

3 3/4 DIGITS 4000 COUNTS AUTORANGING, DIGITAL MULTIMETER

14 FUNCTIONS; 39 RANGES

Model 207MK1-(T)

SPECIAL FEATURES :

- Low power consumption CMOS double integration. A/D transform integrated circuit
- High Accuracy Digital readings
- Auto Zero Calibration
- Instant continuity buzzer
- Average Sensing
- Data Hold switch freezes reading
- Alarm Buzzer sounds when the lead is connected to the wrong input terminals.

FEATURES :

- Overload protection in all ranges
- Recessed safety designed Input jacks
- Over range indication
- Auto polarity display
- Selected range displayed on LCD
- Low battery indication
- Auto power off
- Transistor hFE Test

ACCESSORIES :

Test leads, User's manual, Battery, Carrying case, Protective Holster & Temperature probe.

GENERAL SPECIFICATIONS :

- * **Sensing** : Average Sensing.
- * **Basic Accuracy** : $\pm(0.8\%rdg + 2dgt)$
- * **Display** : 3 3/4 digit LCD display (3999 Counts)
- * **Digit Size** : 13.5mm
- * **Measurement Rate** : 2.5 measurements per second, nominal.
- * **Over range Indication** : (1) or (-1) displayed
- * **Operating Temperature** : 0°C to 50°C, <75% R.H.
- * **Storage Temperature** : -20°C to 60°C, <80% R.H. With battery removed
- * **Low battery** : The "batt" sign is displayed when the battery voltage drops below the operating voltage.
- * **Accuracy** : Accuracy specifications at 23°C \pm 5°C less than 75% R.H.
- * **Power** : Single, Standard 9V battery
- * **Dimension** : 151(L) x 70(W) x 38(H)
- * **Weight** : Approx. 210gm. (Including battery)

OPTIONAL ACCESSORIES:

Current Clamp CA 300, Current Clamp Adaptor CA500, CA1000, CA2000, High Voltage Probe PD-28.



ELECTRICAL SPECIFICATIONS : 207 MK-1(T)

Accuracy : \pm (% reading + digit) at 23 \pm 5°C less than 75% RH.

DC VOLTAGE

Range	Resolution	Accuracy
400 mV	0.1 mV	$\pm(0.8\%rdg + 2dgt)$
4 V	1 mV	
40 V	10 mV	
400 V	100 mV	
1000 V	1 V	

Input Impedance : 10M

Overload Protection : 400mV range 500V rms
Other ranges 1000V DC / 750V AC RMS

AC VOLTAGE

Range	Resolution	Accuracy
400 mV	0.1 mV	$\pm(1.8\%rdg + 5dgt)$
4 V	1 mV	
40 V	10 mV	
400 V	100 mV	
750 V	1 V	$\pm(1.5\%rdg + 3dgt)$

Input Impedance : 10M

Overload Protection : 400mV range 500V rms
Other ranges 1000V DC / 750V AC RMS

AC CURRENT (Avg. Sine wave)

Range	Resolution	Accuracy
400 A	0.1 A	$\pm(1.8\%rdg + 3dgt)$
4000 A	1 A	
40 mA	10 A	$\pm(2.0\%rdg + 3dgt)$
400 mA	100 A	
10 A	10 mA	$\pm(2.5\%rdg + 5dgt)$

Overload Protection : Fast fuse 0.8A/250V & 10A/250V
Input Voltage drop : 0.8V

DC CURRENT

Range	Resolution	Accuracy
400 A	0.1 A	$\pm(1.2\%rdg + 2dgt)$
4000 A	1 A	
40 mA	10 A	$\pm(1.5\%rdg + 2dgt)$
400 mA	100 A	
10 A	10 mA	$\pm(2\%rdg + 3dgt)$

Overload Protection : Fast fuse 0.8A/250V & 10A/250V
Input Voltage drop : 0.8V

CAPACITANCE

Range	Resolution	Accuracy
4 nF	1 pF	$\pm(5.0\%rdg + 25dgt)$
40 nF	10 pF	
400 nF	100 pF	
4 F	1 nF	$\pm(3.5\%rdg + 4dgt)$
40 F	10 nF	
200 F	100 nF	

Overload Protection : 250V rms

TEMPERATURE (K-Type Thermocouple)

Range	Resolution	Accuracy
-20°C~400°C	1°C	$\pm(0.75\%rdg + 4dgt)$
400°C~750°C	1°C	$\pm(1.5\%rdg + 15dgt)$

