G408-0001 (standard outputs)
G408-1001 (bipolar outputs)

ULTRA SLIMPAK®
G408-0001 & G408-1001

DC Powered DC Input Field Configurable Isolator

Provides a Fully Isolated DC Output in Proportion to a DC Input

- Eliminates Ground Loops
- Field Configurable Input Ranges: 10mV to 100V, 1mA to 100mA
- Field Configurable Output Ranges: 0-5V, 0-10V, 0-1mA, 0-20mA, 4-20mA, ±5v, ±10V
- Ultra Slim Housing for High Density Installations
- Flexible Power Supply Accepts 9 to 30 VDC
- ASIC Technology
- RoHS Compliant

Description

The Ultra SlimPak G408 is a DIN rail mount, DC input signal conditioner with 1800VDC isolation between input, output and power. The field configurable input and output offers flexible, wide ranging capability for DC current and voltage signals.

The input can be configured for any one of 12 voltage ranges from 10mV to 100V or 6 current ranges from 1mA to 100mA (see Table 1). The output is linear to the input and can be set for either 0-5V, 0-10V, 0-1mA, 0-20mA or 4-20mA (for models G408-0001) and -5 to +5V or -10 to +10V (for model G408-1001).

Wide ranging, precision zero and span pots allow 50% adjustability of offset and span turn-down within each of the 18 switch selectable ranges. For example, the 0-2mA input range could be turned down to 0-1mA and provide a full scale output signal (e.g. 4-20mA), or turned down and offset to achieve a 1-2mA/4-20mA I/O combination.

The G408 also accepts bipolar inputs (e.g. 10V range set to bipolar = -10 to +10V) and offers selectable normal or reverse operation (e.g. 4-20mA/20-4mA). The ASIC based I/O channel is optically isolated to 1800VDC and is transformer isolated from the power supply.

Application

The G408 is useful in eliminating ground loops, converting signal levels, and providing signal drive. The field configurable, wide ranging capability ensures maximum flexibility for most DC to DC applications, minimizing spare part requirements.

Diagnostic LED

The G408 is equipped with a dual function LED signal monitor. The green, front mounted LED indicates both DC power and input signal status. Active DC power is indicated by an illuminated LED. If the input signal is more than 110% of the full scale range, the LED will flash at 8Hz. Below -10%, the flash rate is 4Hz.

Configuration

The G408 has 18 input range settings. Trim potentiometers allow 50% input zero and span adjustability within each of the 18 full scale input ranges.

Unless otherwise specified, the factory presets the Model G408-0001 and G408-1001 as follows:

G408-0001
Input Range: 4-20mA
Output Range: 4-20mA

G408-1001
Input Range: 4-20mA
Output Range: -10 to +10V

The DC power input accepts any source between 9 and 30V; typically a 12V or 24VDC source is used (see Accessories).

To minumize interference from electrical and magnetic fields, the use of shielded, twisted pair wires on the input and output is recommended.

WARNING! *Do not change switch settings with power applied. Severe damage will result!*

Refer to Tables 1 through 4 for the proper switch settings. Use the switches on SW1 to select the input type (voltage or current) and also to select the desired input range and function setting. Use SW2 to select the desired output type.

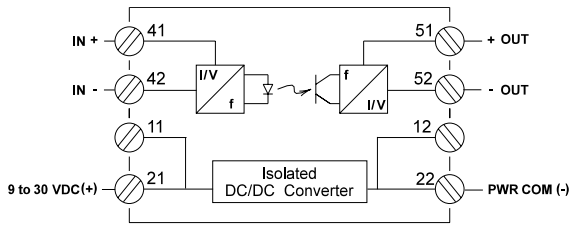


Figure 1: G408 Block Diagram

Calibration

1. After configuring the DIP switches, connect the input to a calibrated DC source. Connect the output to the actual device load (or a load approximately equivalent to the device load) and apply power.

Note: To maximize thermal stability, final calibration should be performed in the operating installation, allowing approximately 1 to 2 hours for warm up and thermal equilibrium of the system.

2. Set the calibrator to the desired minimum input and adjust the zero potentiometer for the desired minimum output.

3. Set the calibrator to the desired maximum input and adjust the span potentiometer for the desired maximum output.

4. Repeat steps 2 and 3, as necessary, for best accuracy.

Table 1: G408 Input Range Settings

Ranges		Selector SW1			
Voltage	**Current**	1	2	3	4
20mV	2mA			■	■
50mV	5mA		■		
100mV	10mA		■		■
200mV	20mA		■	■	
500mV	50mA		■	■	■
1V	100mA	■			
2V		■			■
5V		■		■	■
10V		■	■		
25V		■	■		■
50V		■	■	■	
100V		■	■	■	■
Key: ■ = 1 = ON or Closed					

Table 2: G408 Function Settings

Function	Selector SW1			
	5	6	7	8
Unipolar Input	■			
Reverse Output		■		
Current Input				■
Voltage Input			■	
Key: ■ = 1 = ON or Closed				

