

## RISH Clamp 1000A/300A AC-DC

TRMS 3 ¾ Digits digital Clamp meter with VFD measurement feature

### Data Sheet

3 ¾ Digits digital  
Clamp meter



## Application

**RISH Clamp 1000A/300A** measures important electrical parameters like AC Current (TRMS), DC Current, AC Voltage (TRMS), and DC Voltage. It also features Capacitance, Ohm & Continuity, frequency, and Duty cycle and temperature measurement.

## Product Features

### Unique Design

Rish *Clamp* 1000A/300A 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

For RISH CLAMP 1000A AC-DC Jaw opening of 51mm for standard wire diameter of 50mm and for RISH CLAMP 300A AC-DC Jaw opening of 41mm for standard wire diameter of 40mm for 300A

### Narrow Body

Narrow housing for firm grip and easy to carry.

### High Accuracy for low current measurement

The clamp meter can measure accurately at not only the High currents but also Low current ranges.

### True Root Mean Square (TRMS) measurement

Clamp meter measures AC signal's root-mean-square value accurately irrespective of the shape of input waveform.

### Measurement on Variable Frequency Drives

The clamp meter can measure accurately on variable frequency drives (VFD) and UPS.

### User selectable Backlit : (Optional)

It is possible to conduct measurement using the clamp meter during night time in darkness with the help of Backlit. The back lit can be switched ON or OFF by pressing a single key.

### Temperature measurement

Temperatures from -200 to 800 °C using Pt 100 and Pt 1000 sensors.

### 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.

### Analog Scale

Analog scale that updates at the rate 20 times/sec to observe fluctuations in input.

## CONTINUOUS ON MODE

In this mode, AUTO POWER OFF is disabled.

## 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

## NULL ZERO Correction for Resistance

For Low ohm measurement, the lead resistance can be compensated by pressing the shift key (Yellow Key)

## NULL ZERO Correction for Capacitance

Null zero connection for capacitance. For nF range, stray capacitance can be compensated by shift key (Yellow Key)

## AUTO and MANUAL ranging modes

In AUTO ranging mode the instrument automatically selects the range with best resolution depending on the applied input. In MANUAL ranging mode range is user selectable using MAN key.

## Diode Measurement

For testing diode and transistors, diode measurement function is available.

## 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

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

Measuring function	Measuring range	Resolution	Input impedance	Intrinsic error of digital display $\pm$ (...% of rdg + ...digit) at reference condition	Over load capacity <sup>1)</sup>			
					Over load value	Overload duration		
V dc	30.00 mV	10 $\mu$ V	>10 G $\Omega$ // <40pF	0.5 + 3 <sup>2)</sup>	1000 V DC AC eff / rms Sine wave	Continuously		
	300.0 mV	100 $\mu$ V	>10 G $\Omega$ // <40pF	0.5 + 3				
	3.000 V	1 mV	11 M $\Omega$ // <40pF	0.25 + 1				
	30.00 V	10 mV	10 M $\Omega$ // <40pF	0.25 + 1				
	300.0 V	100 mV	10 M $\Omega$ // <40pF	0.25 + 1				
1000 V	1 V	10 M $\Omega$ // <40pF	0.35 + 1					
V ~	3.000 V	1 mV	11 M $\Omega$ // <40pF	0.75 + 2 (10...300 Digit) 0.75 + 1 (> 300 Digit)			1000 V DC AC eff / rms Sine wave	10 min
	30.00 V	10 mV	10 M $\Omega$ // <40pF					
	300.0 V	100 mV	10 M $\Omega$ // <40pF					
	1000 V	1V	10 M $\Omega$ // <40pF					
$\Omega$	No load voltage				1000 V DC AC eff / rms Sine wave	10 min		
	30.00 $\Omega$	10 m $\Omega$	Max. 3.2 V	0.5 + 3 <sup>2)</sup>				
	300.0 $\Omega$	100 m $\Omega$	Max. 3.2 V	0.5 + 3				
	3.000 K $\Omega$	1 $\Omega$	Max. 1.25 V	0.4 + 1				
	30.00 K $\Omega$	10 $\Omega$	Max. 1.25 V	0.4 + 1				
	300.0 K $\Omega$	100 $\Omega$	Max. 1.25 V	0.4 + 1				
	3.000 M $\Omega$	1 K $\Omega$	Max. 1.25 V	0.6 + 1				
30.00 M $\Omega$	10 K $\Omega$	Max. 1.25 V	2.0 + 1					
$\rightarrow$	2.000 V	1 mV	Max. 3.2 V	0.25 + 1	1100 A	Continuously		
Rish clamp 1000A~/Adc	2 to 300.0 A	0.1 A	----	1.5 % of range + 5 Digits				
	1000 A	1 A	----					
Rish clamp 300A~/Adc	0.2 to 30.0A	0.1 A	----					
	300.0A	1 A	----					

