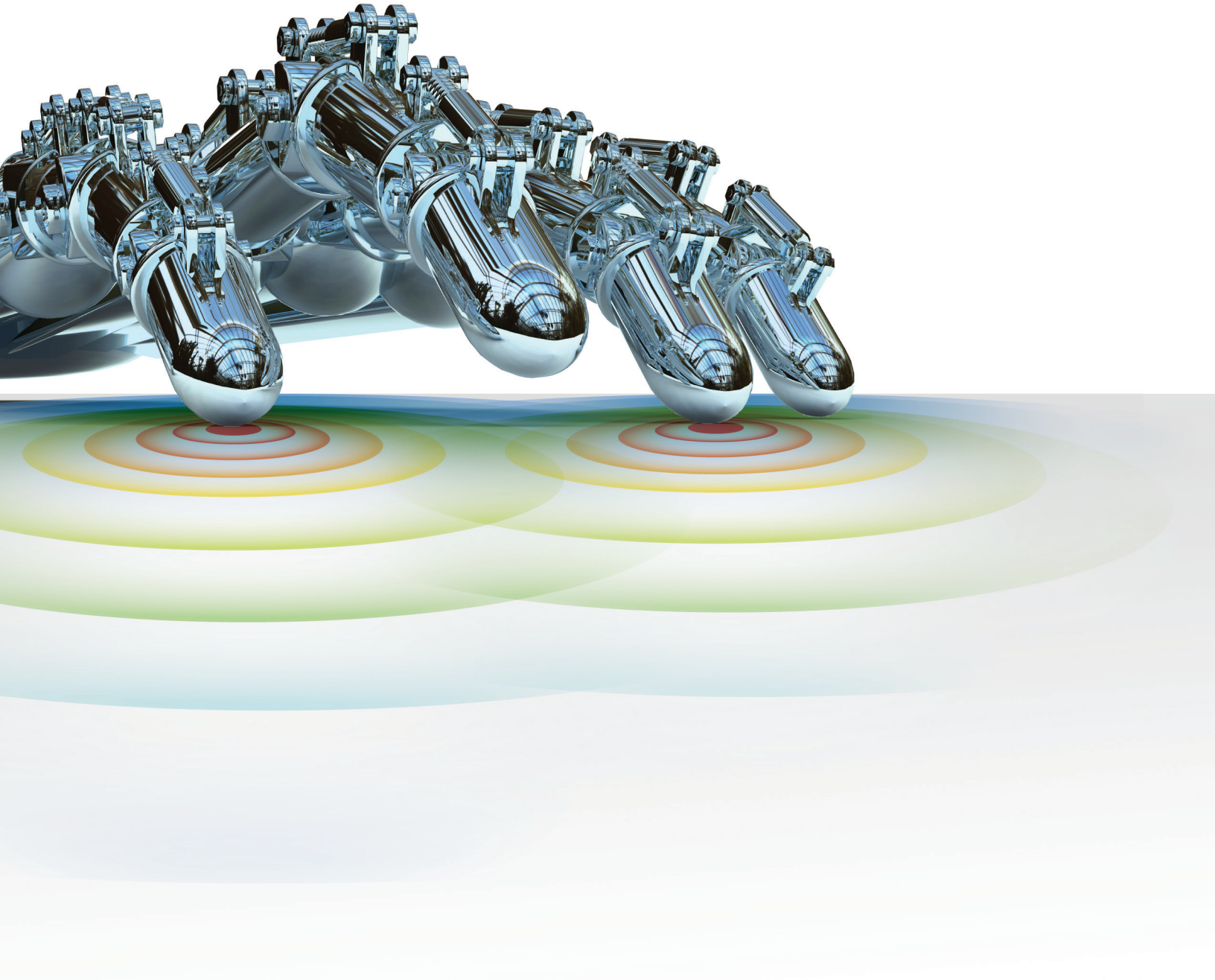
Loadstar® SENSORS
Load Sensing Made Easy

Load Cell Guide

www.loadstarsensors.com
510. 274.1872



Wireless Sensors

XBee Industrial Wireless
DI-1000Z

XBee Industrial Wireless
SC-1200

Wireless Load Cells from Loadstar Sensors

Loadstar offers convenient wireless connectivity to load cells through the WX-100 Cable Free USB Device, the SC-1200 XBee Interface device and the DI-1000Z Wireless Load Cell Interface. Use the WX-100 for lab environments to get about 30 feet of wireless connectivity for up to four digital load cells. For industrial applications, use the twelve channel SC-1200 device for wireless connectivity up to 3000 feet. The new DI-1000Z can work with your existing resistive load cells for true digital, wireless connectivity. Log on to **www.loadstarsensors.com/wireless.html** for more information.

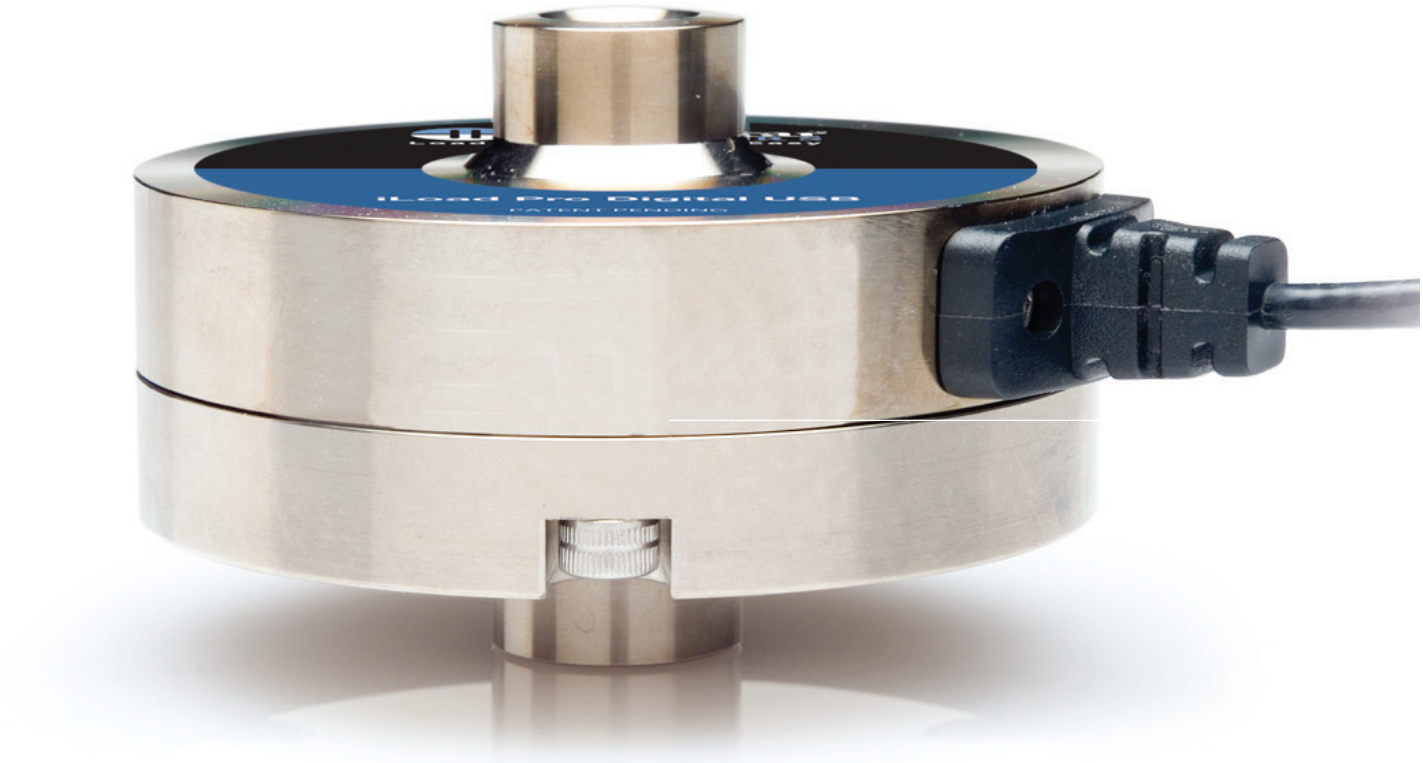
Loadstar® SENSORS
Load Sensing Made Easy

Company Overview

"Digital sensors with easy wired and wireless connectivity to PCs and Handheld Devices—that is the essence of our plug and sense™ technology."

Loadstar Sensors, located in Silicon Valley, California, is a leading producer of cutting edge digital sensing solutions and related software. We currently offer a range of load cells, indicators and software to enable you to quickly measure loads, forces and weights. If you are designing a new product you can prototype your products with these standard products and contact us to customize for your specific requirements.

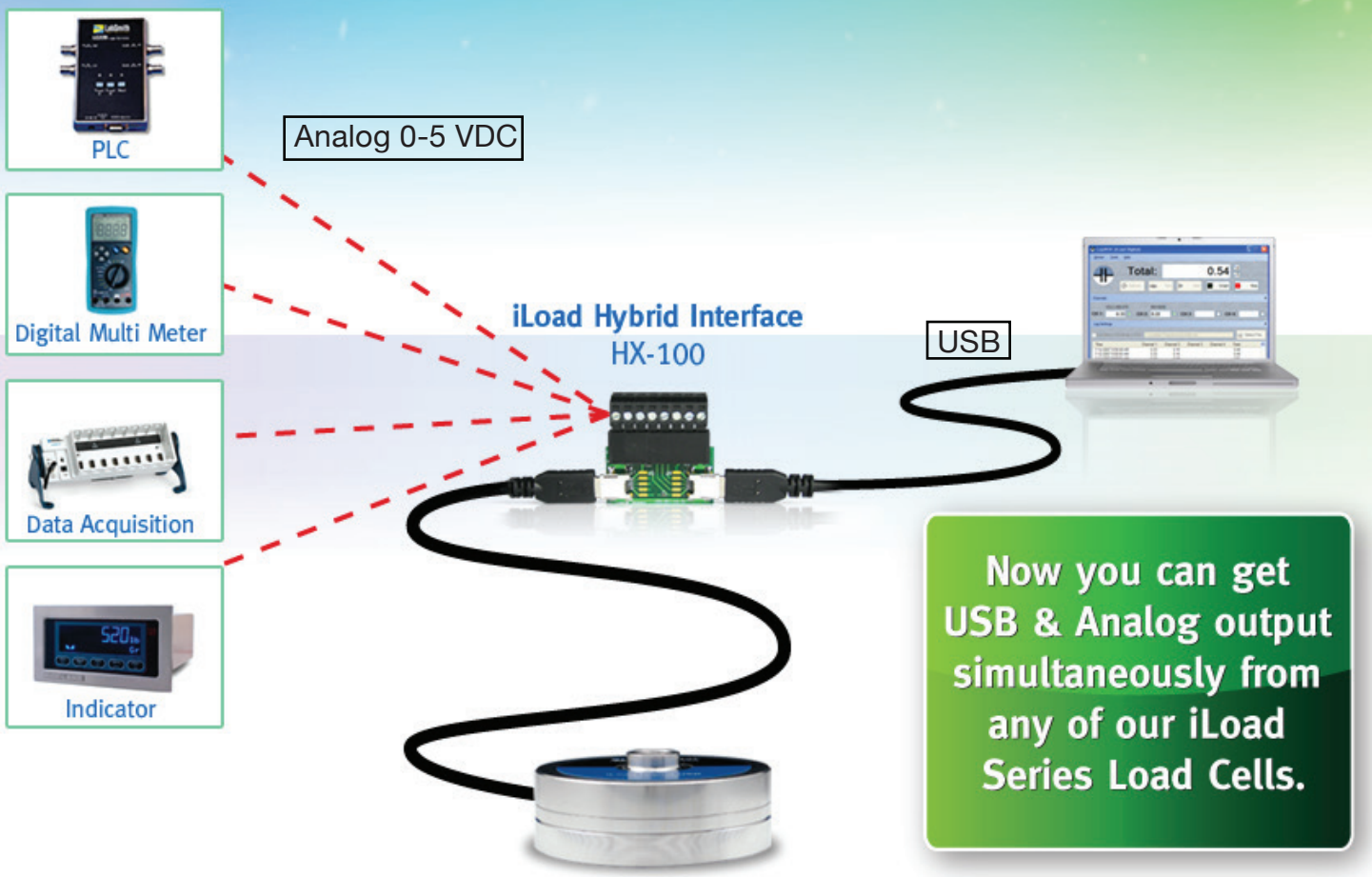
We have a 3000sq. ft. facility in Fremont, California where we have R & D, manufacturing and quality control operations.



For further information please visit our website at www.loadstarsensors.com or you can contact us via mail at:

Loadstar Sensors
48501 Warm Springs Blvd., Suite 109,
Fremont, CA 94539
Phone : (510) 274-1-USB or (510) 274-1872 Fax: (510) 552-3700

Analog or Digital Output? Why not have both.



Analog Output

The interface accepts power from your PC and outputs an analog 0.5V – 4.5V DC signal proportional to the applied load. The full scale output range is 4000 mV — two hundred times that of traditional strain-gauge-based load cells. This signal can easily be measured using commonly available digital multi-meters or with programmable logic controllers (PLC).

Digital USB Output

USB load cells offer direct measurement of static loads via the USB port of a PC. No need for signal conditioners, data acquisition systems or special software. Just connect and start measuring!
In addition, you can use Visual Basic, Visual C++, Matlab, LABView or any other application development environment to create your custom applications with our sensors.

Loadstar® SENSORS
Load Sensing Made Easy

Customers

We also work closely with partners to develop new products based on our core technology. Below is a small sample of our customer base.

Medical

- Medtronic
- BD
- Abbott – A Promise for Life
- Boston Scientific – Delivering what's next.
- velomedix
- Wyeth
- MGH 1811

Education/Research

- Berkeley
- PARALLAX – www.parallax.com
- NASA
- Virginia Tech Transportation Institute
- UWP
- Purdue
- The University of Vermont

Auto/Aerospace

- Tesla
- TRW
- Goodrich
- BMW
- Johnson Controls
- Goodyear
- Boeing
- Space Systems Loral
- Denso
- Federal Mogul
- BAE Systems

Consumer/Industrial

- Eastman
- intel
- Google
- GE
- Whirlpool
- Aqua Polar™ – Purified Water and Ice Systems
- Sealy
- Kraft
- General Mills
- AGFA – Agfa

Government/Military

- U.S. Army
- USGS
- UL
- USDA
- Los Alamos National Laboratory
- Natural Resources Canada

Awards

- LAUNCH: Silicon Valley – Most Likely to Succeed 2008
- ECN 2007 Readers Choice Tech Awards – 2007 Winner
- siliconindia si100 2006 & 2007
- 2007 Frost & Sullivan – North American Load Sensors Product Innovation of the Year Award
- Sensors & Transducers Magazine – Best Sensor Products 2007

Our Guarantee

At Loadstar Sensors, we believe that our innovative products can add real value to products and processes that need to measure loads/weights/forces. We make it easy for you to measure loads... and lower your cost.

To make it convenient for you to buy and use our products, we offer:

- 30 day money back guarantee
- Price match on competitors' quote plus 10% off
- Payment via VISA, Mastercard AMEX or Paypal

Give us a call or e-mail us at **sales@loadstarsensors.com** for additional information

⚠ WARNING

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.

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

⚠ WARNING

MISUSE OF DOCUMENTATION

- The information presented on the website, catalog, manual or specifications sheets are for reference only.
- 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.

Warranty Policy

Loadstar Sensors warrants the products covered hereby to be free from defects in material and workmanship. Loadstar Sensors liability under this guarantee shall be limited to repairing or furnishing parts to replace, f.o.b. point of manufacture, any parts which within 90 days from date of shipment of said products from Loadstar Sensors plant, fail because of defective workmanship or material performed or furnished by Loadstar Sensors.

The foregoing is buyer's sole remedy and is in lieu of all warranties, expressed or implied, including those of merchantability and fitness for a particular purpose. In no event shall Loadstar Sensors be liable for consequential, special, or indirect damages.

As a condition hereof, such defects must be brought to Loadstar Sensors attention for verification when first discovered, and the material or parts alleged to be defective shall be returned to Loadstar Sensors if requested. Loadstar Sensors shall not be liable for transportation or installation charges, for expenses of Buyer for repairs or replacements or for any damages from delay or loss of use for other indirect or consequential damages of any kind. Loadstar Sensors may use refurbished products or equivalent products of improved designs to replace any product returned under this warranty. This guarantee shall not apply to any material which shall have been repaired or altered outside of Loadstar Sensors's plant in any way, nor to any defect due in any part to misuse, negligence, accident or any cause other than normal and reasonable use.

In consideration of the forgoing guarantees, all implied warranties are waived by the Buyer. Loadstar Sensors does not guarantee quality of material on parts specified or furnished by Buyer, or other parties designated by buyer, if not manufactured by Loadstar Sensors. If any modifications or repairs are made to this equipment without prior factory approval, the above warranty becomes null and void.

Calibration

Our load cells are calibrated in our facility under optimal environmental conditions. The accuracy and other specifications in our data sheets, catalog, website and quotations are provided for the sensor as calibrated in our facility and not for the final application in which the sensor may be used. The sensor performance may change from specified accuracy values depending on the particular method of use and the environmental conditions under which the sensor is used. Loadstar sensors assumes no responsibility whatsoever for actual performance during use and disclaims any express or implied warranty, relating to accuracy and/or use of Loadstar Sensors products in your application.

Loadstar Sensors recommends that you recalibrate the sensors every six months BUT at least once a year. If the sensor is used in continuous mode of operation for thousands of cycles per month - then we highly recommend that you recalibrate the sensors every quarter for optimum accuracy and performance.

Please contact our sales team at sales@loadstarsensors.com or 510-623-9600 to schedule recalibrations periodically.

Repair Policy

A nonrefundable analysis charge of $150.00 will be made on each out-of-warranty product returned to Loadstar Sensors for repair. Loadstar Sensors will provide a repair quotation based upon the analysis. The $150.00 will be applied towards the repair cost of the instrument/transducer. If repair is not required, the instrument/transducer will be returned to the customer and any shipping charges will be billed to the customer.

The maximum repair price will be billed at seventy percent (70%) of the current catalog price.

For all communication about Repair Order Status or pricing, please contact the Loadstar Sensors Customer Service at sales@loadstarsensors.com or 510-623-9600.

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Edition 4 . Q1' 2014

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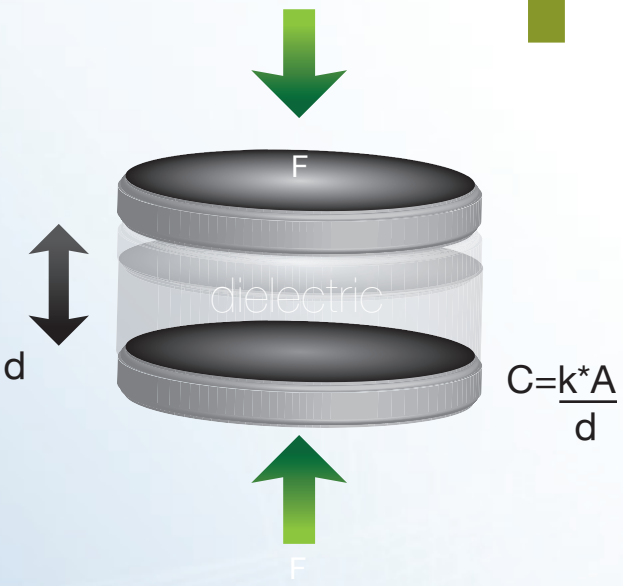
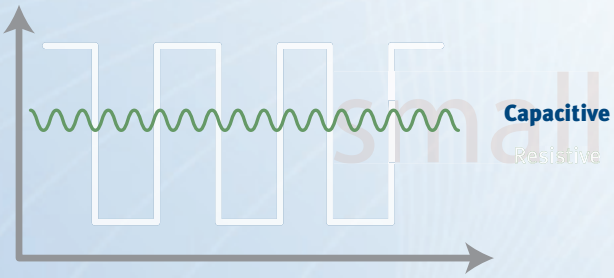
sensitive

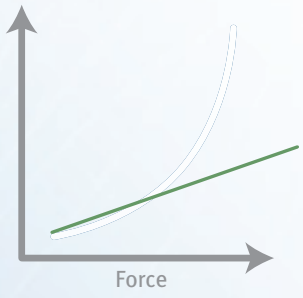
capaciti



Capacitance is the ability of a device to store an electronic charge. In a parallel plate capacitor, the amount of charge that can be stored is directly proportional to the area between the two plates and inversely proportional to the distance between the plates. If the plates are separated by a spring, upon application of a force, the distance between the plates is reduced by the amount of spring deflection. This deflection leads to a change in capacitance, which can be calibrated and used to deduce unknown loads.



Digital Output



Higher Sensitivity

rugged

ve sensing technology

economical

A: Why Capacitance?

Most load cells are built using strain gauges. Strain gauges generate signal in the micro to millivolt range in response to an applied input voltage of typically 10 V. This means the span of the signal is at most 20–40 mV for the entire range of measurements.

This tiny signal is susceptible to external influences and requires advanced signal conditioning, digitization and calibration for further use.

The Loadstar capacitive approach offers much larger change in signal and a digital frequency baseline output which is impervious to external noise. This gives our sensors a huge advantage in building rugged, but sensitive sensing solutions in small packages.

Conventional Load Cell Configuration

Analog | Big | Complex | Expensive

Digital Load Cell Configuration

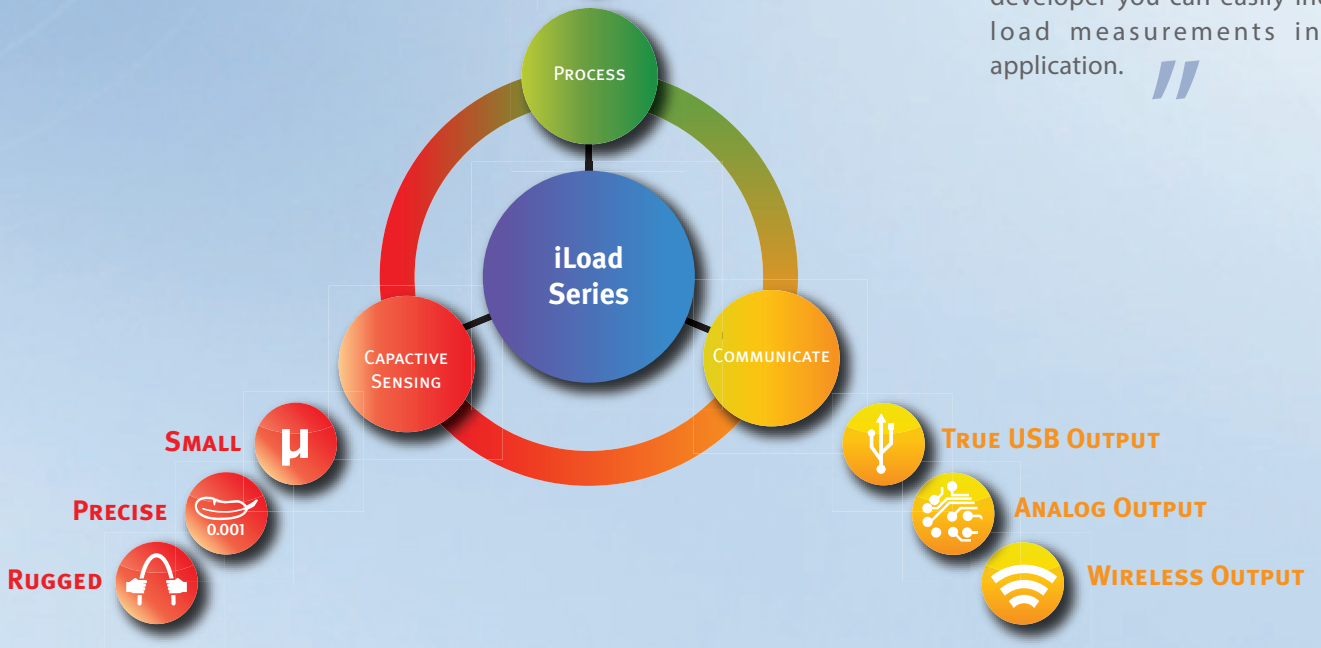
Digital | Integrated | Low Profile | Easy to Use | Low Cost

iLoad series

iLoad Pro

- Easy Mounting
- lbs. Stored Calibration
- ASCII ASCII Command Set

"The iLoad Series sensors combine sensing, processing and communications into an integrated easy to use solution. You don't have to be an engineer to use a load cell! If you're a software developer you can easily incorporate load measurements into your application."



LoadVUE Software

Display. Log. Plot. Alerts.

USB Relay

Control devices such as lights, alarms, motors, pumps, actuators or any other device up to 220V/2 Amps.

"The iLoad Series brings Plug and Sense® simplicity to load measurement. You can simply plug in our digital load cell to the USB port of your PC or connect it to any USB compliant wired or wireless hub and start measuring! You can also display force data and control devices using our ds-3000 display controller."

to PC

Relays

DS-3000

iLoad

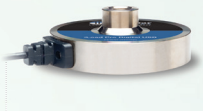
Digital Load Cell Comparison

iLoad Mini Load Cell

iLoad Mini Pro Load Cell

iLoad Digital Load Cell

iLoad TR Digital Load Cell



iLoad Pro Digital Load Cell

	iLoad Mini Load Cell	iLoad Mini Pro Load Cell	iLoad Digital Load Cell	iLoad TR Digital Load Cell	iLoad Pro Digital Load Cell
Diameter	1.25 in.	2 in.	3 in.	3 in.	3.25 in.–4 in.
Height	0.25 in.	0.79 in.	0.5 in.	1.2 in.	0.66 in.–0.90 in.
Capacities	10, 50, 100, 200 lb.	500, 1000, 2500, 5000, 10000	50, 100, 250, 500 lb.	2, 5, 10, 25, 50, 100 lb.	50, 100, 250, 500, 1000, 2500, 5000, 10000 lb.
Mounting	Dome or Threaded Stud	Dome	Dome	Robust Female 0.5 in. threaded boss	Robust Female 0.5 in. threaded boss
Cable Strain Relief	Yes	Yes	No	Yes	Yes
Off Center Loading	No	No	No	Yes	No
Calibration	Tension / Compression / Universal	Compression ONLY	Compression ONLY	Tension / Compression / Universal	Tension / Compression / Universal
Signal Conditioner	DQ-1000/DQ-4000	DQ-1000/DQ-4000	Built in	Built in	Built in
Compatible Display	DS-4000	DS-4000	DS-3000	DS-3000	DS-3000

Note: All iLoad Series Load Cells are available with Serial TTL as an optional interface. These load cells are ideal for short duration, room temperature applications.

Capacitive load cells

iLoad Digital USB Low Profile

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The Digital USB series of load cells offer direct measurement of compressive loads via the USB port of a PC. This load cell is ideal for educational and research applications. No need for signal conditioners, data acquisition systems or special software. Just connect and start measuring!

Capacities: 50, 100, 250 & 500 lbs.
Key Dimensions: 3" Diameter, 0.505" Height
Output Options: USB, Analog (0.5–4.5V DC) or Hybrid (USB & 0.5–4.5V DC)

iLoad Pro Digital USB Load Cell

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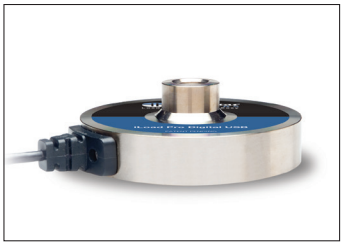
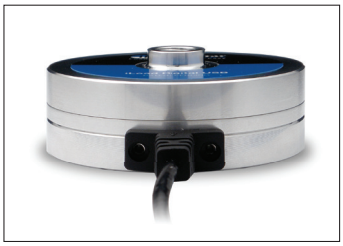


The iLoad Pro Digital USB load cell is similar to the iLoad Digital USB load cell. However these have a boss with threaded hole on top to make it easier to fasten things to it! It can also be used in compression, tension or universal modes if calibrated appropriately. The iLoad Pro Series offers greater ruggedness and improved cable strain relief for more demanding industrial applications.

Capacities: 50, 100, 250, 500, 1000, 2500, 5000 & 10000 lbs.
Key Dimensions: 3.25" Diameter, 1.2" Height (up to 2500 lb)
4" Diameter, 1.72" Height (up to 10000 lb)
Output Options: USB, Analog (0.5–4.5V DC) or Hybrid (USB & 0.5–4.5V DC)

iLoad TR Digital USB Load Cell

page 15



The iLoad TR Digital USB load cell is designed for applications requiring reduced sensitivity to off-center loading.

Capacities: 2, 5, 10, 50 & 100 lbs.
Key Dimensions: 3" Diameter, 1.2" Height
Output Options: USB, Analog (0.54.5V DC) or Hybrid (USB & 0.54.5V DC)

iLoad Mini Miniature Load Cell

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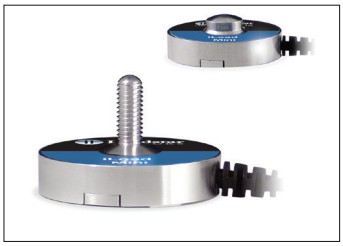

The iLoad Mini Series load cell is designed for applications where size is a major constraint. The iLoad Mini is only 1.25" in diameter and outputs a 5V TTL square wave whose frequency is proportional to applied loads.

Capacities: 10, 50, 100 & 200 lbs.
Materials: Available in Aluminum or Stainless Steel
Key Dimensions: 1.25" Diameter, 0.39" Height (dome)
1.25" Diameter, 0.81" Height (threaded stud)
Recommended Signal Conditioners: DQ–1000, DQ–4000 or DS-4000

Capacitive load cells

iLoad Pro Mini Miniature Load Cell

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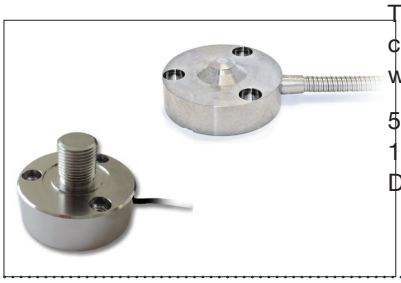

The iLoad Mini Pro Series load cell is designed for applications where size is a major constraint. The iLoad Mini Pro is only 2" in diameter and outputs a 5V TTL square wave whose frequency is proportional to applied loads.

500, 1000, 2500, 5000 & 10000 lbs.
1" Diameter, 0.79" Height
DQ–1000, DQ–4000 or DS–4000

iLoad Mini Bite Load Cell

Page 23

Loadstar's iLoad Mini Pro load cell is based on the same capacitive technology as the iLoad sensors. However, it differs in one important respect–the Mini Pro outputs a square wave whose frequency is proportional to the applied load. The Mini Pro, one of the smallest sensors currently offered by Loadstar Sensors.

500, 1000, 2500, 5000 & 10000 lbs.
1" Diameter, 0.79" Height
DQ–1000, DQ–4000 or DS–4000

iLoad Flex Capacitive Sensors Intelligent Tactile Pressure & Force Measurement

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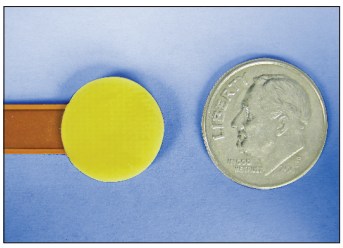

The iLoad Pro Digital USB load cell offers direct measurement of tensile or compressive loads via the USB port of a PC. No need for signal conditioners, data acquisition systems or special software. Just connect and start measuring! The iLoad Pro Series offers greater ruggedness and improved cable strain relief for more demanding industrial applications.

Capacities: 10, 100 & 1000 lbs.
Key Dimensions: 0.5" Diameter, 0.1" Height (iLoad Flex)
1" Diameter, 0.41" Height (up to 100 lb iLoad Flex Pro)
1" Diameter, 0.98" Height (up to 1000 lb iLoad Flex Pro)
Output Options: USB wireless.
Recommended Signal Conditioners: CI-2000

Interfaces & Displays for Capacitive Load Cells

DQ-1000 Single Channel Frequency to USB Converter

page 27

The Loadstar Sensors DQ-1000 Single Channel Frequency Interface provides a simple and convenient way for users to convert the frequency output of an iLoad Mini sensor to either a USB digital output (DQ-1000U) or analog outputs (DQ-1000A) of 0.5V—4.5V DC and 0—20 mV. When ordered together with an iLoad Mini sensor, the DQ-1000A will be calibrated to the sensor to enable Plug and Sense simplicity, or compatibility with legacy displays that accept 2 mV/V input.

DQ-4000 Four Channel Frequency to USB Converter

page 28

The Loadstar Sensors DQ-4000 Four Channel Frequency Interface provides a simple and convenient way for users to convert the frequency output of up to 4 iLoad Mini sensors to either a USB digital output or wireless XBee output. Additionally, the DQ-4000 can be used with our iLoad Digital USB series sensors to build a scale with ease.

Available Upgrades: Wireless Connectivity

DS-4000 Four Channel Frequency to USB Display

page 31

The Loadstar Sensors DS-4000 Four Channel Frequency Interface provides a simple and convenient way for users view data from up to four iLoad Series Sensors and uplink to a PC via USB uplink. When ordered together with four iLoad Mini sensors, the DS-4000 can be used to construct a platform scale.

Available Upgrades: Backup Battery & Wireless Connectivity

DS-3000U Display and Controller

page 32

The DS-3000 Four-Channel LED Display is an integral device incorporating display, interface device and a controller combined in one. It allows users to connect up to four of our digital USB load cells and view individual and/or total loads in three different units: Kilograms, Pounds and Newtons. A user can also interface with a PC via USB uplink. Optional relay outputs allow users to activate relays based on load limits in order to control up to 2 external devices.

Available Upgrades: Backup Battery

SC-1200 Sensor Concentrator

page 33

The SC-1200 is a scalable data acquisition system for measuring loads and forces using Loadstar's iLoad series load cells. Each SC-1200 supports 12 load cells or resistive load cells with D1-1000 interface. Multiple SC-1200s can be daisy-chained together to form a sensor iLoad services network farm of up to 3000 load cells. Only a single uplink to the host PC is needed to access any or all sensor data in the farm!

Available Upgrades: Wireless Connectivity

Interfaces for Capacitive Load Cells

HX-400 Four Port USB Wired Hub

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Simultaneously connect up to four load cells to your notebook or desktop PC with the Loadstar Sensors HX-400 USB Wired Hub. Works on all PCs with a USB port operating on Windows XP or Vista.

HX-700 Seven Port USB Wired Hub

Page 35

Simultaneously connect up to seven load cells to your notebook or desktop PC with the Loadstar Sensors HX-700 USB Wired Hub. Works on all PCs with a USB port operating on Windows XP or Vista. Compatible with LV-7000 Software.

WX-100 Wireless USB Adapter Set

Page 36

Replace bulky USB cables with Wireless Connectivity. The WX-100 USB single channel wireless USB adapter set has a range of 30 Feet and lets you easily connect one iLoad Series load cell access them wirelessly at any time. Simply connect your load cells and start measuring!

WX-400 Four Port Cable Free USB Hub

Page 33

The WX-400 USB Wireless Hub has a range of up to 30 feet and lets you easily connect one to four load cells and access them wirelessly. The hub operates out of the box as a plug-and-play solution for Windows XP or Vista. Simply connect your load cells and start measuring!

EX-500 Five Port Network-Enabled Hub

Page 34

The EX-500 is a network-enabled USB hub that makes it easy to connect up to five of our iLoad Series Load Cells or our USB compatible interfaces anywhere on a Local Area Network. Simply connect our digital USB sensors to the EX-500 hub, connect the hub to a LAN/WAN router and access data from sensors on any PC connected to the network.

Interfaces for Capacitive Load Cells

HX-100 iLoad Hybrid Interface

page 36

Our HX-100 interfaces allows users to get USB & Analog outputs simultaneously from any of our iLoad Series Load Cells. The interface accepts power from your PC and outputs an analog 0.5V – 4.5V DC signal proportional to the applied load AND also outputs a Digital USB signal via the USB port of your PC.

UX-100 5 Meter Active USB Extender Cable

Page 36

This cable contains active electronics which boost the USB signal for maximum reliability and performance over extended distances. Up to 3 of these USB Active Extension cables can be linked together to extend the distance to your USB Load Cell to nearly 60 feet.

USB Single Pole Switchover Relay

page 37

Controls a single pole switchover relay through a USB port. Ideal for access control, laboratory or process control applications.The device comes with a driver CD that once installed allows controlling of the device through our LoadVUE Relay Software.

S2R UART (Serial TTL) to RS232 Converter

page29

The Loadstar Sensors S2R Interface provides a simple and convenient way for users to convert the UART/Serial TTL from a number of our devices to a RS-232 output compatible with most PLC's. Once connected to a PLC, the PLC can issue simple ASCII commands to access calibrated sensor information such as loads, forces, torques, etc. in standard engineering units.

Notes

iLoad Digital USB™ Integrated Load Cell

"The iLoad Digital USB load cells offer direct measurement of static loads via the USB port of a PC. No need for signal conditioners, data acquisition systems or special software. Just connect and start measuring!"

Alternative Configurations

With Inline Female Adapter (IX-300)

Highlights

Capacitive Load Cell Technology

- Digital Integrated Electronics
- Standard USB output
- Power supplied via USB port
- Integrated power conditioning
- Stored calibration

Rugged Construction

- Compact design with low profile
- Stainless steel construction
- Mechanically robust

Easy Attachments

- Convenient dome on top and mounting holes on bottom of sensor

Ordering Information

Used in Compression Only		
iLoad Digital	Digital - USB	Analog
10 pounds	LUD-010-100-S	LAD-010-100-S
50 pounds	LUD-050-025-S	LAD-050-025-S
100 pounds	LUD-100-025-S	LAD-100-025-S
250 pounds	LUD-250-025-S	LAD-250-025-S
500 pounds	LUD-500-025-S	LAD-500-025-S

*Analog option available with HX-100 Hybrid interface breakout board or as Pigtail Optron

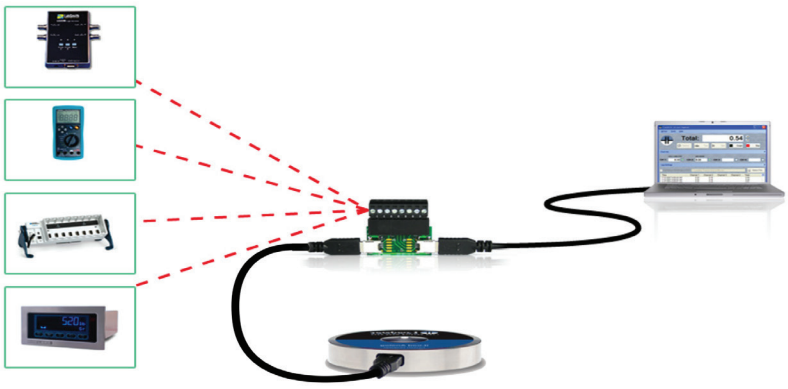
Overview

Loadstar's iLoad Digital USB load cells provide unprecedented integration of sensing and measurement electronics to provide Plug and Sense™ simplicity for compressive load and force measurements.

Here's How It Works

Simply connect the digital load cell to a PC via the USB port. The digital load cell appears on the PC as a virtual COM port. Using a standard terminal emulator, send commands to the sensor to directly display sensor outputs in pounds as ASCII text. You can query loads one reading at a time or get a continuous stream of readings. Alternatively, further simplify load and force measurements using our application software (LoadVUE or LoadVUE Lite). You can easily get load data into your custom application using our simple ASCII command set with real load information in ASCII format.

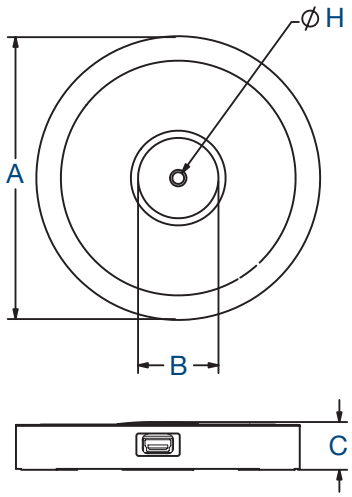
Hybrid Configuration

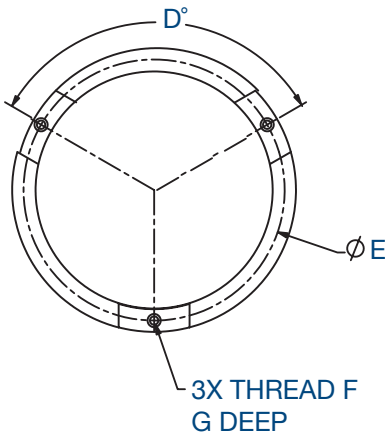


Dimensions

Capacity	lb
	10, 50, 100, 250 & 500 lb.
A	3.000 in./ 76.20 mm
B	0.850 in./ 21.59 mm
C	0.505 in./ 12.83 mm
D	3 x 120.0°
E	2.760 in./ 70.11 mm
F	#4-40 UNC
G	0.250 in./ 06.35 mm
H*†	⌵ ø 0.23 in./ 05.84 mm x 90°

* For alignment only, not a usable thread.
† Hardness: 40-47 (Rockwell C)





Accuracy Specifications At Room Temperature ~25°C

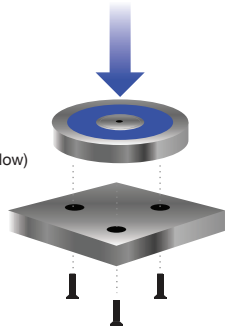
Accuracy • with tare (% of FS)	10 lb	50, 100, 250 lb	500 lb.
Non-linearity	± 1%	± 0.25%	± 0.25%
Hysteresis	± 1%	± 0.25%	± 0.25%
Non-repeatability	± 1%	± 0.25%	± 0.25%

Load Cell Specifications

Data Update Rate	150 Hz (500 Hz available)
Safe Overload	to 150% of capacity
Deflection	0.003-in typical at rated capacity
Sensor Size	3-in. OD, 0.505-in thick top-to-bottom
Input Power	input power from USB Digital Output - USB 2.0 (5V at 60mA)
Creep, in 20 min	±0.03% of full scale
Operating Temperature Range	10°C to 40°C, non-condensing
Temperature Effect on Span	up to ±0.05% full scale/°C (from calibration temperature)
Connector Information	Standard female 5-pin USB mini-B connector
Mating Table	USB 5-pin mini-B to male USB-A 6' long included Optional 10' cable available Optional 16' active extender cable available (UX-100)

Suggested Mounting

1. 5V DC (Red)
2. D- (White)
3. D+ (Green)
4. Optional Analog (Yellow)
5. Ground (Black)



Optional analog 0.5V-4.5V DC output can be obtained between pins 4 and 5 using HX-100 breakout board.

The load cell is circular with a gentle dome (3-in. radius) on its upper surface. The flat bottom surface has three slightly stepped areas 120° apart with mounting holes tapped to accept #4-40 screws. Mount the load cells on a flat surface and apply loads perpendicular to the sensor body. Off-center or laterally-applied loads will reduce accuracy. Avoid side loads and twisting loads. Suggest using a small steel ball to center the load. Use under steady temperature conditions for best results.

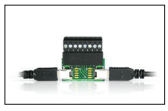
Certifications

CE FC RoHS 2002/95/EC

Compatible Accessories

Digital Interfaces


DS-3000U
Display & Controller


HX-100
iLoad Hybrid Interface


HX-700
Wired USB Hub


WX-100
Wireless USB Hub


EX-500
Ethernet Hub


SC-1200
Sensor Concentrator


HX-400
Wired USB Hub

Hardware Accessories

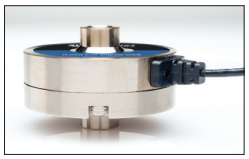
Software

LV-100	page 127
LV-400	page 128
LV-1000	page 127
LV-4000	page 128
LV-4000R	page 128
LV-4000HS	page 128
LV-4000CG	page 129
SensorVUE	page 128

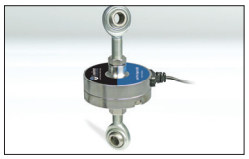
iLoad Pro Digital USB™ Integrated Load Cell

The iLoad Pro Digital USB load cells offer direct measurement of static loads via the USB port of a PC. No need for signal conditioners, data acquisition systems or special software. Just connect and start measuring! The iLoad Pro Series offers greater ruggedness, better mounting and cable strain relief for more demanding applications.

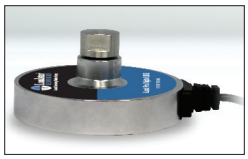
Alternative Configurations



With Inline Adapter (TX-325)



With In-line Adapter (TX-325) & Rod Ends (RE-1220)



With Load Button (LB-1220)

Highlights

Capacitive Load Cell Technology

- Digital Integrated Electronics
- Standard USB output
- Power supplied via USB port
- Integrated power conditioning
- Stored calibration

Rugged Construction

- Compact design with low profile
- Stainless steel construction
- Mechanically robust
- Weather-resistant packaging available.

Easy Attachments

- Convenient mounting on top and bottom of sensor

Ordering Information

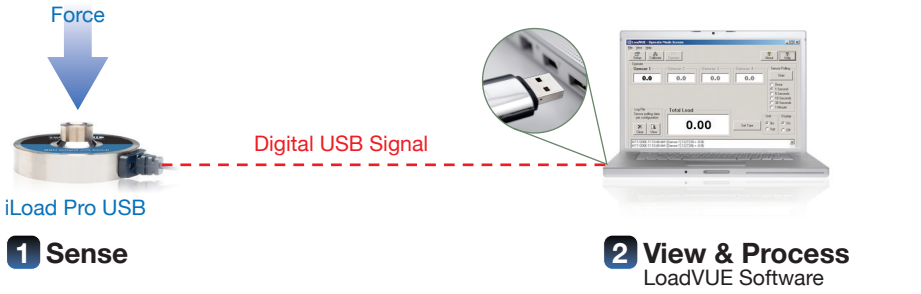
Multiple Load Cell Capacities		
iLoad Digital	Part No.	Analog
50 pounds	PUF-050-025-S	PAF-050-025-S
100 pounds	PUF-100-025-S	PAF-100-025-S
250 pounds	PUF-250-025-S	PAF-250-025-S
500 pounds	PUF-500-025-S	PAF-500-025-S
1,000 pounds	PUF-01K-025-S	PAF-01K-025-S
2,500 pounds	PUF-2HK-100-S	PAF-2HK-100-S
5,000 pounds	PUF-05K-100-S	PAF-05K-100-S
10,000 pounds**	PUF-10K-200-S	PAF-10K-200-S

*Analog option available via HX-100 or as pigtail. Please Specify
** Special order

Overview

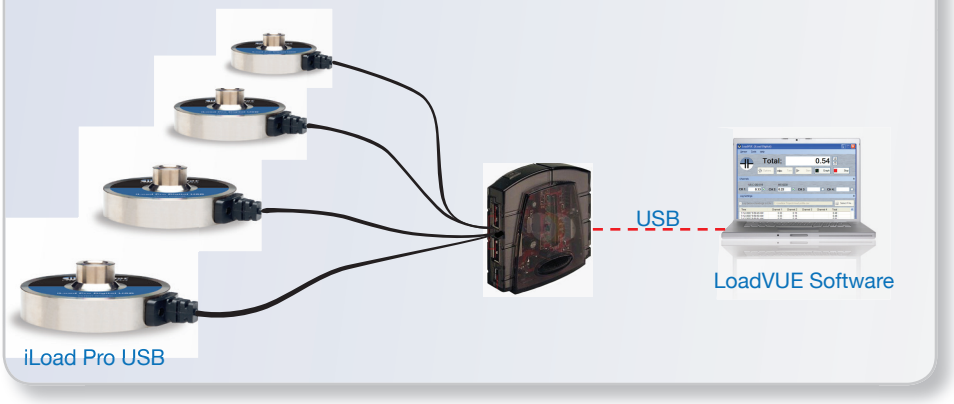
Loadstar's iLoad Pro Digital USB Series provides unprecedented integration of sensing and measurement electronics to provide Plug and Sense™ simplicity for load and force measurements.

Here's How It Works



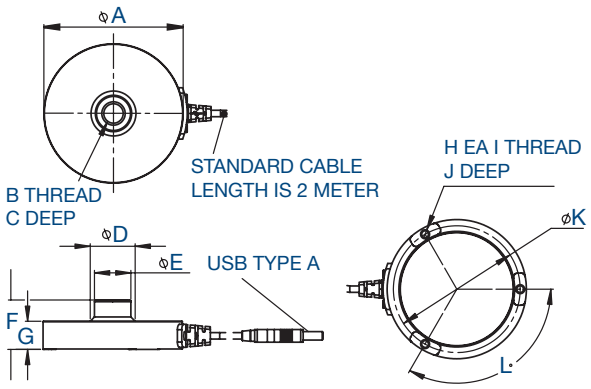
Simply connect the digital load cell to a PC via the USB port. The digital load cell appears on the PC as a virtual COM port. Using a standard terminal emulator, send commands to the sensor to directly display sensor outputs in pounds as ASCII text. You can query loads one reading at a time or get a continuous stream of readings. Alternatively, further simplify load and force measurements using our application software (LoadVUE or LoadVUE Lite). You can easily get load data into your custom application using our simple ASCII command set with real load information in ASCII format.

Four Sensor Kit with USB output



Dimensions

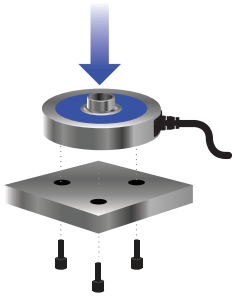
Capacity	lb						
	50 lb.	100 lb.	250 lb.	500 lb.	1,000 lb.	2,500 lb.	5,000 lb.
A	3.25 in.						4 in.
B	#1/2-20 UNF-2B						#7/8-14 UNF-2B
C	0.4 in.						0.75 in.
D	0.89 in.	0.94 in.	0.97 in.	1.05 in.	1.25 in.	1.25 in.	1.69 in.
E	0.85 in.	0.85 in.	0.85 in.	0.85 in.	0.85 in.	0.85 in.	1.25 in.
F	1.16 in.	1.16 in.	1.16 in.	1.16 in.	1.2 in.	1.2 in.	1.72 in.
G	0.66 in.	0.66 in.	0.66 in.	0.66 in.	0.7 in.	0.7 in.	0.90 in.
H	3						6
I	#10-32 UNF-2B						#1/4-20 UNC-2B
J	0.4 in.						0.5 in.
K	2.96 in.						3.44 in.
L	120˚						60˚



Pin Outs

1. 5V DC (Red)
2. D- (White)
3. D+ (Green)
4. Optional Analog (Yellow)
5. Ground (Black)

Suggested Mounting



Optional analog 0.5V-4.5V DC output can be obtained between pins 4 and 5 using HX-100 breakout board.

