

Model - KM 2008



GENERAL SPECIFICATIONS :

- * **Sensing** : Average sensing
- * **Jaw Opening Size** : 40mm
- * **Function** : Measurement of AC leakage current, AC Current upto 300A & On-line measurement.
- * **Display Size** : 32mm x 15mm
- * **Test Mode** : Clip-on CT, Integral mode.
- * **Display Mode** : Four Digit LCD display.
- * **LCD Dimension** : 35mm x 21.5mm
- * **Sampling Rate** : About 2times/s
- * **Range** : 0.00mA ~300.0A
- * **Frequency** : 50 / 60Hz: Automatically
- * **Resolution** : 10 A
- * **Line voltage** : Line test under AC600V
- * **Data Hold** : Display shows "DH" symbol.
- * **Out of Range** : Display shows "OL" symbol.
- * **Data Storage** : 99 groups, all used when display "FULL"
- * **Power Consumption** : about 5mW
- * **Peak Hold** : Push "HOLD" without release, the meter will show the peak value during the pushing period.
- * **Battery Voltage** : " " indicating the battery voltage is lower then 7.2V. Then the battery have to be changed.
- * **Operating Temperature and Humidity** : 0°C ~ 40°C : below 80% R.H.
- * **Storage Temperature and Humidity** : -10°C ~ 60°C : below 70%rh
- * **Insulation Strength** : AC 2kV/rms (between the alloy of the clamp & housing)
- * **Auto Power Off** : 5 minutes after power on, it will power off automatically to lower the power consumption.
- * **Rs232 Interface** : Data store in the memory of the meter via Rs232 upload to PC, or on-line monitoring.
- * **Power** : Standard 9V battery.
- * **Dimension** : 175(W) x 70(H) x 38(T)mm
- * **Weight** : Approx. 120g (with battery)

SAFETY :

IEC1010-1, IEC1010-2-032, pollution degree 2, CAT III (600V)

ACCESSORIES :

Carrying Case, Battery installed, User's Manual, RS232 PC Interface CD.

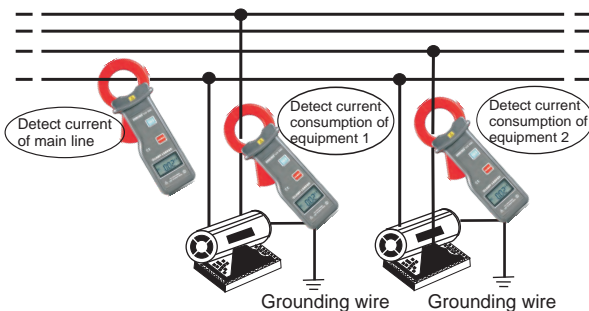
ELECTRICAL SPECIFICATIONS : KM 2008

FREQUENCY (50/60Hz)

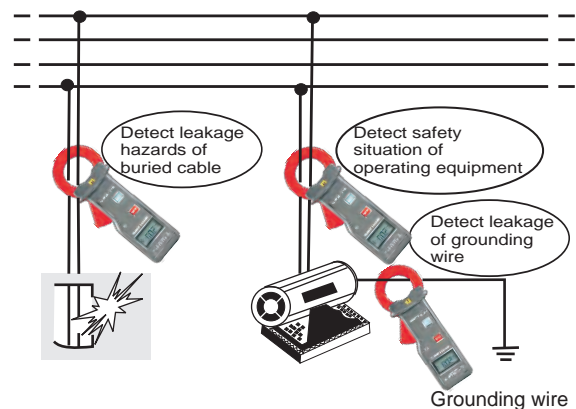
Range	Resolution	Accuracy
0.00mA ~ 60.00A	10 A	±(1.5% rdg + 5 dgts)
60.00A ~ 199.9A	10 mA	±(2% rdg + 5 dgts)
200.0A ~ 300.0A	100 mA	±(4% rdg + 5 dgts)

DIAGRAM OF GROUND LEAKAGE

(Reference Diagram)



(Reference Diagram)



