AC Current Probe
Model MN134
User Manual

DESCRIPTION

The **AEMC® Instruments Model MN134** (Cat. #2129.22) is a small, compact AC current probe and is designed to meet the most stringent demands in industry and electrical contracting. This instrument meets the latest safety and performance standards. The probe has a measurement range up to 10 Arms which makes it a perfect tool for measurement with DMMs and recorders. The **Model MN134** is compatible with any AC multimeter, or other voltage measurement instrument with an input impedance greater than 1 MΩ. To achieve the stated accuracy, use the probe with a voltmeter with an accuracy of 0.75 % or better.

WARNING

These safety warnings are provided to ensure the safety of personnel and proper operation of the instrument.

- Read the instruction manual completely and follow all the safety information before attempting to use or service this instrument.
- Use caution on any circuit: high voltages and currents may be present and may pose a shock hazard.
- Read the Safety Specifications section prior to using the current probe. Never exceed the maximum voltage ratings given.
- Safety is the responsibility of the operator.
- ALWAYS connect the current probe to the display device before clamping the probe onto the sample being tested.
- ALWAYS inspect the instrument, probe, probe cable, and output terminals prior to use. Replace any defective parts immediately.
- NEVER use the current probe on electrical conductors rated above 600 V in overvoltage category III (CAT III). Use extreme caution when clamping around bare conductors or bus bars.

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 symbol signifies that this is a type A current sensor and that application near and removal from **HAZARDOUS LIVE** conductors is permitted.


This symbol signifies a voltage limiting circuit.

DEFINITION OF MEASUREMENT CATEGORIES (CAT)

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

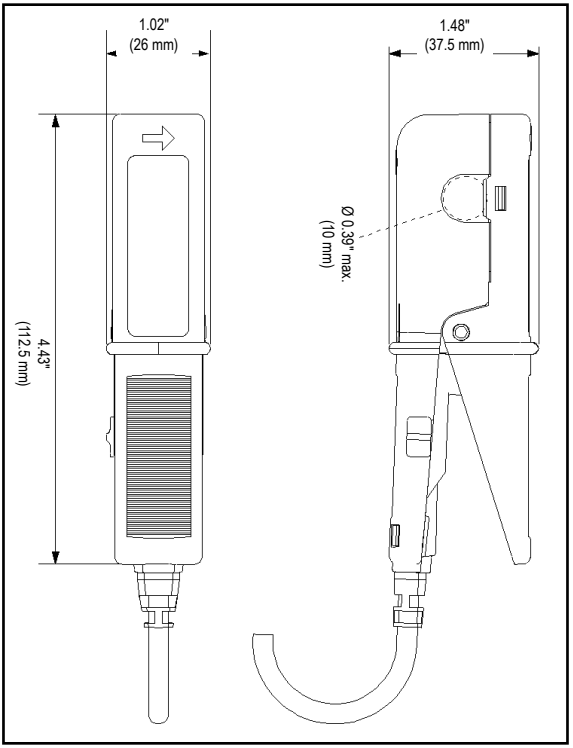
CAT III: For measurements performed in the building installation at the distribution level, such as hardwired equipment in fixed installation or circuit breakers.

CAT II: For measurements performed on circuits directly connected to the electrical distribution system, such as 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.

CURRENT PROBE - MN134 DRAWING



ELECTRICAL SPECIFICATIONS

Nominal Range:
10 A_{AC}

Measurement Range:
1 mA to 10 A_{AC}

Output Signal:
100 mV_{AC} / A_{AC} (1 V @ 10 A)

Accuracy and Phase Shift*:

Accuracy: 1 MΩ load: 2 % Reading ± 2 mA

Phase Shift: < 10 °

**Reference conditions: (18 to 28) °C, (20 to 75) % RH, external magnetic field < 40 A/m, (48 to 65) Hz sine wave, distortion factor less than 1 %, no DC component, no external current carrying conductor, test sample centered. Load impedance: 1 MΩ*

