LIST OF PRODUCTS

- ✶ Digital Multimeter
- ✶ Digital AC & AC/DC Clampmeter
- ✶ AC Clamp Adaptor
- ✶ AC/DC Current Adaptor
- ✶ Thermo Anemometer
- ✶ Thermo Hygrometer
- ✶ Distance Meter
- ✶ Digital Lux Meter
- ✶ Network Cable Tester
- ✶ Power Factor Regulator
- ✶ Earth Resistance Tester
- ✶ Digital Panel Meters
- ✶ DC Power Supplies
- ✶ High Voltage Detector
- ✶ Calibrators
- ✶ Gas Analysers
- ✶ Frequency Counter
- ✶ Function Generator
- ✶ Phasing Sticks
- ✶ Battery Tester
- ✶ Waterproof Pen Testers
- ✶ Solar Power Meter
- ✶ EMF Detector
- ✶ Wood, Paper & Grain Moisture Meter
- ✶ Transistorised Electronic Analog & Digital Insulation Resistance Testers(upto 10 KV)
- ✶ Digital Sound Level Meter & Sound Level Calibrator
- ✶ Digital contact & Non-contact Type Tachometer
- ✶ Digital Non-contact (infrared) Thermometer
- ✶ Maximum Demand Controller/Digital Power Meter
- ✶ Digital Hand Held Temperature Indicators

KUSAM-MECO®

OFFICE ADDRESS / SERVICE CENTER

Shop no.18, 1st Floor, CIDCO Shopping Complex, Plot # 9, Sector-7,
Rajiv Gandhi Marg, Sanpada, Navi Mumbai - 400705.

Sales Direct : +91-9867488006, 9867675093

Email : sales@kusam-meco.co.in **Website :** www.kusamelectrical.com

KUSAM-MECO®

AN ISO 9001:2015 COMPANY

TRMS DIGITAL INSULATION MULTIMETER

MODEL - KM 887

OPERATION MANUAL

KUSAM-MECO®

TRMS DIGITAL INSULATION MULTIMETER MODEL - KM 887



KUSAM-MECO®

WARRANTY

Each “KUSAM-MECO” product is warranted to be free from defects in material and workmanship under normal use & service. The warranty period is one year (12 months) and begins from the date of despatch of goods. In case any defect occurs in functioning of the instrument, under proper use, within the warranty period, the same will be rectified by us free of charges, provided the to and fro freight charges are borne by you.

This warranty extends only to the original buyer or end-user customer of a “KUSAM-MECO” authorized dealer.

This warranty does not apply for damaged Ic’s, fuses, burnt PCB's, disposable batteries, carrying case, test leads, or to any product which in “KUSAM-MECO’s” opinion, has been misused, altered, neglected, contaminated or damaged by accident or abnormal conditions of operation or handling.

“KUSAM-MECO” authorized dealer shall extend this warranty on new and unused products to end-user customers only but have no authority to extend a greater or different warranty on behalf of “KUSAM-MECO”.

“KUSAM-MECO’s” warranty obligation is limited, at option, free of charge repair, or replacement of a defective product which is returned to a “KUSAM-MECO” authorized service center within the warranty period.

THIS WARRANTY IS BUYER’S SOLE AND EXCLUSIVE REMEDY AND IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. “KUSAM-MECO” SHALL NOT BE LIABLE FOR ANY SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES OR LOSSES, INCLUDING LOSS OF DATA, ARISING FROM ANY CAUSE WHATSOEVER.

All transaction are subject to Mumbai Jurisdiction.

KUSAM-MECO®

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KUSAM-MECO®

I. SAFETY :

This manual contains information and warnings that must be followed for operating the instrument safely and maintaining the instrument in a safe operating condition. If the instrument is used in a manner not specified by the manufacturer, the protection provided by the instrument may be impaired.

Terms in this manual :

WARNING : Identifies conditions and actions that could result in serious injury or even death to the user.

CAUTION : Identifies conditions and actions that could cause damage or malfunction in the instrument.

WARNING :

To reduce the risk of fire or electric shock, do not expose this product to rain or moisture. The Meter is intended only for indoor use, Observe proper safety precautions when working with voltages above 33 Vrms, 46.7 Vpeak or 70 VDC. These voltage levels pose a potential shock hazard to the user. Before and after hazardous voltage measurements, check the voltage function on a known source such as line voltage to determine proper meter functioning. The meter meets UL/IEC/EN61010-1 Ed. 3.0, CAN/CSA C22.2 No. 61010-1 Ed. 3.0, UL/IEC/EN61010-2-033 Ed. 1.0 to Measurement CAT-III 1kV and CAT-IV 600V, AC & DC. The meter also meets the relevant Parts of EN61557. In particular, Part 1 Ed. 2.0, Part 2 Ed. 2.0 and Part 10 Ed. 2.0. These relevant parts of EN61557 are not covered by the ETL certification. The accompanied test probe assembly meets UL/IEC/EN61010-031 Ed. 1.1 to the same meter ratings or better. IEC 61010-031 requires exposed conductive test probe tips to be ≤ 4mm for CAT III & CAT IV ratings. Refer to the category markings on your probe assemblies as well as on the add-on accessories (like detachable Caps or Alligator Clips), if any, for applicable rating changes.

