LIST OF PRODUCTS

- ✶ Digital Multimeter
- ✶ AC Clamp Adaptor
- ✶ Thermo Anemometer
- ✶ Distance Meter
- ✶ Network Cable Tester
- ✶ Earth Resistance Tester
- ✶ DC Power Supplies
- ✶ Calibrators
- ✶ Frequency Counter
- ✶ Phasing Sticks
- ✶ Waterproof Pen Testers
- ✶ EMF Detector
- ✶ Digital AC & AC/DC Clampmeter
- ✶ AC/DC Current Adaptor
- ✶ Thermo Hygrometer
- ✶ Digital Lux Meter
- ✶ Power Factor Regulator
- ✶ Digital Panel Meters
- ✶ High Voltage Detector
- ✶ Gas Analysers
- ✶ Function Generator
- ✶ Battery Tester
- ✶ Solar Power Meter
- ✶ 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

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05/05/2022

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AC TRMS DIGITAL CLAMPMETER



MODEL - KM 2719

OPERATION MANUAL

PREFACE

Thank you for purchasing the new AC clamp meter. In order to use this product safely and correctly, please read this manual thoroughly, especially the Safety Instructions part. After reading this manual, it is recommended to keep the manual at an easily accessible place, preferably close to the device, for future reference.

I. OVERVIEW

The TRUE RMS AC clamp meter designed according to EN61010-1 and CAT II 600V/CAT III 300V safety standards.

These meters come with full-featured protection which ensures users a safe & reliable measurement experience. Aside from all the normal features of AC clamp meter, these meters also include high voltage frequency measurement, fast capacitance measurement, audio visual NCV detection, and plenty of additional safety features. It also comes with live/neutral wire detection.

II. SAFETY INSTRUCTIONS

The meter is designed according to EN61010-1, 61010-2-032 / 033 & electromagnetic radiation protection EN61326-1 safety standards, & conforms to CAT II 600V, CAT III 300V, double insulation and pollution grade II.

⚠ Note: In case the meter is not used in accordance with the operating instructions, the protection provided by the meter may be weakened or lost.

1. Before use, please check if there is any item which is damaged or behaving abnormally. If any abnormal item (such as bare test lead, damaged meter casing, broken LCD, etc.) is found, or if the meter is considered to be malfunctioning, please do not use the meter.

2. Do not use the meter if the rear cover or the battery cover is not covered up, or it will pose a shock hazard!
3. When using the meter, keep fingers behind the finger guards of the test leads, and do not touch exposed wires, connectors, unused inputs, or circuits being measured to prevent electric shock.
4. The function switch should be placed in the correct position before measurement. It is forbidden to change the position during measurement to avoid damage to the meter!
5. Do not apply voltage over 600V between any meter terminal and earth ground to prevent electric shock or damage to the meter.
6. Be cautious when the measured voltage is higher than 60V (DC) or 30Vrms (AC) to avoid electric shock!
7. Never input voltage or current which exceeds the specified limit. If the range of the measured value is unknown, the maximum range should be selected.
8. Before measuring the resistance, diode and continuity online, switch off the power supply of the circuit, and fully discharge all capacitors to avoid inaccurate measurement.
9. When the "▭" symbol appears on the LCD, please replace the batteries in time to ensure measurement accuracy. If the meter is not in use for a long time, please remove the batteries.
10. Do not change the internal circuit of the meter to avoid damage to the meter and user!
11. Do not use or store the meter in high temperature, high humidity, flammable, explosive or strong magnetic field environments.
12. Clean the meter casing with a soft cloth and mild detergent. Do not use abrasives or solvents!

III. Features

- True RMS measurement
- Audio visual NCV detection
- **Maximum measurable voltage:** 600V;
- **High voltage frequency range:** 10Hz~10kHz
- **Current 400A frequency response:** 50Hz~100Hz; current frequency measurement function
- Large capacitance (4mF) and temperature measurement
- Low voltage frequency (10kHz), and live/neutral wire measurement functions
- Large LCD and fast refresh rate (3 times/s)
- **Response time for capacitance measurement:** less than 3s for ≤1mF; about 6s for ≤4mF.

