Technical Data

Original Instructions

Compact 5000 I/O and Specialty Modules Specifications

Catalog Numbers

Digital I/O Modules	5069-IA16, 5069-IB16, 5069-IB16F, 5069-IB16K, 5069-IB6F-3W, 5069-OA16, 5069-OB8, 5069-OB16, 5069-OB16F, 5069-OB16K, 5069-OW4I, 5069-OW16, 5069-OX4I
Analog I/O Modules	5069-IF8, 5069-IY4, 5069-IY4K, 5069-OF4, 5069-OF4K, 5069-OF8
Safety I/O Modules	5069-IB8S, 5069-IB8SK, 5069-OBV8S, 5069-OBV8SK
Specialty Modules	5069-AENTR, 5069-AENTRK, 5069-AEN2TR, 5069-ARM, 5069-FPD, 5069-HSC2XOB4, 5069-SERIAL

The Compact 5000™ I/O architecture provides a wide range of input and output modules to span many applications, from high-speed digital to process control. The architecture uses Producer/Consumer technology that allows input information and output status to be shared among multiple Logix 5000® controllers.

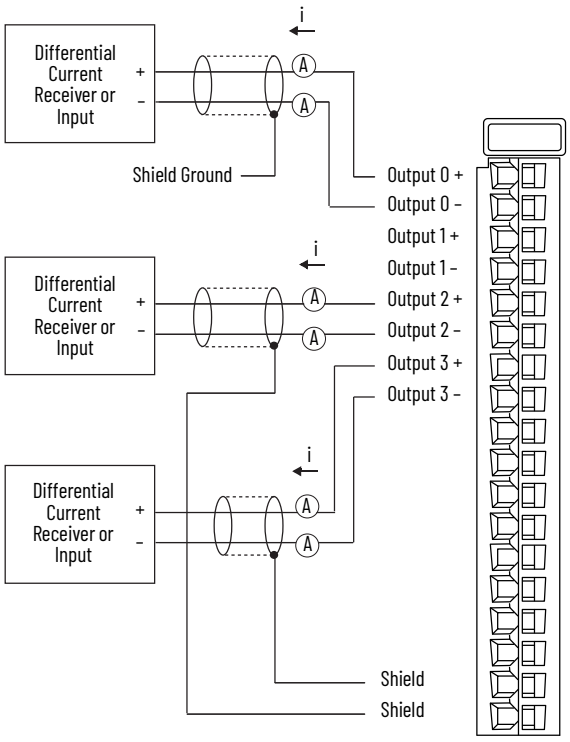
Compact 5000 I/O modules are used as local I/O modules in CompactLogix™ 5380 and Compact GuardLogix® 5380 controller systems. The modules are also used as remote I/O modules with CompactLogix 5380, Compact GuardLogix 5380 controllers, and some other Logix 5000 controllers. You use the Studio 5000 Logix Designer® application to configure the modules.

The I/O modules require a removable terminal block (RTB) to connect field-side wiring. RTBs are not included with the I/O modules. You must order RTBs separately.

5069-OF4, 5069-OF4K, and 5069-OF8

Analog Current/Voltage Output Modules

5069-OF4 and 5069-OF4K Current Mode - Output Wiring



Channel Connections	The diagram shows a device that is connected to channels 0, 2, and 3. You aren't restricted to using only these channels. You can connect devices to any channel or combination of channels as needed.