Keep your hands/fingers behind the hand/finger barriers (of the meter and the test probe assembly, where applicable) that indicate the limits of safe access of the hand-held parts during measurements. Inspect lead wires, connectors, and probes for damaged insulation or exposed metal before using the meter. If any defects are found, replace them immediately. Only use the probe assembly provided with the meter or a UL Listed Probe Assembly to the same meter ratings or better.

CAUTION :

Disconnect the test leads from the test points before changing functions.

INTERNATIONAL ELECTRICAL SYMBOLS :

- Marking of Electrical and Electronic Equipment (EEE). Do not dispose of this product as unsorted municipal waste. Contact a qualified recycler
- ⚠ Caution ! Refer to the explanation in this Manual
- ⚠ Caution ! Risk of electric shock
- ⏚ Earth (Ground)
- ▣ Double Insulation or Reinforced insulation
- ⎓ Fuse
- ~ AC--Alternating Current
- ⎓ DC--Direct Current
- 3~ Three-phase Alternating Current

Measurement Category

Measurement Category IV is applicable to test & measuring circuits connected at the source of the building's low-voltage MAINS installation. Examples are measurements on devices installed before the main fuse or circuit breaker in the building installation.

Measurement Category III is applicable to test & measuring circuits connected to the distribution part of the building's low-voltage MAINS installation. Examples are measurements on distribution boards (including secondary meters), circuit-breakers, wiring, including cables, bus-bars, junction boxes, switches, socket-outlets in the fixed installation, & equipment for industrial use & some other equipment such as stationary motors with permanent connection to the fixed installation

Measurement Category II is applicable to test & measuring circuits connected directly to utilization points (socket outlets & similar points) of the low-voltage MAINS installation. Examples are measurements on MAINS CIRCUITS of household appliances, portable tools & similar equipment.

II. CENELEC DIRECTIVES :

The instruments conform to CENELEC Low-voltage directive 2014/35/EC, Electromagnetic compatibility directive 2014/30/EU & RoHS directive 2011/65/EU.

IV. GENERAL SPECIFICATIONS :

Display : 3-5/6 digits 6,000 counts
Polarity : Automatic
Update Rate : 5 per second nominal
61 Segments Bar graph : 40 per second max
Operating Temperature : -10°C to 50°C
Relative Humidity : Maximum relative humidity 90% for temperature up to 28°C decreasing linearly to 50% relative humidity at 50°C
Pollution Degree : 2
IP Rating : IP40
Storage Temperature : -20°C to 60°C, < 80% R.H. (with battery removed)
Altitude : Operating below 2000m
Temperature Coefficient : nominal 0.1 x (specified accuracy) / °C @(-10°C ~ 18°C or 28°C ~ 50C), or otherwise specified
Sensing : AC, True RMS
Safety : ETL certified per IEC/UL/EN61010-1 Ed. 3.0, IEC/UL/EN61010-2-030 Ed. 1.0, IEC/UL/EN61010-2-033 Ed. 1.0, IEC/UL/EN61010-031 Ed. 1.1 and the corresponding CAN /CSA-C22.2 regulations to Measurement Categories:
CAT III 1000 V AC & DC and Category IV 600V AC & DC
Compliance to IEC/EN61557:
IEC/EN61557-1 Ed. 2.0, IEC/EN61557-2 Ed. 2.0 & IEC/EN61557-10 Ed. 2.0
(Tested per CE requirements, not covered by ETL certification)
Overload Protections :
Insulation Resistance, µA & mA: 0.4A/1KV, IR 30kA, F Fuse; or better
A: 11A/1KV, IR 20kA, F Fuse; or better
V: 1100Vrms
mV, & Others: 1000 Vrms
Transient Protection : 8kV (1.2/50s surge)
E.M.C.: Meets EN61326-1:2013
In an RF field of 3V/m:
Total Accuracy = Specified Accuracy + 25 digits
Performance above 3V/m is not specified

KUSAM-MECO®

Power Supply : Four Alkaline AA batteries (IEC Lr6)
Power Consumption : 6.5mA typical except the followings:
VFD ACV +Hz: 8mA
Insulation Resistance @1mA test current:
50V output voltage: 25mA
100V output voltage: 45mA
250V output voltage: 85mA
500V output voltage: 170mA
1000V output voltage: 440mA
Tester can perform at least 950 insulation tests with new alkaline batteries at room temperature. These are standard tests of 1000 V into 1 M with a duty cycle of 5 seconds on and 25 seconds off.
Low Battery : approx. 4.6V
APO Timing : Idle for 20 minutes
APO Consumption : 20A typical
Dimension : Approx. 208(L) X 103(W) X 64.5(H) mm with holster
Weight : Approx. 635 gm with holster
Accessories : Test probe pair, Alligator clip pair, BRP21S2-C Remote probe, Holster, User's manual, Bkp60 banana plug type-K thermocouple(250°C) & Carrying case.
Optional Accessories : BKB32 banana plug to type-K socket plug adaptor, Magnetic hanger.

