



DI-1000UHS-10K User Guide

Overview

DI-1000UHS-10K High Speed USB Load Cell Interface is used to capture dynamic force information at high sampling rates up to 50 KHz. Examples of such applications include failure strength testing, impact force measurements, vibration testing and material characterization. It can be used with any resistive load cell.



Features

- Data capture up to 50 kHz sample rates over USB, 1 kHz if you use it over Bluetooth. Note: Loadstar sensors does not currently provide software to operate the unit over Bluetooth mode.
- USB data acquisition
- Plug and play operation with LV-1000HS-10K software and factory calibrated load cells.
- Select data acquisition rate from 1KHz to 50Khz
- True force measurement (not just G-values)
- Analog calibration feature for easy calibration of your load cell.

Package Contents

- DI-1000UHS-10K High Speed USB Load Cell Interface
- Power supply (12 V). The unit will accept between 9 to 24 V.
- USB Cable to connect to the computer (typically 6 foot long)
- Resistive load cell with capacity option of up to 100,000 pounds.
- Since impact loads can be extremely large depending on duration of contact of impacting objects, object drop heights, coefficients of rigidity etc. care must be taken to choose the appropriate load cell. Loadstar Sensors is not liable for damage due to any overloading of load cells.



Software

LV-1000HS-10K software compatible with Windows 8 & 10. See [user guide](#) for software and driver installation, software configuration, features and operation.

Product Dimensions

9.18 in x 5.25 in x 1.5 in

Operation

Software Installation

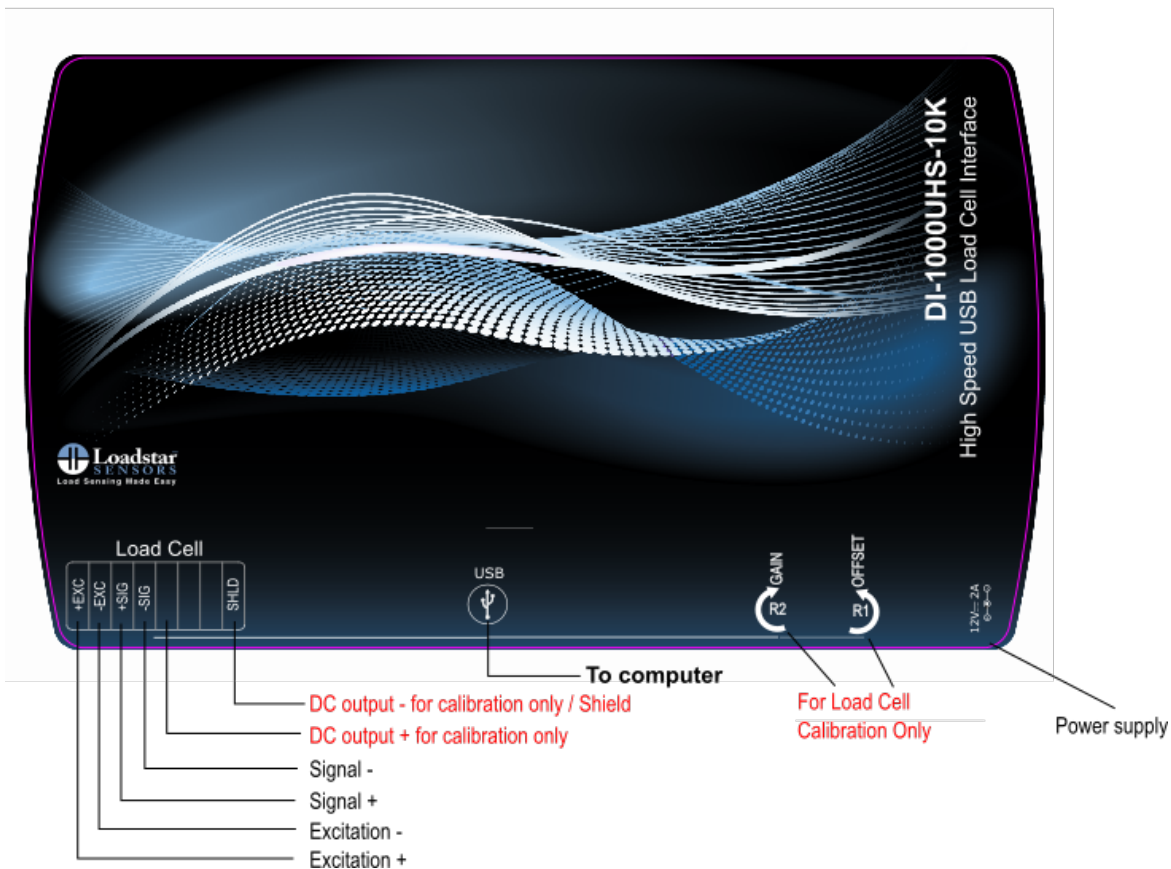
Install the LV-1000HS-10K software and drivers first before connecting the unit to the computer. You MUST reboot when asked to do so by the driver installation program.

Please note that once you install the LV-1000HS-10K software, you must connect the sensor to the DI-1000UHS-10K and then connect the USB cable to the PC. You must run InstaCal prior to launching and using the LV-1000HS-10K the first time.

