

# Model 140 Inline Amplifier



Low Noise Inline Amplifier  
User Selectable Gain Settings  
Small Rugged Package  
Includes Auto-Zero Function



US Patent 8,823,364 applies

The **Model 140** is a remote in-line DC amplifier designed to be used with bridge-type mV output transducers. The amplifier features five user selectable gain settings with a gain accuracy of  $\pm 0.5\%$  and offers a wide bandwidth to 100kHz. The model 140 offers a unique patented auto-zero function that allows the operator to zero the transducer offset voltage to within  $\pm 1.5\text{mV}$  either remotely or by pressing the on-board push button at the user's command, usually right before the taking of data. This feature removes any offset drift from the sensor for a more accurate measurement.

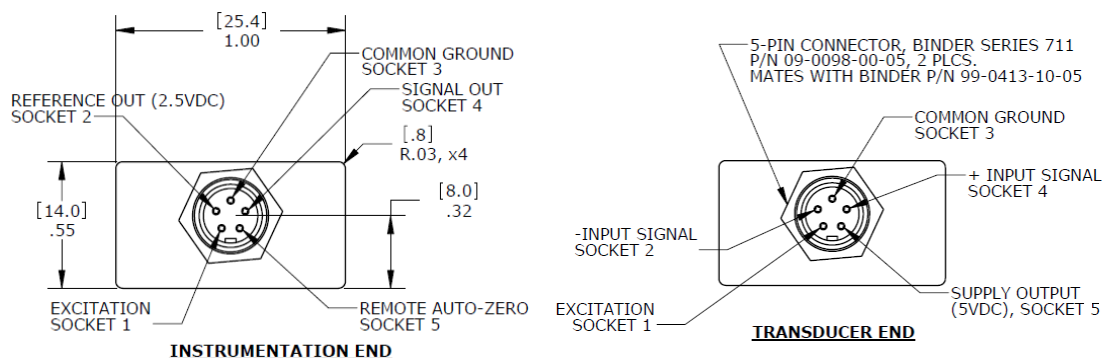
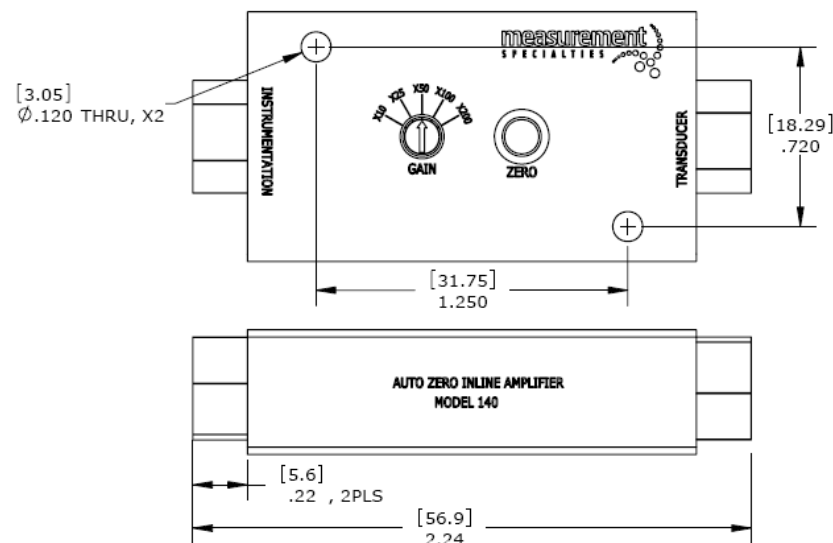
## dimensions

### FEATURES

- Interface with mV Output Sensors
- $\pm 1.5\text{mV}$  Auto-Zero Function
- x10, x25, x50, x100 & x200 Gain Settings
- Wide Bandwidth to 100kHz
- 5 to 30Vdc Excitation Voltage

### APPLICATIONS

- Pressure & Level Indication
- Static Acceleration Testing
- Instrumentation Labs
- Load Monitoring
- Strain Measurement



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## performance specifications

All values are typical at  $\pm 24^{\circ}\text{C}$  and 12Vdc excitation unless otherwise stated. Measurement Specialties reserves the right to update and change these specifications without notice.

