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 Detectors
* Gas Detectors
* Function Generator
* Battery Tester
* Solar Power Meter
* Discharge Rods(400 KV)
* Wood, Paper & Grain Moisture Meter
* Transistorised Electronic Analog & Digital Insulation Resistance Testers(upto 15 KV)
* Digital Sound Level Meter & Sound Level Calibrator
* Digital contact & Non-contact Type Tachometer
* Digital Non-contact (infrared) Thermometer/ Thermal Imaging Camera
* Maximum Demand Controller/Digital Power Meter
* Digital Hand Held Temperature Indicators

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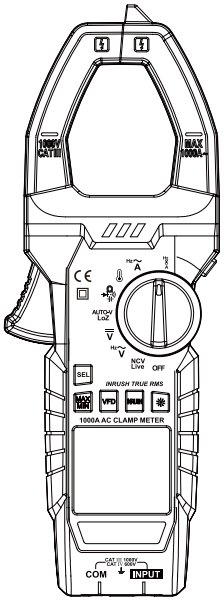
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KUSAM-MECO®

AN ISO 9001:2015 COMPANY

1000A AC DIGITAL CLAMPMETER WITH INRUSH CURRENT



MODEL - KM 999A+

OPERATION MANUAL

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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, 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.

Overview

This unit is a clamp meter with 6000 counts and automatic AC/DC range. It has the functions of low impedance LOZ AC/DC voltage automatic identification and true effective value measurement.

It can be used to measure AC current, AC/DC voltage, resistance, capacitance, diode, and on/off. It has the functions of MAX maximum value, MIN minimum value, INRUSH current measurement, VFD measurement, flashlight, temperature measurement, automatic shutdown, NCV non-contact AC voltage detection, live line identification, full-range overload protection, low battery indication, etc.

1. Safety information

⚠	Please read the manual carefully before use to prevent the possible electric shock or damage to the unit.

* Upon receipt, please check whether the unit and accessories are damaged in transit.

* Please comply with local and national safety regulations, test in the exposed environment of dangerous live conductors, and use personal protective equipment to prevent electric shock and arc discharge.

* When using, please make sure that the unit shell is not damaged, that the insulation layer of the probe is completely conducted, that the battery cover is closed and the screw is locked, and that the functional range is correct.

* It is forbidden to measure beyond the indicated value of the protection range, or to switch positions during measurement.

* When the unit is connected to the measuring circuit, the finger must be placed behind the probe sheath protection device, and it is forbidden to touch the top (metal part) of the probe.

* If the measured voltage is higher than 60V DC or 30V AC (effective value), caution should be taken to prevent electric shock, and the highest measured voltage at the input end should not exceed AC1000V/DC1000V.

* Before rotating the switch to change the measuring function,please remove the probe from the circuit under test.

* When measuring the current, please pull out the test probe from the COM end and the INPUT end.

* Non-professional maintenance personnel are forbidden to open the bottom shell to adjust or repair the unit.

* Before resistance and capacitance measurement and on-off test, please disconnect the power supply of the measuring circuit and discharge all high-voltage capacitors in the circuit.

* It is forbidden to use the unit jaw to measure the AC voltage and current with load greater than 1000A or 1000V .

MUMBAI

TEST CERTIFICATE

1000A AC CLAMPMETER

This Test Certificate warranties 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 999A+**

SERIAL NO. _____

DATE: _____

ISO 9001:2015
REGISTERED

QC
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PASS

8. Battery replacement

Before opening the battery cover to replace the battery, shut the unit down and make sure that the test probe is disconnected from the measured circuit.

1. Turn off the power supply,
2. Pull the test probe out of the measured circuit.
3. Unscrew the screws fixing the battery cover with a screwdriver.
4. Remove the battery cover.
5. Remove the old battery.
6. Replace with new 3 x 1.5V AAA batteries.
7. Install the battery cover and tighten the screws.

9. Accessories

1. Clamp meter	One
2. Instruction manual	One
3. Test probe	One
4. 1.5x3 AAA battery	Three
5. Thermocouple	One
6. Storage bag	One

1.2 Marks

Marks	Description
Ṽ	AC voltage
V̿	DC voltage
⚠	Important safety information, see the manual.
⏚	Earth wire
⧈	Double insulation
⚡	High-voltage warning symbol, pay attention to danger
CE	Complies with the directives of the European Union
CAT III	Refers to the level of pulse withstand voltage protection provided by over-voltage (installation) level III and pollution degree 2 according to IEC-61010 standard

3. Symbols

3.1 Display

Symbols	Description
AUTO	Automatic range
NCV	Non-contact AC voltage detection
Live	Live wire identification
H	Reading hold mode
MAX	Maximum value
MIN	Minimum value

•))	On-off test
▶|	Diode
AC	AC voltage
DC	DC voltage
LOZ	Automatic identification of AC and DC voltage
VFD	Variable Frequency Drive measurement
Hz	Frequency
A	Current measurement
INRUSH	Inrush current test
	The value of AC current is less than 0.4A,and the symbol of measuring circuit of the clamp head flashes.
nF/uF/mF	Capacitance
Ω/KΩ/MΩ	Resistance
°C/°F	Temperature measurement
	Low battery
⏻	Automatic shutdown
—	Negative electrode

