

Model 142 Inline Strain Gage Amplifier



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



The **Model 142** is a remote in-line strain gage amplifier designed to be used with ¼ bridge strain gage instruments. 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 142 offers a unique auto-zero function (patent pending) that allows the operator to zero the 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 strain gage for a more accurate measurement.

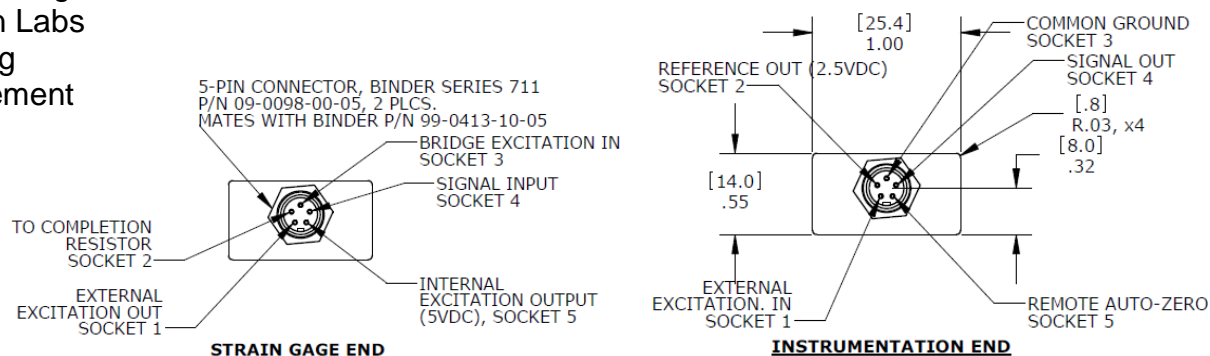
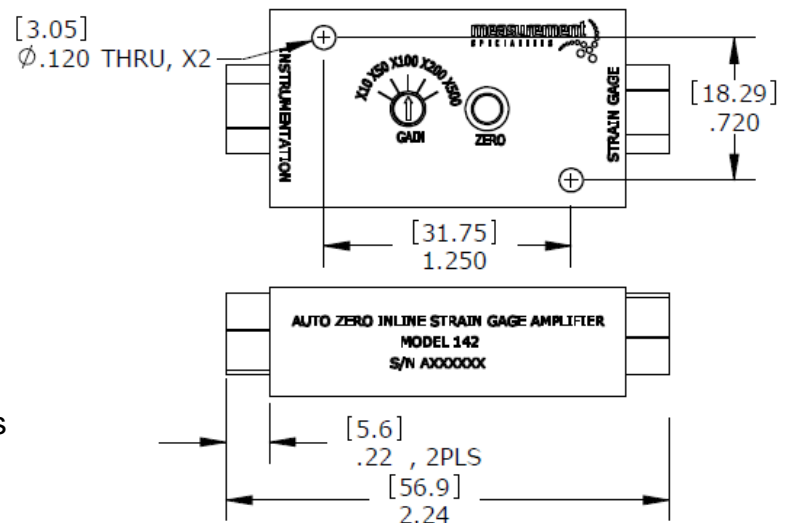
FEATURES

- Interface with ¼ Bridge Strain Gages
- $\pm 1.5\text{mV}$ Auto-Zero Function
- x10, x50, x100, x200 & x500 Gain Settings
- Wide Bandwidth to 100kHz
- Regulated 5 Vdc Gage Excitation

APPLICATIONS

- Static Force Testing
- Instrumentation Labs
- Load Monitoring
- Strain Measurement

dimensions



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performance specifications

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

Parameters

DYNAMIC

Input Type	Uniaxial Strain Gage, 4 Wires, $\frac{1}{4}$ Bridge
Input Range (V)	0.5 to ($V_{exc} - 0.6$), each input referenced to ground
User Selectable Gain Settings	x10, x50, x100, x200, x500
Bandwidth (-3dB)	DC to 100kHz
Noise ($\text{nV}/\sqrt{\text{Hz}}$)	30 RTI + 2000 RTO
Zero Output After Auto-Zero Actuation ¹	$\pm 1.5\text{mV}$, referenced to 2.5V reference out
Input Range Limit for Auto-Zero Function	$\pm 10\text{Volts/gain}$

ELECTRICAL

Input Excitation (Vdc) ²	5 to 30
Bridge Excitation (Vdc) ²	5 (regulated)
Reverse Polarity Protection	-20V, on excitation line
Quiescent Current (mA)	15, without bridge
Reference Out (Vdc)	2.5 ± 0.05 , referenced to ground
Output Voltage Limit (Vpk)	± 2 , referenced to 2.5V reference out
Gain Accuracy (%)	0.5
Output Impedance (Ω)	<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)	34

¹ 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.

² The strain gage can be powered using external gage excitation voltage (through Socket 1 of connection) without using the on-board voltage regulator

³ Supply Out: 5.00 ± 0.10 Vdc, <150 mamps current source, >5.2 Vdc excitation required.

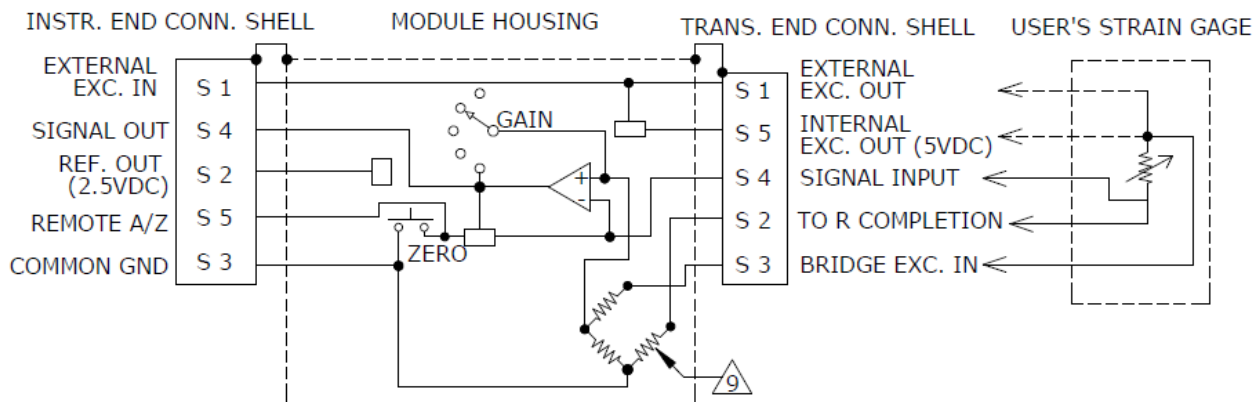
⁴ Excitation and common ground are direct connections from instrumentation end to transducer end.

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)

Model 140 Inline Amplifier

schematic



USER INSTALLED LEADED COMPLETION RESISTOR SOLDERED TO PCB.

SUGGESTED METAL FILM RESISTOR: VISHAY DALE PTF56 SERIES, $\pm 0.1\%$, $\pm 5\text{PPM}/^\circ\text{C}$, 1/8W

ordering info

PART NUMBERING Model Number

Model 142

联系方式



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