

# OPERATING INSTRUCTIONS

for  
**AMPROBE®**  
 Digital Clamp-On  
 Volt/Amp/Ohmmeter  
 Model ACD-12  
 and  
 Model ACD-12H

## SERVICE

The Mfg. number is located on the back label of the instrument. For factory service, pack instrument and packing slip with sufficient cushioning material in a shipping carton; make certain your name and address also appear on the box as well as the packing slip; ship prepaid via U.P.S. (where available) or Air Parcel Post insured to:

Service Division  
 AMPROBE® INSTRUMENT  
 630 Merrick Road (for U.P.S.)  
 P.O.Box 329 (for A.P.P.)  
 Lynbrook, NY 11563-0329

Outside the U.S.A. the local AMPROBE® representative will assist you.

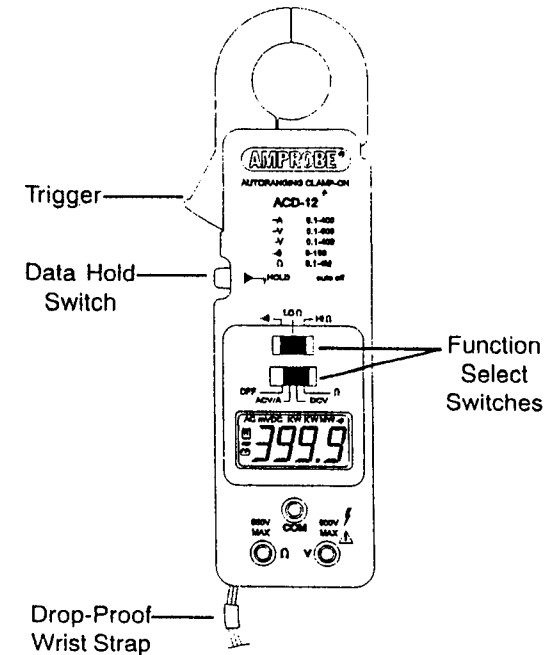


Fig. 1

See "PRECAUTIONS FOR PERSONAL AND INSTRUMENT PROTECTION" on Page 3

See "LIMITED WARRANTY" on Page 2

**AMPROBE INSTRUMENT**  
 DIVISION OF CORE INDUSTRIES INC. LYNBROOK, NEW YORK 11563

## LIMITED WARRANTY

Congratulations! You are now the owner of an AMPROBE Instrument. It has been quality crafted according to quality standards and contains quality components and workmanship. This instrument has been inspected for proper operation of all its functions. It has been tested by qualified factory technicians according to the long-established standards of AMPROBE INSTRUMENT.

Your AMPROBE instrument has a limited warranty against defective materials and/or workmanship for two years from the date of purchase provided that, in the opinion of the factory, the instrument has not been tampered with or taken apart.

*Should your instrument fail due to defective materials, and/or workmanship during the two-year warranty period, return it along with a copy of your dated bill of sale, which must identify the instrument by model number and mfg. number.*

For your protection, please use the instrument as soon as possible. If damaged, or should the need arise to return your instrument, it must be securely wrapped (to prevent damage in transit) and sent prepaid via Air Parcel Post insured or UPS where available to:

Service Division  
AMPROBE INSTRUMENT  
630 Merrick Road (for U.P.S.)  
P.O.Box 329 (for P.P.)  
Lynbrook, NY 11563-0329

Outside the U.S.A. the local AMPROBE representative will assist you. The above limited warranty covers repair and replacement of instrument only and no other obligation is stated or implied.

## PRECAUTIONS FOR PERSONAL AND INSTRUMENT PROTECTION

- 1) Read these instructions thoroughly and follow them carefully.
- 2) In many instances you will be working with dangerous levels of voltage and/or current; therefore, it is important that you avoid direct contact with any uninsulated, current-carrying surfaces. Appropriate insulating gloves and clothing is to be worn.
- 3) Before connecting or disconnecting the meter to or from the circuit to be tested, turn off all power to the circuit.
- 4) Before applying test leads to circuit under test, make certain that leads are plugged into proper jacks and switches are set to proper range and function.
- 5) Before using any electrical instruments or tester for actual testing, the unit should be checked on a low energy, high impedance source. **Do not use power distribution lines or any other high energy source.**
- 6) If the instrument should indicate that voltage is not present in circuit, do not touch circuit until you have checked to see that all instrument switches are in proper position and instrument has been checked on a known live source.
- 7) Make certain no voltage is present in a circuit before connecting ohmmeter to circuit.

**IMPORTANT: Plug in only one accessory probe or set of test leads at any one time, except as directed.**

**IMPORTANT: Failure to follow these instructions and/or the above precautions may result in personal injury and/or damage to the instrument and/or accessories.**



Caution: Do not apply more than 600V RMS to input terminals. Exceeding this limit creates a shock hazard and may damage the instrument.



