

Precision Miniature Load Cells

Model 31 and 34

WELDED STAINLESS

RUGGED, SMALL SIZE

TENSION/COMPRESSION



Model 31
(Tension/Compression)



Model 34
(Tension/Compression)

Models 31 and 34, Precision Miniature load cells measure both tension and compression load forces of 50 grams to 10,000 lb. These models are our highest accuracy, rugged miniature load cells. Model 31'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 31 tension/compression load cell has male threads while the Model 34 tension/compression load cell has female threaded load attachments. High accuracies of 0.15-0.25% full scale are achieved. Each bonded strain gage unit is built of welded 17-4 PH stainless steel for additional ruggedness. All load cells that have ranges 10 lb. have a small electrical zero balance circuit board which is in the lead wire (approximately 1"x .087" thick). This balance board does not have to be the same temperature as the transducer. Applications include cable tension and electromechanical parts testing.

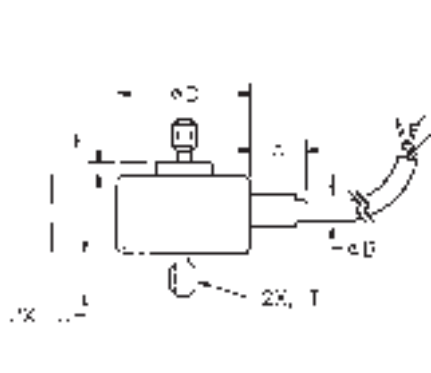
Dimensions (inches)

Model 31 (Order Code AL311)

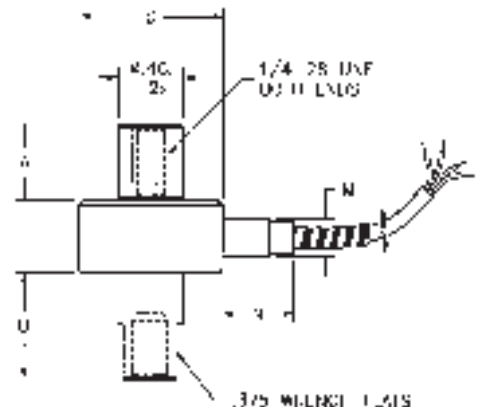
Available Ranges*	T Thread	D"	H"	C"	F"	A"	B"
50; 150; 250 500; g.	#6-32 UNC	1.00	0.75	0.25	0.11	0.50	0.38
1,000 g.; 5; 10 lb.	#6-32 UNC	0.75	0.45	0.25	0.05	0.31	0.19
25; 50; 100 lb.	#10-32 UNF	1.00	0.52	0.25	0.03	0.50	0.25
250; 500; 1,000 lb.	1/4-28 UNF	1.00	0.52	0.38	0.03	0.50	0.25
2,000; 3,000 lb.	3/8-24 UNF	1.00	0.72	0.50	0.03	0.50	0.38
4,000; 5,000 lb.	1/2-20 UNF	1.25	0.94	0.63	0.03	0.50	0.38
7,500; 10,000 lb.	3/4-16 UNF	1.38	1.10	0.88	0.03	0.50	0.38

* Stocked ranges are in bold face print.

Notes: Model 31 load cells ≤250 grams have overload stops. For custom cells without overload stops consult SENSOTEC.



Model 31 Male Threads
(Tension/Compression)



Model 34 Female Threads
(Tension/Compression)

Model 34 (Order Code AL312)

Available Ranges	D"	H"	A"	B"	M"	N"
50; 150; 250; 500 g.	1.00	1.75	0.52	0.52	0.38	0.50
1,000 g.; 5; 10 lb.	0.75	1.75	0.60	0.72	0.19	0.31
25; 50; 100 lb.	1.00	1.75	0.52	0.72	0.25	0.50
250; 500; 1,000 lb.	1.00	2.00	0.75	0.75	0.25	0.50

Options (See Appendix)

Temperature compensated 1b, 1c, 1f; Special calibration 30a, 30b

Premium Options: 1d, 1e, 1g, 1h (≤ 25 lb.), 1i; 6d; 9a (≤ 5 lb.)

Accessories: Rod end attachments for Model 31

	Model 31 (Male Threads) (Tension/Compression) Order Code AL311	Model 34 (Female Threads) (Tension/Compression) Order Code AL312
PERFORMANCE		
Load Ranges	50 g to 10,000 lb.	50 g to 1,000 lb.
Non-Linearity/Hysteresis (max)		
50 to 1,000 g	$\pm 0.15\%$ F.S.	$\pm 0.15\%$ F.S.
5 to 250 lb.	$\pm 0.15\%$ F.S.	$\pm 0.15\%$ F.S.
500 to 10,000 lb.	$\pm 0.2\%$ F.S.	$\pm 0.2\%$ F.S.
Non-Repeatability (max)		
50 to 1,000 g	$\pm 0.1\%$ F.S.	$\pm 0.1\%$ F.S.
5 to 10,000 lb.	$\pm 0.05\%$ F.S.	$\pm 0.05\%$ F.S.
Output (standard)		
50 to 150 g (semi)	0.1mV/V/g max	0.1mV/V/g
250 to 500 g (semi)	20mV/V	20mV/V
1,000 g	1.5mV/V (nominal)	1.5mV/V (nom)
5 lb. to 10,000 lb. (foil)	2mV/V	2mV/V
Resolution	Infinite	Infinite
ENVIRONMENTAL		
Temperature, Operating	-65° F to 250° F	-65° F to 250° F
Temperature, Compensated	60° F to 160° F	60° F to 160° F
Temperature Effect		
Zero/Span (max)		
50 to 500 g	0.015% F.S./° F	0.015% F.S./° F
1,000 g	0.005% F.S./° F	0.005% F.S./° F
5 to 10,000 lb.	0.005% F.S./° F	0.005% F.S./° F
ELECTRICAL		
Strain Gage Type	Foil or Semiconductor	Foil or Semiconductor
Excitation (Calibration)		
50 g to 10 lb.	5.00VDC	5.00VDC
20 lb. to 10,000 lb.	10.0VDC	10.0VDC
Insulation Resistance	5000 megohm @ 50VDC	5000 megohm @ 50VDC
Bridge Resistance		
50 to 500 g	500 ohms (semi)	500 ohms (semi)
1,000 gms.	350 ohms (foil)	350 ohms (foil)
5 to 10,000 lb.	350 ohms (foil)	350 ohms (foil)
Shunt Calibration Data	Included	Included
Wiring Code (std)	#1 (See Pg. AP-8)	#1 (See Pg. AP-8)
Electrical Termination (std)	Teflon cable (5 ft.)	Teflon cable (5 ft.)
MECHANICAL		
Overload, Safe	50% over capacity	50% over capacity
Thread Size	See table	See table
Deflection –Full Scale	0.0005"-0.0020"	0.0005"-0.0020"
Casing material	17-4 PH Stainless	17-4 PH Stainless
Weight (nom)	1.6 oz.	2.5 oz.
IN-LINE AMPLIFIERS (Optional)		
Outputs Available	± 5 VDC, 4-20mA	± 5 VDC, 4-20mA

NOTES *Standard calibration for tension/compression load cells is in tension only.

General Information

How to order (See Pg. AP-19)

Load cell selection flow chart (See Pg. LO-1)

Installation Note: Maximum torque for installation of Model 31 in ranges less than 25 lb. is 12 lb.-in.