

Model 13

Subminiature Load Cell



DESCRIPTION

Model 13 (compression only) subminiature load cell is designed to measure load ranges from 150 g to 1000 lb. With subminiature dimensions, including diameters from 0.38 in to 0.75 in and heights of 0.13 in to 0.25 in, these units are easily incorporated into systems having limited space. Model 13 combines high

frequency response and low deflection to achieve a combined non-linearity and hysteresis of 0.25 % to 0.5 % full scale. A balance module is included in the load cell's lead wire cable for temperature compensation and should not be removed.

FEATURES

- 150 g to 1000 lb
- 0.7 % accuracy
- mV/V output
- Subminiature design
- Single diaphragm construction

Model 13

PERFORMANCE SPECIFICATIONS

| Characteristic | Measure |
|--|---|
| Load ranges ⁶ | 150 g, 250 g, 500 g, 1000 g, 5 lb, 10 lb, 25 lb, 50 lb, 100 lb, 250 lb, 500 lb, 1000 lb |
| Linearity | ±0.5 % full scale |
| Hysteresis | ±0.5 % full scale |
| Non-repeatability | ±0.1 % full scale |
| Tolerance on output 150 g to 500 g | 15 mV/V (nominal) |
| Tolerance on output 1000 g | 1.5 mV/V (nominal) |
| Tolerance on output 5 lb to 1000 lb | 2 mV/V (nominal) |
| Operation | Compression only |
| Resolution | Infinite |

ENVIRONMENTAL SPECIFICATIONS

| Characteristic | Measure |
|--------------------------|-------------------------------------|
| Temperature, operating | -54 °C to 121 °C [-65 °F to 250 °F] |
| Temperature, compensated | 15 °C to 71 °C [60 °F to 160 °F] |
| Temperature effect, zero | 0.01 % full scale/°F |
| Temperature effect, span | 0.02 % reading/°F |

ELECTRICAL SPECIFICATIONS

| Characteristic | Measure |
|--|--|
| Strain gage type 150 g to 500 g | Semiconductor |
| Strain gage type 1000 g to 1000 lb | Bonded foil |
| Excitation (calibration) | 5 Vdc |
| Insulation resistance | 5000 mOhm @ 50 Vdc |
| Bridge resistance (tolerance) 150 g to 500 g | 500 ohm (nominal) |
| Bridge resistance (tolerance) 1000 g to 1000 lb | 350 ohm (nominal) |
| Zero balance (tolerance) | ±3 % of full scale (nominal) |
| Shunt calibration data | Included |
| Electrical termination (std) | 1,83 m [5 ft] integral cable with balance board ³ |

MECHANICAL SPECIFICATIONS

| Characteristic | Measure |
|-------------------------|-----------------|
| Maximum allowable load | See table |
| Weight | See table |
| Material | Stainless steel |
| Deflection @ full scale | See table |

RANGE CODES

| Range codes | Range |
|-------------|---------|
| AL | 150 g |
| AN | 250 g |
| AP | 500 g |
| AR | 1000 g |
| AT | 5 lb |
| AV | 10 lb |
| BL | 25 lb |
| BN | 50 lb |
| BR | 100 lb |
| CN | 250 lb |
| CR | 500 lb |
| CV | 1000 lb |

WIRING CODES

| Cable | Unamplified |
|--------------|----------------|
| Red | (+) excitation |
| Black | (-) excitation |
| Green | (-) output |
| White | (+) output |

DEFLECTIONS AND RINGING FREQUENCIES

| Capacity (lb) | Deflection at full scale (10 ⁻³ in) | Weight | Weight with cable | Max. allowable load ¹ (% FS) |
|---------------|--|-----------------|-------------------|---|
| 150 g | 0.06 | 1 g [0.002 lb] | 9 g [0.019 lb] | 500 |
| 250 g | 0.06 | 1 g [0.002 lb] | 9 g [0.019 lb] | 500 |
| 500 g | 0.08 | 1 g [0.002 lb] | 9 g [0.019 lb] | 500 |
| 1000 g | 0.05 | 1 g [0.002 lb] | 9 g [0.019 lb] | 150 |
| 5 lb | 0.5 | 1 g [0.002 lb] | 9 g [0.019 lb] | 150 |
| 10 lb | 0.4 | 1 g [0.002 lb] | 9 g [0.019 lb] | 150 |
| 25 lb | 0.4 | 1 g [0.002 lb] | 9 g [0.019 lb] | 150 |
| 50 lb | 0.4 | 1 g [0.002 lb] | 9 g [0.019 lb] | 150 |
| 100 lb | 0.4 | 3 g [0.006 lb] | 11 g [0.024 lb] | 150 |
| 250 lb | 0.5 | 3 g [0.006 lb] | 11 g [0.024 lb] | 150 |
| 500 lb | 0.5 | 10 g [0.022 lb] | 18 g [0.039 lb] | 150 |
| 1000 lb | 0.6 | 10 g [0.022 lb] | 18 g [0.039 lb] | 150 |