



AC/DC CURRENT CLAMP ADAPTOR

An ISO 9001:2008 Company

5 FUNCTIONS RANGES

Model CA-1000 / 2000



FEATURES :

- **Basic Accuracy** : 1.5%rdg + 2A
- CA1000/CA2000 Current Clamp is a transducer which will allow your multimeter to measure electrical Current upto 500/1000/2000 amperes AC or DC, with a Frequency response upto 400Hz.
- The clamp is built with a design of finger guard which ensures user operating the clamp under a safety situation, with a rugged case that is shock resistant and fire-retardant.
- When measuring current with this clamp, there is no need to break a circuit or to affect the isolation.
- It can be used for waveform analysis by connecting it to an oscilloscope.
- Auto Zero function

GENERAL SPECIFICATIONS :

- * **Jaw Opening Size** : 57mm conductor, 70 x 18 mm bus bars
- * **Measuring Range** : 0 to 1000A AC or 0 to 2000A DC max. (Model CA 1000)
0 to 1500A AC or 0 to 2000A DC max. (Model CA 2000)
- * **Output** : 0 to 1V rms or DC with > 1 Meg Ohms input impedance (Model CA 1000)
0 to 1.5V rms or 0 to 2V DC with > 1 Meg Ohms input impedance (Model CA 2000)
- * **Transfer Rate** : 1mV / 1A
- * **System Accuracy** : Current clamp accuracy + DMM accuracy
- * **Operating Temperature** : 0°C - 50°C; at < 70% R.H.
- * **Storage Temperature** : -20°C to 60°C; < 80% R.H.
- * **Temperature Coefficient** : 0.1 x (specified accuracy) / 1°C
(0°C to 18°C, 28°C to 50°C)
- * **Altitude** : 6561.7 feet (2000M)
- * **Output** : Coil cable with straight banana plug.
- * **Max. wire length** : 3.5 meter when fully stretched.
- * **Low battery indicator** : Red LED lighting.
- * **Power Supply** : 9V DC battery
- * **Dimension** : 100(W) x 224(L) x 40(H) mm
- * **Weight** : Approx. 490 gms. (Including battery)

SAFETY :

- The instrument complies with class II, CAT II 1000V of the EN61010-1, and EN61010-2-032 standards. Pollution degree 2 in accordance with IEC 664 indoor use.
- The product complies with the requirements of the following European community Directives : 89 /336 / EEC (Electromagnetic Compatibility) and 73 / 23 / EEC (Low Voltage) as ammended by 93 / 68 / EEC (CE marking).

ACCESSORIES :

Carrying Case, Battery installed & User's manual.

ELECTRICAL SPECIFICATIONS : CA-1000 / CA-2000

Accuracy is ± (% of reading + number of digits) at 23°C ± 5°C, 70% R.H. Maximum.

ACCURACY

TOTAL ACCURACY	Current Clamp Accuracy + DMM Accuracy
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CURRENT CLAMP ACCURACY :

DC CURRENT	
Range	Accuracy
0 ~ 400 A	± (1.5% rdg + 2 A)
400 A ~ 800 A	± (2.5% rdg + 2 A)
800 A ~ 1000 A	± (3.5% rdg + 3 A)
1000 A ~ 2000 A*	± (3.5% rdg + 3 A)

Overload Protection : 1200A for 60 sec. maximum.
*2000A in model CA 2000

AC CURRENT (Average Sensing)

RANGE	ACCURACY
0 - 400 A / 50 Hz - 60 Hz	± (1.5% rdg + 2 A)
0 - 400 A / 61 Hz - 400 Hz	± (3.5% rdg + 2 A)
400 A - 1000 A / 50 Hz - 60 Hz	± (2.0% rdg + 3 A)
400 A - 1000 A / 61 Hz - 400 Hz	± (3.5% rdg + 3 A)
1000 A - 1500 A*	± (3.5% rdg + 3 A)

Overload Protection : 1200A for 60 sec. maximum.
*1500A in model CA 2000

All Specifications are subject to change without prior notice



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G-17, Bharat Industrial Estate, T. J. Road, Sewree (W), Mumbai - 400 015. INDIA.
Sales Direct.: 022 -2 4156638, **Tel.:** 022-241224540, 24181649, **Fax:** 022 - 24149659
Email: kusam_meco@vsnl.net, **Website:** www.kusamelectrical.com