Special Features :

- Record MAX/MIN regular readings
- Relative Zero
- Display Hold
- LCD Backlight
- VFD V & Hz readings
- Dual display +Hz Readings
- High resolution 60.00mV & 60.00 ranges
- Lock-Test mode for Insulation resistance
- BeepJack™ audible & visible input warning

ELECTRICAL SPECIFICATIONS :

Accuracy is ± (% reading digits + number of digits) or otherwise specified, at 23°C ± 5°C & less than 80% relative humidity. True RMS voltage & current accuracies are specified from 1 % to 100 % of range or otherwise specified. Maximum Crest Factor < 1.8:1 at full scale & < 3.6:1 at half scale, and with frequency components within the specified frequency bandwidth for non-sinusoidal waveforms.

AC Voltage :

Range	Resolution	Accuracy
50Hz ~ 60Hz		
60.00mV[3]	0.01	±(0.7%rdg + 4dgts)
600.0mV[4]	0.1	
6.000V	0.001	
60.00V	0.01	
600.0V	0.1	
1000V	0.1	
40Hz ~ 1kHz		
60.00mV[3]	0.01	±(1.3%rdg + 4dgts)
600.0mV[4]	0.1	
6.000V	0.001	
60.00V	0.01	
600.0V	0.1	
1000V[5]	0.1	±(2%rdg + 4dgts)

1kHz ~ 5kHz		
60.00mV[3]	0.01	±(2%rdg + 4dgts)[1]
600.0mV[4]	0.1	
6.000V	0.001	
60.00V	0.01	
600.0V	0.1	
1000V	0.1	Unspecified
5kHz ~ 20kHz[2]		
60.00mV	0.01	Unspecified
600.0mV[4]	0.1	±(2.5%rdg + 20dgts)[1]
6.000V	0.001	±(2%rdg + 20dgts)[1]
60.00V	0.01	
600.0V	0.1	Unspecified
1000V	0.1	

Input impedance: 10MΩ, 110pF nominal

1) Add 20d @ >80% of range
2) Unspecified @ <5% of range
3) Signal peak absolute values, including DC bias, less than 110mVpeak
4) Signal peak absolute values, including DC bias, less than 1100mVpeak

VFD AC Voltage :

Range	Resolution	Accuracy[1]
10Hz ~ 45Hz		
600.0V	0.1	±(4.0%rdg + 5dgts)
45Hz ~ 200Hz		
600.0V	0.1	±(2.5%rdg + 5dgts)

200Hz ~ 440Hz		
600.0V	0.1	±(9.0%rdg + 5dgts)[2)]

Input impedance: 10MΩ, 110pF nominal

1) Unspecified for fundamental frequency > 440Hz
2) Accuracy linearly decreases from 2.5% + 5d @200Hz to 9.0% + 5d @440Hz

DC Voltage :

Range	Resolution	Accuracy
60.00mV	0.01	±(0.2%rdg + 3dgts)
600.0mV	0.1	±(0.1%rdg + 2dgts)
6.000V	0.001	
60.00V	0.01	
60.00mV	0.01	±(0.2%rdg + 3dgts)
600.0V	0.1	
1000V	1	

Input impedance: 10MΩ, 110pF nominal

Ohms :

Range[1)]	Resolution	Accuracy
60.00Ω[2)]	0.01	±(0.5%rdg + 5dgts)
600.0Ω	0.1	±(0.2%rdg + 3dgts)
6.000kΩ	0.001	±(0.2%rdg + 2dgts)
60.00kΩ	0.01	
600.0kΩ	0.1	±(0.3%rdg + 2dgts)
6.000MΩ[3)]	0.001	±(1%rdg + 3dgts)
60.00MΩ[4)]	0.01	±(1.5%rdg + 6dgts)[5)6)]

1) Open Circuit Voltage: 1.7VDC typical
2) Specified assumes input lead resistance been offset by **REL△** or **Shrt** (short) feature
3) Constant Test Current: 0.2μA Typical
4) Constant Test Current: 0.02μA Typical
5) Add 1% @ >20MΩ
6) Add 2% @ operation temperature >35°C

Audible Continuity Tester

Audible threshold: between 20Ω and 350Ω
Response time: < 30ms

Diode Tester

Range	Resol.	Accuracy	Test Current	Open Circuit Voltage
2.700V	0.001	±(1.5%rdg + 4dgts)	0.4mA	< 2.8 VDC

Capacitance :

Range	Resolution	Accuracy [1)]
2.000μF [2)]	0.001	±(1.5%rdg + 5dgts)
20.00μF	0.01	
200.0μF	0.1	
2000μF	1	
20.00mF	0.01	±(5%rdg + 5dgts)

1) Accuracies with film capacitor or better
2) Specified from 0.200μF

Temperature :

