RISH Clamp POWER BT 1000A / 400A AC-DC

CAT IV   **600 V 1000 A**

RISH Clamp POWER BT
1000A AC-DC

AC **000.0** V

THD   - - - - %

BT   DATALOG

REL↕   INRUSH↓   HOLD / MIN/MAX

1Ø 10 OFF 3Ø 3Ø
2W 4W 3W NCV Ω

TRMS
1000V CAT III
600V CAT IV
V Ω ⊥

POWER CLAMP 1000A

1Φ 2W AC   kWh
       kW
060.42
       kWh
00.201   00:00:12

START   STOP   TREND

READ   DATALOG

Status: Connected to PCM_4C81

Power View

🔗 Disconnect	📈 Trend Plot	📱 Meter Data
⬇ Import Data	📊 Harmonics	〰 Waveforms
❓ Help		⏻

Measure   **Control**   **Record**   **Analyze**

RISH Clamp **POWER BT** 1000A/400A measures, calculates and displays important electrical parameters of single phase or three phase power system. It also features Resistance, Continuity, Diode and Non Contact Voltage detection. It can be used for data logging of any electrical parameter. It features a Bluetooth interface for easy connectivity with Mobile and PC.

Applications

Tool for automation, Bluetooth Interface

With ready to use communication protocol, one can easily automate test systems. The extensive data capturing and analysis is possible with RISHABH PCM Android Application and PC software.

Instead of connecting any wired communication media, with android application and PC software a higher communication distance can be achieved (10m) using Bluetooth interface. Graphical and Tabular analysis is also possible over android application and PC software.
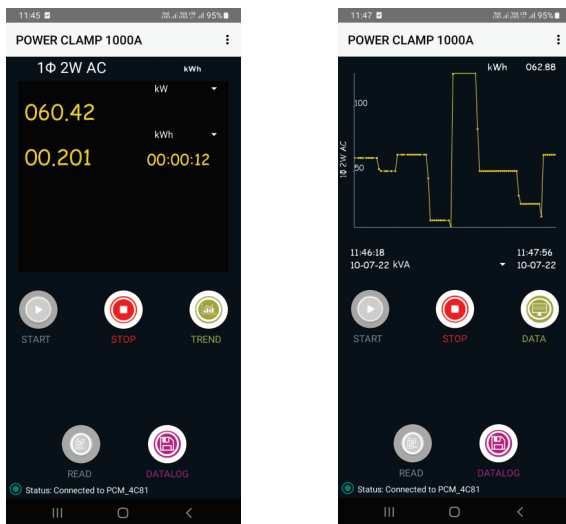

fig.1. Android Application

Inrush Current measurement

Meter can measure inrush current. Meter is triggered at 5A current and inrush current for 100ms is measured. Inrush current measurement feature is used for many big machinery production and maintenance where the surge current is large and having shorter duration. This surge current is needed to measure so that we can protect electric circuit from this starting current.

Low pass filter(LPF)

A selectable 400Hz low pass filter offers advanced variable frequency drive filtering to accurately analyze non-traditional sine waves and noisy signals.

In LPF mode meter rejects all high frequency noise making it suitable for making measurements on inverters and high frequency drives.

Electrical Parameter Trend Plot

The Bluetooth interface provides additional flexibility to continuously monitor variations in any electrical parameter. Mobile application and Power View software have the facility to create a Trend plot of any electrical parameter that is being measured by the meter. As per requirement, Report generation of any selected parameter can be done.
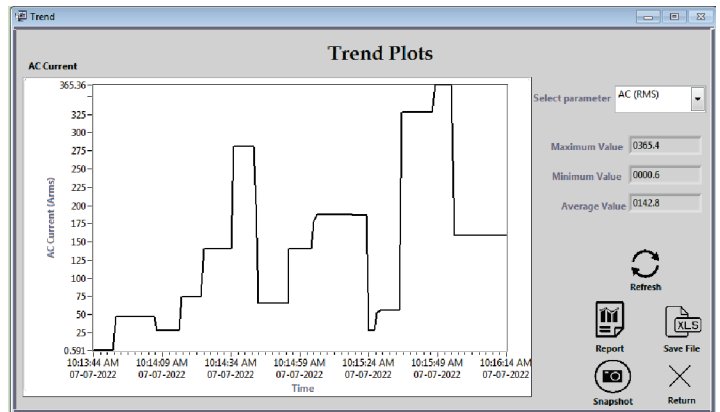
Harmonics Measurment

