...10V dc							0	1	0
	4...20 mA							0	1	1
	1...5V dc							1	0	0
	0...20 mA							1	0	1
Ch#DataFormat	Raw/proportional counts								0	0
	Engineering units								0	1
	Scaled for PID								1	0
	Percent range								1	1

<sup>(1)</sup> All bit positions left blank in table must be set to 0.

## Input Data

-	Local:1:I	AB:1769_IF8:I:0	
+	Local:1:I.Fault	DINT	Binary
+	Local:1:I.Ch0Data	INT	Decimal
+	Local:1:I.Ch1Data	INT	Decimal
+	Local:1:I.Ch2Data	INT	Decimal
+	Local:1:I.Ch3Data	INT	Decimal
+	Local:1:I.Ch4Data	INT	Decimal
+	Local:1:I.Ch5Data	INT	Decimal
+	Local:1:I.Ch6Data	INT	Decimal
+	Local:1:I.Ch7Data	INT	Decimal
+	Local:1:I.RealTimeSample	INT	Decimal
+	Local:1:I.CombinedStatus	SINT	Binary
	Local:1:I.Ch0Status	BOOL	Decimal
	Local:1:I.Ch1Status	BOOL	Decimal
	Local:1:I.Ch2Status	BOOL	Decimal
	Local:1:I.Ch3Status	BOOL	Decimal
	Local:1:I.Ch4Status	BOOL	Decimal
	Local:1:I.Ch5Status	BOOL	Decimal
	Local:1:I.Ch6Status	BOOL	Decimal
+	Local:1:I.Ch7Status	BOOL	Decimal
	Local:1:I.Ch0_1Status	SINT	Binary
	Local:1:I.Ch0OverRange	BOOL	Decimal
	Local:1:I.Ch0UnderRange	BOOL	Decimal
	Local:1:I.Ch0HAlarm	BOOL	Decimal
Local:1:I.Ch0LAlarm	BOOL	Decimal	
+	Local:1:I.Ch1OverRange	BOOL	Decimal
	Local:1:I.Ch1UnderRange	BOOL	Decimal
	Local:1:I.Ch1HAlarm	BOOL	Decimal
	Local:1:I.Ch1LAlarm	BOOL	Decimal

+	Local:1:I.Ch2_3Status	SINT	Binary
	Local:1:I.Ch2OverRange	BOOL	Decimal
	Local:1:I.Ch2UnderRange	BOOL	Decimal
	Local:1:I.Ch2HAlarm	BOOL	Decimal
	Local:1:I.Ch2LAlarm	BOOL	Decimal
	Local:1:I.Ch3OverRange	BOOL	Decimal
	Local:1:I.Ch3UnderRange	BOOL	Decimal
	Local:1:I.Ch3HAlarm	BOOL	Decimal
	Local:1:I.Ch3LAlarm	BOOL	Decimal
+	Local:1:I.Ch4_5Status	SINT	Binary
	Local:1:I.Ch4OverRange	BOOL	Decimal
	Local:1:I.Ch4UnderRange	BOOL	Decimal
	Local:1:I.Ch4HAlarm	BOOL	Decimal
	Local:1:I.Ch4LAlarm	BOOL	Decimal
	Local:1:I.Ch5OverRange	BOOL	Decimal
	Local:1:I.Ch5UnderRange	BOOL	Decimal
	Local:1:I.Ch5HAlarm	BOOL	Decimal
	Local:1:I.Ch5LAlarm	BOOL	Decimal
+	Local:1:I.Ch6_7Status	SINT	Binary
	Local:1:I.Ch6OverRange	BOOL	Decimal
	Local:1:I.Ch6UnderRange	BOOL	Decimal
	Local:1:I.Ch6HAlarm	BOOL	Decimal
	Local:1:I.Ch6LAlarm	BOOL	Decimal
	Local:1:I.Ch7OverRange	BOOL	Decimal
	Local:1:I.Ch7UnderRange	BOOL	Decimal
	Local:1:I.Ch7HAlarm	BOOL	Decimal
	Local:1:I.Ch7LAlarm	BOOL	Decimal

Tag Name	Bit Indicates This							
	7	6	5	4	3	2	1	0
Combined Status	Ch7 Status	Ch6 Status	Ch5 Status	Ch4 Status	Ch3 Status	Ch2 Status	Ch1 Status	Ch0 Status
Ch0_1 Status	Ch1 LAIarm	Ch1 HAIarm	Ch1 Under Range	Ch1 Over Range	Ch0 LAIarm	Ch0 HAIarm	Ch0 Under Range	Ch0 Over Range
Ch2_3 Status	Ch3 LAIarm	Ch3 HAIarm	Ch3 Under Range	Ch3 Over Range	Ch2 LAIarm	Ch2 HAIarm	Ch2 Under Range	Ch2 Over Range
Ch4_5 Status	Ch5 LAIarm	Ch5 HAIarm	Ch5 Under Range	Ch5 Over Range	Ch4 LAIarm	Ch4 HAIarm	Ch4 Under Range	Ch4 Over Range
Ch6_7 Status	Ch7 LAIarm	Ch7 HAIarm	Ch7 Under Range	Ch7 Over Range	Ch6 LAIarm	Ch6 HAIarm	Ch6 Under Range	Ch6 Over Range