Range	Accuracy [1]
-40.0°C to 0.0°C	1% + 2°C
0.0°C to 50.0°C	2.2°C
50.0°C to 537.0°C	1% + 2°C
-40.0°F to 32.0°F	1% + 3.6°F
32.0°F to 122.0°F	4°F
122.0°F to 999.0°F	1% + 3.6°F

1) Accuracies assume meter interior has the same temperature of the ambient (isothermal stage) for a correct junction voltage compensation. Allow enough time to reach the isothermal stage for a significant change of ambient temperature. It can take up to an hour for changes > 5°C.
2) Type-K thermocouple range & accuracy not included

DC current :

Range	Resolution	Accuracy	Burden Voltage
600.0µA [1]	0.1	±(0.2%rdg + 4dgts)	0.2mV / µA
6000µA [1]	1	±(0.2%rdg + 2dgts)	
60.00mA [1]	0.01	±(0.2%rdg + 4dgts)	3mV / mA
600.0mA [1][2]	0.1	±(0.3%rdg + 3dgts)	
6.000A	0.001	±(0.5%rdg + 4dgts)	30mV / A
10.00A [3]	0.01	±(0.7%rdg + 2dgts)	

1) µA/mA DC accuracies will be affected by extreme interior temperatures of the meter. For rated accuracies, allow 6 to 20 minutes cool down interval after measuring A-currents of 3 to 10A continuously.

2) **≤ 400mA continuous :** >400mA for <1.1 hours on per >20 minutes off
3) 10A continuous up to ambient 35°C; <15 mins on per >5 mins off @ 35°C ~ 50°C. >10A to 20A for <30 seconds on per >5 mins off

AC current :

Range	Resolution	Accuracy	Burden Voltage
50Hz ~ 60Hz			
600.0µA	0.1	±(1%rdg + 3dgts)	0.2mV / µA
6000µA	1		
60.00mA	0.01		3mV / mA
600.0mA [1]	0.1		
6.000A	0.001		30mV / A
10.00A [2]	0.01		
40Hz ~ 3kHz			
600.0µA	0.1	±(2%rdg + 3dgts)	0.2mV / µA
6000µA	1		
60.00mA	0.01		3mV / mA
600.0mA [1]	0.1		
6.000A	0.001		30mV / A
10.00A [2]	0.01		
3kHz ~ 5kHz			
600.0µA	0.1	±(2%rdg + 5dgts)	0.2mV / µA
6000µA	1		
60.00mA	0.01		3mV / mA
600.0mA [1]	0.1		
6.000A	0.001	Unspecified	30mV / A
10.00A [2]	0.01		

1) **≤ 400mA continuous :** >400mA for <1.1 hours on per >20 minutes off
2) 10A continuous up to ambient 35°C; <15 mins on per >5 mins off @ 35°C ~ 50°C. >10A to 20A for <30 seconds on per >5 mins off

~ Hz Line Level Frequency :

Function Range	Sensitivity (Sine RMS)	Range
60mV	4mV	6Hz ~ 50kHz
600mV	40mV	10Hz ~ 100kHz
6V	0.4V	10Hz ~ 50kHz
60V	4V	
600V	40V	10Hz ~ 30kHz
1000V	400V	10Hz ~ 5kHz
VFD 600V	4V	10Hz ~ 440Hz
600µA	40µA	10Hz ~ 5kHz
6000µA	400µA	
60mA	4mA	
600mA	40mA	
6A	0.6A	10Hz ~ 3kHz
10A	6A	

Accuracy : ±(0.02%rdg + 4dgts)

Record mode

This mode records standard measurement Max and Min readings on most functions, Manual or Auto-ranging where available.
Nominal response and accuracy : Same as standard measurements

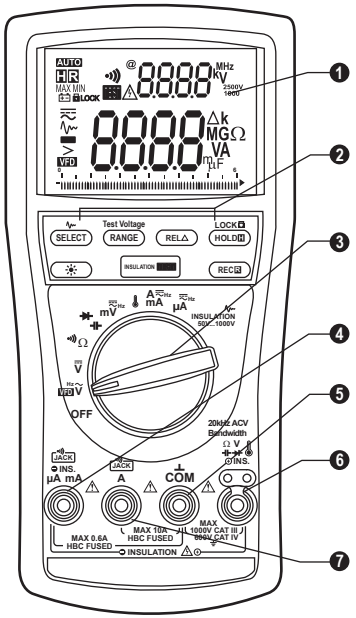
Insulation Resistance :

Test Voltage [1)]	Range	Test Current	Accuracy
50V	3.000MΩ	1mA @50kΩ	±(1.5%rdg + 5dgts)
	30.00MΩ		
	55.0MΩ		
100V	3.000MΩ	1mA @100kΩ	
	30.00MΩ		
	110.0MΩ		
250V	3.000MΩ	1mA @250kΩ	
	30.00MΩ		
	275.0MΩ		
500V	3.000MΩ	1mA @500kΩ	
	30.00MΩ		
	300.0MΩ		
	550.0MΩ		
1000V	3.000MΩ	1mA @1MΩ	±(1.5%rdg + 5dgts)
	30.00MΩ		
	300.0MΩ		
	3000MΩ		±(2.0%rdg + 5dgts)
	25.0GΩ		±(10%rdg + 5dgts)

1) **Actual output voltage :** 100% ~ 120% of Test Voltage
Live Circuit Detector : Inhibit test and display voltage reading instead if terminal voltage > 30V prior to initialization of test.
Display voltage accuracies : DCV : 1.5% + 5d,
ACV : 3.0% + 5d @50Hz ~ 60Hz
Specified measuring range is 0.020M … 25.0G for percentage operating uncertainty B[%] ±30% per IEC/EN61557-2 requirements.

