5069-IF4IH

4-channel isolated current/voltage/HART input module

The 5069-IF4IH module supports a differential signal and these device modes.

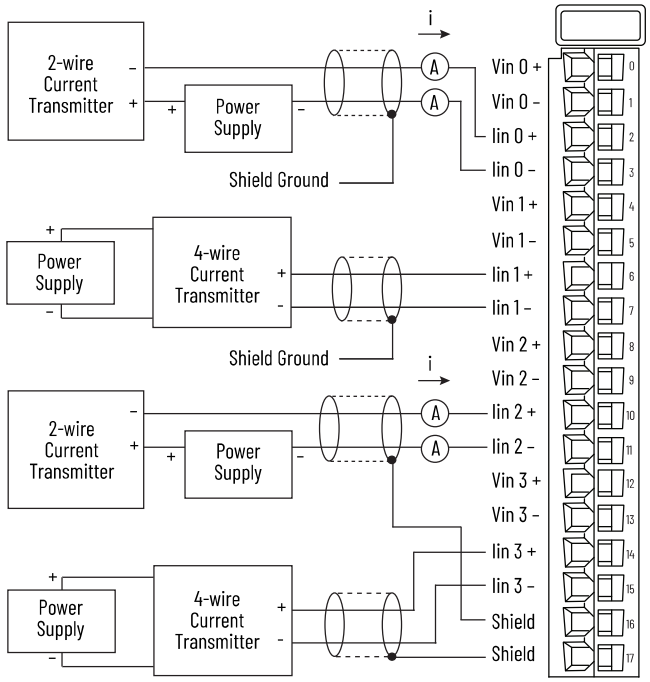
Device	Supported Modes
2-wire analog device 4-wire analog device(1)	Current
	Voltage
	Combination of current and voltage

The channel configuration in your Logix Designer application project must match the input device type that is connected to the channel. Select the input type on the Channels tab in the Module Properties. For example, if a current input device is connected to a channel, the configuration for the channel must be Input Type = Current.

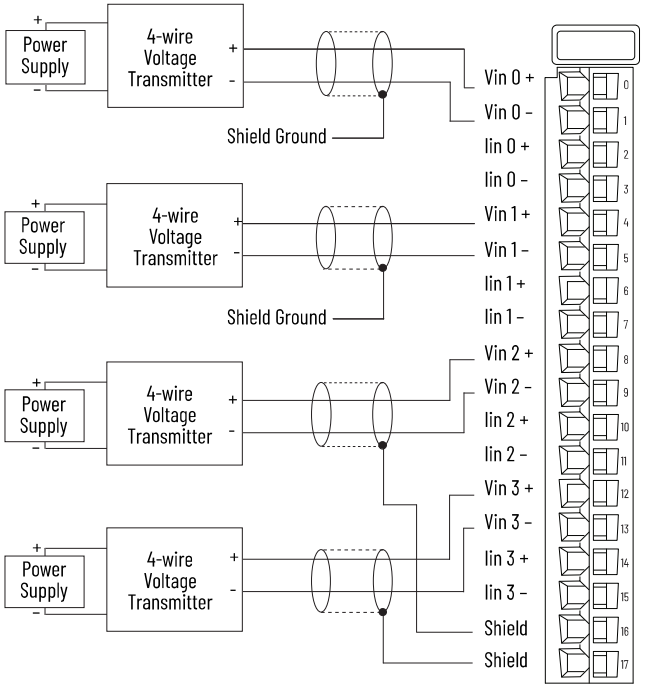
(1) The 4-wire analog devices are 2-wire current and voltage devices with 2-wire sensor power connections.

IMPORTANT: This module does not support the use of the voltage input and current input terminals on the same channel at the same time.