Thermocouple accuracy not included. Supplied Thermocouple is suitable for measurement upto 250°C

RESISTANCE

Range	Resolution	Accuracy
400	0.1	$\pm(1\%rdg + 2dgt)$
4 K	1	
40 K	10	
400 K	100	
4 M	1 K	
40 M	10 K	

Overload Protection : 250V rms

FREQUENCY

Range	Resolution
9.999 Hz	0.01 Hz
9.999 MHz	1 kHz

Overload Protection : 250V rms
Sensitivity : 0.7V rms
Accuracy : $\pm(0.1\%rdg + 4dgt)$

TRANSISTOR hFE TEST

Range	Description
hFE	It can measure NPN or PNP type of transistor triode hFE parameter. Indication range : 0~1000

Basic DC Current : approx. 10 A
Vec : approx. 2.8V

DIODE & CONTINUITY TEST

Description	
Indicate approx forward-way voltage drop of diode	Forward-way current is approx. 1mA conray-way voltage is approx. 2.8V. Open circuit voltage is approx. 2.8V
The buzzer inside sounds when continuity resistance is about <50	

Overload Protection : 250V rms

All Specifications are subject to change without prior notice

KUSAM-MECO

OTHER PRODUCTS

- * Digital Multimeter
- * Digital AC & AC/DC Clampmeter
- * AC Clamp Adaptor
- * AC/DC Current Adaptor
- * Transistorised Electronic Analog & Digital Insulation Resistance Testers
- * Digital Sound Level Meter & Sound Level Calibrator
- * Digital contact & Non-contact Type Tachometer
- * Digital Non-contact (infrared) Thermometer
- * Thermo Hygrometer
- * Thermo Anemometer
- * Wood Moisture Meter
- * Distance Meter
- * Calibrators
- * Gas Analysers
- * Panel meters
- * Battery Testers
- * Digital Hand Held Temperature Indicators
- * Digital Lux Meter
- * Network Cable Tester
- * Power Factor Regulator
- * Maximum Demand Controller/Digital Power Meter

KUSAM-MECO

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KUSAM-MECO

MULTIMETER 207-MK-1(T)



**TAKE MEASUREMENT CAREFULLY AND YOU'LL
SPARE YOUR METER AND YOURSELF, SOME PAIN**

Nearly every electrical engineer has a hand held digital multimeter (DMM). We sometimes take them for granted, until we damage them or "burn them out". If you incorrectly connect your DMM to a circuit, or if you have the DMM on wrong setting, you damage the meter and possibly hurt yourself. You can also get into trouble if you try to measure the voltage across a charged capacitor.

DMM users frequently burn their meters by trying to measure current the same way as they measure voltage. Remember, you measure voltage across a circuit, and current through a circuit. When you use the current input, your DMM becomes a lower impedance circuit element. If you accidentally connect this low impedance path across your circuit, you'll effectively short-circuit it. You can, therefore send high current through your meter and severely damage it. Unless the meter has a fused input, you can even get an explosion or fire.

Even if you correctly insert your DMM into the circuit, you can still damage your meter. Don't try to measure current in excess of your meter's capacity. Handheld DMMs usually have a maximum current rating of 10A or 20A.

If you are measuring current in industrial environment, you can easily exceed those ratings. The best way to avoid damage is to use a clamp meter or to connect a clamp attachment to your DMM.

To prevent excess current from flowing through your meter, always disconnect the test leads from the circuit under test whenever you change DMM functions. Set your meter to the correct function, say current and its highest range for the setting, say 10A. Next, connect the test leads before you apply power to the circuit. To be safe, start by setting your meter to its highest range first.

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OVERVIEW


Warning

To avoid electric shock or personal injury, read the “Safety Information” and “Rules for Safe Operation” carefully before using the Meter.

Auto Ranging Digital Multimeter Model-207 MK1(T) (hereafter referred to as “the Meter”) is a 3¾ digits Multimeter with steady operations, and highly reliable hand-held measuring instrument having different measurement positions. The Multimeter not only can measure AC/DC Voltage, AC/DC Current, Resistance, Capacitance, Frequency, Temperature, Transistor hFE Test, Diode Test, but also has Data Hold facility and function annunciation.