In Electric power distribution or in motor based applications harmonics is crucial part user needs to handle, Increase in harmonics can reduces the speed of motor and increases force on it which causes heat generation. So to handle this harmonics need to measured which is possible with *RISH Clamp* **POWER BT**, which can measure up to 49th harmonics. Additionally, In Power View software Individual harmonics can be monitored with graphical representation.
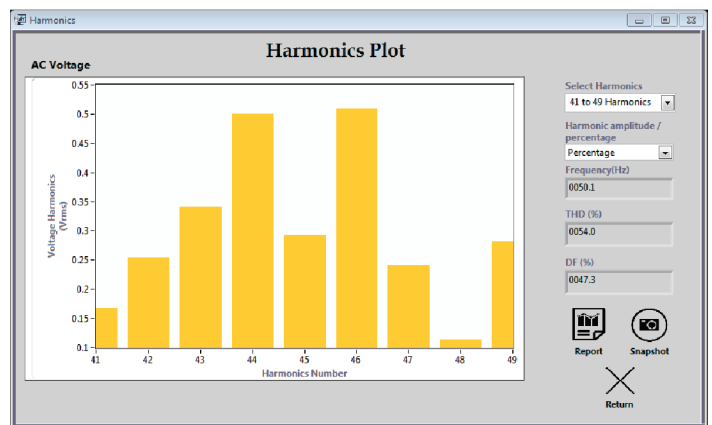

fig. 3. Harmonics Plot in Power View software

Measure   **Control**   **Record**   **Analyze**

RISH *Clamp* POWER BT
1000A / 400A AC-DC

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

RISH *Clamp* POWER BT 1000A/400A is a highly innovative design for features which increase **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 a 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 short pressing Hold key all the parameters of the measuring function are latched/hold for hands free operation.

MIN, MAX Function

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

Data logging

Clamp meter offers continuous data logging up to 2000 to 40000 readings(depending on active functions) with real time stamping. Log rate is adjustable from as low as 1 sec to as high as 1hr.

Non Contact Voltage Detection

The clamp meter can detect the presence of AC Voltage between 100 V 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 are done for AC voltage and current.

Continuous ON Mode

In this mode, AUTO POWER OFF is disabled.

Backlit

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

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

Measure   Control   Record   Analyze

RISH Clamp **POWER BT**
1000A / 400A AC-DC

Reference conditions for Accuracy

Reference temperature	23°C ± 2°C
Relative Humidity	45%...55% RH
Input frequency	50 or 60 Hz
Power Factor	0.5Lagging..1..0.5Leading
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 Specification

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)		
POWER CLAMP BT 1000A ADC-AAC	999.9A	0.1 A	±(1.5% of rdg+5 dgt)[1]		1100 A AC/DC for power clamp BT 1000A	Continuously
POWER CLAMP BT 400A ADC -AAC	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]		
POWER CLAMP BT 1000A A ACDC	999.9A	0.1 A	±(3% of rdg+10 dgt)[1]			
POWER CLAMP BT 400A A ACDC	99.99 A	0.01 A	display value <1000 add 10 dgt	±(3% of rdg+0.4A)[1]	440 A AC/DC for power clamp BT 400A	
	400 A	0.1 A		±(3% of rdg+10 dgt)[1]		
POWER CLAMP BT LPF 1000A A AC	999.9A	0.1 A	50....60 Hz	±(1.5% of rdg + 5dgt)		
			61...400Hz	±(5.0% of rdg + 5dgt)		
POWER CLAMP BT LPF 400A A AC	99.99 A	0.01 A	50....60 Hz	±(1.5% of rdg + 0.3A)		
			61...400Hz	±(5.0% of rdg + 5dgt)		
	400 A	0.1 A	50....60 Hz	±(1.5% of rdg + 5dgt)		
			61...400Hz	±(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 Power Clamp BT 1000A 440 A AC/DC for Power Clamp BT 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				

Measure   Control   Record   Analyze

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 Power Clamp 1000A 440 A AC/DC for Power Clamp 400A	Continuously
Phase angle[2]	0.0°…360.0°	0.1°	±3°		
Power 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)		
POWER CLAMP BT 1000A Peak	1400 A / 1400V	1 A	±(3% of rdg+3 dgt)		
POWER CLAMP BT 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)		
POWER CLAMP BT 1000A INRUSH[4]	999.9A	0.1 A	±(3% of rdg+5 dgt)		
POWER CLAMP BT 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 DCA make auto zero correction by long pressing the **REL** key.