IV. General Specifications

- **Display: 3¾ Digits** 4000 Counts LCD Backlight display.
- **The maximum size of jaw opening:** 28mm in diameter
- **Polarity display:** Auto
- **Overload display:** "OL" or "-OL"
- **Low battery indication:** The "  " symbol is displayed.
- **Low battery shutdown prompt:** The "Lo.bt" interface appears on the LCD and lasts for about 10s, the buzzer beeps three times, and the meter automatically shuts down.
- **Test position error:** If the source under test is not placed at the center of the clamp jaws when measuring current, ±1.0% additional error in reading will be produced.
- **Drop protection:** 1m

- **Altitude:** 2000m
- **Operating temperature and humidity:** 0°C~30°C (≤80%RH), 30°C~40°C (≤75%RH), 40°C~50°C (≤45%RH)
- **Storage temperature and humidity:** -20°C~60°C (≤80%RH)
- **Electromagnetic compatibility:** RF=1V/m, overall accuracy = specified accuracy + 5% of range RF>1V/m, no specified calculation
- **Auto power off:** If there is no operation of the function switch or any button for 15 minutes, the meter will automatically power off. This function can be turned off as needed.
- **Battery:** AAA battery 1.5V×2
- **Dimensions:** Approx. 215mm × 63.5mm × 36mm
- **Weight:** Approx. 248g (including batteries)
- **Accessories:** Test lead pair, battery, user manual, K-type temperature probe range upto 250°C & carrying case.

V. ELECTRICAL SYMBOLS

Symbol	Description
	Caution, possibility of electric shock
	Alternating current
	Direct current
	Equipment protected throughout by DOUBLE INSULATION or REINFORCED INSULATION
	Earth (ground) TERMINAL
	Warning or Caution

VI. Technical Specifications

Accuracy: ± (a% of reading + b digits),1year calibration period
Ambient temperature and humidity: 23°C±5°C; ⩽80%RH
Temperature coefficient: To ensure measurement accuracy, operating .

AC CURRENT

Range	Resolution	Accuracy
4.000A	0.001A	±(4%rdg+10dgts)
40.00A	0.01A	±(2%rdg+10dgts)
400.0A	0.1A	
Current frequency monitoring: 50Hz~100Hz	0.1Hz	±(1.0%rdg+5dgts)

Overload Protection : 420A AC
Frequency response: 50Hz~100Hz
For 4A range, open circuit allows least significant digit <3.
Accuracy range: 5%~100% of range
The input current amplitude of the current frequency should be >2A.

AC VOLTAGE

Range	Resolution	Accuracy
4.000 V	0.001 V	±(1.0%rdg+5dgts)
40.00 V	0.01 V	±(0.8%rdg+5dgts)
400.0 V	0.1 V	
600 V	1 V	
Voltage frequency monitoring: 10Hz~10kHz	0.01Hz~0.01kHz	±(1.0%rdg+5dgts)

Overload Protection : 600V rms

- **Input impedance:** About 10MΩ
- **Frequency response:** 45Hz~400Hz, true RMS display
- **Accuracy range:** 5%~100% of range; the input voltage amplitude of the voltage frequency should be >5V.
- The AC crest factor of a non-sinusoidal wave can reach 3.0 at 4000 counts.
  The additional error should be added for the corresponding crest factor as follows:
  a) Add 3% when crest factor is 1~2
  b) Add 5% when crest factor is 2~2.5
  c) Add 7% when crest factor is 2.5~3

DC VOLTAGE

Range	Resolution	Accuracy
400.0mV	0.1 mV	±(0.7%rdg+3dgts)
4.000V	0.001 V	±(0.5%rdg+2dgts)
40.00V	0.01 V	±(0.7%rdg+3dgts)
400.0V	0.1 V	
600V	1 V	

Overload Protection : 600V rms
Input impedance: About 10MΩ
For mV range, short circuit allows least significant digit ≤5.
Accuracy range: 5%~100% of range

DIODE

Range	Resolution	Accuracy
4.000V	0.001V	Open circuit voltage: About 3.9V

Overload Protection : 600Vrms

Temperature should be within 18°C ~28°C and the fluctuation range should be within ±1°C. When the temperature is <18°C or >28°C, add temperature coefficient error 0.1 x (specified accuracy)/°C.