Overload:
20 A continuous

Frequency Range:
(48 to 500) Hz

Load impedance:
1 MΩ min

Open Secondary Voltage:
≤ 30 V

Working Voltage:
600 Vrms

Common Mode Voltage:
600 Vrms

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

Influence of Conductor Position in Jaw:
< 0.1 % of mA output at 50/60 Hz

Influence of Frequency:
< 2 % of mA output from (65 to 500) Hz

Influence of Temperature:
≤ 0.2 % per 10 °K

Influence of Humidity (10 to 90% RH):
≤ 0.1 % of mA

MECHANICAL SPECIFICATIONS

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

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

Maximum Cable Diameter:
One Ø 0.39 in (10 mm)

Case Protection:
IP 40 (IEC 60529)

Drop Test:
Test per IEC 60068-2-32:
1.0 m drop on 38 mm of Oak on concrete

Mechanical Shock:
Test per IEC 60068-2-27

Vibration:
Test per IEC 60068-2-6

Dimensions:
(5.12 x 1.46 x 0.985) in (130 x 37 x 25) mm

Weight: 180 g (6.5 oz)

Polycarbonate Material:
Jaws: Red Polycarbonate
Case: Dark Polycarbonate

Opening Operations - Life:
> 50,000

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

Altitude:
< 2000 m

Indoor use only

SAFETY SPECIFICATIONS

Electrical:
Conforms to IEC 61010-2-32. ed. 2 2003

Common Mode Voltage:
600 V CAT III, Pollution Degree 2

Electromagnetic Compatibility:
EN 61326-1

ORDERING INFORMATION

AC Current Probe MN134 ..... **Cat. #2129.22**

Includes user manual.

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 MN134

- Connect the black lead of the current probe to “common” and the red lead to the AC voltage input on your DMM. Select the appropriate range (2 VAC range). Clamp the probe around the conductor to be tested. If the reading is less than 200 mV, select the lower range until you obtain the best resolution. Read the value display on the DMM and multiply it by the probe ratio (100/1). (If reading = 159 mV, the current flowing through the probe is
  159 x 100 = 1590 mAAC or 1.59 AAC)
- For best accuracy, avoid taking measurements in the proximity of other conductors if possible. The other conductors may create noise that will affect the accuracy of the measurement.

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. It is critical for power measurement. Contaminants cause air gaps between the jaws, which increases the phase shift between primary and secondary.

MAINTENANCE

Warning

- This product does not have replacement parts.
- To avoid electrical shock, do not attempt to perform any service on the device unless you are qualified to do so.
- To avoid electrical shock and/or damage to the instrument, do not allow water or other foreign agents to come into contact with 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, and then gently clean with a soft, oiled cloth.

REPAIR AND CALIBRATION

A calibration check is recommended once per year. No adjustment is possible.
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. If the instrument is returned for calibration, we need to know if you want a standard calibration, or a calibration traceable to N.I.S.T. (includes calibration certificate plus recorded calibration data).

Ship To: Chauvin Arnoux®, Inc. d.b.a. AEMC® Instruments
15 Faraday Drive ▪ Dover, NH 03820 USA
Phone: (800) 945-2362 (Ext. 360) • (603) 749-6434 (Ext. 360)
Fax: (603) 742-2346
E-mail: repair@aemc.com

(Or contact your authorized distributor)

Contact us for the costs for repair, standard calibration, and calibration traceable to N.I.S.T.

NOTE: You 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 operation or application of your instrument, please call, e-mail or fax our technical support team:

Chauvin Arnoux®, Inc. d.b.a. AEMC® Instruments
Phone: (800) 343-1391 (Ext. 351) • (603) 749-6434 (Ext. 351)
Fax: (603) 742-2346 or E-mail: techsupport@aemc.com www.aemc.com

LIMITED WARRANTY

The current probe is warrantied 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 at: www.aemc.com/warranty.html.

Please print the online Warranty Coverage Information for your records.