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

Unpacking Inspection

Open the package case and take out the Multimeter. Check the following items carefully to see any missing or damaged part :


Item	Description	Qty.
1	English Operating Manual	1 piece
2	Test Lead	1 pair
3	Temperature Probe(K-type)	1 no.

In the event you find any Part missing or damaged, please contact your dealer immediately.

FEATURES :

- Low power consumption CMOS double integration, A/D transform integrated circuit, Auto Zero Calibration, Auto Polarity display, Data Hold, Low Battery & Over range indication.
- Display : 3¾ digit (3999 Counts) with function/ units sign annunciators.
- Selected Range displayed on LCD.
- Polarity : Automatic (-) negative polarity indication.
- Auto Power Off : The meter will shut off automatically about 15 minutes after power is ON if the meter is not in use.
- High Accuracy - Digital Reading.
- Instant Continuity Buzzer.
- Overload Protection in all Ranges.
- Recessed Safety Designed Input Jacks.
- “ DATA - HOLD ” switch freezes reading.

GENERAL SPECIFICATIONS :

- Display** : 3¼ digit LCD. Maximum reading 3999 with automatic sign and function annunciators.
- Overrange indication** : Highest digit of (1) or (-1) is displayed.
- Low battery** : The “  ” sign is displayed when the battery voltage drops below the operating Voltage.
- Measurement rate** : 2.5 measurements per Second, nominal.
- Operating temperature** : 0°C to + 50°C, <70% RH.
- Storage temperature** : -20°C to 60°C, <80% RH with battery removed.
- Accuracy** : Accuracy specifications at 23 ± 5°C less than 75% RH.
- Power** : Single 9 V Battery
- Dimension** : 151mm (L),70mm(W),38mm(H)
- Weight** : Approx (210 grams) including battery
- Alarm** : Buzzer Sounds when the lead is connected to the wrong input terminals.
- Accessories** : Test leads, Operators Manual, Battery, Carrying Case, Protective Holster, Temperature Probe.

ELECTRICAL SPECIFICATIONS :

DC VOLTAGE

Range	Resolution	Accuracy
400 mV	0.1 mV	± (0.8% rdg + 2 dgt)
4 V	1 mV	
40 V	10 mV	
400 V	100 mV	
1000 V	1 V	

Input Impedance : 10M
 Overload Protection : 400mV range 500V Rms
 Other ranges 1000VDC or 750VAC Rms

AC VOLTAGE

Range	Resolution	Accuracy
400 mV	0.1 mV	±(1.8% rdg + 5dgts)
4 V	1 mV	
40 V	10 mV	
400 V	100 V	±(1.5% rdg + 3dgts)
750 V	1 V	

Input Impedance : 10M
 Overload Protection : 400mV range 500V Rms
 Other ranges 1000VDC or 750VAC Rms

AC CURRENT (Avg. Sine Wave)

Range	Resolution	Accuracy
400 A	0.1 A	±(1.8% rdg + 3dgts)
4000 A	1 A	
40 mA	0.01 mA	±(2.0% rdg + 3dgts)
400 mA	0.1 mA	
10 A	0.01 A	AC±(2.5% rdg + 5dgts)

Input Voltage Drop : 0.8V
 Overload Protection : Fast Fuse 0.8A/250V
 & 10A/250V

DC CURRENT

Range	Resolution	Accuracy
400 A	0.1 A	±(1.2% rdg + 2dgts)
4000 A	1.0 A	
40 mA	0.01 mA	DC±(1.5% rgd + 2dgts)
400 mA	0.1 mA	
10 A	0.01 A	AC±(2% rgd + 3dgts)

Overload Protection : Fast Fuse 0.8A/250V & 10A/250V

Input Voltage Drop : 0.8V

RESISTANCE

Range	Resolution	Accuracy
400	0.1	±(1%rdg + 2dgts)
4 K	0.001 K	
40 K	0.01 K	
400 K	0.1 K	
4 M	0.001 M	
40 M	0.01 M	±(1.5% rdg + 2dgts)

Overload Protection : 250 V Rms

CAPACITANCE

Range	Resolution	Accuracy
4 nF	0.001 pF	±(5.0% rdg + 25dgts)
40 nF	0.01 pF	±(1.5% rdg + 3dgts)
400 F	0.1 pF	
4 F	0.001 nF	±(3.5% rdg + 4dgts)
40 F	0.01 nF	
200 F	0.1 nF	Unspecified