7.10 INRUSH current

Range	Resolution	Accuracy
1000A	1A	<10A for reference only ±（10 % reading + 60 digits）

7.11 Temperature

Range	Resolution	Accuracy
-20 ~ 1000°C	1°C	±（2.0% reading + 2 digits）
-4 ~ 1832°F	1°F	±（2.0% reading + 4 digits）

Overload protection: 1000V

7.7 ON-OFF test(continuity test)

Function	Range	Description	Test condition
	600Ω	When the resistance is less than 50Ω, the buzzer sounds.	Open circuit voltage: about 2V

Overload protection: 1000V

7.8 Capacitance

Range	Resolution	Accuracy
600nF	0.1nF	±（4.0% reading + 5 digits）
6uF	0.001uF	
60uF	0.01uF	
600uF	0.1uF	
6mF	0.001mF	
60mF	0.01mF	±（5.0% reading + 10 digits）

Overload protection: 1000V

7.9 AC current

Range	Resolution	Accuracy
60A	0.01A	±（2.0% reading + 5 digits）
600A	0.1A	±（2.5% reading + 5 digits）
1000A	1 A	

Maximum input current: 1000A AC
frequency range: 40 ~ 400Hz

3.2 Keys

Keys	Description
SEL	Function selection
MAX/MIN	Maximum and minimum value
VFD	Variable frequency measurement under AC mode
INRUSH	Inrush current test
☀	Short press to turn on or off the backlight
HOLD/	Short press for data hold /Long press for flashlight on or off

3.3 Description of input end

Input end	Description
COM	Connected with the black probe
INPUT	Connected with the red probe

4. Specifications

Automatic range	Yes
Full-range overload protection voltage	1000V
The maximum input voltage at COM and INPUT end	AC 1000V/DC 1000V
Operation altitude	Max. 2000m
Display	LCD
Maximum display value	5999
Overrange display	OL or -OL
Sampling time	About 3 times/second
Power supply	3xI.5V AAA battery
Working temperature	0°C~40°C
Storage temperature	-10°C ~ 50°C
Dimension	250x85x45mm
Jaw size	42 mm
Length of iFlex clamp	1.8m
Size of iFlex clamp	7.5mm
Weight (excluding battery)	About 368g

7.4 AUTO-V LoZ AC voltage

Range	Resolution	Accuracy
1000V	1V	± (1.2% reading + 8 digits)

Input impedance: 1MΩ
Overload protection: 1000V AC
Frequency response: 40Hz-1KHz

7.5 Resistance

Range	Resolution	Accuracy
600Ω	0.1Ω	±(1.0% reading + 5 digits)
6kΩ	0.001kΩ	
60kΩ	0.01kΩ	
600kΩ	0.1kΩ	
6MΩ	0.001MΩ	±(2.0% reading + 5 digits)
60MΩ	0.01MΩ	

Overload protection: 1000V
open circuit voltage: 0.5V

7.6 Diode

Function	Range	Test condition
Diode test 	0.15V-2.5V	Forward DC current: about 1mA; Open circuit voltage: about 4V . The approximate value of diode forward voltage drop

Overload protection: 1000V

7. ELECTRICAL SPECIFICATIONS :

7.1 DC voltage

Range	Resolution	Accuracy
600mV	0.1mV	±（0.5% reading +3 digits）
6V	0.001V	
60V	0.01V	
600V	0.1V	±（0.8% reading +3 digits）
1000V	1 V	

Input impedance：10MΩ
The maximum input voltage：1000V DC

7.2 AC voltage

Range	Resolution	Accuracy
6V	0.001V	±（0.8% reading +5 digits）
60V	0.01V	
600V	0.1V	±（1.0% reading +5 digits）
1000V	1 V	± (1.2% reading + 8 digits)

Input impedance：10MΩ
Overload protection： 1000V
Frequency response：40Hz-1KHz

7.3 AUTO-V LoZ DC voltage

Range	Resolution	Accuracy
600V	0.1V	±(1.0% reading + 5 digits)
1000V	1V	

Input impedance：1MΩ/The maximum input voltage：1000V DC

5. Functions

*SEL function selection key：switch NCV, Live/ Resistance, ON/OFF, Diode, Capacitance /°C, °F/AC/DC current.

*MAX and MIN: used in AC/DC voltage and AC/DC current. Short press to switch MAX and MIN, and long press to cancel the test.

*VFD variable frequency measurement: VFD can be started in AC voltage and current mode. This can reduce the interference of high-frequency signals on measurement results, inability to measure, unstable measurement data and other factors.

*INRUSH current test: it can measure the peak current flowing into the load when the power supply is turned on. Turn off the load power supply and short press the INRUSH key. Turn on the load power supply and when the current passes through the clamp head, the peak current of the load can be captured.

* Automatic shutdown function: if there is no operation after starting for about 10 minutes, the unit will automatically enter the sleep state. Press the SEL key to restart it.

