Simpson®
USA SINCE 1936 RELIABILITY BEYOND MEASURE

Technical Data Sheet

Simpson POWER CLAMP 1000A / 400A



Simpson POWER CLAMP 1000A/ 400A is specially designed for Measurement of AC-DC POWER and Power quality parameters.

Special Features

- Up to 49th Individual Harmonics
- Non contact voltage detection.
- LPF Mode for VFD
- Inbuilt Three Phase power Measurement.
- Energy Measurement
- Horse Power Measurement

Application

Simpson Power Clamp 1000/400 AC-DC measures, calculate and displays important electrical parameters of single phase or three phase power system. It also features Resistance, continuity, diode and non contact voltage detection.

Product Features

Measures following parameters

- AC & DC Voltage up to 1000V
- AC & DC Current up to 1000A /400 A
- Inrush/Peak Value Measurement
- Active, Reactive and Apparent Power
- Horse Power Measurement
- kWh
- Measure up to 49th Harmonics
- Phase Angle
- THD
- DF
- Power Factor
- Crest Factor
- LPF Mode for VFD Application

Unique Design

Simpson Power Clamp 1000/400 A is a highly innovative design for features those increases **safety** and **comfort** of user.

- Rotating clamp jaws facilitate the measurement at physically awkward positions, vertical bus bars, conductors placed at positions difficult to access.
- Clamp jaws can be opened or closed with the trigger placed at bottom side away from the jaws. This allows the user to place his/her hand at safer distance from live conductor. This greatly reduces exposure of human beings to electrical shocks.
- Location and design of trigger eliminates fatigues caused by single finger operation. It allows spreading the force required to open the jaws over more than one finger to ensure comfortable operation.
- Comfortable operation of push buttons and function selector switch, in adverse field conditions.

Large Jaw Opening

Jaw opening of 51mm and 41 mm for standard wire diameter of 50mm and 40mm for 1000A and 400A respectively.

Inrush Current Measurement

Clamp meter will be triggered by inrush current >5A. Inrush current for 100 msec is measured.

DATA Hold Function

By pressing DATA HOLD button, reading on the display can be latched for Hands free operation.

MIN,MAX Function

By pressing MIN/MAX button, the clamp meter will start recording latest Minimum and Maximum readings

Backlit

It is possible to conduct measurement using the clamp meter during poor light condition with the help of bright white light Backlit.

Non Contact Voltage Detection

The clamp meter can detect the presence of AC Voltage between 100 to 1000 V 50Hz/60Hz without any electrical connection and give acoustic signal as an indication.

Three Phase Power Measurement

Clamp meter can measure power in 3 phase 3 wire or 3 phase 4 wire (Symmetric as well as Asymmetric) network without any manual calculation like other clamp meters.

Dual Display

User friendly dual display shows the simultaneous parameters of measuring input quantity.

LPF Mode

LPF mode is available for voltage and current for true measurement of VFD Application

TRMS Measurement

In order to calculate true value of distorted waveform due to presence of high crest factor or harmonics, TRMS measurements is done for AC voltage and current

Auto Power OFF
In order to save the power of the Batteries, the clamp meter will automatically shut OFF if it detects no activity for 10 minutes.

Continuous ON Mode
In this mode, AUTO POWER OFF is disabled.

Low Battery Indication
Double molded Cover for soft touch and firm grip of the Instrument

Reference conditions for Accuracy

Reference temperature	23°C/73.4°F ± 2K
Relative Humidity	45%...55% RH
Input frequency	50 or 60 Hz
Power Factor	0.5L....1....0.5C
Battery Voltage	8 V ± 0.1 V

Protection from dust and water
IP20 for terminals as per IEC60529

Applicable International Safety standards
600 V CAT IV/1000V CAT III as per International Safety standard IEC 61010-1- 2010

