

Least count error

The smallest value that can be measured by the measuring instrument is called its least count. All the readings or measured values are good only up to this value.

- ❖ The least count error is the error associated with the *resolution of the instrument*.
- ❖ Least count error belongs to the category of random errors but within a limited size;
- ❖ Using instruments of higher precision, improving experimental techniques, etc., we can reduce the least count error.

Absolute Error, Relative Error and Percentage Error

(a) Suppose the values obtained in several measurements are $a_1, a_2, a_3, \dots, a_n$.

The arithmetic mean of these values is *considered* as the best possible value of the quantity (*true value*) under the given conditions of measurement as:

$$a_{\text{mean}} = \frac{a_1 + a_2 + a_3 + \dots + a_n}{n}$$

In absence of any other method of knowing true value, we considered arithmetic mean as the true value of the quantity.