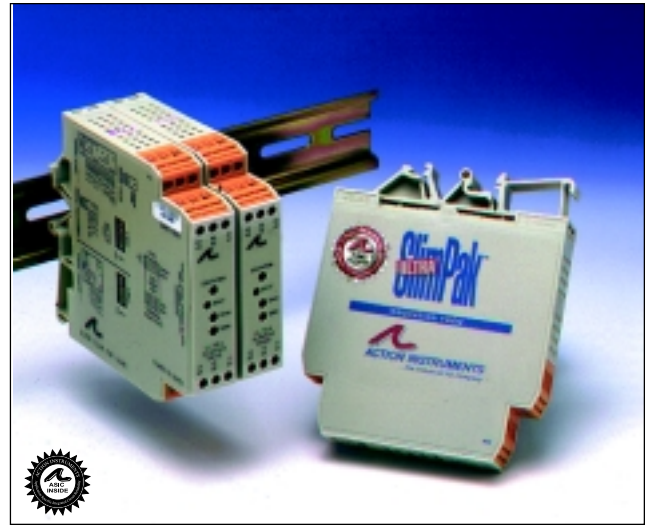


ULTRA SLIMPAK® G448-0002

Bridge Input Field Configurable Signal Conditioner



Provides an Isolated DC
Output in Proportion to a
Bridge/Strain Gauge Input



Benefits

- Adjustable Excitation 1 to 10V with up to 120mA drive
- Field Configurable Inputs from 10mV to ± 200 mV (0.5mV/V to >50 mV/V)
- Field Configurable Outputs: 0-5V, 0-10V, 0-1mA, 0-20mA and 4-20mA
- Ultra Slim Housing for High Density Installations
- Flexible Power Supply Accepts 18 to 30VDC
- ASIC Technology

Description

The G448 is a DIN rail mount, bridge or strain gauge input signal conditioner with 1800VDC isolation between input, output and power. The field configurable input and output offer flexible, wide ranging capability for bridge or strain gauge input applications from 0.5mV/V to over 50mV/V.

Wide ranging, precision zero and span pots allow 50% adjustability of offset and gain within each of the 11 switch selectable input ranges. The output can be set for either 0-5V, 0-10V, 0-1mA, 0-20mA or 4-20mA.

Application

Three way isolation in the G448 completely eliminates ground loops from any source. Isolation protects expensive SCADA systems from ground faults and provides filtering for noise reduction which can be a significant problem with small, millivolt, bridge signals. Wide ranging flexibility allows the user to easily zero out dead-loads in weighing systems or configure bipolar input ranges for expansion-compression or vacuum-pressure bridge applications.

Diagnostic LED

The G448 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 G448 has 11 input range switch settings. Trim potentiometers allow 50% input zero and span adjustability within each of the 11 full-scale, input ranges.

For example, the 200mV switch setting in Table 1 configures the input for a 0 to 200mV range. Since the span can be contracted by 50%, this enables an input span as narrow as 100mV of the range, or 50%. This span can be positioned anywhere within the 0-200mV range with a zero off-set as large as 50% of the full scale range (e.g. 100 to 200mV input).

Unless otherwise specified, the factory pre-sets the Model G448 as follows:

Input Setting: 0 to 50mV
 Input Range: 0 to 30mV (3mV/V)
 Excitation: 10V
 Operation: Direct
 Output: 4 to 20mA

The DC power input accepts any DC source between 18 and 30V, typically a 24VDC source is used (see Accessories).

For other I/O ranges refer to Tables 1 through 4 and reconfigure switches SW1 and SW2 for the desired input range, function, excitation and output range.

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

Calibration

1. After configuring the DIP switches, connect the input to a calibrated millivolt source. Connect the output to the device (or a load equivalent to the device) and apply power. (see Wiring Diagram, Figure 2 or 3).

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 and adjust the zero potentiometer for the desired minimum output.
3. Set the calibrator to the desired maximum and adjust the span potentiometer for the desired maximum output.
4. Repeat steps 2 and 3, if necessary for best accuracy.

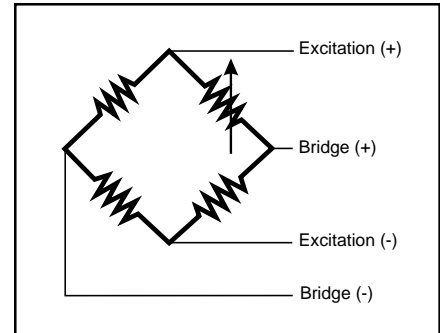


Table 1: G448 Input Ranges

Input Range	Selector SW1				
	1	2	3	4	5
0 to 10mV		■		■	■
0 to 20mV		■	■		■
0 to 50mV		■	■	■	■
0 to 100mV	■				■
0 to 200mV	■			■	■
-5 to 5mV		■			
-10 to 10mV		■		■	
-20 to 20mV		■	■		
-50 to 50mV		■	■	■	
-100 to 100mV	■				
-200 to 200mV	■			■	