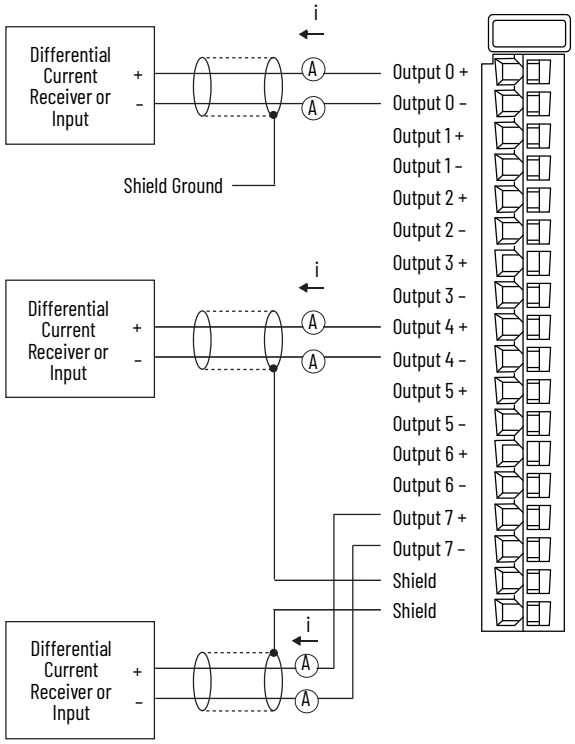
IMPORTANT:
- Place more loop devices, for example, strip chart recorders, at either **A** location in the current loop.
- This module has only two shield terminals. Compact 5000 I/O module RTBs only support one wire per terminal.
- If you connect more than two devices to the module, you can ground two devices at the shield terminals. You must ground the remaining devices somewhere else, such as, to the DIN rail via a terminal strip

SA Power	Connections to an external power supply that provides SA power are made via the SA power RTB on one of the following: • CompactLogix 5380 controller • CompactLogix 5480 controller • Compact GuardLogix 5380 controller • 5069-AENTR or 5069-AEN2TR EtherNet/IP Adapter • 5069-FPD field potential distributor

IMPORTANT

Remember the following:
- The 5069-OF4 module uses DC SA power. You must connect DC power to the component, that is, the controller, adapter, or field potential distributor that provides SA power to the modules.
- If you install modules in a system that use AC SA power and DC SA power, you must install them on separate SA power buses.
- You use a 5069-FPD field potential distributor to establish a new SA power bus in a system. SA power buses are isolated from each other. To keep the modules on separate SA power buses, complete these steps.
  1. Install the modules that use one type of SA power, for example DC, to the right of the adapter or controller, that is, the first SA power bus.
  2. Install the 5069-FPD field potential distributor to establish a second SA power bus.
  3. Install the modules that use the other type of SA power, for example AC, on the second SA power bus.

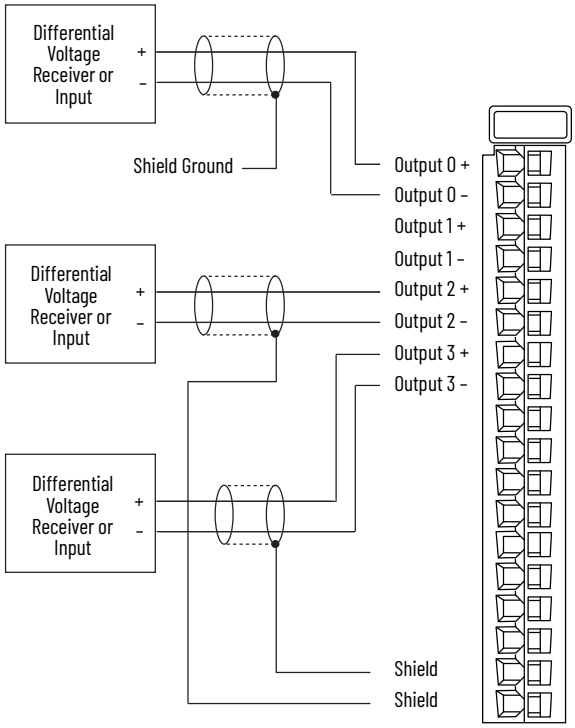
5069-OF8 Current Mode - Output Wiring



Channel Connections	The diagram shows devices that are connected to channels 0, 4, and 7. You aren't restricted to using only those channels. You can connect devices to any channel or combination of channels as needed.

IMPORTANT:
- Place more loop devices, for example, strip chart recorders, at either **A** location in the current loop.
- This module has only two shield terminals. Compact 5000 I/O module RTBs only support one wire per terminal.
- If you connect more than two devices to the module, you can ground two devices at the shield terminals. You must ground the remaining devices somewhere else, such as, to the DIN rail via a terminal strip

