



SENTRANNews

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New Data Sheets

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150+ Illustrations

Dual Shear Load Pin

LA Series

The LA Series is an extremely rugged, high performance load pin. The LA Series load pin is designed to accurately measure compression and tension loads ranging from 0-2000 lbs. to 0-600,000 lbs.

The LA Series is an extremely rugged, high performance load pin. The LA Series load pin is designed to accurately measure compression and tension loads ranging from 0-2000 lbs. to 0-600,000 lbs. The result of these three design goals is a load pin that is highly durable, highly accurate, and highly reliable. The LA Series is a high performance load pin that is designed to accurately measure compression and tension loads ranging from 0-2000 lbs. to 0-600,000 lbs.

APPLICATIONS

- Tension/Compression Measurement
- Crane Rigging Systems
- Agricultural Harvesters
- Screen Shaking

FEATURES

- 1500:1 R.O.S. Ratio
- True Real Time
- High Accuracy
- High Precision
- High Reliability
- High Durability
- High Performance
- High Accuracy
- High Precision
- High Reliability
- High Durability
- High Performance

For more information call 1-888-545-8988

INSTANT ANSWERS
Immediate access to measurement experts

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Application Examples

- Excavating
- Landing Gear
- Sprayer Boom
- Vessel Lifting
- Dredging
- Mass Flow

Innovative Measurement Solutions

INSTANT ANSWERS - 888-545-8988

Getting you the necessary information and assistance quickly is what Sentran's new website is all about! Take a look around the site and you'll discover it is packed with useful resources and tools designed to help you get instant answers. And, if you don't find exactly what you're looking for, or if you simply want friendly, helpful assistance, just give us a call or email us and we'll connect you to a knowledgeable applications engineer who can help you find the best solution for your measurement needs.

Worksheets

Comprehensive Support

TechNotes

WorkSheet

Innovative Measurement Solutions

LOAD CELLS
LOAD CELL/FORCE TRANSDUCER WORKSHEET

Fill in or email to SENTRAN Applications Engineering Group (888) 545-8988 or mail@sentranllc.com

CONTACT: NAME: _____ PHONE: _____
 COMPANY: _____ EMAIL: _____
 ADDRESS: _____ CITY: _____ STATE: _____ ZIP: _____

Is Modified to when it may occur:

SENTRAN specializes in non-standard, application-specific measurement solutions, particularly in the Load Pin product segment, where "standard" solutions are often not adequate to meet customer requirements. SENTRAN Load Pins are generally a Dual Shear Design, Center-Loaded and End-Supported.

The Load Pin is instrumented internally utilizing unique, proprietary techniques for precise positioning of strain gauges along the Load Pin barrel and to create a Full Wheatstone Bridge configuration. To ensure proper orientation of the Load Pin when installed, an AR rotation or Rezero device is typically incorporated.

Thank you for the opportunity to be of service. SENTRAN has developed this worksheet as a means for gathering information necessary to make the best product selection recommendations for your load pin application. To that end, please provide complete, accurate information on the following questions for all consultations influencing your application. Once completed, fax or e-mail the document to the attention of SENTRAN Applications Engineering Group (888) 545-8988 or mail@sentranllc.com.

1.0 OPERATIONAL

1.1 Rated Load Capacity (PL):

1.2 Loading Mode (Check one): Compression Tension Universal (R&D)

1.3 Full Scale Output (FSO): mV %

1.4 Display Resolution (Inch): X
 (For example, 10,000 X 1)

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Send email Technical Resources
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Warranty
Submit Resume

TechNote

Innovative Measurement Solutions

LOAD CELL TROUBLESHOOTING GUIDE

Determining the operational condition of a load cell in the field is a relatively simple task for a qualified service technician with the correct tools and a basic knowledge of what to look for. Interestingly, over half of all load cells returned to SENTRAN for repair exhibit "The Problem Found". The following steps can be used to assist in troubleshooting load cells.

TOOLS REQUIRED:

- Multimeter or ohmmeter: Must be able to measure down to 1 micro-ohm (0.00001-ohm) or better. Must be able to measure up to 1 gigaohm (1,000,000,000-ohm) or better. Good leads and clips.
- High resolution (100 counts) power supply: Signal resolution ranges are 500mV or 100mV; more often than not, the power supply of the computer load cell signal conditioner/gage will serve this purpose.
- Electronic bridge loading (small) device: electronic wire displacement test, strain loads, cross loads, 4-8 lb hammer and flagging.

Note: Troubleshooting Weigh Modules and Weighing Systems involve more complexity than load cell troubleshooting techniques. Please consult SENTRAN's website or our Applications Engineering Group for technical assistance when troubleshooting weigh modules and weighing systems.

STEP 1: PERFORM A MECHANICAL INSPECTION

Issues for physical damage: Although many load cells appear to be "simple of steel with a scale attached", they are in fact very sensitive measurement devices. The most common failure mode for a load cell is damage to the cable. Therefore, carefully inspect the cable length of the load cell cable to determine if any nicks, cuts or abrasions are present. Even if a load cell cable exhibits only modest signs of physical damage, there could be an internal problem or moisture contamination.