Key: ■ = 1 = ON or Closed

Table 2: G448 Direct or Reverse Operation

Operation	SW1
Direct	
Reverse	■

Key: ■ = 1 = ON or Closed

Table 3: G448 Bridge Excitation Settings

Bridge Excitation	SW1	
	7	8
9.8 to 10.1V	■	
4.8 to 5.2V		
0 to 10V	■	■
0 to 2.5V		■

Key: ■ = 1 = ON or Closed

Table 3: G448 Output Settings

Output	SW1							
	1	2	3	4	5	6	7	8
0 to +5V	■	■	■	■				
0 to +10V	■		■	■				
0 to 1mA		■	■	■				
4 to 20mA						■	■	■
0 to 20mA	■	■			■		■	■

Key: ■ = 1 = ON or Closed

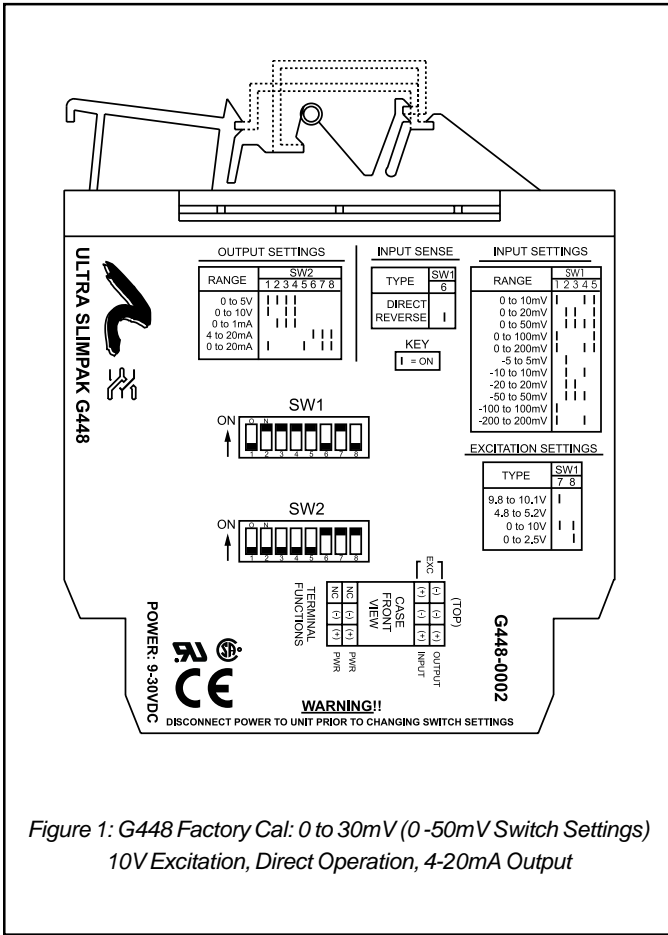


Figure 1: G448 Factory Cal: 0 to 30mV (0 -50mV Switch Settings)
10V Excitation, Direct Operation, 4-20mA Output

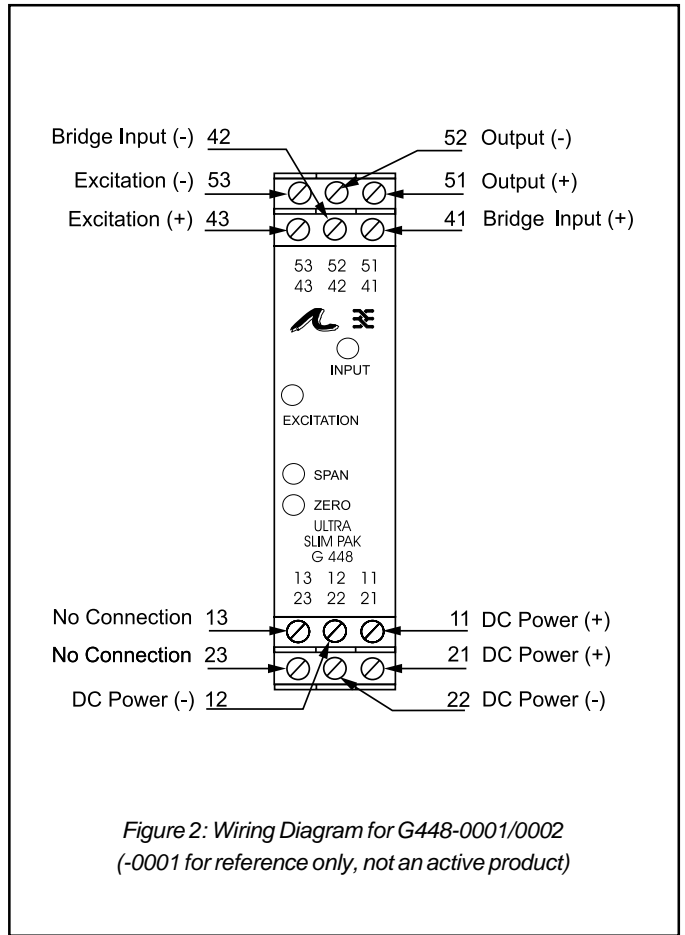


Figure 2: Wiring Diagram for G448-0001/0002
(-0001 for reference only, not an active product)

