SENTRAN

Tension and Compression Load Cell

PM3Series

The PM3 Series is a low profile high performance load cell constructed of heat treated stainless steel. The PM3 is designed to accurately measure tension and compression forces in capacities ranging from 0-5,000 LB to 0-50,000 LB.

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ISO 9001:2015 CERTIFIED

IP 67

RoHS COMPLIANT

CE

APPLICATIONS

- Tension and Compression Measurements
- Laboratory Test and Measurement
- Materials Testing Machines
- Dynamic Measurements
- Structural Analysis
- Actuator Control
- Fatigue rated to 10^7 cycle

FEATURES

- 5K LB to 50K LB Capacities
- 0.10% Accuracy Class
- 2 mV/V Full Scale Output
- M12 Connector with 16.5 FT PUR Cable
- Low Profile Size
- IP67 Environmental Sealing
- Stainless Steel Construction
- Enhanced Diaphragm Design
- Universal - Tension and Compression

For more information call **1-888-545-8988**

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PM3 Series Specifications

Innovative Measurement Solutions

PERFORMANCE	
Rated Capacities [1] (LB)	5K, 7.5K, 10K, 15K, 20K, 30K, 50K
Rated Output (FSO)	2 mV/V
Output Tolerance	Nominal
Combined Error Band	≤ 0.10 % FSO
Non-Linearity	≤ 0.10 % FSO
Hysteresis	≤ 0.10 % FSO
Non-Repeatability	≤ 0.03 % FSO
Zero Balance	≤ 3.0 % FSO
Creep (30 Minutes)	≤ 0.05 % of Load

MECHANICAL	
Load Cell Material	17-4ph Stainless Steel
Load Cell Finish	Natural Bright
Safe Overload	Compression: 150% FSO Tension: 150% Side Load: 10% FSO
Ultimate Overload	Compression: 300% FSO Tension: 300% Side Load: 20% FSO
Deflection	See Dimensions Page
Weight	See Dimensions Page
Mounting Bolt Torque	See Dimensions Page

ELECTRICAL	
Input Impedance	750 OHMS NOM
Output Impedance	700 OHMS NOM
Insulation Resistance	>5000 Megohms
Excitation Voltage	10 V AC/DC (15 V maximum)
Cable Color Code	+ Excitation (blue, pin 3) - Excitation (black, pin 4) + Signal (white, pin 2) - Signal (brown, pin 1)
Cable Type	4-conductor, 22 AWG, PVC Jacket, M12 Axial Female Connector, Diameter: 0.232”
Cable Length	See Dimensions Page
Cable Termination	Finished Conductors

ENVIRONMENTAL	
Temperature, Operating	-50 to +175 °F (-45 to +79°C)
Temperature, Compensated	14 to +104 °F (-10 to +40°C)
Temperature, Storage	-50 to +175 °F (-45 to +79°C)
Temperature Effects	Zero < 0.005% FSO/°F < 0.009% FSO/°C
Temperature Effects	Output < 0.0010% of Rdg./°F < 0.0018% Rdg./°C
Sealing (Multi-Redundant)	IP67; Multi-redundant; Limited Immersion Tolerance

PM3 Typical System Configuration

SENSING LOAD CELL(S)