Measuring Function	Measuring range	Resolution	Discharge resistance	U <sub>0</sub> max.	Intrinsic error of digital display $\pm$ (...% of rdg + ...digit) at reference condition	Over load capacity <sup>1)</sup>		
						Over load value	Over load duration	
F	30.00 nF	10 pF	250 K $\Omega$	2.5 V	1.0 + 3 <sup>2)</sup>	1000 V DC AC eff / rms Sine	10 min	
	300.0 nF	100 pF	250 K $\Omega$	2.5 V	1.0 + 3			
	3.000 $\mu$ F	1 nF	25 K $\Omega$	2.5 V	1.0 + 3			
	30.00 $\mu$ F	10 nF	25 K $\Omega$	2.5 V	3.0 + 3			
Hz			<b>f min V dc</b>	<b>f min V ~</b>	0.5 + 1 <sup>3)</sup>	3 kHz 1000 v 30 kHz; 300 V 100 kHz 30 V	Continuously	
	300.0 Hz	0.1 Hz	1 Hz	45 Hz				
	3.000 KHz	1 Hz	1 Hz	45 Hz				
	30.00 KHz	10 Hz	10 Hz	45 Hz				
%			2 Hz	-	2 Hz... 1kHz $\pm$ 5 Digit <sup>4)</sup> 1 kHz ... 10 kHz; $\pm$ 5 Digit / kHz <sup>4)</sup>	1000 V DC AC eff / rms Sine	10 min	
	2.0...98.0%	0.1 %	-	-				
$^{\circ}$ C	Pt 100	-200.0... +200.0 $^{\circ}$ C	0.1 $^{\circ}$ C	-	-	2 Kelvin + 5 Digit <sup>5)</sup> 1.0 + 5 <sup>5)</sup> 2 Kelvin + 2 Digit <sup>5)</sup> 1.0 + 2 <sup>5)</sup>	1000 V DC AC eff / rms Sine	10 min
		+200.0... +850.0 $^{\circ}$ C	0.1 $^{\circ}$ C					
	Pt 1000	-100.0... +200.0 $^{\circ}$ C	0.1 $^{\circ}$ C	-	-			
		+200.0... +850.0 $^{\circ}$ C	0.1 $^{\circ}$ C					

- 1) At 0° .... + 40 °C
- 2) With zero adjustment, without zero adjustment + 35 digits
- 3) Range :  
3 V ac/dc: U<sub>e</sub> = 1.5 V eff/rms ... 100 V eff/rms  
30 V ac/dc: U<sub>e</sub> = 15 V eff/rms ... 300 V eff/rms  
300 V ac/dc: U<sub>e</sub> = 150 V eff/rms ... 1000 V eff/rms
- 4) On the range 3 V dc, square – wave signal positive on one side 5 ... 15 V,  
f = const., not 163.84 Hz or integral multiple.
- 5) Without sensor

## Reference conditions for Accuracy

Reference temperature 23°C  $\pm$  2K  
Relative Humidity 45%...55% RH  
Waveform of measured quantity Sinusoidal  
Input frequency 50 or 60 Hz  $\pm$ 2%  
Battery Voltage 8 V  $\pm$  0.1 V

## Environmental

Operating temperature	-10 to +55°C
Storage temperature	-20 to +70°C
Relative humidity	0... 90% non condensing
Terminal Protection	IP50 for Housing and IP20 for terminals

## Display


Number of digits	3 ¾ digits.
Maximum count	3100 counts.
Over range indication	"OL" is displayed.
Polarity indication	"—" sign is displayed for DC functions, if positive pole is at "⊥".

