OPERATION

Please make sure that you have already read and fully understand the WARNING section on page 1.

Making Measurements with the AC Current Probe Model LM102

Connect the clamp to the meter, ensuring correct polarity: black safety plug on the negative, and red safety plug on the positive. Set the multimeter to the mA range. When opening the clamp, press on the side of the lead (do not allow your hand past the guard). Close the jaws around the conductor, respecting the current direction (indicated by the engraved arrow on the jaws of the clamp).

Ensure the clamp jaws are fully closed and that no foreign bodies are caught inside. For best accuracy, avoid if possible the proximity of other conductors which may create noise.

Tips for Making Precise Measurements

- When using a current probe with a meter, it is important to select the range that provides the best resolution. Failure to do this may result in measurement errors.
- Make sure that probe jaw mating surfaces are free of dust and contamination. Contaminants cause air gaps between the jaws, increasing the phase shift between primary and secondary. It is very critical for power measurement.

MAINTENANCE:

Warning

- For maintenance use only original factory replacement parts.
- To avoid electrical shock, do not attempt to perform any servicing unless you are qualified to do so.
- To avoid electrical shock and/or damage to the instrument, do not get water or other foreign agents into the probe

Cleaning

To ensure optimum performance, it is important to keep the probe jaw mating surfaces clean at all times. Failure to do so may result in error in readings. To clean the probe jaws, use very fine sand paper (fine 600) to avoid scratching the jaw, then gently clean with a soft oiled cloth.

REPAIR AND CALIBRATION

You must contact our Service Center for a Customer Service Authorization number (CSA#). This will ensure that when your instrument arrives, it will be tracked and processed promptly. Please write the CSA# on the outside of the shipping container.

Chauvin Arnoux®, Inc. d.b.a. AEMC® Instruments

(Or contact your authorized distributor)

NOTE: All customers must obtain a CSA# before returning any instrument.

TECHNICAL AND SALES ASSISTANCE

If you are experiencing any technical problems, or require any assistance with the proper use or application of this instrument, please contact our technical hotline.

LIMITED WARRANTY

The current probe is warranted to the owner for a period of two years from the date of original purchase against defects in manufacture. This limited warranty is given by AEMC® Instruments, not by the distributor from whom it was purchased. This warranty is void if the unit has been tampered with, abused or if the defect is related to service not performed by AEMC® Instruments.

Full warranty coverage and product registration is available on our website.

AC Current Probe Model LM102

User Manual

DESCRIPTION

The Model LM102 (Cat. #2153.04) is the latest in compact AC current probes. Designed to meet the most stringent demands in industry and electrical contracting, it also meets the latest safety and performance standards. The probe has a measurement range of up to 200Arms which make it the perfect tool for measurements with DMMs, recorders, power and harmonic meters. The Model LM102 is compatible with any ammeter, multimeter, or other measurement instrument that is capable of displaying 1mA of output per amp of measured current.

WARNING

The safety warnings are provided to ensure the safety of personnel and proper operation of the instrument. Read the instruction completely.

- Use caution on any circuit: potentially high voltages and currents may be present and may pose a shock hazard.
- Do not use the probe if damaged. Always connect the current probe to the measuring device before it is connected around the conductor
- Do not use on non-insulated conductor with a potential to ground greater than 600V CAT III pollution 2. Use extreme caution when clamping around bare conductors or bus bars.
- Before each use, inspect the probe; look for cracks in housing or output cable insulation.
- Do not use clamp in wet environment or in locations that hazardous gases exist.
- Do not use the probe anywhere beyond the tactile barrier.

INTERNATIONAL ELECTRICAL SYMBOLS

This symbol signifies that the current probe is protected by double or reinforced insulation. Use only factory specified replacement parts when servicing the instrument.

This symbol signifies CAUTION! and requests that the user refer to the user manual before using the instrument.

This is a type A current sensor. This symbol signifies that application around and removal from HAZARDOUS LIVE conductors is permitted.

