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

KUSAM-MECO®

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KUSAM-MECO®

An ISO 9001:2015 Company

4 WIRES
EARTH RESISTANCE TESTER
KM 4234ER



OPERATION MANUAL

KUSAM-MECO®

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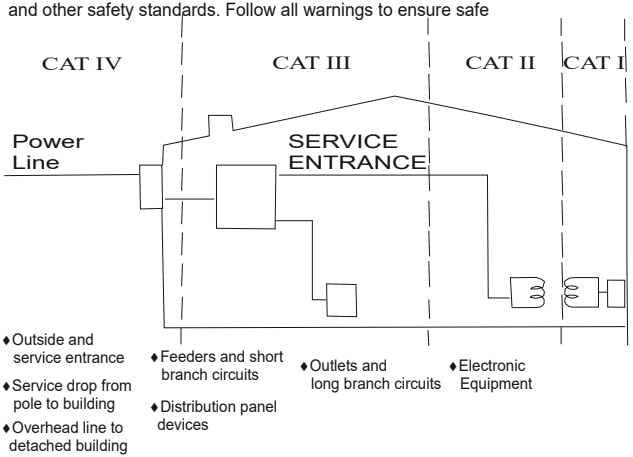
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1. INTRODUCTION

This Meter has been designed and tested according to the IEC Publication 348, Safety requirements for Electronic Measuring Apparatus, EN 61010-1, EN-61326-1, EN 61557-1, EN-61557-5 and other safety standards. Follow all warnings to ensure safe



CAT IV - Is for measurements performed at the source of the low-voltage installation.

CAT III - Is for measurement performed in the building installation.

CAT II - Is for measurement performed on circuits directly connected to the low - voltage installation.

CAT I - Is for measurement performed on circuits not directly connected to mains.

2)SAFETY NOTES

● Read the following safety information carefully before attempting to operate or service the detector.

● Use the meter only as specified in this manual, otherwise, the protection provided by the meter may be impaired.

● **Rated environment conditions :**
1) Indoor & out door use
2) Installation Category IV 300V.
3) Pollution Degree 2.
4) Altitude up to 2000m
5) Relative Humidity 80% max.
6) Ambient temperature 0 ~ 40°C

● **Observe the International Electrical Symbols listed below:**

Detector is protected throughout by double insulation or reinforced insulation.

Warning ! Risk of electric shock.

Caution ! Refer to this manual before using the detector.

Earth (ground) terminal.

CE Equipment complies with current EU directives.

3) FEATURES

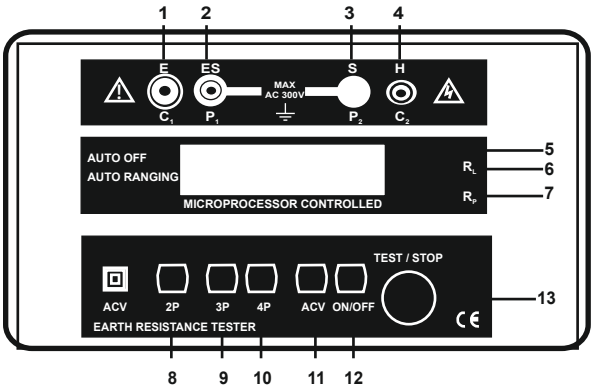
● Microprocessor controlled with advanced safety features

- LCM display
- Auto - Ranging
- Earth resistance testing at C-2Ω / 0-20Ω/0-200Ω / 0 - 2kΩ
- Earth voltage measuring : 0 ~300Vac
- Automatic C spike check.
- Automatic P spike check.
- 2- Wire test
- 3- Wire test
- 4- Wire test
- Auto power off
- Data hold
- Robust, Compact and easy to carry.
- Safety standard : EN 61010-1 CAT IV 300V
  EN 61326-1
  EN 61557-1
  EN 61557-5

4) SPECIFICATION

Measuring Ranges	Earth Resistance 0-2Ω, 0-20Ω, 0-200Ω, 0-2kΩ Earth Voltage 0-300 V AC
Accuracy	Earth Resistance ± 2% rdg ± 3dgt Earth Voltage ±2% rdg ± 3dgt
Earth Resistance Resolution	0-2Ω : 0.01Ω 0-20Ω : 0.1Ω 0-200Ω : 1Ω 0-2kΩ : 0.01kΩ
Temperature & Humidityu	Operating : 0^0C ~ 50^0C ≤ 80% R.H. Storage : -10^0C~60^0C ≤ 80% R.H.
Power source	1.5V (AA) x 8
Dimension	250 (L) x 190 (W) x 110 (D)mm
Weight	Approx. 1430g (battery included)
Accessories	Test Leads (red- 15m, black -10m, green-5m) Auxiliary earth spikes Instruction manual carrying case batteries

5) INSTRUMENT LAYOUT



1) C1 terminal
(Black test lead connection)

