

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. //

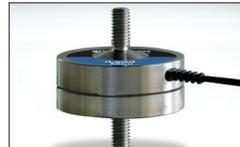
Alternative Configurations



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-010-100-A |
| 50 pounds | MFM-050-100-A |
| 100 pounds | MFM-100-100-A |
| 200 pounds | MFM-200-100-A |

| 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.

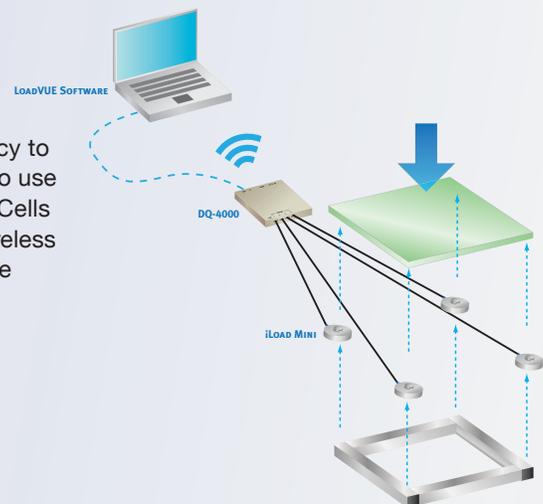
Unlike conventional resistive load cells based on either strain gauges or piezo-resistive techniques, Loadstar's breakthrough patented technology harnesses changes in capacitance to measure loads quickly and accurately. In the Mini, the change in capacitance is converted into a change in frequency of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

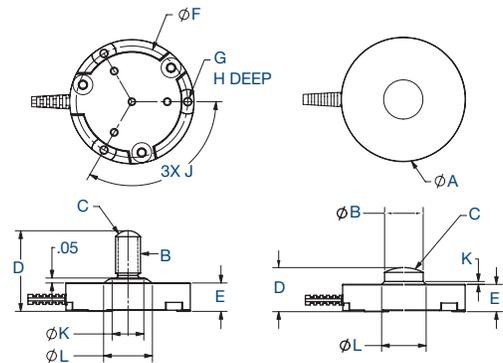
iLoad Mini™ Platform Scale

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) |

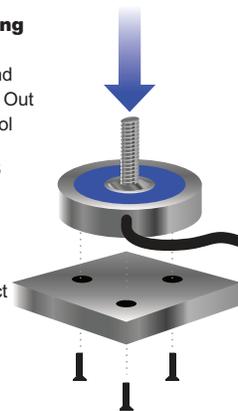
Suggested Use

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



Compatible Accessories

| Recommended Interfaces | | | Digital Interfaces • interfaces require dq-1000u | | | | | |
|------------------------|---------|---------|--|----------------------|---|-------------------------|---------------------|--------------|
| | | | | | | | | |
| DQ-1000U/DQ-1000A | DQ-4000 | DS-4000 | DS-3000U Display & Controller | HX-400 Wired USB Hub | HX-700 Wired USB Hub | WX-400 Wireless USB Hub | EX-500 Ethernet Hub | |
| Hardware | | | | | Applicable Software • w/DQ-1000U, DQ-4000 or DS-4000 | | | |
| | | | SC-1200 Sensor Concentrator | | LV-100 | see page 127 | LV-4000R | see page 128 |
| RE-125 | TX-125A | IX-125A | | | 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 |