Table 3: G408-0001 Output Settings

G408-0001 Ranges	Selector SW2							
	1	2	3	4	5	6	7	8
0 to 5V	■	■	■	■				
0 to 10V	■		■	■				
0 to 1mA		■	■	■				
4 to 20m						■	■	■
0 to 20mA	■	■				■	■	■
Key: ■ = 1 = ON or Closed								

Table 4: G408-1001 Output Settings

G408-1001 Ranges	Selector SW1	
	9	10
-5V to +5V		■
-10V to +10V		
Key: ■ = 1 = ON or Closed		

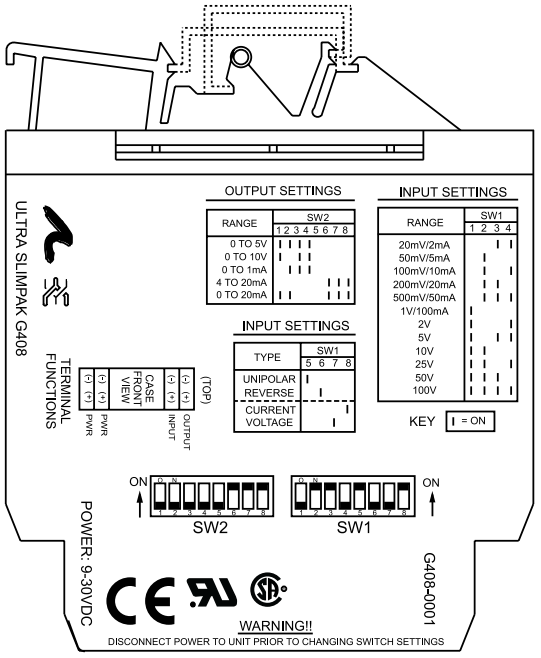


Figure 2: G408-0001 Factory Cal; 4-20mA, Unipolar Input, Normal Operation, 4-20mA Output.

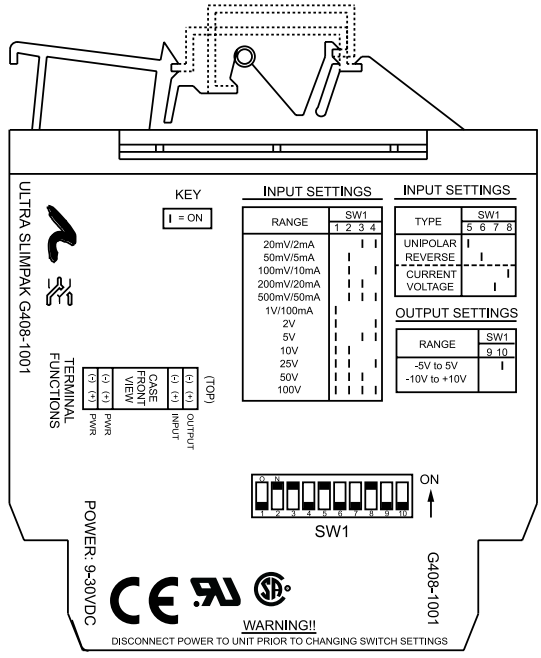


Figure 3: G408-1001 Factory Cal; 4-20mA, Unipolar Input, Normal Operation -10 to 10V Output.

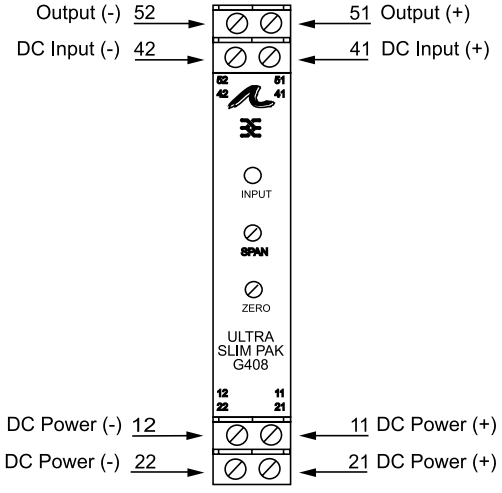
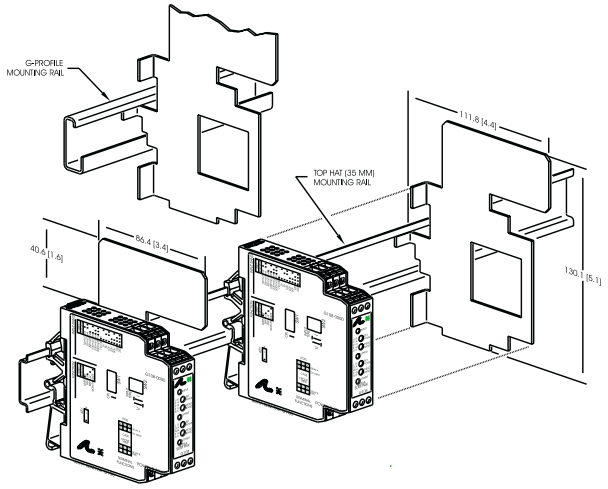


Figure 4: Wiring Diagram for G408-0001 and G408-1001



Note: All Ultra SlimPak modules are designed to operate in ambient temperatures from 0 to 55°C when mounted on a horizontal DIN rail. If five or more modules are mounted on a vertical rail, circulating air or model HS01 Heat Sink is recommended. Refer to HS01 Technical Bulletin (#721-0549-00) or contact the factory for assistance.

