AEMC INSTRUMENTS MN213 AC Current Probe User Manual

AC Current Probe
Model MN213
User Manual

Contents

DESCRIPTION

The MN213 (Cat. #2115.75) 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 up to 240Arms which makes it a perfect tool for measurement with DMMs, recorders, power and harmonic meters. The Model MN213 is compatible with any AC ammeter, multimeter, or other current measurement instrument with an input impedance lower than 1Ω. To achieve the stated accuracy, use the MN213 with an ammeter having an accuracy of 0.75% or better.

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.

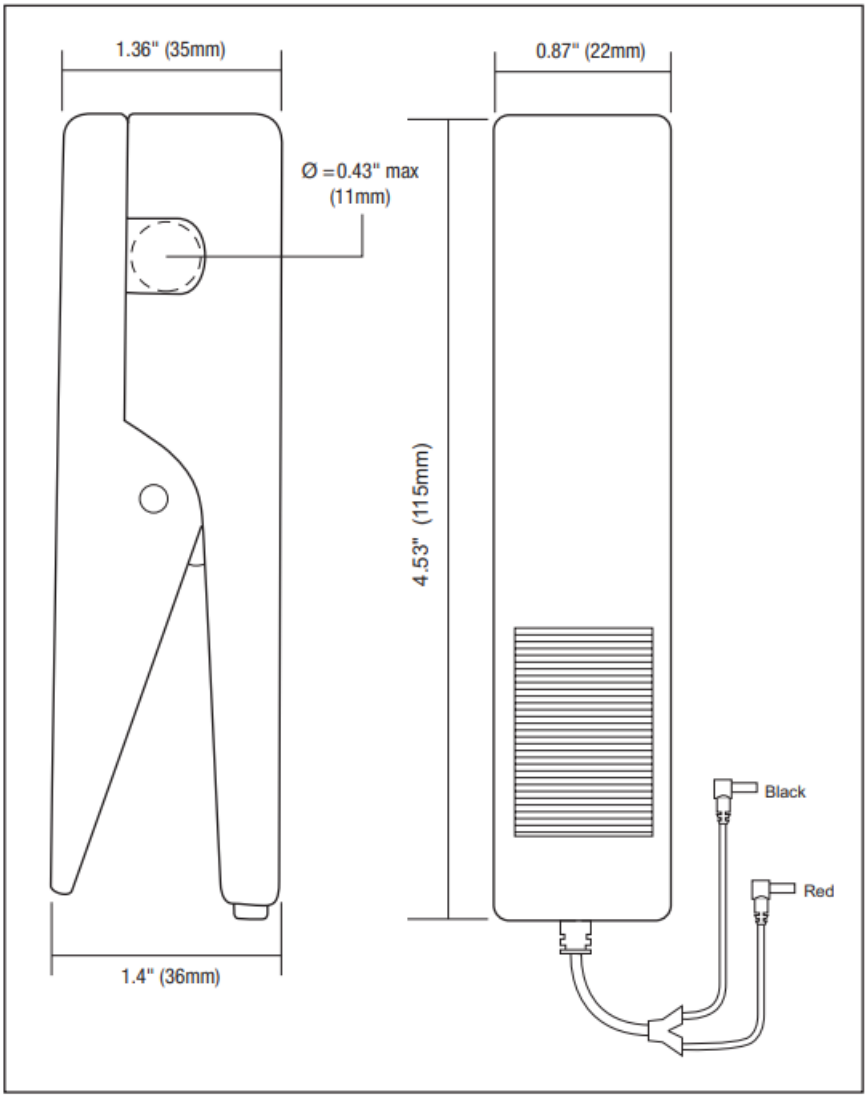
 This is a type A current sensor. This symbol signifies that application around and removal from HAZARDOUS LIVE conductors is permitted.

DEFINITION OF MEASUREMENT CATEGORIES

CAT II: For measurements performed on circuits directly connected to the electrical distribution system. Examples are measurements on household appliances or portable tools.
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 IV: For measurements performed at the primary electrical supply (<1000V) such as on primary overcurrent protection devices, ripple control units, or meters.

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

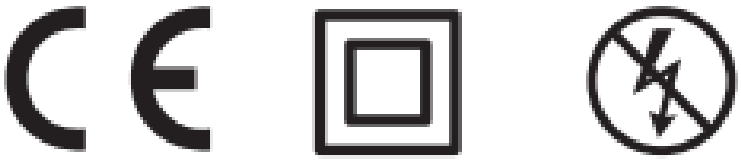
Current Range: 50mA to 100AAC, continuous
Output Signal: 1mAAC/AAC (150mA @ 150A)
Accuracy*:
50mA to 100A: 1% ± 0.05A (with non inductive load)
Phase Shift: N/A (*Reference conditions: 23°C ± 3°K, 20 to 70% RH, external magnetic field < 40 A/m, 48 to 65Hz sine wave, no DC component, no external current carrying conductor, test sample centered.) Load impedance 1Ω.
Overload: 150A continuously
Frequency Range: 48 to 65Hz
Load Impedance: 5Ω max
Working Voltage: 300V on insulated conductor ⏚
Common Mode Voltage: 100VAC Cat. III

MECHANICAL SPECIFICATIONS

Operating Temperature: -13° to 122°F (-25° to 50°C)
Storage Temperature: -40° to 176°F (-40° to 80°C)
Maximum Cable Diameter: 0.43” Ø max. (11mm)
Dimensions: 1.4 x 4.53 x 0.87″ (36 x 115 x 22mm)
Weight: 160 g (6 oz)
Colors: Dark gray handles with red cover
Polycarbonate Material:

Handle: 10% Fiberglass charged polycarbonate UL 94 V0
Output: Insulated 5 ft (1.5 m) lead with safety 4mm banana plug

SAFETY SPECIFICATIONS



Electrical:
300V working voltage on insulated conductor 100V max common mode between output and ground, Cat. III
3kV 50/60Hz dielectric for 1mn

ORDERING INFORMATION

AC Current Probe MN123……Cat #2129.12
Accessories:
Banana plug adapter (to non-recessed plug) ……Cat #1017.45

OPERATION

Making Measurements with the AC Current Probe Model MN123

- Connect the black (S2) and red (S1) terminals to the 200mA range of your DMM or instrument. The MN123 has a ratio of 1000:1. This means that for 100AAC in the conductor around which the probe is clamped, 100mAAC will come out of the probe leads to your DMM or instrument. The output is 1mAAC per Amp. Select the range on your DMM or instrument which best corresponds to the measured current. If the magnitude is unknown, start with the highest range (200mAAC) then work down until the appropriate range and resolution is reached. Clamp the probe around the conductor. Take the reading on the meter and multiply it by 1000 to obtain the measured current (e.g., 59mA reading: 59 x 1000 = 59,000mA or 59A).
- 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. 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).
Chauvin Arnoux® , Inc. d.b.a. AEMC® Instruments
15 Faraday Drive • Dover, NH 03820 USA
Tel: (800) 945-2362 (Ext. 360)
(603) 749-6434 (Ext. 360)
Fax: (603) 742-2346 or (603) 749-6309
repair@aemc.com
(Or contact your authorized distributor)
Costs for repair, standard calibration, and calibration traceable to N.I.S.T. are available.
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 call our technical hotline:
(800) 343-1391
(508) 698-2115
Fax (508) 698-2118
Chauvin Arnoux® , Inc. d.b.a. AEMC® Instruments techsupport@aemc.com
www.aemc.com

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Documents / Resources

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