

Meter : THD ratio



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1 Description

This device calculates the total harmonic distortion ratio of the input signal over a sliding time window of period equal to $1/freq$.

1.1 Pins

This meter has two pins:

<i>pin</i>	<i>type</i>	<i>description</i>	<i>units</i>
in	input pin	input signal	any
out	output pin	THD ratio over past period	

1.2 Parameters

The following parameter must be defined:

<i>parameter</i>	<i>description</i>	<i>units</i>
freq	fundamental frequency of the probed signal	Hz

1.3 Input

The input pin may be connected to any control signal.

1.4 Output

The value of the output is the total harmonic distortion ratio of the input signal over a sliding time window of period equal to $1/freq$.

The total harmonic distortion is calculated as follows:

$$\text{distortion} = \sqrt{\text{rms}^2 - \text{rms1}^2} \quad (1)$$

where $\text{rms}(\text{input})$ is the rms value of the input signal including all harmonics,
and $\text{rms1}(\text{input})$ is the rms value of the first harmonic of the input signal.

The total harmonic distortion ratio is calculated as follows:

$$\text{distortion ratio} = \frac{\text{distortion}}{\text{rms1}} \quad (2)$$