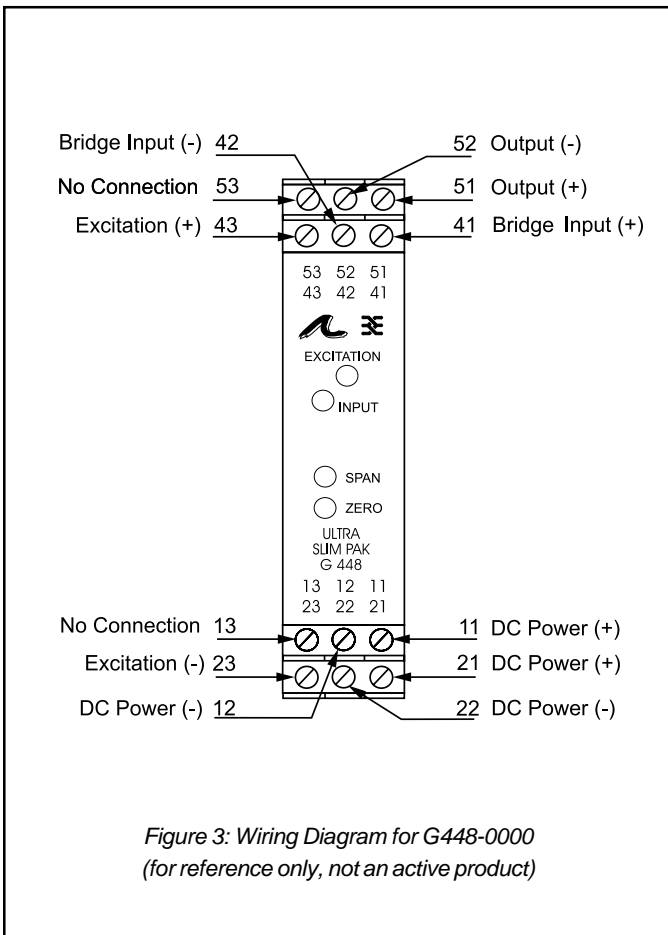
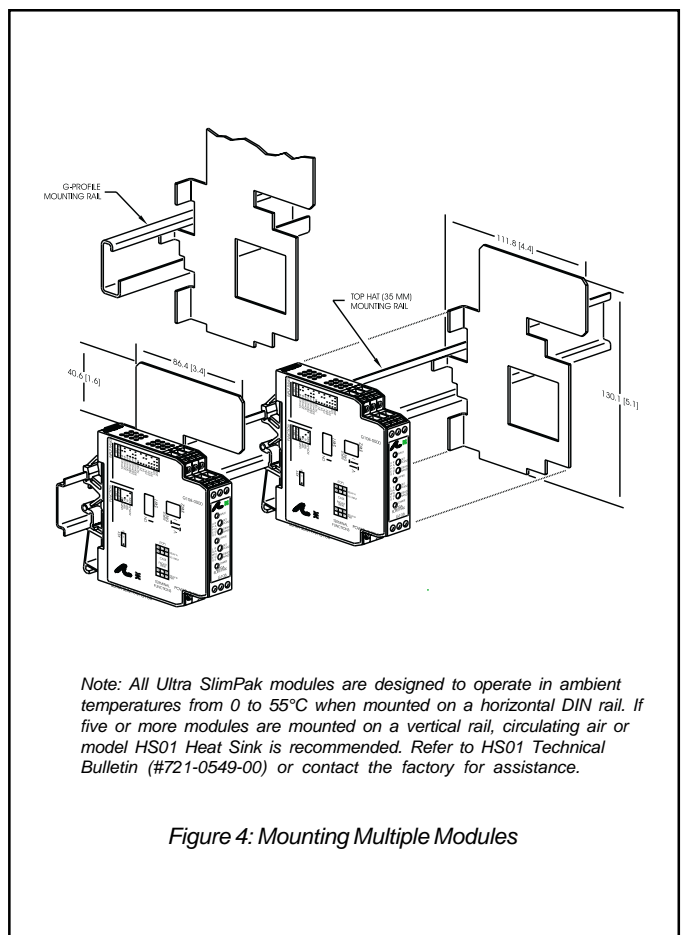


Figure 3: Wiring Diagram for G448-0000
(for reference only, not an active product)



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 4: Mounting Multiple Modules

Specifications

Input

Voltage

Full Scale Range: 10mV to ± 200 mV (Table 1).