Figure 5: Mounting Multiple Modules

Specifications

Input:

Voltage:
- Range Limits: 10mV to 100V
- Impedance: >100K Ohms
- Overvoltage:
  - 400 Vrms, max.(Intermittent);
  - 264 Vrms,max. (Continous)

Current:
- Range Limits: 1mA to 100mA
- Impedance: 20 Ohms, typical
- Overcurrent: 170mA RMS, max.
- Overvoltage: 60VDC

Zero Turn-Up: 50% of full scale input

Span Turn-Down: 50% of full scale input

Common Mode (Input to Gnd): 1800 VDC, max.

Output (G408-0001):

Voltage:
- Output: 0-5V, 0-10V
- Source Impedance: <10 Ohms
- Drive: 10mA, max.

Current:
- Output: 0-1mA,4-20mA,0-20mA
- Source Impedance: >100K Ohms
- Compliance:
  - 0-1mA: 7.5V, max (7.5K Ohms)
  - 4-20mA: 12V, max (600 Ohms)
  - 0-20mA: 12V, max (600 Ohms)

Output (G408-1001):

Voltage:
- Output: -5V to +5V, -10 to +10V
- Source Impedance: <10 Ohms
- Drive: 10mA, max.

LED Indication (green):

Input Range
- >110%(approx) input:8Hz flash
- < -10%(approx) input: 4Hz flash

Accuracy (Including Linearity, Hysteresis):
- <2mA/<20mV:± 0.35% of full scale, typical; 0.5%,max.
- >2mA/>20mV:± 0.1% of full scale, typical; 0.2%, max.

Response Time (10-90%):

200mSec., typical

Stability (Temperature):

±0.025% of full scale/°C,typical; ±0.05%/°C, max.

Common Mode Rejection:

DC to 60Hz: 100dB

Isolation (Input to Output):

1800VDC between input, output & power

EMC Compliance (CE Mark):

Emissions: EN50081-1

Immunity: EN50082-2

Safety: EN50178

Mean Time Between Failures:

60K Hours

Humidity (Non-Condensing):

Operating: 15 to 95% @ 45°C

Soak: 90% for 24 hours @ 65°C

Temperature Range:

Operating: 0 to 55°C (32 to 131°F)

Storage: -25 to 70°C (-13 to 158°F)

Wire Terminals:

Screw terminals for 12-22AWG

Power:

Consumption: 1.5W typical, 2.5W max.

Range: 9 to 30VDC

Weight:

0.5 lbs.

Agency Approvals:

UL recognized per standard UL508 (File No.E99775).

CE Conformance per EMC directive 89/336/EEC and Low Voltage 73/23/EEC (Input < 75VDC, only).

RoHS Compliant

Ordering Information

Models & Accessories

Specify:

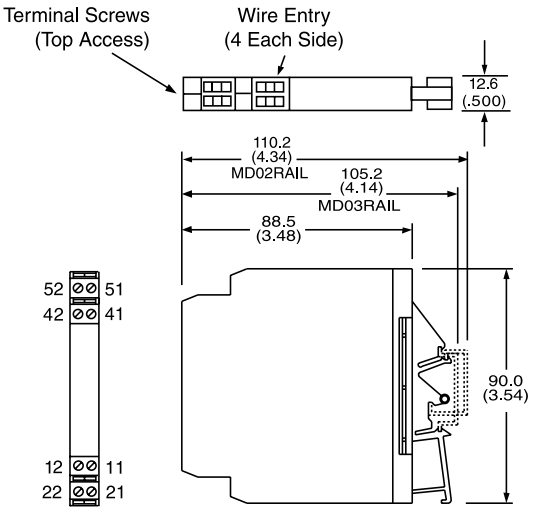
1. Model: **G408-0001** (standard outputs) or **G408-1001** (bipolar outputs)
2. Accessories: (see Accessories)
3. Optional Custom Factory Calibration; specify **C620** with desired input and output range.

Accessories

SlimPak "G" series modules will mount on standard TS32 (model MD02) or TS35 (model MD03) DIN rail and include model HS01 heat sink. In addition, the following accessories are available:

MD03	TS35x7.5 DIN rail
WV905	24VDCPower Supply (0.5 Amp)
H910	24VDC Power Supply (1 Amp)
H915	24VDC Power Supply (2.3 Amp)
MB03	End Bracket for MD03
C664	I/O Descriptive Tags
C006	0.1 Ohm, 5W, 1% shunt resistor

Dimensions



Dimensions are in mm (inches)

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