



Data Sheet

Rishabh 610 Digital TRMS Multimeter



Measure



Control



Record



Analyze

Data Sheet

Rishabh 610 Digital TRMS Multimeter

- * Direct and alternating voltages from 10 μ V ... 1000V
- * Direct and alternating currents from 10 μ A ... 10.00A
- * Resistance from 0.1 Ω ...60.00M Ω with zero correction
- * Capacitance from 1pF ... 60mF with zero correction
- * Logic Frequencies from 0.01Hz ... 1MHz Approx
- * Diode measurement and continuity testing
- * Hold measurement .
- * Relative measurement
- * Duty cycle (%) measurement
- * Temperature measurement with K type Thermocouple
- * Backlit Facility
- * NCV (Non Contact Voltage Detection)
- * Auto Power Off



Application

RISHABH 610 digital multimeter is suited for universal, general applications in the electrical and electronics fields, as well as in radio and television service, training and education.

It is of especially pocket size design, and thus fit into pocket. The protective cover, which is provided as standard equipment, can be opened at an angle for convenient reading from the workbench, and

Hold:

By pressing the HOLD key, the currently displayed measurement value can be held and "HOLD" is simultaneously displayed.

Relative measurement (REL):

By pressing the REL key, the zero correction is made and Relative Value is measured. All functions can measure Relative Value except Hz/Duty.

Automatic/manual measuring range selection:

The measurement functions are chosen with the rotary selector switch. The measuring range is automatically adjusted to the measurement value. The measuring range can also be manually selected with the AUTO/MAN button.

Note : For Temperature ($^{\circ}$ C) , Frequency (Hz) , Duty cycle (%) , and Capacitance (F) measuring range is AUTO . No Manual range selection is possible.

Hz/Duty:

The instrument can measure Linear frequency (Hz) and duty cycle (%) of the AC Voltage by pressing Hz/Duty key in Vac,mVac,mAac and Aac.

Temperature Measurement:

RISHABH 610 allows you to measure temperature with " K " type Thermocouple (Ni Cr-Ni) sensor in the range from -200 $^{\circ}$ C to +1200 $^{\circ}$ C.

Diode and continuity testing:

This provides for the testing of the polarity of diodes, as well as inspection for short-circuits and circuit interruptions. In addition to the display, resistance of less than approx 50 Ω are indicated with an acoustic signal

Overload warning :

An acoustic signal occurs when measuring AC voltage>1000V, DC Voltage>1000V, AC/DC current>6A.

Energy saving circuit (Auto Power Off):

The instrument is switched off automatically, if none of the operating elements have been activated for about 15 minutes.

Protective cover for rough operating conditions:

A protective cover of Rubber Holster with a built-in stand protects the instrument against jolts and falls. It also secures the test probe for one-hand operation, and allows for winding of the measurement cable which provides protection during transport.

Automatic blocking socket(ABS):

The automatic terminal blocking system prevents incorrect connection of test lead and incorrect selection of measurement quantity, which provide safety to the user.

Backlit:

The RISHABH 610 multimeter provides facility of measurement in poor light condition by pressing backlit key.

Calibration:

RISHABH 610 multimeters are calibrated using precision calibrators having accuracy better than at least 5 to 10 times depends upon the functions and ranges. These sources are calibrated at regular intervals.

NCV(Non Contact Voltage):

Presence of Hazardous Voltage > 50V 50/60Hz.This is very useful while performing measurements in the circuit which takes longer times to discharge its capacitor.Easy/Quickly test Live power.

Others:

Separate compartment for batteries which makes battery replacement easy and faster. Also it has provision of mounting clip for hands free operation in awkward situation .



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Reference conditions for Accuracy

Reference Temperature	23°C ± 2K
Relative Humidity	45%...55% RH
Waveform of measured quantity	Sinusoidal
Input frequency	50 Hz
Battery Voltage	3 V ± 0.1 V


Applicable regulations and standards

EMC Immunity	IEC 61326-1:2020, Table A.1
Emission	IEC 61000-4-2 : 8 KV atmosphere discharge, 4 KV contact discharge
	IEC 61000-4-3 : 3 V/m
	Short-term measured value deviation may occur during electro-magnetic interference thus reducing the specified operating quality.
Safety	IEC 61010-1-2010, IEC 61010-2-33, IEC 61010-031
IP for water & dust	IEC 60529
Pollution degree:	2
Installation category:	600 V CATIII / 1000 V CATII
High Voltage Test	3.5 kV (IEC 61010-1-2010)

Environmental Conditions

Operating temperature	0 to +50°C
Storage temperature	- 25 to +70°C (without battery)
Relative humidity	45%.....75%
Terminal Protection	IP 52 for instrument and IP20 for terminals.
Altitude	Up to 2000 m

Battery

Battery Voltage	2 X 1.5 V AA Cells
Battery type	Alkaline manganese Dioxide cells.
Battery test	Automatic display of  symbol when battery voltage drops below approx. 2.4V