KUSAM-MECO

KUSAM-MECO

G-17, Bharat Industrial Estate,
T. J. Road, Sewree (W), Mumbai-400 015. (INDIA)
Sales Direct : 24156638
Tel. : 91-22-2412 4540, 2418 1649.
Fax : 91-22-24149659
Email : kusam_meco@vsnl.net
Website : www.kusamelectrical.com,
www.kusam-meco.co.in

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DCA/ACA CURRENT CLAMP ADAPTOR

Model - CA1000/CA 2000



**TAKE MEASUREMENT CAREFULLY AND YOU'LL
SPARE YOUR METER AND YOURSELF, SOME PAIN**

Nearly every electrical engineer has a hand held digital clamp meter (Tongtester). We sometimes take them for granted, until we damage them or "burn them out". If you incorrectly connect your clamp meter to a circuit, or if you have the clamp meter on wrong setting, you damage the meter and possibly hurt yourself. You can also get into trouble if you try to measure the voltage across a charged capacitor.

Clamp meter users frequently burn their meters by trying to measure current the same way as they measure voltage. Remember, you measure voltage across a circuit, and current through a circuit. When you use the current input, your clamp meter becomes a low impedance circuit element.

Even if you correctly insert your clamp meter in to the circuit, you can still damage your meter. Don't try to measure current in excess of your meter's capacity. Check the current capacity of the Clamp meter.

If you are measuring current in industrial environment to prevent excess current flowing in the meter disconnect your test leads from the circuit under test whenever you change Clamp Adaptor functions. Set your meter to the correct function, say current, and its highest range for the setting. If the reading is small, change the range to the next lower range till the reading can be read with the best possible accuracy. To be safe, start by setting your meter to its highest range first.

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Overview


Warning

To avoid electric shock or personal injury, read the “Safety Information” and “Rules for Safe Operation” carefully before using the Meter.

The Model CA-1000/CA-2000 DCA/ACA Current Clamp Adaptor (hereafter referred to as 'the Clamp') is a transducer which will allow your multimeter to measure electrical current up to 1000/2000 amperes AC or DC, with a frequency response up to 400Hz. When measuring current with this clamp, there is no need to break a circuit or to affect the isolation. The clamp is built with a design of finger guard which ensures user operating the clamp under a safety situation, with a rugged case that is the shock resistant and fire-retardant.

Terms in this manual

 **Warning** : identifies conditions and actions that could result in serious injury or even death to the user.

 **Caution** : identifies conditions and actions that could cause damage or malfunction in the instrument.

Unpacking Inspection

Open the package case and take out the Clamp Adaptor. Check the following items carefully to see any missing or damaged part :

Item	Description	Qty.
1	English Operating Manual	1 Piece
2	Carrying case	1 Piece
3	Batteries (installed) 9Volt DC	1 No.

In the event you find any part missing or damaged, please contact your dealer immediately.

General Specifications

- **CA1000/CA-2000 Current Clamp** is a transducer which will allow your multimeter to measure electrical Current upto 1000/2000 amperes AC or DC, with a Frequency response upto 400Hz.
- The clamp is built with a design of finger guard which ensures user operating the clamp under a safety situation, with a rugged case that is shock resistant and fire-retardant.
- **Jaws Opening Capability :**
57mm conductor, 70 x 18mm bus bars
- **Low Battery Indicator :** Red LED lighting.
- **Operating Environment :** 0°C to 50°C
- **Relative Humidity :** 0 - 70% R.H.
- **Storage Temperature :** -20°C to 60°C
- **Relative Humidity :** 0 - 80% R. H.
- **Temperature Coefficient :** 0.1 x (specified accuracy) / 1°C (0°C to 18°C, 28°C to 50°C)
- **Dimension :** 244mm(L) x 100mm(W) x 40mm(H)

ELECTRICAL SPECIFICATIONS :

- Accuracy** : ± (% reading + digit)
Range : 0 - 1000A/2000A AC or DC max.
Output : 0 - 1V rms or DC, with > 1 Meg ohms Input Impedence.

Transfer Rate : 1mV / 1A.

