



GENERAL-PURPOSE LOW-PROFILE LOAD CELLS

These load cells are environmentally sealed, temperature-compensated strain gage sensors capable of highly accurate, highly reliable force measurement under the toughest laboratory and industrial conditions. They demonstrate exceptional structural resistance to damage or measurement error (“crosstalk”) from off-axis loading, side loading, and other extraneous forces and bending moments (“eccentric” loading can also arise from unlevel mounting or thermal expansion of supporting structures).

Unique flexure designs, using low deflection values and premium alloy materials, give exceptional fatigue life, plus excellent linearity and hysteresis characteristics. Optional dual bridge is available on request.

All 400 Series transducers may be used in both tension and compression. Standard models in stock cover nominal ranges from ± 25 through ± 5000 pounds, with smaller or larger ranges available on special order. All models incorporate sealed barometrically compensated construction, and exhibit a typical zero shift of less than 0.2% of full scale for ambient pressure changes of ± 2 psi.

Individually tested and calibrated in both tension and compression, each 400 Series transducer is supplied with both “mV/V” and shuntresistor calibration data, traceable to the National Bureau of Standards.

Table LC.1
400 Series Models

Load Cell Model	Nominal Load Capacity* (lb. / N)	Ringing Frequency** (Hz)	Limit Loads		
			Bending Moment (M)*** (lb.-in. / N-m)	Shear (S)*** (lb. / N)	Torque (T)*** (lb.-in. / N-m)
400-25	$\pm 25 / \pm 125$	2100	150 / 17	150 / 667	40 / 4.5
400-50	$\pm 50 / \pm 200$	2800	150 / 17	150 / 667	40 / 4.5
400-100	$\pm 100 / \pm 500$	3800	180 / 20	250 / 1100	40 / 4.5
400-200	$\pm 200 / \pm 1000$	5400	180 / 20	250 / 1100	40 / 4.5
400-300	$\pm 300 / \pm 1500$	7000	180 / 20	250 / 1100	40 / 4.5
400-500	$\pm 500 / \pm 2000$	1600	2800 / 316	1400 / 6200	1100 / 124
400-1K	$\pm 1000 / \pm 5000$	2000	3900 / 441	2000 / 8900	1100 / 124
400-2K	$\pm 2000 / \pm 10000$	3200	5000 / 565	2800 / 12500	1100 / 124
400-3K	$\pm 3000 / \pm 15000$	4100	5500 / 621	3400 / 15100	1100 / 124
400-5K	$\pm 5000 / \pm 20000$	5000	5500 / 621	4200 / 18700	1100 / 124

LOAD CELLS

LOW-PROFILE LOAD CELLS [400 SERIES]

SPECIFICATIONS

Deflection at Nominal Load Limit:

Models 400-25 through 400-300: ± 0.003 in. (± 0.008 cm)

Models 400-500 through 400-5K: ± 0.005 in. (± 0.013 cm)

Bridge: Four-arm bonded foil gages, 350 ohms nominal

Number of Bridges: 1 or 2

Insulation Resistance, Bridge/Case: Greater than 5000 M Ω at 50 V-DC

Excitation: 20 V maximum, DC or AC (RMS)

Output (nominal):

Models 400-25 through 400-300: 2 mV/V \pm 0.25% of full scale

Models 400-500 through 400-5K: 3 mV/V \pm 0.25% of full scale

Zero Balance: $\pm 1.0\%$ of full scale

Linearity and Hysteresis:

Models 400-25 through 400-300: $\pm 0.05\%$ of full scale, max

Models 400-500 through 400-5K: $\pm 0.10\%$ of full scale, max

Repeatability:

Models 400-25 through 400-300: $\pm 0.02\%$ of full scale

Models 400-500 through 400-5K: $\pm 0.05\%$ of full scale

Overload Capacity: 150% of nominal rating (static)

Temperature Coefficient (Zero and Span): Less than 0.002% of full scale/ $^{\circ}$ F

Compensated Temperature Range: +70 $^{\circ}$ F to +170 $^{\circ}$ F (+21 $^{\circ}$ C to +77 $^{\circ}$ C)

Operating Temperature Range: -65 $^{\circ}$ F to +200 $^{\circ}$ F (-54 $^{\circ}$ C to +93 $^{\circ}$ C)

Fatigue Life: 100 million cycles at 0 to 50% of nominal rating (min); 50 million cycles at +50% to -50% of nominal rating (min)

* Metric rating approximate only.

** Calculated or determined by test with no external force or load.

Fig. LC.4
400 Series Dimensions (in./cm)

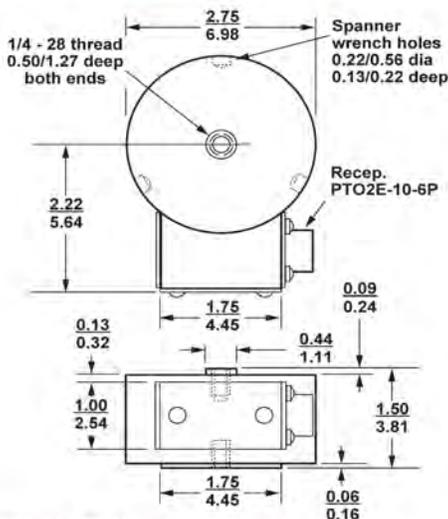
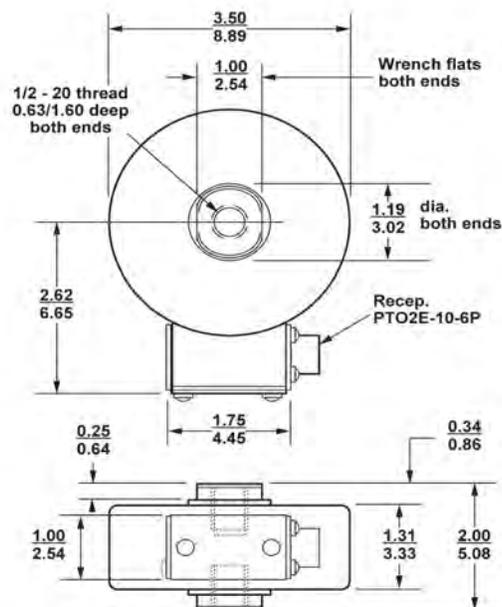
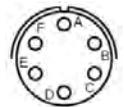


Fig. LC.4(a)
Dimensions for Models 400-25 through 400-300

Fig. LC.4(b)
Dimensions for Models 400-500 through 400-5K



Facing Pin



Pin	Description
A	+ Excitation
B	+ Signal
C	- Signal
D	- Excitation
E	n/c
F	n/c