

# 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

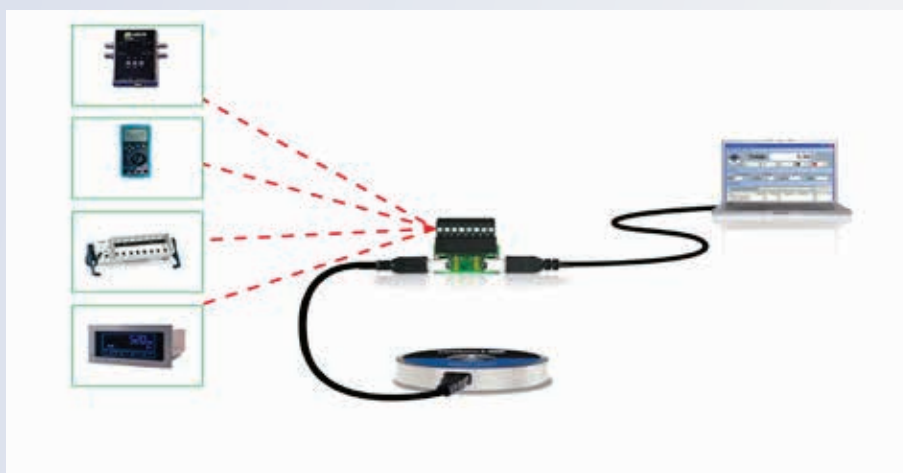
Loadstar's iLoad Digital USB load cells provide unprecedented integration of sensing and measurement electronics to provide Plug and Sense™ simplicity for compressive load and force measurements.

## 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.

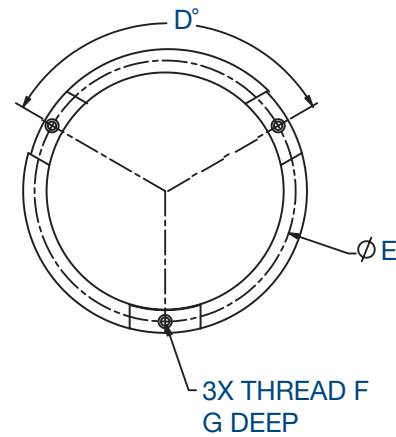
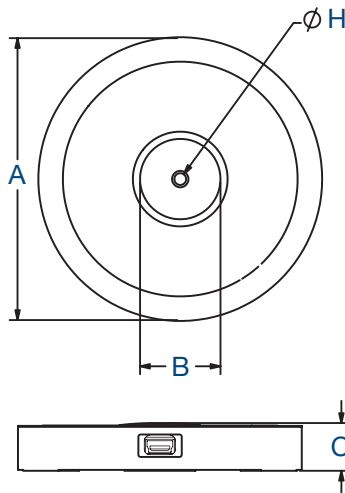
## Hybrid Configuration



## 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*†      | ∅ 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% |

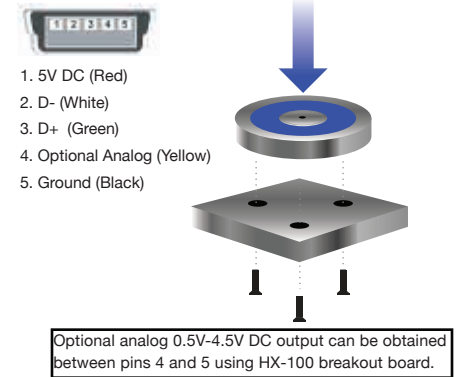
## Load Cell Specifications

|                             |  |
|-----------------------------|--|
| 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<br>Optional 10' cable available<br>Optional 16' active extender cable available (LX-100) |

## Compatible Accessories

| Digital Interfaces               |                                  |                         |                            |                        |                                |                         | Software  |          |
|----------------------------------|----------------------------------|-------------------------|----------------------------|------------------------|--------------------------------|-------------------------|-----------|----------|
|                                  |                                  |                         |                            |                        |                                |                         | LV-100    | page 127 |
| DS-3000U<br>Display & Controller | HX-100<br>iLoad Hybrid Interface | HX-700<br>Wired USB Hub | WX-100<br>Wireless USB Hub | EX-500<br>Ethernet Hub | SC-1200<br>Sensor Concentrator | HX-400<br>Wired USB Hub | 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 |
| Hardware Accessories             |                                  |                         |                            |                        |                                |                         |           |          |
|                                  |                                  |                         |                            |                        |                                |                         |           |          |

## Suggested Mounting



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