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Measuring Function	Measuring Range	Resolution	Input Impedance	Digital Display Inherent Deviation at reference conditions ±(...% of rdg + ...digits)	Overload Capacity ²⁾	
					Overload Value	Overload Duration
V(AC)	6.000V	1mV	10M Ω	0.8+5	1000Vac rms	Continuous
	60.00 V	10mV	10M Ω			
	600.0 V	100mV	10M Ω			
	1000 V	1V	10M Ω	1+10		
V(DC)	6.000V	1mV	10M Ω	0.5+3	1000VDC	Continuous
	60.00 V	10mV	10M Ω			
	600.0 V	100mV	10M Ω			
	1000 V	1V	10M Ω			
mV(AC)	60.00mV	10uV	10M Ω	3+5	500VDC/ACrms	10 Min
	600.0mV	100uV	10M Ω	1.5+5		
mV(DC)	60.00mV	10uV	10M Ω	1+5	500VDC/ACrms	10 Min
	600.0mV	100uV	10M Ω	0.5+5		
			Approx Voltage Drop at max measuring current			
ADC	60.00mA	0.01mA	60mV	1.5+3	600mADC	Continuous
	600.0mA	0.1mA	600mV			
	6.000A	1mA	60mV	1.5+3		
	10.00A	10mA	100mV			
AAC	60.00mA	1mA	60mV	1.8+5	600mAac rms	Continuous
	600.0mA	10mA	600mV			
	6.000A	1mA	60mV	2+5		
	10.00A	10mA	100mV			
			Open Circuit Voltage			
Ω	600.0 Ω	100m Ω	Approx 0.5V	0.5+3	500VDC/ACrms	10 Min
	6.000k Ω	1 Ω		0.5+2		
	60.00k Ω	10 Ω				
	600.0k Ω	100 Ω				
	6.000M Ω	1k Ω				
	60.00M Ω	10k Ω				
Farad	6.000nF	1nF	Approx 3V	5+20 ⁶⁾	500VDC/ACrms	10 Min
	60.00nF	10nF		5+20		
	600.0nF	100nF		5+10		
	6.000uF	1uF				
	60.00uF	10uF				
	600.0uF	100uF				
	6.000mF	1mF		5+20		
	60.00mF	10mF		unspecified		
	BUZZER	600		100m		
Diode	3.000V	0.001V	Forward Current 1mA	2+10	500VDC/ACrms	10 Min
°C/°F	-200-0°C/392°F-32°F	1°C/1°F		5+4 ⁴⁾	500VDC/ACrms	10 Min
	0-400°C/32°F-752°F			2+3 ⁴⁾		
	400-1200°C/752°F-2192°F			2+2 ⁴⁾		
Hz	logic Frequency				500VDC/ACrms	10 Min
	99.99Hz	0.01Hz	0.1+3 ³⁾			
	999.9 Hz	0.1Hz				
	9.999kHz	0.001kHz				
	99.99kHz	0.01kHz				
	999.9kHz	0.1kHz				
	linear Frequency					
	99.99Hz	0.01Hz	0.05+8			
999.9 Hz	0.1Hz					
9.999kHz	0.001kHz					
Duty Cycle	2.0...98.0%	0.1%		10....1Khz: +/-5D 1Khz....10Khz: +/-5D/Khz	500VDC/ACrms	10 Min

1)For Measurement >6A 15s ON and 10Min OFF

2)At 0-40°C

3)At input 5Vrms Square wave ,bipolar inputs

4)Without Sensor

5)For Frequency display extended to 9999 counts

6)add 10 digits ≤1nF



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Influence Quantities

Influence Quantity	Range of Influence	Measured Quantity/ Measuring Range	Variation ¹⁾ ± (...% of rdg. +digits)
Temperature	0 °C +21 °C and +25 °C...+50°C	mV,VDC	0.1 X Intrinsic error / K
		mV,VAC	
		mA,ADC	
		mA,AAC	
		Ω	
		Diode	
		F	
		Hz	
		%	
		°C	
Frequency of the Measured quantity	20 Hz...< 50 Hz	VAC AAC	2.0+3
	> 50Hz... 1 kHz		2.5+3
Relative Humidity	55.....75%	V~,VDC	1 x intrinsic error
		A~,ADC	
		Ω	
		F	
		Hz	
		°C	
		%	



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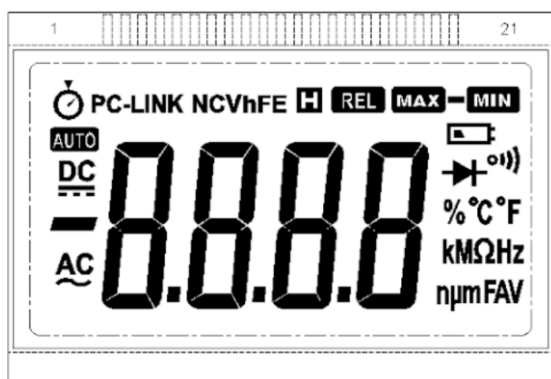
Display

LCD display field 58 mm X 31.4 mm with digital display, analog scale and with display of measurement unit, and Various special functions.

Digital

Display	7 segment
Number of digits/Counts	4 digits 6000 steps
Overrange display	"OL" is displayed.
Polarity display	"-" sign display automatically.
Sampling rate	3 times/s for digital data

Analog



1. Digital display with dot and polarity.
2. Low Battery Indication.
3. Display for REL and HOLD.
4. Continuity test display:
Buzzer symbol appears when acoustic signal is switched on.
5. Display for diode measurement.
6. Measurement unit display.
7. Display for automatic measuring range selection.
8. Display for selected type of Voltage/Current (AC or DC).
9. Display for overload value "OL".

Fuse

Fuse for ranges up to 400 mA	1.6 A / 600V; 6.3 mm x 32 mm
Fuse for 10 A range	16 A / 600V; 6.3 mm x 32 mm

Mechanical Design

Protection	Instruments: IP 52 Connector sockets: IP 20
Dimensions	W x H x D:
With Holster	86 mm x 188 mm x 53 mm
Without Holster	79 mm x 174 mm x 38 mm
Weight	Approx. 0.480 Kg with battery

Standard Scope Of Supply

- 1 Multimeter
- 1 Cable set
- 1 Copy Operating Instructions
- 1 Protective Case (Holster).



RISHABH

Datasheet subject to change without notice



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