III. PRODUCT DESCRIPTION :

Note : Top of the line model is used as representative for illustration purposes. Please refer to your particular model for function availability.



1. 3-5/6 digits 6000 counts dual displays.
2. Push-buttons for special functions & features.
3. Selector to turn the Power On or Off and Select a function.
4. Input Jack for insulation function Ground reference ⊖ **INS.** or mA/μA function positive input.
5. Common (Ground reference) Input Jack for all functions EXCEPT Insulation Resistance function.
6. Input Jack for all functions EXCEPT A, mA and μA functions.
7. Input Jack for A function positive input.

Analog bar-graph :

The analog bar graph provides a visual indication of measurement like a traditional analog meter needle. It is excellent in detecting faulty contacts, identifying potentiometer clicks, and indicating signal spikes during adjustments.

IV. OPERATION

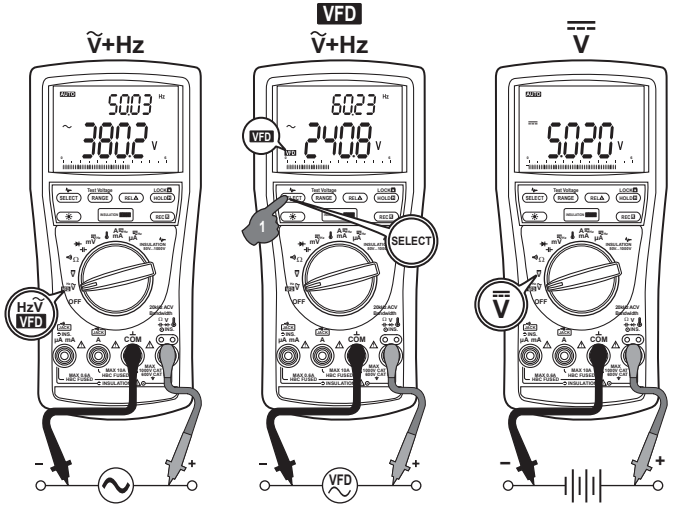
CAUTION :

Before and after hazardous voltage measurements, test the voltage function on a known source such as line voltage to determine proper meter functioning.

ACV^{+Hz} & VFD ACV^{+Hz} Functions :

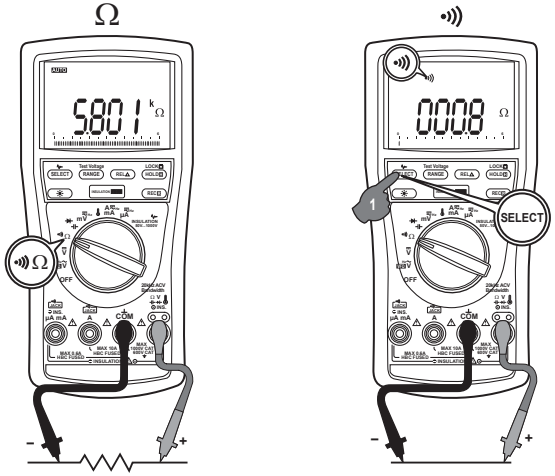
Press the **SELECT** button momentarily to toggle the subject functions. Last selection will be saved as power up default for repeat measurement convenience. For **ACV^{+Hz}** function, press the **RANGE** button momentarily to select other ranges when needed. For **VFD ACV^{+Hz}** function, only 600V range is available to best cope with the range of most Variable Frequency Drives (VFD) measurements.

DCV Function : Turn Rotary Knob to **DCV** position for measurement.



Ω Resistance, •)) Continuity

Press the **SELECT** button momentarily to toggle the functions. Last selection will be saved as power up default for repeat measurement convenience. •)) Continuity function is convenient for checking wiring connections & operation of switches. A continuous beep tone indicates a complete wire.



CAUTION :

Using resistance or continuity function in a live circuit will produce false results and may damage the instrument. In many cases the suspected component must be disconnected from the circuit to obtain an accurate reading.

Auto Leads Resistance Calibration

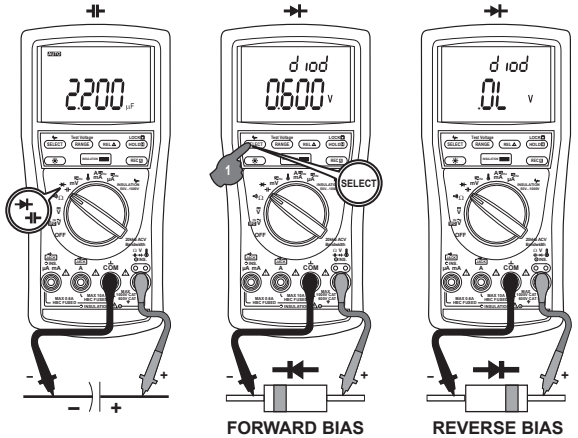
When entering the 60Ω range manually by **RANGE** button for high precision low resistance measurement, this feature will prompt you to short the inputs for temporary test lead resistance calibration on this range.