For Power Clamp BT 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 Power Clamp BT400A
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 Power Clamp BT 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 Power Clamp BT 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 both 1000A and 400A model starts from 0.1A in Amp AC and Amp DC modes and from 1A in LPF mode.

Measure　　　Control　　　Record　　　Analyze

Influence Quantity

Influence 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, 690A for Power Clamp Meter 1000 A ACDC
    CF 3 @ 690V, 186A for Power Clamp Meter 400A ACDC
    CF 4 @ 345V, 345A for Power Clamp Meter 1000 A ACDC
    CF 4 @ 345V, 140A for Power Clamp Meter 400 A ACDC
    CF 2 @ 690V, 280A for Power Clamp Meter 400 A ACDC
    CF 5 @ 280V, 280A for Power Clamp Meter 1000 A ACDC
    CF 3 @ 460V, 460A for Power Clamp Meter 1000 A ACDC
    CF 5 @ 280V, 112A for Power Clamp Meter 400 A ACDC

2) Except for 50 or 60 Hz

Measure   Control   Record   Analyze

Environmental

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

Applicable Standards

EMC	Electro magnetic compatibility
Emission	IEC 61326: 2020 ClassB
Immunity	IEC 61326: 2020
	IEC61000-4-2 :-
	8 KV air discharge,
	4 KV contact discharge
	IEC 61000-4-3 :- 3 V/m
	IEC 61000-4-8 :- 3 A/m

Safety

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

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

Weight

	0.6 Kg

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 for negative values

Battery

Battery Voltage	9 V DC
Battery type	Manganese Dioxide Cell as per IEC6F22
	Alkaline manganese cell as per IEC 6LR 61
Battery Life	10 Hrs Approx.(with Bluetooth)
	48 Hrs Approx.(w/o Bluetooth)

Scope of delivery

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

Mechanical Configuration

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

Measure   Control   Record   Analyze

Android Application

- Class 2 Bluetooth which is integrated in the instrument achieves transmission ranges of up to 10m.
- Recommended Screen Size: 4.7" to 7" with resolution 1280 x 720p & above.
- Android Version: 4.0 & above required.
- Measured Parameter can be logged in Excel format in phone memory.
- Graphical Analysis of measured parameter is possible.
- Offline Data of meter can be retrieved on phone through application.
- Virtual Display of meter can be observed on mobile application.
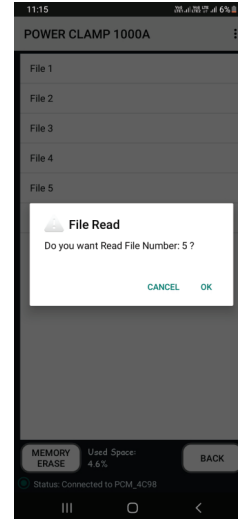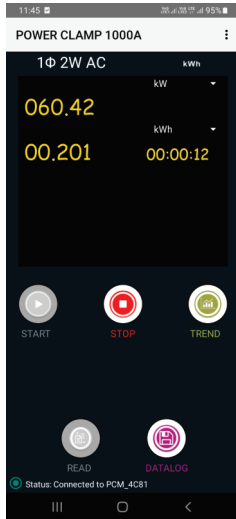
Power View software:

- Measured Parameter can be logged in Excel format on PC.
- Graphical Analysis of measured parameter is possible.
- Offline Data of meter can be retrieved on PC through software.
- Virtually all parameter readings of meter can be observed on PC software.
- Minimum Requirements:
  a) Pentium IV & Higher Processor
  b) Windows XP SP3, Windows Vista, Windows 7, Windows 8, Windows 10.
  c) Bluetooth integrated or External USB Bluetooth.
  d) 800 x 600 or Higher Monitor Resolution.
  e) .NET Framework 4.0 and above.

Measure   Control   Record   Analyze

RISHABH

Measure

Control

Record

Analyze