Overload Protection : 250 V Rms

TEMPERATURE

Range	Resolution	Accuracy
-20°C~400°C	1°C	+(0.75% rdg + 4dgts)
400°C~750°C	1°C	+(1.5%rdg + 15dgts)

FREQUENCY

Range	Resolution	Accuracy
9.999 Hz	0.01 Hz	+(0.1% rdg + 4dgts)
9.999 MHz	0.001 MHz	

Overload Protection : 250 V Rms

Sensitivity : 0.7V Rms

TRANSISTOR hFE MEASUREMENT

Range	Description	
hFE	It can measure NPN or PNP type of transistor triode hFE parameter. Indication range : 0~1000	1b approx. 10uA, Vec approx. 2.8 V

DIODE AND CONTINUITY MEASUREMENT

Description	
Indicate approx forward-way voltage drop of diode	Forward-way current is approx. 1mA contry-way voltage is approx. 2.8 V. Open circuit voltage is approx. 2.8V.
The buzzer inside sounds when continuity resistance is about <50	

Overload Protection : 250 V Rms

RULES FOR SAFE OPERATION




Warning












To avoid possible electric shock or personal injury, and to avoid possible damage to the Meter or to the equipment under test, adhere to the following rules :

- Before using the Meter inspect the case. Do not use the Meter if it is damaged or the case (or part of the case) is removed. Look for cracks or missing plastic. Pay attention to the insulation around the connectors.
- Inspect the test leads for damaged insulation or exposed metal. Check the test leads for Continuity. Replace damaged test leads with identical electrical Specifications before using the Meter.
- Do not apply more than the rated voltage, as marked on the Meter, between the terminals or between any terminal and grounding.
- The rotary switch should be placed in the right position and no any changeover of range shall be made while measurement is conducted to prevent damage of the Meter.
- When measurement is taken at an effective voltage over 60V in DC or 30V rms in AC, special care should be taken for there is danger of electric shock.
- Use the proper terminals, function, and range for your measurements.
- Do not use or store the Meter in an environment of high temperature, humidity, explosive, inflammable and strong magnetic field. The performance of the Meter may deteriorate after the meter is dampened.
- When using the test leads, keep your fingers behind the finger guards.

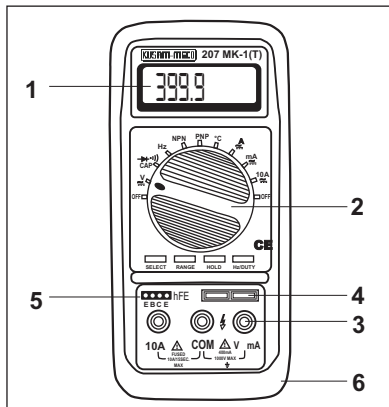
Rules For Safe Operation (2)

- Disconnect circuit power and discharge all high -voltage capacitors before testing resistance, continuity, diodes, or current.
- Replace the battery as soon as the battery indicator  appears. With a low battery, the Meter might produce false readings that can lead to electric shock and personal injury.
- Turn the Meter power off when it is not in use and take out the battery when not using for a long time.
- Constantly check the battery as it may leak when it has not been used for some time, replace the battery as soon as leaking appears. A leaking battery will damage the Meter.

International Electrical Symbols

	AC (Alternating Current).
	DC (Direct Current).
	Both DC & AC.
	Grounding.
	Double Insulated.
	Deficiency of Built-In Battery.
	Continuity Test.
	Diode.
	Fuse.
	Warning ! Refer to the Operating Manual.
	Caution ! Risk of Electric Shock.

The Multimeter Structure (see figure 1)




(Figure 1)

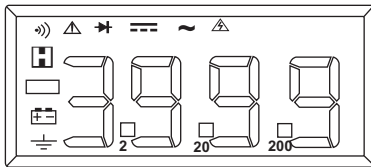
- 1) **LCD DISPLAY :**
A 3¾ digit display (maximum reading 3999) indicates measured values, and features symbols indicating function, Low Battery, Continuity, Diode.
- 2) **FUNCTION SELECTOR :**
To Select ACV, DCV, ACA, DCA, Resistance, Capacitance, Temperature, Frequency, Diode, Continuity & Transistor Test.
- 3) **INPUT JACKS (V m and COM) :**
Test leads are inserted into these jacks for Voltage, Resistance, Current measurements, Continuity & Diode Checks.
- 4) **INPUT SOCKET FOR CAPACITANCE MEASUREMENT :**
Capacitors whose capacitance value is to be measured are inserted in this jacks.
- 5) **INPUT SOCKET FOR TRANSISTOR TEST.**
- 6) **PROTECTIVE HOLSTER :**
Prevents the instrument from damage.

