



Low Profile Load Cell

PC Series

The PC Series is a high performance, low profile, strain gage load cell constructed of high strength stainless steel. The PC Series is designed to accurately measure tension and compression forces ranging from 0-50 lbs. to 0-10,000 lbs.

The PC Series is a high performance, low profile, bonded foil strain gage load cell constructed of heat treated stainless steel. The PC Series is designed to accurately measure tension and compression forces in capacities ranging from 0-50 lbs. to 0-10,000 lbs. The milled column sensing design coupled with optional loading & mounting accessories produces excellent performance, a very low profile, and reduced sensitivity to eccentric and side loading effects. The inherent low deflection of the PC Series yields a high dynamic response and superior output resolution for applications in structural analysis and materials testing. This load cell is Harsh Environment Sealed (IP67-Limited Immersion) by virtue of proprietary, multi-redundant barriers uniquely integrated to protect all internal components. The integral premium, instrumentation grade cable features a durable Teflon® jacket over a tinned-copper braided shield for superior mechanical protection and to minimize the unwanted electrical effects of RFI and EMI. Optional cable lengths are available as are MS connectors and a shunt calibration feature. The attributes of the PC make it ideal for measurements in the laboratory, structural testing, materials testing, and for general force measurements where a miniature, low profile precision load cell solution is needed.



APPLICATIONS

- Tension/Compression Measurements
- Laboratory Test & Measurement
- Materials Testing
- Dynamic Measurements
- Structural Analysis
- Process Control
- Automotive
- Aerospace

FEATURES

- 50 to 10,000 lbs. Capacities
- Compact Low Profile Design
- 0.1 Accuracy Class
- Milled Column Design
- High Frequency Response
- IP67 Environmental Sealing
- Stainless Steel Construction
- Two Year Warranty



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

SENTRAN, LLC 4355 LOWELL STREET, ONTARIO, CA 91761, U.S.A.
888-545-8988 T: 909-605-1544 FAX: 909-605-6305 www.sentranllc.com

PC Series Specifications

Innovative Measurement Solutions



PERFORMANCE

Rated capacities ⁽¹⁾ (lbs.)	50, 100, 250, 500, 1K, 2K, 3K, 4K, 5K, 7.5K, 10K
Rated Output (FSO)	2 mV/V
Output Tolerance	Nominal
Combined Error Band	≤ 0.15 % FSO
Non-Linearity	≤ 0.15 % FSO
Hysteresis	≤ 0.15 % FSO
Non-Repeatability	≤ 0.05 % of load
Zero balance	± 2.0 % FSO
Creep (20 Minutes)	0.05% of Load

⁽¹⁾ ("K" = thousand)

MECHANICAL

Material	Stainless steel
Finish	Natural
Safe overload	Compression 150 % FSO Tension 150 % FSO Side Load 2 % FSO
Ultimate overload	Compression 250% FSO Tension 250% FSO Side Load 5 % FSO
Deflection	See Dimensions Page
Weight	See Dimensions Page
Mounting Bolt Torque	Torque Table

