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)

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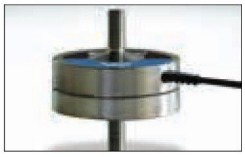


With Tension Adapter (TX-125)

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.

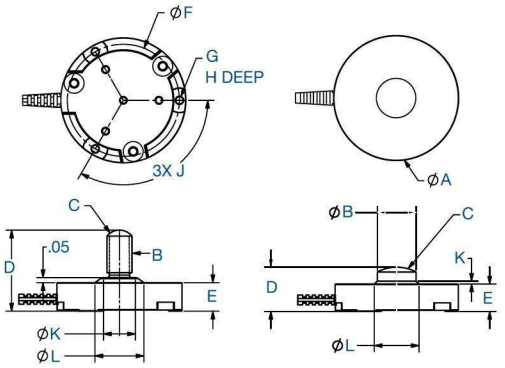
If one wants an analog (0.5 V—4.5V or 2mV/V) or digital USB output from the iLoad Mini the DQ-1000A or DQ1000U are available options.

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%

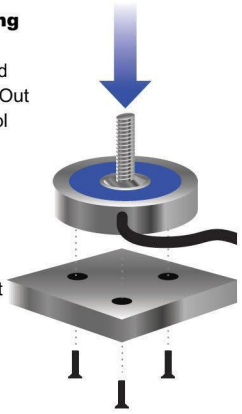
Load Cell Specifications

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