Accuracy Specifications At Room Temperature ~25°C

Accuracy • with tare (% of FS)	50, 100, 250, 500 lb.	1,000 lb.	2,500, 5,000 lb.	10,000lb.
Non-linearity	± 0.15%	± 0.25%	± 1%	± 2%
Hysteresis	± 0.15%	± 0.25%	± 1%	± 2%
Non-repeatability	± 0.15%	± 0.25%	± 1%	± 2%

Load Cell Specifications

Data Update Rate	150 Hz (500 Hz available)
Safe Overload	to 150% of capacity
Deflection	0.003-in. typical at rated capacity
Sensor Size	3.25 to 4-in. OD, 1.15 to 1.72-in thick top-to-bottom
Input Power	Input power from USB Digital Output - USB 2.0 (5V at 60mA)
Creep, in 20 min	± 0.03% of full scale
Operating Temperature Range	10°C to 40°C, non-condensing
Temperature Effect on Span	up to ±0.05% full scale/°C (from calibration temperature)
Mating Cable	USB 5-pin mini-B to male USB-A 6' long included Optional 10' cable available Optional 16' active extender cable available (UX-100)

The load cell is circular with a female threaded mounted surface at the top of the load cell. The flat bottom surface has three slightly stepped areas 120˚ apart with tapped mounting holes. Mount the load cells on a flat surface and apply loads perpendicular to the sensor body. Off-center or laterally-applied loads will reduce accuracy. Avoid side loads and twisting loads. Use under steady temperature conditions for best results.

Certifications

CE FC RoHS 2002/95/EC

Compatible Accessories

Digital Interfaces

DS-3000U
Display & Controller

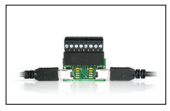
HX-400
Wired USB Hub

HX-700
Wired USB Hub

WX-100
Wireless USB Hub

EX-500
Ethernet Hub

SC-1200
Sensor Concentrator



HX-100
iLoad Hybrid Interface

Hardware Accessories

TX-325/400
Inline Adaptors

RE-1220/7814
Rod Ends

FP-1220
Foot Pedal

Caster Wheels

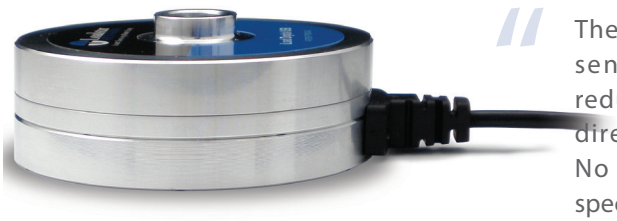
EB-1220
Eye Bolt

LB-1220/7814
Load Button

LF-1220
Leveling Foot

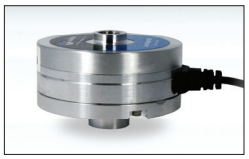
Software

iLoad TR Digital USB™ Integrated Load Cell

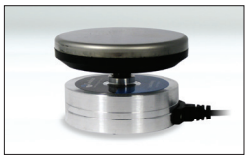


"The iLoad TR Series load cell based on our patented capacitive sensing technology is designed for applications requiring reduced sensitivity to off-center loading. These load cells offer direct measurement of static loads via the USB port of a PC. No need for signal conditioners, data acquisition systems or special software. Just connect and start measuring!"

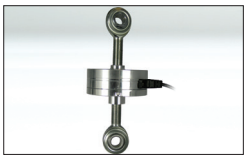
Alternative Configurations



With Inline Adapter (TX-300TA)



With Rod End (RE-325)



With Tension Adapter (TX-300TA) & Rod Ends (RE-325)

Highlights

Capacitive Load Cell Technology

- Digital Integrated Electronics
- Standard USB output
- Power supplied via USB port
- Integrated power conditioning
- Stored calibration

Rugged Construction

- Compact design with low profile
- Aluminum or Stainless Steel construction
- Mechanically robust
- Weather-resistant packaging available.

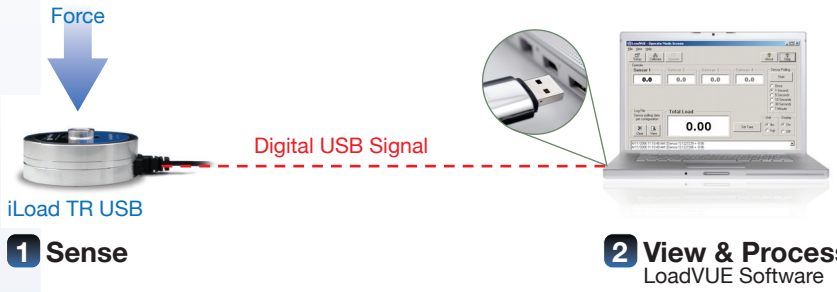
Easy Attachments

- Convenient, robust mounting on top and bottom of sensor

Overview

The iLoad TR Digital Series of load cells provide unprecedented integration of sensing and measurement electronics to offer Plug and Sense™ simplicity for load and force measurements.

Here's How It Works



Simply connect the digital load cell to a PC via the USB port. The digital load cell appears on the PC as a virtual COM port. Using a standard terminal emulator, send commands to the sensor to directly display sensor outputs in pounds as ASCII text. You can query loads one reading at a time or get a continuous stream of readings. Alternatively, further simplify load and force measurements using our application software (LoadVUE or LoadVUE Lite). You can easily get load data into your custom application using our simple ASCII command set with real load information in ASCII format.

Ordering Information

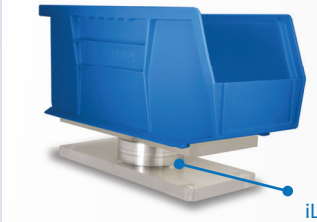
Multiple Load Cell Capacities Compression or Tension Load Cells		
iLoad TR Digital	Part No.	Analog
2 pounds	TUF-002-100-A	TAF-002-100-A
5 pounds	TUF-005-100-A	TAF-005-100-A
10 pounds	TUF-010-050-A	TAF-010-050-A
50 pounds	TUF-050-025-A	TAF-050-025-A
100 pounds	TUF-100-025-S	TAF-100-025-S

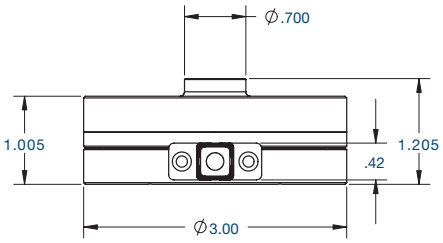
*Analog option available via HX-100 or as pigtail. Please Specify

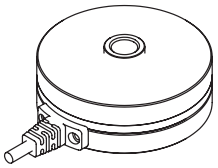
Additional Configurations

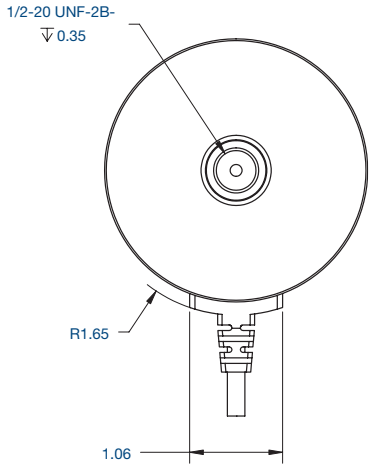
Inventory Management Scales

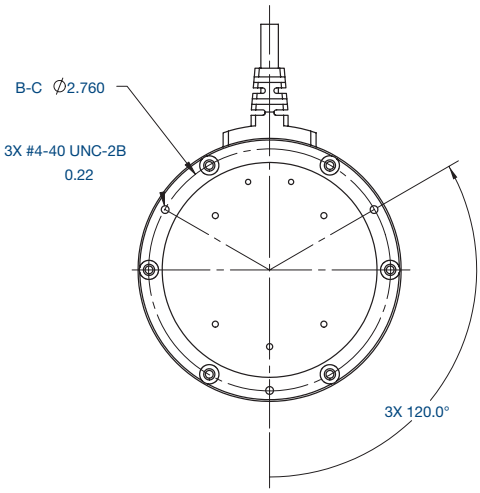
Rack & Louvre Scales











Accuracy Specifications At Room Temperature ~25°C

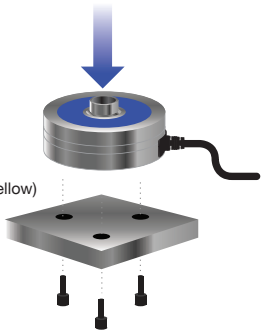
Accuracy • with tare (% of FS)	2 lb.	5 lb.	10 lb.	50 lb.	100 lb.
Non-linearity	± 1%	± 1%	± 0.5%	± 0.25%	± 0.25%
Hysteresis	± 1%	± 1%	± 0.5%	± 0.25%	± 0.25%
Non-repeatability	± 1%	± 1%	± 0.5%	± 0.25%	± 0.25%

Load Cell Specifications

Off Center Loading	± 1% or better @ 0.625 in. from center
Data Update Rate	150 Hz (500 Hz available)
Safe Overload	to 150% of capacity
Deflection	0.003-in typical at rated capacity
Sensor Size	3-in. OD, 1.2-in thick top-to-bottom
Input Power	Input power from USB Digital Output - USB 2.0 (5V at 60mA)
Mating Cable	USB 5-pin mini-B to male USB-A 6' long included Optional 10' cable available Optional 16' active extender cable available (UX-100)
Creep, in 20 min	± 0.03% of full scale
Operating Temperature Range	10°C to 40°C, non-condensing
Temperature Effect on Span	up to ±0.05 % full scale/°C (from calibration temperature)
Mating Cable	USB 5-pin mini-B to male USB-A 6' long included Optional 10' cable available Optional 16' active extender cable available (UX-100)

Suggested Mounting

1. 5V DC (Red)
2. D- (White)
3. D+ (Green)
4. Optional Analog (Yellow)
5. Ground (Black)



Optional analog 0.5V-4.5V DC output can be obtained between pins 4 and 5 using HX-100 breakout board.

The load cell is circular with a female threaded mounted surface at the top of the load cell. The flat bottom surface has multiple stepped areas with tapped mounting holes. Mount the load cells on a flat surface and apply loads perpendicular to the sensor body. Avoid side loads and twisting loads. Use under steady temperature conditions for best results.

Certifications

CE FC RoHS 2002/95/EC

Compatible Accessories

Digital Interfaces

DS-3000U
Display & Controller

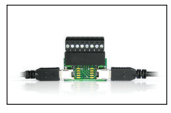
HX-400
Wired USB Hub

HX-700
Wired USB Hub

WX-100
Wireless USB Hub

EX-500
Ethernet Hub

SC-1200
Sensor Concentrator



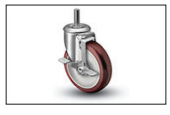
HX-100
iLoad Hybrid Interface

Hardware Accessories

TX-300TA
Inline Adaptor

RE-325
Rod End

FP-325
Foot Pedal



Caster Wheels

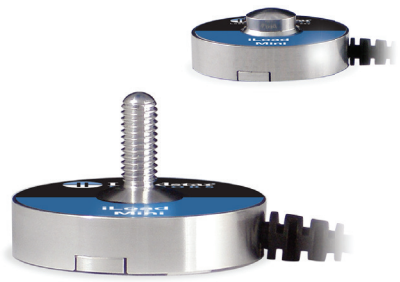
EB-325
Eye Bolt

LB-325
Load Button

LF-325
Leveling Foot

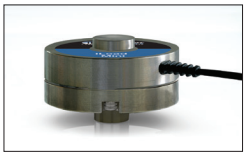
Software

iLoad Mini™ Stainless Steel Miniature Load Cell



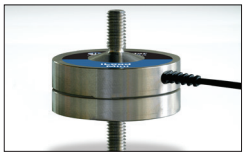
"The iLoad Mini Series load cell is designed for applications where size is a major constraint. The iLoad Mini is only 1.25" in diameter and outputs a 5V TTL square wave whose frequency is proportional to applied loads."

Alternative Configurations

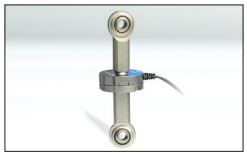


With Inline Adapter (IX-125)

With Inline Adapter (IX-125)



With Tension Adapter (TX-125)



With Tension Adapter (TX-125) & Rod Ends (RE-125)

Highlights

Capacitive Load Cell Technology

- Simplifies load measurements
- Standard 5V DC input
- 5V TTL frequency output
- Temperature compensated

Integrated Load Cell Electronics

- Large signal to noise ratio
- Saves space & reduces clutter

Rugged & Reliable

- Stainless Steel Construction
- Mechanically robust design
- Weather-resistant packaging available.

Ordering Information

Multiple Load Cell Capacities Compression or Tension Load Cells	
Threaded Stud	Part No.
10 pounds	MFM-010-050-S
50 pounds	MFM-050-050-S
100 pounds	MFM-100-050-S
200 pounds	MFM-200-050-S

Multiple Load Cell Capacities Compression only Load Cells	
Domed Top	Part No.
10 pounds	MFD-010-050-S
50 pounds	MFD-050-050-S
100 pounds	MFD-100-050-S
200 pounds	MFD-200-050-S

Overview

Loadstar's iLoad Mini load cell is based on the same capacitive technology as the iLoad and iLoad Pro sensors. However, it differs in one important respect–the Mini outputs a square wave whose frequency is proportional to the applied load. The Mini, the smallest sensor currently offered by Loadstar Sensors, is a small circular sensor with a diameter of just 1.25 in. and is available with either a threaded stud or a load button on top of the sensor. It has three threaded holes on the bottom of the sensor to easily mount the sensor with commonly available hardware.

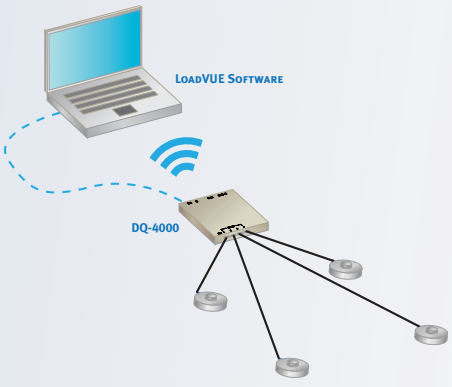
Unlike conventional resistive load cells based on either strain gauges or piezo-resistive techniques, Loadstar's breakthrough patented technology harnesses changes in capacitance to measure loads quickly and accurately. In the Mini, the change in capacitance is converted into a change in frequency of the output signal.

The sensor accepts a 5V DC input and outputs a TTL square wave whose frequency is proportional to the applied load. Most data acquisition systems, microprocessors and microcontrollers have the capability to measure the frequency of the signal.

If one wants an analog (0.5 V—4.5V or 2mV/V) or digital USB output from the iLoad Mini the DQ-1000A or DQ1000U are available options.

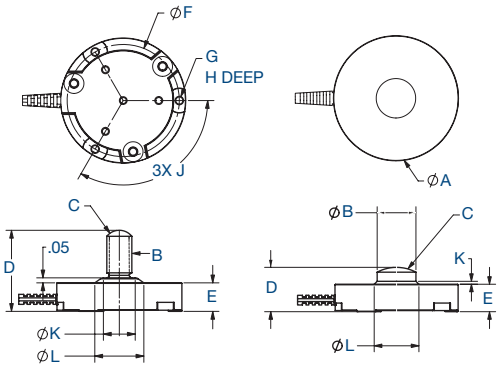
iLoad Mini™
Wired or Wireless Kit

Our new iLoad Mini Kits includes four iLoad Mini load cells, one DQ-4000U and our LV-4000 software. Wireless connectivity is also available as an option.



Dimensions

Capacity	Domed Top				Threaded Stud			
	10 lb.	50 lb.	100 lb.	200 lb.	10 lb.	50 lb.	100 lb.	200 lb.
A	1.25 in.							
B	Ø 0.270				#10-32 UNF-2A		#¼-28 UNC-2A	
C	R 0.41 in.				R 0.094		R 0.016	
D	0.394 in.				0.81 in.			
E	0.285 in.				0.285 in.			
F	1.12 in.				1.12 in.			
G	#2-56 UNC-2B				#2-56 UNC-2B			
H	0.20 in.				0.20 in.			
J	120°				120°			
K	0	0	0.02 in.	0.055 in	0.27 in.	0.30 in.	0.32 in.	0.32 in.
L	0.27 in.	0.27 in.	0.47 in.	0.47 in.	0.27 in.	0.40 in.	0.49 in.	0.49 in.



Accuracy Specifications At Room Temperature ~25°C

Accuracy • with tare (% of FS)	
Non-linearity	± 0.5%
Hysteresis	± 0.5%
Non-repeatability	± 0.5%

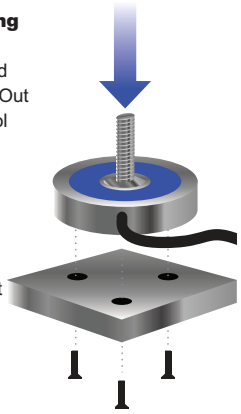
Load Cell Specifications

Data Update Rate	150 Hz (500 Hz available)
Safe Overload	to 150% of capacity
Deflection	0.02-in typical at rated capacity
Sensor Size	125 OD, for height see table above
Input Power	Regulate 5V at 60 mA
Output	5V TTL variable frequency signal Calibration parameters provided by Loadstar
Connections	Integrated 6 ft. cable with pigtail for terminal attachment or 5 pin male USB mini-B Connector
Creep, in 20 min	±0.03 % of full scale
Operating Temperature Range	10°C to 40°C, non-condensing
Temperature Effect on Span	up to ±0.05% full scale/°C (from calibration temperature)

Suggested Use

Pigtail Wiring
Red - 5V DC
Black - Ground
Green - Freq. Out
White - Control

USB Mini-B Pinout
1. 5V DC
2. Control
3. Freq. Out
4. No Connect
5. Ground



The load cell is circular with a dome or threaded stud (see outline) on top. The flat bottom surface has three slightly stepped areas 120° apart with mounting holes tapped to accept #2–56 screws. Mount the load cells on a flat surface and apply loads perpendicular to the sensor body. Off-center or laterally-applied loads will reduce accuracy. Avoid side loads and twisting loads. Use under steady temperature conditions for best results

Certifications

CE RoHS 2002/95/EC

Compatible Accessories

Recommended Interfaces


DQ-1000U/DQ-1000A


DQ-4000


DS-4000

Digital Interfaces • interfaces require dq-1000u


DS-3000U
Display & Controller


HX-400
Wired USB Hub


HX-700
Wired USB Hub


WX-400
Wireless USB Hub


EX-500
Ethernet Hub

Hardware


RE-125


TX-125

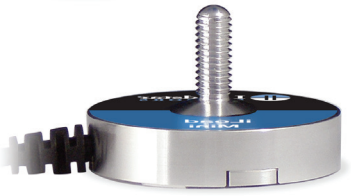

SC-1200
Sensor Concentrator


UX-100
USB Extender

Applicable Software • w/DQ-1000U, DQ-4000 or DS-4000

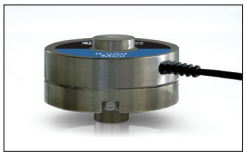
LV-100	see page 127	LV-4000R	see page 128
LV-400	see page 128	LV-4000HS	see page 128
LV-1000	see page 127	LV-4000CG	see page 129
LV-4000	see page 128	SensorVUE	see page 128

iLoad Mini™ Aluminum Miniature Load Cell

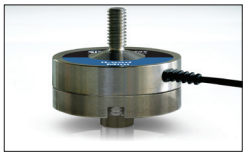


"The iLoad Mini Series load cell is designed for applications where size is a major constraint. The iLoad Mini is only 1.25" in diameter and outputs a 5V TTL square wave whose frequency is proportional to applied loads."

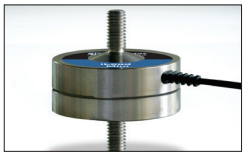
Alternative Configurations



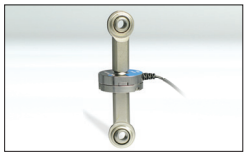
With Inline Adapter (IX-125A)



With Inline Adapter (IX-125A)



With Tension Adapter (TX-125A)



With Tension Adapter (TX-125A) & Rod Ends (RE-125)

Highlights

Capacitive Load Cell Technology

- Simplifies load measurements
- Standard 5V DC input
- 5V TTL frequency output
- Temperature compensated

Integrated Load Cell Electronics

- Large signal to noise ratio
- Saves space & reduces clutter

Rugged & Reliable

- Aluminum Construction
- Mechanically robust design
- Weather-resistant packaging available.

Ordering Information

Multiple Load Cell Capacities Compression or Tension Load Cells	
Threaded Stud	Part No.
10 pounds	MFM-010-050-S
50 pounds	MFM-050-050-S
100 pounds	MFM-100-050-S
200 pounds	MFM-200-050-S

Multiple Load Cell Capacities Compression only Load Cells	
Domed Top	Part No.
10 pounds	MFD-010-100-A
50 pounds	MFD-050-100-A
100 pounds	MFD-100-100-A
200 pounds	MFD-200-100-A

Overview

Loadstar's iLoad Mini load cell is based on the same capacitive technology as the iLoad and iLoad Pro sensors. However, it differs in one important respect–the Mini outputs a square wave whose frequency is proportional to the applied load. The Mini, the smallest sensor currently offered by Loadstar Sensors, is a small circular sensor with a diameter of just 1.25 in. and is available with either a threaded stud or a load button on top of the sensor. It has three threaded holes on the bottom of the sensor to easily mount the sensor with commonly available hardware.

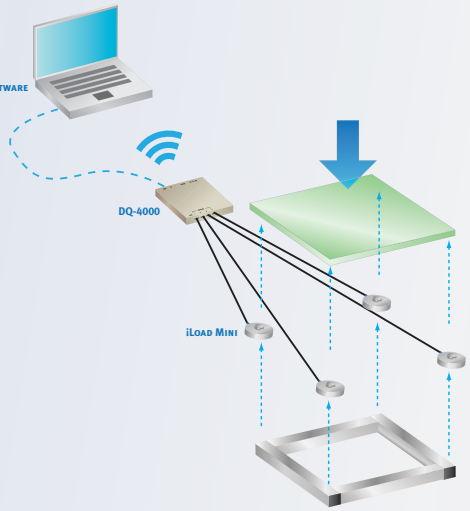
Unlike conventional resistive load cells based on either strain gauges or piezo-resistive techniques, Loadstar's breakthrough patented technology harnesses changes in capacitance to measure loads quickly and accurately. In the Mini, the change in capacitance is converted into a change in frequency of the output signal.

The sensor accepts a 5V DC input and outputs a TTL square wave whose frequency is proportional to the applied load. Most data acquisition systems, microprocessors and microcontrollers have the capability to measure the frequency of the signal.

If one wants an analog (0.5 V—4.5V or 2mV/V) or digital USB output from the iLoad Mini the DQ-1000A or DQ1000U are available options.

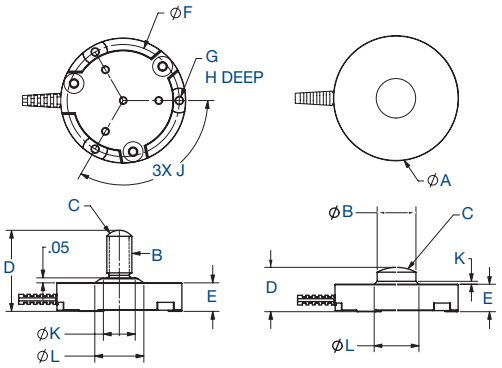
iLoad Mini™ Platform Scale

Our new DQ-4000 Frequency to USB Interface allows user to use up to four iLoad Mini Load Cells to built platform scales. Wireless connectivity is also available as an option.



Dimensions

Capacity	Domed Top				Threaded Stud			
	10 lb.	50 lb.	100 lb.	200 lb.	10 lb.	50 lb.	100 lb.	200 lb.
A	1.25 in.							
B	Ø 0.270				#10-32 UNF-2A		#¼-28 UNC-2A	
C	R 0.41 in.				R 0.094		R 0.016	
D	0.394 in.				0.81 in.			
E	0.285 in.				0.285 in.			
F	1.12 in.				1.12 in.			
G	#2-56 UNC-2B				#2-56 UNC-2B			
H	0.20 in.				0.20 in.			
J	120°				120°			
K	0	0	0.02 in.	0.055 in	0.27 in.	0.30 in.	0.32 in.	0.32 in.
L	0.27 in.	0.27 in.	0.47 in.	0.47 in.	0.27 in.	0.40 in.	0.49 in.	0.49 in.



Accuracy Specifications At Room Temperature ~25°C

Accuracy • with tare (% of FS)	
Non-linearity	± 1%
Hysteresis	± 1%
Non-repeatability	± 1%

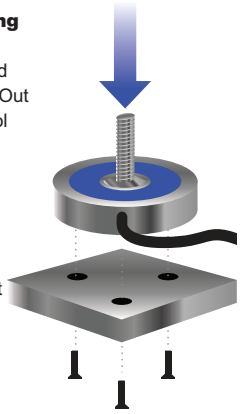
Load Cell Specifications

Data Update Rate	150 Hz (500 Hz available)
Safe Overload	to 150% of capacity
Deflection	0.02-in typical at rated capacity
Sensor Size	125 OD, for height see table above
Input Power	Regulate 5V at 60 mA
Output	5V TTL variable frequency signal Calibration parameters provided by Loadstar
Connections	Integrated 6 ft. cable with pigtail for terminal attachment or 5 pin male USB mini-B Connector
Creep, in 20 min	±0.03 % of full scale
Operating Temperature Range	10°C to 40°C, non-condensing
Temperature Effect on Span	up to ±0.05 % full scale/°C (from calibration temperature)

Suggested Use

Pigtail Wiring
Red - 5V DC
Black - Ground
Green - Freq. Out
White - Control

USB Mini-B Pinout
1. 5V DC
2. Control
3. Freq. Out
4. No Connect
5. Ground



The load cell is circular with a dome or threaded stud (see outline) on top. The flat bottom surface has three slightly stepped areas 120° apart with mounting holes tapped to accept #2–56 screws. Mount the load cells on a flat surface and apply loads perpendicular to the sensor body. Off-center or laterally-applied loads will reduce accuracy. Avoid side loads and twisting loads. Use under steady temperature conditions for best results

Certifications

CE RoHS 2002/95/EC

Compatible Accessories

Recommended Interfaces


DQ-1000U/DQ-1000A


DQ-4000


DS-4000

Digital Interfaces • interfaces require dq-1000u


DS-3000U
Display & Controller


HX-400
Wired USB Hub


HX-700
Wired USB Hub


WX-400
Wireless USB Hub


EX-500
Ethernet Hub

Hardware


RE-125


TX-125A


IX-125A


SC-1200
Sensor Concentrator

Applicable Software • w/DQ-1000U, DQ-4000 or DS-4000

LV-100	see page 127	LV-4000R	see page 128
LV-400	see page 128	LV-4000HS	see page 128
LV-1000	see page 127	LV-4000CG	see page 129
LV-4000	see page 128	SensorVUE	see page 128

iLoad Mini Pro™ Stainless Steel Miniature Load Cell

"The iLoad Mini Pro Series load cell is designed for applications where size is a major constraint. The iLoad Mini Pro is only 2.0" in diameter and outputs a 5V TTL square wave whose frequency is proportional to applied loads."

Highlights

Capacitive Load Cell Technology

- Simplifies load measurements
- Standard 5V DC input
- 5V TTL frequency output
- Temperature compensated

Integrated Load Cell Electronics

- Large signal to noise ratio
- Saves space & reduces clutter

Rugged & Reliable

- Stainless Steel Construction
- Mechanically robust design
- Weather-resistant packaging available.
- Industrial strength strain relief

Multiple Load Cell Capacities Compression only Load Cells	
Domed Top	Part No.
500 pounds	MFD-500-100-S
1000 pounds	MFD-01K-100-S
2500 pounds	MFD-2HK-100-S
5000 pounds	MFD-05K-100-S
10000 pounds	MFD-10K-100-S

Overview

Loadstar's iLoad Mini Pro load cell is based on the same capacitive technology as the iLoad sensors. However, it differs in one important respect–the Mini Pro outputs a square wave whose frequency is proportional to the applied load. The Mini Pro, one of the smallest sensors currently offered by Loadstar Sensors, is a small circular load cell with a diameter of just 2 inches and is available with a load button on top of the sensor. It has three through holes along the outside diameter of the load cell.

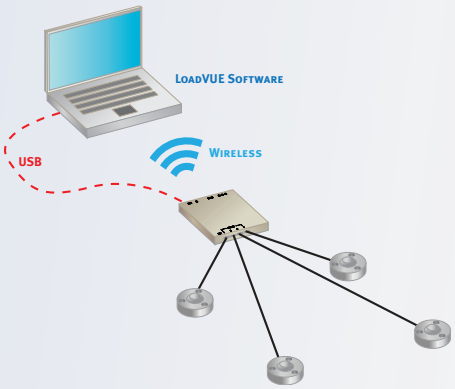
Unlike conventional resistive load cells based on either strain gauges or piezo-resistive techniques, Loadstar's breakthrough patented technology harnesses changes in capacitance to measure loads quickly and accurately. In the Mini, the change in capacitance is converted into a change in frequency of the output signal.

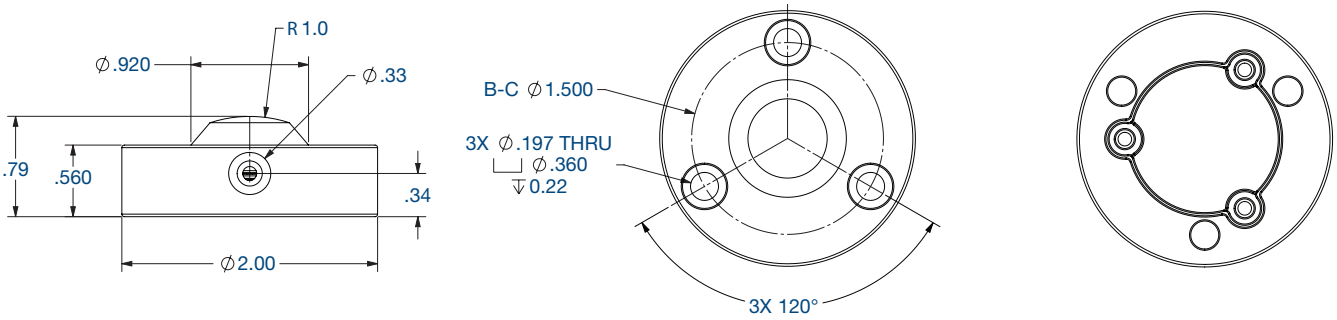
The sensor accepts a 5V DC input and outputs a TTL square wave whose frequency is proportional to the applied load. Most data acquisition systems, microprocessors and microcontrollers have the capability to measure the frequency of the signal.

If one wants an analog (0.5 V—4.5V or 2mV/V) or digital USB output from the iLoad Mini the DQ-1000A, DQ1000U or DQ-4000U are available options.

iLoad Mini Pro™
Wired or Wireless Kit

Our new iLoad Mini Pro Kit includes four iLoad Mini Pro load cells, one DQ-4000U and our LV-4000 software. Wireless connectivity is also available as an option.



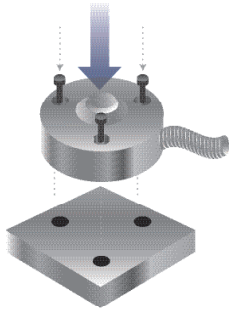


Accuracy Specifications At Room Temperature ~25°C

Accuracy • with tare (% of FS)	
Non-linearity	± 1%
Hysteresis	± 1%
Non-repeatability	± 1%

Data Update Rate	150 Hz (500 Hz available)
Safe Overload	to 150% of capacity
Deflection	0.002-in typical at rated capacity
Sensor Size	2.0 OD, for height see table above
Input Power	Regulate 5V at 60 mA
Output	5V TTL variable frequency signal Calibration parameters provided by Loadstar
Connections	Integrated 6 ft. cable with pigtail for terminal attachment or 5 pin male USB mini-B Connector
Creep, in 20 min	±0.03 % of full scale
Operating Temperature Range	10°C to 40°C, non-condensing
Temperature Effect on Span	up to ±0.05% full scale/°C (from calibration temperature)

Suggested Use



The load cell is circular with a dome on top. It has three counterbore holes with Ø 0.197 x Ø 0.360 inch spaced 120° apart for three #10-32 socket head cap screws. Mount the load cells on a flat surface and apply loads perpendicular to the sensor body. Off-center or laterally-applied loads will reduce accuracy. Avoid side loads and twisting loads. Use under steady temperature conditions for best results.

Certifications

CE RoHS 2002/95/EC

Compatible Accessories


DQ-1000U/DQ-1000A


DQ-4000


DS-4000

Applicable Software • w/DQ-1000U, DQ-4000 or DS-4000			
LV-100	see page 127	LV-4000R	see page 128
LV-400	see page 128	LV-4000HS	see page 128
LV-1000	see page 127	LV-4000CG	see page 129
LV-4000	see page 128	SensorVUE	see page 128

Digital Interfaces • requires dq-1000u or DQ-4000 to obtain USB Signal


DS-3000U
Display & Controller


HX-400
Wired USB Hub


HX-700
Wired USB Hub


WX-400
Wireless USB Hub


EX-500
Ethernet Hub


SC-1200
Sensor Concentrator


UX-100
USB Extender

iLoad Mini Bite™ Stainless Steel Miniature Load Cell

"The iLoad Mini Pro Series load cell is designed for applications where size is a major constraint. The iLoad Mini Pro is only 2.0" in diameter and outputs a 5V TTL square wave whose frequency is proportional to applied loads."

Highlights

Capacitive Load Cell Technology

- Simplifies load measurements
- Standard 5V DC input
- 5V TTL frequency output
- Temperature compensated

Integrated Load Cell Electronics

- Large signal to noise ratio
- Saves space & reduces clutter

Rugged & Reliable

- Stainless Steel Construction
- Mechanically robust design
- Weather-resistant packaging available.
- Industrial strength strain relief

Multiple Load Cell Capacities Compression only Load Cells	
Domed Top	Part No.
500 pounds	MFD-500-100-S
1000 pounds	MFD-01K-100-S
2500 pounds	MFD-2HK-100-S
5000 pounds	MFD-05K-100-S
10000 pounds	MFD-10K-100-S

Overview

Loadstar's iLoad Mini Pro load cell is based on the same capacitive technology as the iLoad sensors. However, it differs in one important respect–the Mini Pro outputs a square wave whose frequency is proportional to the applied load. The Mini Pro, one of the smallest sensors currently offered by Loadstar Sensors, is a small circular load cell with a diameter of just 2 inches and is available with a load button on top of the sensor. It has three through holes along the outside diameter of the load cell.

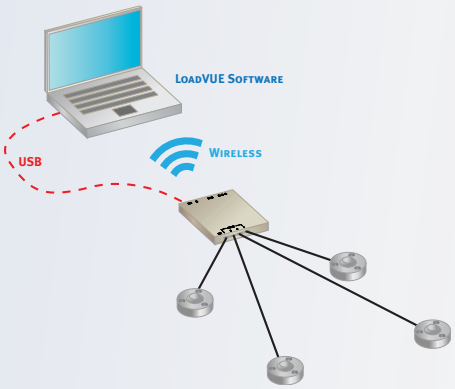
Unlike conventional resistive load cells based on either strain gauges or piezo-resistive techniques, Loadstar's breakthrough patented technology harnesses changes in capacitance to measure loads quickly and accurately. In the Mini, the change in capacitance is converted into a change in frequency of the output signal.

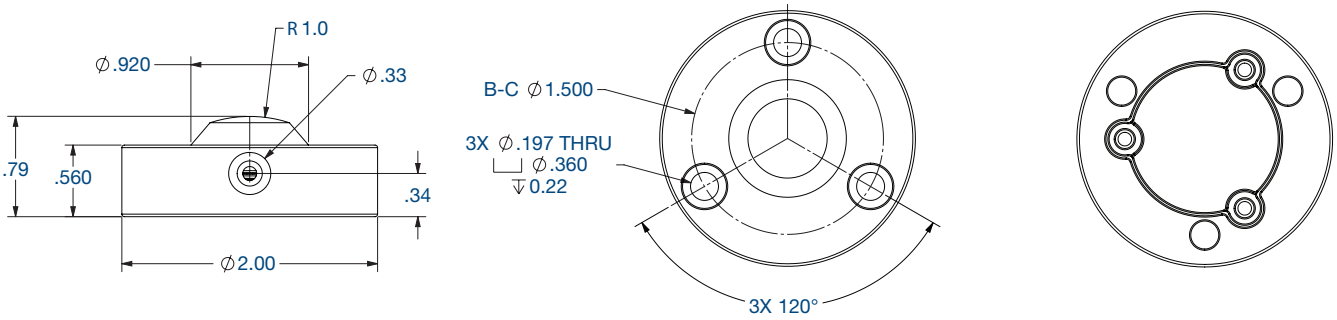
The sensor accepts a 5V DC input and outputs a TTL square wave whose frequency is proportional to the applied load. Most data acquisition systems, microprocessors and microcontrollers have the capability to measure the frequency of the signal.

If one wants an analog (0.5 V—4.5V or 2mV/V) or digital USB output from the iLoad Mini the DQ-1000A, DQ1000U or DQ-4000U are available options.

iLoad Mini Pro™
Wired or Wireless Kit

Our new iLoad Mini Pro Kit includes four iLoad Mini Pro load cells, one DQ-4000U and our LV-4000 software. Wireless connectivity is also available as an option.



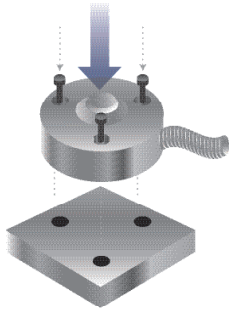


Accuracy Specifications At Room Temperature ~25°C

Accuracy • with tare (% of FS)	
Non-linearity	± 1%
Hysteresis	± 1%
Non-repeatability	± 1%

Data Update Rate	150 Hz (500 Hz available)
Safe Overload	to 150% of capacity
Deflection	0.002-in typical at rated capacity
Sensor Size	2.0 OD, for height see table above
Input Power	Regulate 5V at 60 mA
Output	5V TTL variable frequency signal Calibration parameters provided by Loadstar
Connections	Integrated 6 ft. cable with pigtail for terminal attachment or 5 pin male USB mini-B Connector
Creep, in 20 min	±0.03 % of full scale
Operating Temperature Range	10°C to 40°C, non-condensing
Temperature Effect on Span	up to ±0.05% full scale/°C (from calibration temperature)

Suggested Use



The load cell is circular with a dome on top. It has three counterbore holes with Ø 0.197 x Ø 0.360 inch spaced 120° apart for three #10-32 socket head cap screws. Mount the load cells on a flat surface and apply loads perpendicular to the sensor body. Off-center or laterally-applied loads will reduce accuracy. Avoid side loads and twisting loads. Use under steady temperature conditions for best results.

Certifications

CE RoHS 2002/95/EC

Compatible Accessories


DQ-1000U/DQ-1000A


DQ-4000


DS-4000

Applicable Software • w/DQ-1000U, DQ-4000 or DS-4000			
LV-100	see page 127	LV-4000R	see page 128
LV-400	see page 128	LV-4000HS	see page 128
LV-1000	see page 127	LV-4000CG	see page 129
LV-4000	see page 128	SensorVUE	see page 128

Digital Interfaces • requires dq-1000u or DQ-4000 to obtain USB Signal


DS-3000U
Display & Controller


HX-400
Wired USB Hub


HX-700
Wired USB Hub


WX-400
Wireless USB Hub


EX-500
Ethernet Hub

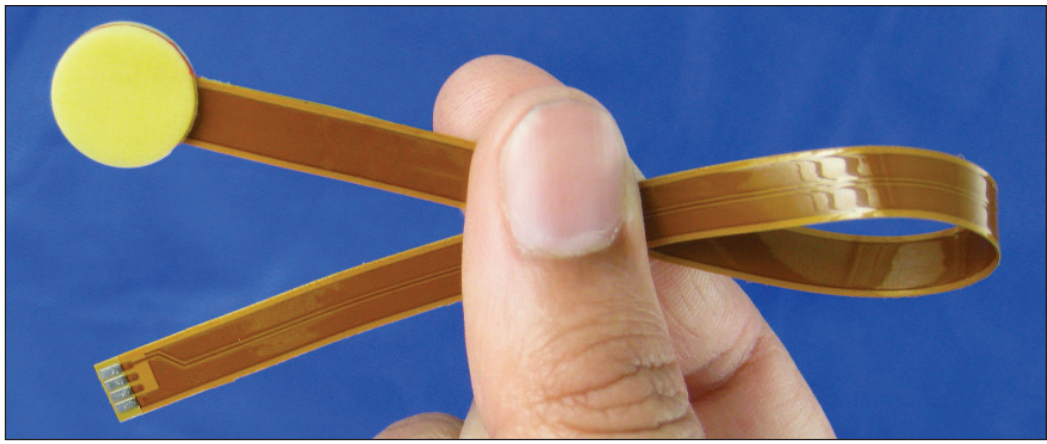

SC-1200
Sensor Concentrator


UX-100
USB Extender

iLoad Flex Capacitive Sensors

Intelligent Tactile Pressure & Force Measurement

> "The Flex series of sensors are designed to address applications where size is of critical importance."



Overview

The Flex series of sensors are designed to address applications where size is of critical importance. They are based on our patented capacitive force sensing technology which offers unprecedented sensitivity in a rugged and tiny package. The high level analog (0-5V DC) or digital Serial/USB outputs, makes it easy to incorporate into OEM products or into test & measurement and process control applications.

Highlights

Mechanical

- Diameters as low as 15 mm
- Thickness as low as 2.5 mm
- Compression/Tension forces

Integrated Load Cell Electronics

- Excellent signal stability
- Very high sensitivity
- No additional signal conditioning needed
- Output Options
  - Analog: 0 - 5V DC
  - Digital: Serial/USB

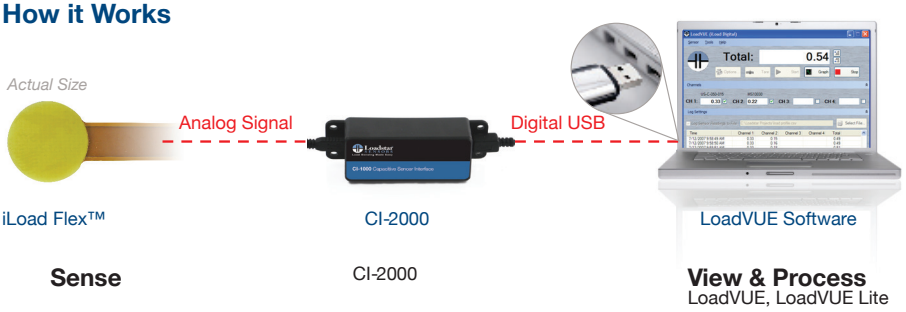
Rugged & Reliable

- Rugged packaging

Rugged & Reliable

- Reasonably prices for 1 Qty
- Attractive volume pricing

How it Works



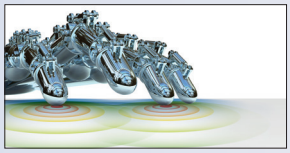
Simply connect the load cell to the CI-2000 Capacitive Interface & use the USB out port on the CI-2000 to connect to a PC via the USB port. The sensor appears on the PC as a virtual COM port. Using a standard terminal emulator send commands to the sensor to display loads on screen. They can either be one at a time or in continuous operation mode. Alternatively, use an application (LoadVUE or LoadVUE Lite) to simplify load measurements on a PC.

Multiple Sensor Capacities	
	Bundled Kit Part No.
10 pounds	FLEX-010-KIT
100 pounds	FLEX-100-KIT
10 pounds	FLEXP-010-KIT*
100 pounds	FLEXP-100-KIT*
1000 pounds	FLEXP-01K-KIT*

Kit includes sensor, interface & software.
**Available in Tension*

Potential Applications

These sensors enable a wide variety of OEM applications at an attractive and affordable cost point. We provide generous application prototyping, testing and development support to OEM customers who want to utilize this revolutionary technology.



Industrial Applications: Robotics

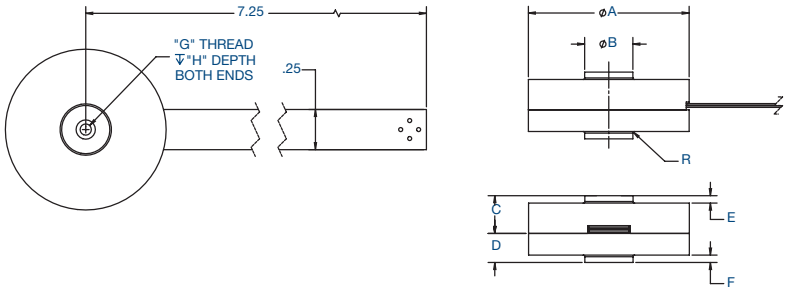
Automotive Applications: Tire Pressure

Medical Applications: Spinal Disk Pressure

Dimensions

Capacity	lb		
	10 lb.	100 lb.	1000 lb.
A	1.00	1.00	1.40
B	0.30	0.30	0.52
C	0.235	0.235	0.49
D	0.18	0.18	0.49
E	0.046	0.046	0.228
F	0.046	0.046	0.228
G	#2-56 UNC-2B	#4-40 UNC-2B	#5/16-18 UNC-2B
H	0.12	0.15	0.32
J	R0.01	R0.01	C0.05 X 45°

(All dimensions are in inches)



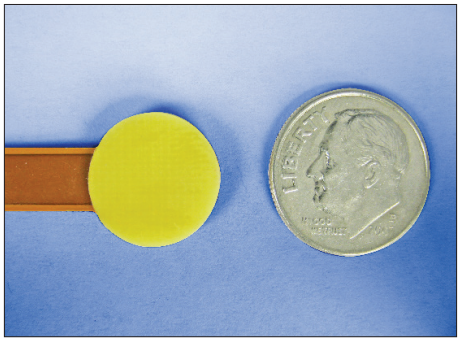
Accuracy Specifications At Room Temperature ~25°C

Accuracy • with tare (% of FS)	iLoad Flex	iLoad Flex Pro
Non-linearity	± 2.5% of Full Scale Output	± 1.0% of Full Scale Output
Hysteresis	± 5.0%	± 1.0%

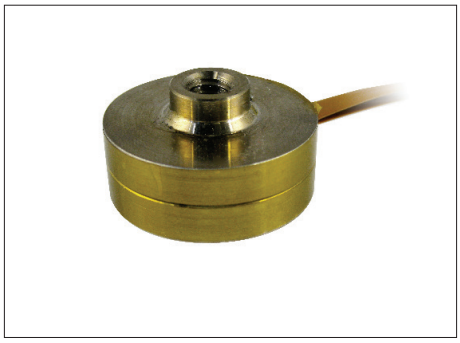
Load Cell Specifications

Sensor Diameter	0.5/0.1 inch (Customizable)	see table above
Sensor Height	0.1 inch (Customizable)	see table above
Force Range	0-10 & 0-100 lbs.	0-10, 0-100 & 0-1000 lbs.
Output	Serial, USB or Analog (0-5V DC)	Serial, USB or Analog (0-5V DC)
Interface	CI-2000	CI-2000
Operating Temperature Range	10°C to 40°C, non-condensing	10°C to 40°C, non-condensing
Long-term Drift	± 2.5% over 20 min.	± 0.5% over 20 min.
Data Output Rate	1 Hz	1Hz

Available Configurations



iLoad Flex



iLoad Flex Pro

Compatible Accessories

Recommended Interfaces

CI-2000

Applicable Software • w/DQ-1000U, DQ-4000 or DS-4000

LV-100	see page 127	LV-4000R	see page 128
LV-400	see page 128	LV-4000HS	see page 128
LV-1000	see page 127	LV-4000CG	see page 129
LV-4000	see page 128	SensorVUE	see page 128

Digital Interfaces • requires CI-2000 to obtain USB Signal

DS-3000U
Display & Controller

HX-400
Wired USB Hub

HX-700
Wired USB Hub

WX-100
Wireless USB Hub

WX-400
Wireless USB Hub

EX-500
Ethernet Hub

SC-1200
Sensor Concentrator

UX-100
USB Extender

DQ-1000 Single Channel Frequency Interface

Highlights

Compatibility

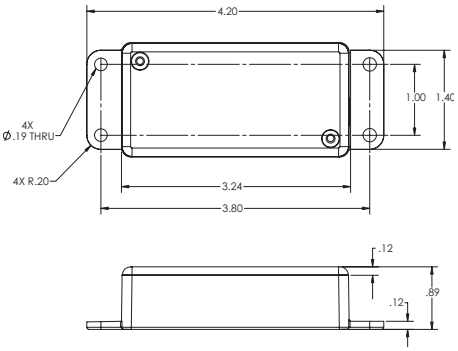
- Works with iLoad Mini Series load cells

Standard Features

- Digital USB or Analog (0.5—4.5V, 0—20mV)

Operating Temperature Range

- -10ºC to 70ºC, non-condensing



Overview

The Loadstar Sensors DQ-1000 Single Channel Frequency Interface provides a simple and convenient way for users to convert the frequency output of an iLoad Mini sensor to either a USB digital output (DQ-1000U) or analog outputs (DQ-1000A) of 0.5V—4.5V DC and 0—20 mV. When ordered together with an iLoad Mini sensor, the DQ-1000A will be calibrated to the sensor to enable Plug and Sense simplicity, or compatibility with legacy displays that accept 2 mV/V input.