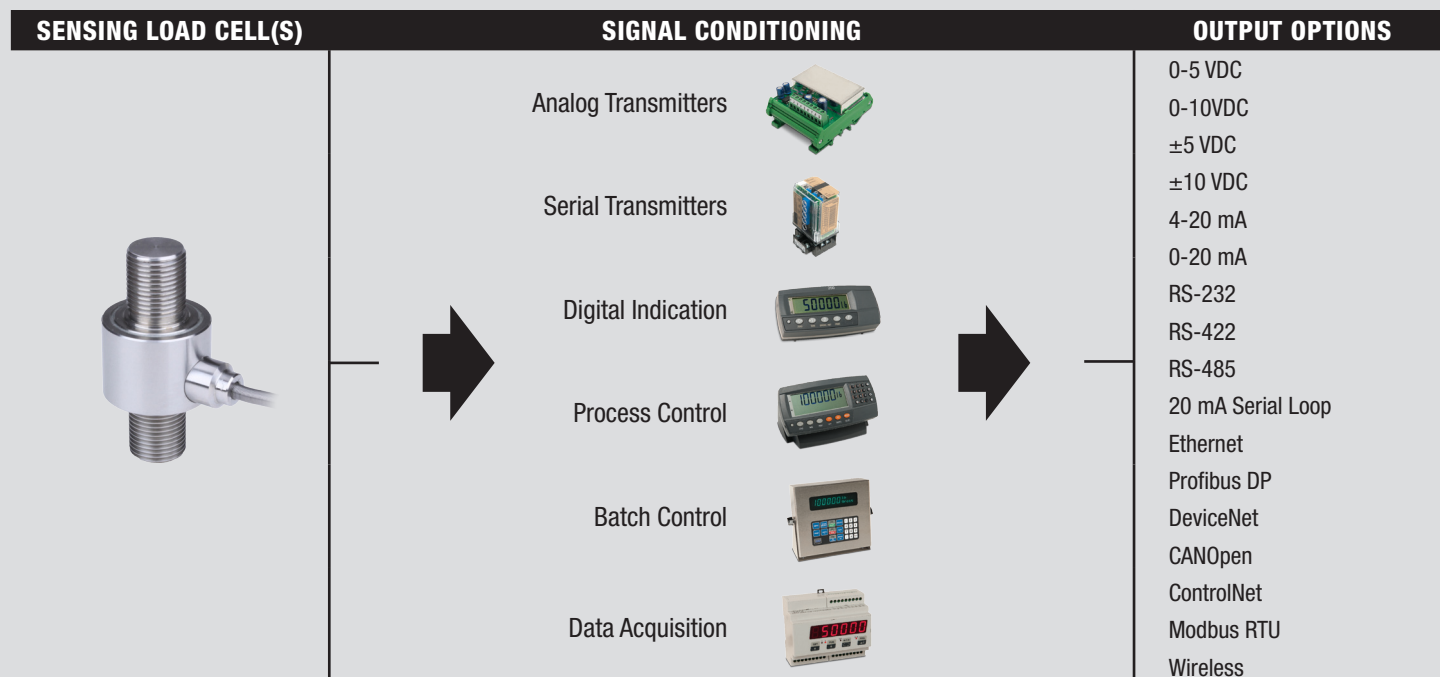
ELECTRICAL

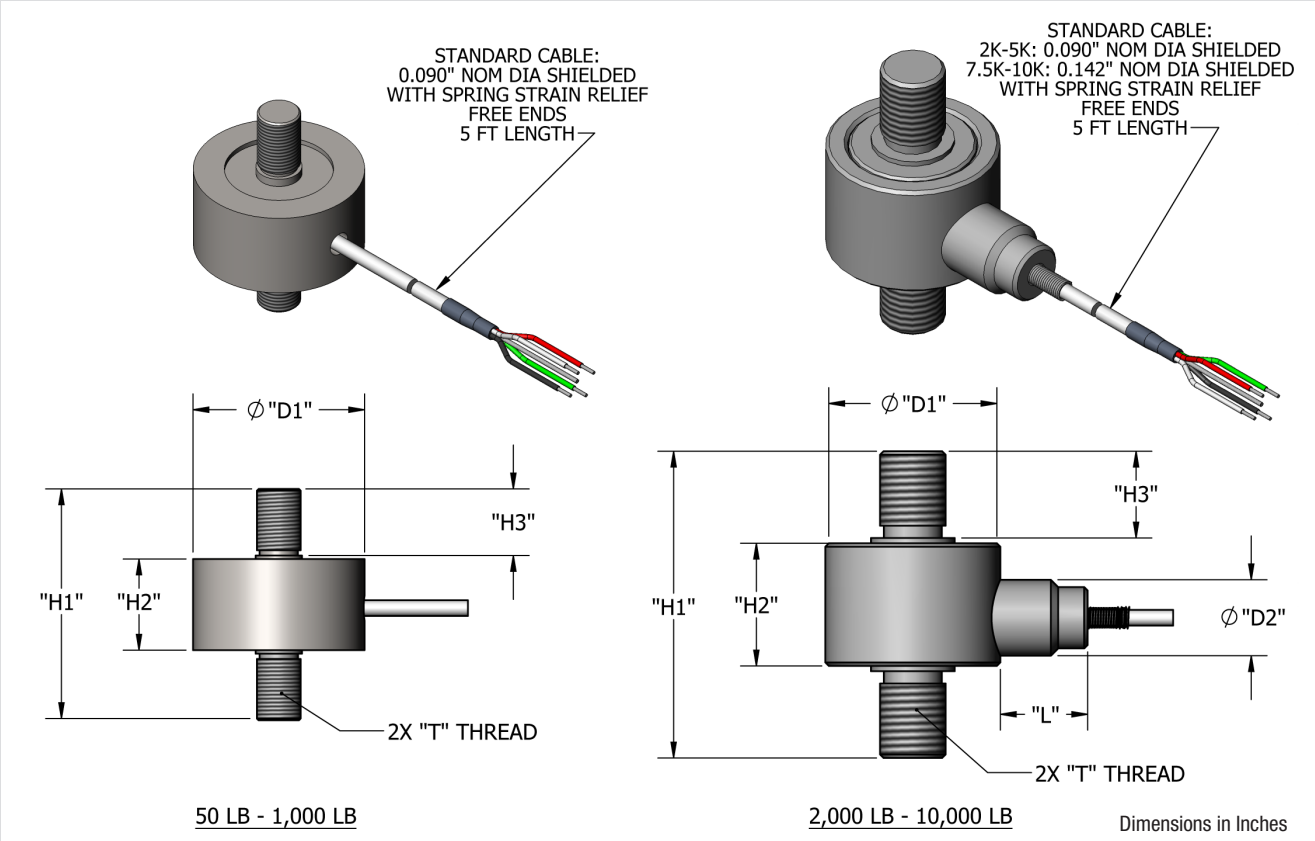
Input Impedance	375 ohms (nominal)
Output Impedance	350 ohms (nominal)
Insulation Resistance	>5000 Megohms @ 50VDC
Excitation Voltage	10 V AC/DC (15 V maximum)
Cable Color Code	+ Excitation (Red) - Excitation (Black) + Signal (Green) - Signal (White) Shield (Natural)
Cable Type	4-conductor, 26 AWG, Teflon® jacket, Tinned Copper Braid, Diameter: 0.090" (50-5K); 0.142" (7.5K-10K)
Cable Length	See Dimensions Table
Cable Termination	Finished Conductors
Cable Seal	Compression Fitting/Strain Relief

ENVIRONMENTAL

Temperature, Operating	-65 to +250 °F (-54 to +120°C)
Temperature, Compensated	15 to +115 °F (-9 to +46°C)
Temperature, Storage	-65 to +300 °F (-54 to +149°C)
Temperature Effects	Zero < 0.005% FSO/°F < 0.009% FSO/°C
Temperature Effects	Output < 0.005% of Rdg./°F < 0.009% Rdg./°C
Sealing	IP67; Multi-redundant; Limited Immersion Tolerance