Double Insulation

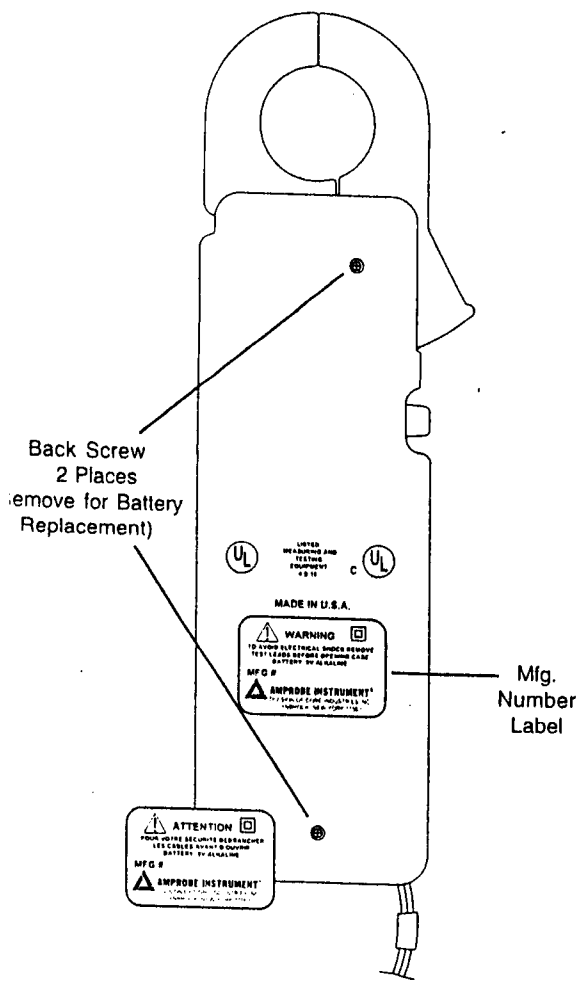


Fig. 2  
Back View

Front View H-12Y

Rear View H-12Y

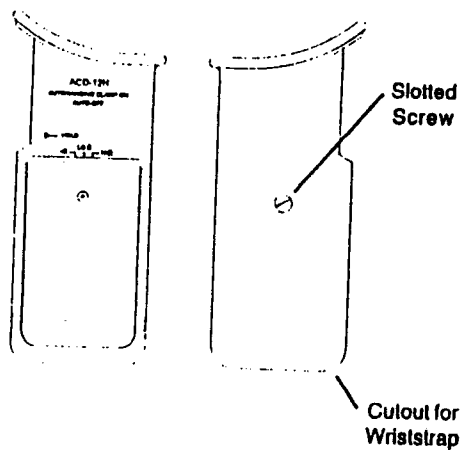


Fig. 2a  
H-12Y Holster Accessory

### Assembly Instructions

- 1) Hold ACD-12 with back of unit facing user.
- 2) Back out slotted screw from H-12Y Holster.
- 3) Insert ACD-12 into top of holster, thread wrist strap through cutout at bottom of the holster.
- 4) Carefully press the Jaw Trigger down as you insert the Holster over the Trigger. Once the Holster is in place, it should be in alignment with the threaded insert on the rear of the ACD-12 case.
- 5) Tighten the screw to secure Holster in place.
- 6) Please notice that the slide switch on the front of the ACD-12 will line up with the «»), Lo Ω, Hi Ω, annunciators of the H-12Y. Observe LCD annunciators as well to insure proper range is selected prior to use.

**Response Time:** Not more than 3.5 seconds with less than 3 LSD fluctuations.

**Maximum Jaw Opening:** 1.10" (28mm)

**Maximum Conductor Size:** 1.02" (26mm)

**Operating Temp/Humidity:** 32°F(0°C) to 120°F(49°C), <80%R.H. all ranges except Low Ohms Range: 50°F(10°C) to 120°F(49°C)

**Storage Temp/Humidity:** 20°F(-6°C) to 140°F(49°C), <80%R.H.

**Safety Standards:** UL 3111, IEC 1010-1, CSA 22.2-1

**Insulation Coordination:** Installation Category III  
Pollution Degree 2

**Weight:** 8 oz. (226 gms)

**Size:** 8" x 2.5" x 1" (20.32cm x 6.35cm x 2.54cm)

**Battery Life:** More than 180 hours (with an alkaline battery)

**Case Breakdown:** 3000 Volts AC

#### UNPACKING AND INSPECTION OF CONTENTS

Included with the Clamp-On meter should be the following items:

- 1) Two test leads; one black, one red
- 2) Instruction Booklet
- 3) Carrying Case
- 4) Holster w/Screw (ACD-12H only)


#### DESCRIPTION

The model ACD-12 Clamp-On meter will directly measure AC current, AC voltage, DC voltage and resistance. On AC measurements, it is average sensing, but calibrated to give an RMS readout of the variable being measured. When the HOLD button is activated, the reading on the display is held indefinitely. The instrument is auto-ranging with a fully annunciating 3¾ digit display, and incorporates circuitry to automatically turn the unit off after 30 minutes.