Specifications

Model	DQ-1000U	DQ-1000A
Power input / excitation	5V DC (from USB port of PC)	5V DC min.—10V DC max.
Current Draw	65 mA max.	100 mA max.
Sensor Connector	USB 5-pin mini-B female	USB 5-pin mini-B female
Output connector	USB 5-pin mini-B female	Screw terminal block
Output	Digital USB	0—5 V DC and ratiometric 2mV/V (optional 4mV/V) analog outputs
Update rate	150 readings / second (500 available)	n/a
Response rate	n/a	1 KHz
Dimensions	4.2" x 1.6" x 0.8"	4.2" x 1.6" x 0.8"

Ordering Information

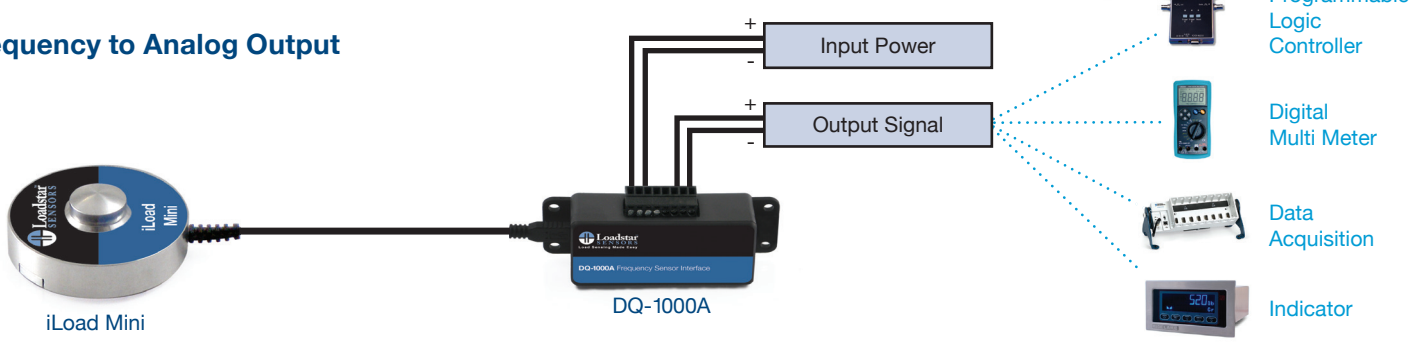
Available Configurations	
Option	Part No.
USB Output	DQ-1000U
Analog Output	DQ-1000A

Certifications

CE RoHS 2002/95/EC

Frequency to Digital USB Output

Frequency to Analog Output



DQ-4000 Four Channel Frequency To USB Interface

wireless

Highlights

Compatibility

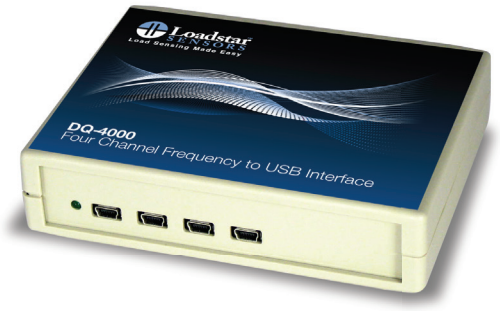
- Works with iLoad Mini Series load cells

Standard Features

- Digital USB output
- Optional Wireless XBee Output

Operating Temperature Range

- 10ºC to 50ºC, non-condensing



Overview

The Loadstar Sensors DQ-4000 Four Channel Frequency Interface provides a simple and convenient way for users to convert the frequency output from up to four iLoad Mini sensors to either a USB digital output. When ordered together with four iLoad Mini sensors, the DQ-4000U can be used to construct a platform scale.

Specifications

Model	DQ-4000U
Power input / excitation	5V DC (from USB port of PC) when used with four iLoad MIni's External Power adapter (shipped with part) when used with iLoad, iLoad Pro or iLoad TR
Sensor Connector	USB 5-pin mini-B female
Output connector	USB 5-pin mini-B female
Output	Digital USB
Update rate	100 displayed readings/second for all four channels
Dimensions	5.125" x 4" x 1.25"
Options	XBee Wireless: 1000 ft Range Rechargeable Battery Backup with 8 hours of continuous operation

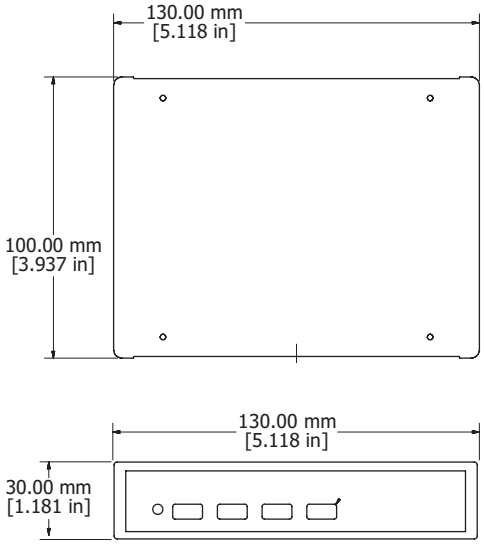
Ordering Information

Available Configurations	
Option	Part No.
USB Output	DQ-4000U
XBee Output	DQ-4000Z
XBee Output with Battery	DQ-4000ZP

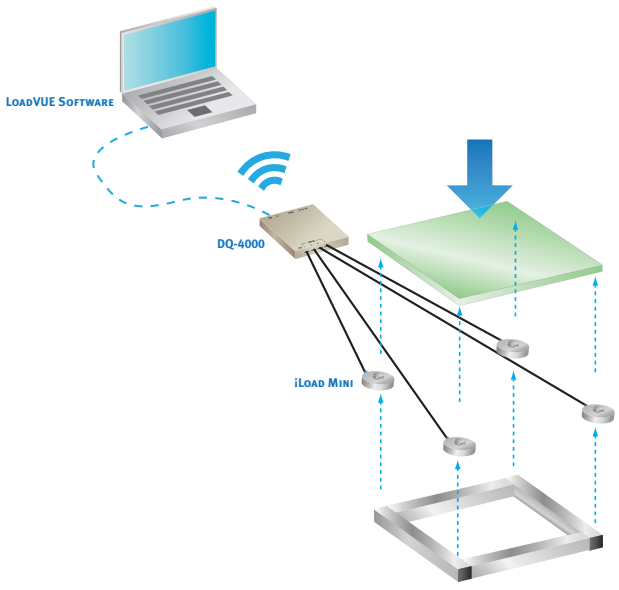
Certifications

CE RoHS 2002/95/EC

Dimensions



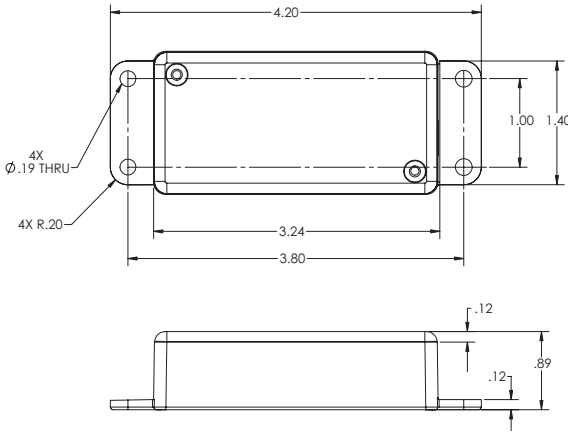
Frequency to Digital USB Output



S2R UART (Serial TTL) to RS232 Converter

RS-232 Output

Power Input (4.5V to 30V)



Highlights

Compatibility

- Works with iLoad Mini + DQ 1000, DQ-1000, DQ- 4000, SC-1200, and DI-100 Interface.

Standard Features

- RS-232 Output for easy digital connectivity with PLC's.

Operating Temperature Range

- -10ºC to 70ºC, non-condensing

Overview

The Loadstar Sensors S2R Interface provides a simple and convenient way for users to convert the UART/Serial TTL from a number of our devices to a RS-232 output compatible with most PLC's. Once connected to a PLC, the PLC can issue simple ASCII commands to access calibrated sensor information such as loads, forces, torques, etc. in standard engineering units.

Specifications

Model	S2R
Power input / excitation	4.5V to 30V
Current Draw	65 mA max.
Input Connector	USB 5-pin mini-B female
Output connector	RS-232 Female
Output	RS-232
Dimensions	4.2" x 1.6" x 0.8"

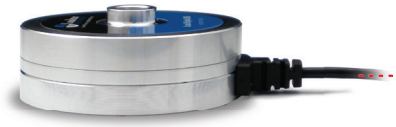
Ordering Information

Available Configurations	
Option	Part No.
RS-232	S2R

Certifications

RoHS 2002/95/EC

iLoad Series to RS-232

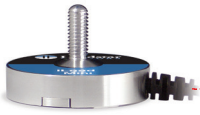


iLoad TR/iLoad Pro

S2R

Programmable Logic Controller

iLoad Mini + DQ-1000 to RS-232



iLoad Mini

DQ-1000

S2R

Programmable Logic Controller

Resistive Load Cell + DI-100 to RS-232

RSB3

Any Resistive Load Cell

DI-100

S2R

Programmable Logic Controller

Loadstar® SENSORS

DS-4000 Frequency To USB Display

wireless

Highlights

Compatibility

- Works with iLoad Mini Series load cells & iLoad, iLoad Pro and iLoad TR Digital USB Load Cells

Standard Features

- Digital USB output

Operating Temperature Range

- 10ºC to 50ºC, non-condensing

Overview

The Loadstar Sensors DS-4000 Four Channel Frequency Display provides a simple and convenient way for users view data from up to four iLoad Series Sensors and connect to a PC via USB uplink. When ordered together with four iLoad Mini sensors, the DS-4000 can be used to construct a platform scale.

Specifications

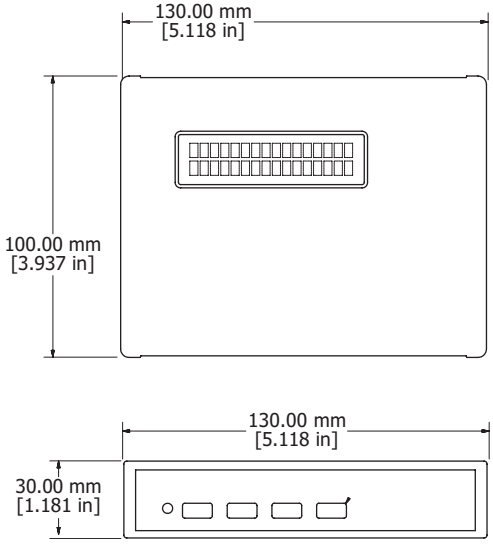
Channels	4
Compatible Load Cells	iLoad Mini, iLoad Digital, iLoad Pro Digital & iLoad TR
Input Connectors	USB 5-pin mini-B female
Output Connector	USB 5-pin mini-B female
Power Input / excitation	5V DC (from USB port of PC) when used with four iLoad MIni's External Power adapter (shipped with part) when used with iLoad, iLoad Pro or iLoad TR
Data Throughput	100 displayed readings/second for all four channels
LCD Display	2 Lines x 16 Characters 0.21 in. tall
Display Resolution	0.00001–99999.9
Display Units	Lbs, Kgs, Newtons
Options	XBee Wireless: 1000 ft Range Rechargeable Battery Backup with 8 hours of continuous operation

Ordering Information

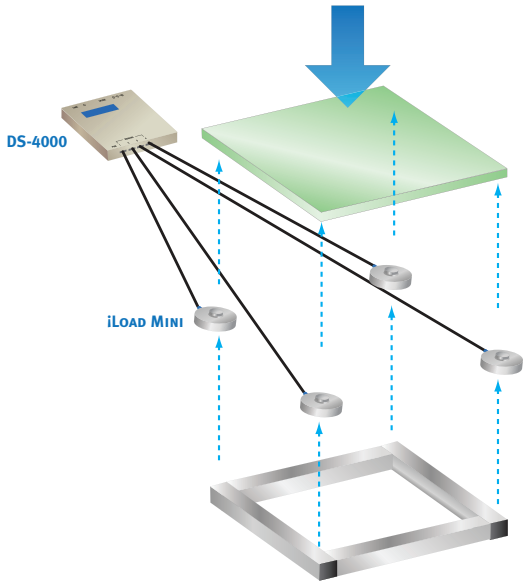
Certifications

CE RoHS 2002/95/EC

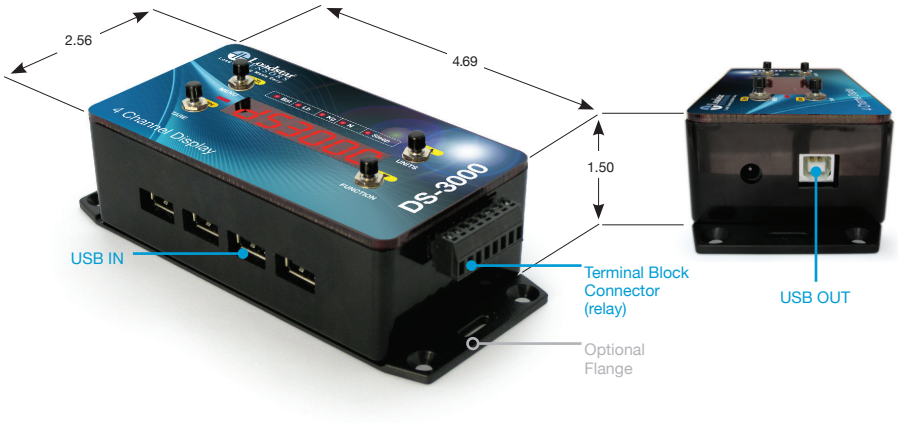
Dimensions



USB Scale with Four Miniature Load Cells



DS-3000U Display and Controller

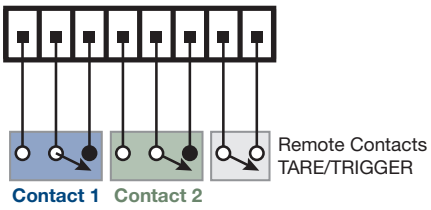


Options

Available Battery Options

- Lithium-Ion Polymer battery for backup

Wiring Diagram for Terminal Block



Overview

The DS-3000 Four-Channel LED Display is an integral device incorporating display, interface device and a controller combined in one. It allows users to connect up to four of our iLoad Series load cells and view individual and/or total loads in three different units: Kilograms, Pounds and Newtons. A user can also interface with a PC via USB uplink. The DS-3000U is compatible LoadVUE and LoadVUE Lite application software. Optional relay outputs allow users to activate relays based on load limits in order to control up to 2 external devices.

Specifications

Channels	4
Compatible Load Cells	iLoad Digital, iLoad Pro Digital, iLoad TR & iLoad Mini paired with DQ-1000U
Compatible Interfaces	DQ-1000U & DI-1000U
Input Connectors	Female USB Type A
Output Connector	Female USB Type B
Relay Connectors	Screw Terminal Block
Relays	2
Power Supply	Ships with 94-250VAC 50/60 Hz
Data Throughput	10 displayed readings/second for all four channels
LED Display	0.56 in. tall
Display Resolution	0.00001–99999.9
Display Units	Lbs, Kgs, Newtons

Ordering Information

Available Configurations	
Option	Part No.
Basic	DS-3000U
Battery Backup	DS-3000UP

Certifications

CE RoHS 2002/95/EC

Suggested Configurations

Loadstar® SENSORS

SC-1200 Sensor Concentrator

wireless

Highlights

Standard Features

- Connect 12 iLoad Series Load Cells to your computer
- Compatible with DI-100U Interface for Resitive Load Cells
- Monitor your load cells remotely
- Wireless XBee option available with 1000 ft range

Overview

The SC-1200 is a scalable data acquisition system for measuring loads and forces using Loadstar's iLoad series load cells. Each SC-1200 supports 12 load cells. Multiple SC-1200s can be daisy-chained together to form a networked sensor farm of up to 3000 load cells. Only a single uplink to the host PC is needed to access any or all sensor data in the farm!

Specifications

Channels	12
Compatible Load Cells	iLoad Digital, iLoad Pro Digital, iLoad TR & iLoad Mini paired with DQ-1000
Compatible Software	Lv-1200
Input Connectors	USB 5-pin mini-B female
Output Connector	USB Type B
Network Connectors	RJ11-6 pin, RJ48
Power Supply	12V DC
Sampling Rate	1 Hz per channel
Operating Temperature	32° F to 158° F (0° C to 70° C)
Dimensions (L x W x H)	9.18 in. x 5.25 in. x 1.5 in.
Options	Rechargeable Battery Pack with 8 hours of continuous operation during power failure XBee Wireless: 1000 foot range

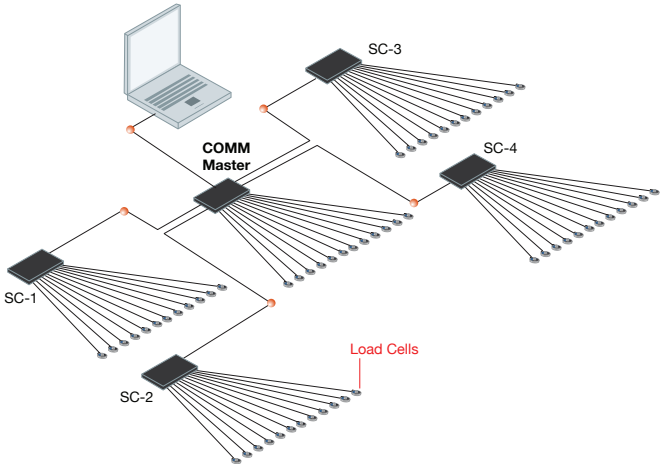
Ordering Information

Available Configurations	
Option	Part No.
Basic	SC-1200
XBee Wireless	SC-1200Z
XBee Wireless with Battery backup	SC-1200ZP

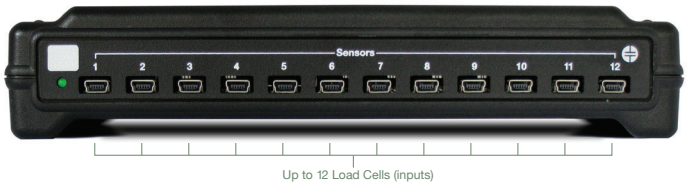
Certifications

CE RoHS 2002/95/EC

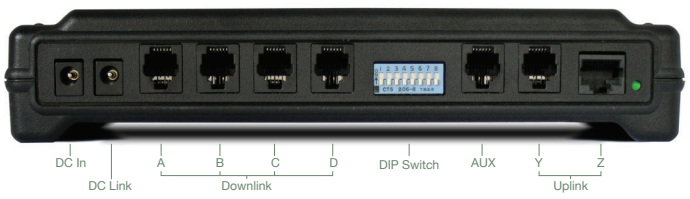
Sample Network Diagram



Front View



Back View



HX-400 Four Port USB Wired Hub

Highlights

Standard Features

- Allows users to connect 4 iLoad Series Load Cells into one USB Port on PC

Overview

Simultaneously connect up to four load cells to your notebook or desktop PC with the Loadstar Sensors HX-400 USB Wired Hub. Works on all PCs with a USB port operating on Windows XP or Vista.

Specifications

Data Link Protocol	USB 2.0—High Speed USB
Number of Ports	4
Compatible Load Cells	iLoad Digital, iLoad Pro Digital, iLoad TR & iLoad Mini paired with DQ-1000U
Input connectors	Female USB Type A
Output connector	Female USB Mini-B
Hardware Platform	Windows XP/Vista
Connectivity Technology	Wired USB
Network Data Transfer Rate	480 Megabits Per Second
Weight	0.1 lb.
Dimensions (L x W x H)	2.8 in. x 2.5 in. x 0.7 in.
Operating Temperature Range	32° F to 95° F (0° C to 35° C)
Contents	USB 2.0 4 port wired hub AC power adapter USB 2.0 Cable User Manual

Ordering Information

Available Configurations	
Option	Part No.
Basic	HX-400

Certifications

CE FC

HX-700 Seven Port USB Wired Hub

Highlights

Standard Features

- Allows users to connect 7 iLoad Series Load Cells into one USB Port on PC

Overview

Simultaneously connect up to seven load cells to your notebook or desktop PC with the Loadstar Sensors HX-700 USB Wired Hub. Works on all PCs with a USB port operating on Windows XP or Vista. Compatible with LV-7000 Software.

Specifications

Data Link Protocol	USB 2.0—High Speed USB
Number of Ports	7
Compatible Load Cells	iLoad Digital, iLoad Pro Digital, iLoad TR & iLoad Mini paired with DQ-1000U
Input connectors	Female USB Type A
Output connector	Female USB Type B
Hardware Platform	Windows XP/Vista
Connectivity Technology	Wired USB
Weight	0.19 lb.
Dimensions (W x D x H)	4.03 in. x 2.44 in. x 1.09 in.
Operating Temperature Range	25° F to 95° F (-4° C to 35° C)
Contents	USB 2.0 7 port wired hub AC power adapter USB 2.0 Cable Quick Installation Guide

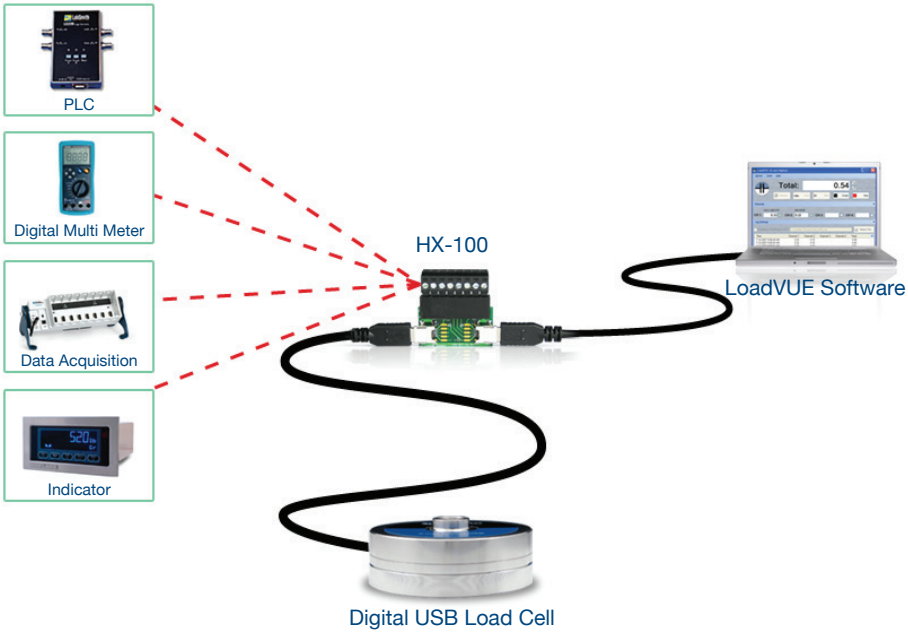
Ordering Information

Available Configurations	
Option	Part No.
Basic	HX-700

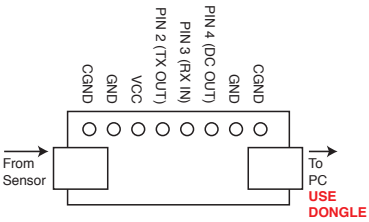
Certifications

CE FC

HX-100 iLoad Hybrid Interface



Wiring Diagram for Analog Output



Ordering Information

Available Configurations	
Option	Part No.
Basic	HX-100

Analog Output

The interface accepts power from your PC and outputs an analog 0.5V – 4.5V DC signal proportional to the applied load. The full scale output range is 4000 mV — two hundred times that of traditional strain-gauge-based load cells. This signal can easily be measured using commonly available digital multi-meters or with programmable logic controllers (PLC).

Analog Highlights

- Standard 0.5V – 4.5V DC output
- Large 4000 mV typical change for full load
- Draws power from PC
- No need for signal conditioning or amplification

Digital USB Output

USB load cells offer direct measurement of static loads via the USB port of a PC. No need for signal conditioners, data acquisition systems or special software. Just connect and start measuring! In addition, you can use Visual Basic, Visual C++, Matlab, LABView or any other application development environment to create your custom applications with our sensors.

USB Highlights

- Plug and Sense Simplicity
- Standard USB output
- Stored calibration
- Ease of Use

UX-100 Active USB Extender Cable

Specifications

Data Link Protocol	USB 2.0—High Speed USB
Length	5 m
Input Connector	USB Type-A Female
Output Connector	USB Type-A Male

Available Configurations	
Option	Part No.
Basic	UX-100

Overview

This cable contains active electronics which boost the USB signal for maximum reliability and performance over extended distances. Up to 3 of these USB Active Extension cables can be linked together to extend the distance to your USB Load Cell to nearly 60 feet.

USB Relay USB Single Pole Switchover Relay

Highlights

Standard Features

- Easy to install and use USB Relay
- Works with any PC or Laptop using USB ports
- LED status indicator
- Available in 1, 2, and 8 channel versions

Overview

Controls a single pole switchover relay through a USB port. Ideal for access control, laboratory, process control, or power switching applications.The relays can be controlled using our LoadVUE Relay software.

Specifications

LEDs	Status Indicator
Connector	Female Type B
Contact Rating	250V AC / 28V DC, 10 A SPDT Relays
Dimensions	4.25 in x 3.25 in x 1.5 in.

Ordering Information

Available Configurations	
Option	Part No.
1 Channel	USB-1R
2 Channel	USB-2R
8 Channel	USB-8R

Load Based Control

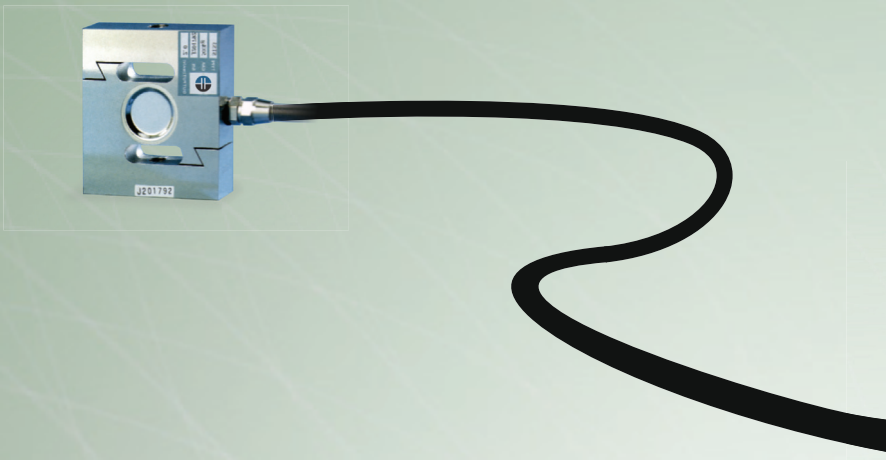
Control external devices based on pre-defined set points for loads, loading rates, displacements etc. This feature is only available with our **LV-4000R** software.

Digital USB Load Cell | LoadVUE Relay Software | USB Relay

Notes

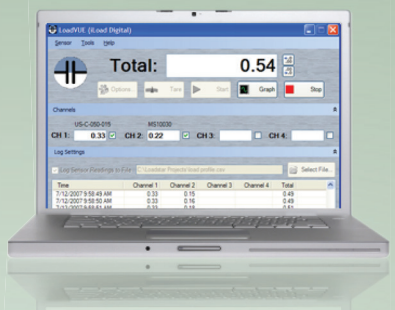
Resistive

load cells



Loadstar offers cutting edge interfaces that help connect conventional resistive load cells to a PC through wired or wireless communication protocols. Our products support serial, USB, Bluetooth and XBee digital communication standards. Our LoadVUE software enables you to view, log and plot information from your load cell with unmatched ease of use.

- Accuracies to 0.015% of Full Scale
- Temperature Compensated
- NTEP or OIML Certifications Available



DI - 1000ZP

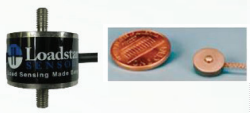
USB Interface

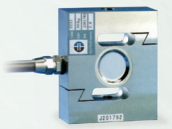
Loadstar's DI-1000 converts resistive load cells into Digital USB Load Cells.

Wireless Interface

The wireless XBee interface allows users to convert their resistive load cells to Digital Wireless Load Cells.

Load Cell Comparison





	Miniature Load Cells	Single Point Load Cells	S Beam Load Cells	Load Button Load Cells	High Capacity Pancake Load Cells
Series	RSB4, RSB5	RSP1, RSP2, RAPG, RRP1 & RRP2	RSS1, RAS1 & RRS1	RSB1, RSB2 & RSB3	RAL1 , RSB6
Capacity	150 g - 200 kg (440 lb)	100 g - 660 kg	25 lb - 40000 lb	50 kg - 5000 kg.	25000 lb - 100000 lb
Load	Compression or Tension	Compression or Tension	Compression & Tension	Compression	Compression or Tension
Compatible Display	RD-1000	RD-1000	RD-1000	RD-1000	RD-1000
Analog Signal Conditioner (0-5V)	AI-1000	AI-1000	AI-1000	AI-1000	AI-1000
USB Interface	Yes (DI-100, DI-1000)	Yes (DI-100, DI-1000)	Yes (DI-100, DI-1000)	Yes (DI-100, DI-1000)	Yes (DI-100, DI-1000)
Wireless Interface	Yes (DI-1000Z)	Yes (DI-1000Z)	Yes (DI-1000Z)	Yes (DI-1000Z)	Yes (DI-1000Z)

Single Points

RSP1 Single Point, Aluminum Load Cell, OIML

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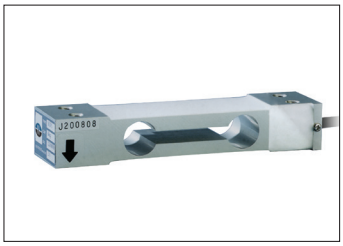

These single point parallel beam, aluminum load cells, are one of the most commonly used load cells for price computing scales, bench scales, retail scales, counting scales and balances. They have excellent off center loading resistance and are very stable and accurate load cells.

Capacities: 5, 10, 20 & 50 kg.
USB/Wireless Upgrade: DI-100U or DI-1000U/DI-1000Z/DI-4000U
Recommended Signal Conditioners: AI-1000

RSP2 Single Point, Overload Protected low capacity Load Cell

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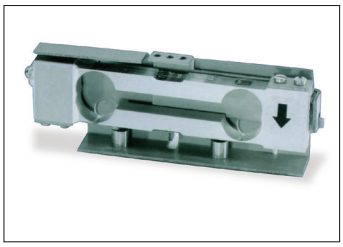

These cantilever load cells are constructed from aluminum and are overload protected and are ideal for low capacity applications that need high resolutions and accuracies. They have an integrated bracket that allows them to be used for in line tension applications as well. They can be used with or without the brackets.

Capacities: 0.1, 0.6, 1 & 2 kg.
USB/Wireless Upgrade: DI-100U or DI-1000U/DI-1000Z/DI-4000U
Recommended Signal Conditioners: AI-1000

RSP3 Single Point, Aluminum Load Cell, OIML

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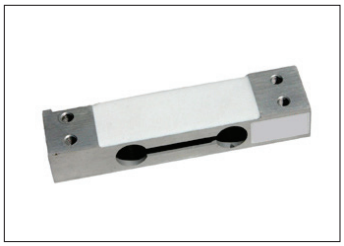
Single point parallel beam, aluminum load cell, used for price computing scales, bench scales, retail scales, counting scales and balances. The main advantage of this load cell over the others is that it comes with a slight offset in its mechanical dimensions which makes it unnecessary to use spacers to attach a platform to the load cell. So saves some time and money when building a scale.

Capacities: 5, 10, 20 & 50 kg.
USB/Wireless Upgrade: DI-100U or DI-1000U/DI-1000Z/DI-4000U
Recommended Signal Conditioners: AI-1000

RAPG Single Point, Aluminum Load Cell, OIML

Page 61

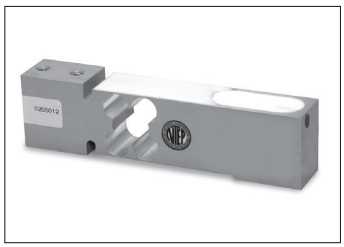


They are similar to other single point load cells, and are commonly used for price computing scales, bench scales, retail scales, counting scales and balances. OIML certified. Have the widest range of capacities available for fine tuning the accuracy to the capacity needed.

Capacities: 1, 2, 3, 6, 10, 15, 20, 25, 30, 35, 50, 100 & 250 kg.
USB/Wireless Upgrade: DI-100U or DI-1000U/DI-1000Z/DI-4000U
Recommended Signal Conditioners: AI-1000

RRP1 Single Point, Aluminum Load Cell, NTEP

Page 63



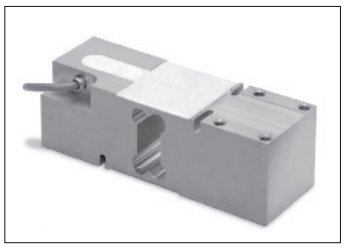
These cantilever load cells are constructed from aluminum. Used for balances and scales. NTEP Certified.

Capacities: 3, 5, 7, 10, 15, 20, 30, 50, 75 & 100 kg.
USB/Wireless Upgrade: DI-100U or DI-1000U/DI-1000Z/DI-400
Recommended Signal Conditioners: AI-1000

Single Points Continued

RRP2 Single Point, Aluminum Load Cell, NTEP

Page 65



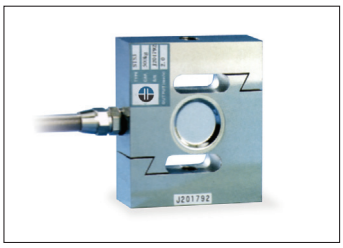
These cantilever load cells are constructed from aluminum. Used for balances and scales. NTEP Certified. These load cells are the ideal sensors to use to build large scales that are wider than 18" in width in any one direction. They have the best off-center loading compensation and will work great for scales that need to be NTEP certified for "For-Trade" applications.

Capacities: 50, 75, 100, 150, 200, 250, 300, 500 & 660 kg.
USB/Wireless Upgrade: DI-100U or DI-1000U/DI-1000Z/DI-4000U
Recommended Signal Conditioners: AI-1000

S Beams

RSS1 Steel S Beam Load Cell

Page 67

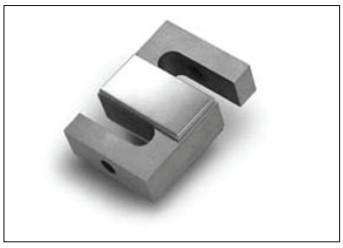


Named for their S type shape, S beam load cells are most often found in batching scales, industrial weighing and control systems. The RAS1 is made from steel and is available in tension and compression loading. This particular load cell has mechanical overload protection to avoid damaging the load cell when used in compression mode. These S Beam load cells have metric dimensions and threads.

Capacities: 200, 3000 & 5000 kg.
USB/Wireless Upgrade: DI-100U or DI-1000U/DI-1000Z/DI-4000U
Recommended Signal Conditioners: AI-1000

RAS1 S Steel Beam Load Cell

Page 69

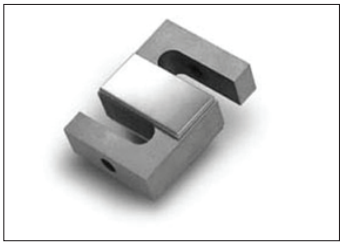


These S beam load cells are versatile and come in a wide range of capacities. Theuy can be used in compression and tension modes. These S Beam load cells have dimensions in inches and are ideal for applications designed for US markets.

Capacities: 25, 50, 100, 150, 200, 250, 500, 750, 1000, 1500, 2000, 2500, 3000, 5000, 10000, 15000 & 20000 & 40000 lbs.
USB/Wireless Upgrade: DI-100U or DI-1000U/DI-1000Z/DI-4000U
Recommended Signal Conditioners: AI-1000

RRS1 S Steel Beam Load Cell, NTEP

Page 71



These S beam load cells are NTEP Certified and have the best temperature compensation of all S Beam load cells with -10C to 40C compensated range. They can be used in compression or tension or universal mode.

Capacities: 25, 50, 100, 150, 200, 250, 300, 500, 750, 1000, 1500, 2000, 2500, 3000, 5000, 10000, 15000 & 20000 lbs.
USB/Wireless Upgrade: DI-100U or DI-1000U/DI-1000Z/DI-4000U
Recommended Signal Conditioners: AI-1000

Pancake/Button Load Cells

RSB1 Steel Button Load Cell

Page 77

These button style load cells have a relatively low profile compression design for high load capacities and have threaded holes on the base of the load cell to make it easy to install firmly in place. These load cells have high accuracy, good side load tolerance and stable performance. They are used for various weighing and force measurement systems.

Capacities: 2000 & 5000 kg.
USB/Wireless Upgrade: DI-100U or DI-1000U/DI-1000Z/DI-4000U
Recommended Signal Conditioners: AI-1000

RSB2 Steel Button Load Cell

Page 79

These are similar to the RSB1 load cells and are meant for compression applications. But they are available in lower capacities to provide more accuracy in the 500 kg or 1000 Kg ranges.

Capacities: 500 & 1000 kg.
USB/Wireless Upgrade: DI-100U or DI-1000U/DI-1000Z/DI-4000U
Recommended Signal Conditioners: AI-1000

RSB3 Low Profile Load Cell with Threaded Stud

Page 81

These load cells can be used for compression, tension or universal load measurement applications. They come with threaded stud on one end and threaded holes on the other, so they are really great for applications that need to fit into tight spaces and need to use a leveling foot or rod-end to concentrate the load along the axial direction.

Capacities: 50, 100, 200 & 500 kg.
USB/Wireless Upgrade: DI-100U or DI-1000U/DI-1000Z/DI-4000U
Recommended Signal Conditioners: AI-1000

RSB4 Universal Load Cell With Threaded Stud

Page 83

New Product

These universal load cells are one of our smaller load cells with threaded holes on both ends. A user can attach a rod end or leveling foot to each end making it easy to mount in various configurations. It can be used for measuring tension or compression or both and is good for axial loading applications.

Capacities: 5, 10, 50, 100 and 200 Kg.
USB/Wireless Upgrade: DI-100U or DI-1000U/DI-1000Z/DI-4000U
Recommended Signal Conditioners: AI-1000

RSB5 Subminiature Load cell Compression Only

Page 85

New Product

These sub-miniature load cells are one of the smallest load cells we offer. They have good accuracy and stability for use in compression applications that allow very little space for the load cell. They dont have any mounting features so it can be used only in applications where the loads are applied on top of the load cell in a simply supported mode.

Capacities: 150 g, 500 g, 1 kg, 5 lb, 10 lb and 50 lb.
USB/Wireless Upgrade: DI-100U or DI-1000U/DI-1000Z/DI-4000U
Recommended Signal Conditioners: AI-1000

RSB6 Low Profile Pancake Load Cell

Page 87

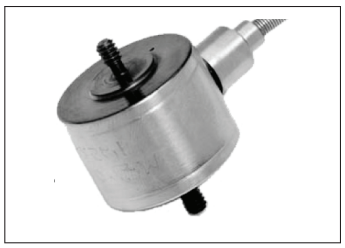
New Product

These low profile pancake load cells with through hole are ideal for process control applications such as weighing reactor vessels. They offer a convenient way to fasten load cells from the top with available eight mounting holes with undercut. They can be used for measuring tension or compression or both. This load cell has a threaded through hole at the center of the load cell, so it could also be used for applications that need a through hole for bringing down

Capacities: 1000, 2500 and 5000 kg.
USB/Wireless Upgrade: DI-100U or DI-1000U/DI-1000Z/DI-4000U
Recommended Signal Conditioners: AI-1000

RSB7 Universal load Cell With Threaded Stud

Page 93



These universal load cells have threaded studs on both ends of the load cell and can be used in either compression or tension. They are available in very low capacities from as low as 50 grams to 1 kilogram.

Capacities: 50, 100 a, 250, 500 nd 1000 grams
USB/Wireless Upgrade: DI-100U or DI-1000U/DI-1000Z/DI-4000U
Recommended Signal Conditioners: AI-1000

High Capacity

Low Profile High Capacity Load Cell

Page 81

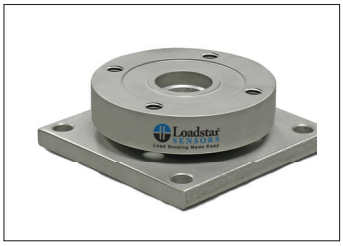
These load cells are constructed with high grade alloy steel, come complete with 20 foot four wire cable and are designed for high capacity rugged applications. They come in two configurations that can be used either for compression only or can be used in tension/universal calibration. This is the load cell with the highest capacity range with options that go up to 100,000 lbs!

Capacities: 5000, 10000, 25000, 50000 & 100000 lb.
USB/Wireless Upgrade: DI-100U or DI-1000U/DI-1000Z/DI-4000U
Recommended Signal Conditioners: AI-1000

Weigh Modules

RMW1 Tank, Hopper & Vessel Assembly

Page 100



The Loadstar RMW1 Series stainless steel weigh module is ideal for use in tank, hopper, vessel, and many other applications. The low-profile design allows for economical solutions in a competitive marketplace. The base of the load cell has convenient through holes to fasten the load cell to the floor through embedded bolts. This kind of design is ideal for process control applications such as reactor vessel weighin, hopper weight scales etc.

Capacities: 1000, 2500, 5000, 10000, 15000, 20000, 35000, 50000, 60000, 75000, 100000, 150000, 200000, 250000, 300000, 400000, 450000 lb.
USB/Wireless Upgrade: DI-100 or DI-1000U/DI-1000Z
Recommended Signal Conditioners: AI-1000

Interfaces & Displays for resistive load cells

AI-1000 Single Channel Signal Conditioner

Page 104

The AI-1000 Strain Gauge Amplifier is an interface designed to amplify strain gauges arranged in a full Wheatstone bridge configuration, and is suitable for many applications where a bridge or differential input amplifier is required. The AI-1000 may be operated with single or dual power supply to provide singed-ended or bipolar output, and includes bridge offset and circuit gain trimmer potentiometers. These can be combined with any of our resisitve load cells to get an amplified 0.5 to 4.5 DC voltage output that can be input into any PLC or data acquisision system.

DI-100/DI-1000/DI-400U Digital Load Cell Interface

Page 87

The DI-100U or the DI-1000U Digital Load Cell Interface modules provide a simple, convenient method to convert ANY existing millivolt output load cell into a PC friendly USB load cell! Just plug in your strain gauge load cell into one connector of the DI-100/DI-1000 and plug the other USB connector to a PC and you get a PC ready load cell. The DI-100 is a 16-bit device and the DI-1000 is a 24 bit device for the best possible analog to digital resolution. The DI-1000 is also available in a wireless battery operable configuration called the DI-1000ZP. The DI-400 is a 24 bit four channel version that supports for resistive load cell simultaneously.

RD-1000 Resistive Load Cell Display

Page 113

Loadstar Sensor's RD-1000 digital scale indicator will interface with all strain-gauge load cells configurations and provides a large well lit LED readout with tare and read functions. It provides all the basic scale operational features for the least cost. The standard features provide for easy setup and calibration to the weigh platform.

Notes

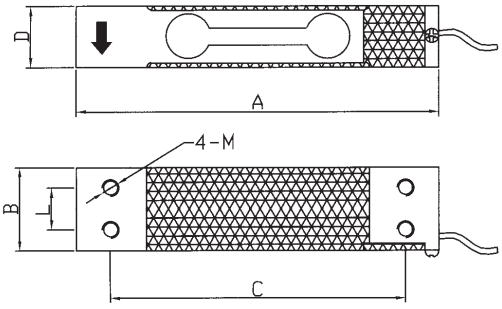
Loadstar® SENSORS

RSP1 Single Point, Aluminum Load Cell

Dimensions

Capacity	kg	
	3, 5, 10, 20, 50	150 to 250
A	130	130
B	30	50
C	106	106
D	22	22
L	15	24
M	M6	M8

(All dimensions are in mm)



Wiring Information

Cable Color Code	
Red	+ Excitation
Black	- Excitation
Green	+ Signal
White	- Signal

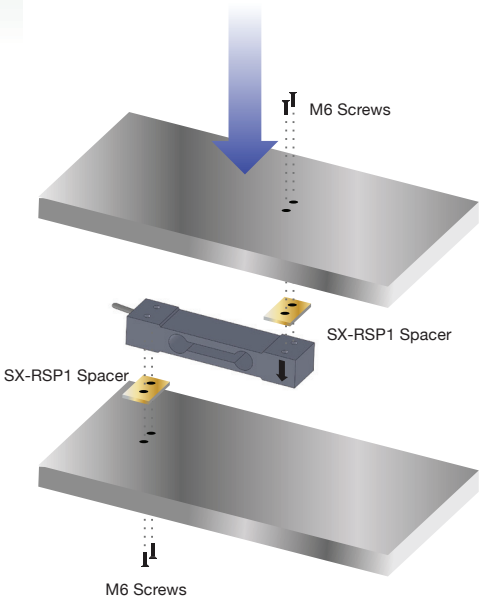
Ordering Information

Multiple Load Cell Capacities	
RSP1	Part No.
5 kilogram	RSP1-005M-A
10 kilogram	RSP1-010M-A
20 kilogram	RSP1-020M-A
50 kilogram	RSP1-050M-A
150 kilogram	RSP1-150M-A

Calibration Options

*C01	Compression
*C02	Tension
*C03	Universal

Mounting Instructions



Accuracy Specifications

Accuracy	
Non-linearity	± 0.015% of Full Scale
Hysteresis	± 0.015% of Full Scale
Non-repeatability	± 0.01% of Full Scale

Load Cell Specifications

Zero Balance	± 2%
Safe Overload	to 150% of capacity (200% Ultimate Overload)
Rated Excitation	10V DC (15V Maximum)
Full Scale Output	2 mv/V ± 10%
Connections	450mm Cable
Input Impedance	410 ± 15 Ohm
Output Impedance	350 ± 3 Ohm
Insulation	> 2,000 MΩ / 50 VDC
Creep, in 30 min	± 0.017% of Full Scale
Operating Temperature Range	-20°C to 60°C with TARE
Temperature Effect on Output	0.017% of Full Scale/10°C
Temperature Effect on Zero	0.017% of Full Scale/10°C
Platform Size	250 mm x 300 mm
Seal Type	IP65

Compatible Accessories

Recommended Interfaces

DI-100U/DI-1000U
Digital Load Cell Interface

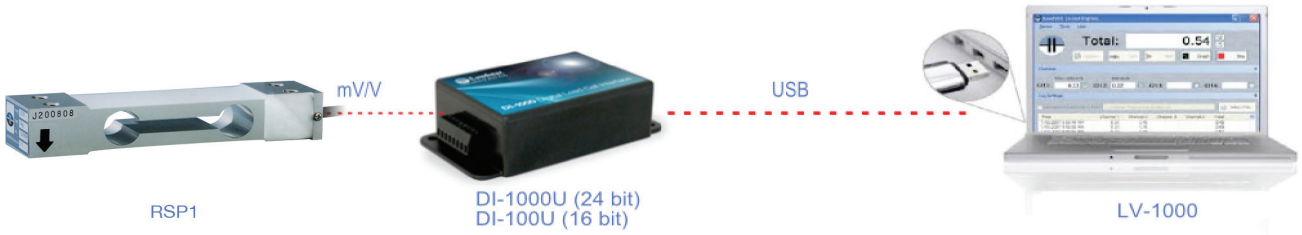
DI-1000Z
Wireless Load Cell Interface

AI-1000
Signal Conditioner

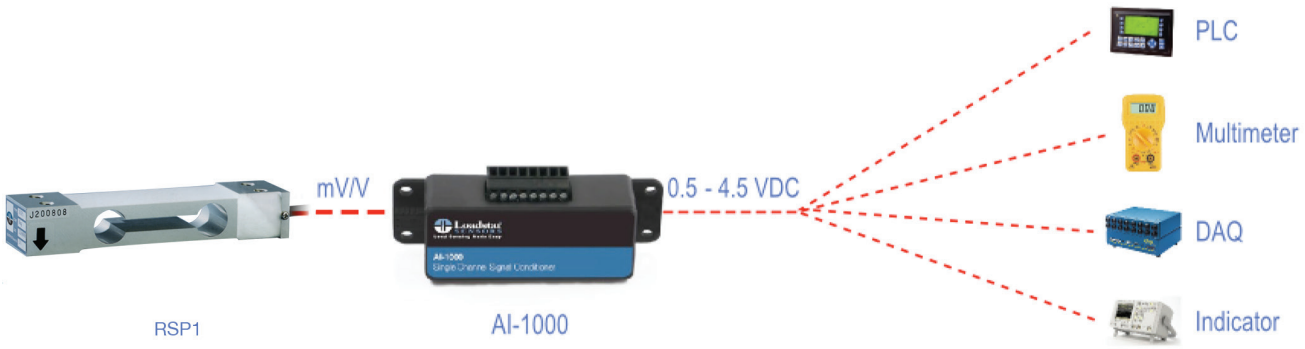
RD-1000
Resistive Load Cell Display

Wireless Load Cell Configuration

USB Load Cell Configuration



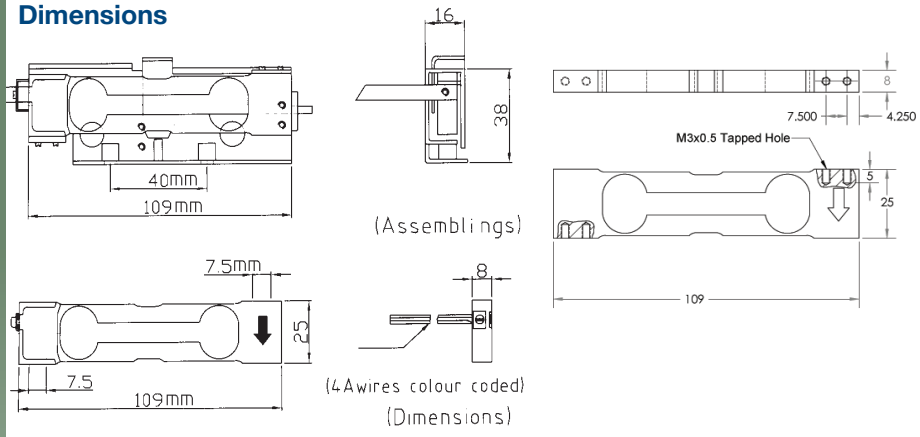
Analog Load Cell Configuration

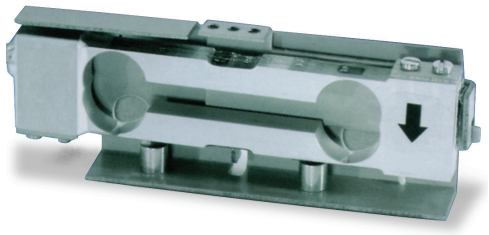


Loadstar® SENSORS

RSP2 Single Point, Overload Protected Aluminum Load Cell

Dimensions





Accuracy Specifications

Accuracy	
Non-linearity	± 0.03% of Full Scale
Hysteresis	± 0.03% of Full Scale
Non-repeatability	± 0.02% of Full Scale

Load Cell Specifications

Zero Balance	± 2%
Safe Overload	to 150% of capacity (200% Ultimate Overload)
Rated Excitation	10V DC (15V Maximum)
Full Scale Output	1.5 mv/V 1.0 mv/V <0.3kg
Connections	400mm Cable
Input Impedance	410 ±15 Ohm
Output Impedance	350 ± 3 Ohm
Insulation	> 2,000 MΩ / 50 VDC
Creep, in 30 min	± 0.03% of Load
Operating Temperature Range	-20°C to 60°C with TARE
Temperature Effect on Output	0.02% of Full Scale/10°C
Temperature Effect on Zero	0.02% of Full Scale/10°C
Platform Size	250 mm x 300 mm
Seal Type	IP65

Compatible Accessories

Recommended Interfaces

DI-100U/DI-1000U
Digital Load Cell Interface

DI-1000Z
Wireless Load Cell Interface

AI-1000
Signal Conditioner

RD-1000
Resistive Load Cell Display

Wiring Information

Cable Color Codes (Type 1)

▬▬▬▬	+ Excitation
▮ ▮ ▮ ▮	- Excitation
+ + + +	+ Signal
● ● ● ●	- Signal

Cable Color Codes (Type 2)

▬ ▬ ▬ ▬	+ Excitation
▬▬▬▬	- Excitation
x x x x	+ Signal
▬▬ ▬▬	- Signal

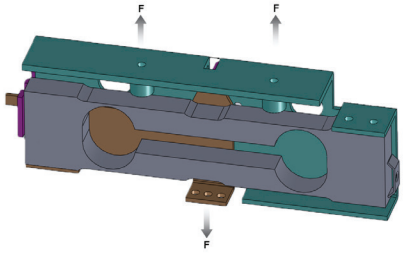
Ordering Information

Multiple Load Cell Capacities
With Overload Protection

RSP2	Part No.
0.1 kilogram	RSP2-0R1M-A
0.6 kilogram	RSP2-0R6M-A
1 kilogram	RSP2-001M-A
2 kilogram	RSP2-002M-A

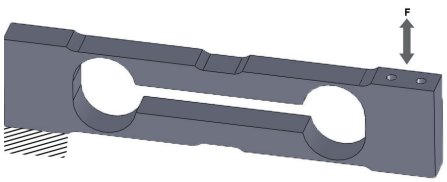
Mounting Instructions

with mounting bracket



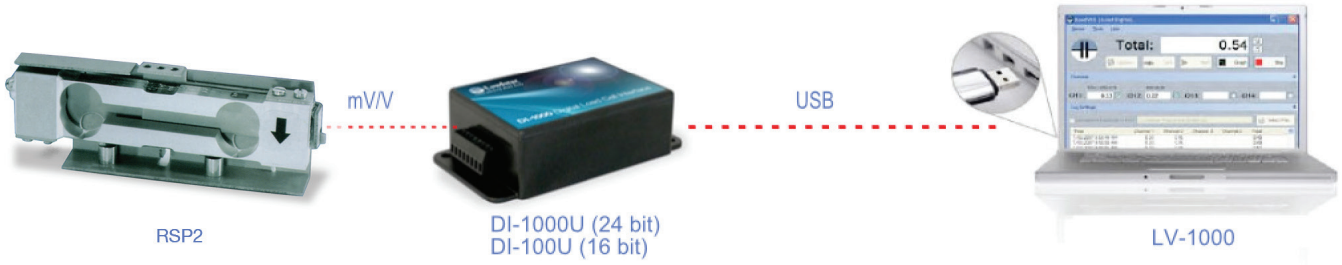
Mounting Instructions

without mounting bracket

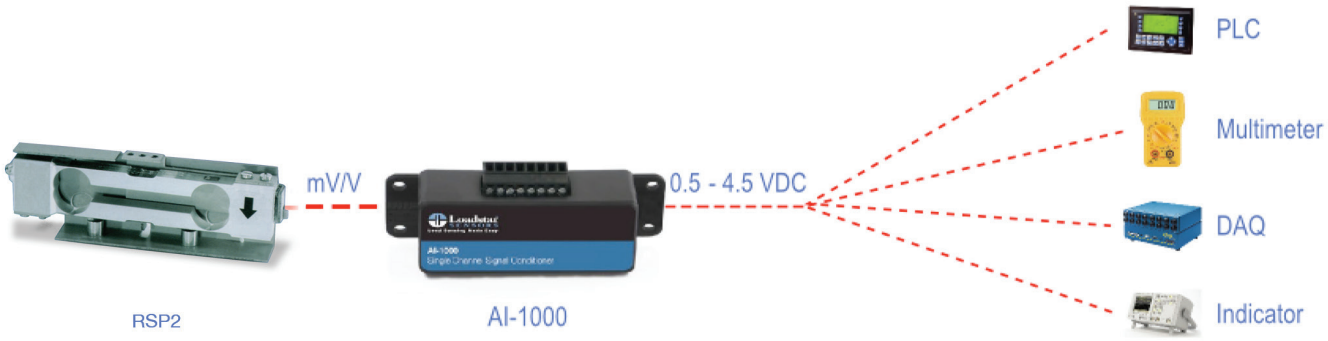


Wireless Load Cell Configuration

USB Load Cell Configuration

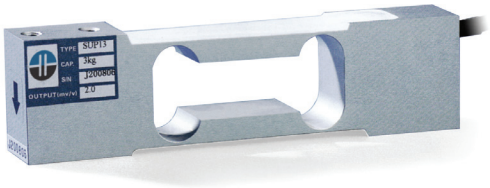


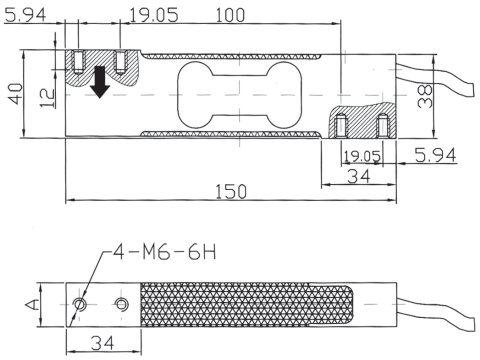
Analog Load Cell Configuration



Loadstar® SENSORS

RSP3 Single Point, Aluminum Load Cell, OIML





(All dimensions are in mm)

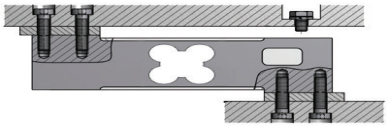
Wiring Information

Cable Color Code	
Red	+ Excitation
Black	- Excitation
Green	+ Signal
White	- Signal
Blue	+ Sense
Yellow	- Sense

Dimensions

Capacity	kg	
	2,20	50,100
A	20	25.4

Suggested Mounting



Ordering Information

Multiple Load Cell Capacities	
RSP1	Part No.
2 kilogram	RSP3-002M-A
20 kilogram	RSP3-020M-A
50 kilogram	RSP3-050M-A
100 kilogram	RSP3-100M-A

Calibration Options

*C01	Compression
*C02	Tension
*C03	Universal

Certifications

OIML

Note:
This load cell does not need a spacer when building a scale with platforms on either side of the load cell. The load cell has a built in offset to enable it to deflect when loaded on one side while fixed on the other side.

