

Model 11

Subminiature Load Cell



DESCRIPTION

Model 11 (tension/compression) subminiature load cell is designed to measure load ranges from 150 g to 1000 lb. With subminiature dimensions, including diameters from .50 in to 0.75 in and height of 0.38 in, these units are easily incorporated into systems having limited space.

The model achieves a non-linearity and hysteresis of 0.5 % full scale respectively and a frequency response of up to 58 kHz. A balance module is included in the load cell's lead wire cable for zero balance, and should not be removed.

FEATURES

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

Model 11

PERFORMANCE SPECIFICATIONS

Characteristic	Measure
Load ranges ⁷	150 g to 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	10 mV/V (nominal)
Tolerance on output 1000 g to 1000 lb	2 mV/V (nominal)
Operation	Tension/compression ³
Resolution	Infinite
Maximum permissible torque 150 g to 100 lb	4 in-lb
Maximum permissible torque 250 lb to 1000 lb	20 in-lb

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] cable with balance board ⁴

MECHANICAL SPECIFICATIONS

Characteristic	Measure
Maximum allowable load	See table ¹
Weight	See table
Material	Stainless steel
Deflection @ full scale	See table
Natural frequency	See table

RANGE CODES

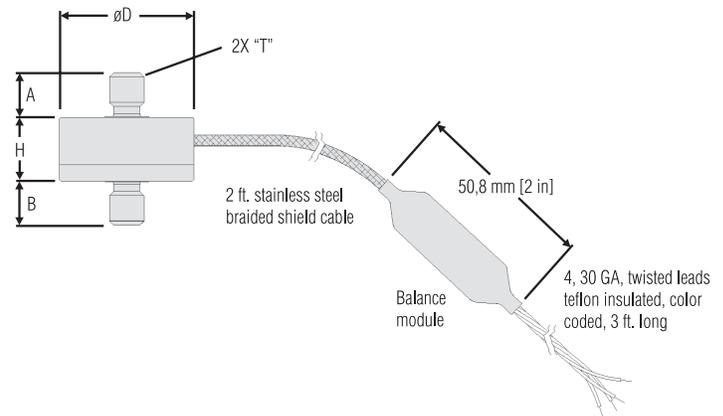
Range codes	Range
AL	150 g
AN	250 g
AP	500 g
AR	1000 g
AT	5 lb
AV	10 lb
BL	25 lb
BN	50 lb
BR	100 lb
CN	250 lb
CR	500 lb
CV	1000 lb

WIRING CODES

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

MOUNTING DIMENSIONS

Ranges	Ø D	T	H	A	B
150, 250, 500, 1000 g; 5, 10, 25, 50, 100 lb	12,7 mm [0.50 in]	#4-40 UNC	7,37 mm [0.29 in]	4,83 mm [0.19 in]	4,57 mm [0.18 in]
250, 500, 1000 lb	19,05 mm [0.75]	1/4-28 UNF	9,65 mm [0.38 in]	7,87 mm [0.31 in]	7,87 mm [0.31 in]



DEFLECTIONS AND RINGING FREQUENCIES

Capacity	Deflection at full scale (10 ⁻³ in)	Ring frequency (kHz)	Weight	Weight with cable	Max. allowable load ¹ (% FS)
150 g	0.05	10	5 g [0.011 lb]	13 g [0.029 lb]	500
250 g	0.04	14	5 g [0.011 lb]	13 g [0.029 lb]	500
500 g	0.03	22	5 g [0.011 lb]	13 g [0.029 lb]	500
1000 g	0.7	8	5 g [0.011 lb]	13 g [0.029 lb]	150
5 lb	0.6	11	5 g [0.011 lb]	13 g [0.029 lb]	150
10 lb	0.6	17	5 g [0.011 lb]	13 g [0.029 lb]	150
25 lb	0.5	24	5 g [0.011 lb]	13 g [0.029 lb]	150
50 lb	0.5	34	5 g [0.011 lb]	13 g [0.029 lb]	150
100 lb	0.5	48	5 g [0.011 lb]	13 g [0.029 lb]	150
250 lb	0.6	25	19 g [0.041 lb]	27 g [0.06 lb]	150
500 lb	0.7	33	19 g [0.041 lb]	27 g [0.06 lb]	150
1000 lb	1.0	40	19 g [0.041 lb]	27 g [0.06 lb]	150