Impedance: >1M Ohms

Overvoltage:

intermittent 400V, max.;

continuous 264V, max.

Common Mode (Input to Ground):

1800VDC, max.

Zero Turn-Up:

50% of full scale range

Span Turn-Down:

50% of full scale range

Operation:

direct or reverse acting

Output

Voltage

Output: 0-5V, 0-10V

Impedance: <10 Ohms

Drive: 10mA, max. (1K Ohms, min. @ 10V)

Current

Output: 0-1mA, 0-20mA, 4-20mA

Impedance: >100K Ohms

Compliance:

0-1mA; 7.5V, max. (7.5K Ohms, max.)

0-20mA; 12V, max. (600 Ohms, max.)

4-20mA; 12V, max. (600 Ohms, max.)

Bridge Excitation

1 to 10VDC, 120mA max.

Accuracy (Including Linearity, Hysteresis)

$\pm 0.1\%$ typical, $\pm 0.2\%$ maximum of selected input range at 25°C.

Stability

$\pm 0.025\%/^{\circ}\text{C}$ typical, $0.05\%/^{\circ}\text{C}$ maximum, of selected full scale input range.

Output Noise (maximum)

0.1% of span, rms, or 10mV whichever is greater.

Response Time (10 to 90%)

<200mSec., typical.

Common Mode Rejection

DC to 60Hz: ≥ 120 dB, ≥ 100 dB for 0 -1mA range

Isolation

1800VDC between input, output and power.

EMC Compliance (CE Mark)

Emissions: EN50081-1

Immunity: EN50082-2

Safety: EN50178

LED Indication (green)

Input Range (approx.)

>110% input: 8Hz flash

<0% input: 4Hz flash

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)

Power

Consumption:

2.5W typical (one 350 Ohm bridge),

4W max. (four 350 Ohm bridges).

Range: 18 to 30VDC

Weight

0.54 lbs.

Wire Terminations

Screw terminals for 12-22 AWG

Agency Approvals

CSA certified per standard C22.2, No. 0-M91 and 142-M1987 (File No. LR42272).

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

CE Conformance per EMC directive 89/336/EEC and low voltage 73/23/EEC.

Models & Accessories

Ordering Information

Specify:

1. Model: **G448-0002**

2. Accessories: (see Accessories)

3. Optional Custom Factory Calibration; specify **C620** with desired input and output ranges.

Accessories

All Slim Pak "G" series modules will mount on standard TS32 (model MD02) or TS35 (model MD03) DIN rail. In addition, the following accessories are available:

HS01 Heat Sink

MD03 TS35 x 7.5 DIN rail

WV905 24VDC Power Supply (0.5 Amp)

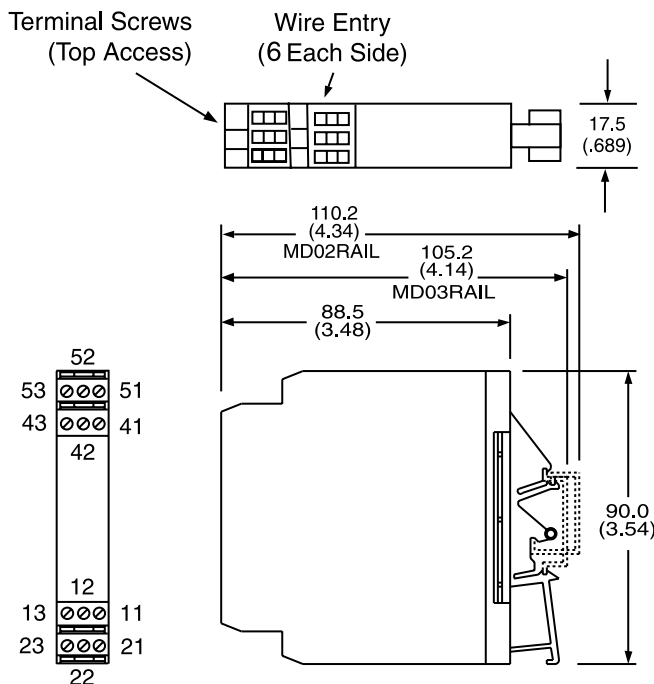
H910 24VDC Power Supply (1 Amp)

H915 24VDC Power Supply (2.3 Amp)

MB03 End Bracket for MD03

C664 I/O Descriptive Tags

Dimensions



Dimensions are in mm (inches)



Invensys

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Factory Assistance

For additional information on calibration, operation and installation contact our Technical Services Group:

703-669-1318

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