Accuracy Specifications

Accuracy	
Non-linearity	± 0.015% of Full Scale
Hysteresis	± 0.015% of Full Scale
Non-repeatability	± 0.01% of Full Scale

Load Cell Specifications

Zero Balance	± 2%
Safe Overload	to 150% of capacity (200% Ultimate Overload)
Rated Excitation	10V DC (15V Maximum)
Full Scale Output	2 mv/V ± 10%
Connections	450mm Cable
Input Impedance	410 ± 15 Ohm
Output Impedance	350 ± 3 Ohm
Insulation	> 2,000 MΩ / 50 VDC
Creep, in 30 min	± 0.017% of Full Scale
Operating Temperature Range	-20°C to 60°C with TARE
Temperature Effect on Output	0.017% of Full Scale/10°C
Temperature Effect on Zero	0.017% of Full Scale/10°C
Platform Size	300 mm x 400 mm
Seal Type	IP65

Compatible Accessories

Recommended Interfaces

DI-100U/DI-1000U
Digital Load Cell Interface

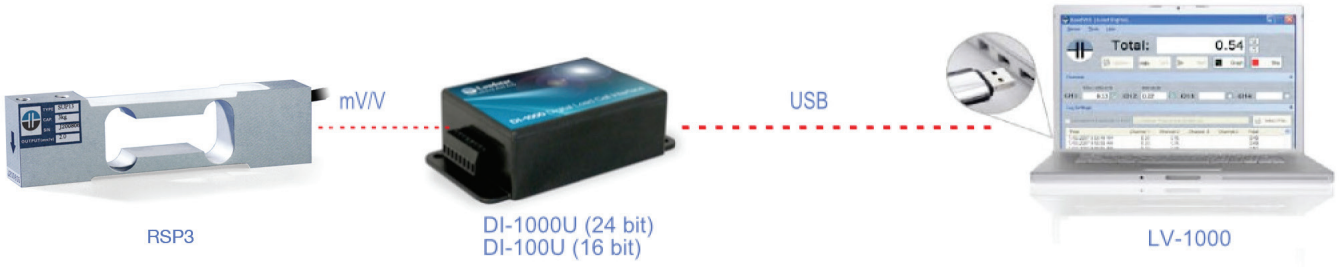
DI-1000Z
Wireless Load Cell Interface

AI-1000
Signal Conditioner

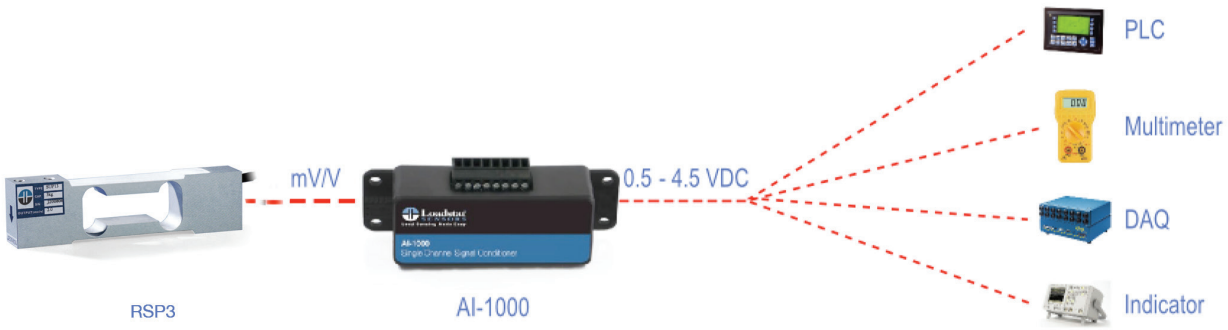
RD-1000
Resistive Load Cell Display

Wireless Load Cell Configuration

USB Load Cell Configuration

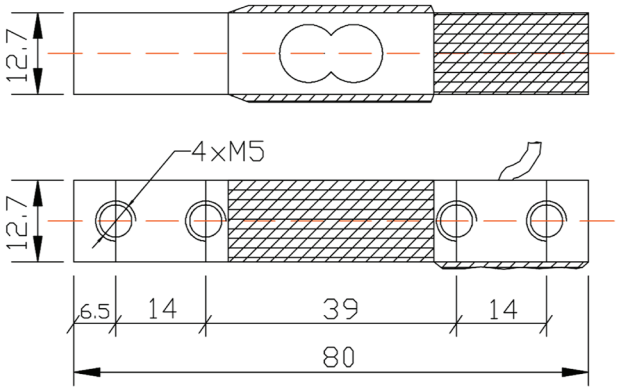


Analog Load Cell Configuration



Loadstar® SENSORS

RSP4 Low Profile Single Point Load Cell



Accuracy Specifications

Accuracy	
Non-linearity	± 0.015% of Full Scale
Hysteresis	± 0.015% of Full Scale
Non-repeatability	± 0.01% of Full Scale

Wiring Information

Cable Color Code	
Red	+ Excitation
Black	- Excitation
Green	+ Signal
White	- Signal

Load Cell Specifications

Typical Values	
Zero Balance	2% of Full Scale
Safe Overload	150% of Full Scale
Ultimate Overload	200% of Full Scale
Full Scale Output	2 ± 10% mV/V
Connections	ϕ 3 x 2000 mm (6.5ft.)
Input Impedance	410 ±10 Ω
Output Impedance	350 ± 3 Ω
Insulation	≥ 2000 MΩ / 50 V DC
Recommended Excitation Voltage	5 ~ 12 V DC
Compensated Temperature Range	14° to 100 °F (-10 to 40 °C)
Temperature Effect on Zero	0.05% of F.S/10 °C
Temperature Effect on Span	0.05% of F.S/10 °C

Ordering Information

Capacity	Part No.
5 kg	RSP4-005M-A
10 kg	RSP4-010M-A
15 kg	RSP4-015M-A

Recommended Interfaces

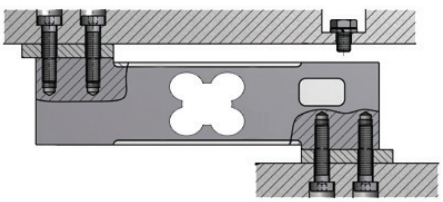
DI-100U/DI-1000U
Digital Load Cell Interface

DI-1000ZP
Wireless Load Cell Interface

AI-1000
Signal Conditioner

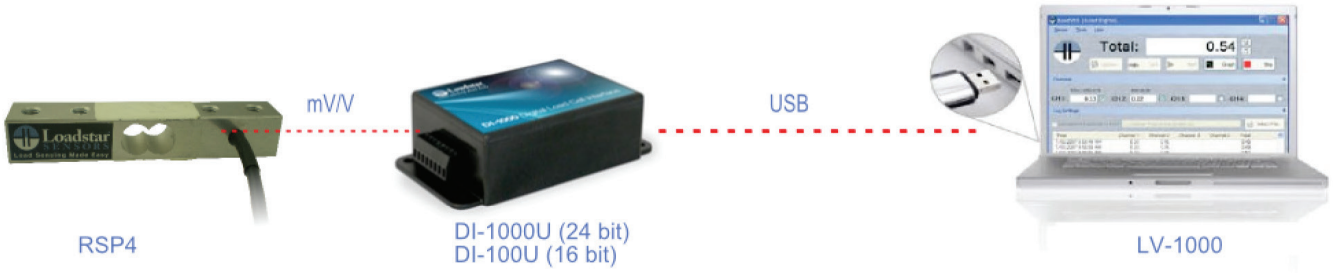
RD-1000
Resistive Load Cell Display

Suggested Mounting

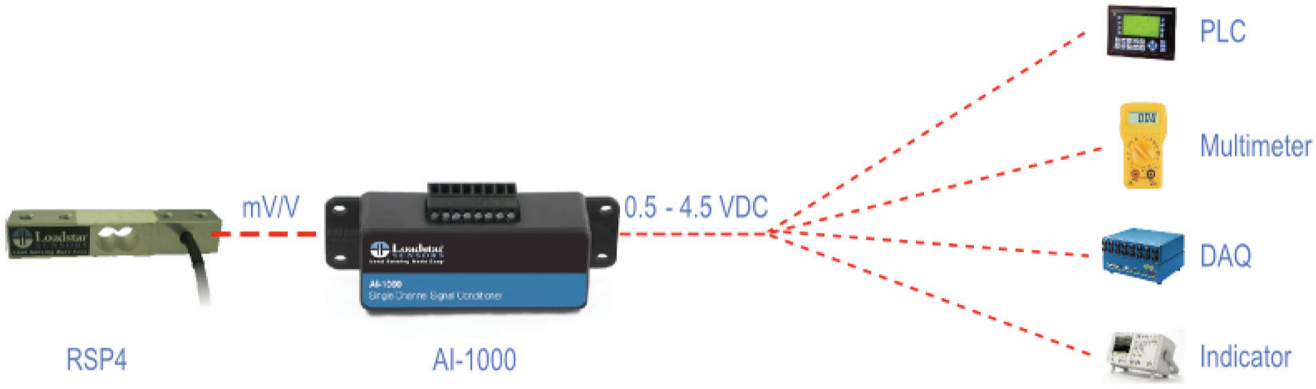


Wireless Load Cell Configuration

USB Load Cell Configuration

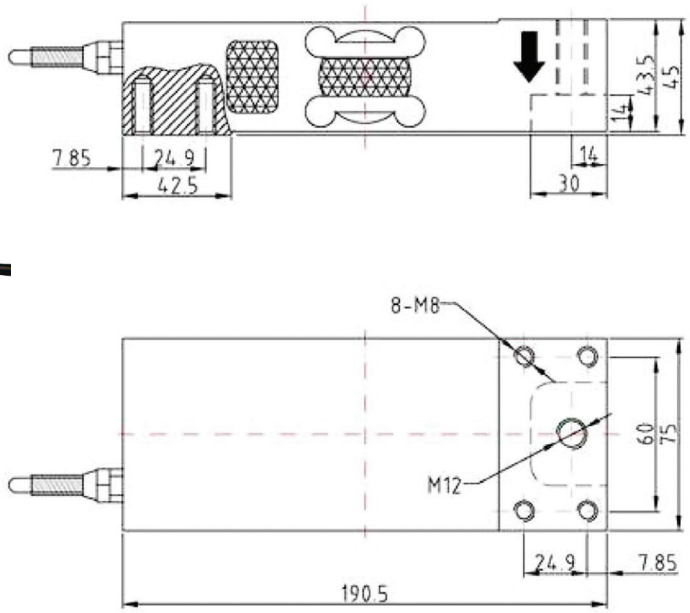


Analog Load Cell Configuration



Loadstar® SENSORS

RSP5 Single Profile Load Cell



Accuracy Specifications

Accuracy	
Non-linearity	± 0.02% of Full Scale
Hysteresis	± 0.02% of Full Scale
Non-repeatability	± 0.02% of Full Scale

Load Cell Specifications

Zero Balance	2% of Full Scale
Safe Overload	150% of Full Scale
Ultimate Overload	200% of Full Scale
Full Scale Output	2 ± 10 % mV/V
Cable size	ϕ 5 x 2000 mm (6.5ft.)
Input Impedance	410 ±15 Ω
Output Impedance	350 ±3 Ω
Insulation	> 2000 MΩ / 50 V DC
Recommended Excitation Voltage	10V DC
Compensated Temperature Range	14 to 100 °F (-10 to 40 °C)
Temperature Effect on Zero	0.025%
Temperature Effect on Span	0.025%

Wiring Information

Cable Color Code	
Red	+ Excitation
Black	- Excitation
Green	+ Signal
White	- Signal

Ordering Information

Capacity	Part No.
200 Kg	RSP5-200M-A

Recommended Interfaces

DI-100U/DI-1000U
Digital Load Cell Interface

DI-1000Z
Wireless Load Cell Interface

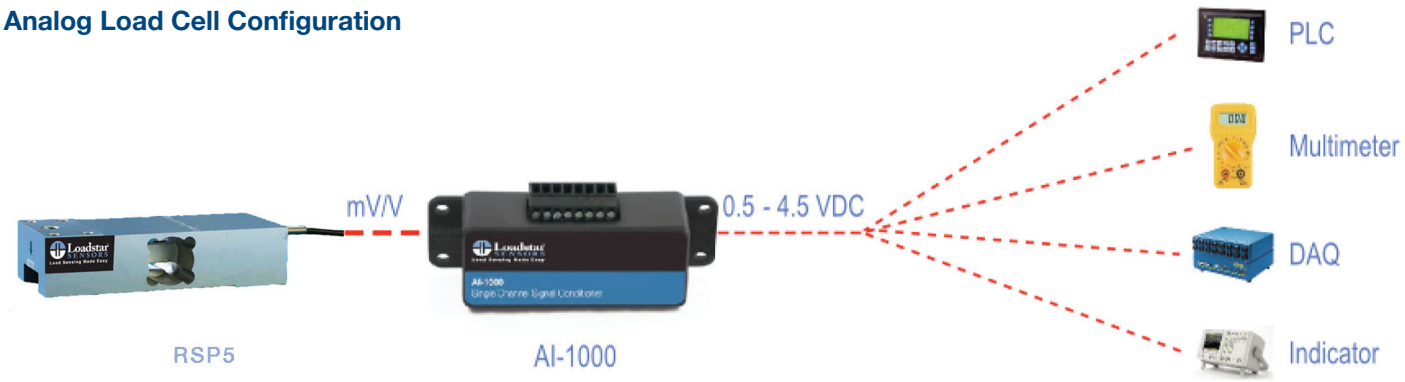
AI-1000
Signal Conditioner

RD-1000
Resistive Load Cell Display

Wireless Load Cell Configuration

USB Load Cell Configuration

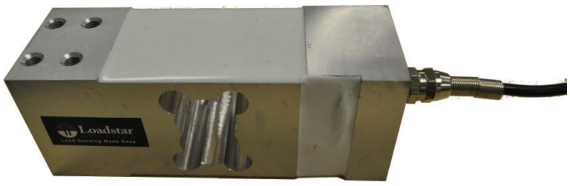
Analog Load Cell Configuration

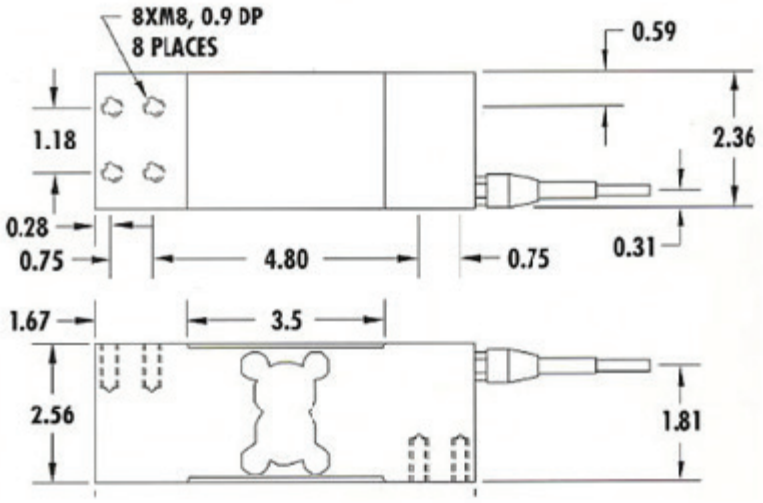


Load Cell with LED Display

Loadstar® SENSORS

RAP3 Single Point Load Cell





(All dimensions are in inches)

Accuracy Specifications

Accuracy	
Non-linearity	± 0.03% of Full Scale
Hysteresis	± 0.02% of Full Scale
Non-repeatability	± 0.02% of Full Scale

Wiring Information

Cable Color Code	
Red	+ Excitation
Black	- Excitation
Green	+ Signal
White	- Signal

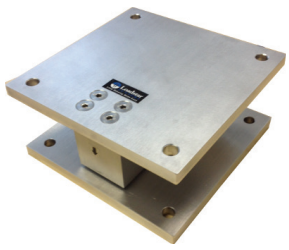
Load Cell Specifications

Typical Values	
Zero Balance	2% of Full Scale
Safe Overload	150% of Full Scale
Ultimate Overload	250% of Full Scale
Full Scale Output	2 ± 1 % mV/V
Input Impedance	390 ±30 Ω
Output Impedance	350 ±4 Ω
Insulation	≥ 5000 MΩ / 50 V DC
Recommended Excitation Voltage	10V DC
Compensated Temperature Range	14 to 100 °F (-10 to 40 °C)
Temperature Effect on Zero	45 ppm/of F.S. / °C
Temperature Effect on Span	20 ppm/of F.S. / °C

Ordering Information

Capacity	Part No.
50 lb	RAP3-050S-A
100 lb	RAP3-100S-A
250 lb	RAP3-250S-A
500 lb	RAP3-500S-A
1000 lb	RAP3-01KS-A
1500 lb	RAP3-01HKS-A

This load cell is available as a weigh module for tank weighing applications.



Recommended Interfaces

DI-100U/DI-1000U
Digital Load Cell Interface

DI-1000ZP
Wireless Load Cell Interface

AI-1000
Signal Conditioner

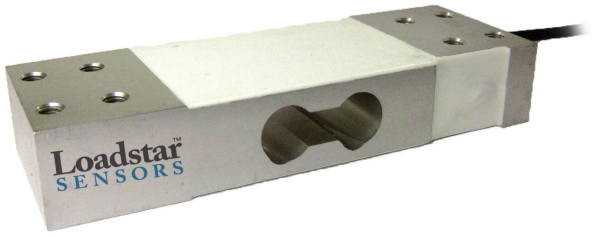
RD-1000
Resistive Load Cell Display

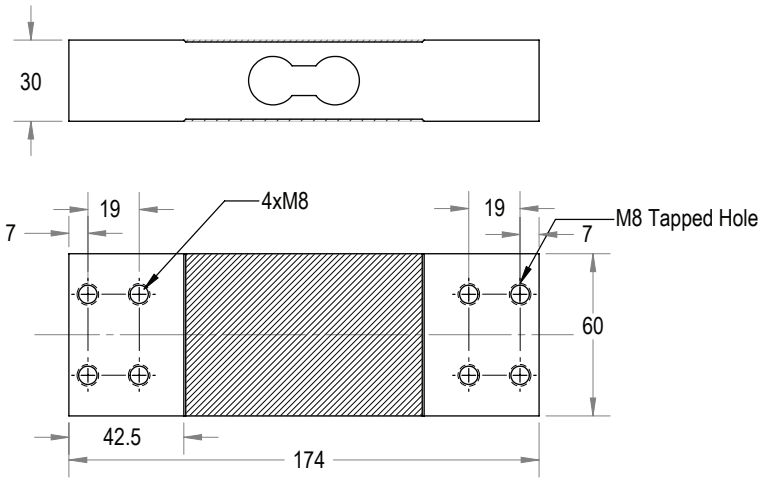
Wireless Load Cell Configuration

USB Load Cell Configuration

Analog Load Cell Configuration

RAP4 Single Point Load Cell





(All dimensions are in mm)

Accuracy Specifications

Accuracy	
Non-linearity	± 0.02% of Full Scale
Hysteresis	± 0.02% of Full Scale
Non-repeatability	± 0.02% of Full Scale

Wiring Information

Cable Color Code	
Red	+ Excitation
Black	- Excitation
Green	+ Signal
White	- Signal

Load Cell Specifications

Typical Values	
Zero Balance	2% of Full Scale
Safe Overload	150% of Full Scale
Ultimate Overload	250% of Full Scale
Full Scale Output	2 ± 10 % mV/V
Input Impedance	410 ±15 Ω
Output Impedance	350 ±3 Ω
Insulation	≥ 2000 MΩ / 50 V DC
Recommended Excitation Voltage	10V DC
Compensated Temperature Range	14 to 100 °F (-10 to 40 °C)
Temperature Effect on Zero	0.025% F.S. /10 °C
Temperature Effect on Span	0.025% F.S. /10 °C

Ordering Information

Capacity	Part No.
300 kg	RAP4-300M-S

Recommended Interfaces

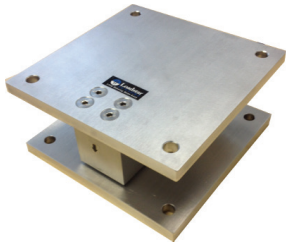
DI-100U/DI-1000U
Digital Load Cell Interface

DI-1000ZP
Wireless Load Cell Interface

AI-1000
Signal Conditioner

RD-1000
Resistive Load Cell Display

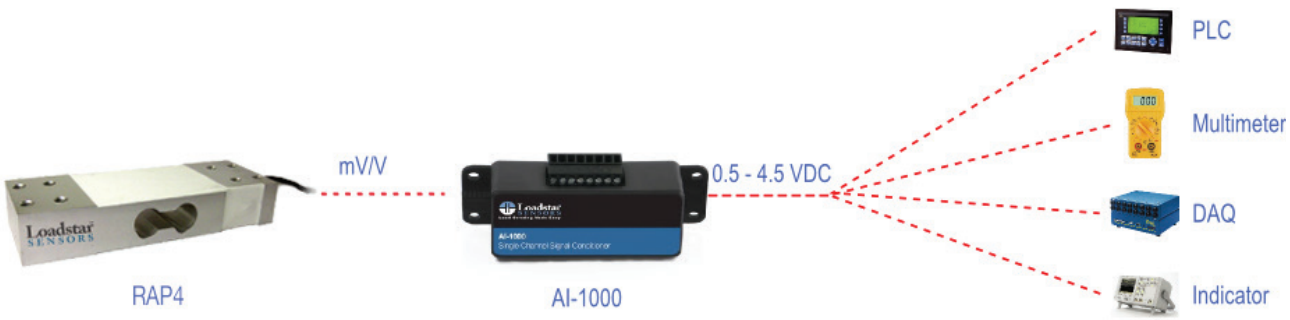
This load cell is available as a weigh module for tank weighing applications.



Wireless Load Cell Configuration

USB Load Cell Configuration

Analog Load Cell Configuration



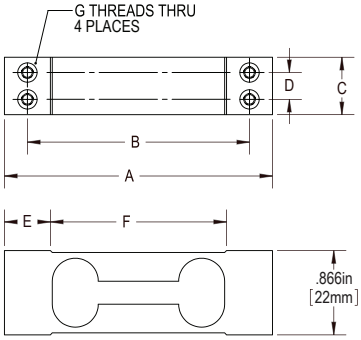
Loadstar® SENSORS

RAPG Single Point, Aluminum Load Cell, OIML

Dimensions

Capacity	kg			
	0.1-3	6-20	25-35	50-250
A	70	130	130	130
B	58	106	106	106
C	15	30	40	50
D	7	15	15	25
E	12	25	25	25
F	46	80	80	80
G	M3	M6	M6	M8

(All dimensions are in mm)



Wiring Information

Cable Color Code	
Red	+ Excitation
Black	- Excitation
Green	+ Signal
White	- Signal

Accuracy Specifications

Accuracy	
Non-linearity	± 0.02% of Full Scale
Hysteresis	± 0.02% of Full Scale
Non-repeatability	± 0.02% of Full Scale

Load Cell Specifications

Zero Balance	± 2%
Safe Overload	to 150% of capacity (300% Ultimate Overload)
Rated Excitation	10V DC (20V Maximum)
Full Scale Output	Group 1: 1 mv/V ± 10% Group 2,3,4: 2 mv/V ± 10%
Connections	1ft Cable
Input Impedance	420 ± 30 Ohm
Output Impedance	350 ± 4 Ohm
Insulation	> 5,000 MΩ
Creep, in 1 hour	± 0.02% of Full Scale
Operating Temperature Range	-10°C to 50°C with TARE
Temperature Effect on Output	15 ppm/°C of Load
Temperature Effect on Zero	40 ppm/°C of Full Scale
Seal Type	IP66

Certifications

OIML

Compatible Accessories

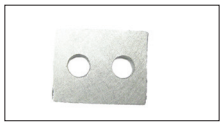
Recommended Interfaces

DI-100U/DI-1000U
Digital Load Cell Interface

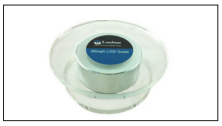
DI-1000Z
Wireless Load Cell Interface

AI-1000
Signal Conditioner

RD-1000
Resistive Load Cell Display



SX-RAPG1
Shim



iWeigh
Scale

Ordering Information

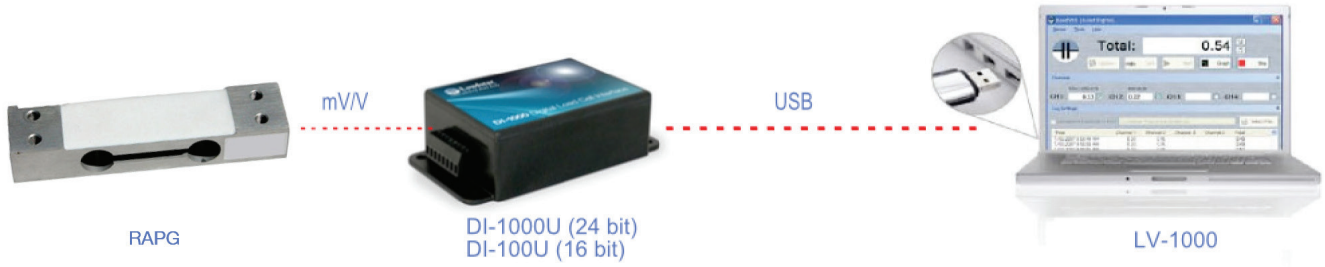
Multiple Load Cell Capacities	
Group 1	Part No.
100 gram	RAPG-100G-A
300 gram	RAPG-300G-A
1 kilogram	RAPG-001M-A
2 kilogram	RAPG-002M-A
3 kilogram	RAPG-003M-A
Group 2	Part No.
6 kilogram	RAPG-006M-A
10 kilogram	RAPG-010M-A
15 kilogram	RAPG-015M-A
20 kilogram	RAPG-020M-A
Group 3	Part No.
25 kilogram	RAPG-025M-A
30 kilogram	RAPG-030M-A
35 kilogram	RAPG-035M-A
Group 4	Part No.
50 kilogram	RAPG-050M-A
100 kilogram	RAPG-100M-A
250 kilogram	RAPG-250M-A

Calibration Options

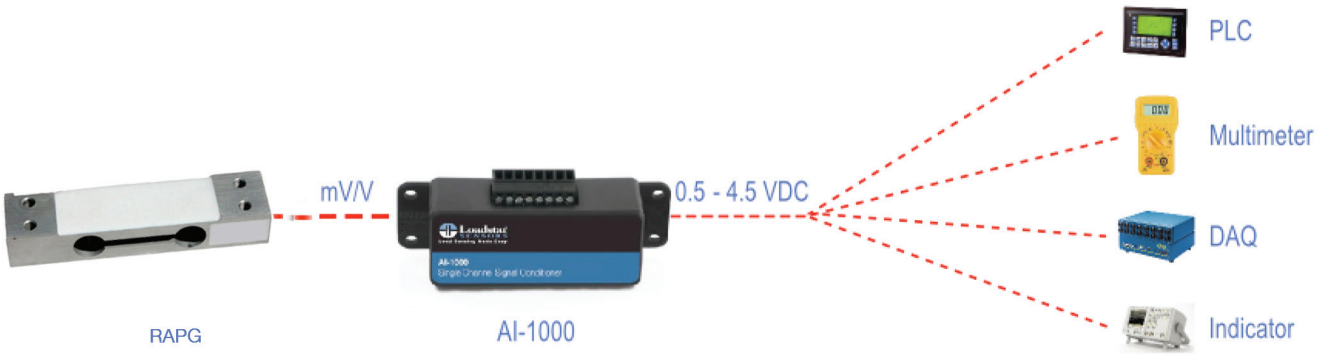
*C01	Compression
*C02	Tension
*C03	Universal

Wireless Load Cell Configuration

USB Load Cell Configuration

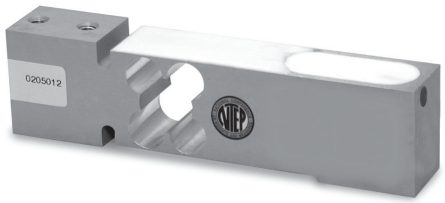


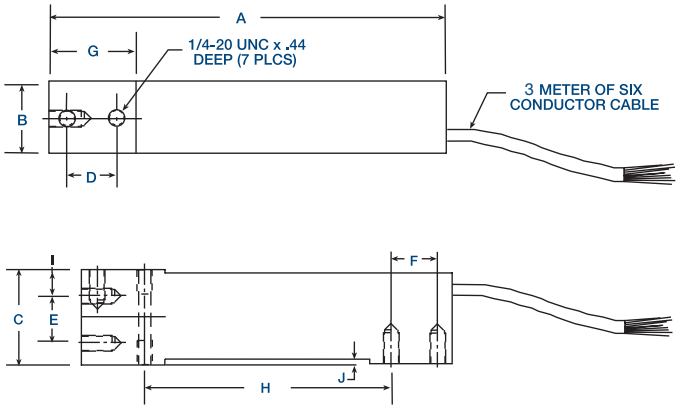
Analog Load Cell Configuration



Loadstar® SENSORS

RRP1 Single Point, Aluminum Load Cell, NTEP





(All dimensions are in mm)

Wiring Information

Cable Color Code	
Green	+ Excitation
Black	- Excitation
Blue	+ Sense
Brown	- Sense
White	+ Signal
Red	- Signal
Yellow	Shield

Certifications

Dimensions

Capacity	kg
	3-100
A	150.3
B	25.4
C	39.9
D	19.1
E	19.1
F	19.1
G	33.8
H	99.6
I	11.4
J	2.4

Ordering Information

Multiple Load Cell Capacities	
RRP1	Part No.
3 kilogram	RRP1-003M-A
5 kilogram	RRP1-005M-A
7 kilogram	RRP1-005M-A
10 kilogram	RRP1-010M-A
15 kilogram	RRP1-015M-A
20 kilogram	RRP1-020M-A
30 kilogram	RRP1-030M-A
50 kilogram	RRP1-050M-A
75 kilogram	RRP1-075M-A
100 kilogram	RRP1-100M-A

Calibration Options

*C01	Compression
*C02	Tension
*C03	Universal

Accuracy Specifications

Accuracy	
Combined Error	± 0.02% of Full Scale

Load Cell Specifications

Safe Overload	150% of capacity
Deflection at Capacity	5-100 kg ≤ 0.4 mm/0.015"
Rated Excitation	10V DC (15V Maximum)
Full Scale Output	2 mv/V
Connections	10ft Cable
Bridge Resistance	350 Ohms nominal
Insulation Resistance	5000 MΩ
Compensated Temperature Range	-10°C to 40°C with TARE
Max Base Size	3 kg - 10 kg: 12" x 12" 15 kg - 30 kg: 18" x 18" 50 kg - 100 kg: 24" x 24"
Seal Type	IP67

Compatible Accessories

Recommended Interfaces

DI-100U/DI-1000U
Digital Load Cell Interface

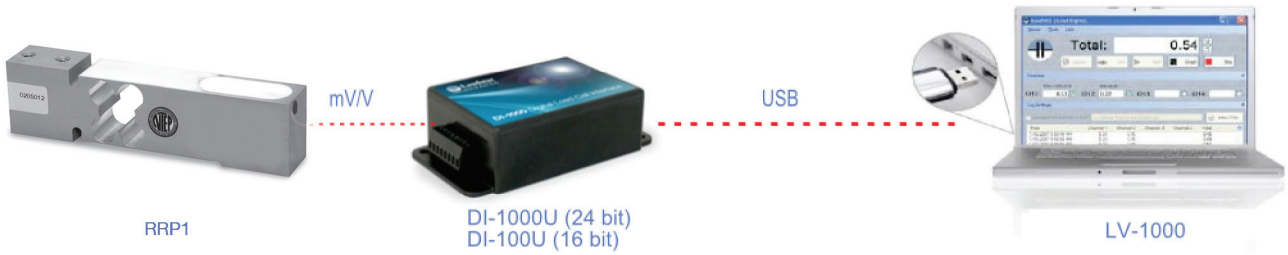
DI-1000Z
Wireless Load Cell Interface

AI-1000
Signal Conditioner

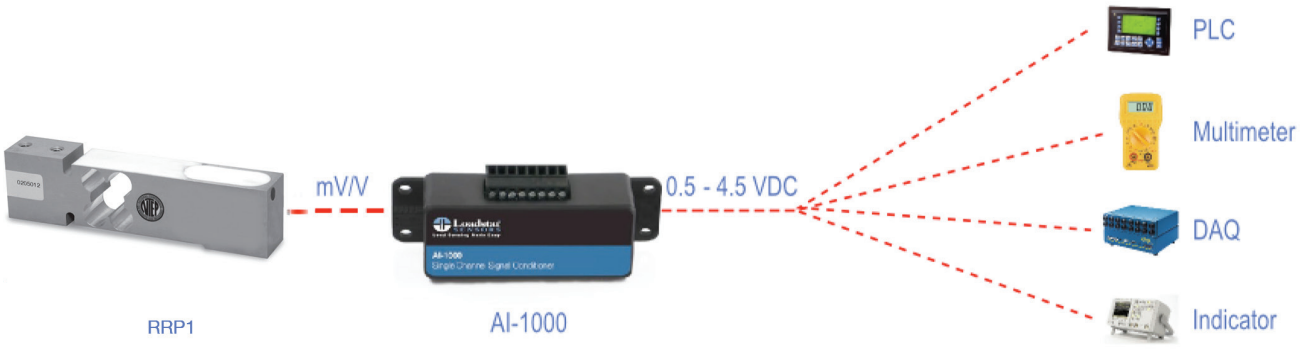
RD-1000
Resistive Load Cell Display

Wireless Load Cell Configuration

USB Load Cell Configuration



Analog Load Cell Configuration



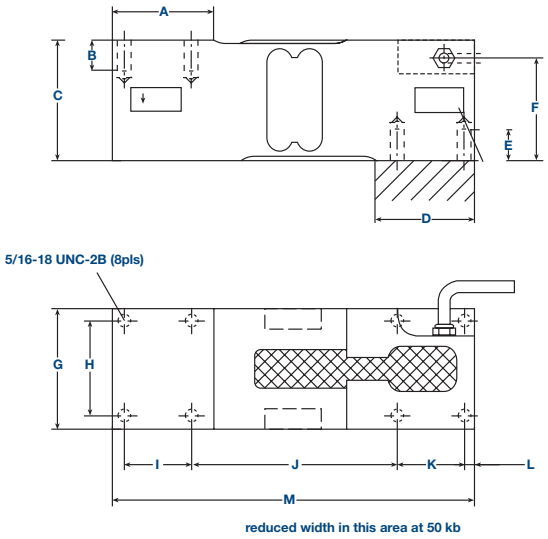
Loadstar® SENSORS

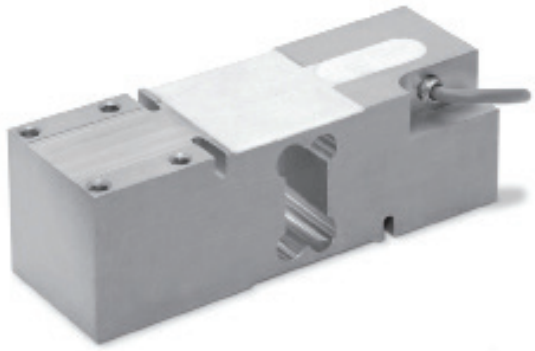
RRP2 Single Point, Aluminum Load Cell, NTEP

Dimensions

Capacity	kg
	50-660
A	52
B	16
C	62.3
D	52
E	16
F	52.3
G	63
H	50
I	35
J	107
K	35
L	5.5
M	188

(All dimensions are in mm)





Accuracy Specifications

Accuracy	
Combined Error	± 0.02% of Full Scale

Load Cell Specifications

Safe Overload	150% of capacity
Rated Excitation	10V DC (15V Maximum)
Full Scale Output	2 mv/V
Connections	10ft Cable
Bridge Resistance	350 Ohms nominal
Insulation Resistance	1000 MΩ
Compensated Temperature Range	-10°C to 40°C with TARE
Max Base Size	24" x 24"
Seal Type	IP67

Compatible Accessories

Recommended Interfaces

DI-100U/DI-1000U
Digital Load Cell Interface

DI-1000Z
Wireless Load Cell Interface

AI-1000
Signal Conditioner

RD-1000
Resistive Load Cell Display

Wiring Information

Cable Color Code	
Green	+ Excitation
Black	- Excitation
Blue	+ Sense
Brown	- Sense
White	+ Signal
Red	- Signal
Yellow	Shield

Certifications

NTEP · CE · FM APPROVED

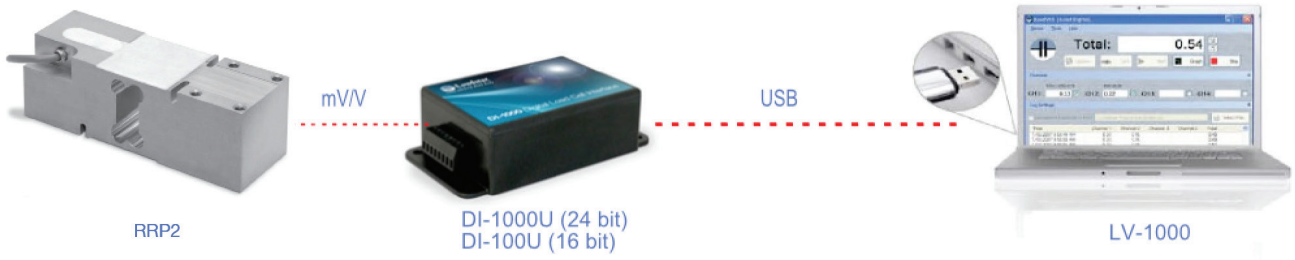
Ordering Information

Multiple Load Cell Capacities	
RRP2	Part No.
50 kilogram	RRP2-050M-A
75 kilogram	RRP2-075M-A
100 kilogram	RRP2-100M-A
150 kilogram	RRP2-150M-A
200 kilogram	RRP2-200M-A
250 kilogram	RRP2-250M-A
300 kilogram	RRP2-300M-A
500 kilogram	RRP2-500M-A
660 kilogram	RRP2-660M-A

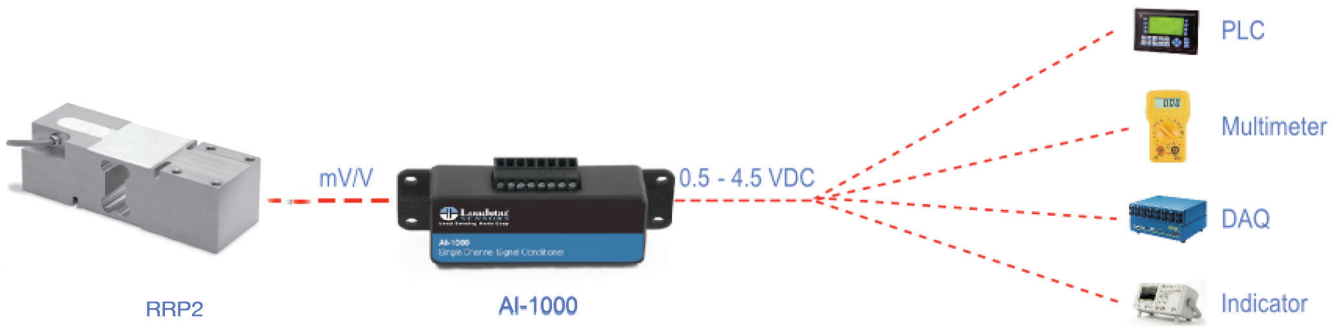
Calibration Options

*C01	Compression
*C02	Tension
*C03	Universal

Wireless Load Cell Configuration

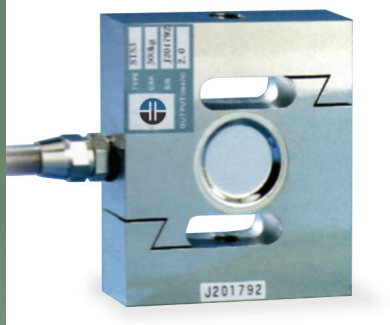


Analog Load Cell Configuration



Loadstar® SENSORS

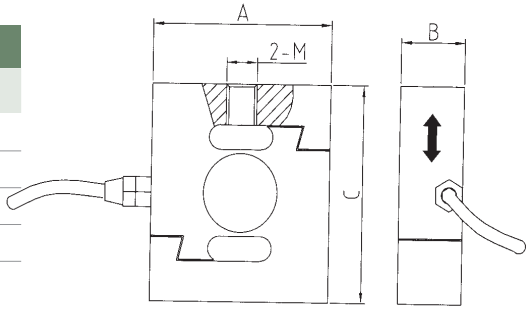
RSS1 S Beam Load Cell



Dimensions

Capacity	kg	
	200	3k-5k
A	63.5	167
B	22	45
C	59.5	90
M	M10	M18X1.5

(All dimensions are in mm)



Wiring Information

Cable Color Code	
Red	+ Excitation
Black	- Excitation
Green	+ Signal
White	- Signal

Accuracy Specifications

Accuracy	
Non-linearity	± 0.03% of Full Scale
Hysteresis	± 0.03% of Full Scale
Non-repeatability	± 0.02% of Full Scale

Ordering Information

Multiple Load Cell Capacities	
RSS1	Part No.
200 kilogram	RSS1-200M-S
3000 kilogram	RSS1-03KM-S
5000 kilogram	RSS1-05KM-S

Note:
This load cell is compatible with metric units and has a built in overload protection when used in compression mode. It can be used in compression mode, tension mode or universal mode.