All Specifications are subject to change without prior notice

LIST OF PRODUCTS

- * Digital Multimeter
- * Digital AC & AC/DC Clampmeter
- * AC Clamp Adaptor
- * AC/DC Current Adaptor
- * 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 & Portable Infrared Calibrator
- * Thermo Hygrometer / Anemometer
- * Digital Absolute pressure meter
- * Wood, Paper & Grain Moisture Meter
- * Distance Meter & Network Cable Tester
- * Digital Hand Held Temperature Indicators
- * Digital Lux Meter
- * Thermal Imaging Camera
- * Power Factor Regulator
- * Maximum Demand Controller/Digital Power Meter
- * Earth Resistance Tester
- * Digital Panel Meters & DC Power Supplies
- * Digital Storage / Analog Storage Oscilloscope.
- * Coating Thickness Guage
- * Process Calibrators & Multifunction Calibrators
- * Gas Analysers & Waterproof Pen Testers
- * Frequency Counter / Function Generator
- * Phasing Sticks & High Voltage Detector
- * Transducer & Transmitter
- * Digital Milli Ohm Meter
- * Solar Power Meter
- * EMF/ELF Detector / RF Field Strength Meter

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KUSAM-MECO[®]

**Digital Leakage
Clampmeter
MODEL KM 2008**

**OPERATION
MANUAL**

KUSAM-MECO®



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**Warning**

Thank you for purchasing our company's **High Accuracy Leakage Clampmeter**. For better use of this product, please:

- ❖ **Read carefully the user's manual**
- ❖ **Follow strictly safety rules and notes listed in this manual.**

- Under all circumstances, please pay special attention to your safety in the course of using this leakage clampmeter.
- Give heed to label texts and symbols on panel and back plate of this leakage clampmeter.
- Please don't place and store this leakage in hot and humid condition, locations with moisture condensation and under direct sunlight for a long time.
- In case voltage of battery is low, please replace batteries.
- If you expect not to use the leakage for a long time, please take out batteries.
- When changing batteries, please pay attention to the polarity of battery.
- Use, disassembly and maintenance of this leakage shall be operated by authorized personnel.
- Do not use the meter if it is damaged. It can be dangerous.
- Users shall carry out operation based on warning sign  on leakage clampmeter and manual.
- Users shall carry out safety operation based on instructions listed in this manual, e.g.  and danger signs on this manual.
- Please use **mA** to test leakage current (test by clamping grounding line, single-phase line together).

1) INTRODUCTION







High Accuracy leakage clampmeter, model KM 2008, is specially designed for measurement of AC leakage current; It is a product with relatively small size, high accuracy and perfect function compared with similar instrument in the world. The meter could be widely used in different fields such as electricity, communications, meteorology, railroad, oilfield, construction, measurement, scientific & research teaching institutes, industrial and mining establishments.

Clamp core of this **High Accuracy Leakage Clampmeter** adopts special alloy; in addition, with utilization of magnetic shielding technology, it is almost free from influences of external magnetic field so as to ensure high precision, high stability and high reliability of perennial continuous measurement.

This High Accuracy Leakage Clampmeter has RS232 interface. With the help of the software that we provide, many function are available. For example, on-line monitoring, historical data inquiry, active curve drawing, indication of max, min and average value, alarm setting and indication. There are also functions like saving to documents and printing when connected to PC.


This High Accuracy Leakage Clampmeter could be used for AC line current measurement and on-line current measurement with voltage lower than AC600V; it also have those functions as peaking holding, data holding and data storage; with convenient use, it is an essential tool for electrician safety testing.

III) ELECTRICAL SIGNS

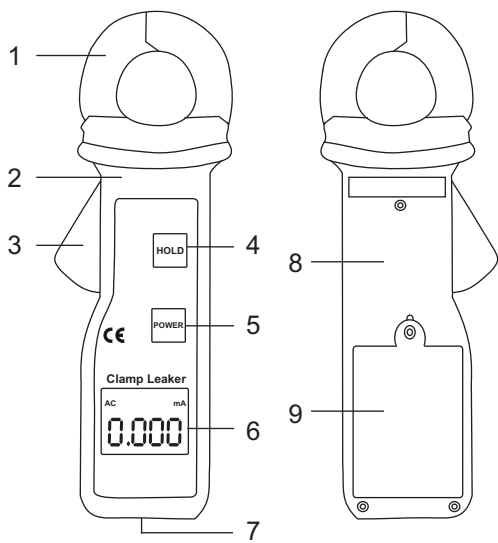
	Extremely dangerous! Operators shall strictly adhere to safety rules; otherwise there would be dangers of electric shock to cause personal injuries or casualties
	Dangerous! Operators shall strictly adhere to safety rules; otherwise there would be dangers of electric shock to cause personal injuries or casualties.
	Warning! Operators shall strictly adhere to safety rules; otherwise personal injuries or equipment damages might be caused.
	Double insulation
	AC
	DC

