

TES

Reliable in Quality

Harmonics

Model 21/23

Power Harmonics and Leakage Tester

Model 19

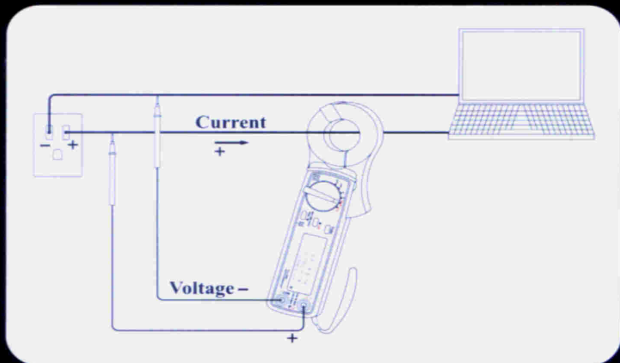
Leakage and Harmonics Tester

Model 19, 21, 23

- True RMS value (V and A)
- Leakage Current Measurement at $10\mu\text{A}$ Resolution
- Harmonic Analysis (V and A) to the 99th Order
- Better Understanding of High Frequency Harmonic Analysis (up to 5/6 KHz)
- Non-interrupted Harmonic Analysis
- Analysis of Total Harmonic Distortion (THD-F)
- Analysis of Crest Factor (C.F.)
- Fast Peak Function ($33\mu\text{s}$ and $39\mu\text{s}$)
- Programmable CT Ratio (1 to 250)

Model 21(50A) and 23(100A)

- W, KW, H.P.
- VA, KVA, VAR, KVAR
- PF, Phase Angle (Φ)
- Energy (mWH, WH, KWH)
- Analysis of Standby Power Consumption
- Balanced 3 Φ Power Quality
- Balanced 3 Φ Sequence



CE

EN61010-2-032

CAT. II 600V

CAT. III 300V

Pollution Degree 2

Specifications (23°C ± 5°C)

Please refer to users manual for more detailed and up-to-date description of specification.

AC Watt (50 or 60 Hz, PF 0.5 to 1, CT = 1, Accuracy of Readings) Model 21 (0 to 50A), Model 23 (0 to 100A)

Range	Resolution	Accuracy 21 (0 - 30A) Accuracy 23 (0 - 60A)	Accuracy 21 (30 - 50A) Accuracy 23 (60 - 100A)
0.000 - 9.999 W	0.001W	±1% ± 0.02W	±2% of VA ± 5dpts
10.00 - 99.99 W	0.01W	±1% ± 0.2W	±2% of VA ± 5dpts
100.0 - 999.9 W	0.1W	±1% ± 0.2W	±2% of VA ± 5dpts
1.000 - 9.999 KW	0.001 KW	±1% ± 0.02KW	±2% of VA ± 5dpts
10.00 - 99.99 KW	0.01 KW	±1% ± 0.2KW	±2% of VA ± 5dpts
100.0 - 999.9 KW	0.1 KW	±1% ± 0.2KW	±2% of VA ± 5dpts
1000 - 9999 KW	1 KW	±1% ± 2KW	±2% of VA ± 5dpts

AC Current (50 or 60 Hz, True RMS)

Range (Model 19, 21)	Range (Model 23)	Resolution	Accuracy of Readings
0.30 - 60.00mA	0.30 - 60.00mA	0.01mA	±0.5% ± 5dpts
60.0 - 600.0mA	60.0 - 600.0mA	0.1mA	±0.5% ± 5dpts
0.030 - 3.000A	0.030 - 9.999A	0.001A	±0.5% ± 5dpts
3.00 - 30.00A	10.00 - 60.00A	0.01A	±0.5% ± 5dpts
30.00 - 50.00A	60.00 - 99.99A	0.01A	±1.0% ± 5dpts

AC Voltage (50 or 60 Hz, True RMS)

Range	Resolution	Accuracy of R.	Range	Resolution	Accuracy of R.
3V - 250V	0.1 V	±0.5% ± 5dpts	250V - 600V	0.1 V	±0.5% ± 5dpts

Harmonics of AC Voltage in % and Magnitude (1 to 99th order)

Range	Resolution	Accuracy in %	Resolution	Accuracy in Magnitude
50V - 600V	0.1 %	±0.5%	0.1 V	±0.5% ± 0.5V

Harmonics of ACA in % Percentage and Magnitude (1 to 99th order)

Range (Model 19, 21)	Range (Model 23)	Res.	Accuracy (%)	Res.	Accuracy of R.
10.00 - 60.00mA	10.00 - 60.00mA	0.1 %	±0.5%	0.01mA	±0.5% ± 0.1mA
60.0 - 600.0mA	60.0 - 600.0mA	0.1 %	±0.5%	0.1mA	±0.5% ± 1mA
0.5 - 3.000 A	0.5 - 9.999 A	0.1 %	±0.5%	0.001 A	±0.5% ± 0.01 A
3.00 - 30.00 A	10.00 - 60.00 A	0.1 %	±0.5%	0.01 A	±0.5% ± 0.1 A
30.00 - 60.00 A	60.00 - 99.99 A	0.1 %	±1.0%	0.01 A	±1.0% ± 0.1 A

Power Factor (PF) (Model 21 and 23)

Range (PF)	Resolution	Accuracy
0.000 - 1.000	0.001	±1°

Phase Angle (Φ) (Model 21 and 23)

Range (Φ)	Resolution	Accuracy
-180° to 180° (0 to 360°)	0.1°	±1°

Total Harmonic Distortion (THD-F, 1 to 99th order)

Range	Resolution	Accuracy of R.
0.0 - 999.9 %	0.1%	±0.5% ± 5 digits

Crest Factor (C.F., Accuracy of Readings)

Range	Resolution	Accuracy of R.
1.00 - 99.99	0.01	±5% ± 30 digits

Conductor Size: 30mm (approx.)

Display: 4+2+2 digits LCD

Auto-Power-Off: 30 minutes

LCD update rate: 2 times / sec.

Operating Temperature: -10°C to 50°C

Storage Temperature: -20°C to 60°C

Dimension: 210 (L) x 62 (W) x 35.6mm (H), 8.3" (L) x 2.5" (W) x 1.4" (H)

Accessories: test leads, Carrying bag x 1, Users manual x 1, Batteries 1.5V x 2

Option: alligator clips

Battery Type: 1.5V SUM-3 x 2

Power Consumption: 5mA (approx.)

No. of Samples / Period: 512 (V & A), 256 (W)

Weight: 200g (battery included)

Operating Humidity: < 85% relative

Storage Humidity: < 75% relative

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