Load cell calibration report

Richard Layton

2016-08-24

# Introduction

Calibrating a *load cell* (a sensor for measuring uniaxial force) yields two main results: a calibration equation relating output voltage (mV) to input force (lb); and an estimate of sensor accuracy as a percentage of full span. In this report, I present the test results for an Omega LCL-005 load cell calibrated following the ANSI/ISA procedure.

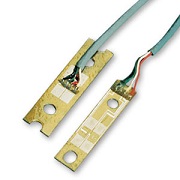


Figure 1. Omega LCL005 load cell (replace stock photo with image of our setup)

The data are shown in Table 1. Per the ANSI/ISA standard, the test begins and ends at a midspan test point in the same direction, thus the first and last cycle are incomplete (indicated by NA).

Table 1: Calibration data

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| test\_point | input\_lb | cycle1\_mV | cycle2\_mV | cycle3\_mV |
| 2 up | 1.5 | NA | 29.9 | 30.2 |
| 3 up | 2.5 | 51.1 | 49.4 | 49.7 |
| 4 up | 3.5 | 70.4 | 70.0 | NA |
| 5 up | 4.5 | 88.8 | 91.6 | NA |
| 4 dn | 3.5 | 69.4 | 69.0 | NA |
| 3 dn | 2.5 | 49.5 | 50.1 | NA |
| 2 dn | 1.5 | 30.7 | 30.8 | NA |
| 1 dn | 0.5 | 8.7 | 10.9 | NA |