CONTINUITY

Range	Resolution	Accuracy
400.0Ω	0.1Ω	<10W: Consecutive beeps >31W: No beep

Overload Protection : 600Vrms

Open Circuit Voltage : about 2.0V

RESISTANCE

Range	Resolution	Accuracy
400.0 Ω	0.1 Ω	±(1.0%rdg+2dgts)
4.000 kΩ	0.001 kΩ	±(0.8%rdg+2dgts)
40.00 kΩ	0.01 kΩ	
400.0 kΩ	0.1 kΩ	
4.000 MΩ	0.001 MΩ	±(2.0%rdg+5dgts)
40.00 MΩ	0.01 MΩ	

Overload Protection : 600Vrms

CAPACITANCE

Range	Resolution	Accuracy
4.000 nF	0.001 nF	±(4.0%rdg+10dgts)
40.00 nF	0.01 nF	
400.0 nF	0.1 nF	
4.000 μF	0.001 μF	±(4.0%rdg+5dgts)
40.00 μF	0.01 μF	
400.0 μF	0.1 μF	
4.000 mF	0.001mF	±(10%)

Overload Protection : 600Vrms

- Measured value = displayed value - open circuit value of the test leads (For capacitance ≤100nF, it is recommended to use “REL” measurement mode.)
- For capacitance range, open circuit allows least significant digit ≤20.

TEMPERATURE: K-Type Thermocouple

Range	Resolution	Accuracy
-40℃ ~ 40℃	1℃	±(4°C)
40℃ ~ 500℃		±(1.5%rdg+5dgts)
500℃ ~ 1000℃		±(2.0%rdg+5dgts)
-40℉ ~ 104℉	1℉	±(6°F)
104℉ ~ 932℉		±(2.0%rdg+6dgts)
932℉ ~ 1832℉		±(2.5%rdg+4dgts)

Overload Protection : 600Vrms

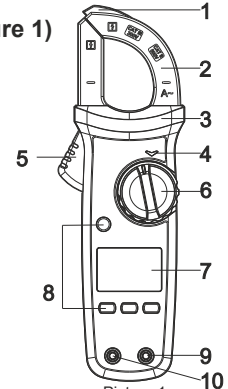
NCV

Range	Electric field sensing sensitivity level	Accuracy
NCV	**EFLo**	To sense the wire above 24±6V and identify whether the mains socket is charged
	EFHI	To sense the wire above 74V±12V, to identify whether the mains socket is charged, or to judge the live/neutral wire of the socket according to the intensity of the sensing

Test results may be affected by different socket designs or wire insulation thickness.

PRODUCT DESCRIPTION (Picture 1)

1. NCV sensing end
2. Clamp jaws
3. Hand guard
4. LED indicator
5. Jaw opening trigger
6. Function switch
7. LCD display
8. Function buttons
9. Positive (+) input jack
10. COM (negative -) input jack



Picture 1

BUTTON DESCRIPTION

1.SELECT Button

In the composite function position, press this button to switch between the corresponding measurement functions; in the AC/DC/Hz position short press this button to switch between the AC and DC functions, and long press (about 2s) this button to enter/exit the Hz measurement function.

In the NCV/LIVE position, short press this button to switch between the EFHI and EFLo ranges, and long press (about 2s) this button to enter/exit the LIVE measurement function.

2.HOLD/BACKLIGHT Button

Short press this button to enter/exit the data hold mode, and long press (about 2s) this button to turn on/off the backlight (the backlight will automatically turn off after 60s).

MAX/MIN Button

Short press this button to enter the maximum / minimum measurement mode & long press this button to exit (only valid for AC / DC voltage, AC current, resistance and temperature measurement).