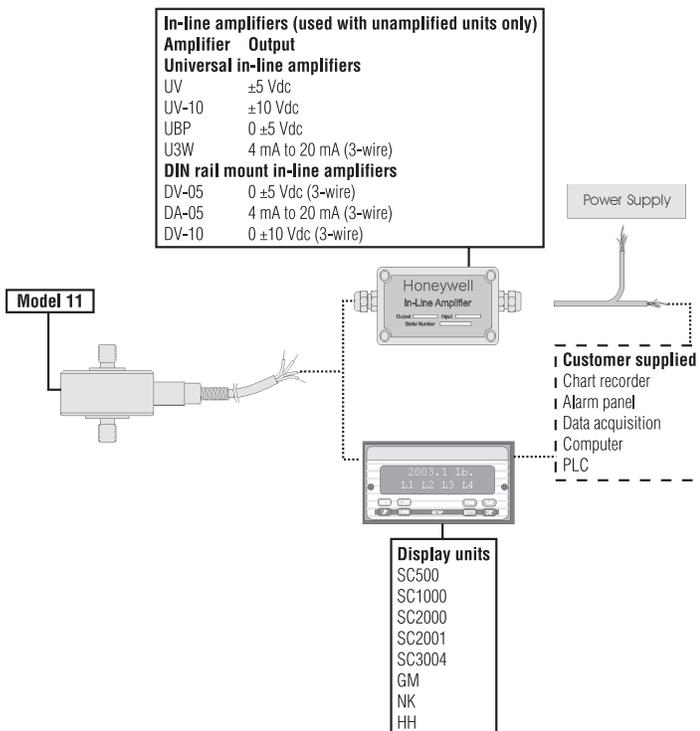
OPTION CODES

	<p>Many range/option combinations are available in our quick-ship and fast-track manufacture programs. Please see http://sensing.honeywell.com/TMsensor-ship for updated listings.</p>
Load range	150 g, 250 g, 500 g, 1000 g, 5 lb, 10 lb, 25 lb, 50 lb, 100 lb, 250 lb, 500 lb, 1000 lb
Temperature compensation	1a. 60 °F to 160 °F 1b. 30 °F to 130 °F 1c. 0 °F to 185 °F 1e. -20 °F to 200 °F ⁵ 1f. 70 °F to 250 °F ⁵
Internal amplifiers	2u. Unamplified, mV/V output
Electrical termination	5 ft integral cable with balance board ⁴ 6a. Bendix PTIH-10-6P - (or equivalent) 6 pin (max. 120 °C) on end of cable 6e. Integral cable: Teflon 6v. Phoenix connector on end of cable
Electrical termination orientation	15d. Connector on end of cable
Special calibration	30a. Compression testing only, positive in compression 30b. Tension and compression testing only, positive in tension 30c. Compression testing only, negative in compression
Shock and vibration	44a. Shock and vibration resistance

NOTES

1. Allowable maximum loads – maximum load to be applied without damage.²
2. Without damage - loading to this level will not cause excessive zero shift or performance degradation. The user must consider fatigue life for long term use and structural integrity. All structurally critical applications (overhead loading, etc.) should always be designed with safety redundant load paths.
3. Standard calibration for tension/compression load cells is tension only.
4. A small, 2 in circuit board is included in the cable, 2 ft from the load cell. Do not remove this board.
5. Only for ranges greater-than-or-equal-to 1000 g.
6. Specifications may vary with this option.
7. This unit calibrated to Imperial (non-Metric) units.

TYPICAL SYSTEM DIAGRAM



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WARNING PERSONAL INJURY

- DO NOT USE these products as safety or emergency stop devices or in any other application where failure of the product could result in personal injury.

Failure to comply with these instructions could result in death or serious injury.

WARNING MISUSE OF DOCUMENTATION

- The information presented in this catalogue is for reference only. DO NOT USE this document as product installation information.
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Failure to comply with these instructions could result in death or serious injury.

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