Functional Buttons

Below table indicates the functional button operations

Buttons	Operation Performed
HOLD (Black Button)	<ul style="list-style-type: none"> ● Press HOLD once to enter hold mode. ● Press HOLD again to exit hold mode. ● In Hold mode,  is displayed and the present value is shown.
Hz / Duty (Black Button)	<ul style="list-style-type: none"> ● Press Hz/DUTY once to enter Duty cycle mode. ● Press Hz/DUTY again to exit Duty cycle mode. ● In Hz mode, "Hz" is displayed and in Duty cycle mode "%" is shown.
SELECT (Black Button)	<ul style="list-style-type: none"> ● Press SELECT button to select between Resistance, Capacitance, Diode & Continuity test..
RANGE (Black Button)	<ul style="list-style-type: none"> ● Press RANGE button to select between Auto mode & Manual mode. ● In Manual mode the range of the function under test can be selected.

DISPLAY SYMBOLS (see figure 2)



(Figure 2)

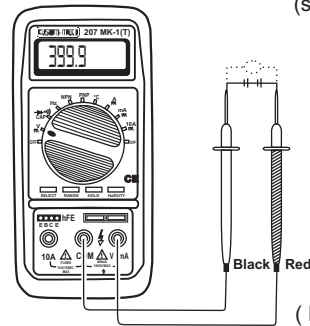
No.	Symbol	Meaning
1	⚡	Dangerous Voltages.
2	🔋	The battery is low. ⚠️ Warning : To avoid false readings, which could lead to possible electric shock or personal injury, replace the battery as soon as the battery indicator appears.
3	—	Indicator for AC voltage or current, The displayed value is the mean value.
4	—	Indicates negative reading.
5	➡️	Test of diode.
6	📦	Data Hold is active.
7	•)))	The continuity buzzer is on.
8	A	A : Amperes (amps). The unit of current.
9	V	V : Volts. The unit of voltage.
10	Hz	Hz : The unit of frequency.
11	, k , M	: Ohm. The unit of resistance. K : kilohm. 1×10^3 or 1000 ohms M : Megaohm : 1×10^6 ohms.
12	°C	°C : The unit of temperature.
13	nF, µF	The unit of capacitance.

MEASUREMENT OPERATION

- Make sure the Low Battery display is not on, otherwise false readings may be provided.
- Pay extra attention to the symbol which is located besides the input terminals of the Meter before carrying out measurement.

A. DC VOLTAGE MEASUREMENT

(see figure 3)



(Figure 3)

⚠️ Warning

To avoid harms to you or damages to the Meter from electric shock, please do not attempt to measure voltages higher than 1000V or 750V rms although readings may be obtained.

The DC Voltage ranges are :400mV, 4V, 40V, 400V, 1000V. To measure DC voltage, connect the Meter as follows :

- 1) Insert the red test lead into the **V** input terminal and the black test lead into the **COM** input terminal
- 2) Set the rotary switch to an appropriate measurement position in **V** range.
- 3) Connect the test leads across with the object being measured.

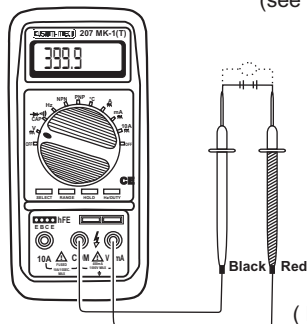
The measured value is shown on the display.

⚠ Caution :

- If the value of voltage to be measured is unknown, use the maximum measurement position (1000V) and reduce the range step by step until a satisfactory reading is obtained.
- The LCD displays "1" indicating the existing selected range is overloaded, it is required to select a higher range in order to obtain a correct reading.
- In each range, the Meter has an input impedance of approx. 10M . This loading effect can cause measurement errors in high impedance circuits. If the circuit impedance is less than or equal to 10k , the error is negligible (0.1% or less).
- When DC voltage measurement has been completed, disconnect the connection between the testing leads and the circuit under test.

B. AC VOLTAGE MEASUREMENT

(see figure 4)



(Figure 4)

⚠ Warning :

To avoid harm to you or damages to the Meter from electric shock, please do not attempt to measure voltages higher than 1000V or 750V rms although readings may be obtained.