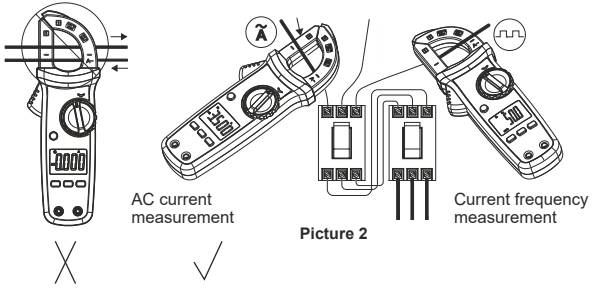
REL Button

In the capacitance and voltage positions, press this button to store the current reading as a reference for future readings. When the LCD display value is reset to zero, the stored reading will be subtracted from the future readings. Press this button again to exit the relative value mode.

OPERATION

1. AC CURRENT/CURRENT FREQUENCY MEASUREMENT (Picture 2)

1) Select the AC current range (4A, 40A or 400A)
2) Press the trigger to open the clamp jaws, and fully enclose one conductor.
3) Only one conductor can be measured at a time, otherwise the measurement reading will be wrong.



Picture 2

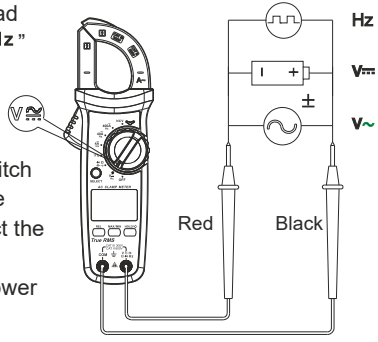
⚠ Note:

- The current measurement must be taken within 0°C~40°C. Do not suddenly release the trigger, as the impact will change the reading for a short time.
- To ensure measurement accuracy, center the conductor in the jaws. Otherwise, ±1.0% additional error in reading will be produced.
- When the measured current is ≥400A the meter will automatically sound an alarm & the high voltage alarm prompt "⚠" will automatically flash.
- If the LCD displays "OL", it indicates that the current is over range and there is a danger of damage to the meter.

2. AC / DC VOLTAGE AND VOLTAGE FREQUENCY MEASUREMENT (Picture 3)

1) Insert the red test lead into the "V ℃ ⊣⊢ Ω ▶⊢ Hz" jack, black into the "**COM**" jack.

2) Turn the function switch to the AC/DC voltage position, and connect the test leads with the measured load or power supply in parallel.



Picture 3

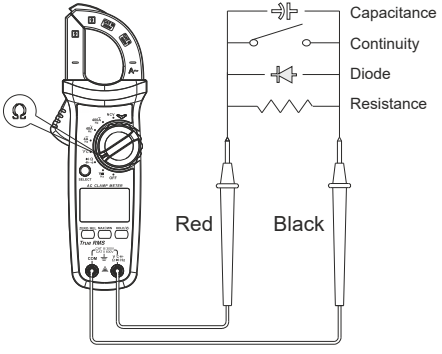
⚠ Note:

- Do not input voltage above 600V. Although it is possible to measure higher voltage, it may damage the meter.
- Be cautious to avoid electric shock when measuring high voltage.
- When the measured voltage is ⩾30V (AC) or ⩾60V (DC), the LCD will display the high voltage alarm prompt.

3. RESISTANCE MEASUREMENT (Picture 4)

1) Insert the red test lead into the "V ℃ ⊣⊢ Ω ▶⊢ Hz " jack, black into the "COM" jack.

2) Turn the function switch to the "Ω" position, press the SELECT button to select resistance measurement, and connect the test leads with both ends of the measured resistance in parallel.



Picture 4

⚠ **Note:**

- If the measured resistor is open or the resistance exceeds the maximum range, the LCD will display "OL".
- Before measuring the resistance online, switch off the power supply of the circuit, and fully discharge all capacitors to avoid inaccurate measurement.
- If the resistance is not less than 0.5Ω when the test leads are short-circuited, please check the test leads for looseness or other abnormalities.
- Do not input voltage higher than 30V to avoid personal injury.

4. CONTINUITY TEST (Picture 4)

1) Insert the red test lead into the " V ℃ ⊣⊢ Ω ▶⊢ Hz " jack, black into the " •)) " jack.

