

PROVA[®]

PROVA 23

Power Harmonics and Leakage Tester

Electrical Specifications: (23°C±5°C)



AC Watt

(50 or 60 Hz, PF 0.6~1, CT=1, Voltage is greater than AC 4V, Current is greater than AC 1mA for mA range, and Current is greater than AC 0.04A for A range. Specification applies to continuous waveforms)

| Range (0 to 60A) | Resolution | Accuracy of Readings |
|------------------|------------|----------------------|
| 0.050 – 9.999 W | 0.001W | ±2% ± 0.025W |
| 10.00 – 99.99 W | 0.01W | ±2% ± 0.25W |
| 100.0 - 999.9 W | 0.1W | ±2% ± 2.5W |
| 1.000 – 9.999 KW | 0.001 KW | ±2% ± 0.025KW |
| 10.00 – 99.99 KW | 0.01 KW | ±2% ± 0.25KW |
| 100.0 – 999.9 KW | 0.1 KW | ±2% ± 2.5KW |
| 1000 – 9999 KW | 1 KW | ±2% ± 25KW |

| Range (60 – 100A) | Resolution | Accuracy |
|-------------------|------------|-------------------|
| 0.050 – 9.999 W | 0.001W | ±2% of VA ± 5dgts |
| 10.00 – 99.99 W | 0.01W | ±2% of VA ± 5dgts |
| 100.0 - 999.9 W | 0.1W | ±2% of VA ± 5dgts |
| 1.000 – 9.999 KW | 0.001 KW | ±2% of VA ± 5dgts |
| 10.00 – 99.99 KW | 0.01 KW | ±2% of VA ± 5dgts |
| 100.0 – 999.9 KW | 0.1 KW | ±2% of VA ± 5dgts |
| 1000 – 9999 KW | 1 KW | ±2% of VA ± 5dgts |

AC Voltage

(Auto Range, True RMS, Crest Factor<4, Input Impedance 10 MΩ, Max. peak value 860VDC, and Overload Protection AC 800V)

| Range | Resolution | Accuracy of Readings (50/60Hz) |
|---------------|------------|--------------------------------|
| 5V – 250 V | 0.1 V | ±0.5% ± 5dgts |
| 250 V – 600 V | 0.1 V | ±0.5% ± 5dgts |

| Range | Resolution | Accuracy of Readings (45-1KHz) |
|---------------|------------|--------------------------------|
| 5V – 250 V | 0.1 V | ±1.5% ± 5dgts |
| 250 V – 600 V | 0.1 V | ±1.5% ± 5dgts |

AC Current (Auto Range, True RMS, Crest Factor<4, CT=1, Max. peak values 880mADC for mA range, 73.5ADC for A range, Overload Protection AC 600A)

| Range | Resolution | Accuracy of Readings (50/60Hz) |
|--------------|------------|--------------------------------|
| 0.5 – 60mA | 0.01mA | ±0.5% ± 5dgts |
| 60 – 100mA | 0.01mA | ±0.5% ± 50dgts |
| 100 – 600 mA | 0.1 mA | ±0.5% ± 5dgts |
| 0.05 – 3 A | 0.001 A | ±0.5% ± 5dgts |
| 3 – 30 A | 0.01 A | ±0.5% ± 5dgts |
| 30 – 90 A | 0.01 A | ±1.0% ± 5dgts |

| Range | Resolution | Accuracy of Readings (45-1KHz) |
|--------------|------------|--------------------------------|
| 0.5 – 60mA | 0.01mA | ±1.5% ± 5dgts |
| 60 – 100mA | 0.01mA | ±1.5% ± 50dgts |
| 100 – 600 mA | 0.1 mA | ±1.5% ± 5dgts |
| 0.05 – 3 A | 0.001 A | ±1.5% ± 5dgts |
| 3 – 30 A | 0.01 A | ±1.5% ± 5dgts |
| 30 – 90 A | 0.01 A | ±1.5% ± 5dgts |

Harmonics of AC Voltage in Percentage (1 to 99th order, minimum voltage at 50 or 60 Hz is greater than AC 80V. If the voltage is 0 at 50 or 60 Hz, all the percentage (%) display is 0.)

| Range | Resolution | Accuracy |
|----------------------------------|------------|----------------------|
| 1 – 10 th | 0.1 % | ±0.7% of reading ±1% |
| 11 – 20 th | 0.1 % | ±2% of reading ±1% |
| 21 – 50 th (A range) | 0.1 % | ±5% of reading ±1% |
| 21 – 50 th (mA range) | 0.1 % | ±10% of reading ±1% |
| 51 - 99 th | 0.1 % | ±35% of reading ±1% |

Harmonics of AC Voltage in Magnitude (1 to 99th order, minimum voltage at 50 or 60 Hz is greater than AC 80V)

| Range | Resolution | Accuracy |
|----------------------------------|------------|-------------------------|
| 1 – 10 th | 0.1 V | ±0.7% of reading ±7dgts |
| 11 – 20 th | 0.1 V | ±2% of reading ±7dgts |
| 21 – 50 th (A range) | 0.1 V | ±5% of reading ±7dgts |
| 21 – 50 th (mA range) | 0.1 V | ±10% of reading ±7dgts |
| 51 - 99 th | 0.1 V | ±35% of reading ±7dgts |

Harmonics of AC Current in Percentage (1 to 99th order, minimum current at 50 or 60 Hz is greater than 100mA for mA range, and greater than 1A for A range. If the current is 0 at 50 or 60 Hz, all the percentage (%) display is 0.)