* Cancel the automatic shutdown function: Turn the switch to the OFF position, press the HOLD key and turn on the machine at the same time, which can cancel the automatic shutdown function and resume it after restarting.

* Under-voltage indication of battery: when the display shows ( ), the battery is insufficient. Please change the battery in time to avoid affecting the measurement data.

* HOLD key: Short press the HOLD key to lock the measured data, and the buzzer in the hold state gives a warning every 3 seconds. Turn the position or short press the Hold key again to exit the data hold.

6.Operation Guide

6.1 NCV detection

Turn the switch to the NCV key. Close the top of the clamp head to the conductor to detect the voltage signal. For the low voltage the screen displays –-L, for the high voltage,the screen displays –-H, and the indicating light and buzzer give out warnings with different frequencies.

Notes:

(1) Even if there is no indication, the voltage may still exist. Don't rely on non-contact voltage detection to determine whether there is voltage in the wire.

(2) The test process may be affected by factors such as socket design, different insulation thickness and types.

(3) External interference sources (such as flashlights, motors, electro-magnetism, etc.) may mistakenly trigger non-contact voltage detection.

6.12 INRUSH current

In the AC current gear, short press INRUSH button,enter INRUSH current measure mode.Before measuring, disconnect the load power supply, hold the trigger of the meter to open the jaws ,place a single wire of the measured wire at the center of the clamp head, and when the clamp is completely closed, connect the load power meter to measure and get inrush current. Change the range gear or short press the INRUSH button again to exit the INRUSH current mode.

Notice:

1.you just need to place a single wire(hot wire or zero wire) when you measure inrush cureent,it can not measure correctly when you place two or more wire

2.when the measured wire is at the center of clamp head, max measured AC INRUSH current is 1000A/40HZ～400Hz

6.10 Temperature

(1) Turn the switch to the () position, the unit automatically measures the current ambient temperature, and press the SEL key to convert between °C/°F.

(2) For measurement of the temperature of an object or liquid, insert the red plug of the K thermocouple into the "INPUT" end and the black plug into the "COM" end, and the thermocouple probe contacts the object to be measured.

6.11 AC current

(1)Turn the switch to A position. The display shows the AC current.

(2) Open the jaw by holding the trigger and place the single wire of the tested circuit in the center of the clamp head. The unit displays the measured current value when the jaw is completely closed.

Notes:

①For current measurement, only a single wire (live wire or neutral wire) is placed.Two or more wires can't be measured correctly at the same time. The load must be in working condition.

②The measured wire is located at the center of the clamp head. The maximum measured current is 1000A/40Hz~400Hz.

6.2 Live wire identification

Turn the switch to the Live function. Short press the SEL key to change the Live fire identification function. Insert a single red probe into the INPUT end, the screen that touches the tested conductor displays H, and the buzzer sounds an alarm. Then the tested conductor is the live wire, otherwise the neutral wire or earth wire.

Notes:

①Before use, please test on the known live conductor to ensure that the unit is in good working condition.

②During the testing of the live wire of the socket, other electrical devices on the socket may affect the measurement results. Please unplug the other electrical devices during the test.

6.3 AC voltage

(1) Turn the switch to the ( ) position, and the unit is at the AC voltage measuring state.

(2)Connect the red and black probes to the tested circuit for measurement.

6.4 DC voltage

(1) Turn the switch to the () position, and the unit is at the DC voltage measurement state.

(2) Connect the red and black probes to the tested circuit for measurement.

6.5 AUTO-V LOZ AC/DC voltage automatic identification

(1)Turn the switch to the (AUTO-V LOZ) position. The unit is in the low impedance voltage automatic identification state, and can directly measure the AC or DC voltage without changing the position.

(2) Connect the red and black probes to the tested circuit for measurement.

6.6 Resistance

(1) Turn the switch to the () position and the display shows MΩ.The unit is at the resistance measurement state.

(3) Connect the red and black probes to the tested circuit for measurement.

Notes:

(1) During maintenance, it is forbidden to measure resistance with live circuit.

(2) The measured resistance on the circuit will be different from the actual resistance.

(3) When the unit is open or the measured resistance is too large, "OL" will be displayed, indicating that the measured value is beyond the measuring range.

6.7 On-off test

(1) Turn the switch to the () position.

(2) Press the SEL key to select () position.

(3) Connect the red and black probes to the tested circuit.

Notes:

If the resistance value of the tested circuit is less than about 50Ω, the indicating light is always on, and the buzzer makes continuous sounds .

6.8 Diode

(1) Turn the rotary switch to the () position.

(2) Press the SEL key to select the () position.

(3) Connect the red and black probes to the tested diode.

Notes:

For a normal diode measurement, the meter displays the forward voltage drop of the diode under test, but the reverse voltage is not conductive.

6.9 Capacitance

(1) Turn the switch to the () position.

(2) Connect the red and black probes to the measured capacitance.

Notes:

①For the capacitance measurement, it is necessary to discharge the capacitance first. The unit will charge the capacitance during the measurement, and it will take some time for the stable measurement.

②For the capacitance measurement on the circuit, it will be connected in parallel or series with other devices, so the accurate capacitance value cannot be measured.