Load Cell Specifications

Zero Balance	± 1%
Safe Overload	to 150% of capacity (300% Ultimate Overload)
Rated Excitation	10V DC (15V Maximum)
Full Scale Output	2 mv/V
Connections	3m Cable
Input Impedance	385 ± 15 Ohm
Output Impedance	350 ± 3 Ohm
Insulation	> 2,000 MΩ
Creep, in 30 min	± 0.03% of Full Scale
Operating Temperature Range	-20°C to 60°C with TARE
Temperature Effect on Output	0.03% of Full Scale/10°C
Temperature Effect on Zero	0.03% of Full Scale/10°C
Seal Type	IP66

Calibration Options

*C01	Compression
*C02	Tension
*C03	Universal

Compatible Accessories

Recommended Interfaces

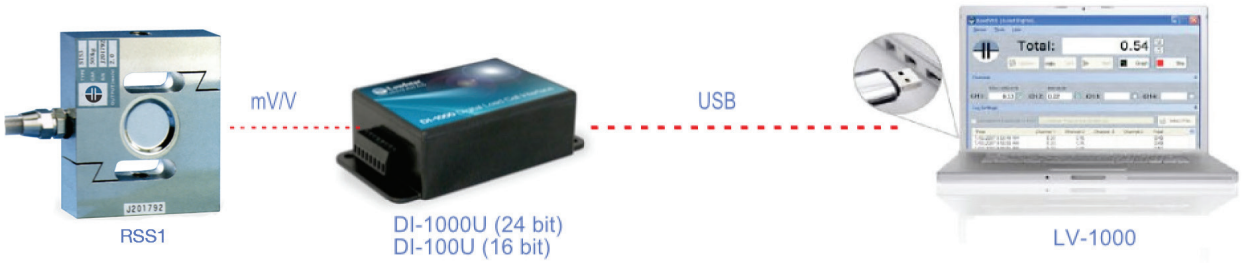
DI-100U/DI-1000U
Digital Load Cell Interface

DI-1000Z
Wireless Load Cell Interface

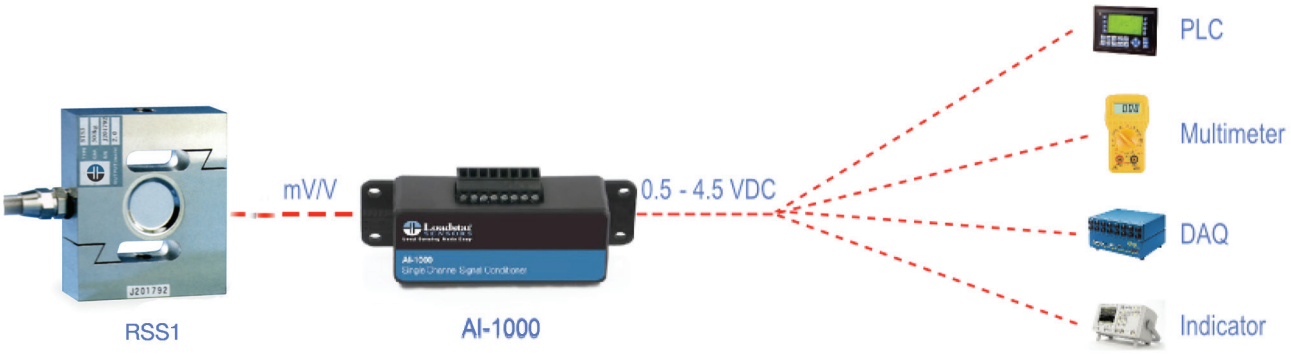
AI-1000
Signal Conditioner

RD-1000
Resistive Load Cell Display

Wireless Load Cell Configuration



Analog Load Cell Configuration



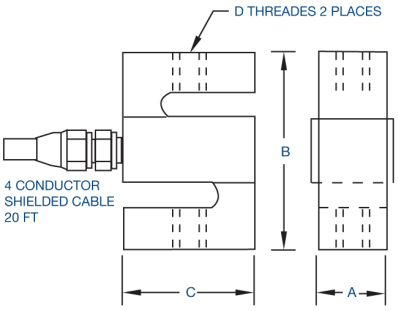
Loadstar® SENSORS

RAS1 S Beam Load Cell

Dimensions

Capacity	lb						
	25-200	250-1.5K	2k-3k	5k-10k	15k	20k	40k
A	0.50	0.75	1.00	1.00	1.25	2.00	2.40
B	2.50	3.00	3.00	4.25	5.50	7.00	7.40
C	2.0	2.0	2.0	3.0	4.0	5.00	5.50
D	1/4-28	1/2-20	1/2-20	3/4-16	1-14	1 1/4 - 12	1 1/2 - 12

(All dimensions are in inches)



Accuracy Specifications

Accuracy	
Non-linearity	± 0.02% of Full Scale
Hysteresis	± 0.02% of Full Scale
Non-repeatability	± 0.02% of Full Scale

Load Cell Specifications

Zero Balance	± 2%
Safe Overload	to 150% of capacity (300% Ultimate Overload)
Rated Excitation	10V DC (20V Maximum)
Full Scale Output	3 mv/V ± 10%
Connections	20ft Cable
Input Impedance	385 ± 30 Ohm
Output Impedance	350 ± 4 Ohm
Insulation	> 5,000 MΩ
Creep, in 1 hour	± 0.05% of Full Scale
Operating Temperature Range	-40°C to 80°C with TARE
Temperature Effect on Output	20 ppm/°C of Load
Temperature Effect on Zero	20 ppm/°C of Rated Output

Compatible Accessories

Recommended Interfaces

DI-100U/DI-1000U
Digital Load Cell Interface

DI-1000Z
Wireless Load Cell Interface

AI-1000
Signal Conditioner

RD-1000
Resistive Load Cell Display

Wiring Information

Cable Color Code	
Red	+ Excitation
Black	- Excitation
Green	+ Signal
White	- Signal

Ordering Information

Multiple Load Cell Capacities With Overload Protection	
RAS1	Part No.
25 pounds	RAS1-025S-S
50 pounds	RAS1-050S-S
100 pounds	RAS1-100S-S
150 pounds	RAS1-150S-S
200 pounds	RAS1-200S-S
250 pounds	RAS1-250S-S
500 pounds	RAS1-500S-S
750 pounds	RAS1-750S-S
1000 pounds	RAS1-01KS-S
1500 pounds	RAS1-1HKS-S
2000 pounds	RAS1-02KS-S
2500 pounds	RAS1-2HKS-S
3000 pounds	RAS1-03KS-S
5000 pounds	RAS1-05KS-S
10000 pounds	RAS1-10KS-S
15000 pounds	RAS1-15KS-S
20000 pounds	RAS1-20KS-S
40000 pounds	RAS1-40KS-S

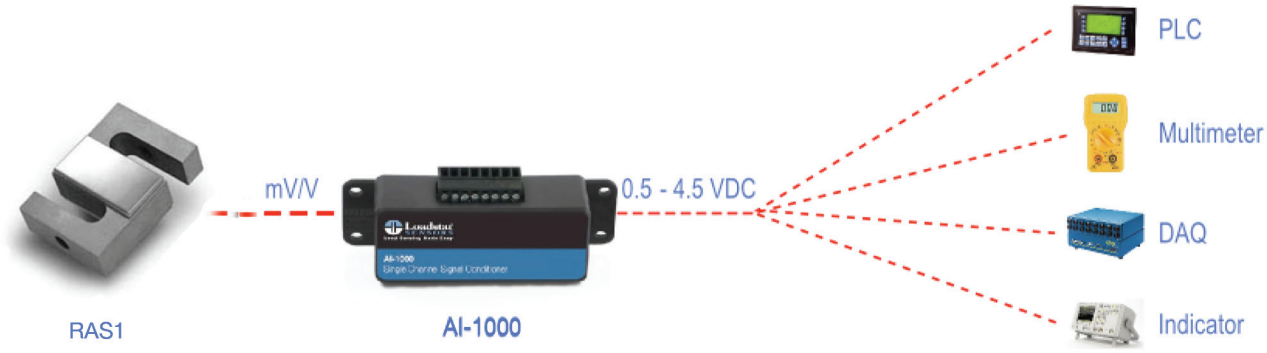
Calibration Options

*C01	Compression
*C02	Tension
*C03	Universal

Wireless Load Cell Configuration

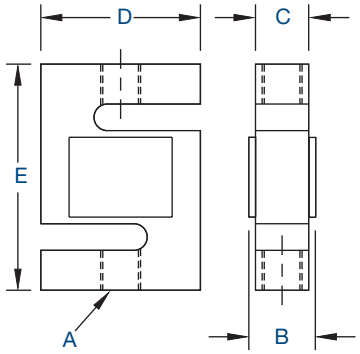
USB Load Cell Configuration

Analog Load Cell Configuration



Loadstar® SENSORS

RRS1 S Beam Load Cell, NTEP



Wiring Information

Cable Color Code	
Red	+ Excitation
Black	- Excitation
Green	+ Signal
White	- Signal

Certifications

Ordering Information

Multiple Load Cell Capacities	
RRS1	Part No.
25 pounds	RRS1-025S-S
50 pounds	RRS1-050S-S
75 pounds	RRS1-075S-S
100 pounds	RRS1-100S-S
150 pounds	RRS1-150S-S
200 pounds	RRS1-200S-S
250 pounds	RRS1-250S-S
300 pounds	RRS1-300S-S
500 pounds	RRS1-500S-S
750 pounds	RRS1-750S-S
1000 pounds	RRS1-01KS-S
1500 pounds	RRS1-1HKS-S
2000 pounds	RRS1-02KS-S
2500 pounds	RRS1-2HKS-S
3000 pounds	RRS1-03KS-S
5000 pounds	RRS1-05KS-S
10000 pounds	RRS1-10KS-S
15000 pounds	RRS1-15KS-S
20000 pounds	RRS1-20KS-S

Calibration Options

*C01	Compression
*C02	Tension
*C03	Universal

Dimensions

Capacity	lb						
	25-300	500-1.5K	2k-2.5k	3k	5-10k	15k	20k
A	#1/4-28	#1/2-20	#1/2-20	#1/2-20	#3/4-16	#1-12	#1¼-12
B	#0.75	1.00	1.25	1.25	1.25	1.50	2.25
C	0.50	0.75	1.00	1.00	1.00	1.25	2.00
D	2.00	2.00	2.00	3.00	3.00	4.00	5.00
E	2.50	2.50	2.50	4.00	4.00	5.50	7.00

(All dimensions are in inches)

Accuracy Specifications

Accuracy	
Non-linearity	± 0.03% of Full Scale
Hysteresis	± 0.02% of Full Scale

Load Cell Specifications

Zero Balance	± 2%
Safe Overload	to 150% of capacity (300% Ultimate Overload)
Rated Excitation	10V DC (15V Maximum)
Full Scale Output	3 mv/V ± 10%
Cable Length	20ft
Input Impedance	385 ± 5 Ohm
Output Impedance	350 ± 4 Ohm
Insulation	> 5,000 MΩ
Creep, in 1 hour	± 0.05% of Full Scale
Operating Temperature Range	-40°C to 80°C with TARE
Seal Type	Environmentally sealed IP67

Compatible Accessories

Recommended Interfaces

DI-100U/DI-1000U
Digital Load Cell Interface

DI-1000Z
Wireless Load Cell Interface

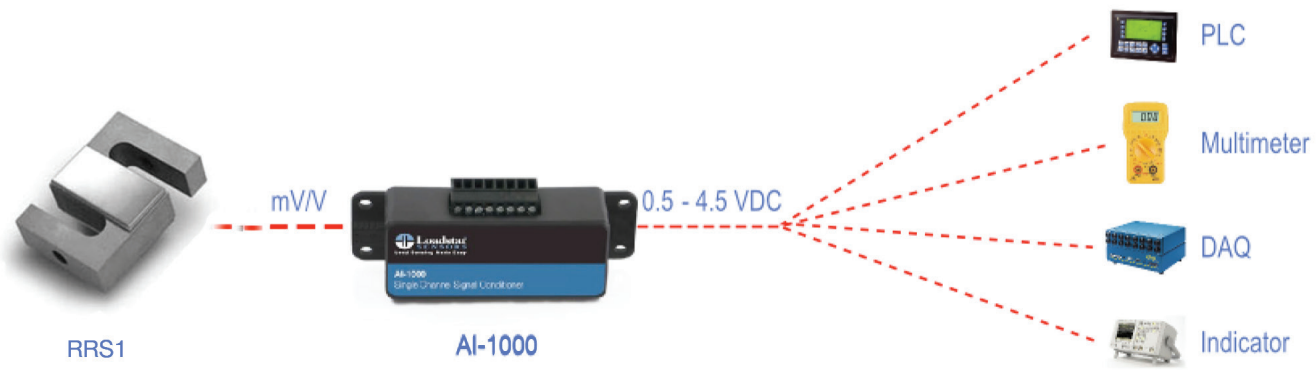
AI-1000
Signal Conditioner

RD-1000
Resistive Load Cell Display

Wireless Load Cell Configuration

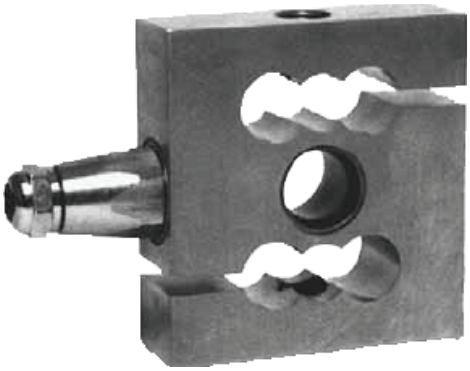
USB Load Cell Configuration

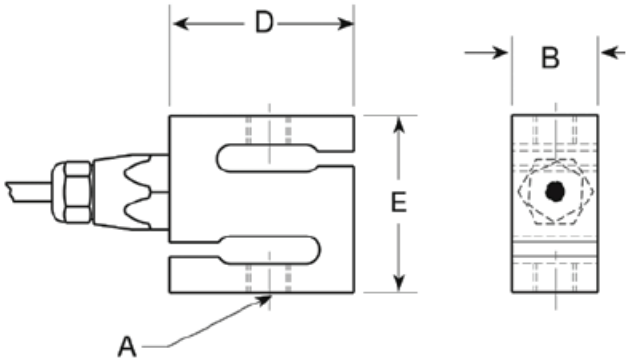
Analog Load Cell Configuration



Loadstar® SENSORS

RRS4 S-Beam Load Cell





Wiring Information

Cable Color Code	
Red	+ Excitation
Black	- Excitation
Green	+ Signal
White	- Signal

Accuracy Specifications

Accuracy	
Non-linearity	± 0.03% of Full Scale
Hysteresis	± 0.05% of Full Scale

Dimensions

Capacity	lb		
	2250	4500	11.25k
A	#5/8-18	#5/8-18	#1-12 UNF
B	1.18	1.18	1.69
D	3.38	3.38	5.62
E	3.62	3.62	5.37

(All dimensions are in inches)

Load Cell Specifications

Zero Balance	± 2%
Safe Overload	to 200% of capacity
Rated Excitation	10V DC (15V Maximum)
Full Scale Output	2.0 mV/V ± 10%
Cable Length	20ft
Input Impedance	1100 ± 50 ohm
Output Impedance	1000 ± 2 ohm
Insulation	> 10,000 MΩ
Operating Temperature Range	-10°C to 40°C
Seal Type	Hermetrically sealed IP68

Ordering Information

Multiple Load Cell Capacities	
RRS4	Part No.
2250 lb	RRS4-2250-S
4500 lb	RRS4-4500-S
11.25k lb	RRS4-11.25-S

Calibration Options

*C01	Compression
*C02	Tension
*C03	Universal

Certifications

OIML CE

Compatible Accessories

Recommended Interfaces

DI-100U/DI-1000U/DI-400U
Digital Load Cell Interface

DI-1000Z
Wireless Load Cell Interface

AI-1000
Signal Conditioner

RD-1000
Resistive Load Cell Display

Wireless Load Cell Configuration

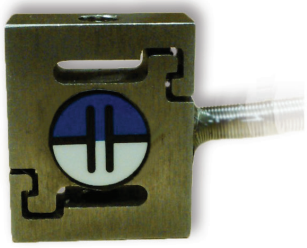
USB Load Cell Configuration

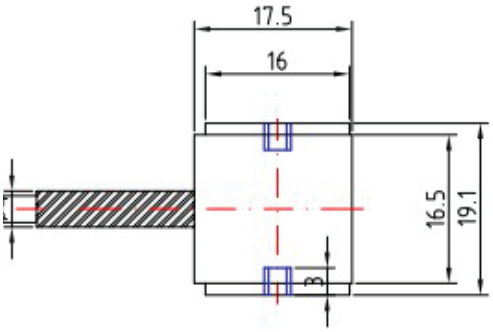
Analog Load Cell Configuration

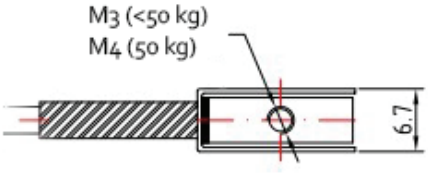
Loadstar® SENSORS

RES2 S-Beam Jr. Load Cell with Overload Protection

Dimensions







Accuracy Specifications

Accuracy	
Non-linearity	± 0.5% of Full Scale
Hysteresis	± 0.5% of Full Scale
Non-repeatability	± 0.5% of Full Scale

Load Cell Specifications

Zero Balance	± 2%
Safe Overload	to 150% of capacity (300% Ultimate Overload)
Rated Excitation	10V DC (20V Maximum)
Full Scale Output	2 mv/V ± 10%
Connections	20ft Cable
Input Impedance	350 ± 10 Ohm
Output Impedance	350 ± 3 Ohm
Insulation	> 5,000 MΩ
Creep, in 30 minutes	± 0.5% of Full Scale
Operating Temperature Range	-10°C to 40°C with TARE
Temperature Effect on Output	± 0.5% / 10°C of Load
Temperature Effect on Zero	± 0.5% / 10°C of Rated Output

Wiring Information

Cable Color Code	
Red	+ Excitation
Black	- Excitation
Green	+ Signal
White	- Signal

Ordering Information

Multiple Load Cell Capacities With Overload Protection	
RES2	Part No.
5 kg	RES2-005M-S
10 kg	RES2-010M-S
50 kg	RES2-050M-S

Compatible Accessories

Recommended Interfaces

DI-100U/DI-1000U
Digital Load Cell Interface

DI-1000Z
Wireless Load Cell Interface

AI-1000
Signal Conditioner

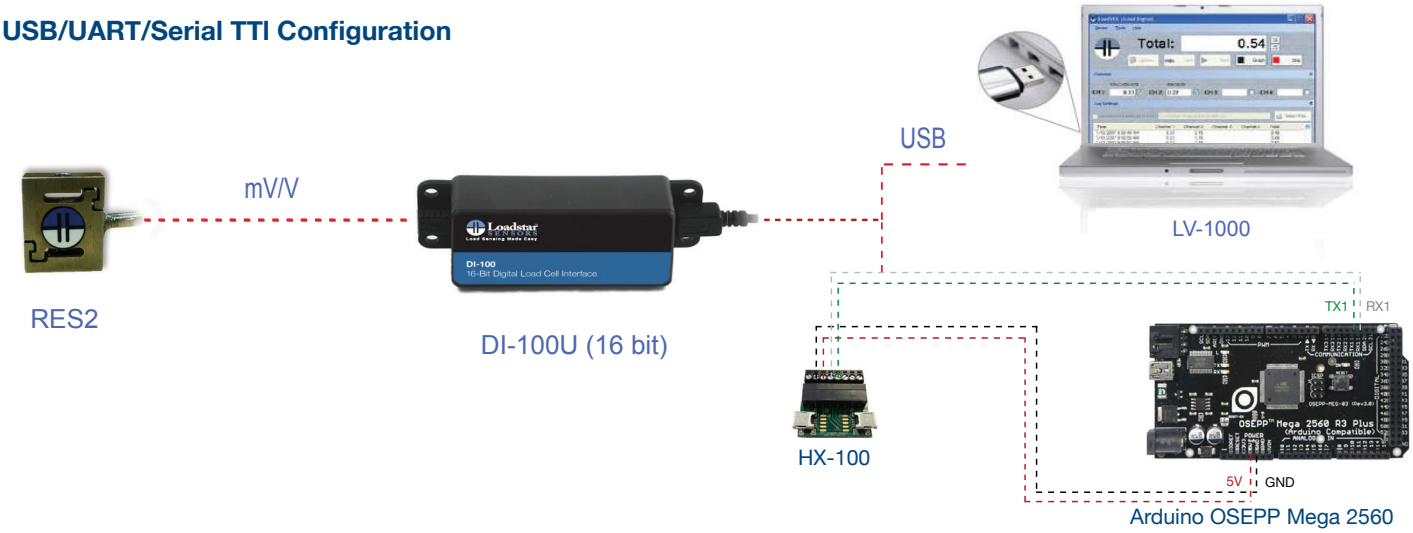
RD-1000
Resistive Load Cell Display

Calibration Options

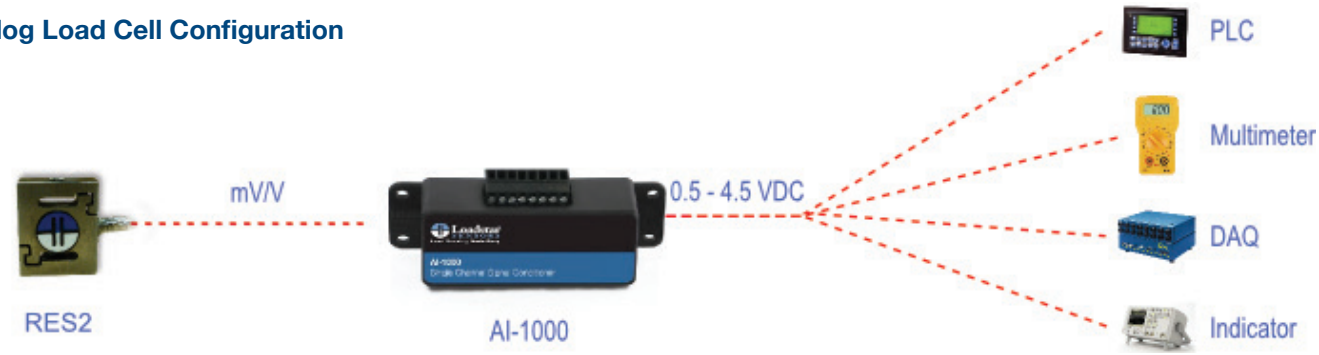
*C01	Compression
*C02	Tension
*C03	Universal

Wireless Load Cell Configuration

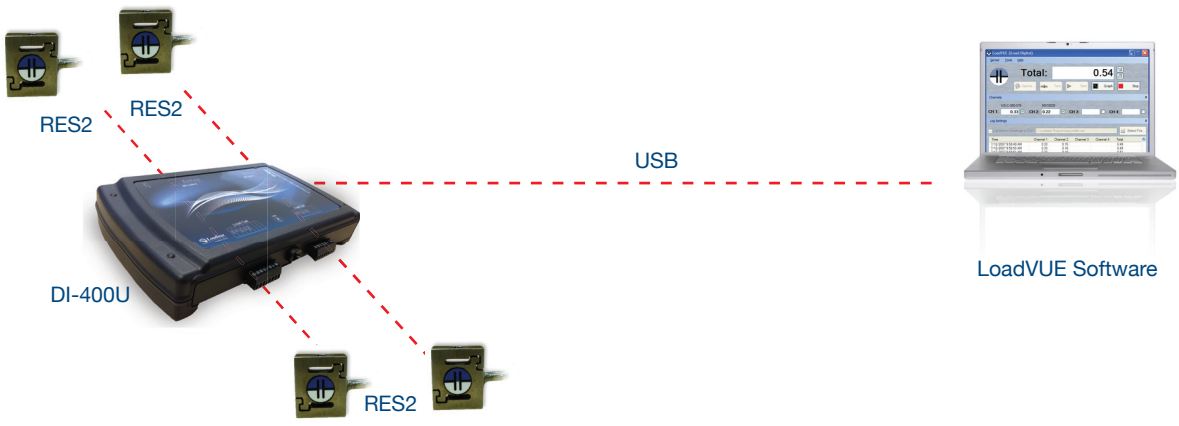
USB/UART/Serial TTl Configuration



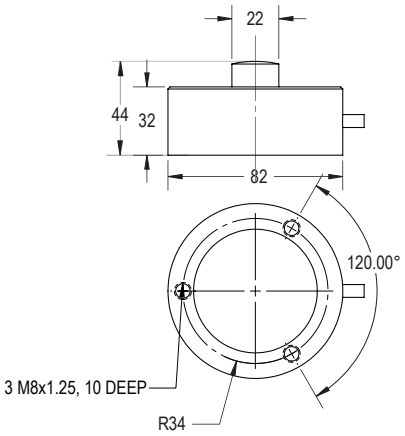
Analog Load Cell Configuration



Four Load Cell Configuration



RSB1 Alloy Steel Low Profile Load Cell



(All dimensions are in mm)

Accuracy Specifications

Accuracy	
Non-linearity	± 0.05% of Full Scale
Hysteresis	± 0.05% of Full Scale
Non-repeatability	± 0.03% of Full Scale

Load Cell Specifications

Zero Balance	± 2%
Safe Overload	to 150% of capacity (300% Ultimate Overload)
Rated Excitation	10V DC (15V Maximum)
Full Scale Output	3 mv/V
Connections	2m Cable
Input Impedance	385 ± 30 Ohm
Output Impedance	350 ± 4 Ohm
Insulation	> 2,000 MΩ
Creep, in 30 min	± 0.05% of Load
Operating Temperature Range	-20°C to 60°C with TARE
Temperature Effect on Output	0.02% of Full Scale/10°C
Temperature Effect on Zero	0.02% of Full Scale/10°C
Seal Type	IP66

Compatible Accessories

Recommended Interfaces

DI-100U/DI-1000U
Digital Load Cell Interface

DI-1000Z
Wireless Load Cell Interface

AI-1000
Signal Conditioner

RD-1000
Resistive Load Cell Display

Wiring Information

Cable Color Code	
Red	+ Excitation
Black	- Excitation
Green	+ Signal
White	- Signal

Ordering Information

Multiple Load Cell Capacities	
RSB1	Part No.
2000 kilogram	RSB1-02KM-S
5000 kilogram	RSB1-05KM-S

Calibration Options

*C01	Compression

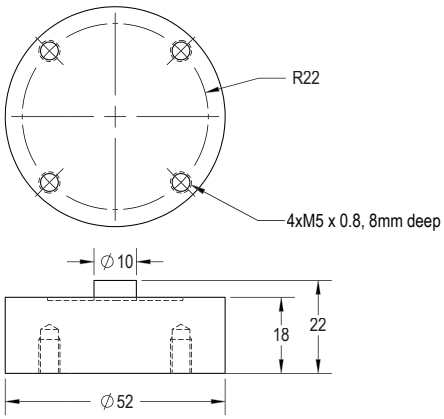
Wireless Load Cell Configuration

USB Load Cell Configuration

Analog Load Cell Configuration

Loadstar® SENSORS

RSB2 Alloy Steel Low Profile Load Cell



(All dimensions in mm)

Wiring Information

Cable Color Code	
Red	+ Excitation
Black	- Excitation
Green	+ Signal
White	- Signal

Accuracy Specifications

Accuracy	
Non-linearity	± 0.05% of Full Scale
Hysteresis	± 0.05% of Full Scale
Non-repeatability	± 0.05% of Full Scale

Ordering Information

Multiple Load Cell Capacities	
RSB2	Part No.
25 kilogram	RSB2-25M-S
50 kilogram	RSB2-50M-S
100 kilogram	RSB2-100M-S
250 kilogram	RSB2-250M-S
500 kilogram	RSB2-500M-S
1000 kilogram	RSB2-01KM-S

Load Cell Specifications

Zero Balance	± 2%
Safe Overload	to 150% of capacity (300% Ultimate Overload)
Rated Excitation	10V DC (15V Maximum)
Full Scale Output	2 mv/V
Connections	3m Cable
Input Impedance	750 ± 30 Ω
Output Impedance	700 ± 5 Ω
Insulation	> 2,000 MΩ
Creep, in 30 min	± 0.03% of Load
Operating Temperature Range	-20°C to 60°C with TARE
Temperature Effect on Output	0.02% of Full Scale/10°C
Temperature Effect on Zero	0.05% of Full Scale/10°C
Seal Type	IP66

Calibration Options

*C01	Compression

Compatible Accessories

Recommended Interfaces

DI-100U/DI-1000U
Digital Load Cell Interface

DI-1000Z
Wireless Load Cell Interface

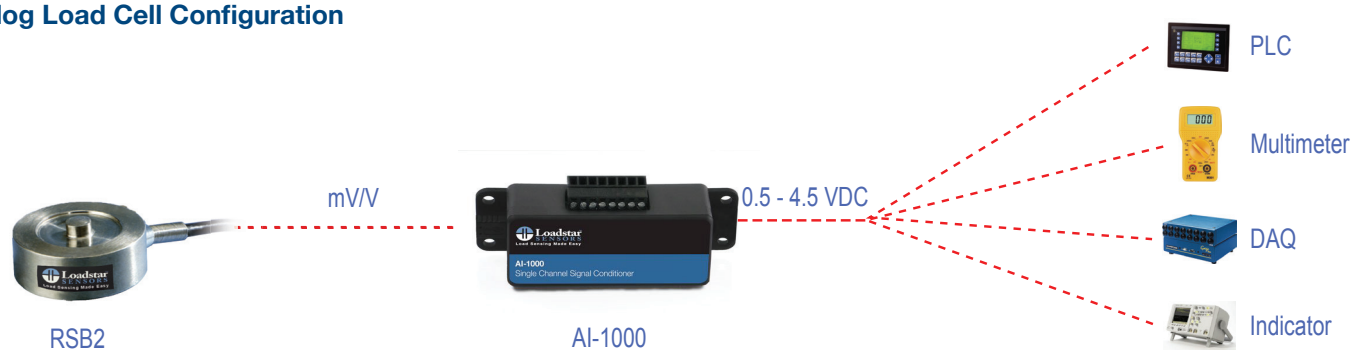
AI-1000
Signal Conditioner

RD-1000
Resistive Load Cell Display

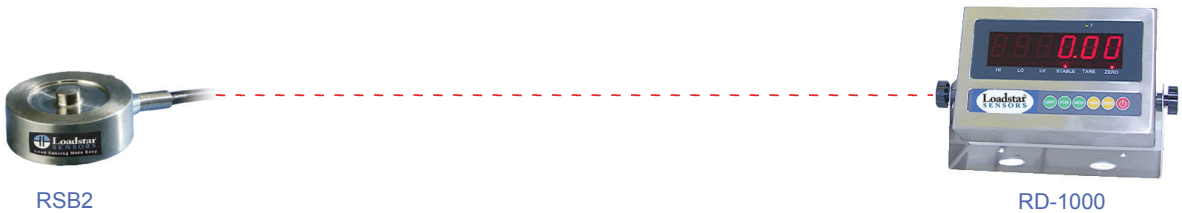
Wireless Load Cell Configuration

USB Load Cell Configuration

Analog Load Cell Configuration

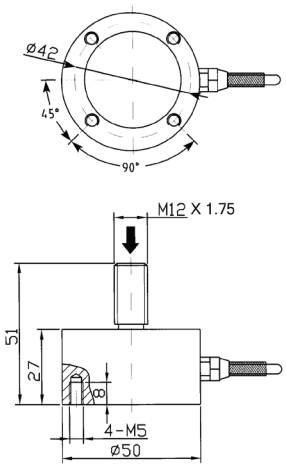


Load Cell with LED Display



Loadstar® SENSORS

RSB3 Low Profile Load Cell With Threaded Stud



(With tension adapter TX-RSB3)

Accuracy Specifications

Accuracy	
Non-linearity	± 0.1% Full Scale
Hysteresis	± 0.5% Full Scale
Non-repeatability	± 0.5% Full Scale

Load Cell Specifications

Zero Balance	± 2%
Safe Overload	to 120% of capacity (300% Ultimate Overload)
Rated Excitation	10V DC (15V Maximum)
Full Scale Output	1.5 mv/V
Connections	1m Cable
Input Impedance	400 ± 30 Ohm
Output Impedance	350 ± 5 Ohm
Insulation	> 2,000 MΩ
Creep, in 30 min	± 0.05% of Load
Operating Temperature Range	-20°C to 60°C with TARE
Temperature Effect on Output	0.05% of Full Scale/10°C
Temperature Effect on Zero	0.05% of Full Scale/10°C
Seal Type	IP66

Wiring Information

Cable Color Code	
Red	+ Excitation
Black	- Excitation
Green	+ Signal
White	- Signal

Ordering Information

Multiple Load Cell Capacities	
RSB3	Part No.
50 kilogram	RSB3-050M-S
100 kilogram	RSB3-100M-S
200 kilogram	RSB3-200M-S
500 kilogram	RSB3-500M-S

Calibration Options

*C01	Compression
*C02	Tension
*C03	Universal

Compatible Accessories

Recommended Interfaces

DI-100U/DI-1000U
Digital Load Cell Interface

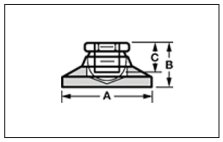
DI-1000Z
Wireless Load Cell Interface

AI-1000
Signal Conditioner

RD-1000
Resistive Load Cell Display

RE-M12-F
Rod End

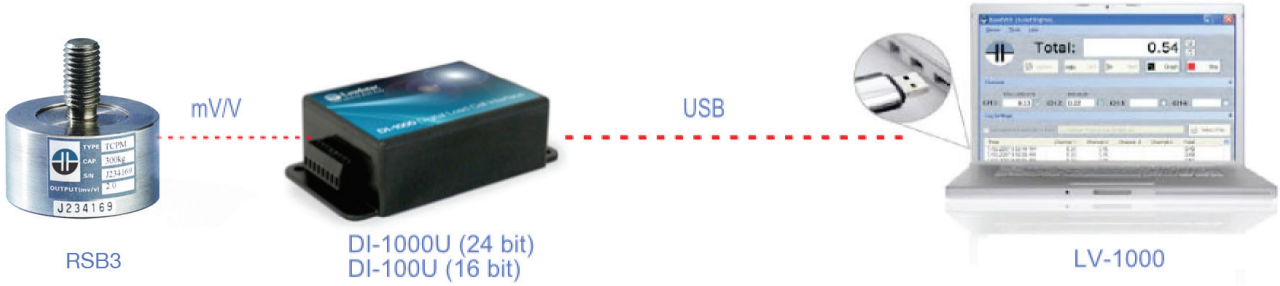
TX-RSB3
Tension Adapter

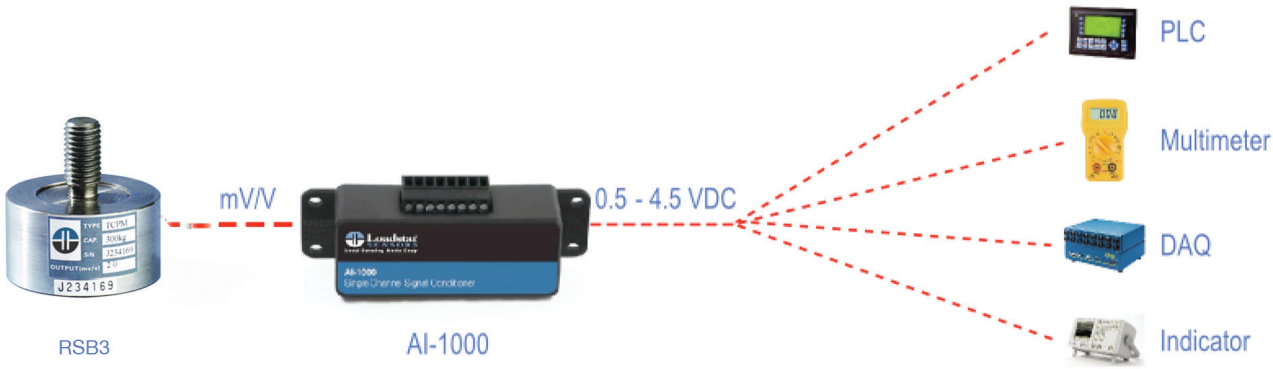


LF-M12-F
Self Leveling Foot

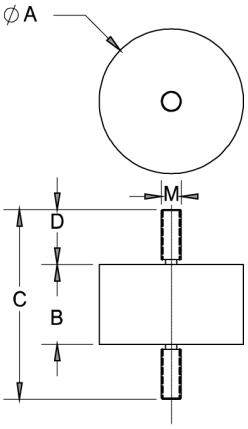
Wireless Load Cell Configuration

USB Load Cell Configuration





RSB4 UNIVERSAL LOAD CELL WITH THREADED STUD



Capacity	1-5 kg	10-200 kg
A (mm)	29	33
B (mm)	16	22
C (mm)	38	46
D (mm)	11	12
M (mm)	M4 x 0.7	M6 x 1
(All dimensions in mm)		

Accuracy Specifications

Accuracy	
Non-linearity	± 0.2% of Full Scale
Hysteresis	± 0.2% of Full Scale
Non-repeatability	± 0.2% of Full Scale

Load Cell Specifications

Zero Balance	5% of Full Scale
Safe Overload	150% of Full Scale
Full Scale Output	1 ± 0.1 mv/V
Connections	2m (6.5ft) cable
Input Impedance	350 ± 5 Ω
Output Impedance	350 ± 5 Ω
Insulation	≥ 5000 MΩ
Excitation Voltage	5 - 12 V DC
Creep	0.03% of F.S. in 10 min
Operating Temperature Range	-10 to + 40°C
Temperature Effect on Zero	0.05% of F.S. / 10°C
Temperature Effect on Span	0.05% of F.S./10°C
Seal Type	IP66

Wiring Information

Cable Color Code	
Red	+ Excitation
Black	- Excitation
Green	+ Signal
White	- Signal
Yellow	Not used

Ordering Information

Capacity	Part No.
5 kg	RSB4-005M-A
10 kg	RSB4-010M-A
50 kg	RSB4-050M-A
100 kg	RSB4-100M-S
200 kg	RSB4-200M-S

Calibration Options

*C01	Compression
*C02	Tension
*C03	Universal

Compatible Accessories

Recommended Interfaces

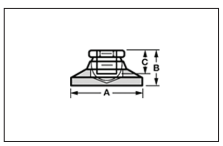
DI-100U/DI-1000U
Digital Load Cell Interface

DI-1000Z
Wireless Load Cell Interface

AI-1000
Signal Conditioner

RD-1000
Resistive Load Cell Display

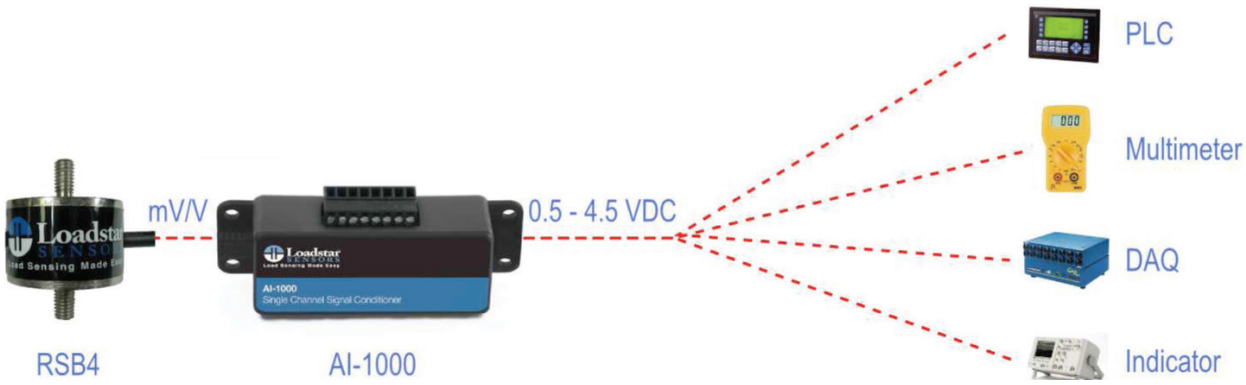
RE-M6-F Rod End



LF-M6-F Self Leveling Foot

Wireless Load Cell Configuration

Analog Load Cell Configuration



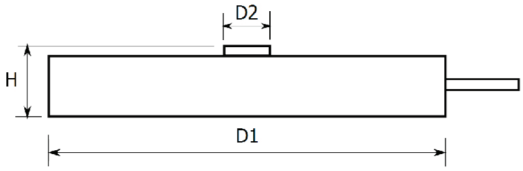
Loadstar® SENSORS

RSB5 SUBMINIATURE LOAD CELL- COMPRESSION ONLY

Capacity	150. 500, 1000 g	5, 10, 50 lb
D1	0.38	0.38
D2	0.09	0.09
H	0.13	0.09

(All dimensions in inches)

A small 2" long circuit board is included in the cable, 2 ft from the load cell. Do not remove this board.



Accuracy Specifications

Accuracy	
Non-linearity	± 0.5% of Full Scale
Hysteresis	± 0.5% of Full Scale
Non-repeatability	± 0.1% of Full Scale

Load Cell Specifications

Zero Balance	0.3% of Full Scale
Safe Overload	150% of Full Scale
Full Scale Output	15 m V/V (150 g to500 g) 1.5 m V/V (1 kg) 2 m V/V (5 to 50 lb)
Connections	5 ft cable
Input Impedance	500 Ω (150 g to 500 g) 350 Ω (1 kg and above)
Insulation	≥ 5000 MΩ
Excitation Voltage	5 V DC
Compensated Temperature Range	60 to 160 °F
Temperature Effect on Zero	0.01% of F.S / °F
Temperature Effect on Span	0.05% of F.S / °F

Wiring Information

Cable Color Code	
Red	+ Excitation
Black	- Excitation
Green	+ Signal
White	- Signal

Ordering Information

Capacity	Part No.
150 g	RSB5-150G-S
500 g	RSB5-500G-S
1 kg	RSB5-001M-S
5 lb	RSB5-005-S
10 lb	RSB5-010-S
50 lb	RSB5-050-S

Calibration Options

*C01	Compression

Recommended Interfaces

DI-100/DI-1000U
Digital Load Cell Interface

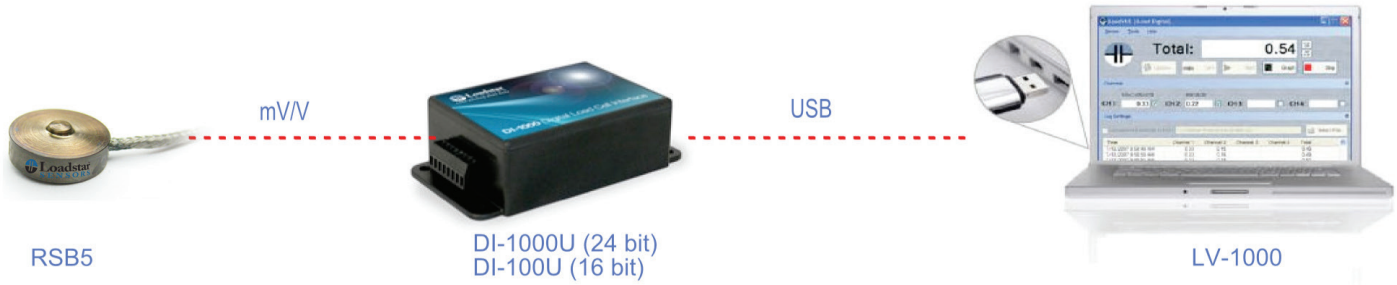
DI-1000Z
Wireless Load Cell Interface

AI-1000
Signal Conditioner

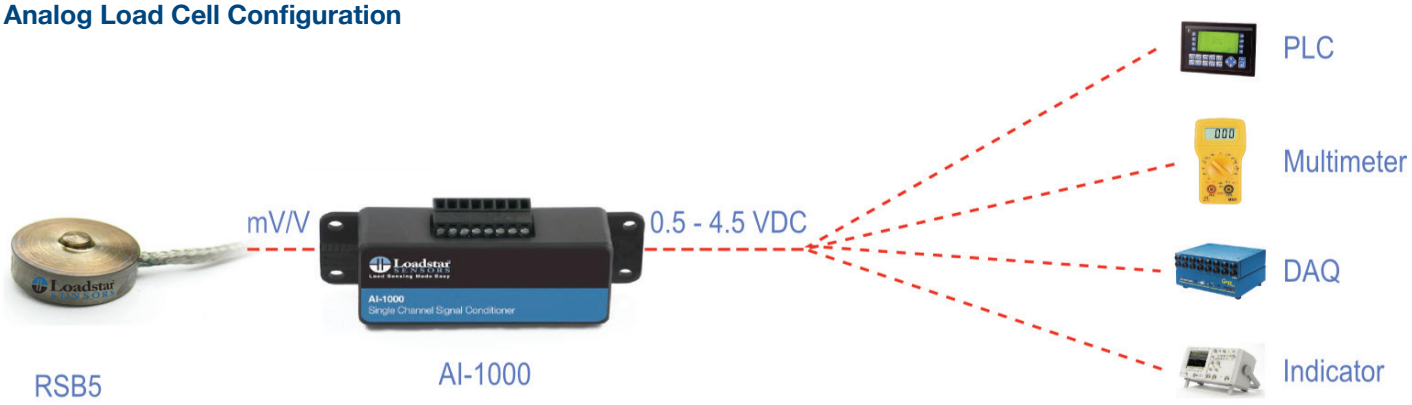
RD-1000
Resistive Load Cell Display

Wireless Load Cell Configuration

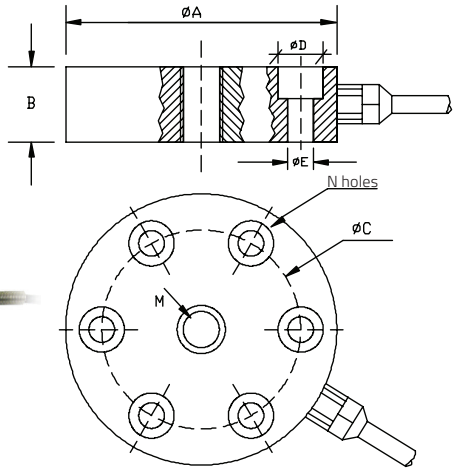
USB Load Cell Configuration



Analog Load Cell Configuration



RSB6 LOW PROFILE PANCAKE LOAD CELL



Capacity	250 - 1000 kg	1000-2500 kg	5000 kg
A	75	90	140
B	25	25	45
C	57	66	115
D	11	15	18
E	6.5	8.5	11
M	M10x1.5	M12	M24x3
N	6 holes	6 holes	8 holes

(All dimensions in mm)

Accuracy Specifications

Accuracy	
Non-linearity	± 0.05% of Full Scale
Hysteresis	± 0.05% of Full Scale
Non-repeatability	± 0.03% of Full Scale

Load Cell Specifications

Zero Balance	2% of Full Scale
Safe Overload	150% of Full Scale
Ultimate Overload	300% of Full Scale
Connections	ϕ 5 x 2000 mm (6.5ft.)
Input Impedance	385 ± 15 Ω
Output Impedance	350 ± 4 Ω
Insulation	≥ 2000 M Ω / 50 V DC
Recommended Excitation Voltage	10 V DC
Compensated Temperature Range	14 to 100 °F (-10 to 40 °c)
Temperature Effect on Zero	0.02% of F.S / 10 °C
Temperature Effect on Span	0.02% of F.S / 10 °C

Wiring Information

Cable Color Code	
Red	+ Excitation
Black	- Excitation
Green	+ Signal
White	- Signal

Ordering Information

Capacity	Part No.
250 Kg	RSB6-250M-S
500 Kg	RSB6-500M-S
1000 Kg	RSB6-01KM-S
2500 Kg	RSB6-2HKM-S
5000 Kg	RSB6-05KM-S

Calibration Options

*C01	Compression
*C02	Tension
*C03	Universal

Recommended Interfaces

DI-100/DI-1000U
Digital Load Cell Interface

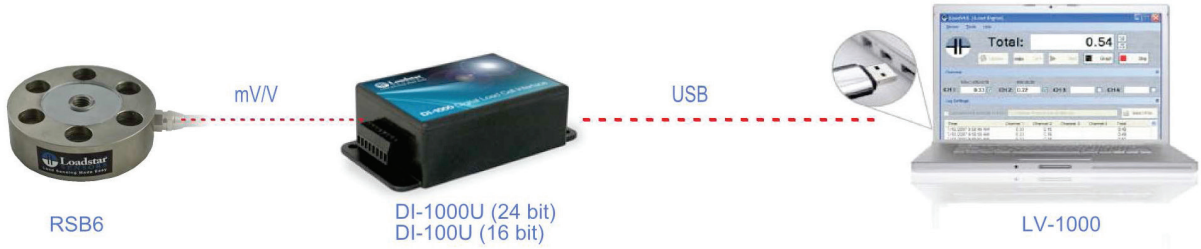
DI-1000Z
Wireless Load Cell Interface

AI-1000
Signal Conditioner

RD-1000
Resistive Load Cell Display

Wireless Load Cell Configuration

USB Load Cell Configuration



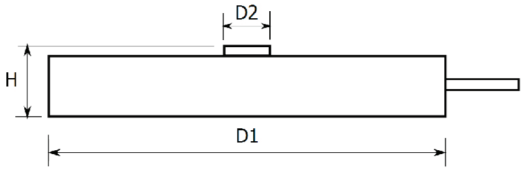
Analog Load Cell Configuration

Load Cell with LED Display

Loadstar® SENSORS

REB6 SUBMINIATURE LOAD CELL- COMPRESSION ONLY

Capacity	10 kg
D1	10 mm
D2	2 mm
H	6 mm



Accuracy Specifications

Accuracy	
Non-linearity	± 1% of Full Scale
Hysteresis	± 0.05% of Full Scale
Non-repeatability	± 0.05% of Full Scale

Load Cell Specifications

Zero Balance	2% of Full Scale
Safe Overload	150% of Full Scale
Connections	8 ft cable
Input Impedance	410 Ω ± 10 Ω 350 Ω ± 3 Ω
Insulation	≥ 5000 MΩ/50VDC
Excitation Voltage	5-10 V DC
Compensated Temperature Range	20 to 60 °C
Operating Temperature Range	-10 to 40 °C
Temperature Effect on Zero	0.03% of F.S / 10°C
Temperature Effect on Span	0.03% of F.S / 10°C

Wiring Information

Cable Color Code	
Red	+ Excitation
Black	- Excitation
Green	+ Signal
White	- Signal