### Parameters

#### DYNAMIC

|  |  |
|--|--|
| Input Type   | Differential   |
| Input Range (V)                                    | 0.5 to ( $V_{\text{exc}} - 0.6$ ), each input referenced to ground |
| User Selectable Gain Settings                      | x10, x25, x50, x100, x200  |
| Bandwidth (-3dB)                                   | DC to 100kHz   |
| Noise ( $\text{nV}/\sqrt{\text{Hz}}$ )             | 17 RTI + 2000 RTO  |
| Zero Output After Auto-Zero Actuation <sup>1</sup> | $\pm 1.5\text{mV}$ , referenced to 2.5V reference out              |
| Input Range Limit for Auto-Zero Function           | $\pm 10\text{Volts/gain}$  |

#### ELECTRICAL

|  |  |
|--|--|
| Excitation Voltage (Vdc)                   | 5 to 30                                    |
| Reverse Polarity Protection                | -20V, on excitation line                   |
| Quiescent Current (mA)                     | 15   |
| Reference Out (Vdc)                        | $2.5 \pm 0.05$ , referenced to ground      |
| Output Voltage Limit (Vpk)                 | $\pm 2$ , referenced to 2.5V reference out |
| Gain Accuracy (%)                          | 0.5  |
| Output Impedance ( $\Omega$ )              | <50  |
| Insulation Resistance ( $\text{M}\Omega$ ) | >100 @ 50Vdc                               |

#### ENVIRONMENTAL

|  |                                    |
|--|------------------------------------|
| Operating Temperature ( $^{\circ}\text{C}$ ) | -20 to +70                         |
| Storage Temperature ( $^{\circ}\text{C}$ )   | -20 to +70                         |
| Environmental Protection                     | IP50                               |
| Vibration (g)                                | 20 pk from 50Hz to 2000Hz          |
| Shock (g)                                    | 2000 pk with 3.6ms Haversine pulse |

#### PHYSICAL

|                              |  |
|------------------------------|--|
| Case Material                | Anodized Aluminum  |
| Electrical Connector, Input  | Binder Connector P/N 09-0098-00-05 (mates with Binder Connector P/N 99-0413-10-05) |
| Electrical Connector, Output | Binder Connector P/N 09-0098-00-05 (mates with Binder Connector P/N 99-0413-10-05) |
| Weight (grams)               | 33   |

<sup>1</sup> Auto-zero can be actuated using pushbutton or grounding remote auto-zero pin for minimum 2 sec. Multiple actuations may be required to achieve the  $\pm 1.5\text{mV}$  limit.

<sup>2</sup> Supply Out:  $5.00 \pm 0.10$  Vdc, <150 mamps current source, >5.2 Vdc excitation required.

<sup>3</sup> Excitation and common ground are direct connections from instrumentation end to transducer end.

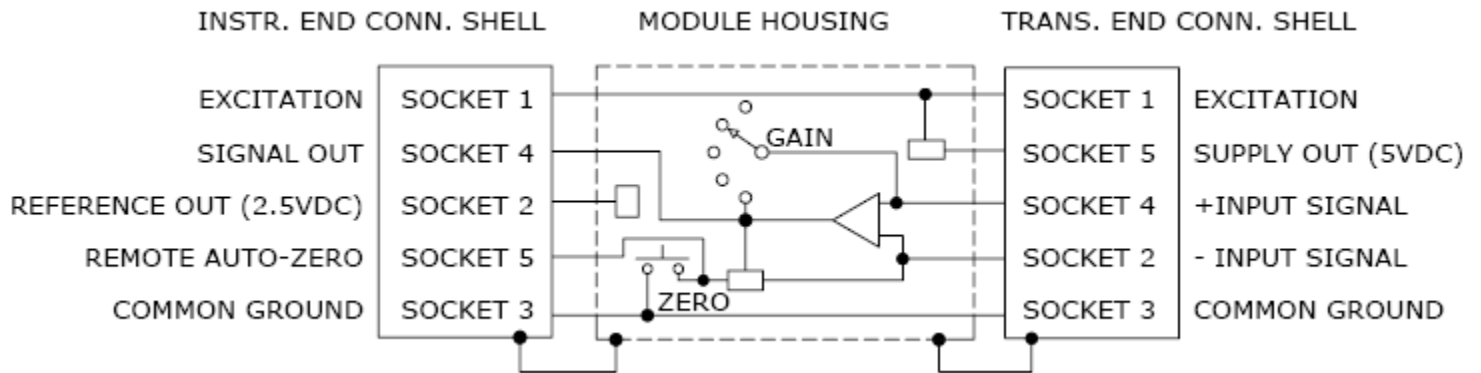
**Supplied accessories:** AC-G04393 2x Mating Connector Plug (Binder Connector P/N 99-0413-10-05)

**Optional accessories:** 379-XXX Cable Assembly, 5x #30 AWG, (XXX designates length in inches, 10ft standard)

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## schematic



## ordering info

PART NUMBERING    Model Number

Model 140