

LEAKAGE CURRENT CLAMPMETER

TECHNICAL SPECIFICATION

- **Function** : Measurement of AC leakage current, AC Current upto 300A
- **Test Mode** : Clip-on CT, Integral mode.
- **Display Mode** : Four Digit LCD display.
- **LCD Dimension** : 35mm x 21.5mm
- **Display Size** : 32mm x 15mm
- **Jaw Size** : 40mm
- **Sampling Rate** : About 2times/s
- **Range** : 0.00mA ~300.0A (50/60Hz)
- **Resolution** : 0.01mA
- **Measuring range** : 30mA/300mA, 30A/300A
- **Line voltage** : Line test under AC600V
- **Data Storage** : 60 groups, "FU"symbol flickering means storage is full
- **Peak Hold** : Peak value capture and hold function, press HOLD button continuously to show peak value during the course of testing.
- **Data Hold** : Display shows "DH" symbol.
- **Overload** : Display shows "OL" symbol.
- **Battery Voltage** : When battery voltage reduced to 2.5V ~ 2.7V, battery low voltage symbol will be displayed. At this time, measurement accuracy will decrease.
- **Power Consumption** : about 5mW
- **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 core and box)
- **Auto Power Off** : 5 minutes to reduce battery consumption.
- **Dimension** : 64(W)mm x 160(H)mm x 23(T)mm
- **Weight** : Approx. 120g (with battery)
- **Power** :DC3V Button-type battery LR-44 x 2 or SR-44 x 2.
- **Applicable Safety Rules** : IEC1010-1, IEC1010-2-032, Pollution Degree 2, CAT III(600V)

MODEL - KM 2008A



Preliminary Data

ELECTRICAL SPECIFICATIONS :

0.00mA ~ 9.99mA : $\pm 1.2\% \pm 5$ dgts

10.0mA ~ 300.0mA : $\pm 1.5\% \pm 5$ dgts

0.00A ~ 9.99A : $\pm 1.2\% \pm 5$ dgts

10.0A ~ 99.9A : $\pm 1.5\% \pm 5$ dgts

100.0A ~ 199.9A : $\pm 2\% \pm 5$ dgts

200.0A ~ 300.0A : $\pm 4\% \pm 5$ dgts



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**HIGH ACCURACY
CLAMP LEAKER
MODEL - KM 2008A**

OPERATION MANUAL

KUSAM-MECO®

HIGH ACCURACY CLAMP LEAKER MODEL - KM 2008A



KUSAM-MECO®

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Warning

Thank you for purchasing the company's **High Accuracy Clamp Leaker**, for better use of this product, please:

—Read carefully the user's manual.

—Follow strictly safety rules and notes listed in this manual.

- ◆ Under any circumstances, please pay special attention to your safety in the course of using this leaker.
- ◆ Give heed to label texts and symbols on panel and back plate of this leaker.
- ◆ Please don't place and store this leaker in hot and humid condition, locations with moisture condensation and under direct sunlight for a long time.
- ◆ In case voltage of battery was low, display of LCD would be very dark, please replace batteries.
- ◆ In case this leaker would not be used for a long time, please take out batteries.
- ◆ When changing batteries, please pay attention to polarity of battery.
- ◆ Use, disassembly and maintenance of this leaker shall be operated by authorized personnel.
- ◆ In case dangers would have with continues use for reason of this leaker, please stop to use it and seal it for safekeeping immediately; and then, send it for disposal of authorized agency.
- ◆ Users shall carry out operation based on danger signs "⚠" on leaker 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 2 together).







I Introduction

This **High Accuracy Clamp Leaker** is specially designed for measurement of AC leakage current; by adopting up-to-date CT technology and digital integration technology, it is a product with relatively small size, high accuracy and perfect function compared with similar leakers in the world. The leaker could be widely applied in those fields as electricity, communications, meteorology, railroad, oilfield, construction, measurement, scientific & research teaching institutes, industrial and mining establishments.

Clamp core of **High Accuracy Clamp Leaker** adopts special alloy; in addition, with utilization of magnetic shielding technology, it is basically 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 Clamp Leaker** 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.

II Electrical Signs

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

III Technical specifications

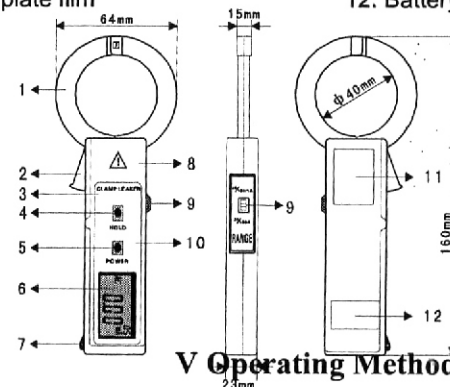
Function	Measurement of AC leakage current, AC current and on-line AC current
Power	DC3V Button-type battery LR-44×2 or SR-44×2
Test Mode	Clip-on CT, integral mode
Display Mode	Four Bits LCD display