## Battery

Battery Voltage	9 V DC
Battery type	Manganese Dioxide Cell as per IEC6F22, alkaline manganese cell as per IEC 6LR 61
Battery Life	Minimum 220 hours on Vdc, Adc, 80 hours on Vac, Aac.

## Influence Quantities and Variations

Influence Quantity	Range of Influence	Measured Quantity/ Measuring Range	Variation <sup>1)</sup> ± (...% of rdg. + ....digits)	
Temperature	0 °C +21 °C and +25 °C...+40°C	30/300 mV dc	1.0 + 3	
		3...300 V dc	0.15 + 1	
		1000 V dc	0.2 + 1	
		V ~	0.4 + 2	
		30 Ω <sup>2)</sup>	0.15 + 2	
		300 Ω	0.25 + 2	
		3 KΩ – 3 MΩ	0.15 + 1	
		30 MΩ	1.0 + 1	
		30 nF <sup>2)</sup> – 3 μF	0.5 + 2	
		30 μF	2.0 + 2	
		Hz	0.5 + 1	
		%	± 5 digits	
		-200...+200 °C	0.5 K + 2	
		+200...+850°C	0.5 + 2	
		Rish clamp1000AAC-DC		30 A ~/ A DC
300 A ~/ A DC	0.1 X Specified accuracy			
Rish clamp300AAC-DC	300 A ~/ A DC			0.2 X Specified accuracy
	1000 A ~/ A DC			0.1 X Specified accuracy
Frequency of the measured quantity	> 65 Hz...400 Hz	3...300 V ~	2.0 + 3	
	>400 Hz...1 KHz			
	>65 Hz ... 1 KHz	1000 V ~	3.0 + 3	
	15Hz ... <45 Hz	A ~	1.0 % of range + 1	
	>66 Hz... 400 Hz			

Influence Quantity	Range of Influence		Measured Quantity/ Measuring Range	Variation <sup>1)</sup> ± (...% of rdg. + ....digits)
Wave form of the measured quantity <sup>3)</sup>	Crest factor CF	1...3	V ~ <sup>4)</sup> A ~ <sup>4)</sup>	± 1 % of rdg
		1...5		± 3 % of rdg
Battery Voltage	 <sup>5)</sup> ... < 7.9 V > 8.1 V ... 10.0 V		V DC	2 Digit
			V~	4 Digit
			AAC/ADC	8 Digit
			30Ω / 300 Ω/°C	4 Digit
			3 kΩ – 30MΩ	3 Digit
			nF, μF	10 Digit
			Hz	10 Digit
	%	10 Digit		
Relative humidity	75%		V~, VDC A~, ADC Ω F Hz % °C	1 x intrinsic error
	3 Days			
	Meter off			
HOLD	-		--	± 1 digits
MIN/MAX	-		V ac/dc , A ~ , ADC	± 2 digits

1) With temperature: Error data apply per 10 K change in temperature.


For Aac/Adc error data apply per K change in temperature.

With frequency: Error data apply to a display from 300 digits onwards.

2) With zero adjustment.

3) With unknown waveform (crest factor CF > 2), measure with manual range selection

4) With the exception of sinusoidal waveform.

5) After the “” symbol is displayed

## Applicable Standards

EMC Immunity IEC 61326: Class B  
IEC 61000-4-2  
8 KV atmosphere discharge,  
4 KV contact discharge  
IEC 61000-4-3 : 3 V/m

## Safety

IP for water & dust IEC60529  
Pollution degree 2  
Installation category IV  
High Voltage Test 6.7 kV AC, 50Hz for 1 minute  
between housing and input.  
3.7 kV AC, 50Hz for 1 minute  
between housing with jaws and  
input.

## Weight

0.6 Kg

## Warranty

1 years



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**RISHABH**  
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