



# PH

## PRECISION LOW PROFILE LOAD CELL

### *applications*

- Tension/Compression Measurements
- Laboratory Test & Measurement
- Materials Testing Machines
- Dynamic Measurements
- Fatigue Rated To  $10^7$  Cycles



### *features*

- 1,000 to 200,000 lbs. Capacities
- Compact Low Profile Design
- High Output - 3.0 mV/V
- 0.1 Accuracy Class
- Shear Web Design
- High Frequency Response
- IP67 Environmental Sealing
- Stainless Steel Construction
- Two Year Warranty

#### **Application Tip:**

*The Model PH robust, versatile design is ideal for precision tension and compression measurement applications.*

The PH Series is a high performance, low profile, bonded foil strain gage load cell constructed of heat-treated stainless steel. The PH is designed to accurately measure tension and compression forces in capacities ranging from 1,000 lbs. to 200,000 lbs. The multiple shear web sensing design produces excellent performance, a very low profile, and reduced sensitivity to eccentric and side loading effects. The high output and low deflection of the PH combine to yield a high dynamic response and superior output resolution for applications in structural analysis, materials testing and process control. A fatigue rating of 10,000,000 cycles further defines the PH Series as an outstanding and versatile test and measurement solution. For universal measurements (tension and compression in the same application), an optional pull plate is required to allow the forces to be directed through the center of the load cell. To achieve a sealing rating of IP67 (thoroughly sealed against airborne particles and the effects of immersion up to 1 meter.) proprietary, multi-redundant environmental barriers are incorporated, including sealed stainless steel covers to protect the strain gage area. Optional cable assemblies are available with mating connectors, including durable polyurethane or Teflon<sup>®</sup> jacketed cables that feature braided, tinned-copper shielding for mechanical protection and to minimize the effects of common industrial electrical noise, e.g. RFI and EMI. The attributes of the PH make it ideal for measurements in the laboratory, structures testing, materials testing, process control and for general force measurements where a compact, low profile precision tension and compression load cell solution is needed.

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*Innovative Measurement Solutions*





performance

Rated capacities <sup>(1)</sup> (lbs.) <sup>(1)</sup> ("K" = thousand)	1K, 2K, 3K, 4K, 5K, 7.5K, 10K, 15K 20K, 30K, 50K, 75K, 100K, 150K & 200K
Rated output (FSO)	3 mV/V (nominal); 4 mV/V (optional)
Combined error	≤ 0.1
Non-linearity	≤ 0.1
Hysteresis	≤ 0.1
Non-repeatability	≤ 0.03
Creep (30 minutes)	≤ 0.03 % of load
Zero balance	≤ 1 % FSO
Zero Return (30 minutes)	Better than 0.03 % FSO
Allowable side Load	30% FSO
Eccentric Load Sensitivity	≤ 0.25 % FSO

mechanical

Material:	Stainless steel; Heat-treated
Finish:	Electro-polished
Safe overload	Compression: 150% FSO Side load: 30% FSO
Ultimate overload	Compression: 300% FSO Side load: 50% FSO
Deflection	≤ .003" (.076mm)
Weight	See table below

electrical

Input impedance	350 ohms (nominal)
Output impedance	350 ohms (nominal)
Insulation resistance	>1000 Megohms @ 50VDC
Excitation voltage	10 V AC/DC (15 V maximum)
Cable color code	+ Excitation: Red (Pin A) + Sense: Blue (Pin B) - Excitation: Black (Pin C) - Sense: Brown (Pin D) + Output: White (Pin F) - Output: Green (Pin E) Shield: Natural (Pin G)
Connector type	MS3104-14S-6S or equivalent

environmental

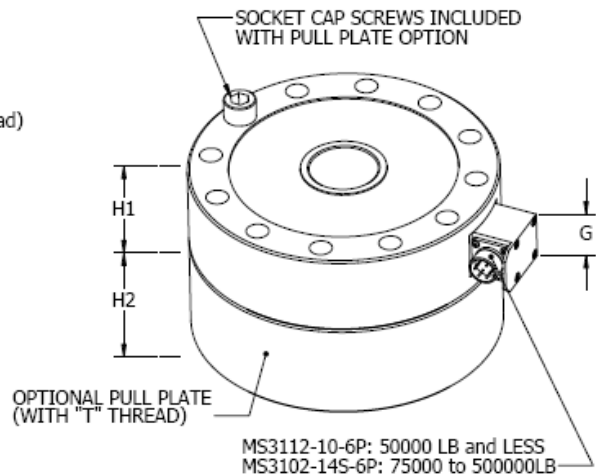
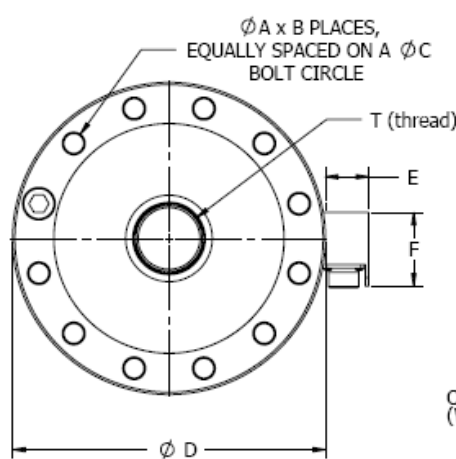


Temperature, operating	-65 to +250 °F (-54 to +121°C)
Temperature, compensated	0 to +150 °F (-18 to +66°C)
Temperature effects:	Zero < 0.0015% FSO/°F < 0.0027% FSO/°C Output < 0.0015% of Rdg./°F < 0.0027% Rdg./°C
Sealing	IP67; Multi-redundant

options

Pull Plates, Shunt Calibration, Mating MS Connectors, Polyurethane or Teflon® Cable and Multi-Point Calibration.

dimensions



When ordering, please specify PH3-"Capacity"-000-A.

The optional Pull Plate is required for tension measurements.

RANGES (LB)	D (in)	H1 (in)	H2 (in)	T (thread)	A (in)	B (#)	C (in)	E (in)	F (in)	G (in)
500, 1000	3.00	1.00	2.00	3/8-24 UNF	0.28	6	2.250	0.82	1.375	1.00
2000, 3000, 4000, 5000	3.50	1.00	2.00	1/2-20 UNF	0.34	6	2.625	0.82	1.375	1.00
7500, 10000, 15000	5.50	1.80	2.50	1-14 UNS	0.40	8	4.500	1.25	1.375	1.00
20000, 30000, 50000	6.00	1.80	2.80	1.50 - 12 UNF	0.53	8	4.875	1.25	2.125	1.50
75000, 100000	9.00	2.50	3.00	2-12 UN	0.66	12	7.750	1.25	2.125	1.50
150000, 200000	11.00	3.00	3.50	2.5 - 12 UN	0.78	12	9.500	1.25	2.125	1.50
300000, 400000, 500000	14.00	4.25	4.25	3.5 - 8 UN	1.03	12	11.750	1.25	2.125	1.50