The fastest way is to short the leads to auto-range to the 60Ω range, then press the **RANGE** button momentarily. The display shows **"Shrt"**. Keep shorting the leads for further 3 seconds until the display shows zero. The lead resistance is then temporarily compensated.

The compensation value stays until the next meter power reset, and can be as high as 5Ω. If you need a compensation value that is higher than that, Relative Zero mode is recommended.

⊣▸ Diode Test, ⊣⊢ Capacitance Function

Press the **SELECT** button momentarily to toggle the functions. Last selection will be saved as power up default for repeat measurement convenience.



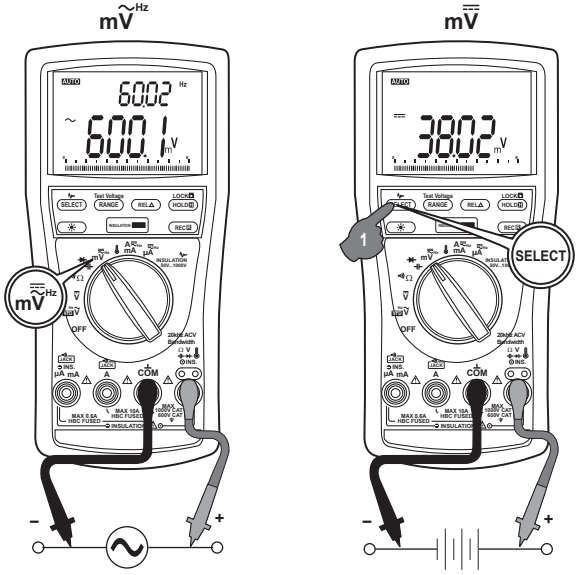
CAUTION :

Discharge capacitors before making any measurement. Large value capacitors should be discharged through an appropriate resistance load.

Normal forward voltage drop (forward biased) for a good silicon diode is between 0.400V to 0.900V. A reading higher than that indicates a leaky diode (defective). A zero reading indicates a shorted diode (defective). An OL indicates an open diode (defective). Reverse the test leads connections (reverse biased) across the diode. The digital display shows OL if the diode is good. Any other readings indicate the diode is resistive or shorted (defective).

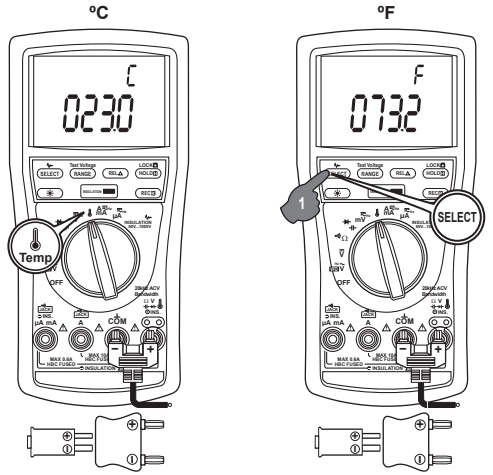
DCmV, ACmV^{+Hz} functions :

Press the **SELECT** button momentarily to toggle the subject functions. Last selection will be saved as power up default for repeat measurement convenience.



Temperature functions :

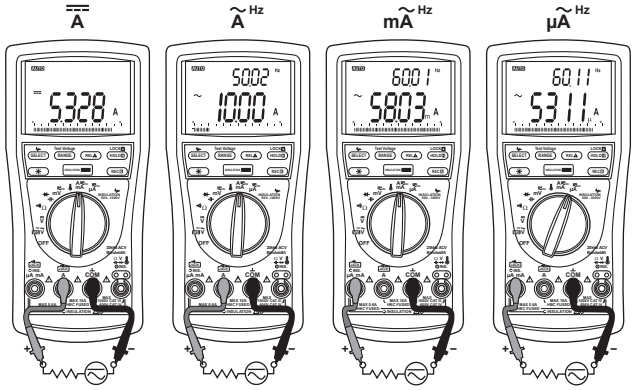
Press **SELECT** button momentarily to toggle ºC and ºF readings. Last selection will be saved as power up default for repeat measurement convenience.



Note : Be sure to insert the banana plug type-K temperature bead probe Bkp60 with correct **+ –** polarities. You can also use a plug adapter Bkb32 (Optional purchase) with banana pins to type-K socket to adapt other standard type-K mini plug temperature probes.

A, mA, µA Current functions :

Press the **SELECT** button momentarily to toggle the **DC** or **AC^{+Hz}** of the subject functions. Last selection will be saved as power up default for repeat measurement convenience.