IV) ELECTRICAL SPECIFICATIONS

Function	Measurement of AC leakage current, AC current and on-line measurement
Power Supply	Zn-Mn dry battery, 6F22,9V
Test Mode	Clip-on CT, integral mode
Display Mode	Four digits LCD display
Dimension	LWH : 175mm x 70mm x 38mm
LCD Dimension	35mm x 21.5mm display domain : 32mm x 15mm
Sampling Rate	about 2 times/s
Frequency	50/60Hz Automatically
Range shift	Automatically
Voltage Range	AC600V
Accuracy : (23°C±3°C, Below 70% RH)	0 ~ 30mA : ±1.5%rdg±5dgts 30mA ~ 300mA: ±2%rdg±5dgts 300mA ~ 30A : ±4%±5dgts 30A ~ 300A : ±4%±5dgts

RS232 Interface	Data Stored in the memory of the meter via RS232 uploaded to PC, or on-line monitoring
Storage	99units, all used when display FULL
Peak Hold	Push HOLD without release, the meter will show the peak value.
Data Hold	DH indicating the reading is hold
Out of Range	OL indicating the current is out of range
Auto Power-off	5 Minutes after power on, it will power off automatically to lower the power consumption
Battery Voltage	 Indicating the battery voltage is lower then 7.2V. Then the battery have to be changed
Weight	120g (including the battery)
Consumption	About 5mW
Temperature and Humidity	Working : 10°C~50°C, below 80% RH Storage : -10°C~60°C, below 70% RH
Insulating : Strength	AC2kV/rms (between the alloy of the clamp and the housing)
Applicable Safety Rules	IEC1010-1, IEC1010-2-032, pollution, degree CAT III (600V)
Accessories	RS 232 Com cable Software Battery (6F22 9V) User Manual

V) Structure of the Leakage Clampmeter



- | | |
|------------------------|--------------------|
| 1. Double Input Clamp | 6. LCD |
| 2. Upper Cover | 7. RS232 Interface |
| 3. Clamp Opening Lever | 8. Back cover |
| 4. HOLD key | 9. Battery cover |
| 5. POWER key | |

VI) OPERATING PROCEDURE

1. Start-up, Shutdown

Press **POWER** key to start up, LCD will begin to display; Press the **POWER** key again, the meter will shut down. After starting up for 5 minutes, LCD will flick notes that the meter will shut down automatically; After flickering for 30s, it will shut down formally to reduce battery consumption. In case you have pressed **POWER** key when LCD was flickering, the leaker will continue to work for 5 minutes. If LCD is very dark after starting up, it might be caused by low-voltage battery, in this case, please change battery immediately.

2. Leaker Measurement

	High voltage, extremely dangerous! Operators shall strictly keep to safety rules; otherwise there would be risk of electric shock to cause personal injuries or casualties.
	Dangerous! Please don't use it to measure current higher than 300A; otherwise there would be risk of electric shock to cause personal injuries or equipment damages

- 1) Power on.
- 2) Press down trigger to open clamp head and clamp to-be-measured conductors. (clamp heads must be totally closed)

	Clamp live wire and null line together to measure leakage current of electrical equipment. (Note: 2 lines)
	Clamp earth wire is to measure grounding line leakage current of electrical equipment. (Note: Single line)
	Clamp main line is to measure total current of that main line. (Note: Single line)

(See Reference Diagram Fig-1, Fig-2)