The AC Voltage measurement has 5 measurement positions on the rotary switch : 400mV, 4V, 40V, 400V and 750V

To measure AC Voltage, connect the Meter as follows :

- 1) Insert the red test lead into the **V** terminal and the black test lead into the **COM** terminal.
- 2) Set the rotary switch to an appropriate measurement position in V ~ range.
- 3) Connect the test leads across with the object being measured.

The measured value is shown on the display, which is effective value of sine wave (mean value response).

⚠ Caution :

- If the value of voltage to be measured is unknown, use the maximum measurement position (750V) and reduce the range step by step until a satisfactory reading is obtained.
- The LCD displays "1" indicating the existing selected range is overloaded, it is required to select a higher range in order to obtain a correct reading.
- When AC Voltage measurement has been completed, disconnect the connection between the testing leads and the circuit under test.

C. AC CURRENT MEASUREMENT

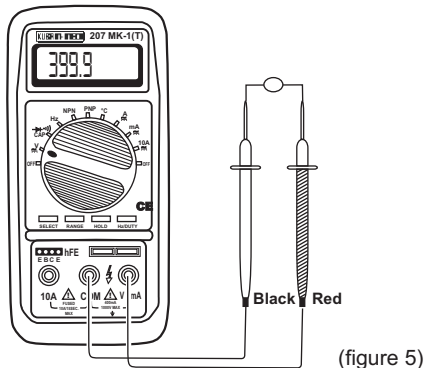
(see figure 5)

⚠ Warning :

Never attempt an in - circuit current measurement where the open circuit voltage between terminals and ground is greater than 60V DC or 30V rms. If the fuse burns out during measurement, the Meter may be damaged or the operator himself may be hurt.

Use proper terminals, function, and range for the measurement. When the testing leads are connected to the current terminals, do not parallel them across any circuit.

The AC current measurement has 5 measurement positions on the rotary switch : 400 A, 4000 A, 40mA, 400mA, 10A.



(figure 5)

To measure AC Current, connect the meter as follows :

- 1) Turn off power to the circuit. Discharge all High - Voltage capacitors.
- 2) Insert the red test lead into the mA or 10A terminal and the black test lead into the **COM** terminal
- 3) Set the rotary switch to an appropriate measurement position in Current range.
- 4) Break the current path to be tested. Connect the red test lead to the positive side of the path and the black test lead to the negative side of the path.
- 5) Turn on power to the circuit.

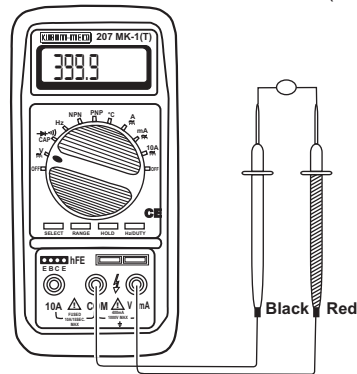
The measured value is shown on the display.

⚠ Caution

- If the value of current to be measured is unknown, use the maximum measurement position (10A) and 10A terminal, and reduce the range step by step until a satisfactory reading is obtained.
- When current measurement has been completed, switch off the power in the circuit and disconnect the connection between the testing leads and the circuit under test.

D. DC CURRENT MEASUREMENT

(see figure 6)



(figure 6)

⚠ Warning

Never attempt an in - circuit current measurement where the open circuit voltage between terminals and ground is greater than 60V DC or 30V rms.

If the fuse burns out during measurement, the Meter may be damaged or the operator himself may be hurt. Use proper terminals, function, and range for the measurement. When the testing leads are connected to the current terminals, do not parallel them across any circuit.

The DC current measurement has 5 measurement positions on the rotary switch : 400 A, 4000 A, 40mA, 400mA, 10A.

To measure DC Current, connect the meter as follows :

- 1) Turn off power to the circuit. Discharge all High - Voltage capacitors.
- 2) Insert the red test lead into the mA or 10A terminal and the black test lead into the **COM** terminal
- 3) Set the rotary switch to an appropriate measurement position in Current range.
- 4) Break the current path to be tested. Connect the red test lead to the positive side of the path and the black test lead to the negative side of the path.
- 5) Turn on power to the circuit.
The measured value is shown on the display.