Please see the [software user guide](#).



Connect Sensor to Interface



- Connect a 4-wire load cell as shown in wiring diagram above. Slots 5 and 8 (nor marked) are to be used for calibration only and are not used during normal operation. Connect only the shield to slot 8. If you want to connect the voltage output into your own DAQ then you can tap into the output signal between pins 5 and 8.
- If your unit has been shipped with a calibrated load cell, simply plug the provided terminal in to the 8-pin terminal receptacle.
- Connect the included power supply as shown.
- Connect the included USB cable to the PC as shown.



Start Capturing Data

- Run InstaCal before launching LV-1000HS-10K.
- Launch LV-1000HS-10K.
- Select sensor being used.
- Make sure you have setup sensor parameters (force/volt).
- Make sure the base voltage (under the Tare button) is close to 0.5V.
- Tare sensor.
- Select Time Duration, destination file to log data, and then press Start.

Please follow the instructions on the [software user guide](#) to capture impact data.

Load Cell Calibration

YOU DO NOT NEED TO CALIBRATE THE SENSOR. IT SHOULD'VE COME PRE-CALIBRATED AND IS READY TO USE.

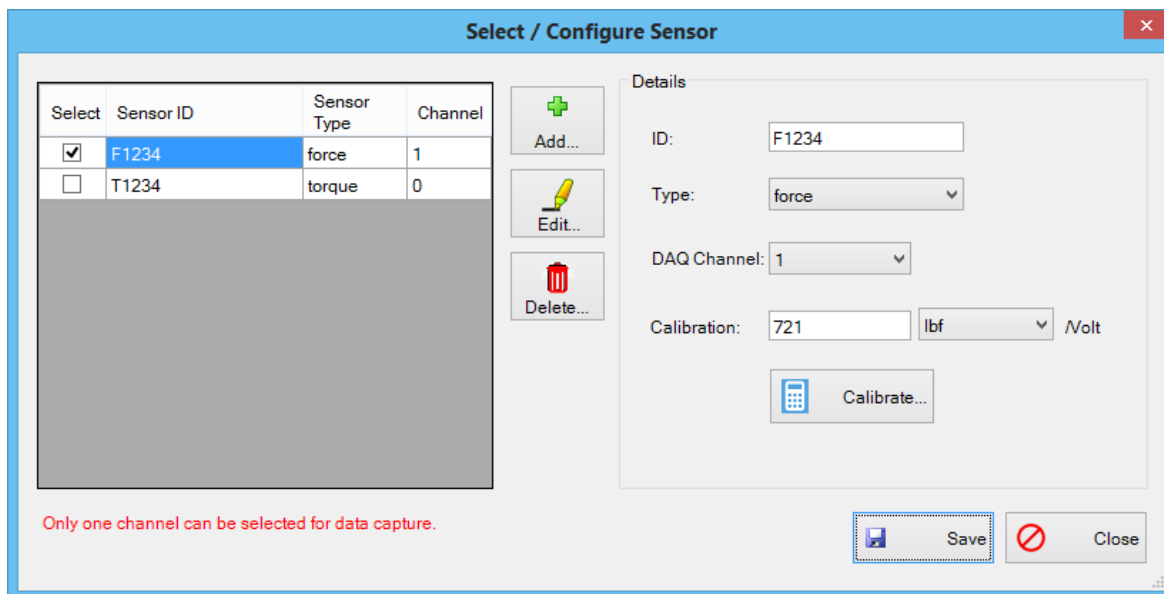
You just need to enter the lbs/volt information provided to you on a calibration certificate into the software prior to use.

We recommend that every load cell be recalibrated at least once a year, more depending upon usage. We suggest you ship the unit back to us for a certified calibration. However, if you cannot send it back or you must calibrate it yourself, then you can apply known loads to the load cell (preferably full load), and calibrate the DI-1000UHS-10K interface as follows:

1. With no load on the load cell, adjust the R1 offset potentiometer (pot) to read approximately 0.5 V between pins 5 and 8.
2. With full load, adjust the R2 (pot) to read approximately 4.5 V between pins 5 and 8. This will also change the offset setting made in step 1, which will now be slightly 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 between steps 1 and 2 to get the desired readings at both zero load and full load.
5. For example, for a 3000 lb capacity load cell, if the load at 0 lb. is measured to be 0.494 V and at 3000 lb is measured to be 4.653 V, then
lb. / volt = 3000 / (4.653-0.494) = 721
6. You will need to enter this number in Select/Configure Sensor option of LV-1000HS-10K software, as shown below.



Note: Pin 8 is used to connect and ground the shield of the load cell, if one is present, as well as to read the output voltage during calibration. Please connect a wire, if necessary, to pin 8 to read the voltage between pins 5 and 8. Once calibration has been performed, this wire can be removed.



Writing your Own Software for DI-1000UHS-10K

The unit's architecture is built around Measurement Computing BTH-1208LS Wireless Multifunction DAQ device. You can write your own programs to access the device through several languages and environments such as LabView, Java, .NET languages, Android etc. You can find the specifications, API and programming assistance for BTH-1208LS at Measurement Computing web site.