Ordering Information

Capacity	Part No.
10 kg	REB6-010M-S

Calibration Options

*C01	Compression

Recommended Interfaces

DI-100/DI-1000U
Digital Load Cell Interface

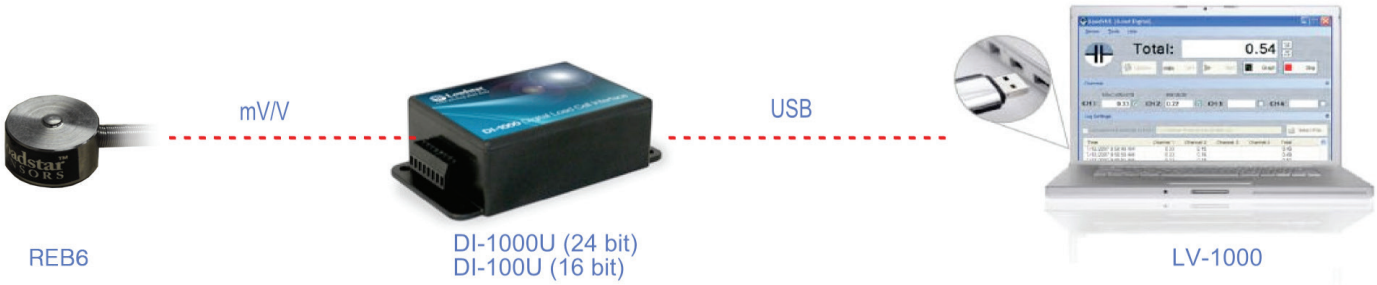
DI-1000Z
Wireless Load Cell Interface

AI-1000
Signal Conditioner

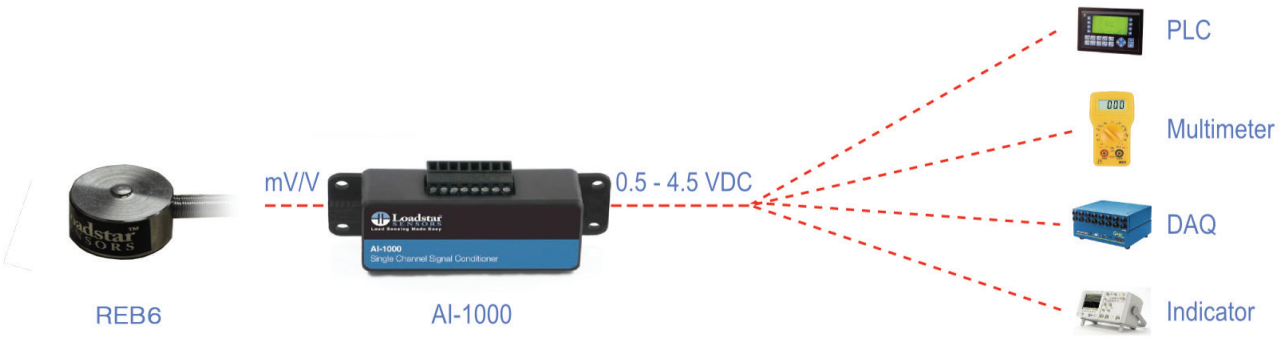
RD-1000
Resistive Load Cell Display

Wireless Load Cell Configuration

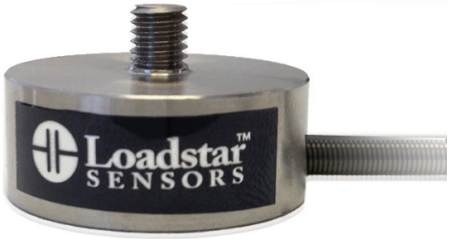
USB Load Cell Configuration

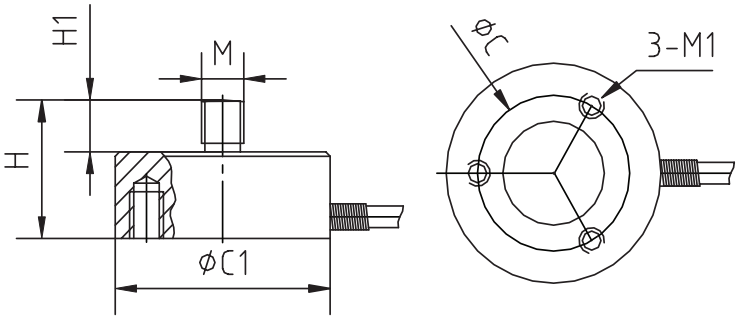


Analog Load Cell Configuration



RGB7 Sub Miniature Load Cell





Dimensions

Capacity	kg		
	100	300	500
H	15	15	15
H1	5	5	5
C	18	18	18
C1	25.4	25.4	25.4
M	M5	M5	M5
M1	M4, 7 Deep	M4, 7 Deep	M4, 7 Deep

(All dimensions in mm)

Wiring Information

Cable Color Code	
Red	+ Excitation
Blue	- Excitation
Yellow	+ Signal
White	- Signal

Ordering Information

Multiple Load Cell Capacities	
RSB2	Part No.
100 kg	RGB7-100M-S
300 kg	RGB7-300M-S
500 kg	RGB7-500M-S

Calibration Options

*C01	Compression

Accuracy Specifications

Accuracy	
Non-linearity	0.5% FS
Hysteresis	0.5% FS
Non-repeatability	0.5% FS

Load Cell Specifications

Zero Balance	± 2%
Safe Overload	to 150% of capacity (300% Ultimate Overload)
Rated Excitation	4 ~ 7 V (8V Maximum) DC
Full Scale Output	1 mV/V ± 20%
Connections	0.7 m (2.75")
Input Impedance	350 ± 3 Ω
Output Impedance	350 ± 2 Ω
Insulation	≥ 5000 MΩ
Creep, in 30 min	0.5% FS
Operating Temperature Range	-10°C to 40°C
Temperature Effect on Output	0.02% of Full Scale/10°C
Temperature Effect on Zero	0.05% of Full Scale/10°C

Compatible Accessories

Recommended Interfaces

DI-100U/DI-1000U
Digital Load Cell Interface

DI-1000Z
Wireless Load Cell Interface

AI-1000
Signal Conditioner

RD-1000
Resistive Load Cell Display

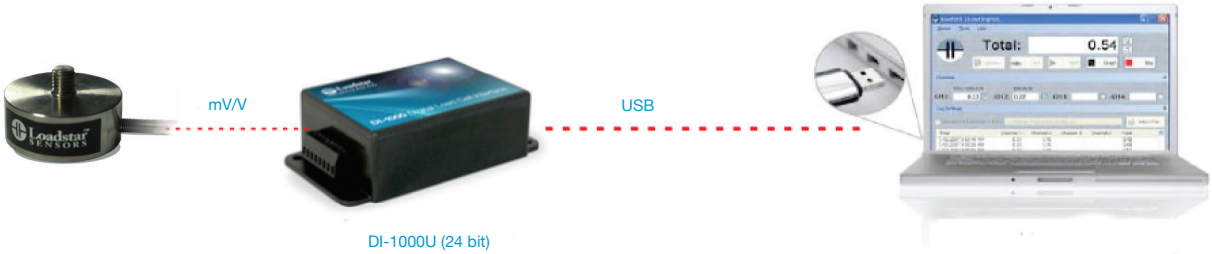
Wireless Load Cell Configuration

RGB7

DI-1000U (24 bit)
DI-100U (16 bit)

LV-1000

USB Load Cell Configuration

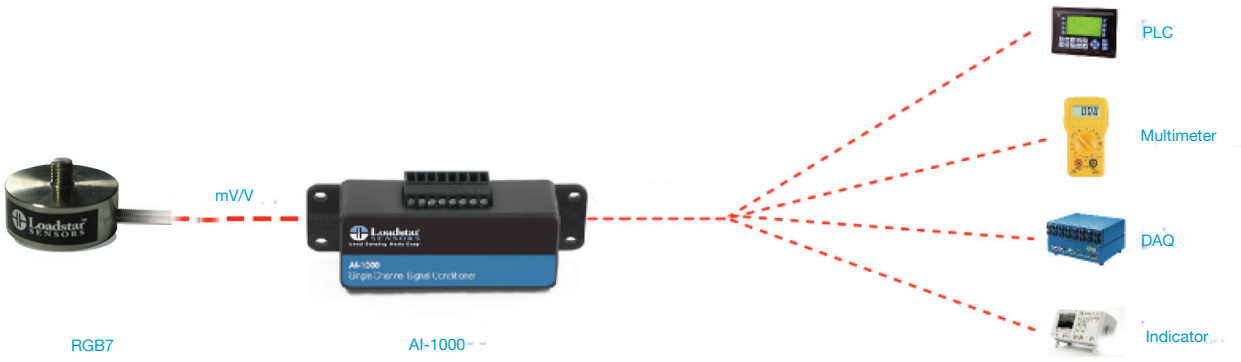


RGB7

DI-1000U (24 bit)
DI-100U (16 bit)

LV-1000

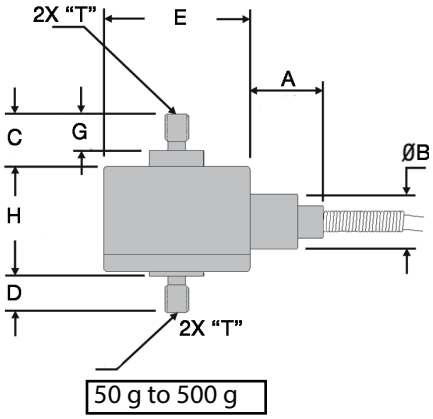
Analog Load Cell Configuration

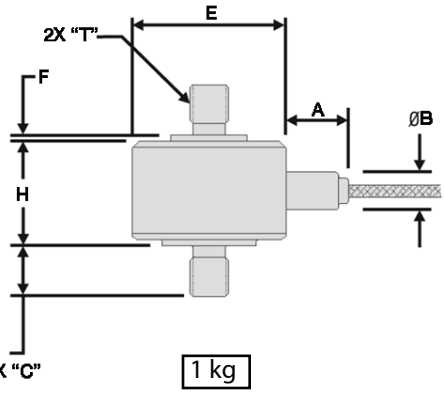


RGB7

AI-1000

RSB7 UNIVERSAL LOAD CELL WITH THREADED STUD





Accuracy Specifications

Accuracy	
Non-linearity	± 0.15% of Full Scale
Hysteresis	± 0.15% of Full Scale
Non-repeatability	± 0.1% of Full Scale

Load Cell Specifications

Capacity	50 g to 500 g	1 kg
Zero Balance	1% of Full Scale	1% of Full Scale
Safe Overload	5 lb (2.27 kg)	1.5 kg
Output	0,1 mV/V max (50 g to 150 g) 20 mV/V (250 g to 500 g)	1.5 mV/V
Connections	5ft cable	5ft cable
Output Impedance	350 ± 5 Ω	350 ± 5 Ω
Insulation	5000 MΩ	5000 MΩ
Excitation Voltage	5 V DC	5 V DC
Compensated Temperature Range	+15°C to + 71°C	+15°C to + 71°C
Temperature Effect on Zero	0.015% of F.S. / 10°F	0.005% of F.S. / 10°F
Temperature Effect on Span	0.015% of F.S. / 10°F	0.005% of F.S. / 10°F
Weight	90 g	21 g
Material	17-4 P-H Stainless Steel	17-4 P-H Stainless Steel
Natural frequency	740 Hz	3000 Hz

Compatible Accessories

Recommended Interfaces

DI-100U/DI-1000U
Digital Load Cell Interface

DI-1000Z
Wireless Load Cell Interface

AI-1000
Signal Conditioner

RD-1000
Resistive Load Cell Display

Wiring Information

Cable Color Code	
Red	+ Excitation
Black	- Excitation
White	+ Signal
Green	- Signal
Yellow	Not used

Ordering Information

Capacity	Part No.
50 g	RSB7-050G-S
150 g	RSB7-150G-S
250 g	RSB7-250G-S
500 g	RSB7-500G-S
1 kg	RSB7-001M-S

Calibration Options

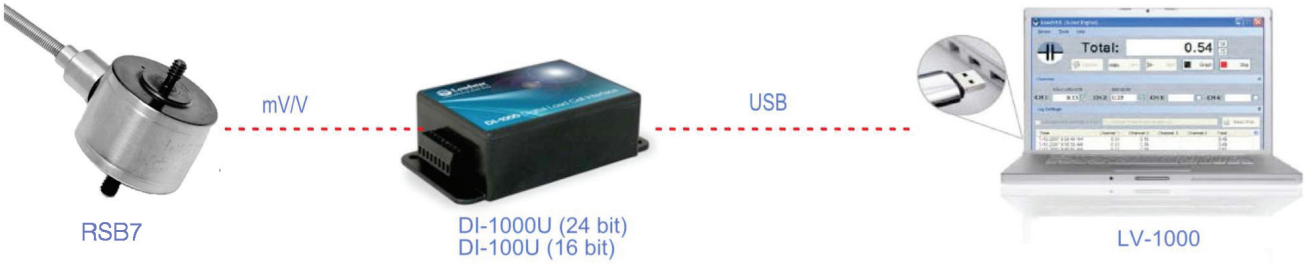
*C01	Compression
*C02	Tension
*C03	Universal

Dimensions

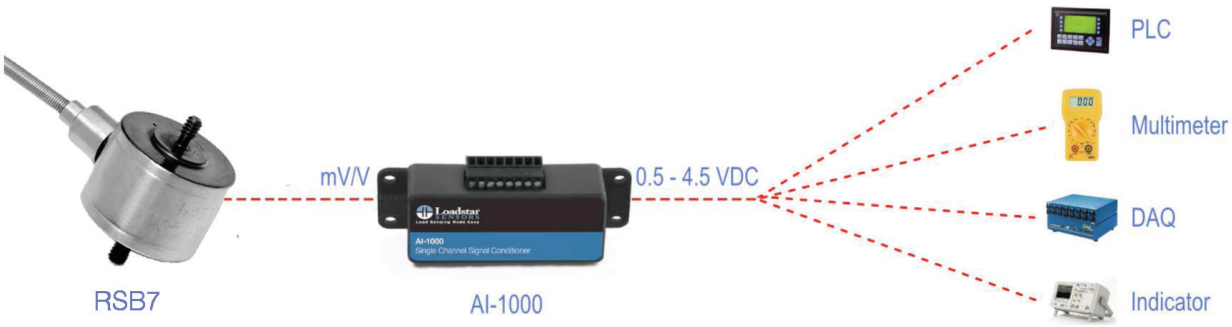
Dimension	50 g to 500 g	1 kg
A	13.2 mm (.52 in)	7.87 mm (0.31 in)
B	9.65 mm (0.38 in)	4.83 mm (0.19 in)
C	9.14 mm (0.36 in)	6.35 mm (0.25 in)
D	6.35 mm (0.25 in)	-
E	25.4 mm (1.00 in)	19.05 mm (0.75 in)
F	-	1.27 mm (0.05 in)
G	6.35 mm (0.25 in)	-
H	19.05 mm (0.75 in)	11.43 mm (0.45 in)
T	#6-32 UNC	#6-32 UNC

Wireless Load Cell Configuration

USB Load Cell Configuration



Analog Load Cell Configuration

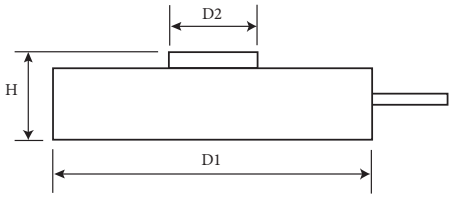


Loadstar® SENSORS

REB5 Subminiature LOAD CELL - Compression only

Capacity	2 kg	5 kg	10 kg	100 kg
D1	13	13	13	13
D2	2.5	2.5	2.5	5
H	7	7	7	7

(All dimensions in mm)



Accuracy Specifications @ 25C

Accuracy	
Non-linearity	± 1% of Full Scale
Hysteresis	± 1% of Full Scale
Non-repeatability	± 1% of Full Scale

Wiring Information

Cable Color Code	
Red	+ Excitation
Black	- Excitation
Green	+ Signal
White	- Signal

Load Cell Specifications

Typical Values	
Zero Balance	2% of Full Scale
Safe Overload	150% of Full Scale
Ultimate Overload	200% of Full Scale
Full Scale Output	~ 0.5 mV/V (2 kg) ~ 1 mV/V (10 kg) ~1.5 mV/V (100 kg)
Connections	5 ft. cable
Input Impedance	350 ± 10 Ω
Insulation	≥ 5000 M Ω / 50 V DC
Excitation Voltage	5 - 10 V DC
Compensated Temperature Range	14 to 100 °F (-10 to 40 °c)
Temperature Effect on Zero	0.01% of F.S / °C
Temperature Effect on Span	0.01% of F.S / °C
Creep (30 min)	0.1% F.S. / 30 min

Ordering Information

Capacity	Part No.
2 kg	REB5-002M-S
5 kg	REB5-005M-S
10 kg	REB5-010M-S
100 kg	REB5-100M-S

Calibration Options

*C01	Compression

Recommended Interfaces

DI-100/DI-1000U
Digital Load Cell Interface

DI-1000ZP
Wireless Load Cell Interface

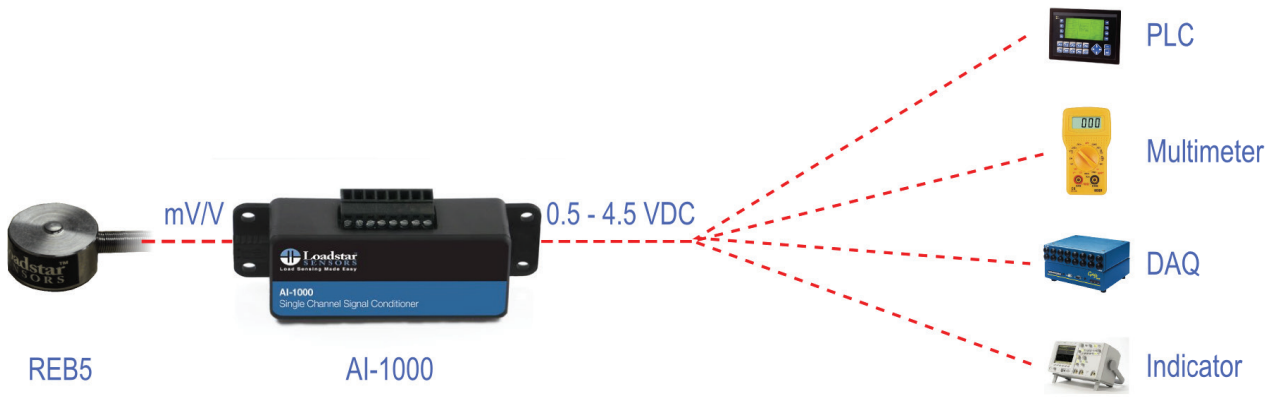
AI-1000
Signal Conditioner

RD-1000
Resistive Load Cell Display

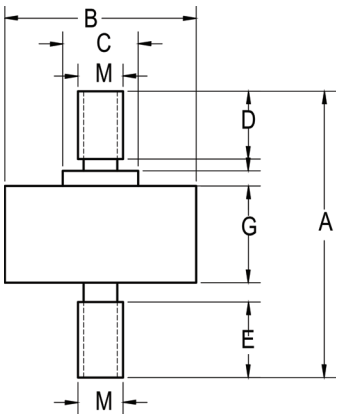
Wireless Load Cell Configuration

USB Load Cell Configuration

Analog Load Cell Configuration



REB7 Subminiature LOAD CELL - Universal (Compression, Tension or both)



Capacity	1 kg	10 kg	100 kg
A	33.5	38.2	38.2
B	25.5	25.5	25.5
C	5	10	10
D	9	11.25	10.5
E	8	10	9.5
F	1	2	2
G	13.5	13	13
M	M3	M5	M6

(All dimensions in mm)

Accuracy Specifications @ 25C

Accuracy	
Non-linearity	± 0.1% of Full Scale
Hysteresis	± 0.1% of Full Scale
Non-repeatability	± 0.1% of Full Scale
Overall Accuracy	± 0.5% - 1% of Full Scale

Load Cell Specifications

Typical Value	
Zero Balance	2% of Full Scale
Safe Overload	150% of Full Scale
Ultimate Overload	200% of Full Scale
Full Scale Output	~ 0.5 mV/V (1 kg) ~ 1 mV/V (10 kg) ~ 2 mV/V (100 kg)
Connections	5 ft. cable
Input Impedance	350 ± 10 Ω
Insulation	≥ 5000 M Ω / 50 V DC
Excitation Voltage	5 - 10 V DC
Compensated Temperature Range	14 to 100 °F (-10 to 40 °c)
Temperature Effect on Zero	0.01% of F.S / °C
Temperature Effect on Span	0.01% of F.S / °C
Creep (30 min)	0.1% F.S. / 30 min

Wiring Information

Cable Color Code	
Red	+ Excitation
Black	- Excitation
Green	+ Signal
White	- Signal

Ordering Information

Capacity	Part No.
1 kg	REB7-001M-S
10 kg	REB7-010M-S
100 kg	REB7-100M-S

Compatible Interfaces

Type	Part No.
Digital - 16 bit	DI-100U/DI-100UHS
Digital - 24 bit	DI-1000U/DI-1000UHS
Analog	AI-1000

Calibration Options

Mode	Part No.
Compression	*C01
Tension	*C02
Universal	*C03

Recommended Interfaces

DI-100/DI-1000U
Digital Load Cell Interface

DI-1000Z
Wireless Load Cell Interface

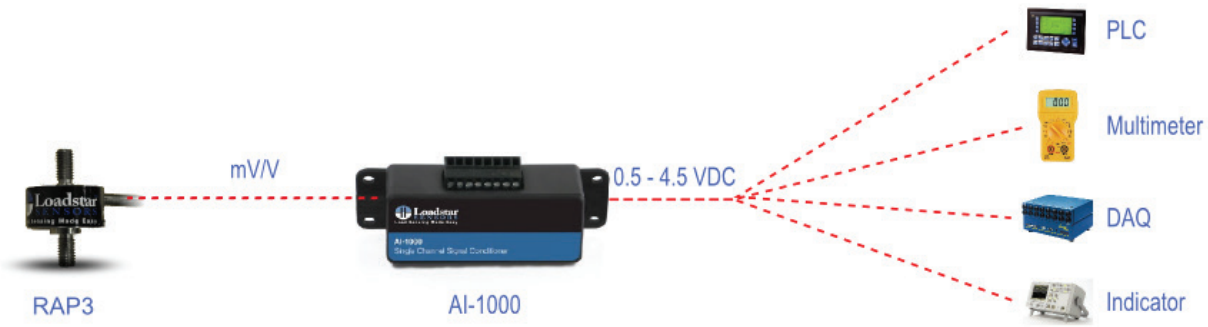
AI-1000
Signal Conditioner

RD-1000
Resistive Load Cell Display

Wireless Load Cell Configuration

USB Load Cell Configuration

Analog Load Cell Configuration

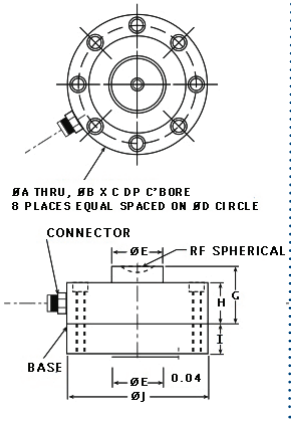


RAL1 Low Profile Disk High Capacity Load Cell

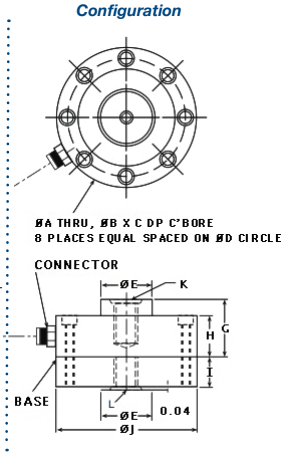
Dimensions

Capacity	lb		
	5k-10k	25k–50k	100k
A	0.283	0.343	0.406
B	0.406	0.508	0.626
C	0.3	0.4	0.4
D	3.5	4.0	4.6
E	1.30	1.60	2.00
F	0.625	0.875	0.875
G	1.75	2.12	2.25
H	1.25	1.87	2.00
I	0.75	0.94	1.14
J	4.12	4.75	5.50
K	1/2-20	3/4-16	1.25-12
L	1/2-20	3/4-16	1.25-12

Compression Configuration



Tension Configuration



Wiring Information

Cable Color Code	
Red	+ Excitation
Black	- Excitation
Green	+ Signal
White	- Signal

Ordering Information

Multiple Load Cell Capacities Compression Configuration	
Capacity	Part No.
5000 lb.	RAL1-05K-S
10000 lb.	RAL1-10K-S
25000 lb.	RAL1-25K-S
50000 lb.	RAL1-50K-S
100000 lb.	RAL1-100K-S

Multiple Load Cell Capacities Tension/ Universal Configuration		
Capacity	Part No.	Weight
5000 lb.	RAL1-05K-S-T	6.24 lb. (2.83 kg)
10000 lb.	RAL1-10K-S-T	6.24 lb. (2.83 kg)
25000 lb.	RAL1-25K-S-T	10.56 lb. (4.78 kg)
50000 lb.	RAL1-50K-S-T	10.72 lb. (4.86 kg)
100000 lb.	RAL1-100K-S-T	17.66 lb. (8.01 kg)

Calibration Options

*C01	Compression
*C02	Tension
*C03	Universal

Accuracy Specifications

Accuracy	
Non-linearity	± 0.03% of Full Scale
Hysteresis	± 0.02% of Full Scale
Non-repeatability	± 0.05% of Full Scale

Load Cell Specifications

Zero Balance	± 2%
Safe Overload	to 150% of capacity (300% Ultimate Overload)
Rated Excitation	10V DC (20V Maximum)
Full Scale Output	4 mv/V ± 1%
Connections	20ft Cable
Input Impedance	385 ± 30 Ohm
Output Impedance	350 ± 4 Ohm
Insulation	> 5,000 MΩ
Creep, in 1 Hour	± 0.020% of Load
Operating Temperature Range	-40°C to 80°C with TARE
Temperature Effect on Output	20 ppm/°C of Load
Temperature Effect on Zero	20 ppm/°C of Rated Output

Connector Pin Out	
1: Excitation+	Red
2: Excitation-	Black
3: Signal+	Green
4: Signal-	White
5: Unconnected	

Compatible Accessories

Recommended Interfaces

DI-100U/DI-1000U
Digital Load Cell Interface

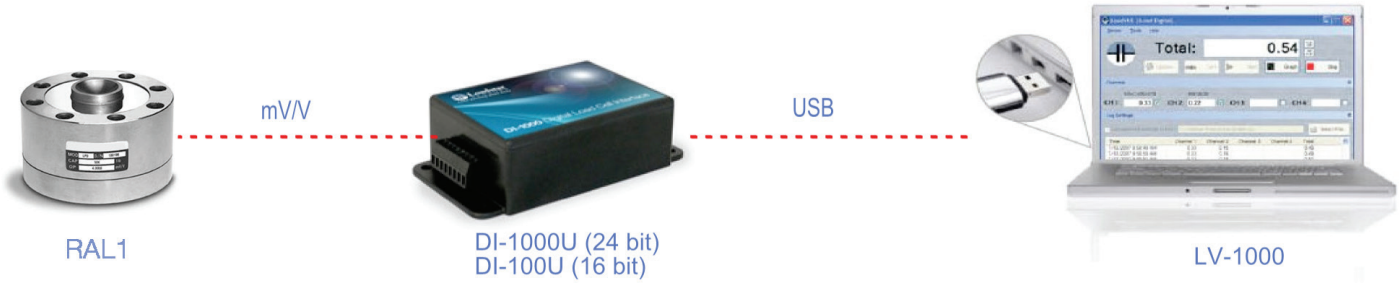
DI-1000Z
Wireless Load Cell Interface

AI-1000
Signal Conditioner

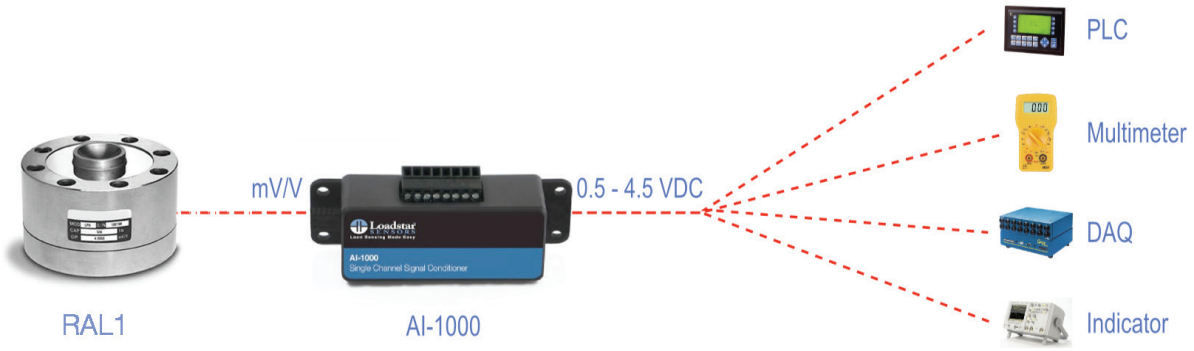
RD-1000
Resistive Load Cell Display

Wireless Load Cell Configuration

USB Load Cell Configuration



Analog Load Cell Configuration

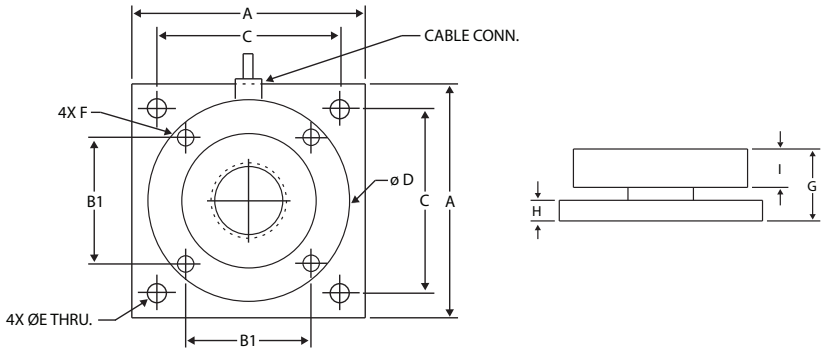


Loadstar® SENSORS

RMW1 Low Profile Weigh Module

Overview

The Loadstar RMW1 Series stainless steel weigh module is ideal for use in tank, hopper, vessel, and many other applications. The low-profile design allows for economical solutions in a competitive marketplace. This rugged, high-precision mount is designed for easy installation and does not require check rods or other stabilizing hardware. The stainless steel construction and welded seal offer additional protection in washdown areas.



Highlights

Standard Features

- Very low profile design
- Self-centering
- Offers 100% sideload, 100% uplift and 150% safe load and 300% ultimate overload protection

Applications

- Tank, hopper, or vessel weighing
- Scale platforms and screw feeders

Dimensions

Capacity	Dimensions in inches								
	A	B1	C	D	E	F	G	H	I
1k-10k	4.00	2.00	3.25	3.50	0.40	3/8-16	1.35	0.375	0.75
15k	4.00	2.00	3.25	3.50	0.40	3/8-16	1.60	0.625	0.75
20k-50k	7.00	3.75	5.50	6.00	0.63	1/2-13	2.48	0.75	1.30
60k-100k	8.00	4.75	6.50	7.00	0.81	3/4-16	2.50	1.00	1.30

Accuracy Specifications

Accuracy	
Combined Error	± 0.03% of Full Scale

Load Cell Specifications

Safe Overload	to 150% of capacity
Rated Excitation	10V DC
Full Scale Output	3 mv/V ± 0.1%
Connections	25 ft Cable
Bridge Resistance	350 Ohm
Insulation	5,000 MΩ
Material	Stainless Steel
Operating Temperature Range	0°F to 150°F
Seal Type	IP67

Compatible Accessories

Recommended Interfaces

DI-100U/DI-1000U
Digital Load Cell Interface

DI-1000Z
Wireless Load Cell Interface

AI-1000
Signal Conditioner

RD-1000
Resistive Load Cell Display

Ordering Information

Multiple Capacities	
Four Module	Part No.
1000 lb	RMW1-01K-S
2500 lb	RMW1-2HK-S
5000 lb	RMW1-05K-S
10000 lb	RMW1-10K-S
15000 lb	RMW1-15K-S
20000 lb	RMW1-20K-S

Wiring Information

Cable Color Code	
Green	+ Excitation
Black	- Excitation
Red	+ Signal
White	- Signal
Shield	Bare
Blue	+ Sense
Brown	- Sense

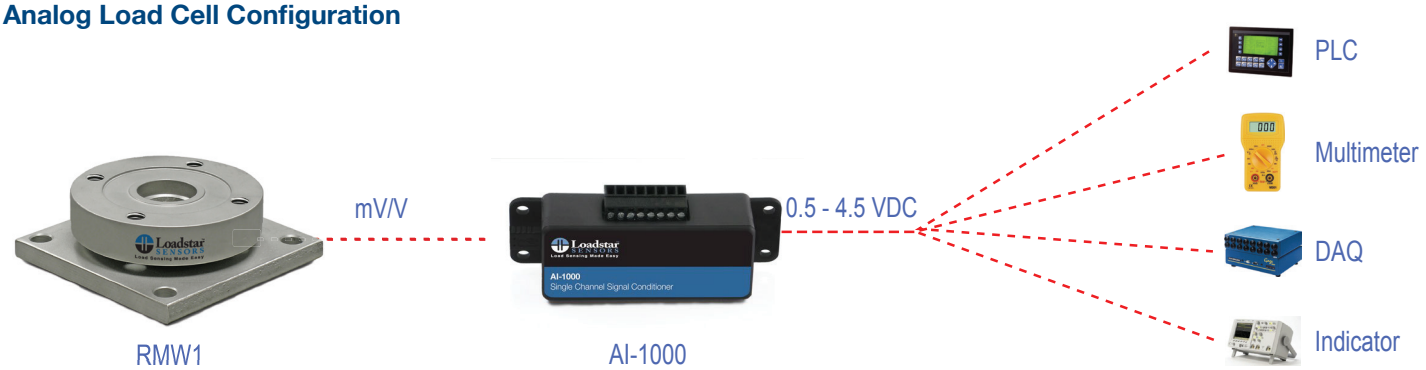
Certifications

FM APPROVED

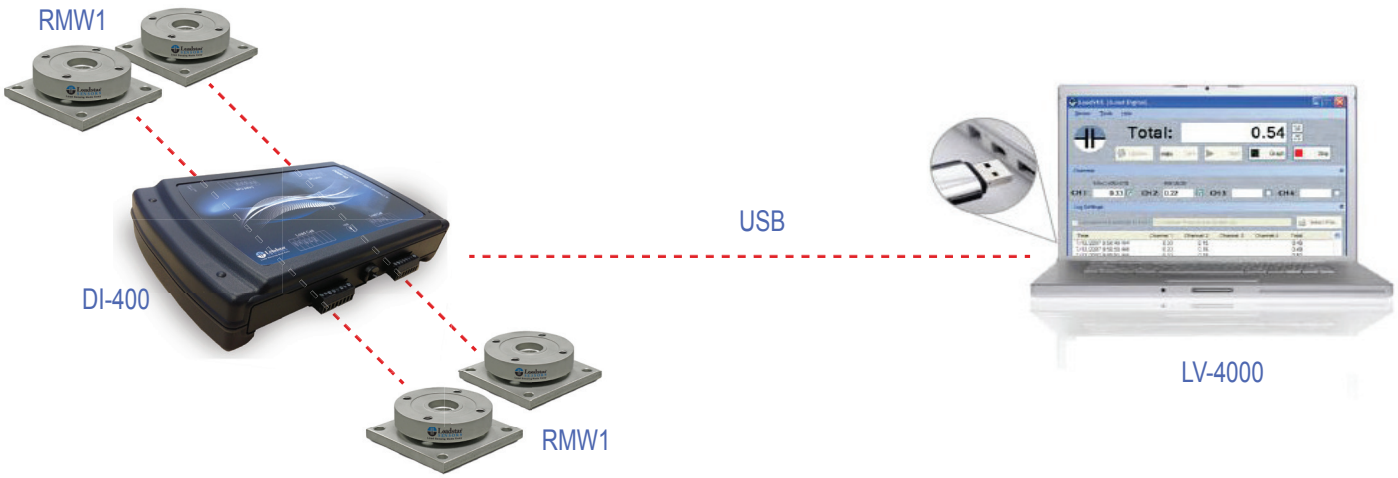
Wireless Load Cell Configuration

USB Load Cell Configuration

Analog Load Cell Configuration



Four Load Cell Configuration



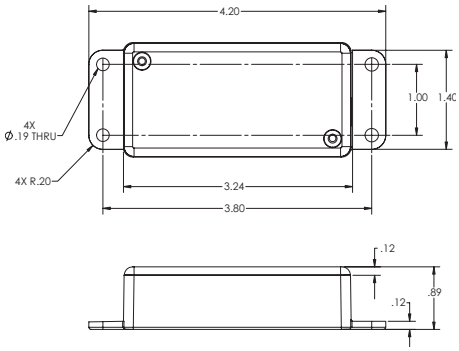
Notes

AI-1000 Single Channel Signal Conditioner

Highlights

Technology

- Accepts standard mV/V signals and outputs an amplified DC voltage (0.5—4.5V) signal output



Overview

The Loadstar Sensors' AI-1000 Signal Conditioner is an interface designed to amplify strain gauges arranged in a full Wheatstone bridge configuration, and is suitable for many applications where a bridge or differential input amplifier is required. The AI-1000 may be operated with single or dual power supply to provided singed-ended or bipolar output, and includes bridge offset and circuit gain trimmer potentiometers.

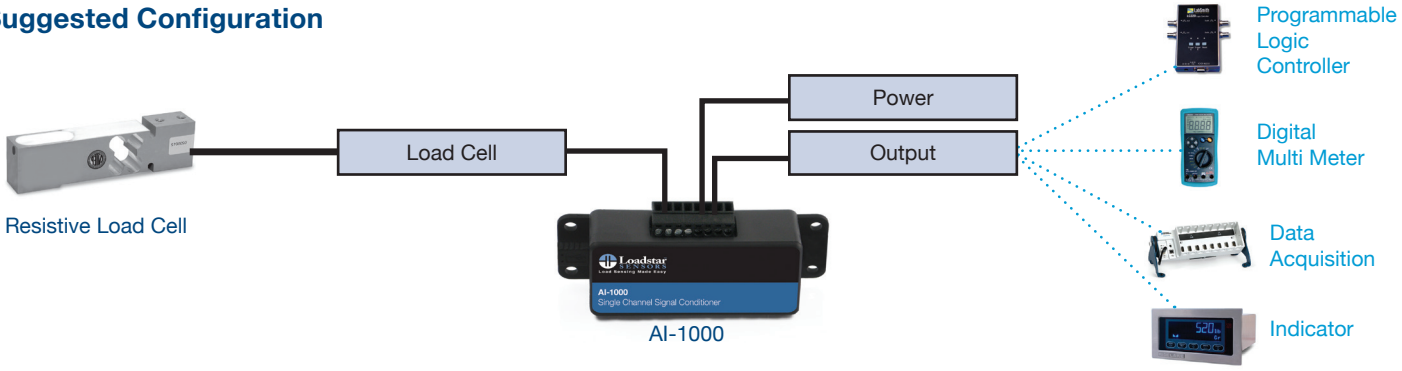
Specifications

Load Cell Connector	Screw Terminal Block
Power	Operating Voltage 8–30V DC regulated or filtered unregulated
Operating Current	5mA, plus bridge current
Excitation	5V
Bridge Input	Full Wheatstone Bridge

Ordering Information

Available Configurations	
Option	Part No.
Basic	AI-1000

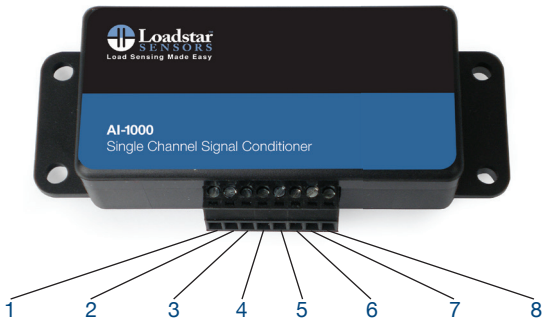
Suggested Configuration



Wiring Diagram

Position	Signal Name	Description
1	**Load Cell:** +Excitation	Color Code: Red
2	**Load Cell:** -Excitation	Color Code: Black
3	**Load Cell:** +Signal	Color Code: Green
4	**Load Cell:** -Signal	Color Code: White
5	**AI-1000:** +VDC Output	Output: 0.5VDC – 4.5VDC
6	**AI-1000:** +Power Input	Power adatper (Positive; with white stripe)
7	**AI-1000:** -Power Intput	Power adapter (Negative; merged with ground)
8	**AI-1000:** -VDC Output	Output: Ground

The picture (above) shows the port/position of the AI-1000.



Loadstar SENSORS

DI-100/1000/400 Digital Sensor Interfaces

wireless

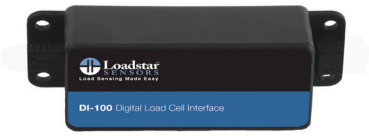
Overview

Loadstar Sensors' Digital Load Cell Interface modules provide a simple, convenient method to convert load cells into PC friendly USB load cells! Just connect your strain gauge load cell (resistive load cell) into one of our Digital Load Cell Interfaces and connect it to the USB port of a PC. Install and launch LoadVUE software and you can display, log or plot force data on your PC. These interfaces can also be used with other types of sensors with low level voltage signals such as torque, displacement, acceleration and pressure sensors.

You can calibrate these devices with the built-in two point calibration function or you can simply enter the mV/V calibration coefficient provided by the load cell manufacturer into the EEPROM of the interface.

If you are developing an embedded application, then you can connect the DI-100/DI-400 interfaces to your microcontroller using the available UART/Serial TTL interface and access calibrated data via an ASCII command set.

DI-100U



1 Channel, 16-Bit USB

DI-1000U

1 Channel, 24-Bit USB or Wireless

DI-400U

4 Channel, 16-Bit USB

Specifications

Model	DI-100U	DI-1000U	DI-400U
Accuracy Class	± 0.1%	± 0.02%	± 0.1%
ADC Resolution	16 bit	24 bit	16 bit
Channels	1	1	4
Wireless Option	No	Yes - DI-1000ZP	No
Battery Option	No	Yes - DI-1000ZP	No
Input Range	±150 mV	± 2300 mV	±150 mV
Load Cell Connector	Screw Terminal Block	Screw Terminal Block	Screw Terminal Block
Load Cell Compatibility	4 Wire	4 Wire & 6 Wire	4 Wire
Output Connector	USB 5-pin mini-B female	USB 5-pin mini-B female	USB 5-pin mini-B female
Interface to PC	Virtual COM Port	Virtual COM Port	Virtual COM Ports
Output Format	ASCII Text (millipounds)	ASCII Text (millipounds)	ASCII Text (millipounds)
Deta Rate	40 Hz D1-100U 275 Hz D1-100UHS	80 Hz D1-1000U 500 Hz D1-1000UHS	40 Hz D1-100U per channel 275 Hz D1-100UHS per channel
Dimensions	4.2" x 1.6" x 0.8"	4.5" x 2.5" x 1.3"	9.0" x 6.0" x 1.5"
Power	USB	USB/ 3-15V DC External Wall Adapter	USB

Ordering Information

Available Configurations				
Part No.	ADC(Bits)	Channels	Data Output Rate(Hz.)	Output
DI-100U	16	1	40	USB
DI-100UHS	16	1	275	USB
DI-1000U	24	1	80	USB
DI-1000UHS	24	1	500	USB
DI-1000UHS-1K	24	1	1000	USB
DI-1000Z	24	1	16	XBee
DI-1000ZP	24	1	16	XBee
DI-1000ZPHS	24	1	60	XBee
DI-400U	16	4	40	USB
DI-400UHS	16	4	275	USB

Certifications

CE RoHS 2002/95/EC

Highlights

Compatibility

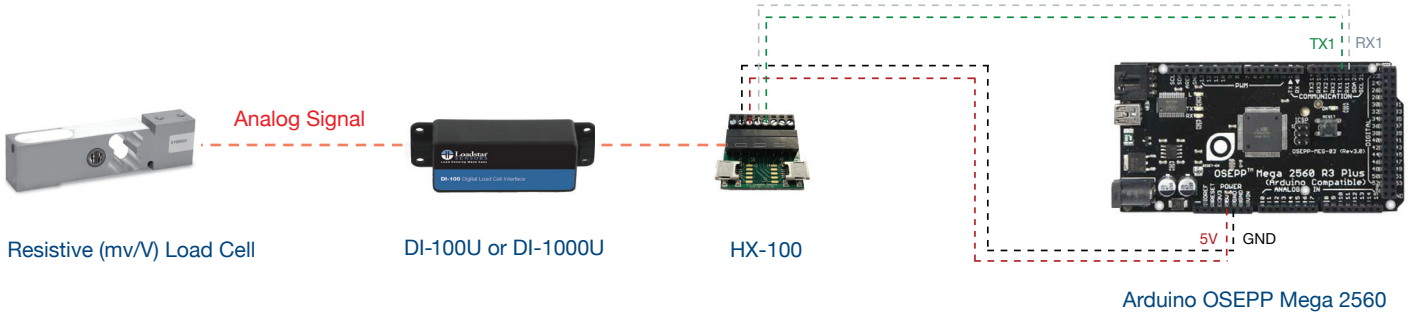
- Works with any Wheatstone bridge type device with mV/V output
- Works with LoadVUE software to display/log/plot data
- Works with DS-3000 LED display controller
- DI-100 is compatible with SC-1200 Sensor Router

PC Requirements

- Windows compatible PC (XP/Vista/7/8)
- 15 MB disk space
- 2 GB memory and Dual Core Processor Recommended
- Drivers available for LINUX and Mac OS

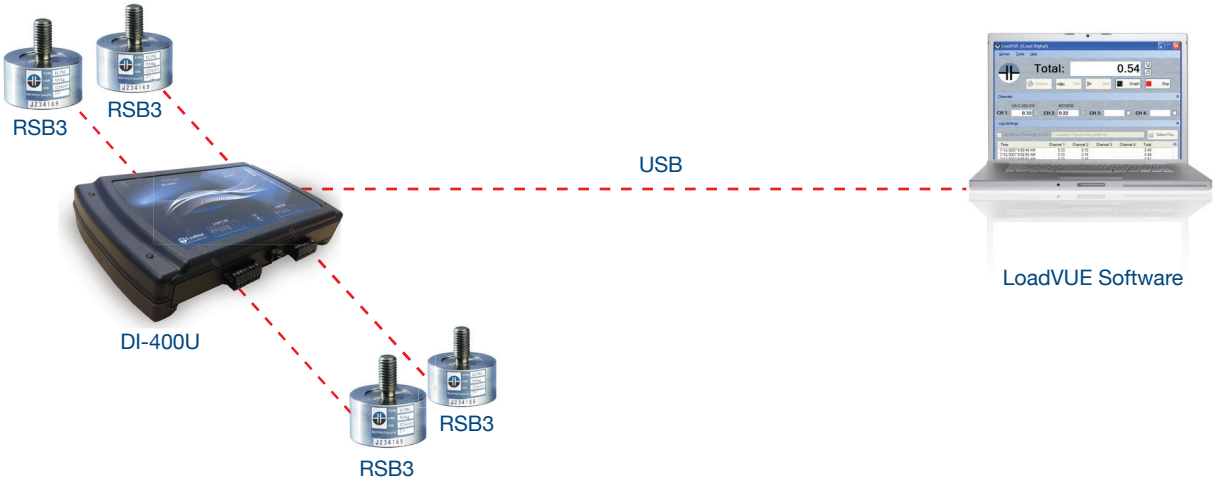
USB Configuration

UART / Serial TTL Configuration



Wireless Configuration

Four Load Cell Configuration

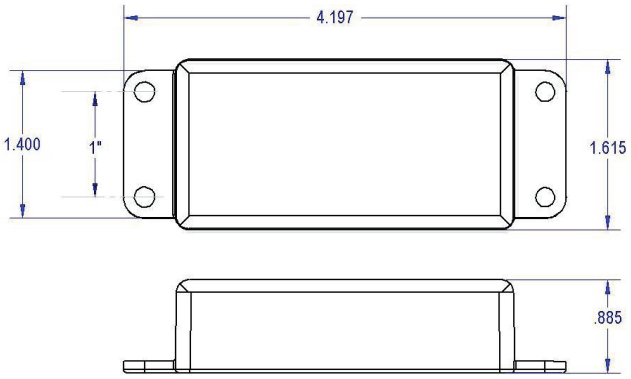


DI-100U 16-bit Digital Sensor Interface

Overview

Loadstar Sensors' DI-100U Digital Sensor Interface modules provide a simple, convenient method to connect existing millivolt output load cells or other sensors with mV/V output to Windows PC or tablets via USB.

Single Channel, 16-Bit USB



Highlights

- Powered by USB port; no external power needed.
- Works with most 4-wire 0-3 mV/V load cells (wires with E+, E-, S+, S-).
- Offers 16-bit resolution & provides accuracies to +/- 0.1% of full scale for most load cells.
- Appears as a Virtual COM port on a Windows PC.
- Works with LabVIEW, Matlab, VisualStudio etc.
- ASCII command set to allow users to get calibrated data into their own software applications.
- Provides UART/Serial TTL output, USB output using S2R serial to USB Dongle.
- Works with LoadVUE, SensorVUE or ControlVUE software to display, log or plot this data.

Specifications

Model	DI-100U
Accuracy Class	0.1%
Input Range	3 mV/V (0-15 mV Span)
ADC Resolution	16 bit
Channels	1
Sampling rate	40 Hz (DI-100U) 275 Hz (D-100UHS)
Output Protocol (Interface to PC)	UART (Tx, Rx) or USB (Virtual COM) using Serial to USB Dongle (S2U)
Wireless Option	No
Battery Option	No
Load Cell Compatibility	4 Wire
Compatible Software	LV-100, LV-1000, LV-4000, LV-CG, SensorVUE, ControlVUE, nCounter

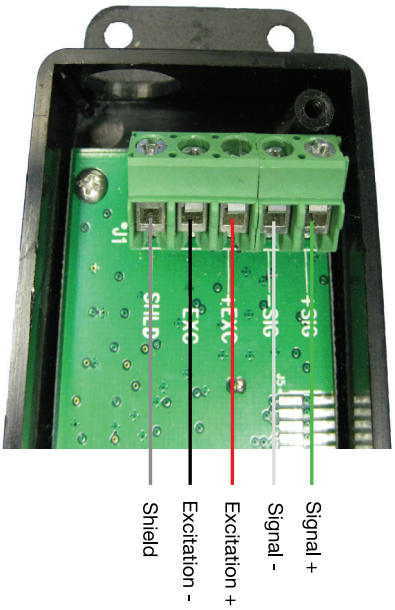
Ordering Information

Available Configurations				
Part No.	ADC(Bits)	Channels	Data Output Rate(Hz.)	Output
DI-100U	16	1	40	USB
DI-100UHS	16	1	275	USB

Certifications

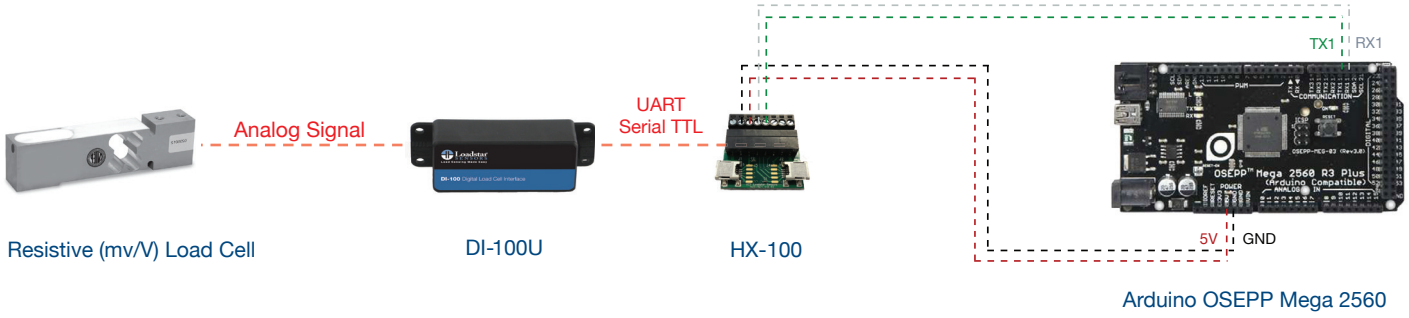
CE RoHS 2002/95/EC

Wiring Diagram: DI-100U



USB Configuration

UART / Serial TTL Configuration



Resistive Load Cell + DI-100 to RS-232 Configuration

Loadstar SENSORS

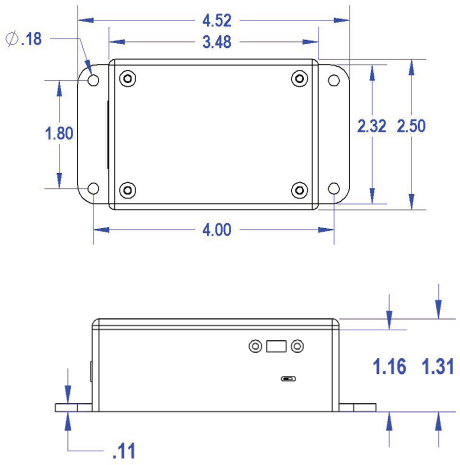
DI-1000U Digital Sensor Interface

wireless

Overview

Loadstar Sensors' DI-1000 Digital Sensor Interface module provide a simple, convenient method to connect existing millivolt output load cells or other sensors with a 0-5 VDC output to Windows PC or tablets. It is available with USB or wireless output. The wireless version comes with a rechargeable battery for cordless operation.

