DQ-1000A Frequency to Analog Interface User Guide

Overview

The Loadstar Sensors DQ-1000 Single Channel Frequency Interface provides a simple and convenient way for users to convert the frequency output of an iLoad Mini sensor to either a USB digital output (DQ-1000U) or analog outputs (DQ-1000A) of 0—5 V DC and 0—20 mV. When ordered together with an iLoad Mini sensor, the DQ-1000A can be calibrated to the sensor to enable direct 0.5 V to 4.5V or compatibility with legacy displays that accept 2 mV/V input.

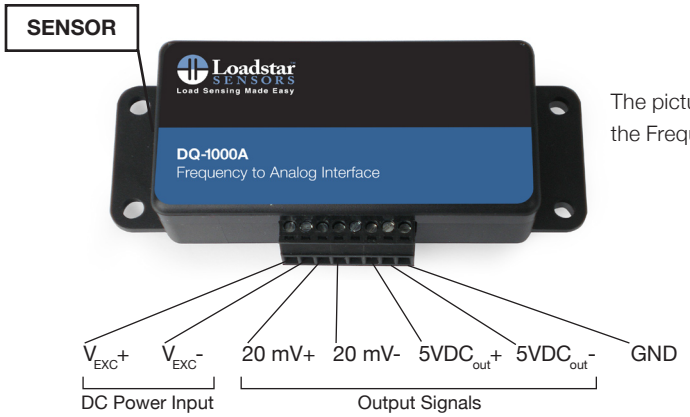
Loadstar Sensors, Inc.
48521 Fremont Blvd.,
Suite 308
Fremont, CA 94539
Phone: (510) 274-1872
Fax: (510) 952-3700

Instructions for Use

Loadstar Sensors' Model DQ-1000 Single Channel Frequency-to-Analog Interface takes the frequency output from an iLoad Mini sensor and converts it to two different analog outputs: a 20 mV/V ratiometric output and a 0—5 V DC analog output.

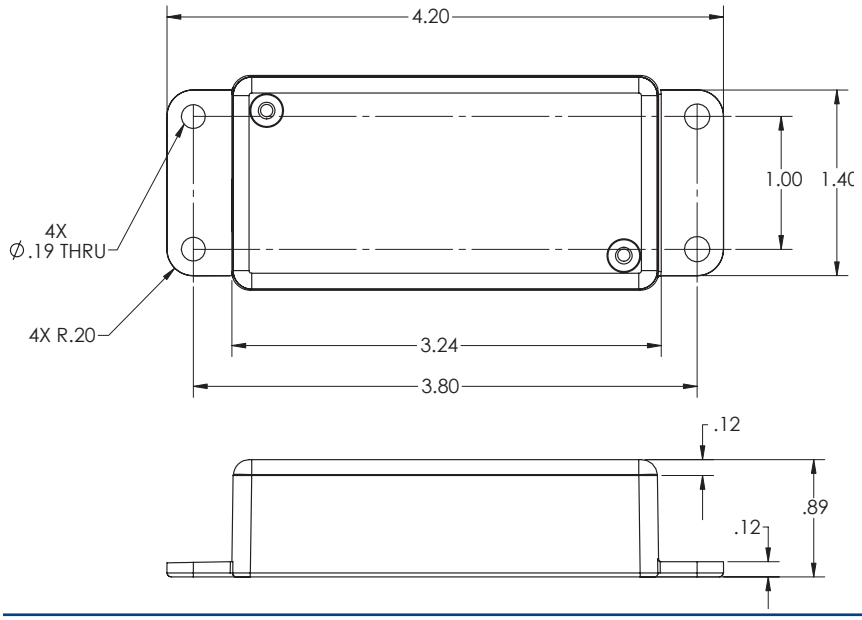
Notes

1. Note that the 5V DC Signal, the 20 mV- and the EXC- are all connected to the common ground.
2. If you are using the ratiometric 20 mV/V output, the recommended excitation voltage (EXC+) is +10V. The minimum voltage is +5V.
3. The actual range of voltage for the 0—5V DC Signal output is from approximately 0.5V (at no load) to 4.5V at full load. The relationship between the load and voltage is on a calibration chart provided with the sensor and DQ-1000A.



The picture (left) shows the ports of the Frequency-to-Analog Interface.

Dimensions and Mounting Diagram



Pre-Calibrated DQ-1000A

If you have received a DQ-1000A 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 6 and 7 is 3.0 V, then

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

Depending on your setup, the voltage at zero load may be different from the one when the load cell was calibrated – for example, if you are calibrating in tension, your preload from fixtures etc may be different. 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.

Sample DQ-1000A calibration graph for a 2000 lb load cell