2) P1 terminal
(Green test lead connection)

3) P2 terminal
(Yellow test lead connection0

4) C2 terminal
(Red test lead connection)

5) LCM display

6) Rc LED

7) Rp LED

8) 2 Wires type button

9) 3 Wires type button

10) 4 Wires type button

11) ACV button

12) Power button

13) TEST/STOP button

6) MEASURING METHODS

1) Battery Voltage Check

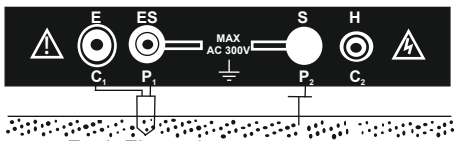
a. Before testing, press the "ON/OFF" button, when the "Battery : Low" appears or the display, replace with new batteries.

b. Prior to measuring, If "Battery : Low" appears on the display, replace with new batteries

2) Earth Voltage Check

a. Test leads connection.

Earth Voltage measurement



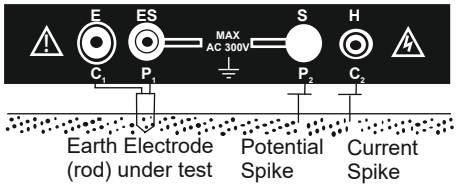
b. Press the "ON/OFF" button, "ACV" button and "TEST/STOP" button, earth voltage will be displayed on the LCM. When the earth voltage is more than 10V It may result in errors in earth resistance measurement. Make sure that the indicated value is less than 10V

3) Earth resistance measurement

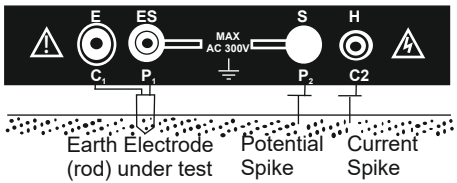
The measured results may be influenced by induction if measurement are made with the test leads twisted or connected each other. When connecting the Probes, they should be separated.

a. Test leads connection.

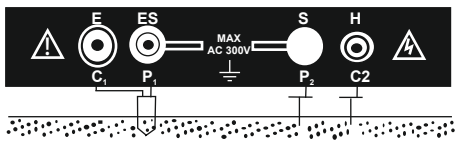
Four - terminal earth resistance measurement



Three - terminal earth resistance measurement



Two - terminal earth resistance measurement



Earth electrode (rod) under test potential spike

b. Select testing type : "2P", "3P" or "4P" and press button
c. Press "TEST/STOP" button to test and take a reading

● When you make the "4P measurement", LCD Shows "Vp Error", Short Circuit C1 (Black) and P1 (green).

● Stick the three Auxiliary Earth spikes into the ground deeply. The distance must be 5 ~ 10m between the Auxiliary Earth Spikes.

Notes :

Check the following prior to proceeding with measurement:

1) Checking if Auxiliary Earth Spikes connect correctly when the "RC" LED lit.

2) Indication for "RC" & Rp"

RC : When the "RC" LED lit, this means there is no test current output.

RP : When the "RP" LED is lit, the "R" value on the LCD will displayed "> 2kΩ", this means testing Earth resistance value is over 2kΩ.

7) FUSE REPLACEMENT

WARNING

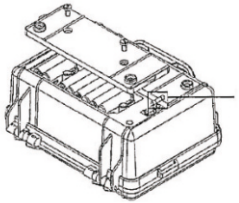
Only replace with the same fuse specification

1) Disconnect the test leads from the instrument.

2) The fuse is located under the battery holder.

3) Open the battery cover. then remove and replace the fuse with the new one.

4) Fix the cover after replacing a fuse and screw up the cover. Fuse Spec. 0.1A / 250V, 5 x 20mm



8) MAINTENANCE

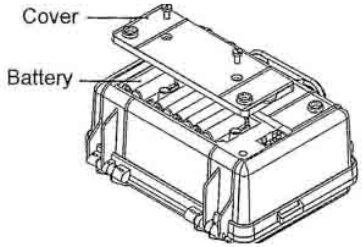
WARNING

Do not mix new and old batteries together.

● **Battery Replacement :-** When the Battery "Low" appears on the display, replace the batteries as follows :

1) Disconnect the test leads from the instrument and remove the battery cover and the batteries.

2) The tester's battery is situated under the tester.
3) Replace with eight 1.5V AA light batteries, taking care to observe correct polarity.
4) Reinstall battery holder and the battery cover.



● **Cleaning And Storage :**

WARNING

To avoid electrical shock or damage to the meter, do not get water inside the case..

Periodically wipe the case with a damp cloth and detergent : do not use abrasives or solvents.

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MUMBAI

TEST CERTIFICATE

EARTH RESISTANCE TESTER

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 4234ER

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 guarantee 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, Burn PCB, 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.