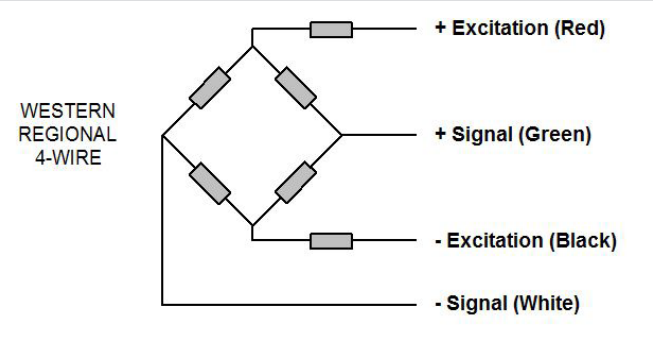
PC Typical System Configuration





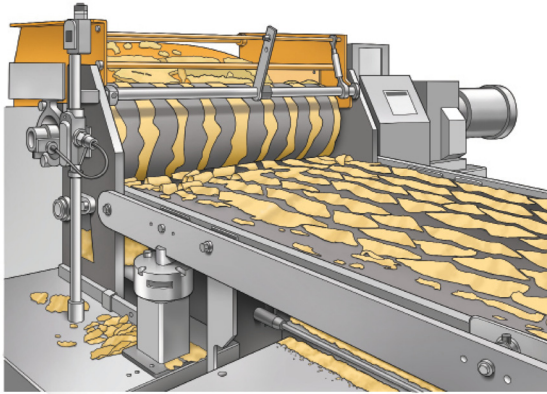
Capacity (LB)	H1	H2	H3	L	D1	D2	T	Deflect	Weight
DIMENSIONS (INCHES)									
50, 100	1.10	0.52	0.25	-	0.98	-	10-32 UNF	0.0010"	0.09 LB
250, 500, 1K	1.32	0.52	0.38	-	0.98	-	1/4-28 UNF	0.0011"	0.10 LB
2K, 3K	1.75	0.70	0.50	0.50	1.00	0.43	3/8-24 UNF	0.0015"	0.18 LB
4K, 5K	2.20	0.90	0.62	0.50	1.25	0.56	1/2-20 UNF	0.0024"	0.28 LB
7.5K, 10K	2.86	1.02	0.88	0.50	1.38	0.59	3/4-16 UNF	0.0030"	0.50 LB

PC Wiring Diagram

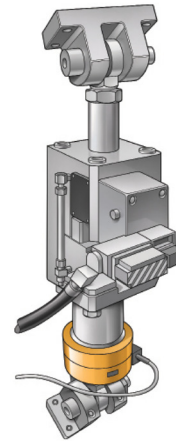




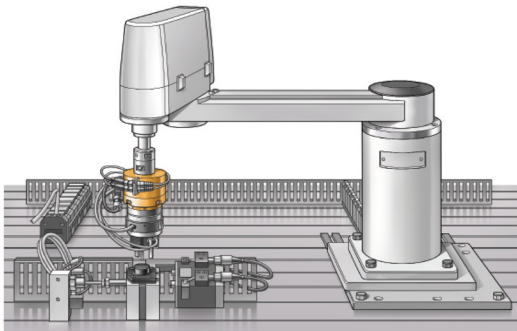
Extrusion/Die-Cutting Control



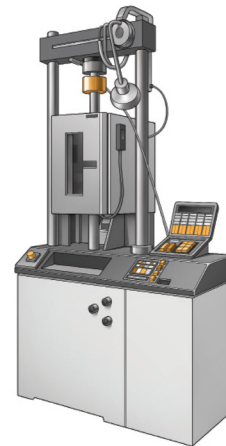
Articulating Actuator Control



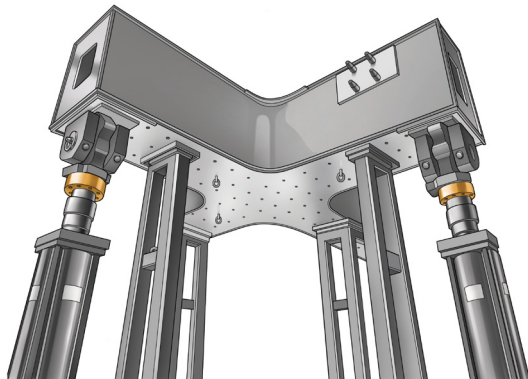
Automated Component Testing



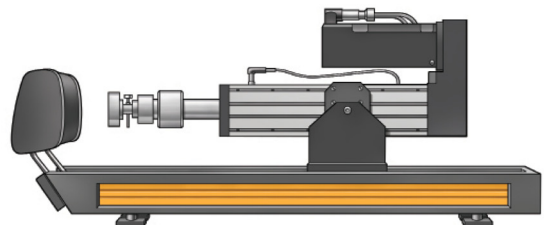
Environmental Test Load Stand



Structural Test Lab



Durability Test Platform





- Base plates
- Load receivers
- 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