## Output Data

-	Local:1:0	AB:1769_IF8:0:0	
+	Local:1:0.AlarmUnlatch	INT	Binary
	Local:1:0.Ch0HAlarmUnlatch	BOOL	Decimal
	Local:1:0.Ch0LAlarmUnlatch	BOOL	Decimal
	Local:1:0.Ch1HAlarmUnlatch	BOOL	Decimal
	Local:1:0.Ch1LAlarmUnlatch	BOOL	Decimal
	Local:1:0.Ch2HAlarmUnlatch	BOOL	Decimal
	Local:1:0.Ch2LAlarmUnlatch	BOOL	Decimal
	Local:1:0.Ch3HAlarmUnlatch	BOOL	Decimal
	Local:1:0.Ch3LAlarmUnlatch	BOOL	Decimal
	Local:1:0.Ch4HAlarmUnlatch	BOOL	Decimal
	Local:1:0.Ch4LAlarmUnlatch	BOOL	Binary
	Local:1:0.Ch5HAlarmUnlatch	BOOL	Decimal
	Local:1:0.Ch5LAlarmUnlatch	BOOL	Decimal
	Local:1:0.Ch6HAlarmUnlatch	BOOL	Decimal
	Local:1:0.Ch6LAlarmUnlatch	BOOL	Decimal
	Local:1:0.Ch7HAlarmUnlatch	BOOL	Decimal
Local:1:0.Ch7LAlarmUnlatch	BOOL	Decimal	

# Specifications

## General Specifications

Specification	Value
Dimensions	118 mm (height) x 87 mm (depth) x 52.5 mm (width) height including mounting tabs is 138 mm  4.65 in. (height) x 3.43 in (depth) x 2.07 in (width) height including mounting tabs is 5.43 in.
Approximate Shipping Weight (with carton)	450g (0.99 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
Shock	Operating: 30G, 11 ms panel mounted (20G, 11 ms DIN rail mounted)  Non-Operating: 40G panel mounted (30G DIN rail mounted)
Agency Certification	<ul style="list-style-type: none"> <li>• C-UL certified (under CSA C22.2 No. 142)</li> <li>• UL 508 listed</li> <li>• CE compliant for all applicable directives</li> </ul>
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>
<ul style="list-style-type: none"> <li>• ESD Immunity (IEC1000-4-2)</li> </ul>	<ul style="list-style-type: none"> <li>• 4 kV contact, 8 kV air, 4 kV indirect</li> </ul>
<ul style="list-style-type: none"> <li>• Radiated Immunity (IEC1000-4-3)</li> </ul>	<ul style="list-style-type: none"> <li>• 10 V/m , 80 to 1000 MHz, 80% amplitude modulation, +900 MHz keyed carrier</li> </ul>
<ul style="list-style-type: none"> <li>• Fast Transient Burst (IEC1000-4-4)</li> </ul>	<ul style="list-style-type: none"> <li>• 2 kV, 5kHz</li> </ul>
<ul style="list-style-type: none"> <li>• Surge Immunity (IEC1000-4-5)</li> </ul>	<ul style="list-style-type: none"> <li>• 1 kV galvanic gun</li> </ul>
<ul style="list-style-type: none"> <li>• Conducted Immunity (IEC1000-4-6)</li> </ul>	<ul style="list-style-type: none"> <li>• 10 V, 0.15 to 80MHz<sup>(1)</sup></li> </ul>

<sup>(1)</sup> 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-IF8
Analog Normal Operating Ranges <sup>(1)</sup>	Voltage: $\pm 10V$ dc, 0 to 10V dc, 0 to 5V dc, 1 to 5V dc Current: 0 to 20 mA, 4 to 20 mA
Full Scale Analog Ranges <sup>(1)</sup>	Voltage: $\pm 10.5V$ dc, 0 to 10.5V dc, 0 to 5.25V dc, 0.5 to 5.25V dc Current: 0 to 21 mA, 3.2 to 21 mA
Number of Inputs	8 differential or single-ended
Bus Current Draw (max.)	120 mA at 5V dc 70 mA at 24V dc
Heat Dissipation	3.24 Total Watts (The Watts per point, plus the minimum Watts, with all points energized.)
Converter Type	Delta Sigma
Response Speed per Channel	Input filter and configuration dependent. See your user's manual.
Resolution (max.) <sup>(2)</sup>	16 bits (unipolar) 15 bits plus sign (bipolar)
Rated Working Voltage <sup>(3)</sup>	30V ac/30V dc
Common Mode Voltage Range <sup>(4)</sup>	$\pm 10V$ dc maximum per channel
Common Mode Rejection	greater than 60 dB at 50 and 60 Hz with the 10 Hz filter selected, respectively.
Normal Mode Rejection Ratio	-50 dB at 50 and 60 Hz with the 10 Hz filter selected, respectively.
Input Impedance	Voltage Terminal: 220K $\Omega$ (typical) Current Terminal: 250 $\Omega$
Overall Accuracy <sup>(5)</sup>	Voltage Terminal: $\pm 0.2\%$ full scale at 25°C Current Terminal: $\pm 0.35\%$ full scale at 25°C

<sup>(1)</sup> The over- or under-range flag will come on when the normal operating range (over/under) 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.