2) Turn the function switch to the " •)) " position, press the SELECT button to select continuity measurement, and connect the test leads with both ends of the measured load in parallel.

3) Measured resistance <10Ω: The circuit is in good conduction status; the buzzer beeps continuously. Measured resistance >31Ω: The buzzer makes no sound.

⚠ **Note:**

- Before measuring the continuity online, switch off the power supply of the circuit, and fully discharge all capacitors.
- Do not input voltage higher than 30V to avoid personal injury.

5. DIODE TEST (Picture 4)

1) Insert the red test lead into the " V ℃ ⊣⊢ Ω ⊣◀ Hz " jack, black into the " **COM** " jack. The polarity of the red test lead is "+" and that of the black test lead is "-".
2) Turn the function switch to the " ⊣◀ " position, press the SELECT button to select diode measurement, & connect the test leads with the positive and negative poles of the measured diode.
3) 0.08V ≤ reading <1.2V: The buzzer makes one beep indicating the normality of the diode. Reading <0.08V: The buzzer beeps continuously indicating the damage of the diode. For the silicon PN junction, the normal value is generally about 500~800 mV.

⚠ Note:

- If the diode is open or its polarity is reversed, the LCD will display "OL".
- Before measuring the diode online, switch off the power supply of the circuit, and fully discharge all capacitors.
- Do not input voltage higher than 30V to avoid personal injury.

6. CAPACITANCE MEASUREMENT (Picture 4)

1) Insert the red test lead into the " V ℃ ⊣⊢ Ω ⊣◀ Hz " jack, black into the " **COM** " jack.
2) Turn the function switch to the "⊣⊢" position, & connect the test leads with the measured capacitance in parallel. For capacitance ≤100nF, it is recommended to use "REL" measurement mode.

⚠ Note:

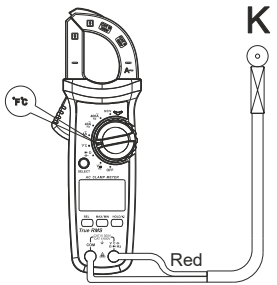
- If the measured capacitor is short-circuited or the capacitance exceeds the maximum range, the LCD will display "OL".
- When measuring capacitance >400μF, it may take some time to steady the readings.
- Before measuring, fully discharge all capacitors (especially for capacitors with high voltage) to avoid damage to the meter & user.

7. TEMPERATURE MEASUREMENT (Picture 5)

1) Insert the positive pole of the temperature probe into the " V ℃ ⊣⊢ Ω ⊣◀ Hz " jack & negative pole into the "**COM**" jack.
2) Turn the function switch to the "**°C/°F**" position and the LCD will display room temperature.
3) Fix the temperature probe on the object to be tested, and read the temperature value of the tested object directly from the display after a few seconds.
4) Press the SELECT button to switch between °C and °F.

⚠ Note:

- The ambient temperature of the meter should be in the range of 18-28°C, otherwise it will cause measurement error.
- The positive & negative poles of the temperature probe should be properly connected. Do not measure non-insulated live objects to avoid incorrect readings.
- Do not input voltage higher than 30V to avoid personal injury.



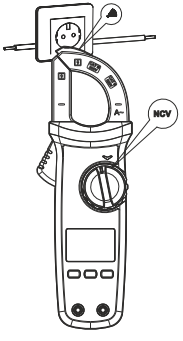
Picture 5 Black

8. NON-CONTACT AC ELECTRIC FIELD SENSING

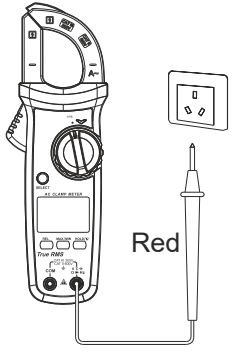
(NCV, Picture 6a)

The electric field sensing sensitivity is divided into two levels ("EFHI" & "EFLo"). The meter defaults to "EFHI". Select different sensitivity levels for measurement according to the intensity of the measured electric field. When the electric field is around 220V (AC) 50Hz/60Hz, select "EFHI"; when the electric field is around 110V (AC) 50Hz/60Hz, select "EFLo".

