



A Powerful Power Measuring Tool



CW10

Clamp-on Power Meter

Features

- AC / DC Power up to 600 kW
- True RMS for AC.
- Harmonics 1st to 25th order
- Power fluctuation using the ACA Inrush and Peak hold functions.
- AC / DC Voltage max. 1000 V
- AC / DC Current max. 600 A
- Frequency, Resistance, Continuity, Diode check, Power factor.
- Up to 9999 counts, approx. 37mm max. diameter of measurable conductor (the jaw opens approx. 45mm max.)

Specifications

Accuracy

23± 5°C, 80%RH or less
Accuracy: ±(% of reading + digits)

Voltage

Rms-value detection

Function	Range	Resolution (Maximum reading)	Accuracy*
DCV	100 V	99.99 V	0.7% + 2
	1000 V	999.9 V	
ACV	100 V	99.99 V	1.0% + 5
	1000 V	999.9 V	50 ~ 500Hz
LPF ACV	100 V	99.99 V	50 ≤ f ≤ 60Hz: 1.0% + 5
	1000 V	999.9 V	60 < f ≤ 400Hz: 5.0% + 5

*DCV<1000digits: add 6digits to accuracy
ACV<1000digits: add 3digits to accuracy
Maximum input voltage: 1000 Vrms, 1414.2 Vpk
Input impedance: approx. 3.5MΩ, <100pF
AC+DC Vrms accuracy=ACV accuracy + DCV accuracy

Crest factor effects
1.4 < CF ≤ 2.0: add 1.0% of reading to accuracy
2.0 < CF ≤ 2.5: add 2.5% of reading to accuracy
2.5 < CF ≤ 3.0: add 4.0% of reading to accuracy
Maximum input voltage: 690 Vrms CF=2 460 Vrms CF=3

Current

Rms-value detection

Function	Range	Resolution (Maximum reading)	Accuracy*
DCA	100 A	99.99 A	1.5% + 20
	600 A	600.0 A***	1.5% + 5*
ACA	100 A**	99.99 A	50 ≤ f ≤ 60Hz : 1.5% + 5*
	600 A	600.0 A***	60 < f ≤ 400Hz : 2.0% + 5*
LPF ACA	100 A**	99.99 A	50 ≤ f ≤ 60Hz : 1.5% + 5
	600 A	600.0 A***	60 < f ≤ 400Hz: 5.0% + 5

*The measured value <1000digits: add 5digits to accuracy
**Input current ≥ 0.10A at 100 A range of ACA and LPF ACA
***600 A : Guaranteed accuracy (not maximum reading)
Maximum input current: 600 Arms, 848.5Apk
Conductor position effects: ±1.0% of reading
AC+DC Arms accuracy=ACA accuracy + DCA accuracy

Crest factor effects
1.4 < CF ≤ 2.0: add 1.0% of reading to accuracy
2.0 < CF ≤ 2.5: add 2.5% of reading to accuracy
2.5 < CF ≤ 3.0: add 4.0% of reading to accuracy
Maximum input current: 420 Arms CF=2 280 Arms CF=3

Peak Hold (AC mode only)

Function	Range	Resolution (Maximum reading)	Accuracy
ACV	100 V	140.0 V	3.0% + 15
	1000 V	1400 V	
ACA	100 A	140.0 A	3.0% + 15
	600 A	850 A	

PEAK MAX: polarity+, polarity-
Maximum input voltage and current: 1000 Vrms, 600 Arms
Sine wave, ACV ≥ 5 Vrms, ACA ≥ 5 Arms, 50 to 400 Hz continuous wave

Frequency (Hz)

Function	Resolution (Measuring range)	Accuracy
100 Hz	20.00 to 99.99 Hz	0.5% + 3
1000 Hz	20.0 to 999.9 Hz	
10 kHz	0.020 to 9.999 kHz	

Maximum input voltage and current: 1000 Vrms, 600 Arms
Input condition: 100 V range: 10 to 100 Vrms (Sine wave)
1000 V range: 100 to 1000 Vrms
100 A range: 10 to 100 Arms (<400Hz)
600 A range: 100 to 600 Arms (<400Hz)
The measured value < approx. 10 Hz: 0.00Hz

Harmonic Measurement

Individual Harmonic

Harmonic order	Resolution (Maximum reading)	Accuracy
1st to 12th (h01- h12)	99.9 %	5% + 10
13th to 25th (h01- h12)		10% + 10

Maximum input voltage and current: approx. 1000 Vrms, 600 Arms
The "rdy" is displayed at ACV < 10 Vrms, ACA < 10 Arms
The "OutF" is displayed at f < 45, 65 < f (f: fundamental frequency)

