



MINIATURE GENERAL-PURPOSE LOAD CELLS

The **431**, and **431M** Series offer the smallest-size strain gage force transducers where good specification can still be maintained. Operating in both tension and compression from forces of 50 grams to 10,000 pounds, these precision miniature load cells have a rugged stainless-steel weld construction with a “tripled” stack design to eliminate or minimize the off-axis loading effects shown in Fig. LC.3. And the internal construction assures excellent long-term stability for ranges of 1 kg and up.

All the basic engineering concepts of larger load cells are built into these instruments, including precision calibration, stabilizing diaphragms, pressure compensation, etc. Each bonded strain gage unit is built of welded 17-4 PH stainless steel for additional ruggedness.

<u>Load Cell Model</u>	<u>Nominal Load Capacity</u>	<u>Load Cell Model</u>	<u>Nominal Load Capacity</u>
431-5A	±5 lb.	431M-50A	±50 grams
431-10A	±10 lb.	431M-150A	±150 grams
431-25A	±25 lb.	431M-250A	±250 grams
431-50A	±50 lb.	431M-500A	±500 grams
431-100A	±100 lb.	431M-1KA	±1 kilogram
431-250A	±250 lb.		
431-500A	±500 lb.		
431-1KA	±1000 lb.		
431-2KA	±2000 lb.		
431-3KA	±3000 lb.		
431-4KA	±4000 lb.		
431-5KA	±5000 lb.		
431-7500A	±7500 lb.		
431-10KA	±10000 lb.		

Note as of June 2018: Version has been updated to "A" to denote the transducer is supplied without the 14 pin Amphenol connector pair. For recommended in-line connector pair - use Daytronic part number 64090.00. Technical document 92377.00.

LOAD CELLS

MINIATURE LOAD CELLS

[431 SERIES]

SPECIFICATIONS

Full-Scale Deflection: 0.0005" to 0.0020"

Bridge:

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

431M (50 through 500 g): Four-arm bonded semiconductor gages, 500 ohms nominal

431M (1 kg): Four-arm bonded foil gages, 350 ohms nominal

Insulation Resistance: 5000 M Ω at 50 V-DC

Excitation (calibration):

431 (5 and 10 lb.): 5.0 V-DC

431 (25 lb. and greater): 10.0 V-DC

431M: 5.0 V-DC*

Output (standard):

431: 2 mV/V

431M (50 through 150 g): 0.1 mV/V/g, maximum

431M (250 through 500 g): 20 mV/V

431M (1 kg): 1.5 mV/V, nominal

Linearity and Hysteresis:

431 (5 through 250 lb.): $\pm 0.15\%$ of full scale

431 (500 through 10000 lb.): $\pm 0.2\%$ of full scale

431M (50 g through 1 kg): $\pm 0.15\%$ of full scale

Repeatability:

431: $\pm 0.05\%$ of full scale

431M (50 g through 1 kg): $\pm 0.1\%$ of full scale

Overload Capacity: 150% of nominal rating (static)

Temperature Coefficient (Zero and Span):

431: $\pm 0.005\%$ of full scale/ $^{\circ}$ F

431M (50 through 500 g): $\pm 0.015\%$ of full scale/ $^{\circ}$ F

431M (1 kg): $\pm 0.005\%$ of full scale/ $^{\circ}$ F

Compensated Temperature Range: +60 $^{\circ}$ F to +160 $^{\circ}$ F (+16 $^{\circ}$ C to +71 $^{\circ}$ C)

Operating Temperature Range: -65 $^{\circ}$ F to +250 $^{\circ}$ F (-54 $^{\circ}$ C to +121 $^{\circ}$ C)

Weight (nominal): 1.6 oz.

* Series 431M load cells may require factory adjustment of excitation voltage when used with some Daytronic Strain Gage Meters.

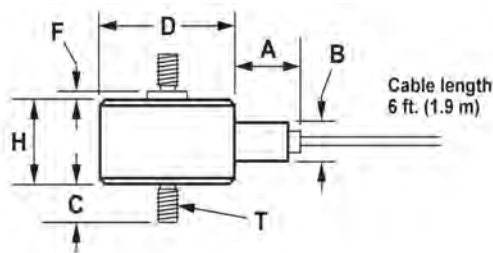


Fig. LC.5(a)
431/431M Dimensions

Description Wire Color

+ Excitation	Red
+ Sense	Red
- Excitation	Black
- Sense	Black
+ Signal	White
- Signal	Green

Load Cell Model	Dimension "A" (in. / cm)	Dimension "B" (in. / cm)	Dimension "C" (in. / cm)	Dimension "D" (in. / cm)	Dimension "F" (in. / cm)	Dimension "H" (in. / cm)	Thread "T"
431-5, 431-10	0.31 / 0.79	0.19 / 0.48	0.25 / 0.64	0.75 / 1.91	0.05 / 0.13	0.45 / 0.11	#6-32 UNC
431-25, 431-50, 431-100	0.50 / 1.27	0.25 / 0.64	0.25 / 0.64	1.00 / 2.54	0.03 / 0.76	0.52 / 1.32	#10-32 UNF
431-250, 431-500, 431-1K	0.50 / 1.27	0.25 / 0.64	0.38 / 0.97	1.00 / 2.54	0.03 / 0.76	0.52 / 1.32	1/4-28 UNF
431-2K, 431-3K	0.50 / 1.27	0.38 / 0.97	0.50 / 1.27	1.00 / 2.54	0.03 / 0.76	0.72 / 1.83	3/8-24 UNF
431-4K, 431-5K	0.50 / 1.27	0.38 / 0.97	0.63 / 1.60	1.25 / 3.18	0.03 / 0.76	0.94 / 2.39	1/2-20 UNF
431-7500, 431-10K	0.50 / 1.27	0.38 / 0.97	0.88 / 2.24	1.38 / 3.51	0.03 / 0.76	1.10 / 2.79	3/4-16 UNF
431M-50 through 431M-500	0.50 / 1.27	0.38 / 0.97	0.25 / 0.64	1.00 / 2.54	0.11 / 0.28	0.75 / 1.91	#6-32 UNC
431M-1K	0.31 / 0.79	0.19 / 0.48	0.25 / 0.64	0.75 / 1.91	0.05 / 0.13	0.45 / 0.11	#6-32 UNC