1) Turn the function switch to the NCV position.
2) Bring the NCV sensing end of the clamp jaws close to a charged electric field (socket, insulated wire, etc.).The LCD will display the segment "-", the buzzer will beep, and the red LED will flash. As the intensity of the measured electric field increases, the more the segments (----) are displayed, & the higher the frequency at which the buzzer beeps and the red LED flashes.



Picture 6a



Picture 6b

⚠ Note:

- Use the NCV sensing end of the clamp jaws to approach the measured electric field, otherwise the measurement sensitivity will be affected.
- When the measured electric field voltage is ⩾100V (AC), observe whether the conductor of the measured electric field is insulated to avoid personal injury.

9. LIVE/NEUTRAL WIRE MEASUREMENT (Picture 6b)

1) Turn the function switch to the LIVE position.
2) Insert the red test lead into the " V Ω Hz " jack, make the black test lead suspended, and use the red test lead to touch the socket or bare wire to distinguish the live or neutral wire.
3) When the neutral wire or uncharged object is detected, the "----" state is displayed.
4) When the AC "live wire" (>60V) is detected, the LCD will display "LIVE" accompanied by audio / visual indication.

⚠ Note:

- When using the LIVE function, in order to avoid the effect of the interference electric field of the COM input on the accuracy of distinguishing the live/neutral wire, please move the black test lead away from the COM input.
- When using the LIVE function, keep your hand away from the meter casing.
- When the LIVE function is applied to the measurement of dense high-voltage electric field, the accuracy of the meter to judge the "live wire" may be unstable. In this case, it should be judged by the LCD display and sound frequency together.

10. OTHERS

1) Auto power off: During measurement, if there is no operation of the function switch or any button for 15 minutes, the meter will automatically shut down to save power. You can wake it up by pressing any button or restart it after turning the function switch to the OFF position. To disable the auto power off function, press & hold the SELECT button in the off state, and then turn on the meter. To resume the auto power off function, restart the meter after shutdown.

2) Buzzer: When any button is pressed or the function switch is turned, if it is valid, the buzzer will make one beep (about 0.25s). When measuring voltage or current, the buzzer will beep intermittently to indicate the over range.

3) Low battery detection: The battery voltage will be automatically detected as long as the meter is on. If it is lower than 2.5V, the LCD will display the " " symbol.

4) Low battery shutdown function: When the battery voltage is lower than 2.4V, the LCD displays the " " symbol, the "Lo.bt" interface appears and lasts for about 10s, the buzzer makes consecutive beeps three times, & then the meter automatically shuts down (no interface is displayed).

XI. Maintenance

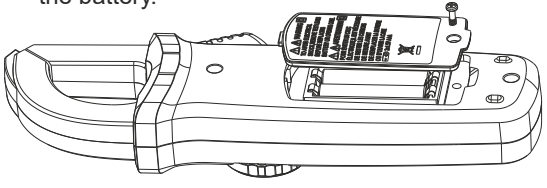
Warning: Before opening the rear cover of the meter, remove the test leads to avoid electric shock.

1.General Maintenance

1) When the meter is not in use, place the function switch in the OFF position to avoid continuous consumption of battery energy.
2) Clean the meter casing with a soft cloth and mild detergent. Do not use abrasives or solvents!
3) The maintenance and service must be implemented by qualified professionals or designated departments.

2.Battery Replacement (Picture 7)

1) Turn off the meter and remove the test leads from the input terminals.
2) Unscrew the screw of the battery compartment, remove the battery cover, and replace the 2 standard AAA batteries according to the polarity indication.
3) Secure the battery cover and tighten the screw.
4) If the instrument is not used for 1 month, remove the battery.



Picture 7

KUSAM-MECO®

MUMBAI

TEST CERTIFICATE

AC TRMS DIGITAL CLAMPMETER

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 2719**

SERIAL NO. _____

DATE: _____

ISO 9001:2015
REGISTERED

QC
KUSAM-MECO
PASS

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 & 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.