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CT238A

AC/DC Current Probe

User Manual



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English

Limited Warranty and Limitation of Liability

Your Amprobe product will be free from defects in material and workmanship for 1 year from the date of purchase. This warranty does not cover fuses, disposable batteries or damage from accident, neglect, misuse, alteration, contamination, or abnormal conditions of operation or handling. Resellers are not authorized to extend any other warranty on Amprobe's behalf. To obtain service during the warranty period, return the product with proof of purchase to an authorized Amprobe Test Tools Service Center or to an Amprobe dealer or distributor. See Repair Section for details. THIS WARRANTY IS YOUR ONLY REMEDY. ALL OTHER WARRANTIES - WHETHER EXPRESS, IMPLIED OR STATUTORY - INCLUDING IMPLIED WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE OR MERCHANTABILITY, ARE HEREBY DISCLAIMED. MANUFACTURER SHALL NOT BE LIABLE FOR ANY SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES OR LOSSES, ARISING FROM ANY CAUSE OR THEORY. Since some states or countries do not allow the exclusion or limitation of an implied warranty or of incidental or consequential damages, this limitation of liability may not apply to you.

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Warnings and Precautions





PLEASE READ SPECIFICATIONS BEFORE OPERATING THE INSTRUMENT

Exceeding the maximum limits of this instrument is DANGEROUS.

Exceeding these limits will expose you to physical injury or even death and will almost certainly damage your instrument. Even low-level voltages and currents are capable of causing serious injury or even death.

- **Please do not use this or any piece to test equipment without proper training.**
- **Individual functions and ranges have different overload limits.**
- **It is VERY IMPORTANT that you make yourself aware of these overload limits.**
- **Check the specifications of these overload limits.**

Symbols

	Caution! Refer to this manual before using the probe.
	Probe is protected by Reinforced or Double Insulation.
	Application around and removal from HAZARDOUS LIVE conductors is permitted.
	Conforms to European Union directives.

Introduction

The CT238A current probe has been designed for use with multimeters for accurate, non-intrusive measurement of both AC, DC and complex waveform currents.

Using advanced Hall Effect technology the CT238A can accurately measure currents with a resolution of 1mA from 5mA to 30 Amps over the frequency range of DC to 20 kHz.

These features make it a powerful tool for use in inverters, switch mode power supplies, industrial controllers and other applications requiring current measurement and/or waveform analysis.

Specifications

Electrical data

(All accuracies stated at 23°C ± 1°C)

Nominal current I_n	20 A r.m.s
Measuring range	0 to ±30 A
Overload capacity	500A
Overall DC accuracy	±1% of reading ±2mA
AC accuracy, <1kHz	±1% of reading 2mA
	1kHz to 20kHz: ±3% of reading ±2mA

Resolution ±1mA

Typical output noise level	200µV r.m.s.
Gain variation	±0.01% of reading/°C
Output sensitivity	100mV/A
Frequency range	DC to 20 kHz
di / dt following	20A/µs
Response time	better than 1 µs
Dielectric strength	3.7kV rms 50Hz 1 min

Safety: Meets EN61010-1 Cat III 300V; EN61010-2-032

EMC: Meets EN50081-1, EN50082-1



EMC: This product complies with requirements of the following European Community Directives: 9/336/EEC (Electromagnetic Compatibility) and 73/23/EEC (Low Voltage) as amended by 93/68/EEC (CE Marking).

General data

Operating temperature	0°C to +50°C
Storage temp., battery removed	20°C to +85°C
Environment	
- indoor use	
- altitude up to 2000m	
- maximum relative humidity	80% for temperatures up to 31°C decreasing linearly to 40% relative humidity at 50°C.
Power supply	9 V Alkaline battery PP3, NEDA 1604 or IEC6F22
Battery life	30 hours typical
Load impedance (minimum)	> 10k Ω and ≤100pF
Conductor size	19 mm diameter
Jaw opening	20 mm max.
Weight	250 g.
Output cable and connectors	1.5m long terminated with 4mm safety plugs.

Operating Instructions

Refer to Fig. 1.

Switch On

When the probe is switched on the red LED will illuminate. The LED starts flashing when the battery voltage is too low for normal operation and warns the user that it requires changing. This procedure is described in Battery Replacement.

Zero Adjustment

The output zero offset voltage of the probe may change due to thermal shifts and other environmental conditions. To adjust the output voltage to zero depress the thumbwheel and rotate. Ensure that the probe is away from the current carrying conductor when the adjustment is made.

Current Measurement

Switch on the probe using the On - Off switch and check that the LED is lit. Connect the output lead to a multimeter.

If necessary adjust the probe output voltage to zero as described in section Zero Adjustment.

Clamp the jaws of the probe round the conductor ensuring a good contact between the closing faces of the jaws.

Observe and take measurements as required. Positive output indicates that the current flow is in the direction shown by the arrow on the probe.

True r.m.s. readings may be obtained by using an appropriate true r.m.s. multimeter.

Safety

This instrument is designed to be safe under the following conditions:

Use of the probe on **uninsulated conductors** is limited to 300V r.m.s or d.c. and frequencies below 1kHz.