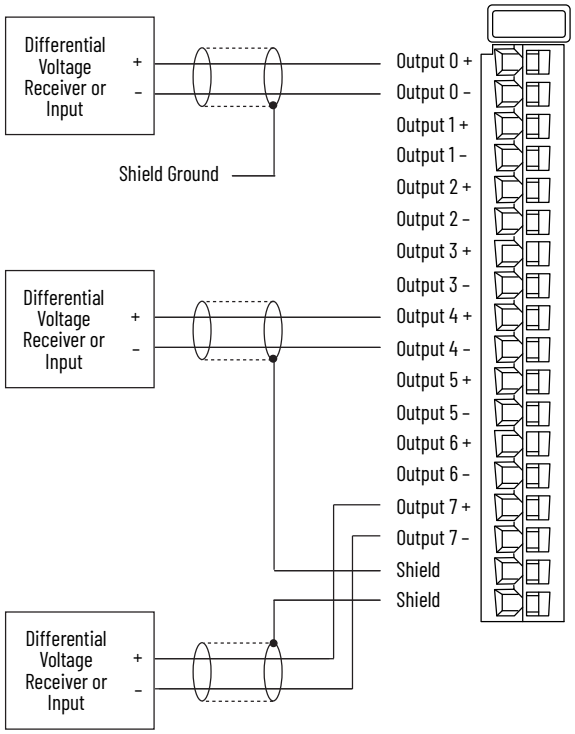
5069-OF4 and 5069-OF4K Voltage Mode - Output Wiring



Channel Connections	The diagram shows a device that is connected to channels 0, 2, and 3. You aren't restricted to using only these channels. You can connect devices to any channel or combination of channels as needed.

IMPORTANT:
- This module has only two shield terminals. Compact 5000 I/O module RTBs only support one wire per terminal.
- If you connect more than two devices to the module, you can ground two devices at the shield terminals. You must ground the remaining devices somewhere else, such as, to the DIN rail via a terminal strip

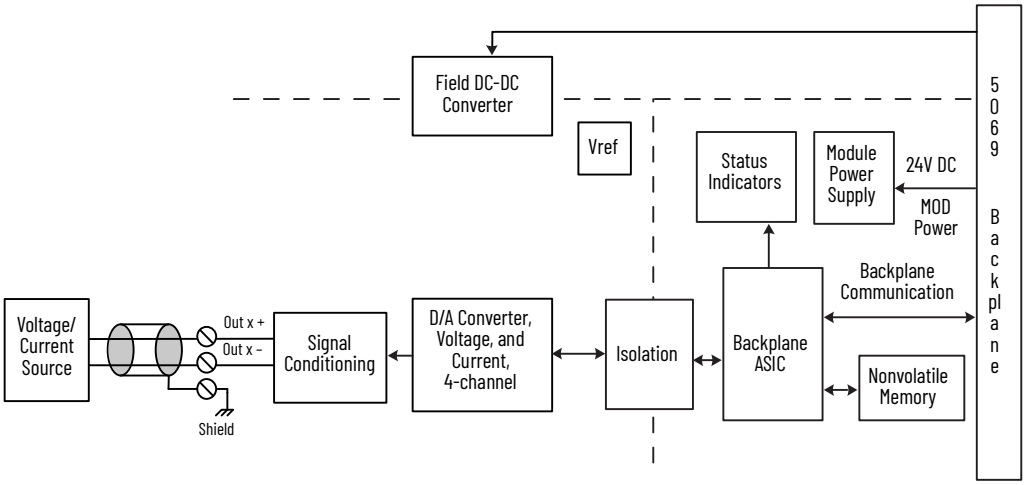
5069-OF8 Voltage Mode - Output Wiring



Channel Connections	The diagram shows a device that is connected to channels 0, 2, and 3. You aren't restricted to using only these channels. You can connect devices to any channel or combination of channels as needed.

