

Terms in Engineering Measurements

Calibration:



If a known input is given to the measurement system the output deviates from the given input, the corrections are made in the instrument and then the output is measured. This process is called “Calibration”.

Sensitivity:

Sensitivity is the ratio of change in the output signal to the change in the input signal.

Readability:



Refers to the ease with which the readings of a measuring instrument can be read.

True size:

Theoretical size of a dimension which is free from errors.

Actual size:

Size obtained through measurement with permissible error.



Hysteresis:

All the energy put into the stressed component when loaded is not recovered upon unloading. so the output of measurement partially depends on input called Hysteresis.



Range:

The physical variables that are measured between two values. One is the higher calibration value H_c and the other is Lower value L_c .



Span:

The algebraic difference between higher calibration values to lower calibration values.

Resolution:

The minimum value of the input signal is required to cause an appreciable change in the output known as resolution.

Dead Zone:

It is the largest change in the physical variable to which the measuring instrument does not respond.

Threshold:

The minimum value of input signal that is required to make a change or start from zero.



Backlash:

The maximum distance through which one part of the instrument is moved without disturbing the other part.



Response Time:

The time at which the instrument begins its response for a change in the measured quantity.

Repeatability:

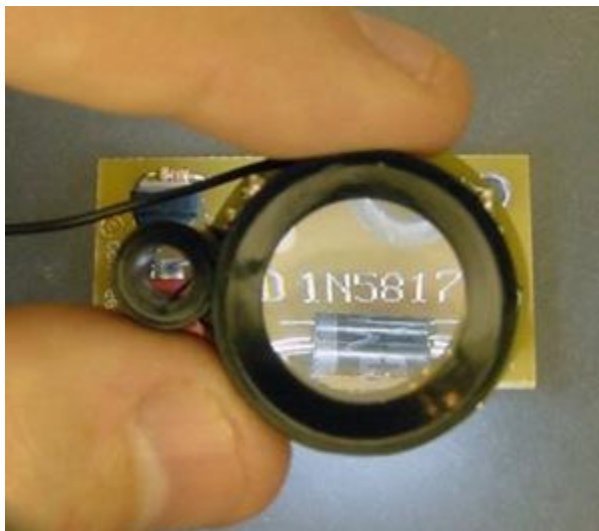
The ability of the measuring instrument to repeat the same results during the act measurements for the same quantity is known as repeatability.

Bias:

It is a characteristic of a measure or measuring instruments to give indications of the value of a measured quantity for which the average value differs from true value.

Magnification:

It means the magnitude of output signal of measuring instrument many times increases to make it more readable.



Drift:

If an instrument does not reproduce the same reading at different times of measurement for the same input signal, it is said to be measurement drift.

Reproducibility:

It is the consistency of pattern of variation in measurement. When individual measurements are carried out the closeness of the agreement between the results of measurements of the same quantity.

Uncertainty:

The range about the measured value within the true value of the measured quantity is likely to lie at the stated level of confidence.

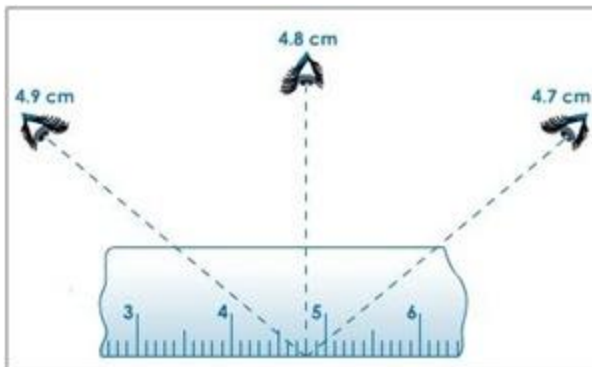
Traceability:

It is nothing establishing a calibration by step by step comparison with better standards.



Parallax:

An apparent change in the position of the index relative to the scale marks.



Source:

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