Loadstar SENSORS
Load Sensing Made Easy

DI-1000UHS-10K High Speed USB Interface

(All dimensions in inches)

Highlights

- Use for Impact Force measurements at up to 50 KHz
- LV-1000HS-10K software to display and capture data
- Adjustable gain and offset potentiometers

Overview

The Loadstar Sensors' DI-1000UHS-10K is a high speed interface designed to work with any of our resisitive load cells to capture force data at up to 50 KHz. Many dynamic or impact force applications require data acquisition at a very high rate in order to capture peak contact forces.

This interface has an analog front end to amplify strain gauges arranged in a bridge configuration and includes offset and gain trimmer potentiometers to optimize output. In addition a high speed data acquisition system is built into the device with USB output for easy connectivity with PCs or Tablets running Windows.

Our LV-1000HS-10K is the compatible application that is designed to work with this interface to capture, display and view impact force data.

Specifications

Load Cell Connector	Screw Terminal Block
Power	Operating Voltage 8–30V DC regulated (we include a 9V/500 mA DC power supply)
Load Cell Compatibility	All resistive load cells with full wheatstone bridge configuration we offer with mV/V output
Excitation	5V
Max Data Output Rate	50 KHz (selectable from drop down list from 1KHz to 50 KHz) via USB Connection

Ordering Information

Available Configurations	
Option	Part No.
Hardware	DI-1000UHS-10K
Software	LV-1000UHS-10K

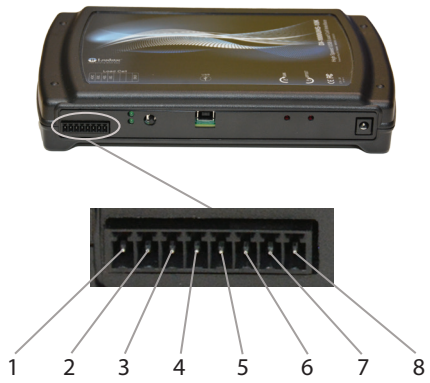
Suggested Configuration

Set-Up Steps

1	The interface is factory calibrated with the load cell/sensor that you purchased. You do NOT need to calibrate it BEFORE use
2	Verify the connection to the terminal block as shown on the next page. Make sure it fits in snugly into the terminal block.
3	Plug the power adapter to a power outlet. Connect the USB connector into your PC. Please run InstaCal application first before starting the LV-1000HS-10K software. It needs to be run just one time the very first time the solution is used.
4	The interface is adjusted to output approximately 0.5V DC (no load) to 4.5V DC (full load), between +V DC (position #5) and -V DC (position #8) terminals. Please Add the sensor and enter the provided Force/Volt calibration data provided on the cal certificate & save it. Zero it before use.

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



Calibration Procedure (Only for recalibration purposes; the solution comes pre-calibrated & ready to use)

1	With no load on the load cell, adjust the R1 potentiometer (pot) to read approximately 0.5 V.
2	With full load, adjust the R2 (pot) to read approximately 4.5 V. This will also change the offset setting made in step 1, which will now be slight;y different from 0.5 V.
3	Take the load off and adjust R1 pot.
4	You may have to go back and forth a few times to get the desired readings at both zero load and full load.

Pre-Calibrated DI-1000UHS-10K

If you have received a DI-1000UHS-10K pre-calibrated to a load cell, please refer to the calibration sheet indicating the lb/volt (or kg/volt) on how to compute the load from the measured voltage. For example, in the graph shown below for a 2000 lb load cell, if the voltage measured between pins 5 and 8 is 3.0 V, then

Load, L = (3.0 * 509.81) – 223.96 = 1305.47 lb.

If you have a preload that needs to be zeroed out, simply take the difference in voltages, and multiply by the slope (in this case 509.81). For example, with a preload (to be zeroed out), if the measured voltage is 0.8 V, and with an unknown load L1, the measured voltage is 2.0 V, then

L1 = (2.0-0.8)*509.81 = 1.2*509.81 = 611.78 lb.

Note: If you are using this device with the LV-1000HS-10K software, then the calibration information is done automatically for you once you enter the Force/Volt information into the software and save and use that sensor in the software.