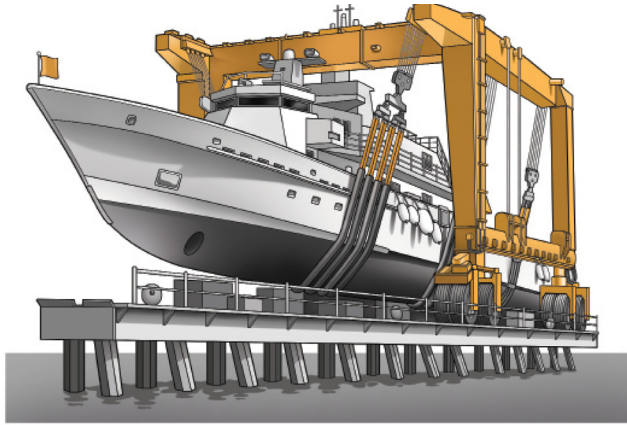
Inspect the load cell element carefully: Look for signs of damage, bending of the load cell or severe corrosion. Inspect for distortion or non-geometry of the metal surface. Measure surfaces, if any, should be parallel to each other and perpendicular to both end surfaces. Any cones, dents, bent or otherwise damaged "hairs" the integrity and flat of the mounting base, supports, plates and other hardware components. The particular orientation to the load surface measurement and alignment. Take notes of any potential loading or interference that could compromise proper load introduction. In the absence of moisture exposure, use the load cell through the gaging, early work or the cable (good fitting or connector) if the load cell element has been physically deformed (permanently bent, for example) it is not repairable.

STEP 2: INSURE THE ZERO SIGNALS

Changes in the load cell's zero signal is a major cause of measuring the user by not recording the full range of the load cell. Other possible cause of zero offset include moisture contamination, cable damage, electrical contact and internal subcomponent breakdown. Mechanical overloading of load cells is the second most common load cell failure mode.

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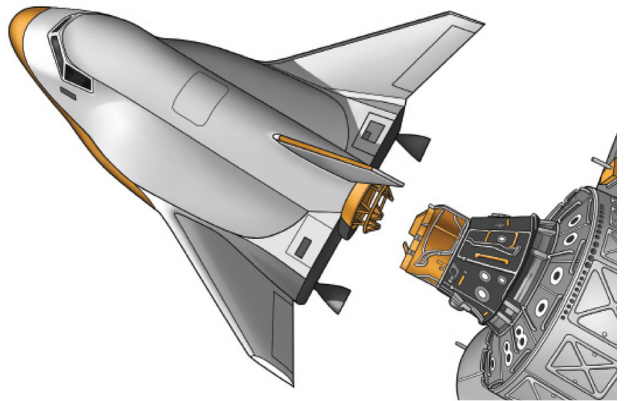


Vessel Lifting

Load pins are gaining popularity in industry today as a convenient method of retrofitting “dummy” pins to determine weight. Load pin capacities range from a few hundred pounds to hundreds of thousands of pounds and are used in a variety of environments from laboratory conditions to subsea applications. But not all load pins are created equal, and saving a few dollars on the cost of a load pin can and often does create significant costs after installation. Such was the case in a vessel lifting application Sentran participates in. Sentran was passed over due to somewhat higher initial cost, but after one year of problems with the lower cost choice, the customer returned to us and has enjoyed the benefit of our charter, “Premium Product/Competitive Price” for years since.

Space Shuttle Systems Support

Bi-axial Sentran Load Pins are integral landing gear components employed in a reusable rocket development program. Specifically, the load pins are installed in a pivot lug for testing the landing legs. According to the user, these landing attempts move us toward our goal of producing a fully and rapidly reusable rocket system, which will dramatically reduce the cost of space transport. Ultimately, their systems will deploy astronauts and supplies to the international space station, with the ultimate goal of commercial use for civilian space travel.



Featured SENTRAN Products

Compact Compression

Compact Universal

Hazardous Environment

Low Profile Load Cell

PA Series

The PA Series is a miniature, low profile, strain gage load cell constructed of heat treated stainless steel. The PA is designed to accurately measure compression forces in capacities ranging from 0-500 lbs. to 50,000 lbs. The integrated strain gage design coupled with a precision ground base provides excellent performance in high pressure, wet and corrosive conditions to accurate and safe loading effects. Their inert low deflection of the PA Series yields a high dynamic response and equal output reaction for applications in structural analysis and material testing. The load cell is Inherently Sealed (IP67) protected from any oil, petroleum, multi-chemical vapors uniquely integrated to protect all internal components. The integral premium instrumentation grade cable features a double "braid" shield over armored copper twisted shield for superior mechanical protection and to minimize the unwanted electrical effects of EMI and RFI. Optional cable lengths are available as are MS connections and a smart calibration feature. The attributes of the PA 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

- Compression Measurements
- Laboratory Load Measurement
- Material Testing
- High Pressure Research
- Structural Analysis
- Process Control
- Automation
- Research

