

## Strain Gage Signal Conditioner/Amplifier



### FEATURES

- Accepts full, half or quarter bridges; all bridge-completion gages built in, including 120/1000 and 350Ω dummies
- Fully adjustable and *regulated* bridge excitation on each channel up to 12Vdc by front panel control
- Continuously variable amplifier gain up to 2100 by front-panel control
- Separate bridge-power switch
- Output 10Vdc at 100mA, short-circuit; proof and current limiting standard
- LED null indicators provided on each channel to indicate amplifier and bridge-balance condition
- High stability with temperature and time
- Frequency response up to 50kHz

### DESCRIPTION

A two-channel plug-in amplifier module that includes bridge completion, bridge balance, amplifier balance, bridge-excitation regulator and shunt calibration.

### SPECIFICATIONS

These specifications apply for each of two independent channels per module.

#### Inputs:

Quarter (120Ω/1000Ω and 350Ω), half and full bridge (50-1000Ω). Quarter-bridge dummy gages provided.

#### Bridge Excitation:

0.5 to 12 Vdc (adjustable for each channel) with 120Ω full-bridge load.

**Short-circuit current:** <40 mA.

**Ripple, noise, and 10% line change:** ±2 mV max.

**Load regulation:** ±0.2% no-load to 120Ω load (10% line change).

**Bridge Balance:** ±2000μe (quarter, half, or 350Ω full bridge), range can be changed by internal jumper to ±4000μe or ±6000μe.

#### Calibration:

Two-position (center off) toggle switch.

Standard factory-installed resistors (±0.1%) simulate ±1000μe at GF=2.

#### Amp Gain:

1 to 2100 continuously adjustable ±1%.

#### Bandpass:

DC to 5 kHz (min): -0.5 dB (-5%).

DC to 15 kHz: -3 dB.

Can be extended by internal jumper to:  
DC to 17 kHz: -0.5 dB; DC to 50 kHz: -3 dB.

#### Amp Input:

##### Temperature Coefficient of Zero:

±1μV/°C RTI (referred to input), ±210μV/°C RTO (referred to output); -10° to +60°C (after 30 minute warm-up).

##### Noise RTI: (350Ω source impedance)

1μV p-p at 0.1 Hz to 10 Hz; 2μV p-p at 0.1 Hz to 100 Hz; 2μV at 0.1 Hz to 50 kHz.

##### Noise RTO:

50μV p-p at 0.1 Hz to 10 Hz; 80μV p-p at 0.1 Hz to 100 Hz; 100μV at 0.1 Hz to 15 kHz; 200μV at 0.1 Hz to 50 kHz.

**Input Impedance:** >100MΩ (balance limit resistor disconnected).

**Common-Mode Rejection:** (dc to 60 Hz).

| Gain Multiplier | CMR (dB) |
|-----------------|----------|
| X2              | 67       |
| X20             | 87       |
| X200            | 100      |

**Source Current:** ±10 nA typical; ±40 nA max.

#### Output:

±10V (min) at ±100 mA.

**Current Limit:** 140 mA.

#### Optional Feature:

May be ordered with, or be field upgraded for, remote-operation relays for control of shunt calibration and bridge excitation (off). Requires remote-operation capability in the Model 2150 or 2160. Contact Vishay Micro-Measurements for details.

**Size:** 5.25 H x 2.94 W x 10.97 D in (133 x 75 x 279 mm).

**Weight:** 2.2 lb (1.0 kg).

*All Specifications are nominal or typical at + 23°C unless noted.*