N 31E High

Description

Model 31E high range precision miniature load cells measure both tension and compression load forces of 10 kN to 50 kN. These models are our highest accuracy, rugged miniature load cells. Model 31E's welded, stainless steel construction is designed to eliminate or reduce to a minimum, the effects of off-axis loads. (The internal construction assures excellent long-term stability for ranges 1000 grams and above.) A modification permits this model to be completely welded for underwater applications.

The Model 31E tension/compression load cell has male threads attachments. High accuracies of 0.15 % to 0.25 % full scale are achieved. Each bonded strain gage unit is built of welded 17-4 PH stainless steel for additional ruggedness.

Features

- 10 kN to 50 kN
- mV/V output
- Stainless steel
- Miniature design
- Stabilized column construction

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Performance specifications

Characteristic	Measure
Load ranges[5]	10 kN, 20 kN, 50 kN
Linearity	±0.2 % full scale
Hysteresis	±0.2 % full scale
Non-repeatability	±0.05 % full scale
Tolerance on output	2 mV/V
Operation	Tension / compression[3]
Resolution	Infinite

Environmental specifications

Characteristic	Measure
Temperature, operating	-55 °C to 120 °C [-67 °F to 248 °F]
Temperature, compensated	15 °C to 70 °C [60 °F to 158 °F]
Storage temperature	-70 °C to 150 °C [-100 °F to 302 °F]
Temperature effect, zero	0.01 % full scale / °C
Temperature effect, span	0.01 % full scale / °C

Electrical specifications

Characteristic	Measure
Strain gage type	Bonded foil
Excitation (calibration)	5 Vdc
Insulation resistance	5000 Mohm @ 50 Vdc
Bridge resistance	350 ohm
Zero balance	1 % max.

Mechanical specifications

Characteristic	Measure
Maximum allowable load	150 % FS[1]
Weight	See table
Material	17-4 PH stainless steel
Deflection full scale	See table
Natural frequency	See table

Wiring code

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

Range codes

Range codes	Range
10KN0	10 kN
20KN0	20 kN
50KN0	50 kN

Deflections and ringing frequencies

Capacity (lb)	Deflection at full scale	Ringing frequency (Hz)	Weight
10 kN	0,02 mm [0.0007 in]	26000 Hz	60 g [0.132]
20 kN	0,03 mm [0.0001 in]	21000 Hz	125 g [0.276]
50 kN	0,03 mm [0.0001 in]	17000 Hz	250 g [0.551]

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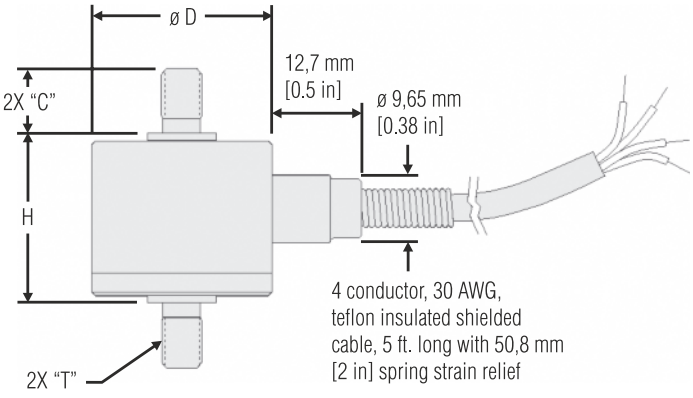
Mounting dimensions

Ranges (lb)	T	Ø D	C	H
10	M10x1.5	25,4[1.0]	18,3[0.72]	12,7[0.5]
20	M12x1.5	31,8[1.25]	23,9[0.94]	16,0[0.63]
50	M20x1.5	35,1[1.38]	27,9[1.1]	22,3[0.88]



Option codes

	Many range/option combinations are available in our quick-ship and fast-track manufacture Programs.	
Load range	10 kN, 20 kN, 50 kN	
Temperature compensation	1a. 60 °F to 160 °F 1j. 0 °C to 50 °C	1k. -20 °C to 85 °C 1m. -25 °to 110 °C
Internal amplifiers	2u. Unamplified, mV/V output	
Electrical termination	6e. Integral cable: Teflon 6d. Microtec DR-4S-4H 4 pin 6f. Integral cable: PVC 6g. Integral cable: Neoprene (max. 180 °F)	6h. Integral cable: Silicone 6i. Integral underwater cable (max. 180 °F) 6v. Phoenix connector on end of cable
Bridge resistance	12a. 1000 ohm (foil) 12b. 5000 ohm (foil)	
Electrical connector orientation	15a. Horizontal electrical exit port orientation 15b. Vertical electrical exit port orientation 15c. Radial electrical exit port orientation 15d. Connector on end of cable	
Special calibration	30a. Compression only calibration, positive in compression 30b. Tension and compression calibration, positive in tension 30c. Compression only calibration, negative in compression 30d. Tension and compression calibration, positive in compression	
Shock and vibration	44a. Shock and vibration resistance	
Interfaces	53e. Signature calibration[6] 53t. TEDS IEEE 1451.4 module[4]	

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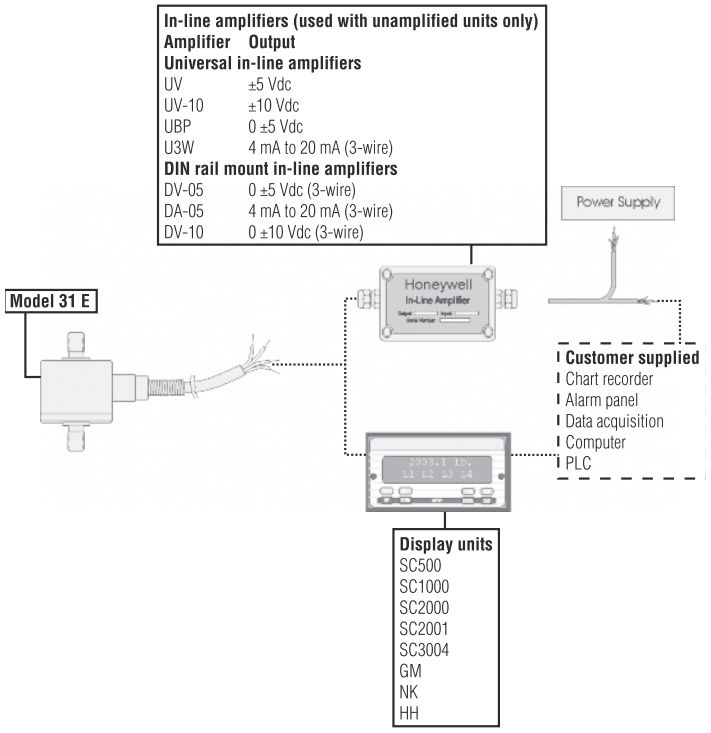
Notes

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 in tension only.
4. TEDS available with integral cable units only.
5. This unit is calibrated to Metric (non-Imperial) units.
6. Signature calibration only available as inline module.

Typical system diagram



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.
- Complete installation, operation and maintenance information is provided in the instructions supplied with each product.

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

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