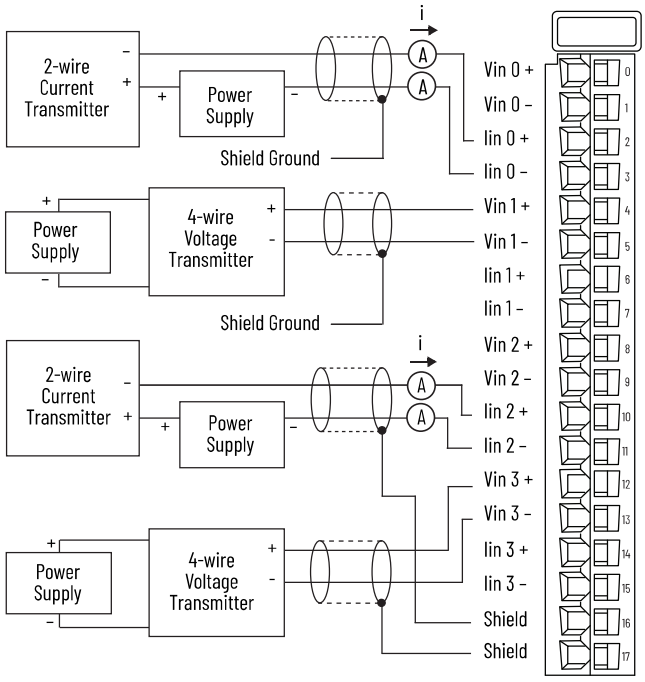
Current Devices Input Wiring - 5069-IF4IH



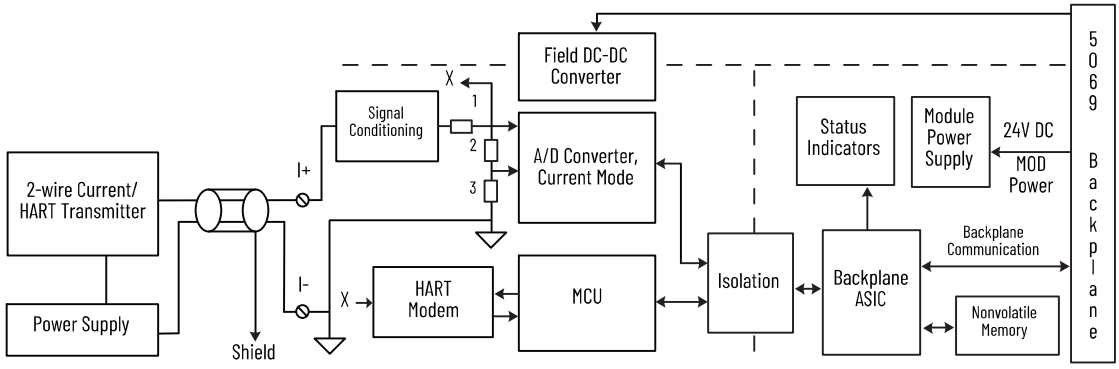
Voltage Devices Input Wiring - 5069-IF4IH



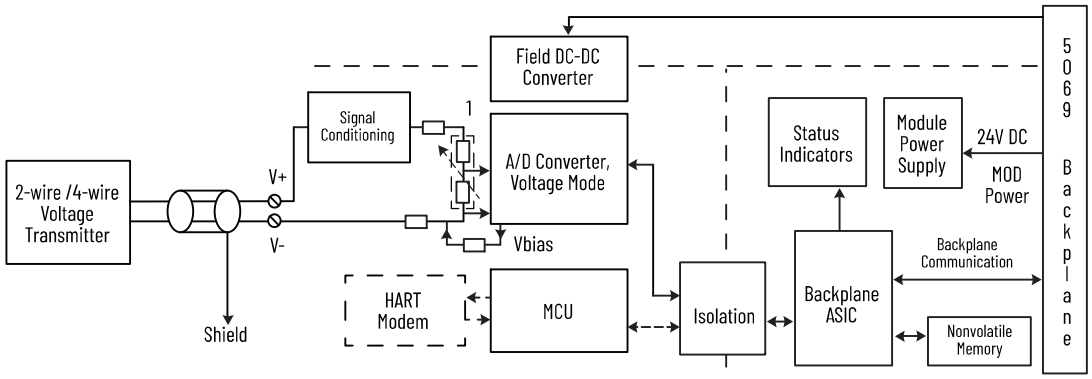
Combination of Current and Voltage Devices Input Wiring - 5069-IF4IH