Insulation Resistance function :

WARNING

The LCD icons TEST ⚠ used together throughout in this manual is referred as active measurements of Insulation Resistance Function through the activation of the **TEST** button on the meter or on the Remote Probe. The TEST ⚠ sources a user selectable test voltage of 50V, 100V, 250V, 500V or 1000V to measure Insulation Resistance values. The ⚠ in a flashing manner warns against test voltage is being output. Use extreme caution when operating the TEST ⚠ to avoid electric shock.

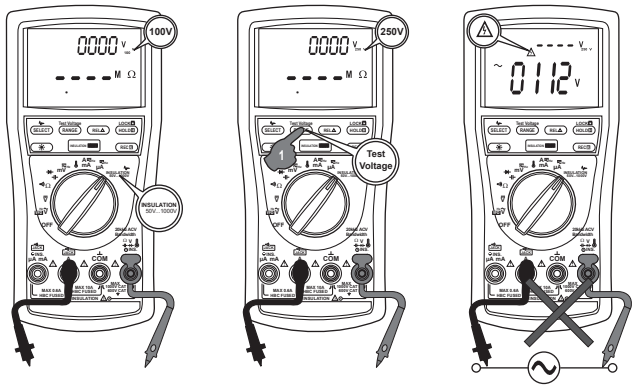
TEST ⚠ is inhibited when the meter sounds 3-beeps and displays the detected voltage value plus ⚠warning against energized circuit of more than 30V is being connected, before the TEST ⚠ is active. Measurements shall only be carried out on parts of an installation or equipment that are de-energized.

Connecting to energized circuits when the TEST ⚠ is active will produce false results and may damage the instrument. Always check with voltage functions and remove power from the circuits before carrying out the TEST ⚠ .

Setup as illustrated below.

Select an intended test voltage of 50V, 100V. 250V. 500V or 1000V. press the **RANGE** (Test Voltage) button momentarily to select the voltage in sequence. Last selection will be saved as power up default for repeat measurement convenience.

The secondary display shows the selected voltage for 1 second right after the selection, and then displays the actual detected voltage readings. The voltage annunciator by the secondary display remains indicating the voltage selected.

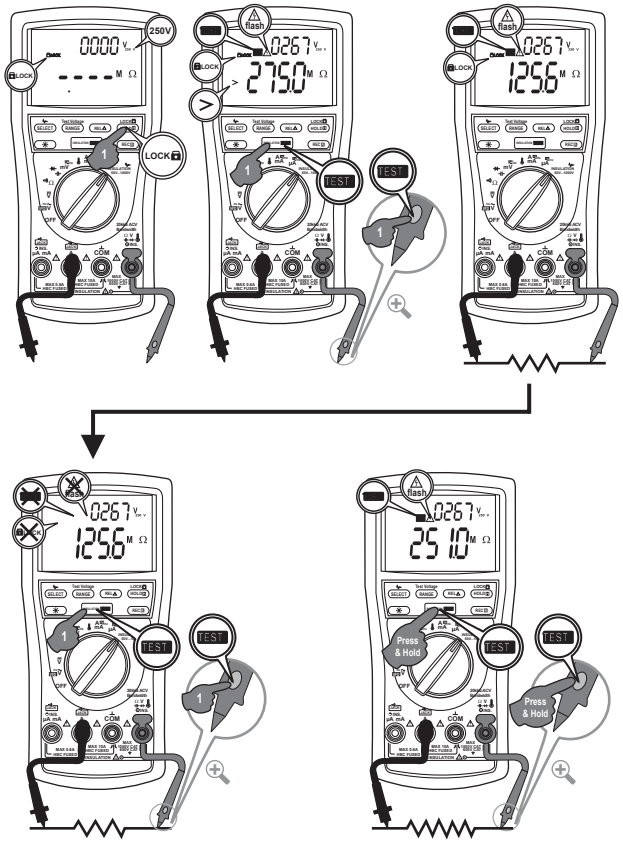


The TEST ⚠ is active as long as the **TEST** button is pressed and hold. The **TEST** buttons on the meter and on the Remote Probe work alike. The Insulation Resistance readings are shown on the primary display.

Default startup primary display reading is "-.---". Allow enough TEST ⚠ time for a good measuring result. After the TEST ⚠ ink, is released, the measuring loop starts to discharge the testing voltage. The last measured resistance reading stays on the primary display until the next TEST ⚠ or a function change. The secondary display keeps showing the actual detected voltage readings.

Lock-Test mode is recommended for continuous measurements. To apply, press the **LOCK** button momentarily to display the annunciator 🔒 **LOCK** before pressing the **TEST** button momentarily. The LCD will show both 🔒**LOCK** & TEST ⚠ to indicate continuous measurement is active. Press again either button momentarily to release the Lock-Test mode.

NOTE. Maximum display reading of each Insulation Resistance range is subjected to the test voltage selected. They are 55.0MΩ, 110.0MΩ, 275MΩ, 550MΩ & 25.0GΩ for 50V, 100V, 250V, 500V & 1000V respectively. Over-range is indicated as > maximum display-reading.