Technical Specifications

Measuring function	Measuring range	Resolution	Intrinsic error of digital display at reference condition		Over load capacity	
					Over load value	Overload duration
V DC	999.9 V	0.1 V	±(0.5% of rdg + 5 dgt)		1000 V DC/AC eff/rms Sine wave	Continuously
V ~	999.9 V	0.1 V	±(0.75% of rdg+5 dgt)			
V ACDC	999.9 V	0.1 V	±(1.25% of rdg+10dgt)			
LPF V~	999.9 V	0.1 V	50.....60 Hz	±(0.75% of rdg + 5dgt)		
			61...400Hz	±(5.0% of rdg + 5dgt)		
Simpson Power Clamp 1000A DC	999.9A	0.1 A	±(1.5% of rdg+5 dgt)[1)]		1100 A AC/DC for Simpson Power Clamp 1000A 440 A AC/DC for Simpson Power Clamp 400A	Continuously
Simpson Power Clamp 400A DC	99.99 A	0.01 A	display value <1000 add 10 dgt	±(1.5% of rdg+0.2A)[1)]		
	400 A	0.1 A		±(1.5% of rdg+5 dgt)[1)]		
Simpson Power Clamp 1000A AC	999.9A	0.1 A	±(3% of rdg+10 dgt)[1)]			
Simpson Power Clamp 400A AC	99.99 A	0.01 A	display value <1000 add 10 dgt	±(3% of rdg+0.4A) [1)]		
	400 A	0.1 A		±(3% of rdg+10 dgt)[1)]		
Simpson Power Clamp LPF 1000A AC	999.9A	0.1 A	50....60 Hz 61...400Hz	±(1.5% of rdg + 5dgt) ±(5.0% of rdg + 5dgt)		
Simpson Power Clamp LPF 400A AC	99.99 A	0.01 A	50....60 Hz 61...400Hz	±(1.5% of rdg + 0.3A) ±(5.0% of rdg + 5dgt)		
	400 A	0.1 A	50....60 Hz 61...400Hz	±(1.5% of rdg + 5dgt) ±(5.0% of rdg + 5dgt)		
Active Power[2)]	9.999 kW	1 W	±(2% of rdg+5 dgt) [1)]		1000 V DC/AC 1100 A AC/DC for Simpson Power Clamp 1000A 440 A AC/DC for Simpson Power Clamp 400A	Continuously
	99.99 kW	10 W				
	999.9 kW	100 W				
	9999 kW	1 kW				
Reactive Power [2)]	9.999 kVAr	1 VAr				
	99.99 kVAr	10 VAr				
	999.9 kVAr	100 VAr				
	9999 kVAr	1 kVAr				
Apparent Power [2)]	9.999 kVA	1 VA				
	99.99 kVA	10 VA				
	999.9 kVA	100 VA				
	9999 kVA	1 kVA				
Horse Power [2)]	9.999 hp	0.001 hp				
	99.99 hp	0.01 hp				
	999.9 hp	0.1 hp				
	9999 hp	1 hp				
kWh [2)]	9.999 kWh	0.001 kWh	±(3% of rdg+5 dgt)			
	99.99 kWh	0.01kWh				
	999.9 kWh	0.1 kWh				
	9999 kWh	1 kWh				

Technical Specification

Measuring function	Measuring range	Resolution	Intrinsic error of digital display at reference condition	Over load capacity	
				Over load value	Overload duration
Ahr	999.9 Ahr	0.1 Ahr	±(3% of rdg+5 dgt)	1000 V DC/AC 1100 A AC/DC for Simpson Power Clamp 1000A 440 A AC/DC for Simpson Power Clamp 400A	Continuously
Phase angle[2)]	0.0°…360.0°	0.1°	±3°		
Pow er Factor[2)]	-1…0…1	0.001			
Harmonics (RMS & %)[3)]	1…13	0.1V 0.1A 0.1%	±(3% of rdg+10 dgt)		
	14…49		±(5% of rdg+20 dgt)		
THD[3)]	0…99.9%	0.1%	±(3% of rdg+20 dgt)		
DF[3)]	0…99.9%	0.1%	±(3% of rdg+20 dgt)		
Crest Factor[3)]	1.0…2.9	0.1	±(2% of rdg+3 dgt)		
	3.0…5.0	0.1	±(3% of rdg+5 dgt)		
Simpson Power Clamp 1000A Peak	1400 A / 1400V	1 A	±(3% of rdg+3 dgt)		
Simpson Power Clamp 400A Peak	100 A	0.1 A	±(3% of rdg+10 dgt)		
	560 A/ 1000 V	1 A / 1 V	±(3% of rdg+3 dgt)		
Simpson Power Clamp 1000A INRUSH[4)]	999.9A	0.1 A	±(3% of rdg+5 dgt)		
Simpson Power Clamp 400A INRUSH[4)]	99.99 A	0.01 A	±(3% of rdg+0.3A)		
	400 A	0.1 A	±(3% of rdg+5 dgt)		
Resistance	9999 Ohm	1 Ohm	±(0.5% of rdg+5 dgt)	1000 V DC/AC eff/rms Sine wave	10 Secs
Continuity	Below 40 Ohm	1 Ohm	±(0.5% of rdg+5 dgt)		
Diode	0…2.2V	0.001 V	±(0.5% of rdg+5 dgt)		

Note:- Accuracy claimed for Power and Current when conductor is positioned at the center of the jaw.
1) For DC A make auto zero correction by long pressing the **REL** key

For Simpson Power Clamp 1000A
2) Accuracy Defined for V ≧ 10V and I ≧ 5A
Add 10 digit to accuracy when power is
< 5.000 kW/kVAr/kVA or <6.700 hp
3) Accuracy Defined for V ≧ 10V and I ≧ 10A
4) Accuracy Defined for I ≧ 10A

For Simpson Power Clamp 400A
2) Accuracy Defined for V ≧ 10V and I ≧ 4A
Add 10 digit to accuracy when power is
< 5.000 kW/kVAr/kVA or <6.700 hp
3) Accuracy Defined for V ≧ 10V and I ≧ 10A
4) Accuracy Defined for I ≧ 5A