Application Recommendations / Suggestions

- The PC Series Compact Low Profile Load Cells are considered to be “universal” in that they are designed to be loaded in compression and/or tension.
- The PC Series Load Cells are ideal for single or multiple load cell measurements typical of test and measurement, weighing, dynamic measurements, load testing systems and similar applications. When used in multiples, it is recommended that matched outputs be specified for optimum performance. Multiple load cell systems should include a Sentran summing/junction box to correctly multiplex the load cell excitation and measurement signals.
- The PC Series Load Cells feature integral mounting studs on each end of the load cell. These load cells may be used in virtually any orientation.
- Load is applied to the load Cell through the threaded studs extending axially from the load cell body. All the threads of the studs should be engaged by the loading member(s), but the loading members should not engage the load cell body.
- The most common loading method is to apply a force axially via the integral threaded studs. Load introduction is best accomplished using devices such as rod end bearings, flexures, or similar loading interfaces providing flexibility for decoupling of off-axis and side loads.
- Off-axis loads and shock loading should be avoided as degraded performance and/or damage to the load cell could occur.
- PC Series Low Profile Load Cells are available in many capacity ranges. These load cells are designed to be used over the complete range of “no load” (0) up to the rated capacity. For example, 1,000 lbs. rated capacity PC Series are designed to be used for measurements within the range of 0 to 1,000 lbs. These load cells can be safely loaded to 150% of rated capacity without affecting the load cell performance within the capacity range.
- The reason for the variety of capacities is to allow the user to select the most ideal capacity for a given application. The most ideal capacity is one in which at least 80% of the capacity range is utilized at some point in the measurement process, without exceeding the rated capacity. This allows the load cell to deliver the highest signal to load ratio, and therefore the highest resolution and most stable measurement. There are other factors to consider, such as excitation voltage, but correct “sizing” of the load cell is the first step. Both the dead load and the live load need to be considered in determining the gross load and the load cell capacity.
- Contact Sentran’s expert Applications Specialists for additional professional guidance.

Commercial Information & Precautions

WARNING!

- 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.

PERSONAL INJURY!

DO NOT USE these products as safety or emergency stop devices or in any other application where failure of the product could result in personal injury.

MISUSE OF DOCUMENTATION

- The information presented in this datasheet is for reference only. DO NOT USE this document as product installation information.
- Complete installation, operation and maintenance information is provided in the instructions supplied with each product.

Failure to comply with these instructions could result in death or serious injury.

Legal Disclaimer

ALL PRODUCTS, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE.

Sentran, LLC, Incorporated, its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, "Sentran, LLC"), disclaim any and all liability for any errors, inaccuracies or incompleteness contained herein or in any other disclosure relating to any product. The product specifications do not expand or otherwise modify Sentran, LLC's terms and conditions of purchase, including but not limited to, the warranty expressed therein. Sentran, LLC makes no warranty, representation or guarantee other than as set forth in the terms and conditions of purchase. To the maximum extent permitted by applicable law, Sentran, LLC, disclaims (i) any and all liability arising out of the application or use of any product, (ii) any and all liability, including without limitation special, consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability. Information provided in datasheets and/or specifications may vary from actual results in different applications and performance may vary over time. Statements regarding the suitability of products for certain types of applications are based on Sentran, LLC's knowledge of typical requirements that are often placed on Sentran, LLC products. It is the customer's responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application. No license, express, implied, or otherwise, to any intellectual property rights is granted by this document, or by any conduct of Sentran, LLC. The products shown herein are not designed for use in life-saving or life-sustaining applications unless otherwise expressly indicated. Customers using or selling Sentran, LLC products not expressly indicated for use in such applications do so entirely at their own risk and agree to fully indemnify Sentran, LLC for any damages arising or resulting from such use or sale. Please contact authorized Sentran, LLC personnel to obtain written terms and conditions regarding products designed for such applications.



SENTRAN

SENTRAN, LLC

4355 LOWELL STREET
ONTARIO, CA 91761-2225, U.S.A.
T: 909-605-1544 F: 909-605-6305

www.sentranllc.com

Innovative Measurement Solutions