⚠ Caution

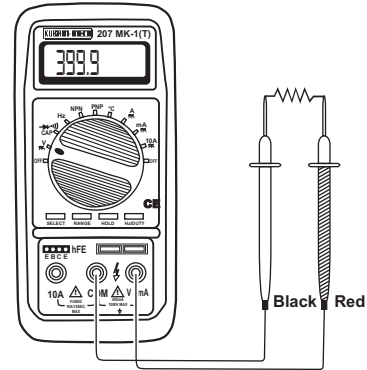
- If the value of current to be measured is unknown, use the maximum measurement position (10A) and 10A terminal, and reduce the range step by step until a satisfactory reading is obtained.
- When current measurement has been completed, switch off power in the circuit & then disconnect the connection between the testing leads and the circuit under test.

E. RESISTANCE MEASUREMENT

(see figure 7)

⚠ Warning

To avoid damages to the Meter or to the devices under test, disconnect circuit power and discharge all the high-voltage capacitors before measuring resistance.



(figure 7)

The resistance range has 6 measurement positions on the rotary switch : 400

To measure resistance, connect the meter as follows

- 1) Insert the red test lead into the **V** terminal and the black test lead into the **COM** terminal.
- 2) Set the rotary switch position in Ω range.
- 3) Connect the test leads across with the resistance being measured.
The measured value is shown on the display.

Note :

- The test leads can add 0.1 to 0.3 of error to the Resistance measurement. To obtain precision readings in low-resistance, that is the range of 400 , short-circuit the input terminals beforehand and record the reading obtained (call this reading as X). (X) is the additional resistance from the test lead.
Then use the equation :
Measured resistance value (Y) - (X) = precision Reading of resistance.
- When there is no input, for example in open circuit condition, the Meter displays “ 1”
When resistance measurement has been completed, disconnect the connection between the testing leads and the circuit under test.

⚠ Caution :

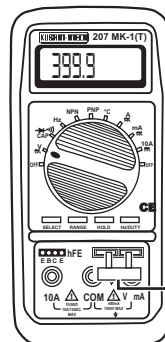
- Never connect high voltage to the input sockets with the switch in Resistance range.
- Using Resistance measurement function in a Live circuit will produce false results and may damage the instrument. In many cases the suspect component must be disconnected from the circuit to obtain an accurate reading.

F. CAPACITANCE MEASUREMENT

(see figure 8)

⚠ Warning

To avoid damages to the Meter or to the equipment under test, disconnect circuit power and discharge all high-voltage capacitors before measuring capacitance. Use the DC voltage function to confirm that the capacitor is discharged. Never attempt to input over 60V in DC or 30V rms in AC to avoid personal injury.



(figure 8)

Capacitance measurement has 6 measurement positions on the rotary switch : 4nF, 40nF, 400nF, 4 F and 40 F, 200 F.

To measure capacitance, connect the Meter as follows :

- 1) Set the function/range switch on the range position needed.
- 2) Use SELECT button to select capacitance range.
- 3) Insert the capacitance into the “Cx” jack.

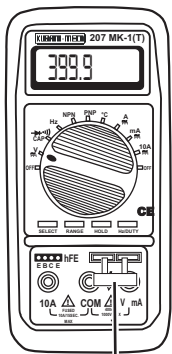
The measured value is shown on the display.

⚠ Caution :

- Never connect high voltage to the input sockets with the switch in Capacitance range.
- Using Capacitance measurement function in a Live circuit will produce false results and may damage the instrument. In many cases the suspect component must be disconnected from the circuit to obtain an accurate reading.

G. TEMPERATURE MEASUREMENT

(see figure 9)



(figure 9)

● Temperature Probe

Temperature measurement range is from - 20°C to 750°C.

To measure temperature, connect the Meter as follows :

- 1) Set the function switch on the “°C” measurement position.
- 2) Insert the thermocouple plug into the meter’s temperature socket.

- 3) Insert the plug with the positive polarity in the positive socket and the negative polarity in the negative socket.
- 4) Connect the measurement end of the thermocouple on the temperature measurement point.

The measured value is shown on the display.

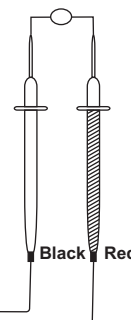
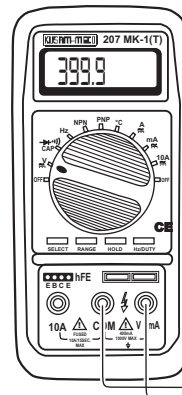
H. FREQUENCY MEASUREMENT

(see figure 10)

⚠ Warning :

To avoid harm to you or damages to the Meter, do not attempt to measure voltages higher than 60V in DC or 30V rms in AC although reading may be obtained.