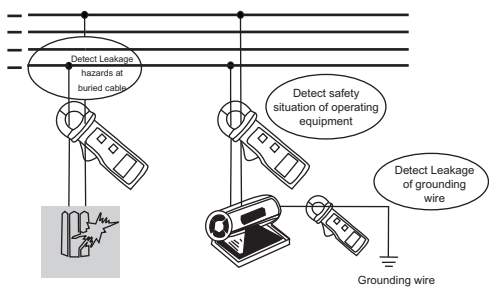


Fig-1 Test Leaker

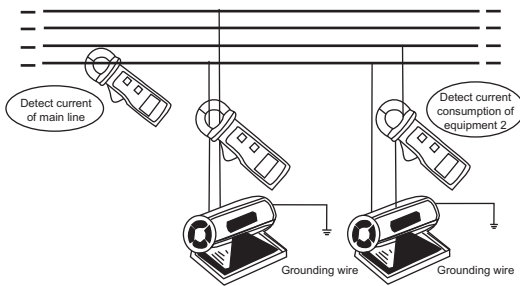


Fig-2 Test Total Current

⚠ Attention! For your safety, when measuring heavy current, after confirmed the completion of correct operating test, please move the meter away from measured conductor, In locations with difficulty to read out data, please use the data holding function. If [DH] symbol displayed, please exit data holding state first, and then do the test.

3) Read LCD display data. In case "OL mA" symbol was displayed, it means that current of measured line is beyond the maximum limit of this meter

3. Peak Hold

Pressing **HOLD** key continually in the course of measurement (More than 3 seconds), the leaker will capture current peak values of lines. 3 five times; release the key, it then will return to measuring state.

4. Hold, Storage and Access Reading

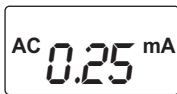
- 1) Pressing **HOLD** key for a short time in the course of measurement (less than 3 seconds), **DH** symbol will display, the meter will hold current measuring data and automatically stored in the memory with a unit ID; press **HOLD** key again to release the hold state, and the meter continues its measuring; in case stored data reached to 60 groups, press **HOLD** key again, the "**FULL**" symbol will display, which means storage memory is full; press **HOLD** key to cancel "**FULL**" flickering and return to measuring mode.
- 2) Press **HOLD + POWER** keys to enter into data access mode and display shows Unit 1 storage data automatically; and then press **HOLD** key again to turn the page of stored data; **NULL** will display when there is no data in stored in the memory, press **POWER** key to exit data access mode.
- 3) After entering into data access mode, press **HOLD** key for more than 3 seconds will clean up all stored data; when the leaker displaying "**dEL**" symbol, it means that it has finished cleanup process, and then return to measuring state automatically.

VII) Function Quick Look Up

POWER Key Short Press	Power on/Shutdown/Exit
HOLD Key Short Press	Data Hold/Release/Storage
HOLD Key Pressing for more than 3s	Peak Hold (at measuring mode)
HOLD Key Pressing for 3s	Clear Data (at access data mode)
HOLD Key+ POWER Key	Data access/Turn pages (HOLD Key)

VIII) Display Example and Meaning

1. ---- Measured leakage current is 0.25mA.



2. ---- Low battery, please change.



3. ---- Measured leakage current is 0.25mA is held and automatically stored unit ID is NO.03.



4. ---- Access the unit 3 of the stored Data



IX How to Change Battery

!	Warning! It is dangerous to carry out test when the battery cover plate is not on its position
	Please pay attention to the polarity of battery to avoid damaging the meter.
	Change the low battery in time
	If you expect not to use the meter for a long time, please remove the battery for storage.

- 1) "⊖ ⊕" symbol means the battery is undercharge and need to be replaced.
- 2) Press **POWER** key to shut down the meter; before opening the battery cover, please confirm the meter is in off position, and then replace with qualified new battery; special attention shall be paid to the polarity of battery; at last, cover battery cover plate.



MUMBAI

TEST CERTIFICATE

DIGITAL LEAKAGE CLAMPMETER

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. KM 2008

SERIAL NO. _____

DATE: _____

ISO 9001
REGISTERED



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, Burn't PCB's, fuses, disposable batteries, carrying case, electrodes probes, clamps, cables 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.