Inrush Current

Function	Range	Resolution (Maximum reading)	Accuracy
ACA	100 A	99.99 A	2.5% + 20
	600 A	600.0 A*	2.5% + 5

Maximum input current: approx. 600 Arms
*600 A : Guaranteed accuracy (not maximum reading)
100A range: ACA1 ≥ 10 Arms (Sine wave, 50Hz/60Hz)

600A range: ACA ≥ 100 Arms (Sine wave, 50Hz/60Hz)
Measurement time: approx. 100ms

Active Power

Function	Range	Resolution (Maximum reading)	Accuracy
ACW DCW	10 kW	9.999 kW*	ACW: 2.5% + 11** DCW: 2.2% + 22**
	100 kW	99.99 kW	
	600 kW	600.0 kW**	

* The measured value < 1.000kW: add 10digits to the accuracy.

**Conditions of accuracy (combination of Voltage and Current range)
10 kW range: 100 V and 100 A
100 kW range: 100 V and 600 A or 1000 V and 100 A
600 kW range: 1000V and 600 A

Other combinations:
Accuracy: (Current accuracyVoltage reading) + (Voltage accuracyCurrent reading)

**600 kW : Guaranteed accuracy (not maximum reading)
Maximum input voltage and current: 1000 Vrms, 600 Arms
ACW: ACV ≥ 10 Vrms and ACA ≥ 5 Arms (Sine wave, 50 ≤ f ≤ 60Hz, PF=1.00)
DCW: at DCV ≥ 10 V and DCA ≥ 5 A

Power Factor

Function	Resolution (Measuring range)	Accuracy
Power factor	-1.00~0.00~1.00	±(3*+2digits)

Maximum input voltage and current: 1000 Vrms, 600 Arms
PF: ACV ≥ 10 Vrms and ACA ≥ 5 Arms (Sine wave, 50 ≤ f ≤ 60Hz)

Resistance/Continuity check

Function	Range	Resolution (Maximum reading)	Accuracy
Resistance Ω	1000 Ω	999.9 Ω	1.0% + 5
	10 kΩ	9.999 kΩ	1.0% + 3
	100 kΩ	99.99 kΩ	
Continuity check	1000 Ω	999.9 Ω	1.0% + 5
	The buzzer turns on for resistances lower than approx. 30Ω. (Response time: approx. 100msec)		

Maximum input voltage: 1000 Vrms
Maximum test current: approx. 0.5mA
Open circuit voltage: approx. 3V

Diode Test

Function	Resolution (Measuring range)	Accuracy
Diode Test	0.40~0.80 V	±0.1 V

Maximum test current: approx. 0.5mA
Open circuit voltage: approx. 1.8V

General Specifications

Display count: 9999 / 6000
Measuring rate: 3 times / sec.
Over range indicator: "OL" or "-OL"
Auto Power Off: Approx. 15 minute.
Low-battery indicator: ■ (four steps)
Power supply: 9V alkaline battery (6LR61)
Battery life: When using alkaline battery, backlight off
Approx. 20 hours
Operating temperature and humidity: 0 ~ 50 °C (with no condensation)
≤ 80% RH (0 ~ 30 °C)
≤ 75% RH (30 ~ 40 °C)
≤ 45% RH (40 ~ 50 °C)
Temperature coefficient: At 0 to 18 °C and 28 to 50 °C
Add 23±5 °C accuracy x 0.2 / °C
-10 to 50 °C, 80% RH or less (remove the battery)
Storage temperature: AC 6880 Vrms 5 sec. (between the core and the case)
AC 4300 Vrms 5 sec. (between the core and the voltage input terminals)
AC 6880 Vrms 5 sec. (between the voltage input terminals and the case)
Insulation resistance: 100MΩ or greater at 1000 VDC
(between the core and the case, the core and the voltage input terminals and the voltage input terminals and the case)

Compliant standards:

Safety standards: EN 61010-1, EN 61010-2-032
1000V CAT.III, 600V CAT.IV
EN 61010-031 (the test leads)
Pollution degree 2, Indoor use, Altitude 2000m or less
EMC standards: EN 61326-1, EN 61326-2-1, EN 61326-2-2, EN 55011

Dimensions:
Approx. 87.5 mm(W) x 242 mm(L) x 51 mm(D)
Diameter of measurable conductors: φ37mm (Maximum)
Weight: Approx. 435g (including the battery)
Accessories: Test leads 1set (Red and Black)
Carrying case
9V alkaline battery (6LR61)
User's Manual
Accessories (Sold Separately): Lead with Alligator Clip Model code 99014