

AC Current Probe Model SR634

User Manual

DESCRIPTION

The SR634 (Catalog #2113.48) is designed for use in industrial environments. The ergonomic design allows it to easily attach to cables or small bus bars. The "circular" jaws guarantee a very good accuracy and low phase shift. The probe has a measurement range up to 1000Arms. continuous and is compatible with any AC Ammeter, multimeter, or other current measurement instrument with an input impedance lower than 0.6Ω . To achieve the stated accuracy, use the SR634 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

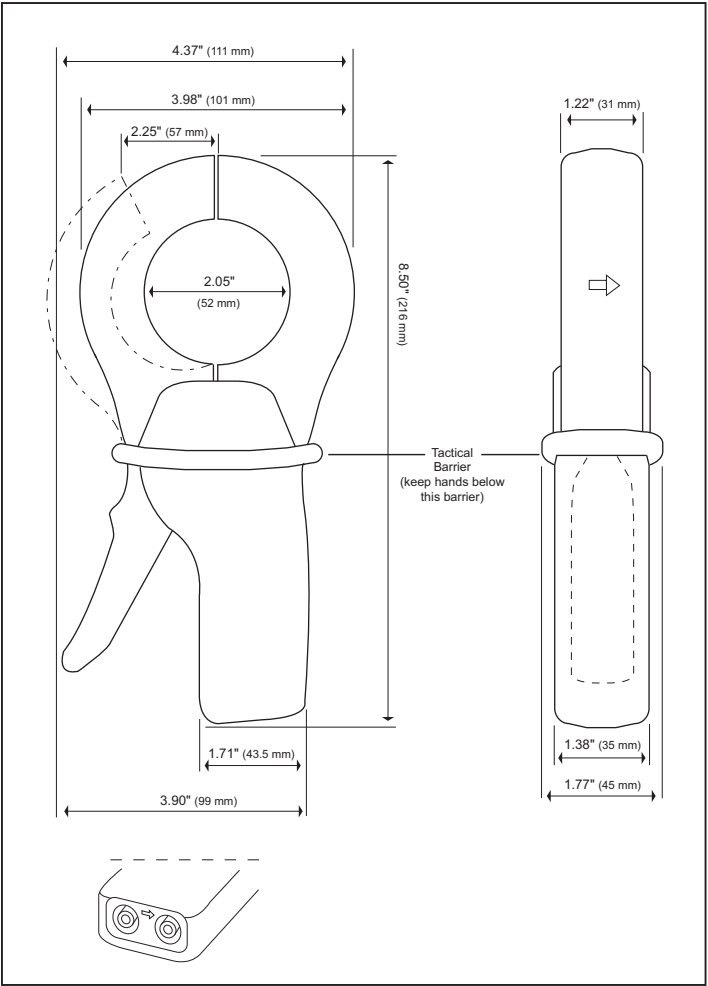
CAT II: For measurements performed on circuits directly connected to the electrical distribution system. Examples are measurements on household appliances or portable tools.

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:

1 to 1000AAC, continuous @ ≤ 1 kHz

Transformation Ratio: 250:5, 500:5, 1000:5

Output Signal: 5mA, 10mA, 20mA AC/A AC
(5AAC at 250, 500 or 1000A)

Accuracy and Phase Shift*:

Range 250:5 - 20mA/A

Primary	1 to 5A	5A	12.5A	50A	250A	300A
Accuracy	$\leq 10\% \pm 0.1A$	10%	5%	2.5%	2%	2%
Phase	N/A	N/A	10°	10°	10°	10°

Overload: 300A for 30 mn on, 15 mn OFF

Range 500:5 - 10mA/A

Primary	1 to 10A	10A	25A	100A	500A	600A
Accuracy	$\leq 6\% \pm 0.1A$	6%	3%	2%	1%	1%
Phase	N/A	6°	4°	3°	2.5°	2.5°

Overload: 600A for 30 mn on, 15 mn OFF

Range 1000:5 - 5mA/A

Primary	1 to 20A	20A	50A	200A	1000A	1200A
Accuracy	$\leq 6\% \pm 0.1A$	5%	3%	1.5%	1%	1%
Phase	N/A	5°	3°	1.5°	1°	1°

Overload: 1200A for 30 on, @ 15 mn OFF

(*Reference conditions: 23°C $\pm 3^\circ$ K, 20 to 75% RH, 48 to 65Hz, external magnetic field < 40 A/m, no DC component, no external current carrying conductor, test sample centered.)
Load impedance 0.2 Ω @ lead < 40m Ω . 0.1 Ω for 250A range.