#### CIRCUIT PROTECTION

The OHMS/CONTINUITY functions are protected to a maximum of 550 volts AC for up to one minute by utilizing a positive temperature coefficient (PTC) resistor.

#### LOW BATTERY INDICATION

Replace the battery, when the low battery indicator  appears in the display. Use a MN1604 9V Alkaline battery as a replacement.

#### BATTERY INSTALLATION

Remove the two back screws and remove the back cover. Carefully snap battery terminal into connector. Align back cover and snap into place. Insert screws and tighten. (See Fig. 2)

#### OVER-RANGE INDICATION

When the input exceeds the range capability of the instrument an over-range indication "OL" will appear in the display.

#### AUTO-POWER OFF FUNCTION

Once the Clamp-On meter is powered on, a timer is activated which will turn the unit off after approximately 30 minutes. If you wish to continue making measurements after the unit automatically powers off, you must switch the function selector to "OFF" and then back to the desired function.

#### HELPFUL HINTS FOR GETTING TOP PERFORMANCE FROM YOUR DIGITAL CLAMP-ON

- 1) When measuring Amps, be sure to center the jaws of the Clamp-On around conductor whose current is being measured.
- 2) Be sure the jaws are closed properly before taking a reading.
- 3) When measuring current of widely varying values, start with the conductor in which you expect to find the lowest current, then the next highest, etc. To reduce the possibility of retained magnetism in the jaw, open and close the jaw a few times between measurements.

#### HOW TO MEASURE AC CURRENT

- 1) Disconnect test leads if connected to the instrument.
- 2) Turn instrument on by moving the function select switch (see Fig. 1) to the ACV/A position.
- 3) Be sure that the HOLD switch is not depressed.
- 4) Encircle a single conductor with the jaws of the instrument.
- 5) Release finger pressure on the trigger and allow the jaws to close fully around the conductor.
- 6) If current being measured is greater than 400 Amps, the instrument will automatically shift to the next higher range.

## SPECIFICATIONS

**Type of Display:** 3¾ digits LCD  
**Size of Digits:** 0.5"  
**Over-range Indication:** "OL"  
**Low Battery Indication:** Battery symbol in display  
**Functions:** DC Volts, AC Volts, AC Amps, Ohms, Continuity  
**Function Select:** Dual Slide Switches  
**Ranging:** Auto  
**Ranging Point:** 390 ±5 counts

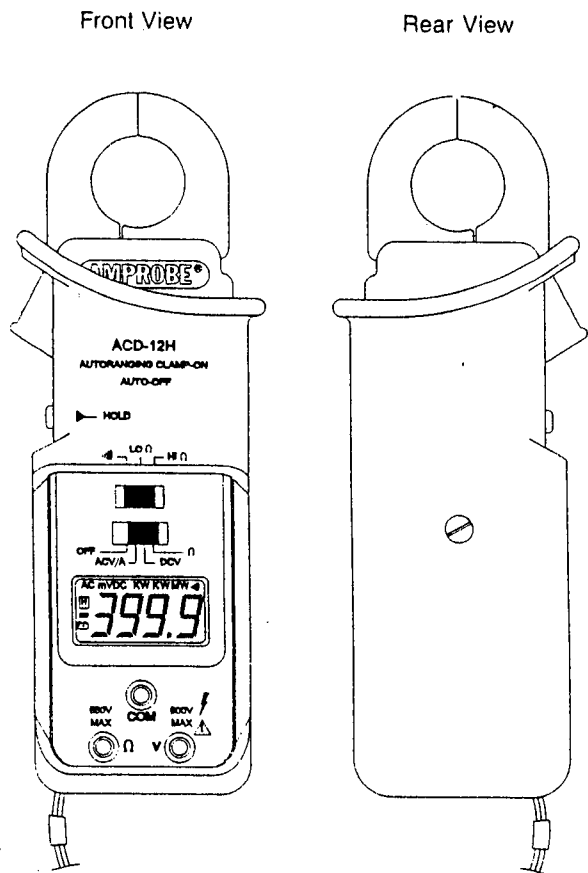


Fig. 2b  
ACD-12 with H-12Y Holster Assembly

DC Volts:	Ranges	0.1mV to 40V	40V to 400V
	Accuracy	1% ±3 LSD	2% ±3 LSD

Overload Protection: 500 VDC Max.