Accuracy :

A) System Accuracy :

Current Clamp Accuracy + DMM Accuracy

B) Current Clamp Accuracy :**DC CURRENT**

Range	Accuracy
0 ~ 400 A	± (1.5% rdg + 2 A)
400 A ~ 800 A	± (2.5% rdg + 2 A)
800 A ~ 1000 A	± (3.5% rdg + 3 A)
1000 A ~ 2000 A*	± (3.5% rdg + 3 A)

Overload Protection : 1200A for 60 sec. maximum.

For CA - 1000

* For CA - 2000

AC CURRENT

Range	Accuracy
0 - 400 A / 50 Hz - 60 Hz	± (1.5% rdg + 2 A)
0 - 400 A / 61 Hz - 400 Hz	± (3.5% rdg + 2 A)
400 A - 1000 A / 50 Hz - 60 Hz	± (2.0% rdg + 3 A)
400 A - 1000 A / 61 Hz - 400 Hz	± (3.5% rdg + 3 A)
1000 A - 2000 A*	± (3.5% rdg + 3 A)

Overload Protection : 1200A for 60 sec maximum.

For CA - 1000 * For CA - 2000

Rules For Safe Operation



Warning

To avoid possible electric shock or personal injury, and to avoid possible damage to the Meter or to the equipment under test, adhere to the following rules :












- Before using the Meter inspect the case. Do not use the Meter if it is damaged or the case (or part of the case) is removed. Look for cracks or missing plastic. Pay attention to the insulation around the connectors and Clamps.
- Inspect the test leads for damaged insulation or exposed metal. Check the test leads for Continuity. Replace damaged test leads with identical electrical Specifications before using the Meter.
- Do not apply more than the rated voltage, as marked on the Meter, between the terminals or between any terminal and grounding.
- Place the current range switch in proper position before measuring current
- When measurement is taken at an effective voltage over 60V in DC or 30V rms in AC, special care should be taken for there is danger of electric shock.
- Use the proper terminals, function, and range for your measurements.
- Do not use or store the Meter in an environment of high temperature, humidity, explosive, inflammable and strong magnetic field. The performance of the Meter may deteriorate after The meter gets dampened.

- When using the test leads, keep your fingers behind the finger guards.
- Disconnect circuit power and discharge all high - voltage capacitors before measuring current.
- Replace the battery as soon as the battery indicator LED appears. With a low battery, the Meter might produce false readings that can lead to electric shock and personal injury.
- Turn the Meter power off when it is not in use and take out the battery when not using for a long time.
- Constantly check the battery as it may leak when it has not been used for some time, replace the battery as soon as leaking appears. A leaking battery will damage the Meter.

OPERATOR SAFETY

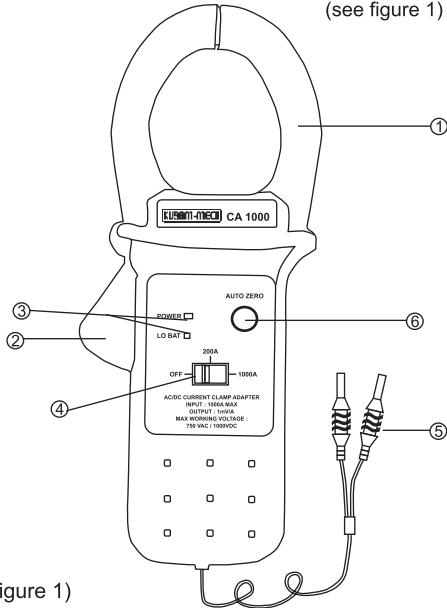
1. Do not clamp around conductors with voltages equal to or exceeding 1000V DC or 750V AC rms.
2. This instrument probably measures a high current up to 1000A/2000A carried in a conductor where some level of high voltage may exist contemporaneously. Any incorrect operation could result in a hazard and/or lethal injury.
3. Use extreme caution when working around bare conductors or bus bars. Accidental contact with the conductor could result in electric shock. Some protective materials such as rubber shoes, rubber mats, or any approved insulating material, must be used to keep your body isolated from ground to ensure a safe operation.
4. Do not attempt to open the instrument case or repair the instrument when performing measurements.

International Electrical Symbols

	AC (Alternating Current).
	DC (Direct Current).
	Both DC & AC.
	Grounding.
	Double Insulated.
	Deficiency of Built-In Battery.
	Continuity Test.
	Diode.
	Fuse.
	Warning ! Refer to the Operating
	Manual Caution ! Risk of Electric shock

**The Clamp Adaptor - CA - 1000 / CA - 2000
Structure**

(see figure 1)



(Figure 1)

1) Transformer Jaws :

Pick up the AC current flowing through the conductor

2) Trigger :

Press the lever to open the transformer jaws. When the lever is released the jaws will close again.

