

Auto-Tuning Distortion Meter HM-250

OUTLINE

The HM-250 is a distortion meter capable of 0.1% full scale measurement continuously over the frequency range of 20 Hz to 20 kHz, with a typical residual distortion of 0.01%. It makes full use of pushbutton switches and provides a calibration which can be activated with a single operation regardless of the selected distortion measurement range. Carrier frequency elimination is performed by an automatic tuning technique, thereby greatly simplifying operation. The HM-250 is also usable as a high-sensitivity (100 μ V f.s.) AC voltmeter.

FEATURES

Automatic Tuning

To eliminate the signal carrier component, simply perform a rough adjustment. The automatic tuning function thereafter automatically tunes to the carrier for extremely simple operation.

High Sensitivity

The HM-250 provides 0.1% full scale as a distortion meter, and 100 μ V full-scale measurements when used as an AC voltmeter (10 Hz to 200 kHz).

Single-Operation Calibration

Calibration can be activated with a single operation regardless of the selected distortion measurement range.

X-Y Outputs for Waveform Observation

When measuring distortion, the input signal carrier component is provided as the X-axis output and the harmonic component is provided as the Y-axis output (while the input signal is output in output voltage measurements).



SPECIFICATIONS

Distortion measurement

Measurement range	0.1% to 100% full scale, in 1-3 steps (7 ranges)
Input level	100mV to 100V (for 100% CAL) 30mV min. (automatic tuning is possible)
Carrier rejection ratio	80dB min.
Basic frequency range	20Hz to 20kHz in three ranges, and fine adjustment
Residual distortion	0.01% max. (typ), (1kHz, Sensitivity max.)
Harmonic characteristics	20Hz to 10kHz carrier: ± 1 dB 10Hz to 20kHz carrier: ± 2 dB (for a harmonic frequency of 60kHz or lower and distortion of 30% or less)

AC voltage measurement

Measurement range	100 μ V to 100V full scale, in 1-3 steps
Indication accuracy	$\pm 3\%$ of full scale max. (referenced to 1kHz)
Residual noise	5% of full scale indication or lower (input shorted, 0.1mV range)
Frequency response	20Hz to 20kHz: ± 0.5 dB 10Hz to 200kHz: ± 1 dB (referenced 1kHz)

Common specifications

Indication	Mean-value detection with rms-value indication (calibrated for a sine wave)
X output	Approx. 1Vrms (tuned at 100% CAL) (Output of input signal carrier component)
Y output	Approx. 0.5Vrms (at full scale) Harmonic component output for distortion measurements, and input signal output for output voltage measurement
X and Y outputs impedance	Approx. 2.2k Ω (unbalanced)
Input impedance	Approx. 100k Ω , 100pF max. (unbalanced)
Maximum input voltage	At ATT 0dB: 120Vrms (60Hz or less) 200VDC or 200V (DC + ACpeak) At ATT 30dB or 60dB: 140Vrms 200VDC or 200V (DC + ACpeak)
Power source	100/120/220/240V (max. 250V) AC, 50/60Hz, Approx. 5W
Case dimensions	212 (W) \times 133 (H) \times 272 (D) mm
Maximum dimensions	212 (W) \times 156 (H) \times 288 (D) mm
Weight	Approx. 3.7kg
Accessories	Instruction manual (1) Power cord (1) Accessory cable (2)