When the frequency signal to be tested is higher than 30V rms, the Meter cannot guarantee accuracy of the measurement.



(figure 10)

The frequency measurement range is 9.99 MHz.
To measure frequency, connect the Meter as follows :

- 1) Insert the red test lead into the **V** terminal and the black test lead into the **COM** Terminal.
- 2) Set the rotary switch in the Hz range.
- 3) Connect the test leads across with the object being measured.

The measured value is shown on the display.

⚠ Caution :

- When Hz measurement has been completed, disconnect the connection between the testing leads and the circuit under test.

I. MEASURING DIODES & CONTINUITY

(See figure 11)

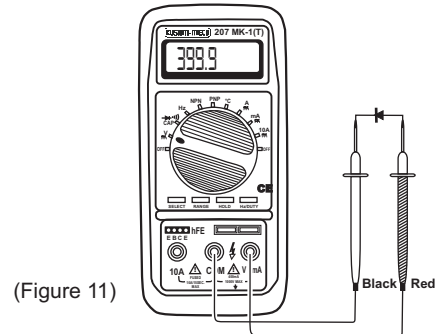
⚠ Warning

To avoid damage to the Meter or to the equipment under test, disconnect circuit power and discharge all high-voltage capacitors before measuring diodes and continuity.

Testing Diodes

Use the diode test function to check diodes, The diode test sends a current through the Semiconductor junction, and then measures the voltage drop across the junction. A good silicon junction drops between 0.5V and 0.8V.

To test a diode out of a circuit, connect the Meter as follows :



(Figure 11)

- 1) Insert the red test lead into the **V** terminal and the black test lead into the **COM** terminal.
- 2) Set the rotary switch to **→|→|)** position.
- 3) Use **SELECT** button to select Diode range
- 4) For forward voltage drop reading on any Semiconductor component, place the red test lead on the component's anode and place the black test lead on the component's cathode. The measured value is shown on the display.

⚠ Caution :

- In a circuit, a good diode will produce a forward voltage drop reading of 0.5V to 0.8V; However ; the reverse voltage drop reading can Vary depending on the resistance of other pathways between the probe tips.
- Connect the test leads to the proper terminals as said above, to avoid error display. The LCD will display "1" indicating open-circuit for wrong connection. The unit of diode is Volt (V), displaying the positive connection voltage-drop value.

- When diode testing has been completed, disconnect the connection between the testing leads and the circuit under test.

Testing for Continuity

To test for continuity, connect the Meter as below :

1. Insert the red test lead into **V** terminal and the black test lead into the **COM** terminal.
2. Set the rotary switch to **→** **•))** position
3. Use the SELECT button to select capacity function
4. Connect the test leads across with the object being measured.
The buzzer sounds if the resistance of a circuit under test is less than 50 .
The LCD displays the resistance value of a circuit under test.

⚠ Caution :

- The LCD displays “1” indicating the circuit being tested is open.
- When continuity testing has been completed, disconnect the connection between the testing leads and the circuit under test.


J. TRANSISTOR TESTING

To test the Transistors, connect the Meter as below :

1. Insert the transistor (NPN or PNP) in the sockets provided.
2. The measured value is shown on the LCD Display.

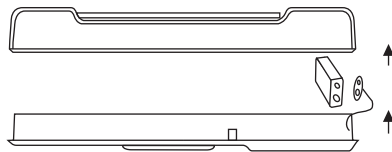
MAINTENANCE

⚠ Warning

To avoid false reading, replace the battery as soon as the battery indicator  appears.

To replace battery (see figure 12)

- Disconnect the connection between the testing leads and the circuit under test, and remove the testing leads away from the input terminals of the Meter.
- Turn the Meter OFF.
- Remove the screws from the bottom case, and separate the bottom case from the front case.
- Remove the battery from the bottom case.
- Replace the battery with a new Standard 9V Battery.
- Rejoin the bottom case and the front case, and install the screw.



(Figure 12)

KUSAM-MECO

MUMBAI

TEST CERTIFICATE

DIGITAL MULTIMETER

This Test Certificate warrants 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. 207 MK-1(T)

SERIAL NO. _____

DATE: _____

ISO 9001
REGISTERED



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 transactions are subject to Mumbai Jurisdiction.