Model 31 High Range Precision Miniature Load Cell

- **2000 lb to 10000 lb**
- **mV/V output**
- **Stainless steel**
- **Miniature design**
- **Stabilized column construction**

How to order: *(Quick-ship range/option combinations available. See Web site.)*
Combine the order code, range code, and option code. For example:

AL311	***DV***	***1b, 30a***
Order code	Range code	Option code

Order codes

AL311 High range precision miniature load cell

Range codes

Range codes	Range
DL	2000 lb
DN	3000 lb
DP	4000 lb
DR	5000 lb
DT	7500 lb
DV	10000 lb

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 calibrated to Imperial (non-Metric) units.
6. Signature calibration only available as inline module.

Specifications

Performance

Load ranges[5]	2000 lb to 10000 lb
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

Temperature, operating	-53 °C to 121 °C [-65 °F to 250 °F]
Temperature, compensated	15 °C to 71 °C [60 °F to 160 °F]
Storage temperature	-73 °C to 148 °C [-100 °F to 300 °F]
Temperature effect, zero	0.005 % full scale/°F
Temperature effect, span	0.005 % full scale/°F

Electrical

Strain gage type	Bonded foil
Excitation (calibration)	5 Vdc
Insulation resistance	5000 Mohm @ 50 Vdc
Bridge resistance	350 ohm
Zero balance	1 % max.
Electrical termination (std)	Teflon cable (1524 mm [60 in])

Mechanical

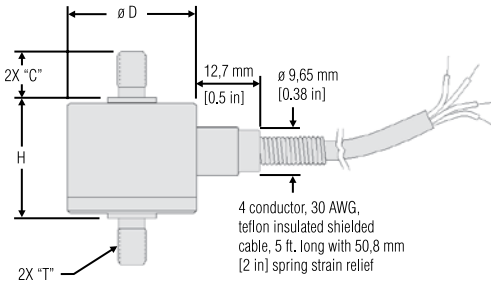
Maximum allowable load	150 % FS [1]
Weight	See table
Material	17-4 PH stainless steel
Deflection @ full scale	See table
Natural frequency	See table

Option codes

	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.
Load range	2000 lb, 3000 lb, 4000 lb, 5000 lb, 7500 lb, 10000 lb
Temperature Compensation	**1a**. 60 °F to 160 °F **1b**. 30 °F to 130 °F **1c**. 0 °F to 185 °F **1d**. -20 °F to 130 °F **1e**. -20 °F to 200 °F **1f**. 70 °F to 250 °F **1g**. 70 °F to 325 °F **1h**. 70 °F to 400 °F **1i**. -65 °F to 250 °F **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	**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]

Mounting dimensions and characteristics

Ranges (lb)	T	øD	C	H
2000 lb, 3000 lb	3/8-24 UNF	25,4 mm [1.00 in]	12,7 mm [0.50 in]	18,29 mm [0.72 in]
4000 lb, 5000 lb	1/2-20 UNF	31,75 mm [1.25 in]	16 mm [0.63 in]	23,88 mm [0.94 in]
7500 lb, 10000 lb	3/4-16 UNF	35,05 mm [1.38 in]	22,35 mm [0.88 in]	27,94 mm [1.10 in]



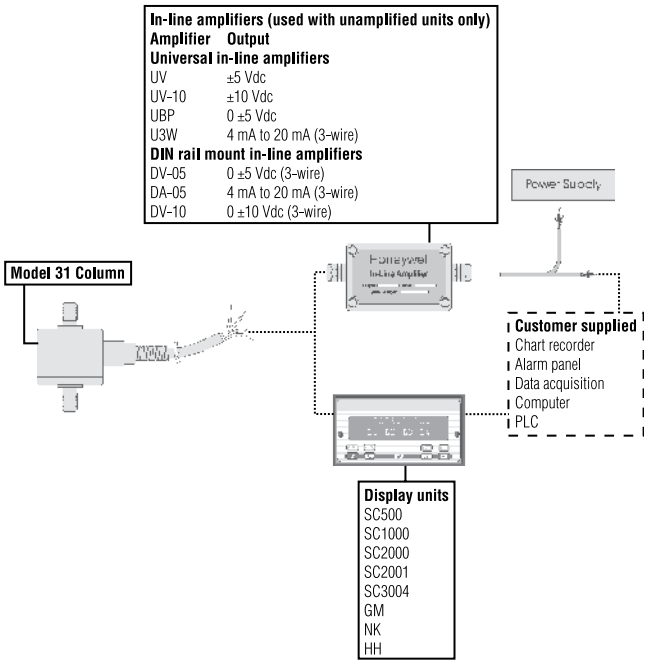
Wiring codes

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

Deflections and ringing frequencies

Capacity	Deflection at full scale	Ringing frequency	Weight
2000 lb, 3000 lb	0.03 mm [0.001 in]	26000 Hz	60 g
4000 lb, 5000 lb	0.04 mm [0.0015 in]	21000 Hz	125 g
7500 lb, 10000 lb	0.04 mm [0.0015 in]	17000 Hz	250 g

Typical system diagram



Special requirements (consult factory)

Have a special requirement? New case pressure, different cable lengths, electrical connectors, or materials? Consult our factory by calling +1 614-850-5000 (800-848-6564). Customization is key to our test and measurement business. Special outputs, wiring codes, and calibrations are all standard to us.

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Questions? Contact us at either 1-800-848-6564, +1 614-850-5000, or our Web site for customized options: (http://sensing.honeywell.com/TMsensor-help).

Specifications subject to change.