| Range | Resolution | Accuracy |
|----------------------------------|------------|----------------------|
| 1 – 10 th | 0.1 % | ±0.7% of reading ±1% |
| 11 – 20 th | 0.1 % | ±2% of reading ±1% |
| 21 – 50 th (A range) | 0.1 % | ±5% of reading ±1% |
| 21 – 50 th (mA range) | 0.1 % | ±10% of reading ±1% |
| 51 - 99 th | 0.1 % | ±35% of reading ±1% |

Harmonics of AC Current in Magnitude (1 to 99th order, min. current at 50 or 60 Hz is greater than 100mA for mA range, and greater than 1A for A range)

| Range | Resolution | Accuracy |
|-----------------------|---------------------|--|
| 1 – 10 th | 0.01mA / 0.1mA / | reading in mA: $\pm 1\%$ of reading $\pm 2\text{mA}$ reading in A: $\pm 1\%$ of reading $\pm 0.3\text{A}$ |
| 11 – 20 th | 0.001A / 0.01A | reading in mA: $\pm 7\%$ of reading $\pm 2\text{mA}$ reading in A: $\pm 7\%$ of reading $\pm 0.3\text{A}$ |
| 21 – 50 th | | reading in mA: $\pm 15\%$ of reading $\pm 3\text{mA}$ reading in A: $\pm 15\%$ of reading $\pm 0.3\text{A}$ |
| 51 - 99 th | | reading in mA: $\pm 35\%$ of reading $\pm 3\text{mA}$ reading in A: $\pm 35\%$ of reading $\pm 0.3\text{A}$ |

Power Factor (PF, ACV > 4V, AC mA > 1mA, AC A > 0.04A, Watt > 50 digits)

| Range | Resolution | Accuracy |
|---------------|------------|------------|
| 0.000 – 1.000 | 0.001 | ± 0.04 |

Phase Angle (Φ , 50 or 60Hz)

| Range | Resolution | Accuracy |
|---------------|------------|---------------|
| -180° to 180° | 0.1° | $\pm 2^\circ$ |
| 0° to 360° | 0.1° | $\pm 2^\circ$ |

Total Harmonic Distortion

(THD-F with respect to the first (fundamental) harmonics, min. value in the range from 45 to 65Hz is greater than AC 80V, greater than 1A for A range, and greater than 100mA for mA range. Calculation is done over 1 to 50th Harmonics. If the voltage or current is 0 in the range from 45 to 65Hz, all the percentage (%) display is 0)

| Range (45~65Hz) | Resolution | Accuracy |
|-----------------|------------|----------------------------------|
| 0.0 – 20.0 % | 0.1% | $\pm 2\%$ |
| 20.0 – 100% | 0.1% | $\pm 3\%$ of reading $\pm 5\%$ |
| 100 – 999.9% | 0.1% | $\pm 10\%$ of reading $\pm 10\%$ |

Peak Value of AC Periodic Voltage (peak value > 10V) **or AC Periodic Current** (peak value > 10mA for mA range and peak value > 0.5A for A range) **for continuous waveform except for square wave:**

| Range | Sampling Time | Accuracy of Reading |
|-------|------------------|-------------------------|
| 50 Hz | 39 μs | $\pm 5\% \pm 30$ digits |
| 60 Hz | 33 μs | $\pm 5\% \pm 30$ digits |

Crest Factor (C.F.) of AC Voltage (peak value > 10V) **or AC Current** (peak value > 10mA for mA range and peak value > 0.5A for A range) **for continuous waveform except for square wave:**


| Range (45~65Hz) | Resolution | Accuracy of Readings |
|-----------------|------------|-------------------------|
| 1.00 – 99.99 | 0.01 | $\pm 5\% \pm 30$ digits |

Frequency (Hz)

| Range | Resolution | Accuracy of Readings | Allowed Input |
|----------------|------------|----------------------|---------------|
| mA (45 – 65Hz) | 0.1Hz | ± 0.5Hz | 20mA to 1.2A |
| A (45 – 65Hz) | 0.1Hz | ± 0.5Hz | 1A to 100A |

Sensitivity: > 20mA for mA range, > 3A for A range, and > 50V

General Specifications:

| | |
|---|--|
| Conductor Size: | 30mm (approx.) |
| Battery Type: | two 1.5V SUM-3 |
| Display: | 4+2+2 digits LCD |
| Range Selection: | Auto |
| Overload Indication: | OL |
| Power Consumption: | 10 mA (approx.) |
| Low battery Indication: |  |
| Auto-Power-Off: | 30 minutes after power-on |
| Update Time: | 2 times/second (display) |
| No. Of Samples per Period | 512 (voltage or current); 256 (power) |
| Temperature Coefficient (< 18°C or > 28°C): | 0.15 x (Specified Accuracy) / °C |
| Operating Temperature: | -10°C to 50°C |
| Operating Humidity: | less than 85% relative |
| Altitude: | up to 2000M |
| Storage Temperature: | -20°C to 60°C |
| Storage Humidity: | less than 75% relative |
| Dimension: | 210mm (L) x 62mm (W) x 35.6mm (H) 8.3" (L) x 2.5" (W) x 1.4" (H) |
| Weight: | 200g (battery included) |
| Accessories: | Test leads x 1 pair, Carrying bag x 1, Users manual x 1, Batteries 1.5V x 2 |
| Option: | Alligator clips |

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