Functional Block Diagram - 5069-IF4IH Current or HART Mode



Functional Block Diagram - 5069-IF4IH Voltage Mode



Technical Specifications - 5069-IF4IH

Attribute	Value	
Inputs	4 individually isolated	
Input range, voltage	±10V 0...10V 0...5V	
Input range, current	0...20 mA 4...20 mA (HART)	
Voltage and current ratings		
Analog input ratings	0...20 mA, +/-10V DC (per channel)	
MOD power	75 mA @ 18...32V DC	
MOD power (passthrough)(1)	9.55 A @ 18...32V DC	
SA power	50 mA @ 18...32V DC	
SA power (passthrough)(1)	9.95 A @ 18...32V DC	
Power dissipation, max	Voltage and Current mode: 4.0 W	
Thermal dissipation, max	Voltage and Current mode: 11.3 BTU/hr	
Isolation voltage	250V (continuous), Basic Insulation Type, • SA to: Channel, FE, MP, or System • MP to: Channel or FE • System to: Channel, FE, or MP • Channel to: Channel or FE	
Calibration methods	Factory calibrated User-performed (optional)	
Indicators	1 green/red module status indicator 4 yellow/red I/O status indicator	
Normal mode noise rejection ratio	65 dB @ 50/60 Hz, notch filter dependent	
Wire category(2)	2 - shielded input ports 1 wire per terminal for each signal port	
Input impedance	Voltage mode: >1 MΩ Current mode: 250 Ω typical	
Module conversion method	Sigma-Delta, Two 24-bit multiplexed ADC	
Effective resolution, voltage(1) (At 60 Hz notch filter)	±10V: 18 bits 0...10V: 17 bits 0...5V: 16 bits	
Effective resolution, current(1) (At 60 Hz notch filter)	0...20 mA: 17 bits 4...20 mA: 17 bits	
Calibrated accuracy at 77 °F (25 °C)	Voltage and Current Mode: 0.05% full scale with 60 Hz filter	HART enabled, typical values: 0.12% full scale with 10 Hz filter 0.20% full scale with 60 Hz filter 0.28% full scale with 100 Hz filter 0.32% full scale with 200 Hz filter 0.65% full scale with 500 Hz filter
Calibrated accuracy over temperature range of 32...140 °F (0...60 °C)	Voltage and Current Mode: 0.10% full scale with 60 Hz filter	HART enabled, typical values: 0.17% full scale with 10 Hz filter 0.25% full scale with 60 Hz filter 0.33% full scale with 100 Hz filter 0.36% full scale with 200 Hz filter 0.70% full scale with 500 Hz filter

Technical Specifications - 5069-IF4IH

Attribute	Value
HART scan time	1 s typical These items can increase the update time significantly: • Additional device variables • Configured commands • Pass through messages • Handheld communicators • Secondary masters • Communication errors • Configuration changes
Scan Time at 10 kHz notch	Per channel: 2 ms Per group: 2 ms
Notch filter at minimum RPI (0.2 ms, 1 channel enabled)	10 kHz
Minimum notch filter with RPI of 2.5 ms	500 Hz
Input notch filter (Hz) selections	HART mode: 5, 10 (50/60 Hz simultaneous rejection), 15, 20, 50, 60, 100, 200, 500 Voltage and Current modes: 5, 10 (50/60 Hz simultaneous rejection), 15, 20, 50, 60, 100, 200, 500, 1000, 2500, 5000, 10000
Recommended RPI for 200 Hz notch filter with HART enabled	7 ms
Input digital filter	First order lag, 0 ms (Default)...32,767 ms (32.767 s)
Overvoltage protection, max	Voltage and Current modes: ± 32V DC
Overcurrent protection, max	Current mode: ±30 mA
Data value during overload condition	Full scale, overrange flag, underrange, Data uncertain/data bad
Data value during overrange condition	Voltage mode: 10.7V (+/- 10V, 0...10V), 5.35V (0...5V) Current mode: 23 mA (0...20 mA, 4...20 mA)
Data value during underrange condition	Voltage mode: -10.7V (+/- 10V), -0.041V (0...10V), -0.021V (0...5V) Current Mode: 0.11 mA (0...20 mA), 3mA (4...20 mA)
Open circuit detection time(3)	Voltage mode: + full scale, < 2 s Current mode: 4...20 mA range, < 1 s
Features, supported	The module supports these features. • Onboard data alarming • Scaling to engineering units • Real-time channel sampling • Input time stamps • CIP Sync
Data format	IEEE 32-bit floating point

(1) The level of Mod power or SA power current that passes through the module. This level 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 the Additional Resources.
(2) Use this Conductor Category information to plan conductor routes. See the Industrial Automation Wiring and Grounding Guidelines, publication 1770-4.1.
(3) Notch filter dependent.

For **Wiring and Installation Specifications**, see page 17.
For **Certifications**, see page 18.
For **Environmental Specifications**, see page 18.