IMPORTANT:
- This module has only two shield terminals. Compact 5000 I/O module RTBs only support one wire per terminal.
- If you connect more than two devices to the module, you can ground two devices at the shield terminals. You must ground the remaining devices somewhere else, such as, to the DIN rail via a terminal strip

Functional Block Diagram - 5069-OF4, 5069-OF4K



Technical Specifications - 5069-OF4, 5069-OF4K, 5069-OF8

Attribute	5069-OF4, 5069-OF4K	5069-OF8
Voltage and current ratings		
Analog output ratings	+/-10V DC, 0...20 mA per channel	
MOD power	75 mA @ 18...32V DC	
MOD power (passthrough)(1)	9.55 A @ 18...32V DC	
SA power	150 mA @ 18...32V DC	250 mA @ 18...32V DC
SA power (passthrough)(1)	9.95 A @ 18...32V DC	
Power dissipation, max	3.3 W	5.3 W
Thermal dissipation, max	11.3 BTU/hr	18.1 BTU/hr
Isolation voltage	250V (continuous), Basic Insulation Type 50V Functional Isolation between SA power and output ports No isolation between individual output ports	
Calibration methods	Factory Calibrated User-performed (optional)	
Module keying	Electronic keying via programming software	
Indicators	1 green/red module status indicator 4 yellow/red I/O status indicators	1 green/red module status indicator 8 yellow/red I/O status indicators
Slot width	1	
Dimensions (HxWxD), approx	144.57 x 22 x 105.42 mm (5.69 x 0.87 x 4.15 in.)	
DIN rail	Compatible zinc-plated chromate-passivated steel DIN rail. You can use the EN50022 - 35 x 7.5 mm (1.38 x 0.30 in.) DIN rail.	
RTB	One of these RTB types. • 5069-RTB18-SPRING RTB • 5069-RTB18-SCREW RTB **IMPORTANT**: You must order RTBs separately. RTBs do not ship with Compact 5000 I/O modules. We recommend that you order only the RTB type that your system requires.	
RTB torque (5069-RTB18-SCREW RTB only)	0.4 N•m (3.5 lb•in)	
RTB keying	None	
Wire category(2)	2 - shielded input ports 2 - power ports 1 wire per terminal for each signal port	
Wire size		
5069-RTB18-SPRING RTB	0.5...1.5 mm^2 (22...16 AWG) solid or stranded copper wire rated at 105 °C (221 °F), or greater, 2.9 mm (0.11 in.) max diameter including insulation	
5069-RTB18-SCREW RTB	0.5...1.5 mm^2 (22...16 AWG) solid or stranded copper wire rated at 105 °C (221 °F), or greater, 3.5 mm (0.14 in.) max diameter including insulation	
Insulation-stripping length		
5069-RTB18-SPRING RTB	10 mm (0.39 in.)	
5069-RTB18-SCREW RTB	12 mm (0.47 in.)	

Technical Specifications - 5069-OF4, 5069-OF4K, 5069-OF8

Attribute	5069-OF4, 5069-OF4K	5069-OF8
Weight, approx	175 g (0.39 lb)	
Outputs	4 voltage or current	8 voltage or current
Output range, voltage	± 10V 0...10V 0...5V	
Output range, current	0...20 mA 4...20 mA	
Resolution	16 bits across ± 10.5V - 320 µV/bit 16 bits across 10.5V - 160 µV/bit 16 bits across 5.25V - 80 µV/bit 16 bits across 21 mA - 320 nA/bit	
Drive capability	Voltage - 1000 Ω min Current - 500 Ω max	
Capacitive load, max (voltage mode only)	1 µF	
Inductive load, max (current mode only)	1 mH	
Open circuit detection	Current mode only	
Short circuit detection	Voltage mode only – output electronically limited to 16 mA or less	
Data format	IEEE 32-bit floating point	
Module conversion method	R-Ladder DAC, monotonicity with no missing codes	
Conversion time per channel	25 µs	
Scan time	Per group 0...3: 1.0 ms For 5069-OF8 only: Per group 0...7: 2.0 ms	
Step response time to 63% of value	Voltage mode – 18 µs max Current mode – 1 ms max	
Overvoltage protection, max	± 32V DC	
Repeatability	0.05%	
Calibrated accuracy at 25 °C (77 °F)	Voltage - 0.10% full scale Current - 0.10% full scale	
Accuracy drift with temperature	Voltage - 0.30% full scale Current - 0.50% full scale	

(1) Level of Mod or SA power current that passes through the module depends on the system configuration, such as, module slot location and the other module types that are used in the system. For more information, see the controller user manuals in Additional Resources on page 63.

(2) Use this Conductor Category information to plan conductor routes. See the Industrial Automation Wiring and Grounding Guidelines, publication 1770-4.1.

For **Certifications** and **Environmental Specifications**, see page 26.