<sup>(2)</sup> Resolution is dependent upon your filter selection. The maximum resolution is achieved with the 10 Hz filter selected. For resolution with other filter selections, refer to the user manual, publication 1769-UM002A-EN-P.

<sup>(3)</sup> 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).

<sup>(4)</sup> For proper operation, both the plus and minus input terminals must be within  $\pm 10V$  dc of analog common.

<sup>(5)</sup> Includes offset, gain, non-linearity and repeatability error terms.

Specification	1769-IF8
Accuracy Drift with Temperature	Voltage Terminal: $\pm 0.003\%$ per $^{\circ}\text{C}$ Current Terminal: $\pm 0.0045\%$ per $^{\circ}\text{C}$
Calibration	The module performs autocalibration on channel enable and on a configuration change between channels.
Non-linearity (in percent full scale)	$\pm 0.03\%$
Repeatability <sup>(1)</sup>	$\pm 0.03\%$
Module Error over Full Temperature Range (0 to +60 $^{\circ}\text{C}$ [+32 $^{\circ}\text{F}$ to +140 $^{\circ}\text{F}$ ])	Voltage: $\pm 0.3\%$ Current: $\pm 0.5\%$
Input Channel Configuration	via 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.
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.
Channel Diagnostics	Over- or under-range by bit reporting, process alarms
Maximum Overload at Input Terminals <sup>(2)</sup>	Voltage Terminal: $\pm 30\text{V}$ dc continuous, 0.1 mA Current Terminal: $\pm 32$ mA continuous, $\pm 7.6$ V dc
System Power Supply Distance Rating	8 (The module may not be more than 8 modules away from the system power supply.)
Recommended Cable	Belden™ 8761 (shielded)
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)
Vendor I.D. Code	1
Product Type Code	10
Product Code	38

<sup>(1)</sup> Repeatability is the ability of the input module to register the same reading in successive measurements for the same input signal.

<sup>(2)</sup> Damage may occur to the input circuit if this value is exceeded.

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## 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 ATTENTION statement applies to use in hazardous locations.

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**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.

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**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.
-

## For More Information

For	Refer to this Document	Pub. No.
A more detailed description of how to install and use your Compact I/O with MicroLogix 1500 programmable controller.	MicroLogix 1500 Programmable Controllers User Manual	1764-UM001
Detailed information on installing, programming, and troubleshooting your Compact Analog I/O modules.	Compact I/O Analog Modules User Manual	1769-UM002
A detailed description of how to install and use your Compact I/O with the 1769-ADN DeviceNet Adapter.	1769-ADN DeviceNet Adapter User Manual	1769-UM001
An overview of the MicroLogix 1500 system, including Compact I/O.	MicroLogix 1500 Programmable Controller with Compact I/O for Expansion	1764-S0001
More information on proper wiring and grounding techniques.	Industrial Automation Wiring and Grounding Guidelines	1770-4.1

If you would like a manual, you can:

- download a free electronic version from the internet:  
**[www.ab.com/micrologix](http://www.ab.com/micrologix)** or **[www.theautomationbookstore.com](http://www.theautomationbookstore.com)**
- purchase a printed manual by:
  - contacting your local distributor or Rockwell Automation representative
  - visiting **[www.theautomationbookstore.com](http://www.theautomationbookstore.com)** and placing your order
  - calling 1.800.963.9548 (USA/Canada)  
or 001.330.725.1574 (Outside USA/Canada)

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**Notes:**

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# Rockwell Automation Support

Rockwell Automation provides technical information on the web to assist you in using our products. At <http://support.rockwellautomation.com>, you can find technical manuals, a knowledge base of FAQs, technical and application notes, sample code and links to software service packs, and a MySupport feature that you can customize to make the best use of these tools.

For an additional level of technical phone support for installation, configuration and troubleshooting, we offer TechConnect Support programs. For more information, contact your local distributor or Rockwell Automation representative, or visit <http://support.rockwellautomation.com>.

## Installation Assistance

If you experience a problem with a hardware module within the first 24 hours of installation, please review the information that's contained in this manual. You can also contact a special Customer Support number for initial help in getting your module up and running:

United States	1.440.646.3223 Monday – Friday, 8am – 5pm EST
Outside United States	Please contact your local Rockwell Automation representative for any technical support issues.

## New Product Satisfaction Return

Rockwell tests all of our products to ensure that they are fully operational when shipped from the manufacturing facility. However, if your product is not functioning and needs to be returned:

United States	Contact your distributor. You must provide a Customer Support case number (see phone number above to obtain one) to your distributor in order to complete the return process.
Outside United States	Please contact your local Rockwell Automation representative for return procedure.

[www.rockwellautomation.com](http://www.rockwellautomation.com)

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