RISHABH

Data Sheet

RISH Clamp SOLAR

True RMS Digital Clamp Meter

RoHS CE

Measure Control Record Analyze

Application

RISH Clamp SOLAR 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 SOLAR 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 SOLAR Jaw opening of 51mm for standard wire diameter of 50mm .

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.

CONTINOUS 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 correction for capacitance. For nF range, stray capacitance can be compensated by shift key (Yellow Key)

AUTO and MANUAL ranging modes

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

Technical Specifications

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]	1500 V DC 1000 V 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 + 3		
	30.00 V	10 mV	10 GΩ // <40pF	0.25 + 3		
	300.0 V	100 mV	10 GΩ // <40pF	0.25 + 3		
	1500 V	1 V	10 GΩ // <40pF	0.35 + 3 (upto 1000 V)		
				0.5 + 3 (1000 V to 1500 V)		
V ~	3.000 V	1 mV	10 GΩ // <40pF	0.75 + 2 (10….300 Digit) 0.75 + 1 (> 300 Digit)		
	30.00 V	10 mV	10 GΩ // <40pF			
	300.0 V	100 mV	10 GΩ // <40pF			
	1000 V	1V	10 GΩ // <40pF			
Ω			No load voltage			
	30.00 Ω	10 mΩ	Max. 3.2 V	0.5 + 3 [2]	1500 V DC 1000 V AC eff / rms Sine wave	10 Sec
	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		
Diode →|←	2.000 V	1 mV	Max. 3.2 V	0.2 + 3		
A AC/DC	300.0 A	0.1 A	-	2 % + 0.5 A	1600 A	Continuously
	1500 A	1 A	-	2 % + 5 A (upto 1200A)		
				2.2 % + 5 A (1200A to 1500A)		

Measuring Function	Measuring range		Resolution	Discharge resistance	U_0 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]	1500 V DC 1000 V AC eff / rms Sine wave	10 Sec
	300.0 nF		100 pF	250 KΩ	2.5 V	1.0 + 3		
	3.000 µF		1nF	15 KΩ	2.5 V	1.0 + 3		
	30.0 µF		10 nF	15 KΩ	2.5 V	3.0 + 3		
	300.0 µF		100 nF	15 KΩ	2.5 V	5.0 + 6		
Hz				f min V DC	f min V ~			
	300.0 Hz		0.1 Hz	1 Hz	45 Hz	0.5 + 3 [3]	3 kHz 1000 V 30 kHz 300 V 100 kHz 30 V	Continuously
	3.000 KHz		1 Hz	1 Hz	45 Hz	0.5 + 1 [3]		
	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]		
ºC	Pt 100	200.0… +200.0 ºC	0.1 ºC	-	-	2 Kelvin + 5 Digit [5]	1500 V DC 1000 V AC eff / rms Sine wave	10 Sec
		200.0… +850.0 ºC	0.1 ºC			1.0 + 5 [5]		
	Pt 1000	100.0… +200.0 ºC	0.1 ºC	-	-	2 Kelvin + 2 Digit [5]		
		200.0… +850.0 ºC	0.1 ºC			1.0 + 2 [5]		

1 At 0º …. + 40 ºC

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 … 15 V, f = const., not 163.84 Hz or integral multiple.

5 Without sensor

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

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

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.

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 "⊥".

Influence Quantities and Variations

Influence Quantity	Range of Influence		Measured Quantity/ Measuring Range	Variation [1] ± (….% of rdg. + ….digits)
Temperature	0 ºC +21 ºC and +25 ºC…+40ºC		30/300 mV DC	1.0 + 3
			3...300 V DC	0.15 + 1
			1500 V DC	0.4 + 1
			V ~	0.4 + 2
			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
			30µF - 300 µF	4.0 + 2
			Hz	0.5 + 1
			%	5.0 + 1
			-200…+200 ºC	0.5 K + 2
			+200…+850ºC	0.5 + 2
			1500 A ~/ A	0.3 X Specified accuracy + 10
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			
Wave form of the measured quantity [3]	Crest factor CF	1....3	V ~ [4], A ~ [4]	± 1 % of rdg
		>3....5		± 3 % of rdg
Battery Voltage	[5] …< 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% 3 Days Meter off		V~,VDC A~, ADC Ω F Hz % C	1 x intrinsic error
HOLD	-		-	± 1 digits
MIN/MAX	-		V AC/DC , A ~ , ADC	± 2 digits
EMC	-		-	6 % of range

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	IEC/EN 61326-1: 2020 Class B
Immunity	IEC/EN 61326-1: 2020 IEC 61000-4-2 8 KV atmosphere 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	IEC 60529
Pollution degree	2
Installation category	III 1000V, IV 600V
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

Standard Scope of supply

- 1 Cable Set
- 1 Battery Set
- 1 Operating Instructions Manual
- 1 Leather carrying case

Ordering code

- **CL40-1NZ0000000000** - Rish clamp solar 1500V AC/DC, 1500AAC/DC with normal tips probe
- **CL40-1FZ0000000000** - Rish clamp solar 1500V AC/DC, 1500AAC/DC with fine tips probe

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Measure Control Record Analyze

RISHABH INSTRUMENTS LTD.
Domestic (India): +91 253 2202028/99 | marketing@rishabh.co.in
International: +91 253 2202004/06/08/99 | global@rishabh.co.in
www.rishabh.co.in