Smooth ∿ mode (Insulation Resistance function only) :
Smooth ∿ mode displays the running average of the last eight measured readings having changes within 300 counts in sequence. On the contrary, it displays directly, without smoothing, the measured reading that is beyond 300 counts in changes comparing to its former one. Press the ∿ button momentarily to enable with LCD annuciator "∿" turned on. Press momentarily again to disable.

Backlighted display :
Press ☀ button momentarily to toggle the LCD backlight. The backlight will also be turned off automatically after approximate 10 minutes to extend battery life.

Auto- or Manual-ranging (Volts, Current & Ω functions only) :
Press the **RANGE** button momentarily to select manual-ranging, and the meter will remain in the range it was in, the LCD AUTO turns off. Press the button momentarily again to select an adjacent range. Press and hold the button for 1 second or more to resume auto-ranging.

Hold: The hold feature freezes the display for later view. LCD "H" turns on. Press the **HOLD** button momentarily to toggle the hold feature. This feature does not apply to Insulation Resistance Functions.

MAX/MIN Recording Mode: Press **REC** button momentarily to activate MAX/MIN recording mode. The LCD "**R**" & "**MAX MIN**" turn on. The meter beeps when new MAX(maximum) or MIN(minimum) reading is updated. Press the button momentarily to read the Real-time, MAX & MIN readings in sequence. Press the button for 1 second or more to exit MAX/MIN recording mode. When activated, Auto-Power-Off is disabled automatically. This feature does not apply to Insulation Resistance functions.

Relative-Zero (△) mode :
Relative-Zero allows the user to offset the meter consecutive measurements with the main display displaying reading as the reference value. LCD " △ " turns on. Press the **REL** △ button momentarily to toggle Relative-Zero mode.

Beep-Jack™ Input Warning : The meter beeps as well as displays "**InEr**" to warn the user against possible damage to the meter due to improper connections to the "⛔ **INS. µA mA**" or "**A**" input jack when other functions, especially voltage function, is selected.

Set Beeper Off : Press the **RANGE** button while turning the meter on to temporarily disable the Beeper feature. Turn the rotary switch OFF and then back on to resume.

Auto-Power-off (APO) : The Auto-Power-off (APO) mode turns the meter off automatically to extend battery life after approximately 20 minutes of no rotary switch or push button operations. To wake up the meter from APO, press the **SELECT or** ☀ button momentarily or turn the rotary switch OFF and then back on. Always turn the rotary switch to the OFF position when the meter is not in use.

Disabling Auto-Power-off :
Press the **SELECT** button while turning the meter on to temporarily disable the Auto-Power-Off feature. Turn the rotary switch OFF and then back on to resume.

MAINTENANCE :

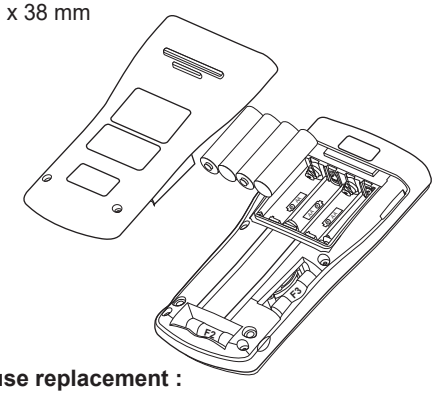
WARNING :
To avoid electrical shock, disconnect the meter from any circuit, remove the test leads from the input jacks and turn OFF the meter before opening the case. Do not operate with open case. Install only the same type of fuse or equivalent

Calibration :
Accuracy is specified for a period of one year after calibration Periodic calibration at intervals of one year is recommended to maintain meter accuracy.

Cleaning and Storage :
Periodically wipe the meter and the test probe assembly with a damp cloth and mild detergent. Do not use abrasives or solvents. Allow to dry completely before operating. If the meter is not to be used for periods of longer than 60 days, remove the battery and store it separately.

Trouble Shooting :
If the instrument fails to operate, check battery, fuses, leads, etc., and replace as necessary. Double check operating procedure as described in this manual.

Battery and Fuse replacement :
Battery use : Four 1.5V AA battery (IEC LR6)
Fuses use :
Fuse (F2) for ⊖ **INS. µA mA** input :
0.4A/1000Vac & Vdc, IR 30kA or better, F fuse;
Dimension : 6 x 32 mm
Fuse (F3) for **A** input :
11A/1000Vac & Vdc, IR 20kA or better, F fuse;
Dimension : 10 x 38 mm



Battery and Fuse replacement :
Loosen the screws from the access cover of the case bottom. Lift the access cover. Replace the batteries or fuse. Re-fasten the screws.

KUSAM-MECO®

MUMBAI

TEST CERTIFICATE

TRMS DIGITAL INSULATION MULTIMETER

This Test Certificate warrantees that the product has been inspected and tested in accordance with the published specifications.

The instrument has been calibrated by using equipment which has already been calibrated to standards traceable to national standards.

MODEL NO. **KM 887**

SERIAL NO. _____

DATE: _____

ISO 9001:2015
REGISTERED

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PASS