3) LED indication

Red LED : Power on

Green LED : Low Battery

4) ON / OFF - Range switch

To switch On / Off the meter & select proper current range.

5) Test Leads - Input Jacks

Test leads are inserted into the voltage & COM terminal of a multimeter for connection to a multimeter or an oscilloscope.

6) Zero button

To adjust the output of Clamp Adaptor to zero before measuring DC current.

Function Buttons

Below table indicates the function button operations.

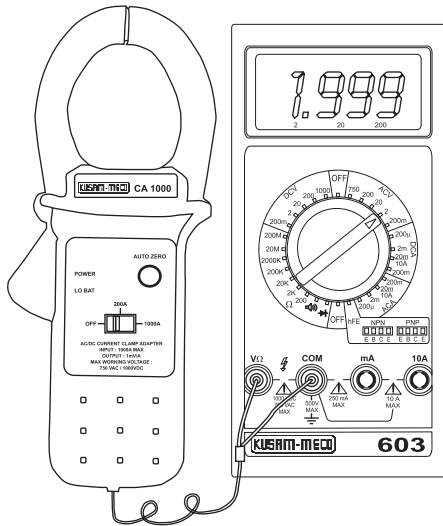
Switch	Operation Performed
ON / OFF-Range switch	To Switch On / Off the Clamp adaptor and for proper selection of current range.
Auto Zero Button	To make the O/P of Clamp Adaptor Zero before any input of DC current is given

Measurement Operation :

1. Make sure the Low Battery LED is not on, otherwise false readings may be provided.

AC/DC Current measurement :

(see figure 2)



(Figure 2)

Warning

Never attempt an in-circuit current measurement where the voltage between terminals and ground is greater than 60V. Use proper range for the current measurement.

The AC/DC current measurement has 2 measurement positions on the rotary switch 200 A / 1000A(2000A)*

To measure Current :

1. Insert the black banana plug into the COM jack and the red banana plug into the V-Ω jack of any multimeter with a minimum input impedance of 1Meg ohms.
2. Set the pwr switch from "OFF" to the desired range, 200A or 1000A/2000A* position. The green LED will light to indicate that the clamp is switched on.
3. For current measurement below 200 amperes, set the unit to 200A range and set the multimeter to 200mV AC range for AC current measurement or 200mV DC for DC current measurements. The reading is directly in amperes.

*** MODEL - CA- 2000**

4. For current measurement above 200 amperes, set the unit to 1000A / 2000A range and set the multimeter range to 2V AC or DC. depending on whether measuring AC or DC, depending on whether measuring AC or DC current. The reading is now amperes x 1000 / 2000.
5. When performing DC current measurement, always push the zero adjustment button on the clamp until the multimeter reads zero.
6. Clamp the jaws around the current-carrying conductor and interpret the reading according to step 3 or 4 above.

 **Caution :**

1. In the case of DC current, the output is positive when the current flows from the upside (marking "+" textured on the jaws) to the underside of the clamp. The red banana plug end is positive.
2. In the case of DC current measurement, a hysteresis effect can occur so that it is impossible to zero the clamp properly. To eliminate this effect, open and close the jaws several times and push zero adjustment button.
3. Measurement can not be made when more than one conductor is clamped.
4. The most accurate reading will be obtained by keeping the conductor across center of the clamp jaws.

Maintenance :

 **Warning**

To avoid false reading, replace the battery as soon as the low battery indicator, Green LED is on.

To replace battery :

- Disconnect the connection between the testing leads of CA-1000/CA-2000 and the multimeter.
- Turn off the Clamp Adaptor CA- 1000/CA-2000.
- Unscrew the screws from the rear case and separate the rear case & the front case.
- Remove the battery from the battery compartment.
- Replace the battery with a new 9-volt battery.
- Reinstall the rear case and the front case and fasten the screw.

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TEST CERTIFICATE

DCA/ACA CURRENT CLAMP ADAPTOR

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. CA-1000/2000

SERIAL NO. _____

DATE: _____

ISO 9001
REGISTERED



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 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.