Safety in its use is the responsibility of the operator who must be a suitably qualified or authorized person.

Do not use the probe if any part of the probe including the lead and connector(s) appear to be damaged or if a malfunction of the instrument is suspected.

When using the probe ensure that your fingers are behind the **protective barrier** see Fig. 1

Clean the case periodically by wiping it with a damp cloth and detergent. Do not use abrasive cleaners or solvents. Do not immerse the probe in liquids.

Battery Replacement

Warning

Before removing the battery cover, make sure that the probe is remote from any live electrical circuit.

The red LED will flash when the minimum operating voltage is approached. Refer to Fig.1 and use the following procedure.

1. Unclamp the probe from the conductor, turn it off using the **On - Off** switch and disconnect the output leads from external equipment.
2. Loosen the captive screw which secures the battery cover.
3. Lift the cover through 30° and pull it clear of the probe body as shown in Fig 1. The battery is then accessible.
4. Replace the battery and re-fit the battery cover and fasten the screw.
5. Replacement with other than the specified type of battery will invalidate the warranty. Fit only Type 9 V PP3, Alkaline (MN 1604).

Frequency Response and Accuracy Curves

Refer to Fig. 2.

Repair

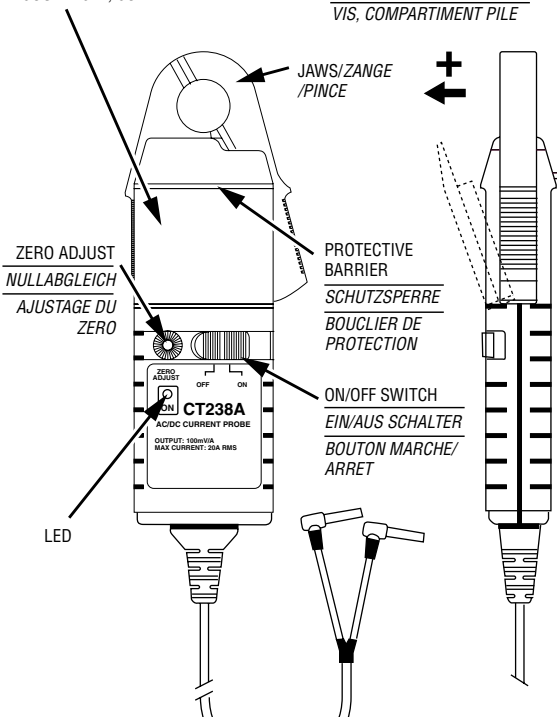
All test tools returned for warranty or non-warranty repair or for calibration should be accompanied by the following: your name, company's name, address, telephone number, and proof of purchase. Additionally, please include a brief description of the problem or the service requested and include the test leads with the meter. Non-warranty repair or replacement charges should be remitted in the form of a check, a money order, credit card with expiration date, or a purchase order made payable to Amprobe® Test Tools.

In-Warranty Repairs and Replacement – All Countries

Please read the warranty statement and check your battery before requesting repair. During the warranty period any defective test tool can be returned to your Amprobe® Test Tools distributor for an exchange for the same or like product.

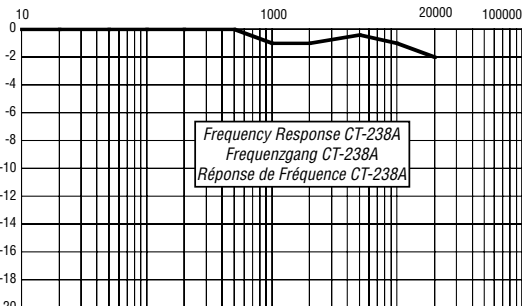
Non-Warranty Repairs and Replacement – US and Canada

Non-warranty repairs in the United States and Canada should be sent to a Amprobe® Test Tools Service Center. Call Amprobe® Test Tools or inquire at your point of purchase for current repair and replacement rates.

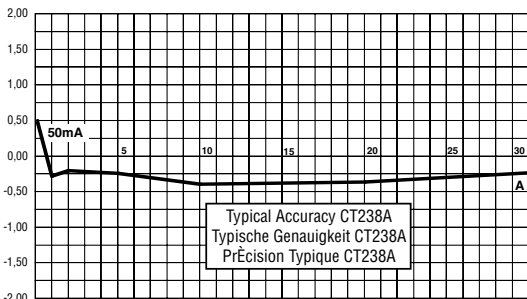
1BATTERY COVERBATTERIEFACHDECKELCOUVERCLE, COMP. PILEBATTERY COVER SCREW
(CAPTIVE)SCHRAUBE, BATTERIEFACH
VIS, COMPARTIMENT PILE

Phase shift in degrees ĩ Phasenverschiebung in Grad
ĩ Dřphasage en degrř

Frequency in Hz ĩ Frequenz in Hz ĩ Frřquence en Hz



% Error of Reading ĩ % Ablesefehler
ĩ % Prřcision de Lecture



Gain in dB ĩ Verstřkung in dB ĩ Gain en dB

Frequency in Hz ĩ Frequenz in Hz ĩ Frřquence en Hz