Input Impedance: 10 Megohms

Accuracy: 1% of rdg. ±3 LSD

**AC Volts:** Ranges: 0-400 V, 400-600 V  
 Resolution: 0.1 V for 0-400 V, 1 V for 400-600V  
 Frequency Range: 50-60 Hz  
 Overload Protection: 850 VAC Max.  
 Input Impedance: 10 Megohms  
 Accuracy: 1.2% of rdg. ±3 LSD

**AC Amps:** Range: 0-400 Amps  
 Resolution: 0.1 Amp  
 Frequency Range: 50-60 Hz  
 Overload Protection: 500 Amps for one minute  
 Duty: Continuous up to 400 Amps  
 Accuracy: 1.2% of rdg. ±3 LSD

Low Ohms:	Ranges	0-400 Ω	400-999 Ω	1-4k Ω
	Resolution	0.1 Ω	1 Ω	0.001k Ω

Accuracy: 1.5% of rdg. ±3LSD

High Ohms:	Ranges	0-400kΩ	400-999kΩ	1-4MΩ
	Resolution	0.1Ω	1kΩ	0.001MΩ

Accuracy: 1.5% of rdg. ±3LSD

**Continuity with Buzzer:** 0-150 Ohms

**Ohms/Continuity:** Circuit Protection to 550 VAC for one minute by PTC.

**Display Hold:** Separate button on side. No decay in reading.

**Auto-Power Off:** After approximately 30 minutes.

**Power Supply:** 9 Volt Alkaline Battery

**Measurement Rate:** 4 times per second minimum.

## HOW TO MEASURE AC VOLTAGE

### IMPORTANT

 Read "PRECAUTIONS FOR PERSONAL AND INSTRUMENT PROTECTION" before using instrument.

- 1) Connect test leads to instrument (Red to V and Black to COM).
- 2) Turn instrument on by moving the function select switch (see Fig. 1) to the ACV/A position.
- 3) Be sure that the HOLD switch is not depressed.
- 4) Apply test probes to the points of the circuit to be measured.
- 5) If voltage being measured is higher than 400 Volts, the instrument will automatically switch to the next higher range.

## HOW TO MEASURE DC VOLTAGE

### IMPORTANT

 Read "PRECAUTIONS FOR PERSONAL AND INSTRUMENT PROTECTION" before using instrument.

**CAUTION:** Do not apply more than 35.0 VDC continuously for more than 20 minutes.

- 1) Connect test leads to instrument (Red to V and Black to COM).
- 2) Turn instrument on by moving the function select switch (see Fig. 1) to the DCV position.
- 3) Be sure that the HOLD switch is not depressed.
- 4) Apply test probes to the points of the circuit to be measured, observing polarity. If the instrument reads a minus voltage, you have connected the red test lead to the negative point in the circuit. The correct hook-up for a positive voltage reading is the red lead to positive and the black lead to negative.
- 5) If voltage being measured is higher than the range the instrument is presently on, it will automatically switch to the next higher voltage range.

## HOW TO MEASURE RESISTANCE

### IMPORTANT

 Read "PRECAUTIONS FOR PERSONAL AND INSTRUMENT PROTECTION" before using instrument.

- 1) Connect test leads to instrument (Red to Ohms and Black to COM).
- 2) Turn instrument on by moving lower function select switch to the Ohms position.
- 3) Move the upper function select switch to LO Ohms to measure a resistance between 0 and 4k Ohms. Read display directly when test probes are connected to resistance to be checked. If you get a reading of "OL", try moving the upper function select switch to HI Ohms to measure a resistance range of 4k to 4M Ohms.
- 4) For an audible continuity check, move the upper function select switch to the  $\rightarrow$ ) position. The display will read "000". The buzzer will sound if a resistance from 0 to 150 Ohms is connected to the test probes.

## ACCESSORIES

Below is a listing of AMPROBE accessories that can be used with the ACD-12 to enhance its measuring capability:

- TMA-1 - Multi-Temp Temperature Measurement Accessory (Needs TPIF/C, TPSF/C, or TPAF/C Probe)
- ETL-10 - Extendo Lead Set

## REPLACEMENT PARTS

Below is a listing of AMPROBE replacement parts for use with the ACD-12 Clamp-On:

- DTL-12 - Standard Test Leads (Set of Two - Red & Black)
- SV-12 - Soft Vinyl Carrying Case for ACD-12
- SV-12TH - Soft Vinyl Carrying Case for ACD-12H
- MN-1604 - 9 Volt Alkaline Battery
- H-12Y - Holster

## CLEANING AND STORAGE INSTRUCTIONS

The instrument should be cleaned with a damp cloth. Do not use abrasives or solvents. Open the clamp jaws and wipe the magnetic pole pieces with a lightly oiled cloth. If instrument will not be used for a long period of time, remove battery and store it separately.