Dimension	Width × Height × Thickness: 64mm×160mm×23mm
LCD Dimension	35mm×21.5mm; display domain: 32mm×15mm
Clamp Mouth	φ40mm
Sampling Rate	about 2 times/s
Range	0.00mA~300.0A (50/60Hz)
Resolution	0.01mA
Measuring range	30mA/300mA, 30A/300A, second-range manual switch, Automatic switch in all ranges
Measurement accuracy (below 23°C±1°C, 70%RH)	0.00mA~9.99mA: ±1.2%±5dgt
	10.0mA~300.0mA: ±1.5%±5dgt
	0.00A~9.99A: ±1.2%±5dgt
	10.0A~99.9A: ±1.5%±5dgt
	100.0A~199.9A: ±2%±5dgt
	200.0A~300.0A: ±4%±5dgt
Line voltage	Line test under AC600V
Data Storage	60 groups, "FU" symbol flickering means storage is full
Peak Holding	Peak value capture and holding function, press HOLD button continually to show peak value in the course of testing.
Data Holding	Data holding function: displayed by "DH" symbol
Overflow display	Outrange overflow display: displayed by "OL" symbol
Automatic shutdown	After starting up the leaker for 5 minutes, it will shut down automatically to reduce battery consumption.
Battery voltage	When battery voltage reduced to 2.5V~2.7V, battery low voltage symbol will filter to remind replacing battery; at this time, measurement accuracy will decrease.
Leaker Quality	About 120g (with battery)
Rating Power	about 5mW
Working temperature and humidity	-0°C~40°C; below 80%rh
Storage temperature and humidity	-10°C~60°C; below 70%rh
Insulation strength	AC2kV/rms (between core and box)

Applicable safety rules	IEC1010-1、IEC1010-2-032、pollution, etc 2、CAT III(600V)
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IV Structure of the Leaker

1. Clamp head
2. Trigger
3. Product name, model
4. **HOLD** Key (key combination)
5. **POWER** key (key combination)
6. LCD Displayer
7. Lacing hole
8. Main body
9. **RANGE** Range switch key
10. Panel film
11. Back plate film
12. Battery cover





V Operating Method


1. Start-up, shutdown

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

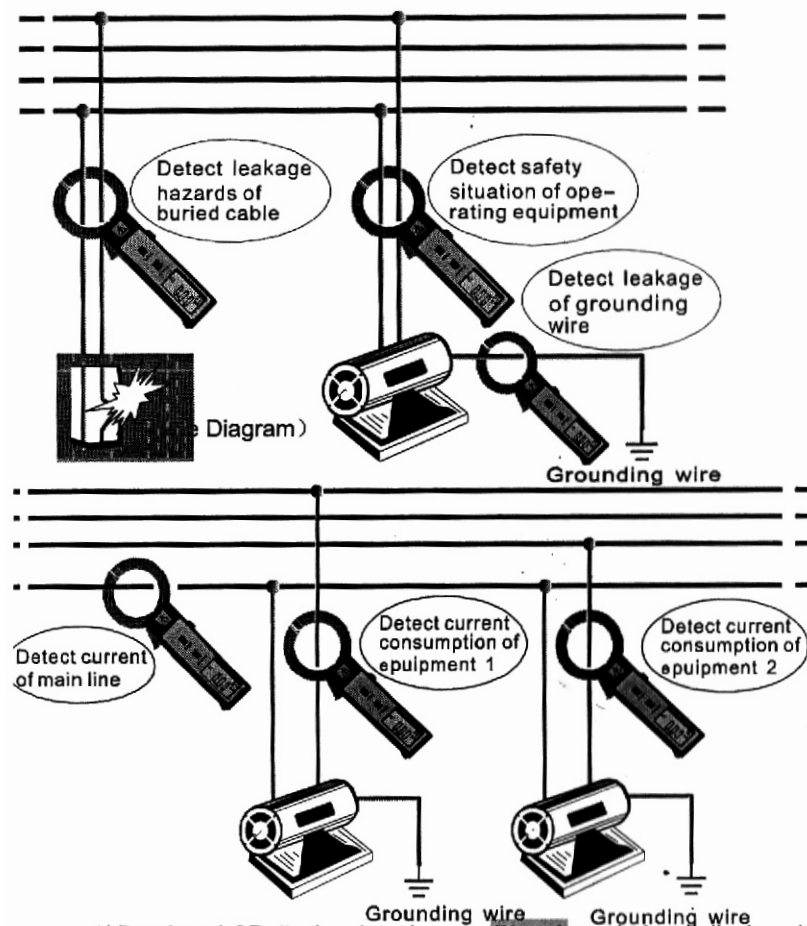
2. Measurement of leakage current and current

	High voltage, extremely dangerous! Operators shall strictly observe 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) Switch on power of the leaker.
- 2) Confirm to-be-measured lines, dial range switch key **RANGE** to appropriate range.
- 3) Press down trigger to open clamp head and clamp to-be-measured conductors.
(Be attention that clamp heads must be fully closed)

	Clamp fire wire, zero line together is to measure leakage current of electrical equipment. (Note: 2 lines)
	Clamp grounding line 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)
	Attention! For your safety, when measuring heavy current, after confirmed the completion of correct operating test, please move the leaker away from measured conductor.
	In locations with difficulty to read out data, please use the data holding function. If [DH] symbol displayed, please discharge data holding state first, and then do the test.