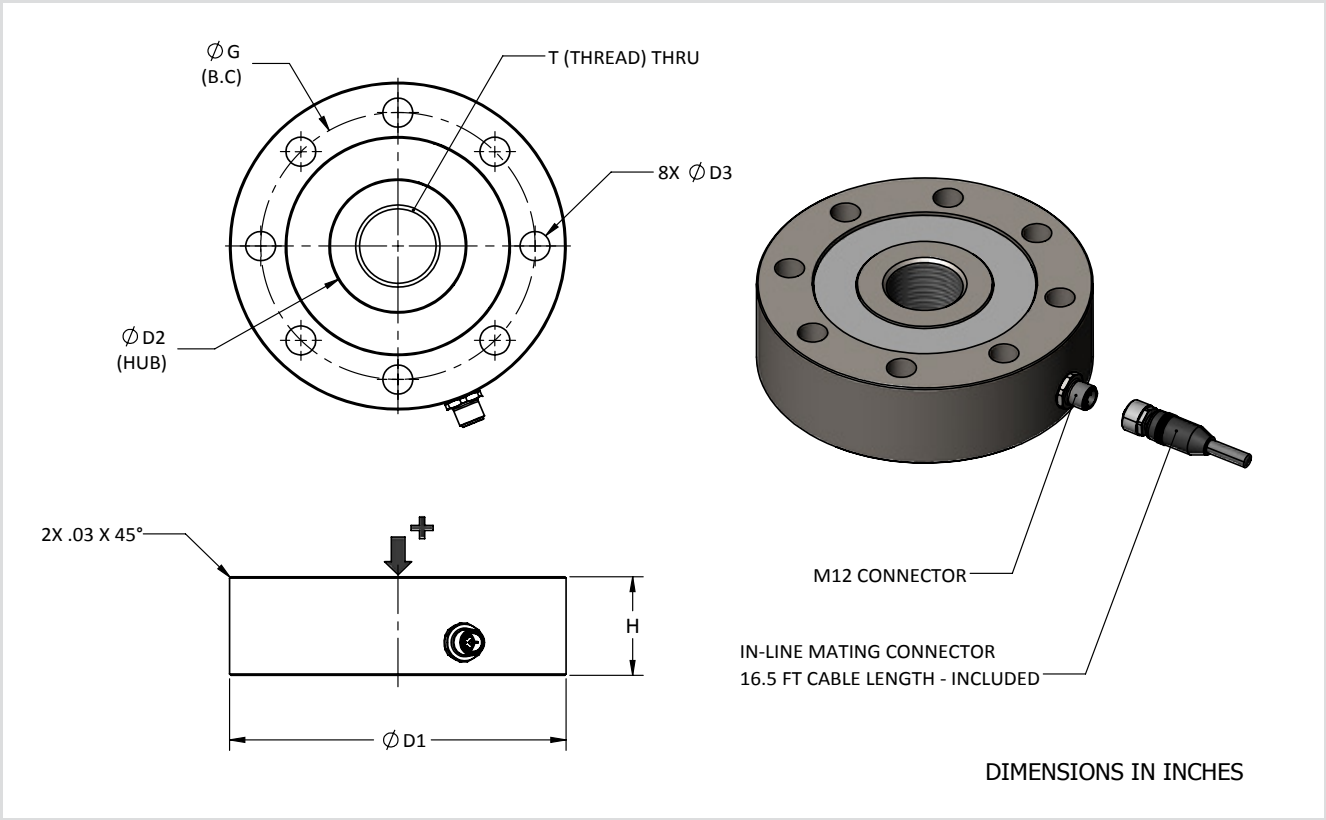
SIGNAL CONDITIONING

- Amplifier/Transmitter — JF Series
- Amplifier/ Transmitter — JA Series
- Digital Indicator — 250 Series
- Digital Indicator — 250SS Series
- Digital Indicator/Controller — KD3 Series
- Digital Indicator/Controller — KD4 Series

OUTPUT OPTIONS

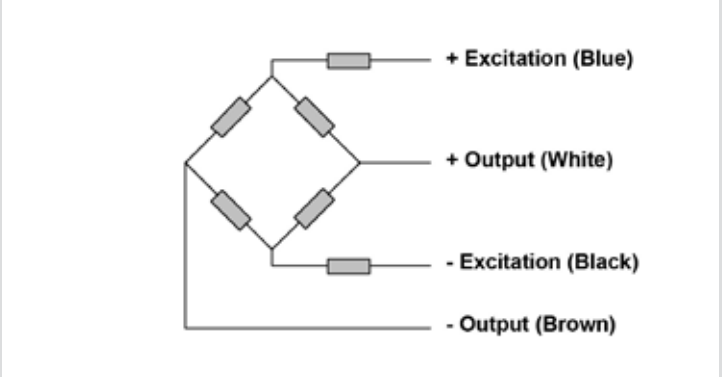
0-5 VDC
0-10VDC
±5 VDC
±10 VDC
4-20 mA
0-20 mA
RS-232
RS-422
RS-485
20 mA Serial Loop
Ethernet
Profibus DP
DeviceNet
CANOpen
ControlNet
Modbus RTU
Wireless

PM3 Dimensions



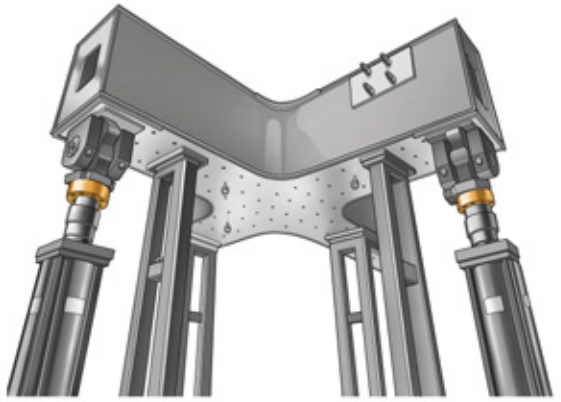
Capacity (LB)	D1	D2	D3	H	G	T (Thread)	Recommended Bolt Torque	Deflect	Weight
5K, 7.5K, 10K, 15K	4.98	1.80	0.41	1.50	4.000	1-14 UNS-2B	31 FT-LB	0.002	6.0 LB
20K, 30K, 50K	5.98	2.40	0.53	1.80	4.875	1 1/2-12 UNF-2B	100 FT-LB	0.003	10.0 LB

