N 31E Low

Description

Model 31E low range precision miniature load cells measure both tension and compression load forces of 0.5 N to 5 N. 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

- 0.5 N to 5 N
- mV/V output
- Stainless steel
- Miniature design
- Double diaphragm construction

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Performance specifications

Characteristic	Measure
Load ranges[5]	0.5N, 1.5N, 2.5N, 5N
Linearity	±0.15% full scale
Hysteresis	±0.15% full scale
Non-repeatability	±0.1% full scale
Tolerance on output 0.5N to 1.5N	0.1mV/V max.
Tolerance on output 2.5N to 5N	20mV/V
Operation	Tension / compression [3]
Resolution	Infinite

Environmental specifications

Characteristic	Measure
Temperature, operating	-53°C to 121°C [-65°F to 250°F]
Temperature, compensated	15°C to 70°C [60°F to 158°F]
Storage temperature	-70°C to 150°C [-94°F to 302°F]
Temperature effect, zero	0.03% full scale / °C
Temperature effect, span	0.03% full scale / °C

Electrical specifications

Characteristic	Measure
Strain gage type	Semiconductor
Excitation (calibration)	5Vdc
Insulation resistance	5000 Mohm @ 50 Vdc
Bridge resistance	500 ohm
Zero balance	1% max.
Electrical termination (std)	Teflon cable (1.5m [59.06in])

Mechanical specifications

Characteristic	Measure
Maximum allowable load	20N[1]
Weight	90g
Material	17-4PH stainless steel
Deflection full scale	11kg / mm
Natural frequency	740Hz

Wiring codes

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

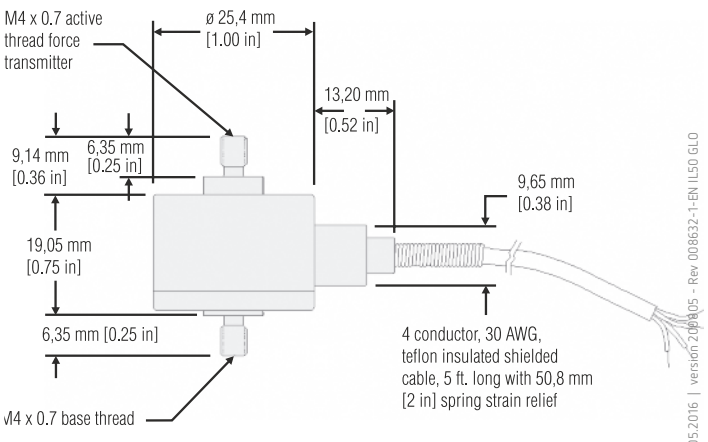
Range codes

Range Codes	Range
000N5	0.5N
0015N5	1.5N
002N5	2.5N
005N0	5N

Option codes

	Many range / option combinations are available in our quick-ship and fast-track manufacture Programs.	
Load range	0.5N, 1.5N, 2.5N, 5N	
Temperature compensation	1a. 15°C to 70°C 1j. 0°C to 50°C	1k. -20°C to 85°C 1m. -25°C to 110°C
Internal amplifiers	2u. Unamplified, mV/V output	
Electrical termination	6d. Microtec DR-4S-4H 4 pin 6e. Integral cable: Teflon 6f. Integral cable: PVC 6g. Integral cable: Neoprene (max. 80°C [176 °F])	6h. Integral cable: Silicone 6i. Integral underwater cable (max. 80°C [176°F]) 6v. Phoenix connector on end of cable 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[4]	53e. Signature calibration 53t. TEDS IEEE 1451.4 module	

Mounting dimensions



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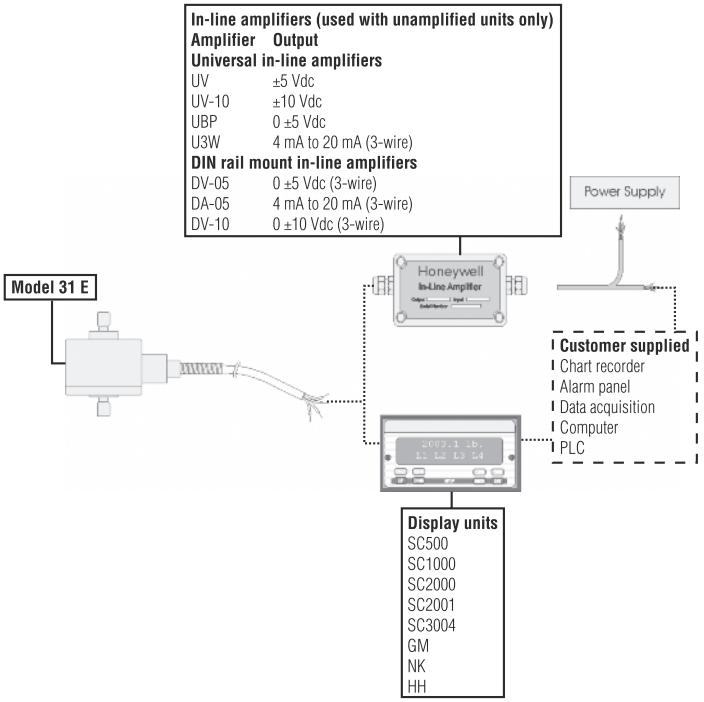
Notes

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.

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.