(Reference Diagram)



- 4) Read out LCD display data. In case **OL mA** symbol was displayed, it means that leakage current or current of measured line is beyond the range of 30/300mA, and it is of necessary to switch **RANGE** key to 30/300A, and then conduct measurement again; in case the leaker displayed **OL A** symbol on 30/300A range, then, it means that current of measured line is beyond the maximum limit of this leaker; with this case, please choose leaker with much higher range limit.

3. Peak Holding

Pressing **HOLD** key continually in the course of measurement (More than 3

seconds), the leaker will capture current peak values of lines in this period of time; release the key, it then will return to measuring state.

4. Holding, cancellation, storage, lookup and clean up of data

- 1) Pressing **HOLD** key for a short time in the course of measurement (less than 3 seconds), "DH" symbol will display, the leaker holds current measuring data and realizes auto-ID storage; press **HOLD** key again for a short time, the holding will be cancelled, and the leaker continues its measuring operation; in case storing data reached to 60 groups, press **HOLD** key again, the "FU" symbol will display, which means storage data is full; press **HOLD** key to cancel "FU" flickering and return to measuring mode.
- 2) Press **HOLD+POWER** keys to enter into data access mode and display Group 1 storage data automatically; and then press **HOLD** key again to enter into cyclic reading of stored data; press **POWER** key to exit data access mode.
- 3) After entering into data access mode, press **HOLD** key continually (More than 3 seconds) can clean up all stored data; when the leaker displaying "YES" symbol, it means that it has finished cleanup process, and then return to measuring state automatically.

VI Function quick check

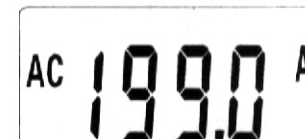
RANGE Key	30/300mA ; 30/300A Manual range switch
POWER Key Short Press	Start-up/shutdown/exit
HOLD Key Extended Press	Data Holding/relieving/storage
HOLD Key Extended Press for more than 3s	Peak Holding (Measurement mode is as below)
HOLD Key Extended Press for 3s	Data clear (Reading mode is as below)
HOLD Key + POWER Key	Data access /reading (HOLD key)

VII Example Display

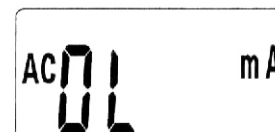
1. --- Measured leakage current is 0.25mA



2. --- Measured current is 199.0A



3. --- Measured leakage current higher than 300mA



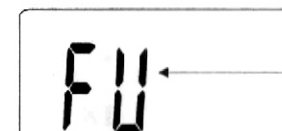
4. --- Battery is undercharge, please replace battery immediately
--- Can not ensure the accuracy of 6.30mA at this time



5. --- Measured current is 5.00mA
---Hold measured data
--- Automatically stored as Group 03 data



6. --- Storage data is full with 60 groups FULL
--- Must be removed before they can re-store

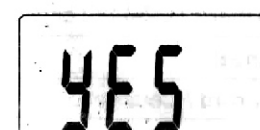


Flickering


7. --- Get access to stored Group 03 data




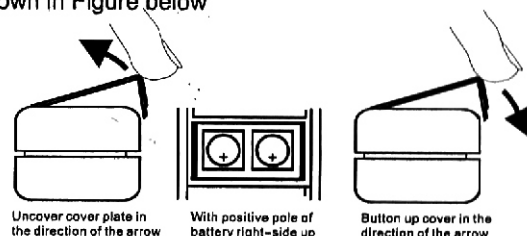
8. ---upon full completion of clearing of data, it will indicate YES



VIII Battery replacement

	Warning! It is dangerous to carry out test under the case that battery cover plate was not on its position.
	Please pay attention to polarity of battery to avoid damaging the leaker.
	In case battery was undercharge, please replace it immediately; otherwise, accuracy of measurement could not be guaranteed.

- 1) In case battery voltage reduced to 2.5V~2.7V, the leaker would display "  " symbol; it means the battery is undercharge and need to be replaced.
- 2) Press **POWER** key to shut down the leaker; before opening the battery cover, please confirm the leaker is in off position, and then replace with qualified new battery; special attention shall be paid to polarity of battery; at last, cover battery cover plate.
(As shown in Figure below)



IX Packing List

Clamp tester	1set
Carton	1pc
Rope chain	1line
Button Battery (LR-44×2 or SR-44×2)	2 pcs
User Manual	1 copy
Warranty card / Certification	1 copy

MUMBAI

TEST CERTIFICATE

HIGH ACCURACY CLAMP LEAKER

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 2008A**

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, 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.



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