PM3 Wiring Diagram

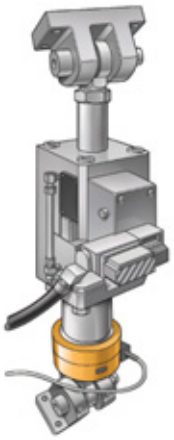


Application Examples

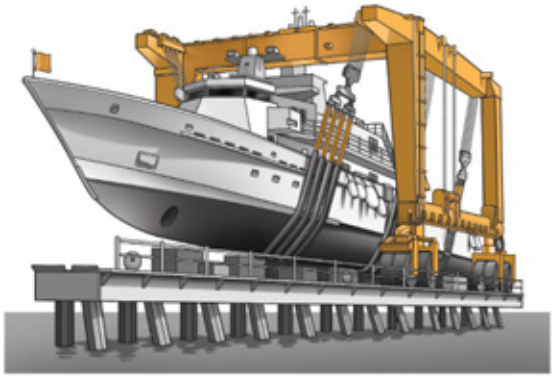
Structural Test Lab



Articulating Actuator Control

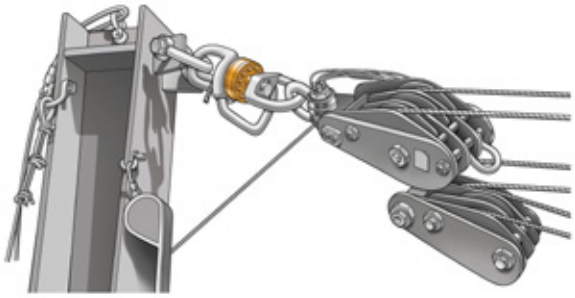


Vessel Lifting

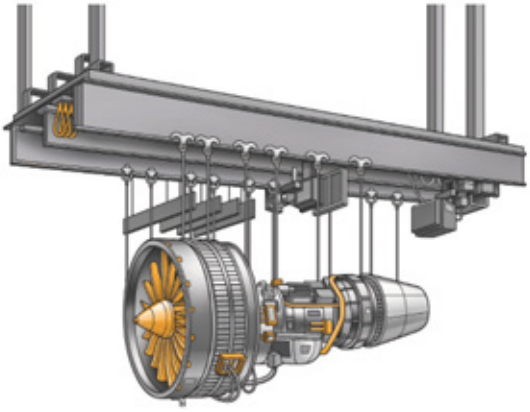


Environmental Test Load Stand

Cable Tension



Engine Hoist



Available Options

- Series Weigh Modules
- Companion Loading Hardware
  - Eyebolts
  - Rod End Bearings
  - Load Buttons
- High Temperature Operation (to 400°F)
- In-Line Analog or Serial Transmitters
- Display/Control Instrumentation
- Junction/Summing Boxes
- Wireless Operation
- MS Connectors
- Shunt Calibration
- Use and Installation Guide
- Custom and OEM Solutions

Commercial Information & Precautions

- Do not exceed specified Maximum Load Limits.
- The Safe Load Limit is the point to which normal loading will not cause the load cell to experience an excessive zero shift or a degradation in performance.
- Use reasonable care when applying load to any load cell. Load limits can be exceeded due to shock loading (i.e. dropping a load onto a load cell), off axis loading, side loading and similar loading conditions that are beyond design capabilities.
- The structural integrity of all load bearing components in any load cell system should be designed with safety redundant load paths. (Overload stops, overhead load arrestors, etc.)
- The surfaces to which the load cell(s) is attached and/or is reacting against must be of sufficient structural integrity to carry loads up to and exceeding the ultimate ratings of the load cell(s) being used, while also taking into account any companion hardware being used in conjunction with the load cell.
- To ensure optimum performance, all measuring system cabling should be run through dedicated conduit when available. Avoid proximity to electrical noise sources and use of “dirty” power sources.
- The load cell cable shield should be connected to a dedicated instrument ground point only.
- Force measurement and weighing applications have numerous application-specific considerations to be addressed both mechanically and electrically. Therefore, installation of all system components are the responsibility of the user and should always be approved by a qualified, professional engineer. Any information provided by Sentran, LLC is intended only as informational and does not constitute a formal recommendation for the use of any product for any application.
- Sentran offers application/installation/use guides on request for most standard products. Please contact your Sentran representative for assistance, or visit our technical library resource at www.sentranllc.com.

Legal Disclaimer

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