

RISH Clamp 1000A / 300A 3 3/4 Digits digital Clamp meter

Data Sheet

3 3/4 Digits digital
Clamp meter



Application

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

Product Features

Unique Design

Rish clamp 1000A / 300A is a highly innovative design for features that 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 the trigger placed at bottom side away from the jaws. This allows the user to place his/her hand at a safer distance from the live conductor. This greatly reduces exposure of human beings to electrical shocks.
- Location and design of trigger eliminates fatigue 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

Rish *Clamp* 1000A: Jaw opening of 51mm for standard wire diameter of 50mm

Rish *Clamp* 300A: Jaw opening of 41mm for standard wire diameter of 40mm

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.

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 61010-1-2001

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

Measuring function	Measuring range	Resolution	Input impedance	Intrinsic error of digital display ± (...% of rdg + ...digit) at reference condition	Over load capacity ¹⁾	
					Over load value	Overload duration
V dc	30.00 mV	10 µV	>10 GΩ // <40pF	0.5 + 3 ²⁾	1000 V DC AC eff / rms Sine wave	Continuously
	300.0 mV	100 µV	>10 GΩ // <40pF	0.5 + 3		
	3.000 V	1 mV	11 MΩ // <40pF	0.25 + 1		
	30.00 V	10 mV	10 MΩ // <40pF	0.25 + 1		
	300.0 V	100 mV	10 MΩ // <40pF	0.25 + 1		
1000 V	1 V	10 MΩ // <40pF	0.35 + 1			
V ~	3.000 V	1 mV	11 MΩ // <40pF	0.75 + 2		
	30.00 V	10 mV	10 MΩ // <40pF	(10....300 Digit)		
	300.0 V	100 mV	10 MΩ // <40pF	0.75 + 1		
	1000 V	1V	10 MΩ // <40pF	> 300 Digit		
Ω	No load voltage				1000 V DC AC eff / rms Sine wave	10 min
	30.00 Ω	10 mΩ	Max. 3.2 V	0.5 + 3 ²⁾		
	300.0 Ω	100 mΩ	Max. 3.2 V	0.5 + 3		
	3.000 KΩ	1Ω	Max. 1.25 V	0.4 + 1		
	30.00 KΩ	10 Ω	Max. 1.25 V	0.4 + 1		
	300.0 KΩ	100 Ω	Max. 1.25 V	0.4 + 1		
	3.000 MΩ	1 KΩ	Max. 1.25 V	0.6 + 1		
	30.00 MΩ	10 KΩ	Max. 1.25 V	2.0 + 1		
↔	2.000 V	1 mV	Max. 3.2 V	0.25 + 1		
A ~	300.0 A	0.01 A	-----	1.5 % of range + 5 Digits	1100* A / 360A	Continuously
	1000A*	0.1 A	-----	1.5 % of range + 5 Digits		

Measuring function	Measuring range	Resolution	Discharge resistance	U0 max.	Intrinsic error of digital display ± (...% of rdg + ...digit) at reference condition	Over load capacity ¹⁾		
						Over load value	Overload duration	
F	30.00 nF	10 pF	250 KΩ	2.5 V	1.0 + 3 ²⁾	1000 V DC AC eff / rms Sine	10 min	
	300.0 nF	100 pF	250 KΩ	2.5 V	1.0 + 3			
	3.000 µF	1 nF	25 KΩ	2.5 V	1.0 + 3			
	30.00 µF	10 nF	25 KΩ	2.5 V	3.0 + 3			
Hz			f min V dc	f min V ~	0.5 + 1 ³⁾	≤ 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				
	100.0 KHz	100 Hz	100 Hz	100 Hz				
%	2.0....98.0%	0.1 %	2 Hz	--	2 Hz... 1kHz ± 5 Digit ⁴⁾ 1 kHz ... 10 kHz; ± 5 Digit / kHz ⁴⁾			
°C	Pt 100	-200.0... +200.0 °C	0.1 °C	-	--	2 Kelvin + 5 Digit ⁵⁾	1000 V DC AC eff / rms Sine	10 min
		+200.0... +850.0 °C				1.0 + 5 ⁵⁾		
	Pt 1000	-100.0... +200.0 °C	0.1 °C	-	--	2 Kelvin + 2 Digit ⁵⁾		
		+200.0... +850.0 °C				1.0 + 2 ⁵⁾		

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

*applicable for 1000A

Reference conditions for Accuracy

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

Response time

Influence Quantity	Range of Influence	Measuring Ranges	Attenuation
Common Mode interference voltage	Noise quantity max. 1000 V	V dc	> 120 dB
	Noise quantity max. 1000 V ~ 50 Hz, 60 Hz sinusoidal	3V~ 30 V~ 300 V~	> 70 dB
		1000 V~	> 60 dB
Normal Mode interference voltage	Noise quantity V ~ Value of the measuring range at a time Max. 1000V~ ,50Hz, 60Hz sinusoidal	V dc	> 50dB
	Noise quantity max. 1000 V-	V~	>110dB

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 ¹⁾ ± (...% 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 + 1
		30 Ω ²⁾	0.15 + 2
		300 Ω	0.25 + 2
		3 KΩ – 3 MΩ	0.15 + 1
		30 MΩ	1.0 + 1
		30 nF ²⁾ – 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
A ~	0.75% of range + 1		
Frequency of the measured quantity	15 Hz...<30 Hz	3...300 V ~	--
	30 Hz...<45 Hz		--
	> 65 Hz...400 Hz		2.0 + 3
	>400 Hz...1 KHz		2.0 + 3
	>1 KHz...20 KHz	--	
	15 Hz...<30 Hz	1000 V ~	--
	30Hz ...<45 Hz		--
	>65 Hz ... 1 KHz		3.0 + 3
	15 Hz...<30 Hz	A ~	--
	30Hz ...<45 Hz		--
	>66 Hz... 1 kHz		2.0% of range + 1

Influence Quantity	Range of Influence		Measured Quantity/ Measuring Range	Variation ¹⁾ ± (...% of rdg. + ...digits)
Wave form of the measured quantity ³⁾	Crest factor CF	1...3	V ~ ⁴⁾ A ~ ⁴⁾	
		1...5		
Battery Voltage	 ⁵⁾ ... < 7.9 V > 8.1 V ... 10.0 V		V DC	2 Digit
			V~	4 Digit
			A~	6 Digit
			30Ω / 300 Ω/°C	4 Digit
			3 kΩ – 30MΩ	3 Digit
			nF, μF	1 Digit
			Hz	1 Digit
			%	1 Digit
Relative humidity	75%		V~, VDC	1 x intrinsic error
	3 Days		A~	
	Meter off		Ω	
			F	
			Hz	
			%	
			°C	
HOLD	-		--	± 1 digits
MIN/MAX	-		V ac/dc , A ~	± 2 digits


1) With temperature: Error data apply per 10 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 IEC 61326: Class B
 Immunity 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



Measure



Control



Record



Analyze



Optimize

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