FEATURES

- 100 to 50,000 lbs. Capacity
- Compact Low Profile Design
- 0.1 Accuracy Class
- Mixed Output Design
- High Pressure Research
- IP67 Environment Sealing
- Stainless Steel Construction
- Two Year Warranty

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

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Low Profile Load Cell

PC Series

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 10,000 lbs. The robust column spring design coupled with optional loading in mounting accessories produces excellent performance, a low low profile, and reduced weight to accurate and safe loading effects. The inherent low deflection of the PC Series yields a high dynamic response with superior output resolution for applications in structural analysis and materials testing. The load cell is Inherently Sealed (IP67) protected from any oil, petroleum, multi-chemical vapors uniquely integrated to protect all internal components. The integral premium instrumentation grade cable features a double "braid" shield over a braided copper twisted shield for superior mechanical protection and to minimize the unwanted electrical effects of EMI and RFI. Optional cable lengths are available as are MS connections and a smart 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 Load Measurement
- Material Testing
- System Measurements
- Structural Analysis
- Process Control
- Automation
- Research

FEATURES

- 50 to 10,000 lbs. Capacity
- Compact Low Profile Design
- 0.1 Accuracy Class
- Mixed Output Design
- High Pressure Research
- IP67 Environment Sealing
- Stainless Steel Construction
- Two Year Warranty

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

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Intrinsically Safe Analog Transmitter

JG Series

The JG Series is a multi-function, analog transmitter designed specifically for applications in hazardous environments. The JG Series powers up to four 350 ohm transducers and drives a 500 ohm loop resistance.

Risk Features

- Full Range = 0-100 mV
- Output Range = 0-100 mA (4-20 mA or 0-10 VDC (RS485))
- Two Stage Isolation
- 100 mA Output Current, 2.5 VDC
- Immune to low and high surge transients
- Class III 1000 VDC Line Resistance
- 16:1 EMI/RFI

Other Features

- Intrinsic Safety (Class II, Div 1)
- 0.5% Accuracy
- 0.5% Linearity
- 0.1% Non-Linearity
- 0.1% Hysteresis
- 0.1% Repeatability
- 0.1% Drift
- 0.1% Temperature Coefficient
- 0.1% Load Regulation
- 0.1% Load Linearity
- 0.1% Load Resistance
- 0.1% Load Voltage
- 0.1% Load Current
- 0.1% Load Power
- 0.1% Load Temperature
- 0.1% Load Humidity
- 0.1% Load Pressure
- 0.1% Load Vibration
- 0.1% Load Shock
- 0.1% Load Impact
- 0.1% Load Torque
- 0.1% Load Force
- 0.1% Load Moment
- 0.1% Load Acceleration
- 0.1% Load Deceleration
- 0.1% Load Displacement
- 0.1% Load Strain
- 0.1% Load Stress
- 0.1% Load Temperature
- 0.1% Load Humidity
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Certifications/Approvals/Compliance



The ISO 9000 family addresses the various aspects of quality management and contains some of ISO's best known standards - which provide guidance and tools for companies and organizations who want to ensure that their products and services consistently meet customer's requirements, and that quality is consistently improved. www.iso.org.



FM approvals is the independent testing arm of international insurance carrier, FM Global. FM approvals uses scientific research and testing to make sure products conform to the highest standards for safety and property loss prevention.



NTEP stands for National Type Evaluation Program, which is a non-profit corporation. Scales and other weighing equipment that are NTEP approved have been tested and evaluated to ensure they meet all government standards and requirements.



The National Institute of Standards and Technology (NIST) is a federal technology agency that works with industries to develop and apply technology, measurements, and



The Restriction of Hazardous Substances Directive 2002/95/EC, is a directive relating to the restriction of the use of certain hazardous substances in electrical and electronic equipment. The directive took effect on July 1, 2006. This directive restricts (with exceptions) the use of hazardous materials in the manufacture of various types of electronic and electrical equipment.



GeSI

The Global e-Sustainability Initiative (GeSI) promotes a deep commitment to integrating both social and environmental sustainability in collaboration with existing information and communication technologies.



Eco-friendly refers to environment-friendly goods and services that inflict reduced, minimal, or no harm upon ecosystems or the environment.



The CE marking is a mandatory conformity marking for certain products sold within the European Economic Area (EEA) since 1985. It is similar to the FCC Declaration of Conformity used in the United States. The CE marking is the manufacturer's declaration that the product meets the requirements of the applicable EC directives. The CE marking is a symbol of free marketability in the EEA. (Pending).



Conflict Resource Materials are natural resources extracted in a conflict zone and sold to perpetuate fighting, particularly in the Democratic Republic of the Congo. The most commonly mined conflict minerals are cassiterite (for tin), wolframite (for tungsten), coltan (for tantalum), and gold ore. In the United States, the Dodd-Frank Wall Street Reform and Consumer Protection Act, requires manufacturers to audit their supply chains and report conflict minerals usage.