1 Channel, 24-Bit USB or Wireless



Highlights

- 24-bit ADC for finer resolution.
- Configurable gain to optimize resolution for full span of signal.
- Works with 4-wire or 6-wire mv/V load cells.
- Works with displacement sensors, pressure sensors, and other sensors with 0-5VDC output.
- Optional wireless connectivity in addition to USB.
- Offers optional rechargeable battery operation.
- Optional data update rates up to 1 KHz.
- Has an external terminal block for easy access.

Specifications

Model	DI-1000U DI-1000UHS	DI-1000U-5V DI-1000UHS-5V	DI-1000UHS-1K
Accuracy Class	± 0.02%	± 0.02%	± 0.02%
Input Range	3 mV/V (0-15 mV Span)	- 5V to +5V DC Span	16 bit
ADC Resolution	24 bit	24 bit	24 bit
Channels	1	1	1
Sampling rate	80 Hz (DI-1000U) 16 Hz (DI-1000ZP) 500 Hz (DI-1000UHS)	80 Hz (DI-1000U-5V) 16 Hz (DI-1000ZP-5V) 500 Hz (DI-1000UHS-5V)	Above 1000 Hz
Output Protocol (Interface to PC)	USB (Virtual COM)	USB (Virtual COM)	USB (Virtual COM)
Wireless Option	Yes, DI-1000ZP	Yes, DI-1000ZP	No
Battery Option	Yes, DI-1000ZP	Yes, DI-1000U-5VZP	No
Load Cell Compatibility	4 Wire & 6 Wire	4 Wire & 6 Wire	4 Wire & 6 Wire
Load Cell Connector	Screw Terminal Block	Screw Terminal Block	Screw Terminal Block
Compatible Software	LV-100, LV-1000, LV-4000, LV-CG, SensorVUE, ControlVUE, nCounter	SensorVUE, ControlVUE	LV-1000HS-1K

Ordering Information

Available Configurations				
Part No.	ADC(Bits)	Channels	Data Output Rate(Hz.)	Output
DI-1000U	24	1	80	USB
DI-1000UHS	24	1	500	USB
DI-1000U-5V	24	1	500	USB
DI-1000UHS-1K	24	1	1000	USB
DI-1000ZP	24	1	16	XBee

Certifications

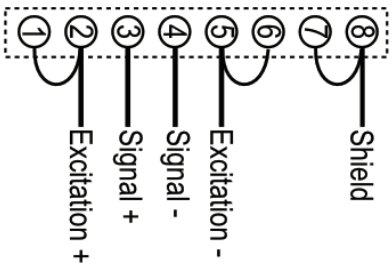
CE RoHS 2002/95/EC

USB Configuration

Wireless Configuration

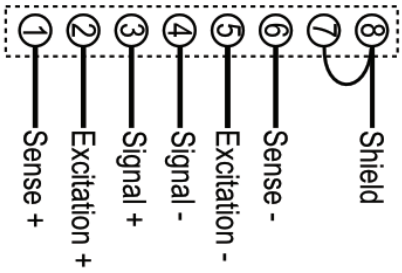
Displacement Sensor Configuration

Wiring Diagram: DI-1000U



DI-1000U Wiring for 4 wire load cells

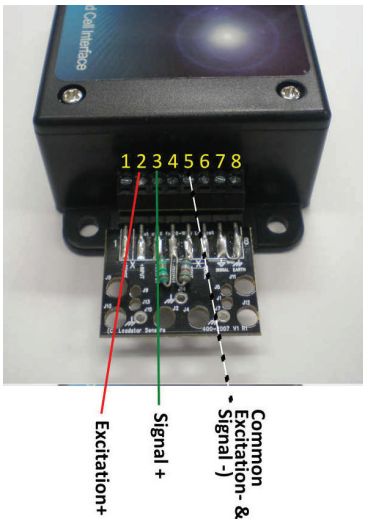
(Add external jumpers between pins 1 and 2, between pins 5 and 6 and between pins 7 and 8 as shown.)



DI-1000U Wiring for 6 wire load cells

(Add an external jumper between pins 7 and 8 as shown.)

Wiring Diagram: DI-1000U-5V



Loadstar® SENSORS

DI-400 Four Channel 16-bit Digital Sensor Interface

Overview

This is essentially a four channel version of the DI-100U. It enables a user to quickly connect up to four 4-wire load cells to this interface, digitally calibrate each and then obtain calibrated force/load/weight values from all four connected load cells. Other sensors with mV/V output can be connected as well.

Since each load cell is digitally calibrated and calculated weights/forces are summed digitally, by using a DI-400U, you can save time, money and a lot of headache of using a junction box and performing an analog summation from multiple load cells. This is the easiest way to build a scale with four independent measurements at the four corners of a frame/platform.

4 Channel, 16-Bit USB

Highlights

- Powered by USB port; no external power needed.
- Works with most 4-wire 0-3 mV/V load cells (wires with E+, E-, S+, S-).
- Offers 16-bit resolution & provides accuracies to +/- 0.1% of full scale for most load cells.
- Appears as a Virtual COM port on a Windows PC.
- Works with LabVIEW, Matlab, VisualStudio, Java etc.
- ASCII command set to allow users to get calibrated data into their own software applications.
- Works with LoadVUE LV-4000, SensorVUE or ControlVUE software to display, log or plot this data.

Specifications

Model	DI-400U
Accuracy Class	± 0.1%
Input Range	3 mV/V (0-15 mV Span)
ADC Resolution	16 bit
Channels	4
Sampling Rate	40 Hz (DI-400U) 275 Hz (D-400UHS)
Output Protocol (Interface to PC)	USB (Virtual COM) using Serial to USB Dongle (S2U)
Battery Option	No
Wireless Option	No
Load Cell Connector	Screw Terminal Block
Load Cell Compatibility	4 Wire
Output Connector	USB 5-pin mini-B female
Output Format	ASCII Text (millipounds)
Dimensions	9.0" x 5.25" x 1.5"
Compatible Software	LV-4000, SensorVUE, ControlVUE

Ordering Information

Available Configurations				
Part No.	ADC(Bits)	Channels	Data Output Rate(Hz.)	Output
DI-400U	16	4	40	USB
DI-400UHS	16	4	275	USB

Applicable Software

LV-4000	see page 128
LV-4000-CG	see page 129
SensorVUE	see page 128
ControlVUE	see page 129

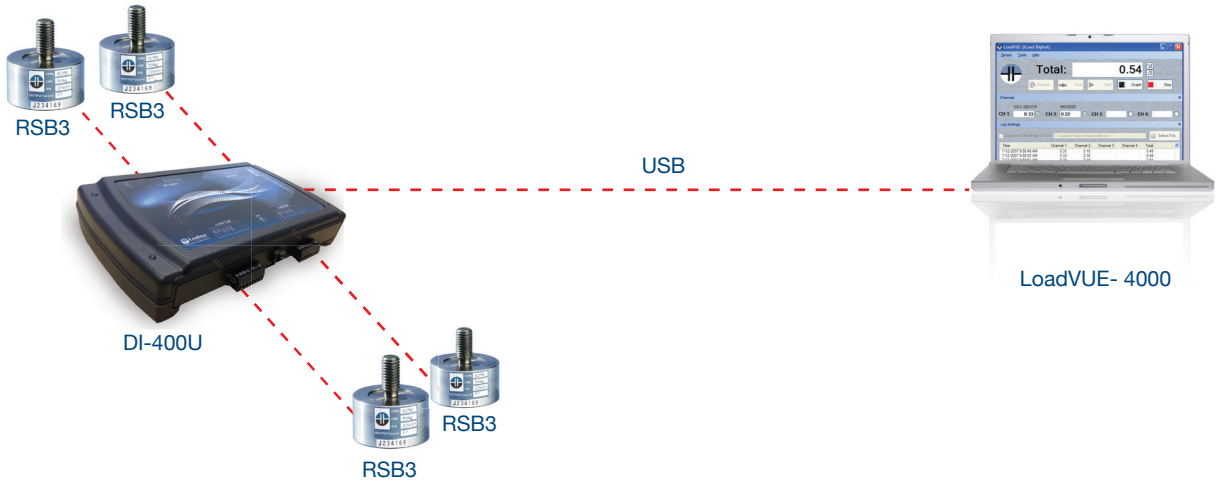
Software Requirements

Operating System	Microsoft Windows XP/Vista/7/8
Hard Drive	500 MB disk space
RAM	2 GB memory
Hardware	Windows compatible PC, Tablet

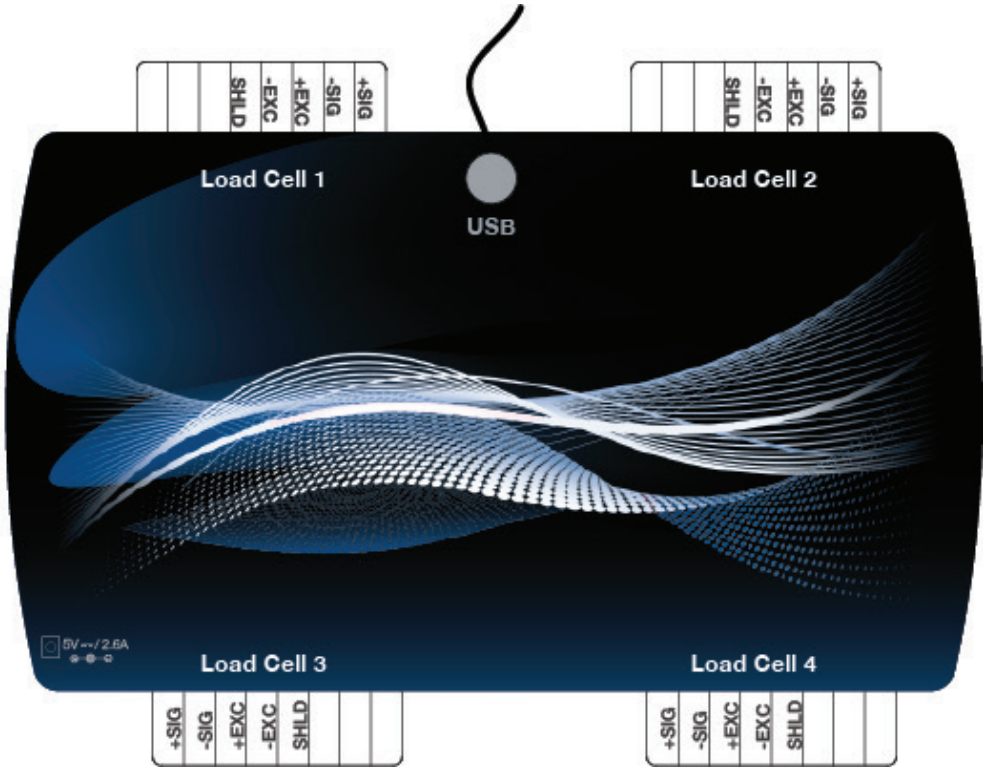
Certifications

CE RoHS 2002/95/EC

Four Load Cell Configuration



Wiring Diagram: DI-400



Loadstar® SENSORS

RD-1000 Resistive Load Cell Display

Highlights

Standard Features

- Selection for Counting, Gross/Net or Accumulation, Print or Weight Hold
- Stainless Steel Housing
- Pushbutton Key Pad and Multi Units
- Bright LED Display
- Made in the U.S.A.

Overview

Loadstar Sensor's RD-1000 digital scale indicator will interface with all strain-gauge load cell configurations. It provides all the basic scale operational features for the least cost. The standard features provide for easy setup and calibration to start measuring force/loads.

Specifications*

Enclosure	Stainless Steel
Channels	1
Compatible Load Cells	All Strain Gauge Load Cells
Dimensions (L x W x H) - w/out stand	8 in. x 5.5 in. x 2.5 in.
Dimensions (L x W x H) - with stand	10 in. x 7 in. x 4 in.
Power	Ships with 120V Power Adapter
Load Cell Supply	5V DC at 150 mA—For 4-350 Ohm Load Cells
LED Display	High efficiency 1 in tall
Display Resolution	0.00001–99999.9
Operating Temperature	50° F to 104° F (10° C to 40° C)
Relative Humidity	0% to 80% (non-condensing)
Resolution	500,000 internal counts—15,000 displayed counts full scale
Accuracy	0.01% of Full Scale
Non-linearity	0.01% of Full Scale
Input	15 mV

*Specifications subject to change without notice.

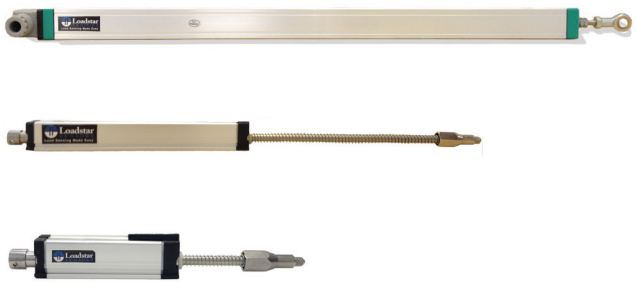
Ordering Information

Available Configurations	
Option	Part No.
Basic	RD-1000

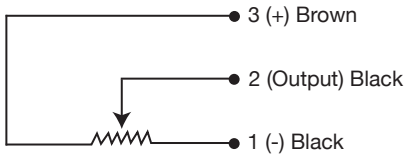
Notes

Loadstar® SENSORS

iLVDT Displacement Sensor



Wiring Information



Specifications

Typical Values					
Range (mm)	10	25	50	100	500
Resistance Range ± 10% (k Ω)	5	5	5	5	8
Linearity	± 1%	± 1%	± 1%	± 1%	2%
Working Speed (mm/s)	5				
Excitation Voltage	24 V DC (Max)				
Operating Temperature Range	-20 to 80 ° c				
Active Electrical Travel (mm)	10	25	50	100	500
Total Electrical Travel (mm)	12	27	51	102	502
Spring Loaded	Y	Y	Y	Y	N

Dimensions

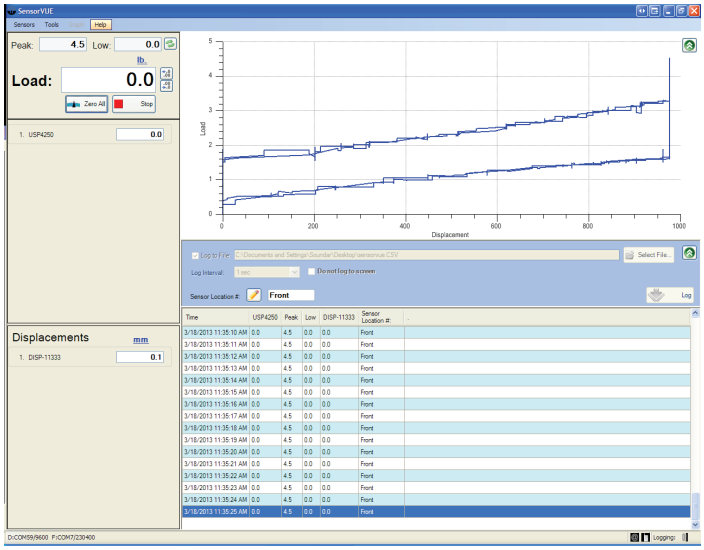
	Type				
	10	25	50	100	500
Fully Extended Length	122	150	208	325	1170
Width	20	20	20	20	32
Height	20	20	20	20	32
Cable Length	980	980	980	980	6ft. (Cable not integrated with the sensor)

(All dimensions are in mm)

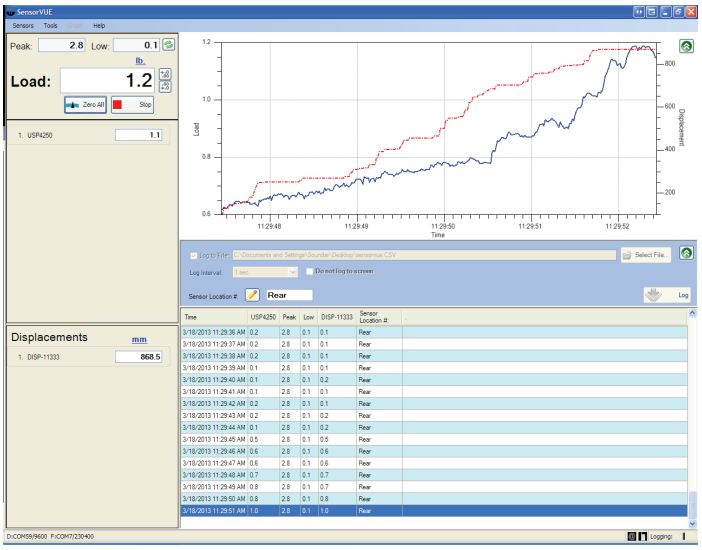
Ordering Information

Range	Part No.
10 mm	LVDT-010M-V
25 mm	LVDT-025M-V
50 mm	LVDT-050M-V
100 mm	v-100M-V
500 mm	LVDT-500M-V

SensorVUE software provides convenient means for easy data acquisition and display of forces and displacements simultaneously from our digital load cells and displacement sensors. SensorVUE can support any number of load cells, torque sensors, displacement sensors and/or level sensors and is available in multiple configurations. SensorVUE works on Windows PCs (XP through 8) and allows you to view, log and plot data.



SensorVUE Force-Displacement Screen

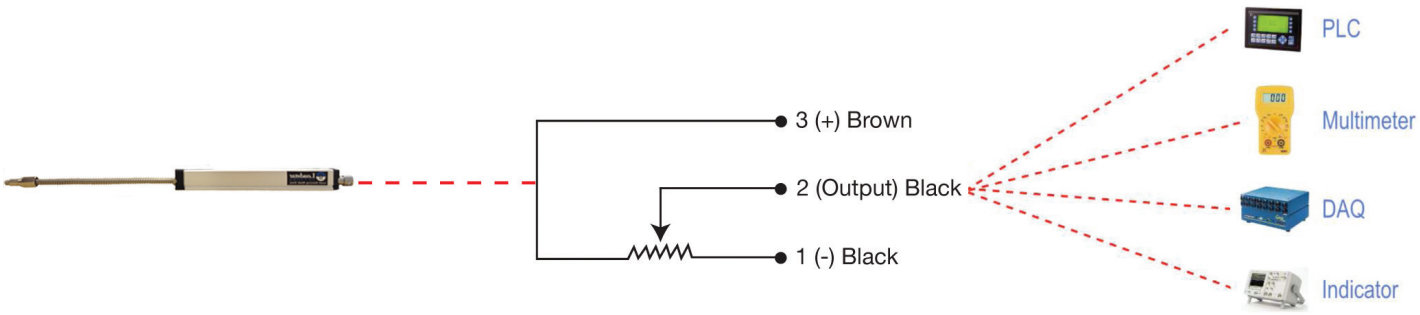


SensorVUE Force-Time Screen

USB Configuration

Wireless Configuration

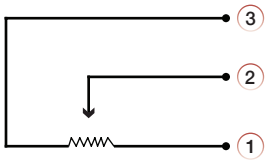
Analog Configuration



Loadstar® SENSORS

iSP String Pot Displacement Sensor

Wiring Information



12.5-50 in.	80 in.
③ +Brown	③ +Red
② (output) Blue	② (output) Green
① -White	① -Black

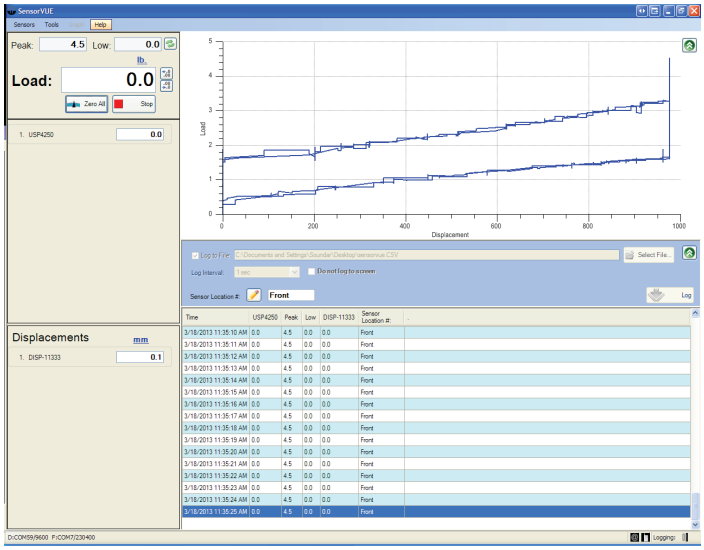
Specifications

Typical Values				
Range (in)	12.5 (317.5 mm)	25 (635 mm)	50 (1270 mm)	80 (2032 mm)
Resistance Range ± 10% (k Ω)	10k ohms, ±10%	10k ohms, ±10%	10k ohms, ±10%	10k ohms, ±10%
Linearity	± 1%	± 1%	± 1%	± 1%
Max Cable Acceleration	10 g	10 g	10 g	10 g
Excitation Voltage	12-32 V DC	12-32 V DC	12-32 V DC	12-32 V DC
Operating Temperature Range	-18° to 71° C	-18° to 71° C	-18° to 71° C	-18° to 71° C
Spring Loaded	Y	Y	Y	Y

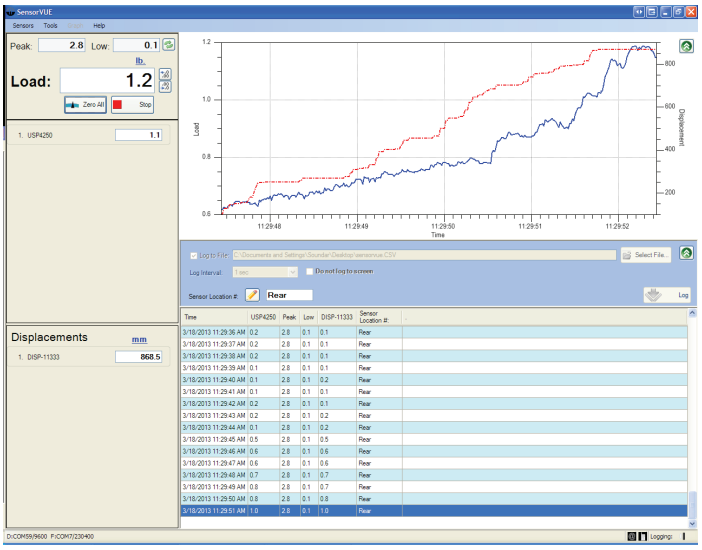
Ordering Information

Range	Part No.
12.5 in. (317.5 mm)	ISP- 12IN
25 in. (635 mm)	ISP- 25IN
50 in. (1270 mm)	ISP- 50IN
80 in. (2032 mm)	ISP- 80IN

SensorVUE software provides convenient means for easy data acquisition and display of forces and displacements simultaneously from our digital load cells and displacement sensors. SensorVUE can support any number of load cells, torque sensors, displacement sensors and/or level sensors and is available in multiple configurations. SensorVUE works on Windows PCs (XP through 8) and allows you to view, log and plot data.

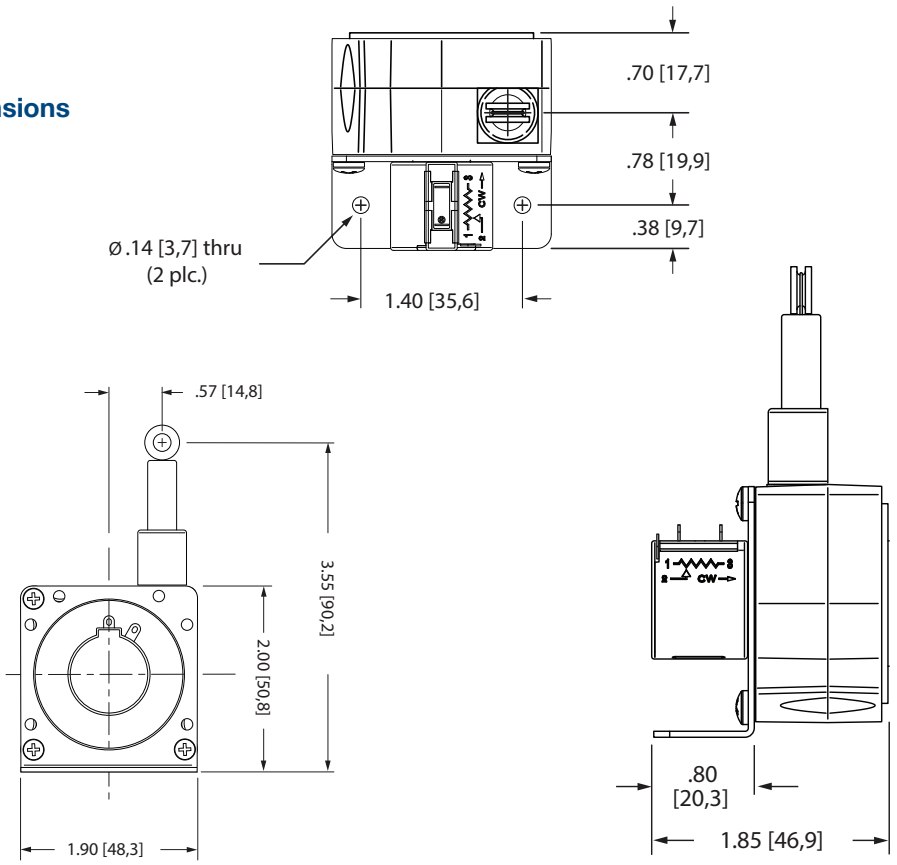


SensorVUE Force-Displacement Screen



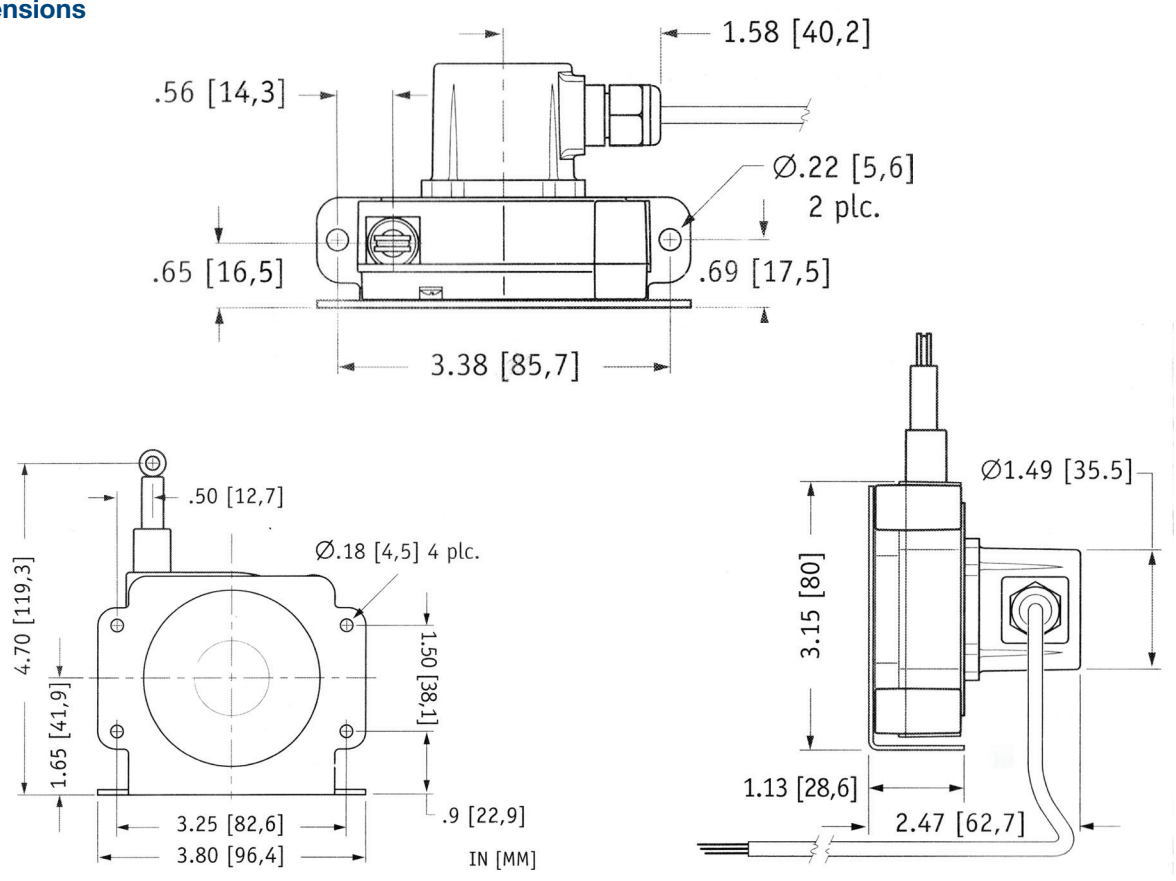
SensorVUE Force-Time Screen

ISP-12IN
ISP-25IN
ISP-50IN Dimensions



Inches [mm]

ISP-80IN Dimensions

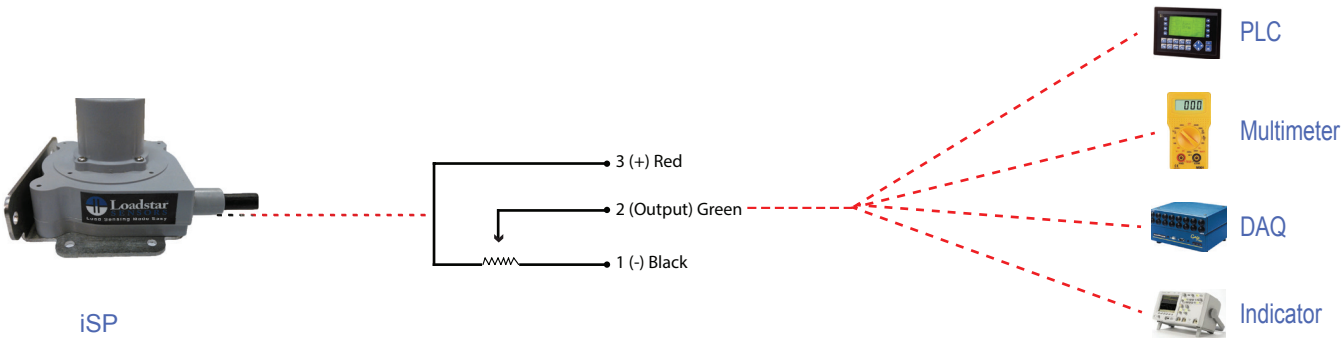


Inches [mm]

USB Configuration

Wireless Configuration

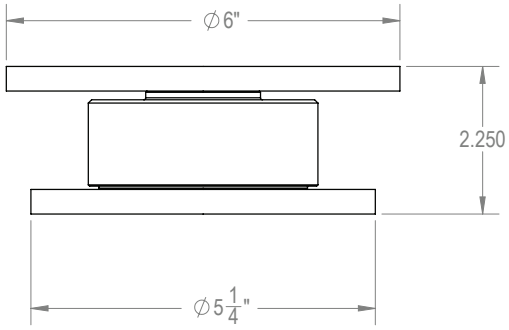
Analog Configuration



Notes

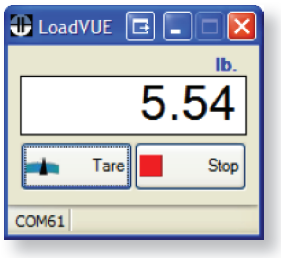
Loadstar® SENSORS

iWeigh USB Scale



The iWeigh scales offer an easy way to weigh small packages on your desk, but it also lets you do a variety of complex force measurements and monitoring tasks that ordinary scales cannot do! Simply plug in your scale to your computer's USB port and start measuring with our LoadVUE Pro load cell software. The software allows you to display the loads in various units, it allows you to log the data in a comma separated file as well as plots the data in real time as a Force vs. Time plot that shows Peak and Low loads as well.

You can customize the scale to obtain an analog 0.5 to 4.5 VDC output proportional to applied force or weight. Or you can order the scale with the optional wireless output and true cordless operation with a rechargeable battery.



Display

X-Y Plot

Log

Alerts via E-mail/SMS

Ordering Information

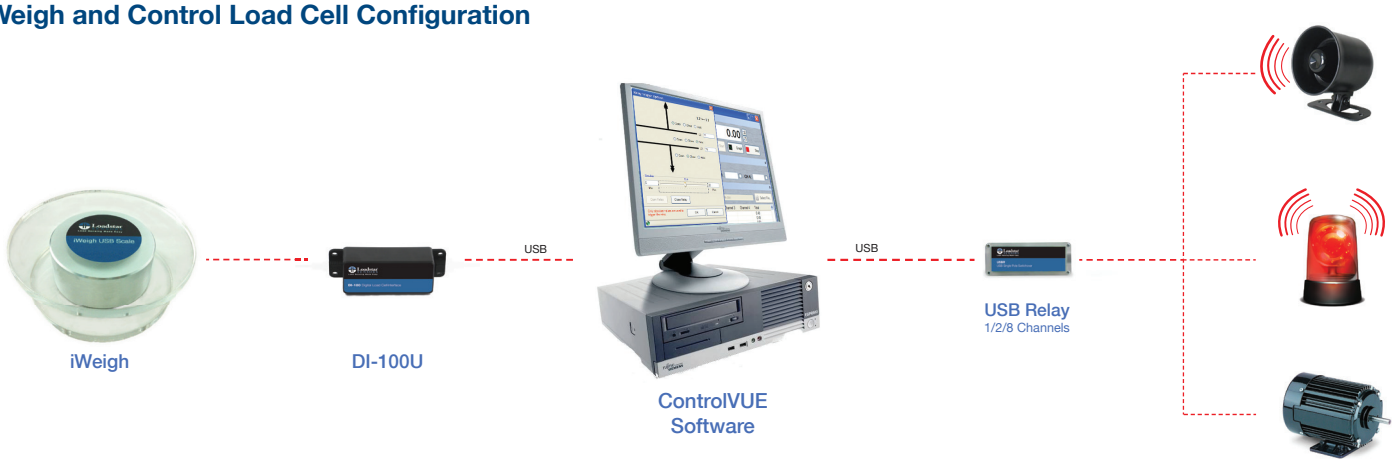
Multiple Scale Capacities		Accuracy (of Full Scale)
Capacity	Model No.	
300 grams	iW-6D-300G-DI-100U	± 0.1%
1 kilogram	iW-6D-1M-DI-100U	± 0.1%
2 kilogram	iW-6D-2M-DI-100U	± 0.1%
3 kilogram	iW-6D-3M-DI-100U	± 0.1%
300 grams	iW-6D-300G-DI-1000U	± 0.05%
1 kilogram	iW-6D-1M-DI-1000U	± 0.05%
2 kilogram	iW-6D-1M-DI-1000U	± 0.05%
3 kilogram	iW-6D-1M-DI-1000U	± 0.05%
300 grams	iW-6D-300G-DI-1000ZP	± 0.05%
1 kilogram	iW-6D-1M-DI-1000ZP	± 0.05%
2 kilogram	iW-6D-2M-DI-1000ZP	± 0.05%
3 kilogram	iW-6D-3M-DI-1000ZP	± 0.05%
300 grams	iW-6D-300G-AI-1000U	± 0.05%
1 kilogram	iW-6D-1M-AI-1000U	± 0.05%
2 kilogram	iW-6D-2M-AI-1000U	± 0.05%
3 kilogram	iW-6D-3M-AI-1000U	± 0.05%

**High Speed and Wireless Available*

USB/Wireless Load Cell Configuration

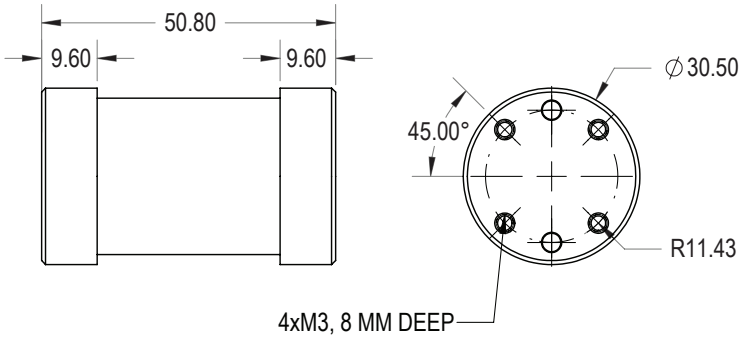
Analog Load Cell Configuration

Weigh and Control Load Cell Configuration



Loadstar® SENSORS

RST1 Reaction Torque Sensor



(All dimensions are in mm)

Accuracy Specifications

Accuracy	
Non-linearity	± 0.2% of Full Scale
Hysteresis	± 0.2% of Full Scale
Non-repeatability	± 0.05% of Full Scale

Wiring Information

Cable Color Code	
Red	+ Excitation
Black	- Excitation
Green	+ Signal
White	- Signal

Load Cell Specifications

Typical Values	
Zero Balance	1% of Full Scale
Safe Overload	150% of Full Scale
Ultimate Overload	200% of Full Scale
Full Scale Output	2 ± 1% mv/V
Input Impedance	410 ± 30 Ω
Output Impedance	350 ± 4 Ω
Insulation	≥ 2000 MΩ / 50 V DC
Recommended Excitation Voltage	10 V DC
Compensated Temperature Range	14 to 100 °F (-10 to 40 °C)
Temperature Effect on Zero	0.036% of F.S. / 10°C
Temperature Effect on Span	0.036% of F.S. / 10°C

Ordering Information

Capacity	Part No.
6 N-m	RST1-006NM
10 N-m	RST1-010NM
60 N-m	RST1-060NM
150 N-m	RST1-150NM

USB Load Cell Configuration

Wireless Load Cell Configuration

Analog Load Cell Configuration

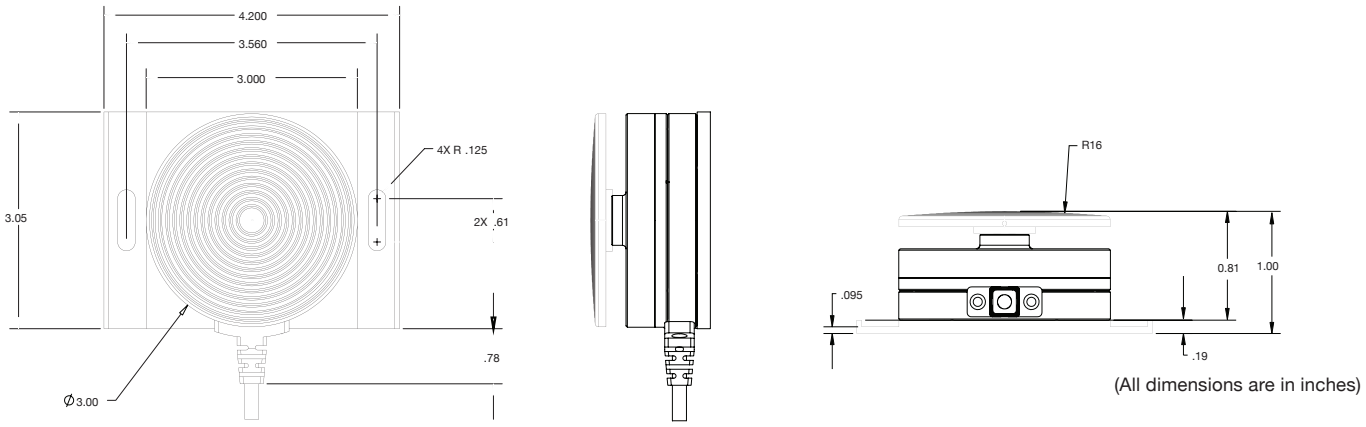
Loadstar® SENSORS

iPedal Pedal Force Sensor

Loadstar's iPedal force sensor, is an easy to use sensor for measuring compressive forces applied during brake testing or similar applications where a user wants to measure the forces applied to a pedal.

Unlike conventional load cells with millivolt output, the iPedal sensor has signal conditioning electronics built into the sensor itself, and does not need specialized external equipment for output measurement.
The sensor is based upon our patent protected capacitive sensing technology and is thin, rugged, and provides high reliability in rough environments.

This versatile force sensor can be used with our LoadVUE Pro (LV-1000) software to easily display, log and plot the force data on a PC or Windows compatible Tablet or with a DAQ/PLC using the analog output. You can even connect it to any micro-controller via the UART (Serial TTL) connection which can be accessed via the HX-100 breakout board if needed.



(All dimensions are in inches)

Accuracy Specifications

Accuracy	
Non-linearity (Axial loading)	± 0.25% of Full Scale
Off Center Loading Error	± 1% of Full Scale at 0.625 in. from center
Non-repeatability	± 0.1% of Full Scale
Max Data Output Rate	150 Hz Standard - 500 Hz Optional

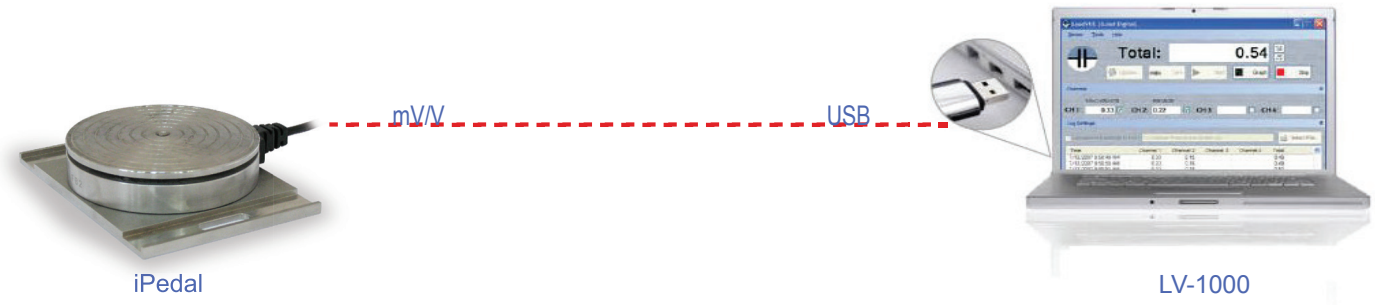
Other Specifications

Typical Values	
Safe Overload	150% of Full Scale
Deflection	0.003 in. at capacity typical
Operating Temperature Range	-10°C to 70°C, non-condensing
Compensated Temperature Range	10°C to 40°C
Zero Temperature Change	0.05% of FS/°C

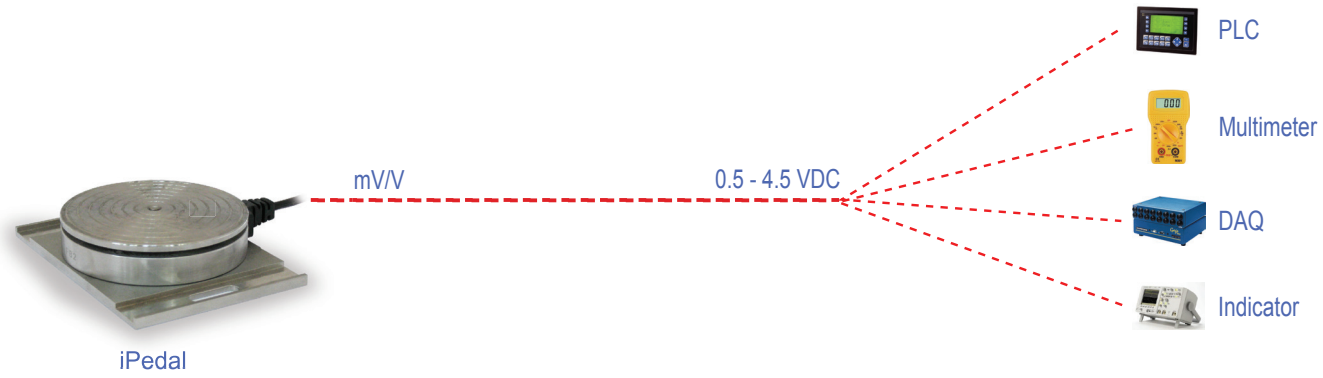
Ordering

SKU	Capacity	Output	Accuracy	Interface/Software
iPEDAL-A-300	300 lbs	0.5 - 4.5V DC	+/- 0.5%	N/A
iPEDAL-U-300	300 lbs	USB	+/- 0.5%	LoadVUE Lite (LV-100) Display Only
iPEDAL-U-300-LV1000	300 lbs	USB	+/- 0.5%	LoadVUE Pro (LV-1000)
iPEDAL-UA-HX100-300-LV1000	300 lbs	USB & Analog with HX-100	+/- 0.5%	LoadVUE Pro (LV-1000)

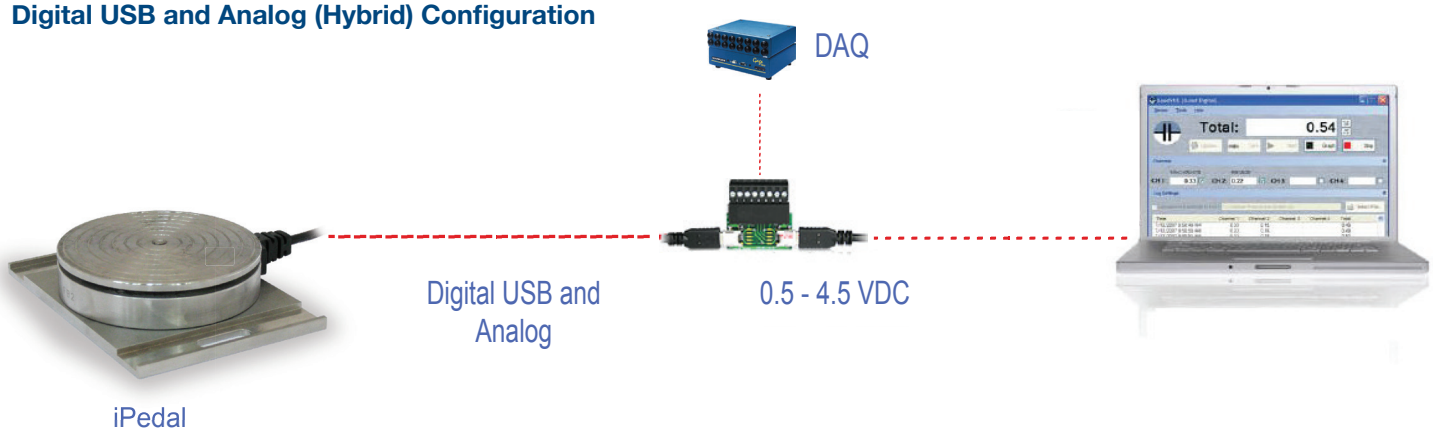
USB Load Cell Configuration



Analog Load Cell Configuration



Digital USB and Analog (Hybrid) Configuration



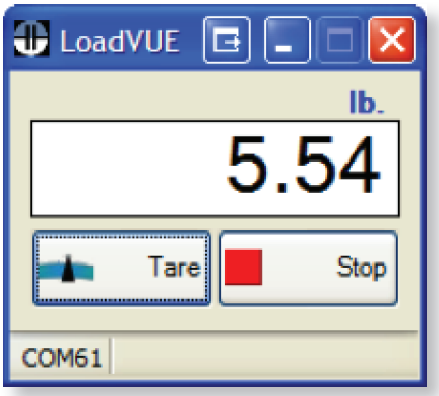
LoadVUE Software

Overview

Loadstar Sensors provides easy to use load cell software that can operate under Windows XP/7/Vista/8 running on a PC, Mac or Tablet. We offer a variety of software versions which should meet most of your common needs for displaying, logging or plotting sensor information easily on a PC. When your application needs customization or features that are not present in any of these standard versions, we will be happy to customize it for you for a nominal cost. LoadVUE is also compatible with DI-100/1000/4000, DS-3000, DQ-4000 & DS-4000 interfaces and is available in many configurations for various applications.

LoadVUE Lite

This basic software connects to our iLoad Series load cells or any resistive load cell connected to a DI-100/DI-1000 interface and displays the value of the force, load or weight. You can zero out initial load (Tare) to display net weights taking out any initial values. You can also change units to display the values in grams, kilograms, Newtons, pounds or oz. This software is included with all purchased load cells and the install disc contains all the drivers needed to install and run our load cells.



LoadVUE Lite LV-100

LoadVUE Pro - Single Channel

LV-1000

This software allows a user to not only display the load/force/weight information on a PC, it also allows a user to **log the data** to a comma separated Excel friendly file and to plot the Force vs. Time data as a **X-Y Plot** with Peak/Low values.

The user can select if he/she wants the plot to be a cumulative graph for the duration of the test or a strip-chart that shows the latest data in a defined time interval. In addition, the user can set the time intervals at which he wants the data to be logged and can set limits beyond which the software sends out alerts either via e-mail, SMS or as an audible alarm.