For Simpson Power Clamp 1000A
- In 1P2W mode maximum power meter can measure is, 1000 kVA / 1000 kVAr / 1000 kW / 1341 hp
- In 3P4W mode maximum power meter can measure is,3000 kVA / 3000 kVAr / 3000 kW / 4023 hp
- In 3P3W mode maximum power meter can measure is,1732 kVA / 1732 kVAr / 1732 kW / 2322 hp

For Simpson Power Clamp 400A
- In 1P2W mode maximum power meter can measure is, 400 kVA / 400 kVAr / 400 kW / 536 hp
- In 3P4W mode maximum power meter can measure is,1200 kVA / 1200 kVAr / 1200 kW / 1608 hp
- In 3P3W mode maximum power meter can measure is,693 kVA / 693 kVAr / 693 kW / 928 hp

Current measurement in 1000A and 400A model starts from 0.1A in Amp AC and Amp DC mode and 1A in LPF mode
In 3P3W mode maximum power meter can measure is, 693 kVA / 693 kVAr / 693 kW / 928 hp

Influence Quantity

Infulence quantity	Range of Infuence	Measured quantity / Measuring Range	Variation
Temperature	0 ºC… 21 ºC and 25 ºC….50 ºC	V AC	0.15 X Intrinsic Error / ºC
		V DC	
		V ACDC	
		A AC	
		A DC	
		A ACDC	
		AC Power	
		DC Power	
		Resistance/ Diode/ Continuity	
Frequecy of the measured quantity	40 Hz… 50 Hz and 60 Hz….400 Hz	V AC	1 X Intrinsic Error
		V ACDC	
		A AC	
		A ACDC	
	45 Hz….65 Hz [2)]	AC Power	
Crest Factor [1)]	1.4…2	V AC A AC	1% + Intrinsic Error
	2…2.5		2.5% + Intrinsic Error
	2.5...5		4% + Intrinsic Error
Supply Voltage	When Low Battery symbol is ON	All Ranges	1 X Intrinsic Error
Relative humidity	75%	All Ranges	1 X Intrinsic Error

1) Except SineWave

CF 2 @ 690V, 690Afor Simpson Power Clamp 1000A ACDC
CF 3 @ 690V, 186A for Simpson Power Clamp 400A ACDC
CF 4 @ 345V, 345A for Simpson Power Clamp 1000A ACDC
CF 4 @ 345V, 140A for Simpson Power Clamp 400A ACDC
CF 2 @ 690V, 280A for Simpson Power Clamp 400A ACDC
CF 5 @ 280V, 280A for Simpson Power Clamp 1000A ACDC
CF 3 @ 460V, 460A for Simpson Power Clamp 1000A ACDC

2) Except for 50 or 60 Hz

Environmental

Operating temperature	0 to +55°C, 32°F to 131°F
Storage temperature	-20 to +70°C, -4°F to 158°F
Temp. Coefficient	0.15 X(Intinsic Error) / °C
Relative humidity	0... 75% non condensing
Terminal Protection IP50 for Housing and IP20 for terminals	IP50 for Housing and IP20

Display

Display	Seven Segment
Character Height	Main Display Character : 11.5 mm Sub Display Character : 7.2 mm
Number of digits	4 digits.
Maximum count	9999 counts For V, I and Power 9999 counts For Resistance
Over range indication	"OL" is displayed
Polarity indication	"- " sign is displayed fornegative values.

Applicable Standards

EMC	Electro magnetic compatibility
Emission	IEC 61326: 2012 ClassB
Immunity	IEC 61326: 2012 IEC61000-4-2 :- 8 KV air discharge, 4 KV contact discharge IEC 61000-4-3 :- 3 V/m

Battery

Battery Voltage	9 V DC
Battery type	Manganese Dioxide Cell as per IEC6F22 Alkaline manganese cell as per IEC 6LR 61
Consuption	20 mA Avg. (Without Backlight)
Battery Life	48 Hrs Approx.

Safety

	IEC 61010-1-2010	
IP for water & dust	IP 50 for housing IP 20 for terminal	
Pollution degree	2	
Installation category	III 1000V	IV 600V

Scope of delivery

- Clamp Meter
- Probe Set
- Instruction Manual/Warranty card
- Clamp Carrying Case
- Test Certificate
- Battery
- Two crocodile clips

High Voltage Test

between housing and input.	7.4 kV AC, 50Hz for 1 minute
between housing with jaws and input.	4.26 kV AC, 50Hz for 1 minute

Mechanical Configuration

Dimensions	90mm(W)x270mm(L)x70mm(H)
Weight	500gm approx. including battery.

Simpson Electric Company
520 Simpson Avenue
Lac Du Flambeau, WI 54538-0099 (USA)
Web: www.simpsonelectric.com
Contact: +1 715-588-3311