







What is calibration and what does it do?

- The main purpose is to maintain the instrument accuracy and hold a calibration through its calibration interval for maintaining the quality of measurement as well as to ensure the proper working of a particular instrument.
- There are three main reasons for having instruments calibrated:
 - To ensure readings from an instrument are consistent with other measurements.
 - To determine the accuracy of the instrument readings.
 - To establish the reliability of the instrument i.e. that it can be trusted.

Calibration Certifications



- Calibration Certificate must contain the following:
 - Customer and Calibration Laboratory Address
 - Instrument Nomenclature
 - Manufacture
 - Model number
 - Serial Number, Certificate number or ID Number
 - Calibration Date and Calibration Due Date
 - Certification Signature and Title
 - Calibration Instruments Listed with Traceability Numbers, Model Numbers and Due Dates
- Instrument
 - Calibration Sticker with ID number, Technician, Cal Dates
 - Void Sticker if Applicable

Why do we need calibration and how often?

- Need for Calibration
 - detecting the condition of the measuring instrument
 - to ensure its integrity and reliability
- How Often
 - The equipment manufacture generally suggest a calibration interval based on the measurement tolerances use and storage and environmental range.
 - PEARL Quality Standards
 - Customer or Contract Requirements
 - Usage and History

What type of calibration is there?

Electrical

- Volt, Current, Resistance, Capacitance, Inductance, Power

Temperature

- Temperature, Humidity

Mechanical

- Length, Pressure, Weight, Torque, Flow

Time

- Frequency,

What type of instruments are there?



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1. GENERAL

1. Suitability of Test Equipment

1. All test equipment shall be in good mechanical and electrical condition.
2. Test equipment used to check power system meter calibration must be more accurate than the instrument being tested.
3. Accuracy of metering in test equipment shall be appropriate for the test being performed.
4. Waveshape and frequency of test equipment output waveforms shall be appropriate for the test and the tested equipment.

2. Test Instrument Calibration

1. The organization using this standard shall have a calibration program, which assures that all applicable test instruments are maintained within rated accuracy.
2. The accuracy shall be directly traceable to the National Institute of Standards and Technology (NIST).
3. Dated calibration labels shall be visible on all test equipment.
4. Instruments shall be calibrated at least every 12 months.
5. Calibration records must be maintained which show the date and results of instruments calibrated or tested.

1. CALIBRATION RECORDS

1. The calibration test reports must include the following:

1. Serial number or identification for record
2. Description of equipment tested
3. Description of test
4. Tolerances or expected result
5. Test results
6. Analysis and recommendations

1. Records Availability:

1. Copies of these records should be stored on premises and be supplied to an inspector or the customer upon request.

Calibration and Quality Standards

- MIL-STD-45662A Military Standard
- ISO-10012-1
- ANSI-Z540-1
- ISO-17025
- ISO-9001-2008

Calibration Flow