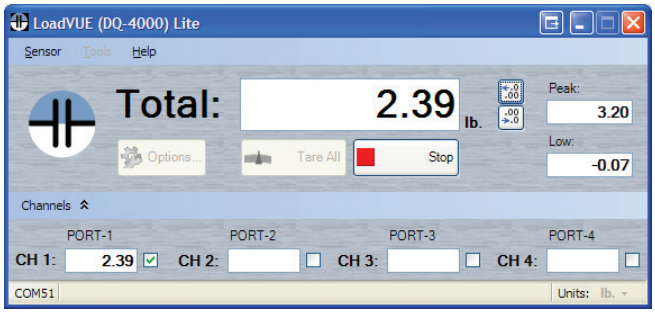
Display & Log Data

Plot

Set Alerts

Calibrate

LoadVUE Software

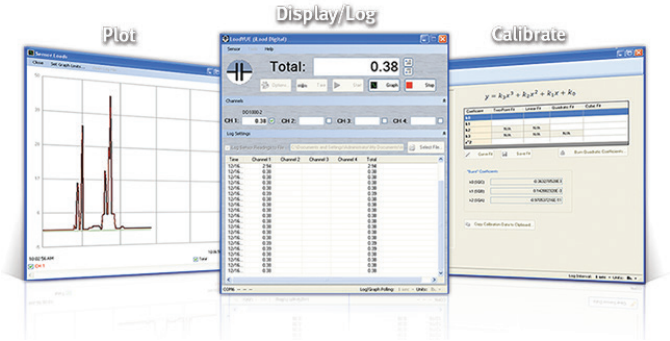


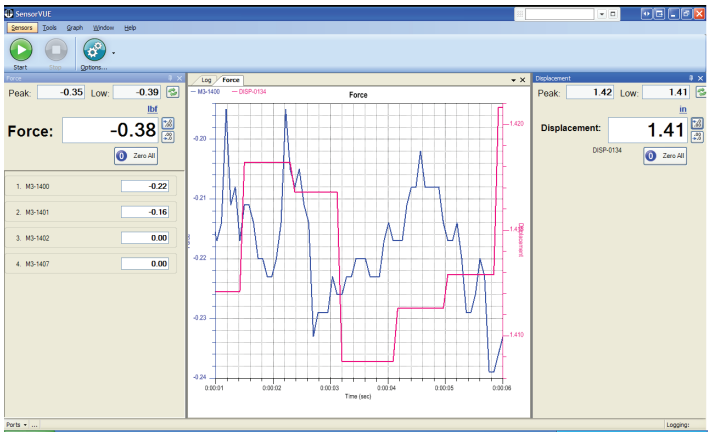
LoadVUE Lite - 4 Channel
LV-400

This basic software connects to up to four of our iLoad Series load cells or any resistive load cell connected to a DI-100/ DI-1000 interface and displays the value of the force, load or weight and total weight. You can zero out initial load (Tare) to display net weights taking out any initial values. You can also change units to display the values in grams, kilograms, Newtons, pounds or oz.

LoadVUE Pro - 4 Channel
LV-4000

This software does everything that the LV-1000 software does but allows a user to display, log and plot data from **up to four** connected digital load cells or digital weight sensors.





SensorVUE (Multi-sensor, Multi-Channel)

While LoadVUE works exclusively with Load, Force or Weight Sensors, SensorVUE supports a **variety of sensors** including load, force, weight, torque, pressure, level, temperature and displacement measurements. We are constantly adding new sensors to our product range and we plan to support those sensors in the future.

In addition to all the features supported in LoadVUE Pro software, SensorVUE allows you to zoom into the plot to look at areas of interest closely, it allows you to place different parts of the software in different locations on the screen to create your preferred layout.

Users can also create derived values or virtual sensors from base sensor data (for example, measure force but divide that value by area to create a pressure sensor) and also create a variety of plots in a flexible way. For example. a user can display and log Force and displacement data and create a plot with Force and Displacement on the y-Axis and Time on the x-axis or create a plot of Force on y-axis and displacement on x-axis.

LoadVUE Software

ControlVUE (Sense and Control)

While LoadVUE and SensorVUE allow a user to get digital information from a sensor, ControlVUE enables a user to **control external devices**. It enables a user to control a USB Relay with one, two or eight channels to turn on/off a variety of 110V/220V (2 A) devices or to control a USB Stepper Motor's angular position and speed. By coupling a rack and pinion gear system into the motor, a user can also create a linear actuator. By using sensors and these simple control mechanisms a user can create automated solutions for applications such as bagging, filling and packaging.

Dynamic / Impact Force Measurement

LV-1000HS-1K

Most weighing applications are static or quasi-static in nature and don't require more than ten to twenty readings per second. But some applications such as hammer test or impact force measurement or dynamic force measurements need much higher data rates to capture events that take place within just a few milliseconds.

For applications such as these, we have developed the LV-1000HS-1K which works with our DI-1000U-1K USB Interface to provide a high-data rate capable solution for displaying, logging and plotting force/load/weight information.

LoadVUE Center of Gravity

LV4000-CG

This software not only displays the actual force or weight measured by four connected load cells, it also displays the **center of force** or **center of gravity** between the four corners of a rectangle at the corners of which the load cells are placed. A user can also turn on a track CG feature that will show how the CG is changing with time.

Users can use it display, log and plot center of gravity or use it to track CG of objects or the movement of things or people as in the case of a golf player swinging his club.

LoadVUE Software

LoadVUE for Boxing

This customized version of LoadVUE Pro allows a user to not only display the measured **punch force**, but also count the **number of punches**, the frequency of punches thrown in a period of time etc. This allows a boxer or martial arts trainee or coach to monitor the performance of an athlete, track their improvement from week to week and help them to achieve peak performance.

nCounter Parts Counting Solution

This software enables a user to place a number of pieces onto a scale and quickly **count the number of pieces** in the container. It also enables a user to store parts into a database with piece weight information that can be quickly accessed to calculate count information.

LoadVUE Software

Comparison Chart

	LV-100	LV-400	LV-1000 LV-1000HS	LV-1000HS-1K	LV-4000 LV-4000HS	SensorVUE	ControlVUE
Supported Sensors	Force (Weight)	Force (Weight)	Force (Weight)	Force (Weight)	Force (Weight)	Force (Weight) Torque Pressure Level Displacement Temperature Acceleration Angle	Force (Weight) Torque Pressure Level Displacement Temperature Acceleration Angle
Number of Sensors	1	4	1	1	4	Limited by USB Ports	Limited by USB Ports
Log Readings to .CSV File							
Plot readings							
Change Units							
Display Peak/Low Values							
E-Mail/SMS/Audible Alerts					(Total only)	(Individual & total)	(Individual & total)
Secondary Axis Plots							
Non-Time Axis Plots (eg. Force vs. Displacement)							
Zoom into graphs							
Overlay graphs from multiple runs							
Max Data Rate Supported (Readings/sec)	150	150	150(LV-1000) 500(LV-1000-HS)	Min. 1000	150(LV-4000) 500(LV-4000-HS)	500	500
Log/Plot Derived Values (eg. Stress from Force and Area, Strain from Force and Displacement)							
Control Relays							(1, 2 and 8 channel versions available)
Control Motors							

Ordering Information

SKU	Channel	Speed	Sensors Supported
LV-1000	1	150 Hz	Load/Weight
LV-4000	4	150 Hz	Load/Weight
LV-1000HS	1	500 Hz	Load/Weight
LV-4000HS	4	500 Hz	Load/Weight
SensorVUE	Unlimited	500 Hz	ALL
ControVUE	Unlimited	500 Hz	ALL
LV-1000HS-1K	1	1000 Hz	Load/Weight
nCounter	1	150 Hz	Load/Weight

Software Requirements

Requirements for all versions of software	
Operating System	Microsoft Windows XP/Vista/7/8
Hard Drive	500 MB disk space
RAM	2 GB memory
Hardware	Windows compatible PC, Tablet

Loadstar® SENSORS

Hardware Accessories

FP-325 Foot Pedal

FP-325	Dimensions			
Material	Thread Size	Base Height	Total Height	Diameter
Stainless Steel	1/2-20 UNF	0.75 in. (19.1 mm)	2.62 in. (66.5 mm)	3.47 in. (88.1 mm)

Compatible with any of the following Load Cells:		
iLoad Pro 50 lb. - 2,500 lb.	iLoad TR 2 lb. - 100 lb.	

- Replacement foot, adapts to most floor scales
- Use with single-ended beams OR iLoad TR, iLoad Digital to provide large, flat, adjustable introduction surface
- Special neoprene rubber sandwich base gives high accuracy, linearity and repeatability

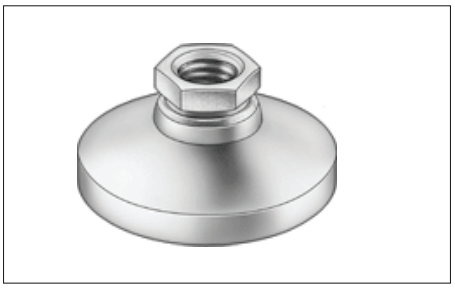
LF-1220 Leveling Foot

LF-325	Dimensions		
Material	Thread Size	Height	Foot Diameter
Carbon Steel	1/2-20 UNF	3.5 in. (88.9 mm)	2.00 in. (50.8 mm)

Compatible with any of the following Load Cells:		
iLoad Pro 50 lb. - 2,500 lb.	iLoad TR 2 lb. - 100 lb.	

- Bright zinc and clear chromate plating for corrosion-resistance
- Active ball suspension provided ideal load cell loading with maximum side load protection
- Hardened alloy steel with plated finish
- Includes two jamnuts, one for wrench access
- Top of stud is machined undersized 10% for easy alignment into load cell plus one slotted for top-access applications

LF-M6-F Self Leveling Foot



LF-M6-F	Dimensions (mm)		
A	B	C	Thread Size
19 mm.	38 mm.	25 mm.	M6 x 1

Compatible with any of the following Load Cells:		
RSB4 10 kg. - 200 kg.	REB7 100 kg.	

- Metric Swivel Leveling Mount with Threaded Hole Zinc-Plated Steel, with Pad, M6 Thread
- Safe Load: 515 lb.

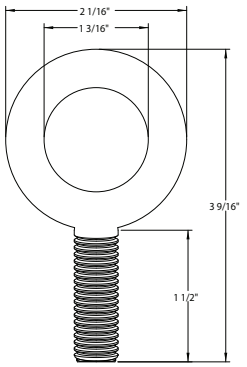
LF-M12-F Self Leveling Foot

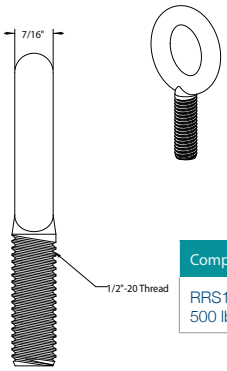
LF-M12-F	Dimensions (mm)		
Material	Thread Size	Height	Foot Diameter
Zinc-Plated Steel	M12 x 1.75	11.17	48

Compatible with any of the following Load Cells:		
RSB3 50 kg. - 500 kg.		

- Metric Swivel Leveling Mount with Threaded Hole Zinc-Plated STL, W/Pad, M12 Thread.
- Safe Load: 3,740 lb.

EB- 1220 Load Cell Eye Bolt

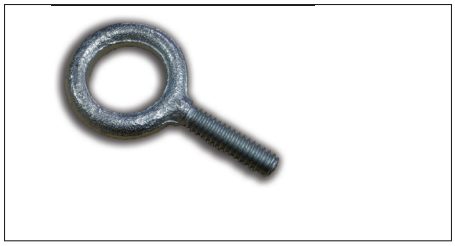


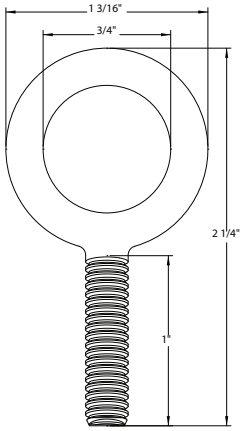


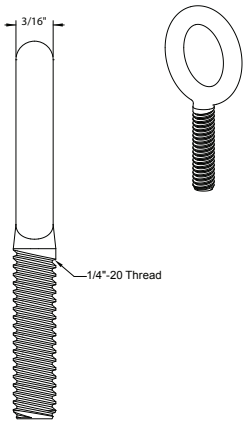
- Steel Eyebolt without Shoulder for Lifting Zinc-Plated, 1/2"-20 Thread,1-1/2" L Thrd
- Safe load: 2600 lb

Compatible with any of the following Load Cells:		
RRS1 500 lb. - 1500 lb.	RAS1 250 lb.- 2000 lb.	RAL1 1500 lb - 2500lb

EB- 1420 Load Cell Eye Bolt

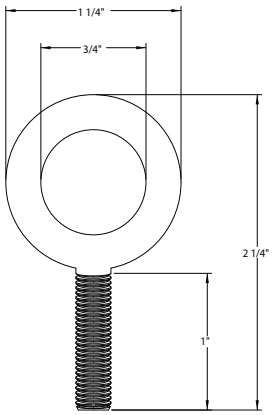


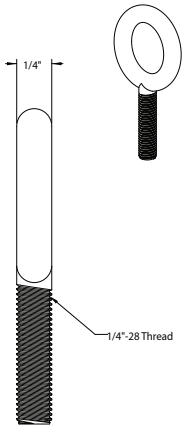




- Steel Eyebolt without Shoulder for Lifting 1/4"-20 Thread, 1" Thread Length
- Safe load: 500 lb

EB- 1428 Load Cell Eye Bolt

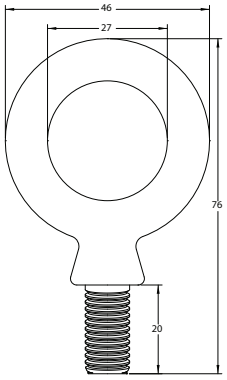


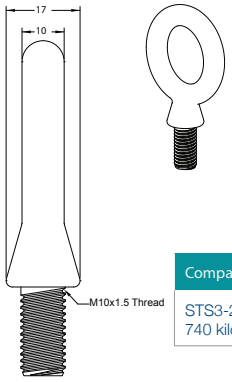


- Steel Eyebolt without Shoulder for Lifting Zinc-Plated, 1/4"-28 Thread, 1" L Thread
- Safe load: 500 lb

Compatible with any of the following Load Cells:		
RRS1 25 lb. - 300 lb.	RAS1 25 lb.- 200 lb.	IX-125 (Adapter)

EB-M10-M Eye Bolt





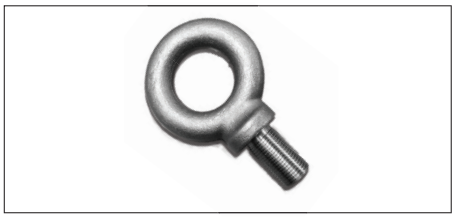
- Metric Steel Eyebolt for Lifting with Shoulder, M10 Thread, 20 mm Thread Length
- Safe load: 1,630 lb.

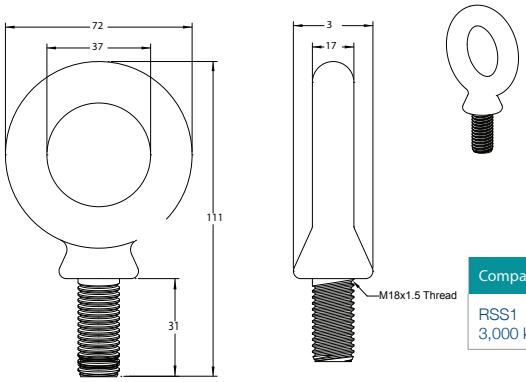
Compatible with any of the following Load Cells:		
STS3-200 740 kilograms		

Loadstar® SENSORS

Hardware Accessories

EB-M18-1.5 Eye Bolt

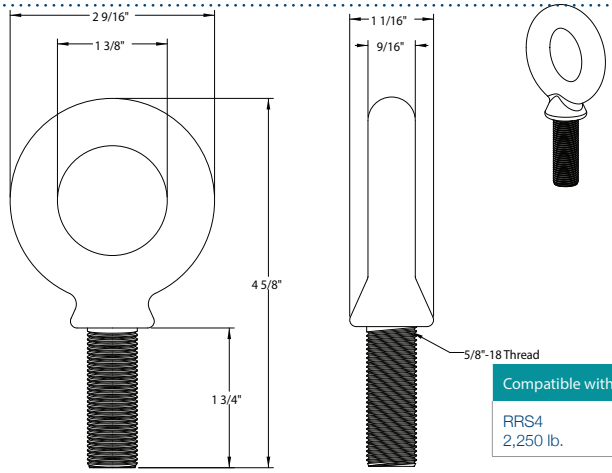




- Steel Eyebolt with Shoulder for Lifting M18x1.5 Thread, 31mm Thread Length
- Safe load: *Contact Loadstar Sensors

Compatible with any of the following Load Cells:		
RSS1 3,000 kilograms	RSS1 5,000 kilograms	

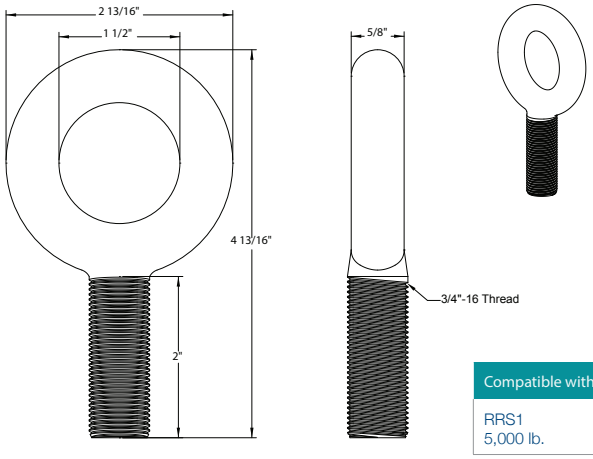
EB- 5818 Load Cell Eye Bolt



- Steel Eyebolt w/ Shoulder for Lifting, Zinc-Plated, 5/8"-18 Thread, 1-3/4" Length Thread
- Safe load: 4,000 lb

Compatible with any of the following Load Cells:		
RRS4 2,250 lb.	RAS4 4,500 lb.	

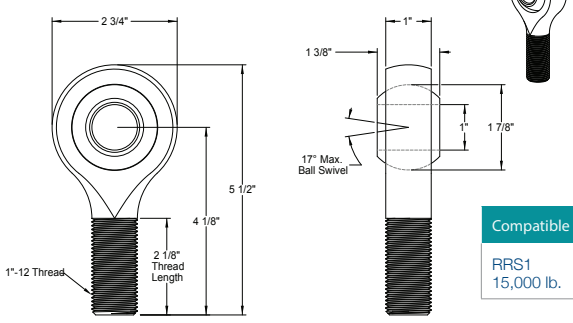
EB- 3416 Load Cell Eye Bolt



- Steel Eyebolt with Shoulder for Lifting 3/4"-16 Thread, 2" Thread Length
- Safe load: 6,000 lb

Compatible with any of the following Load Cells:		
RRS1 5,000 lb.	RAS1 5,000 lb.	

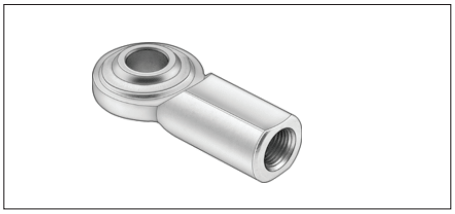
RE-112-M Rod End



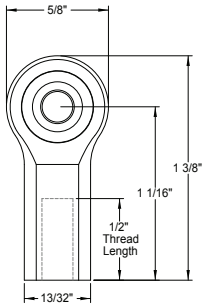
- Steel Ball Joint Rod End 1"-12 RH Male Shank, 1" Ball ID, 2-1/8" Thrd Length
- Safe load: 43,541 lb

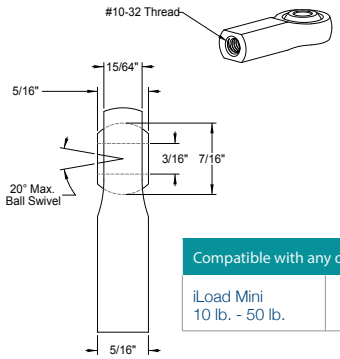
Compatible with any of the following Load Cells:		
RRS1 15,000 lb.		

RE-1032-F Rod End



- Steel Ball Joint Rod End 10-32 RH Female Shank, 3/16" Ball ID, 1/2" L Thrd
- Safe load: 2,079 lb

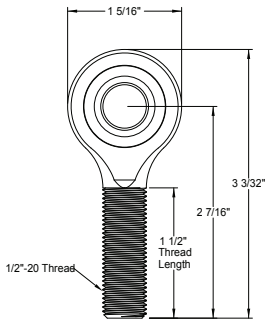


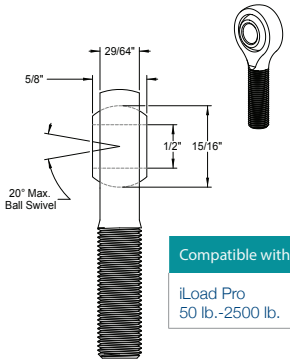


Compatible with any of the following Load Cells:		
iLoad Mini 10 lb. - 50 lb.		

RE-1220-M Rod End

- Steel Ball Joint Rod End 1/2"-20 RH Male Shank, 1/2" Ball ID, 1-1/2" L Thrd
- Safe load: 10,046 lb

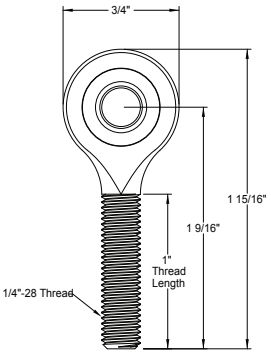


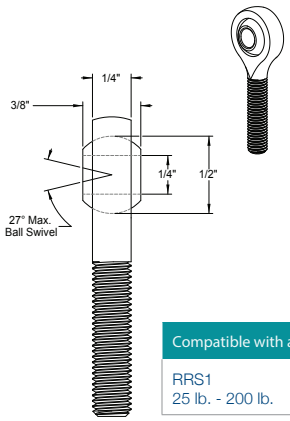


Compatible with any of the following Load Cells:		
iLoad Pro 50 lb.-2500 lb.	iLoad TR 2 lb.- 100 lb.	

RE-1428-M Rod End

- Steel Ball Joint Rod End 1/4"-28 RH Male Shank, 1/4" Ball ID, 1" L Thrd
- Safe load: 2,835 lb

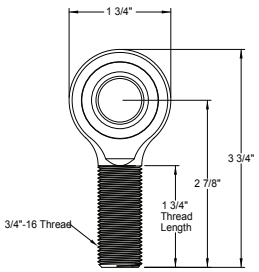


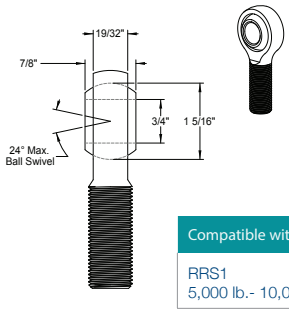


Compatible with any of the following Load Cells:		
RRS1 25 lb. - 200 lb.	RAS1 25 lb. - 200 lb.	

RE-3416-M Rod End

- Steel Ball Joint Rod End 3/4"-16 RH Male Shank, 3/4" Ball ID, 1-3/4" L Thrd
- Safe load: 15,894 lb

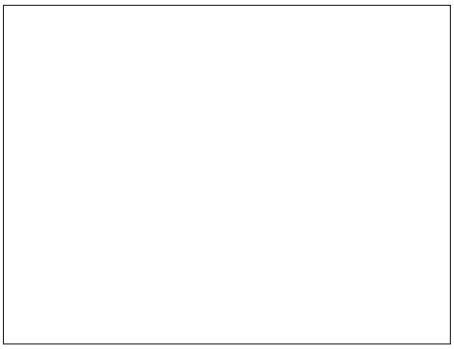


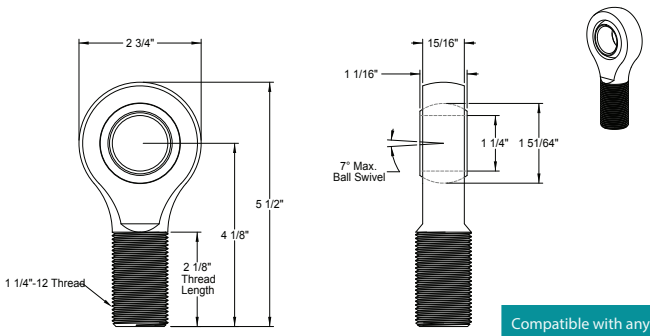


Compatible with any of the following Load Cells:		
RRS1 5,000 lb.- 10,000 lb.	RAS1 5,000 lb.- 10,000 lb.	

Hardware Accessories

RE-11412-M Rod End

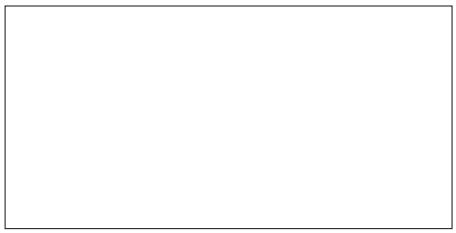


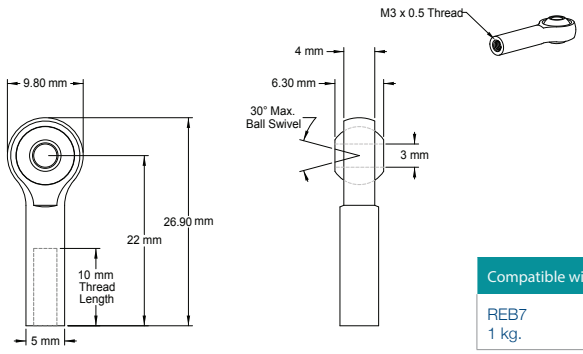


- Steel Ball Joint Rod End 1-1/4"-12 RH Male Shank, 1-1/4" Ball ID, 2-1/8" L Thrd
- Safe load: 44,500 lb

Compatible with any of the following Load Cells:		
RRS1 20,000 lb.		

RE-M3-F Rod End

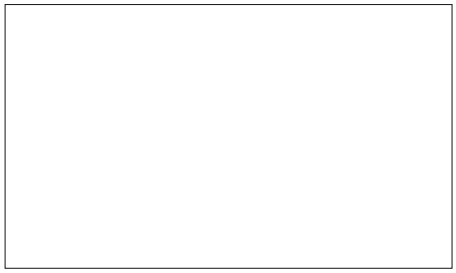


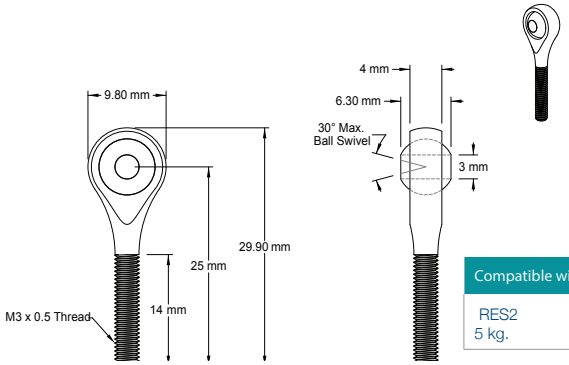


- Metric Ball Joint Rod End M3 X 0.5 RH Female Shank, 3mm Ball ID, 10mm L Thrd
- Safe load: *Contact Loadstar Sensors

Compatible with any of the following Load Cells:		
REB7 1 kg.	REB7 2 kg.	

RE-M3-M Rod End

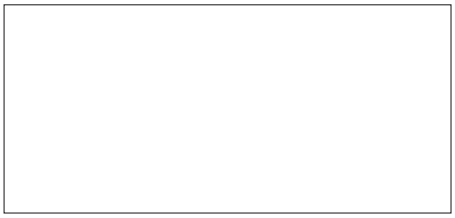


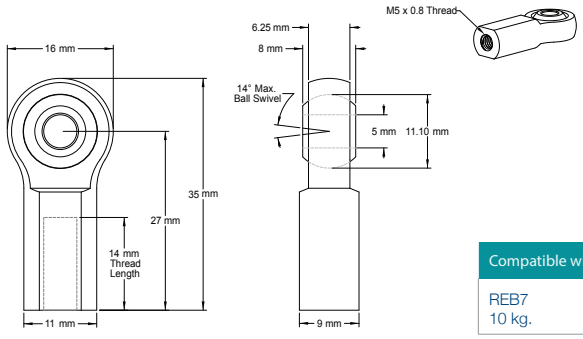


- Metric Ball Joint Rod End, M3 x 0.5 Right-Hand Male Shank, 3mm Ball ID, 14mm Length Thread.
- Safe load: *Contact Loadstar Sensors

Compatible with any of the following Load Cells:		
RES2 5 kg.	RES2 10 kg.	RES2 15 kg.

RE-M5-F Rod End

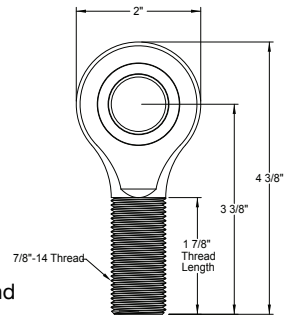


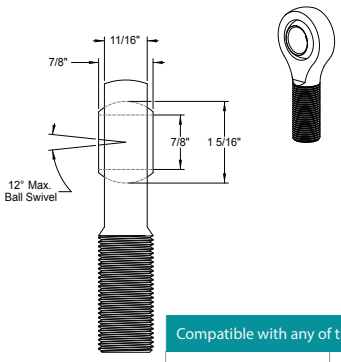


- Metric Ball Joint Rod End M5 X 0.8 RH Fem Shank, 5mm Ball ID, 14mm L Thrd
- Safe load: 1,593 lb

Compatible with any of the following Load Cells:		
REB7 10 kg.		

RE-7814-M Rod End

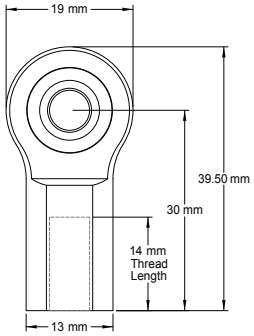


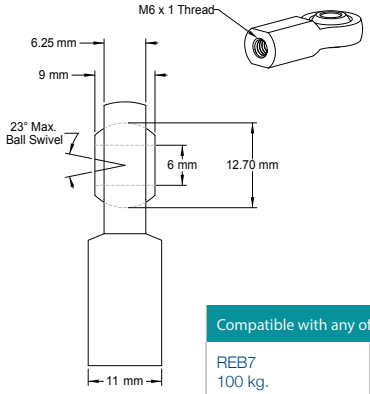


- High-Strength PTFE-Lined Ball Joint Rod End 7/8"-14 RH Male Shank, 7/8" Ball ID, 1-7/8" L Thrd
- Safe load: 55,690 lb

Compatible with any of the following Load Cells:		
iLoad Pro 5,000 lb.	iLoad Pro 10,000 lb.	

RE-M6-F Rod End

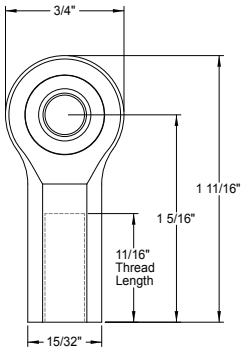


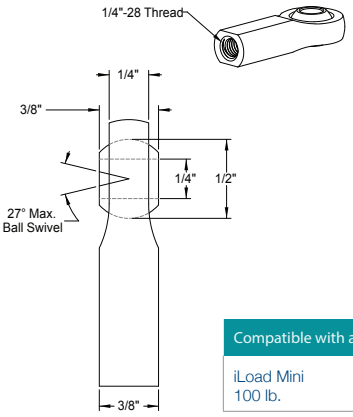


- Metric Ball Joint Rod End M6 X 1.0 RH Fem Shank, 6mm Ball ID, 14mm L Thrd
- Safe load: 2,674 lb

Compatible with any of the following Load Cells:		
REB7 100 kg.	RSB4 10 kg. - 200 kg.	

RE-1428-F Rod End

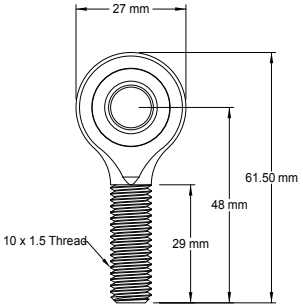


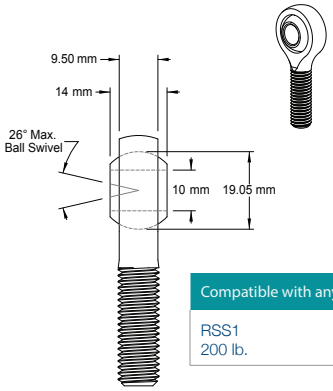


- Steel Ball Joint Rod End, 1/4"-28 Right-Hand Female Shank, 1/4" Ball ID, 11/16" Length Thread
- Safe load: 3,820 lb

Compatible with any of the following Load Cells:		
iLoad Mini 100 lb.	iLoad Mini 200 lb.	

RE-M10-M Rod End



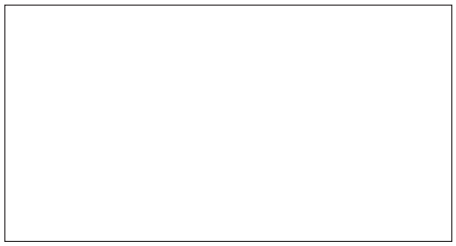


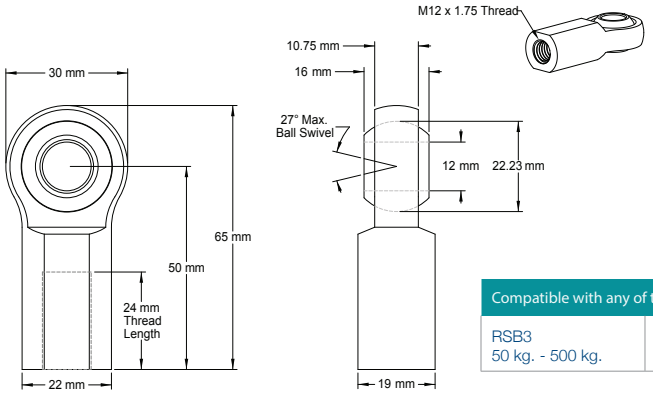
- Metric Ball Joint Rod End M10 X 1.5 RH Male Shank, 10mm Ball ID, 29mm L Thrd
- Safe load: 4,726 lb

Compatible with any of the following Load Cells:		
RSS1 200 lb.		

Hardware Accessories

RE-M12-F Rod End

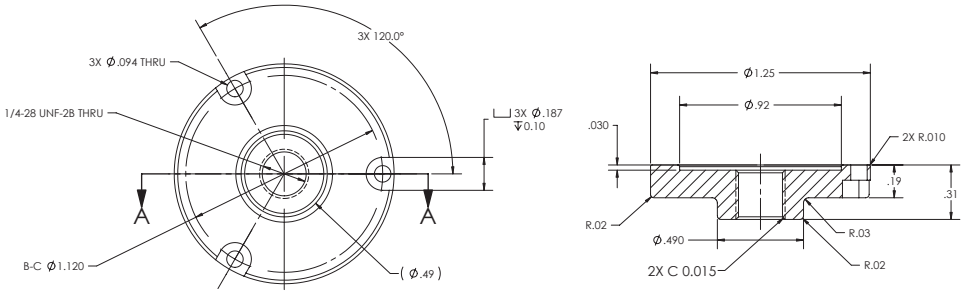




- Metric Ball Joint Rod End M12 X 1.75 RH Fem Shank, 12mm Ball ID, 24mm L Thrd.
- Safe load: 5,804 lb

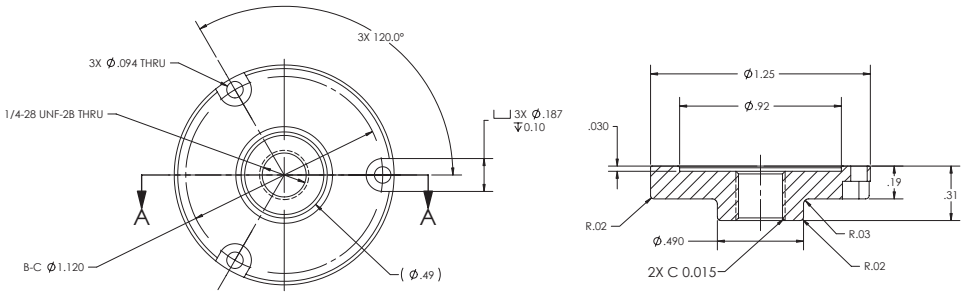
Compatible with any of the following Load Cells:		
RSB3 50 kg. - 500 kg.		

IX-125 iLoad Mini Adapter (17-4PH)



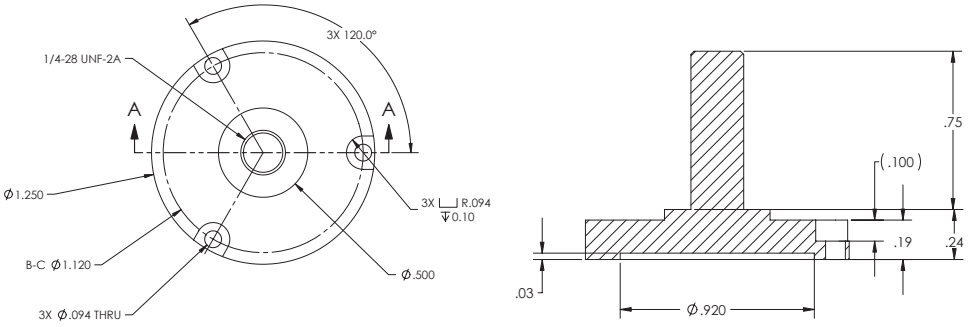
- Suitable for use with iLoad Mini Stainless Steel Load Cells.
- Includes three 2-56x1/4 screws.

IX-125A iLoad Mini Adapter (Aluminum)



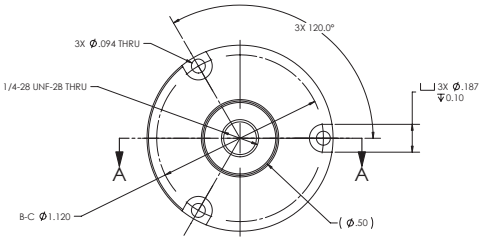
- Suitable for use with iLoad Mini Aluminum Load Cells
- Includes three 2-56x1/4 screws.

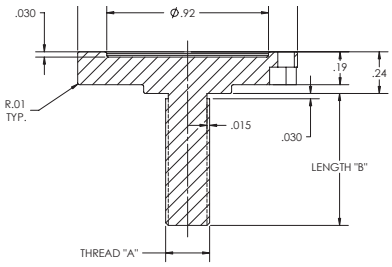
TX-125 iLoad Mini Adapter (17-4PH)



- Suitable for use with iLoad Mini Stainless Steel Load Cells
- Includes three 2-56x1/4 screws.

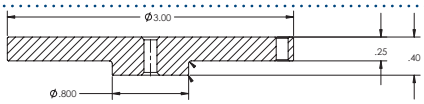
TX-125A iLoad Mini Adapter (Aluminum)

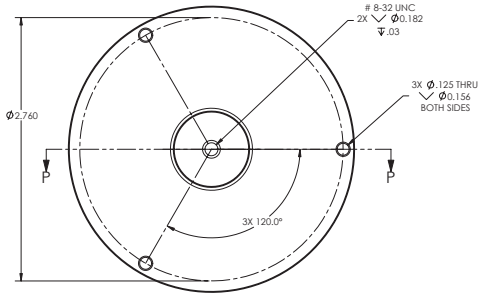




- Suitable for use with iLoad Mini Aluminum Load Cells.
- Includes three 2-56x1/4 screws.

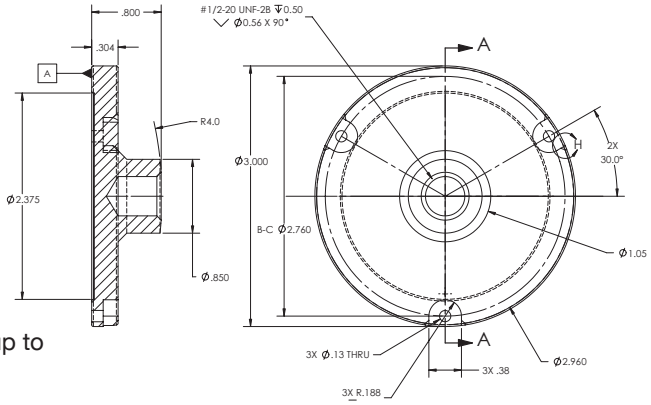
IX-300 iLoad Adapter





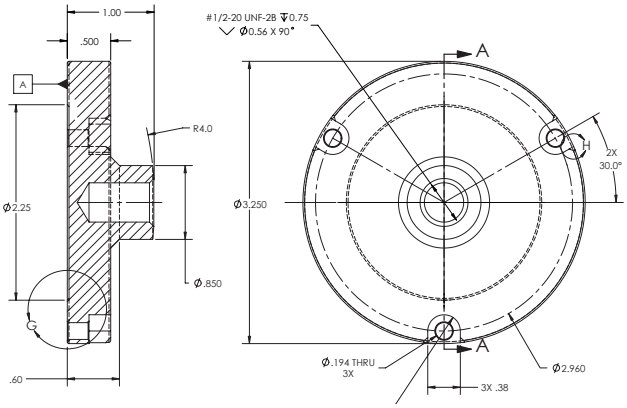
- Suitable for use with iLoad Digital or iLoad Analog Load Cells
- Includes three 4-40x1/2 screws.

TX-300TA iLoad TR Adapter



- Made with Aluminum this adapter is suitable for use with iLoad TR Digital or iLoad TR Analog Load Cells up to 100 lbs.
- Includes three 4-40x7/16 screws.

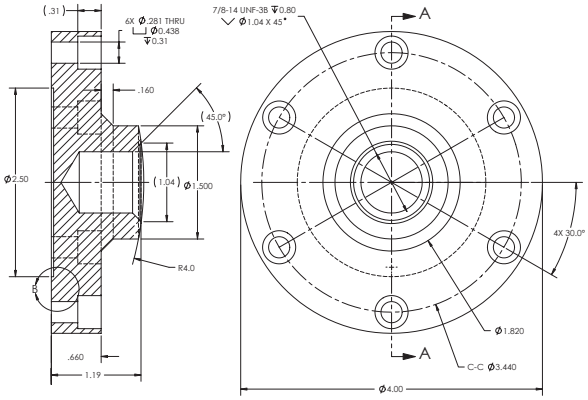
TX-325 iLoad Pro Adapter (<5K lb.)



- Made from Stainless Steel. Suitable for use with iLoad Pro Digital or iLoad Pro Analog Load Cells up to 2,500 lbs.
- Includes three 10-32x5/8 screws.

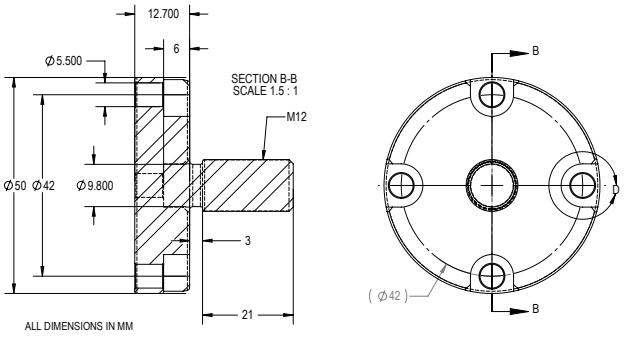
Hardware Accessories

TX-400 iLoad Pro Adapter (5K–10K lb.)



- Made from Stainless Steel. Suitable for use with iLoad Pro Digital or iLoad Pro Analog Load Cells from 5,000–10,000 lbs.
- Includes six 1/4-20x3/4 screws.

TX-RSB3 For RSB3 Button Load cell

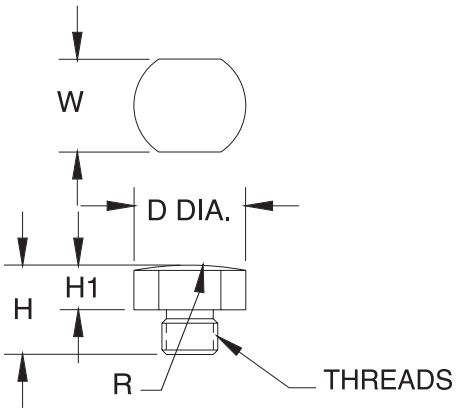


- Made from Stainless Steel.Suitable for use with RSB3 Load cell up to 500 kg.
- Includes three M5x12mm screws.

LB-1220 Load Button

Dimensions	
Thread Size	1/2-20 UNF
D	0.75 in. (19.1 mm)
H	0.70 in. (17.8 mm)
H1	0.30 in. (7.6 mm)
R	4.00 in. (101.6 mm)
W	0.63 in. (16.0 mm)

Compatible with any of the following Load Cells:		
iLoad Pro 50 lb.- 2,500 lb.	iLoad TR 2 lb. - 100 lb.	RAL1 5,000 lb. - 10,000 lb.

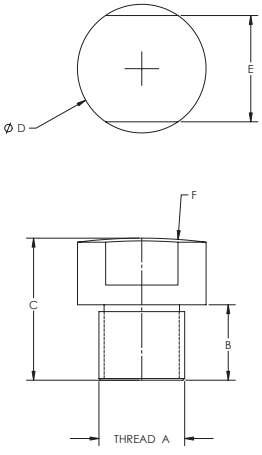


- Suitable for use with compression mounting assemblies, canisters, S-beams, single-ended beams, as well as the iLoad Pro & iLoad TR
- Hardened alloy steel

LB-7814 Load Button

Dimensions	
A (Thread Size)	7/8-14 UNF-2A
B	0.70 in.
C	1.50 in.
D	1.38 in.
E	1.00 in.
F (Radius)	15

Compatible with any of the following Load Cells:		
iLoad Pro 5,000 lb.- 10,000 lb.		



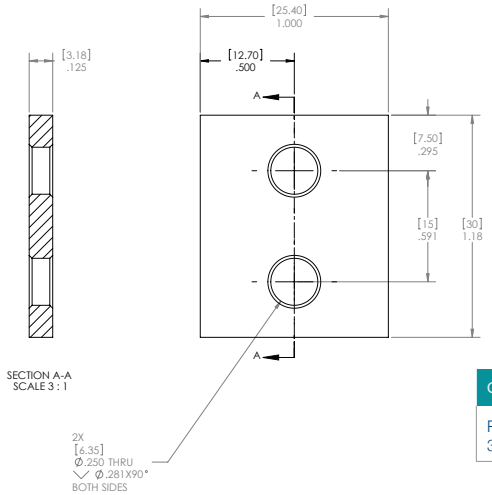
- Suitable for use with compression mounting assemblies, canisters, S-beams, single-ended beams and the iLoad Pro
- Hardened alloy steel

SX-RAPG1 Resistive Load Cell Shim

- Made from Aluminum

Compatible with any of the following Load Cells:		
RAPG1 1 kg. - 3 kg.		

SX-RSP1 Resistive Load Cell Shim



- Made from Aluminum

Compatible with any of the following Load Cells:		
RSP1 3 kg. - 50 kg.		

SX-RSP1-150M Resistive Load Cell Shim

- Made from Aluminum

Compatible with any of the following Load Cells:		
RSP1 150 kg.		

SX-RAP3 Resistive Load Cell Shim

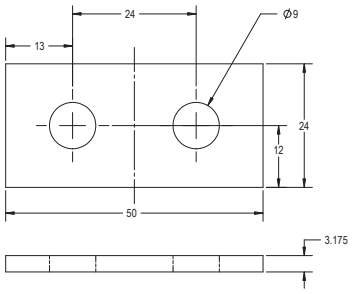
- Made from Aluminum

Compatible with any of the following Load Cells:		
RAP3 50 kg. - 500 kg.		

Loadstar® SENSORS

Hardware Accessories

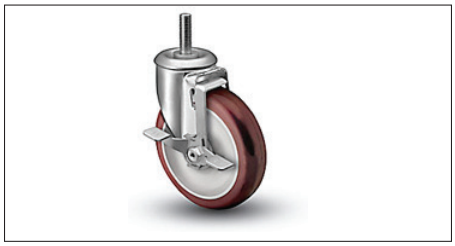
SX-RSP1 Resistive Load Cell Shim



- Made from Aluminum

Compatible with any of the following Load Cells:		
RSP1 150 kg. - 250 kg.		

CW-250-250 Caster Wheel

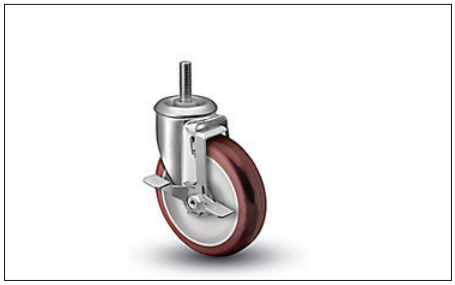


- 2-½ x 1-¼ Polyurethane Hi Tech Swivel Caster with a Threaded Stem & Side Lock Brake

Technical Specifications	
Load Capacity	250 lb. (Per wheel)
Wheel Width	1.25 in.
Wheel Bearing	Ball
Swivel Radius	2.4062 in.
Rig Material	Steel
Raceway	Double Ball
Thread Size	1/2-20
Stem Diameter	0.5 in.
Wheel Diameter	2.5 in.
Overall Height	3.75 in.
Axle Diameter	0.375
Stem Length	1.5 in.
Brake	Side Top Lock

Compatible with any of the following Load Cells:		
iLoad Pro 50 lb.- 1,000 lb.		

CW-250-350 Caster Wheel

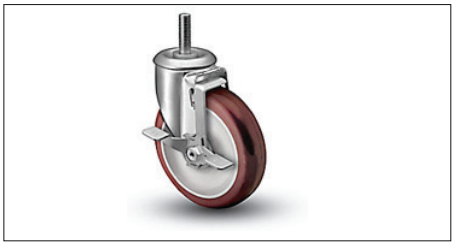


- 3-½ x 1-¼ Polyurethane Hi Tech Swivel Caster with a Threaded Stem & Side Lock Brake

Technical Specifications	
Load Capacity	250 lb. (Per wheel)
Wheel Width	1.25 in.
Wheel Bearing	Ball
Swivel Radius	2.9062 in.
Rig Material	Steel
Raceway	Double Ball
Thread Size	1/2-20
Stem Diameter	0.5 in.
Wheel Diameter	3.5 in.
Overall Height	4.5625 in.
Axle Diameter	0.375
Stem Length	0.75 in.
Brake	Side Top Lock

Compatible with any of the following Load Cells:		
iLoad Pro 50 lb.- 1,000 lb.		

CW-275-400 Caster Wheel



- 4 x 1-¼ Polyurethane Hi Tech Swivel Caster with a Threaded Stem & Side Lock Brake

Technical Specifications	
Load Capacity	275 lb. (Per wheel)
Wheel Width	1.25 in.
Wheel Bearing	Ball
Swivel Radius	3.2187 in.
Rig Material	Steel
Raceway	Double Ball
Thread Size	1/2-20
Stem Diameter	0.5 in.
Wheel Diameter	4 in.
Overall Height	5 in.
Axle Diameter	0.375
Stem Length	0.75 in.
Brake	Side Top Lock

Compatible with any of the following Load Cells:		
iLoad Pro 50 lb.- 1,000 lb.		

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