Haygor Instrument & Company, Inc.

Serving The Petrochemical Industry For Over 25 Years

CALIBRATION AND CERTIFICATION PROCEDURE
FOR ELECTRONIC PRESSURE TRANSMITTERS AND TRANSDUCERS

Prepared By: Allen Bishop	Document #: HIE CAL 2.A
	Date: July 12, 2004

1. Scope

   This Procedure is used during calibration and certification of ELECTRONIC pressure transducers and transmitters utilizing electronic pressure sensing measuring elements and converting to an electrical output signal. This procedure complies with ANSI B40.1 and ISO 10012-1.

2. Qualified Personnel

   Calibration technicians are trained on site at our facility and undergo supervision during this procedure.

3. Pre-calibration

   3.1   Accuracy is determined from specifications from the manufacturer. "Accuracy" is defined in the ANSI B40.1 standard. Calibration range and values are determined.

   3.2   A visual inspection of the transmitter/transducer is performed looking for pressure and electrical connection damage, internal damage, or outer damage which would cause improper functionality.

   3.3   The transmitter/transducer is mounted on a test stand and connected to a reference standard traceable to NIST with an accuracy of at least 4 times that of the indicator being tested.

4. Test and Certification Procedure

   4.1   Increasing pressure is applied at a minimum of five points between 0 and the maximum calibrated span. Each value is recorded along with the difference between the applied pressure and the indicated pressure. These values are recorded and documented as the "Before Calibration" values on the Certificate of Calibration.

4.2   If all points recorded as the "Before Calibration" values are found to be within mfg tolerance then these values are considered final values and will be recorded and documented on the Calibration Certificate as the "After Calibration" values.

4.3   If however any "Before Calibration" recorded values are not within mfg tolerance the transmitter/transducer will undergo the Calibration Procedure until the final recorded values are all within mfg tolerance. These values are then documented as the "After Calibration" values on the Certificate of Calibration.

4.4   Repeatability and Hysteresis is checked which is determined from the data obtained in the above pressure cycle. The values must be within mfg tolerance or recalibration will be necessary. "Repeatability" and "Hysteresis" is defined in the ANSI B40.1 standard.

5. Calibration Procedure

5.1   If the transmitter/transducer does not pass the test and certification process then this recalibration procedure is necessary so that each recorded value is within mfg tolerance.

5.2   The zero point is recorded and adjusted if necessary. Full scale pressure is applied and recorded. If this reading is not within mfg tolerance then a span adjustment will be made until the recorded value at full scale is within mfg tolerance. Once the span adjustment is successfully completed if necessary the 50% or half scale point is recorded next. If the reading is not within mfg tolerance then a linearity adjustment will be made. Once this adjustment is made the Full scale pressure will need to be checked and adjusted if necessary. This process will repeat until the three values 0%, 50%, and 100% are within mfg tolerance. This calibration procedure may require the use of a handheld communicator or communicating software.

6.   Reference Test Equipment

All test equipment used as an applied reference and output reference is certified in annual intervals. All equipment is traceable to the National Institute of Standards and Technology with the NIST number being referenced on the Calibration Certificate supplied with the unit.

6322 Nunn St.   •   Houston, TX 77087
(713)641-1791   •   (800)851-1791   •   Fax (713)641-2072   •   Email: sales@haygor.com
www.haygor.com