DEFINITION OF MEASUREMENT CATEGORIES

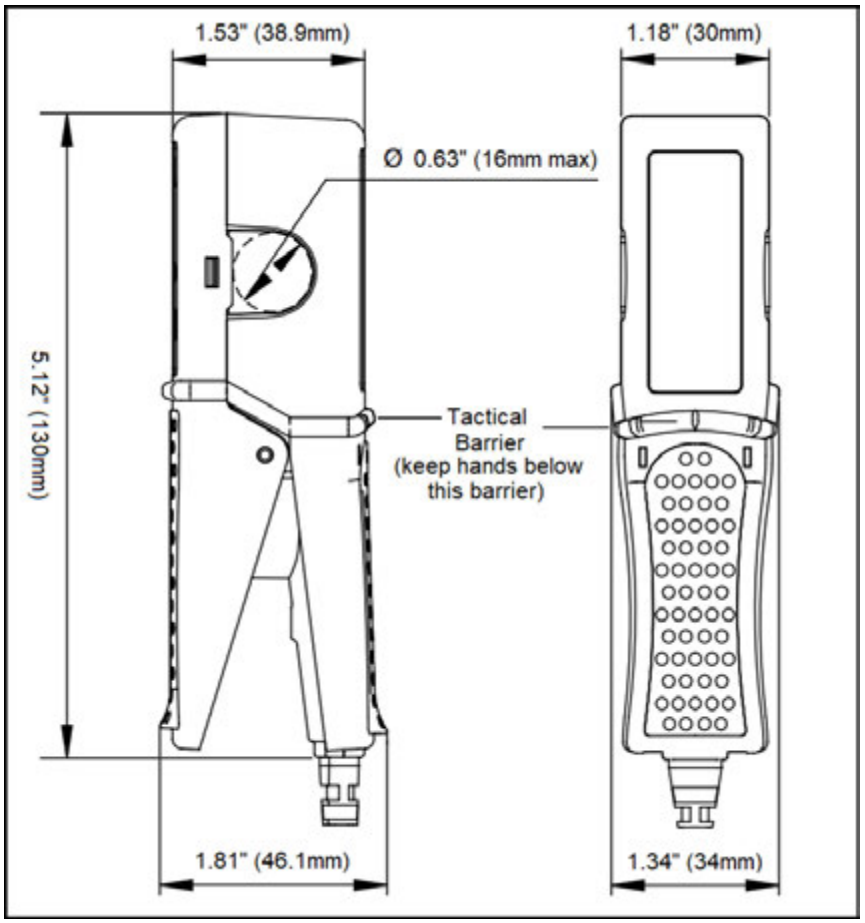
CAT IV: For measurements performed at the primary electrical supply (<1000V) such as on primary overcurrent protection devices, ripple control units, or meters.

CAT III: For measurements performed in the building installation at the distribution level such as on hardwired equipment in fixed installation and circuit breakers.

CAT II: For measurements performed on circuits directly connected to the electrical distribution system. Examples are measurements on household appliances or portable tools.

RECEIVING YOUR SHIPMENT

Upon receiving your shipment, make sure that the contents are consistent with the packing list. Notify your distributor of any missing items. If the equipment appears to be damaged, file a claim immediately with the carrier and notify your distributor at once, giving a detailed description of any damage.



ELECTRICAL SPECIFICATIONS

Nominal Range: 200A

Measurement Range:
50mA to 200A (load 1Ω)
50mA to 200A (load 10Ω)

Output Signal:
1mAAC / AAC (1000 / 1)
(200mA for 200A)

Accuracy and Phase Shift*:

Accuracy:
≤ 1% + 0.02A (load 1Ω)
≤ 1.5% + 0.01A (load 10Ω) ≤
4% + 0.01A (load 100Ω)

Phase Shift:
≤ 3° (load 1Ω)
≤ 6° (load 10Ω)

*Reference conditions: 20°C to 26°C, 20 to 75% RH, external magnetic field <40A/m, 48 to 65Hz sine wave, distortion factor less than 1%, no DC component, no external current carrying conductor, test sample centered. Load impedance > 10Ω.

Frequency Range:
48 to 10kHz

Limit Operating Conditions:
350A permanent at a frequency ≤ 1kHz.
200A permanent at a frequency ≤ 8kHz

Distortion Factor:
< 1%, without superimposed DC component

Load Impedance:
≤ 100Ω

Influence of Adjacent Conductor:
< 2mA/A at 50Hz

Influence of Conductor Position in Jaw:
0.08% @ 50/60Hz

Influence of Frequency:
1% typical

Influence of Temperature:
≤ 0.2% per 10°K

Influence of Humidity:
10 to 90% RH: <0.1%)

Maximum output voltage (secondary open):
≤ 30V

MECHANICAL SPECIFICATIONS

Operating Temperature:
14° to 122°F (-10° to +50°C)

Storage Temperature:
-40° to 176°F (-40° to +80°C)

Operating Relative Humidity:
85% RH (with linear decrease above 95°F (35°C))

Maximum Cable Diameter:
One Ø 0.63" (16mm)

Case Protection:
IP 20 (EN 60529)

Drop Test:
Test per IEC 68-2-32:
1.0m drop on 38mm of oak on concrete.

Dimensions:
5.13 x 1.81 x 1.34" (130.4 x 46 x 34mm)

Weight:
250g (8.8oz)

Polycarbonate Material:
Jaws: Polycarbonate with 10% fiberglass charge, red UL 94 V0

Opening Operations - Life:
> 50,000

Operating altitude:
< 6500' (2000m)

Output:
Double/reinforced insulated 5 ft (1.5m) lead with two safety 4mm banana plug

SAFETY SPECIFICATIONS

Electrical:
Instrument with double insulation or reinforced insulation between the primary, the secondary and the prehensible part located under the guard as per EN 61010-1, EN 61010-2-031 & EN 61010-2-032
- 600 V category III, pollution degree 2
- 300 V category IV, pollution degree 2.

Electromagnetic Compatibility:
Emission and immunity in an industrial environment according to EN61326-1

ORDERING INFORMATION

AC Current Probe LM102..... Cat #2153.04

Accessories:
Banana plug adapter
(to non-recessed plug) ..... **Cat #1017.45**