Accuracy: Per IEC 185

Frequency Range: 30Hz to 5kHz; current derating above 1kHz using the formula: $1000 A \times \frac{1}{F \text{ (in kHz)}}$

Load Impedance: 0.4Ω max

Working Voltage: 600V CAT III

Common Mode Voltage: 600V CAT III

Open Secondary Voltage:

< 25V by limiting circuit

Influence of Adjacent Conductor:

< 1mA/AAC

Influence of Conductor in Jaw Opening:

0.02% of reading

Influence of Frequency:

Range 250:5 - From 65 to 100Hz < 1% of R

From 100 to 1000Hz < 5% of R

Range 500:5 - From 65 to 100Hz < 1% of R

From 100 to 1000Hz < 1% of R

Range 1000:5 - From 65 to 100Hz < 0.5% of R

From 100 to 1000Hz < 1% of R

MECHANICAL SPECIFICATIONS

Operating Temperature:

-14° to 122°F (-10° to 50°C)

Storage Temperature:

-4° to 158°F (-20° to 70°C)

Influence of Temperature:

< 0.13% per 10°K

Influence of Humidity:

Range 250:5 - < 0.6% & < 2°

Range 500:5 - < 0.4% & < 0.6°

Range 1000:5 - < 0.2% & < 0.2°

Jaw Opening:

2.25" (57 mm) max.

Maximum Conductor Size:

2.05" (52 mm)

Envelope Protection:

IP 40 (IEC 529)

Drop Test: 1 m (IEC 68-2-32)

Mechanical Shock:

100 g (IEC 68-2-27)

Vibration:

5 to 15 Hz, 0.15 mm (IEC 68-2-6)

15 to 25 Hz, 1 mm

25 to 55 Hz, 0.25 mm

Polycarbonate Material:

Handles: ABS Grey and

Lexan 500R, Red: UL94V0

Jaws: Lexan 500R, Red: UL94V0

Dimensions:

4.37 x 8.50 x 1.77" (111 x 216 x 45mm)

Weight:

1.21 lbs. (550 g)

Output:

Two standard safety banana jacks (4mm)

SAFETY SPECIFICATIONS



Electrical:

Double insulation or reinforced insulation between the primary or secondary and the outer case of the handle conforms to IEC 1010-2-032.

Common Mode Voltage:

600V CAT III, Pollution Degree 2

Dielectric Strength:

5550V, 50/60Hz between primary, secondary and the outer case of the handle

Electromagnetic Compatibility:

EN 50081-1 Class B

EN 50082-2 Electrostatic discharge

IEC 1000-4-2

Radiated field IEC 1000-4-3

Fast transients IEC 1000-4-4

Magnetic field at 50/60 Hz IEC 1000-4-8

ORDERING INFORMATION

AC Current Probe SR634 Cat #2113.48

Accessories:

Lead, set of 2, 5 ft. safety (1000V)..... Cat #2111.29

Banana plug adapter

(to non-recessed plug) Cat #1017.45

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 SR634

- Connect the current probe to an AC current range on your DMM or other current measuring instrument. The AC Current Probe SR634 is a multi-ratio unit. The outputs are as follows:

Current Flow in Conductor	Ratio 250:5	Output of Probe Ratio 500:5	Ratio 1000:5
100A	2000mA	1000mA	500mA
250A	5A (5000mA)	2500mA	1250mA

Select the 10 A range on your DMM or instrument. Use the switch on the inside handle to select the 1000:5 range. Clamp the probe around the conductor and work down until the appropriate range and resolution is reached. Take the reading on the meter and multiply it by the ratio selected to obtain the measured current (e.g. 500mA reading - $500 \times 200 = 100,000\text{mA}$ or 100A with the 1000:5 ratio).

- 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 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

15 Faraday Drive • Dover, NH 03820 USA

(800) 945-2362 (Ext. 360) • (603) 749-6434 (Ext. 360) • repair@aemc.com

(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:

(800) 343-1391 • (508) 698-2115 • techsupport@aemc.com

LIMITED WARRANTY

The current probe is warranted to the owner for a period of one year 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.