Where Do I Find Everything I Need for Process Measurement and Control? OMEGA ... Of Course!

TEMPERATURE

- Thermocouple, RTD & Thermistor Probes, Connectors, Panels & Assemblies
- Wire: Thermocouple, RTD & Thermistor
- Calibrators & Ice Point References
- Recorders, Controllers & Process Monitors
- Infrared Pyrometers

PRESSURE / STRAIN FORCE

- Transducers & Strain Gauges
- Load Cells & Pressure Gauges
- Displacement Transducers
- Instrumentation & Accessories

FLOW / LEVEL

- Rotameters, Gas Mass Flowmeters & Flow Computers
- Air Velocity Indicators
- Turbine / Paddlewheel Systems
- Totalizers & Batch Controllers

pH/CONDUCTIVITY

- pH Electrodes, Testers & Accessories
- Benchtop / Laboratory Meters
- Controllers, Calibrators, Simulators & Pumps
- Industrial pH & Conductivity Equipment

DATA ACQUISITION

- Data Acquisition & Engineering Software
- Communications-Based Acquisition Systems
- Plug-in Cards for Apple, IBM & Compatibles
- Datalogging Systems
- Recorders, Printers & Plotters

HEATERS

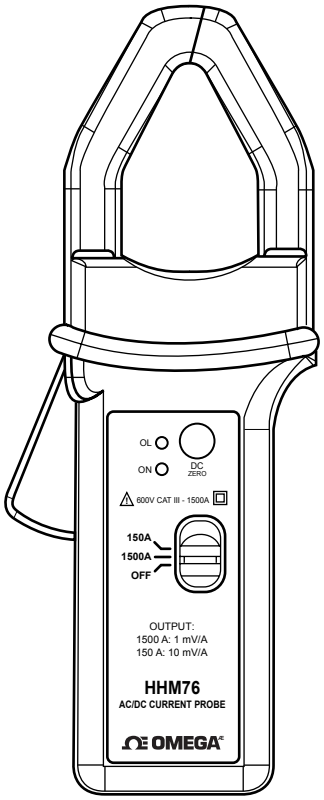
- Heating Cable
- Cartridge & Strip Heaters
- Immersion & Band Heaters
- Flexible Heaters
- Laboratory Heaters

ENVIRONMENTAL MONITORING AND CONTROL

- Metering & Control Instrumentation
- Refractometers
- Pumps & Tubing
- Air, Soil & Water Monitors
- Industrial Water & Wastewater Treatment
- pH, Conductivity & Dissolved Oxygen Instruments

omega.com

OMEGA



http:/www.omega.com
e-mail:
info@omega.com

Model HHM73
Model HHM76
AC/DC Oscilloscope Current Probes

WARRANTY/DISCLAIMER

OMEGA ENGINEERING, INC. warrants this unit to be free of defects in materials and workmanship for a period of **13 months** from date of purchase. OMEGA Warranty adds an additional one (1) month grace period to the normal **one (1) year product warranty** to cover handling and shipping time. This ensures that OMEGA's customers receive maximum coverage on each product.

If the unit should malfunction, it must be returned to the factory for evaluation. OMEGA's Customer Service Department will issue an Authorized Return (AR) number immediately upon phone or written request. Upon examination by OMEGA, if the unit is found to be defective it will be repaired or replaced at no charge. OMEGA's WARRANTY does not apply to defects resulting from any action of the purchaser, including but not limited to mishandling, improper interfacing, operation outside of design limits, improper repair, or unauthorized modification. This WARRANTY is VOID if the unit shows evidence of having been tampered with or shows evidence of being damaged as a result of excessive corrosion; or current, heat, moisture or vibration; improper specification; misapplication; misuse or other operating conditions outside of OMEGA's control. Components which wear are not warranted, including but not limited to contact points, fuses, and triacs.

OMEGA is pleased to offer suggestions on the use of its various products. However, OMEGA neither assumes responsibility for any omissions or errors nor assumes liability for any damages that result from the use of its products in accordance with information provided by OMEGA, either verbal or written. OMEGA warrants only that the parts manufactured by it will be as specified and free of defects. OMEGA MAKES NO OTHER WARRANTIES OR REPRESENTATIONS OF ANY KIND WHATSOEVER, EXPRESSED OR IMPLIED, EXCEPT THAT OF TITLE, AND ALL IMPLIED WARRANTIES INCLUDING ANY WARRANTY OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE HEREBY DISCLAIMED. LIMITATION OF LIABILITY: The remedies of purchaser set forth herein are exclusive and the total liability of OMEGA with respect to this order, whether based on contract, warranty, negligence, indemnification, strict liability or otherwise, shall not exceed the purchase price of the component upon which liability is based. In no event shall OMEGA be liable for consequential, incidental or special damages.

CONDITIONS: Equipment sold by OMEGA is not intended to be used, nor shall it be used: (1) as a "Basic Component" under 10 CFR 21 (NRC), used in or with any nuclear installation or activity; or (2) in medical applications or used on humans. Should any Product(s) be used in or with any nuclear installation or activity, medical application, used on humans, or misused in any way, OMEGA assumes no responsibility as set forth in our basic WARRANTY/ DISCLAIMER language, and additionally, purchaser will indemnify OMEGA and hold OMEGA harmless from any liability or damage whatsoever arising out of the use of the Product(s) in such a manner.

RETURN REQUESTS/ INQUIRIES

Direct all warranty and repair requests/inquiries to the OMEGA Customer Service Department. BEFORE RETURNING ANY PRODUCT(S) TO OMEGA, PURCHASER MUST OBTAIN AN AUTHORIZED RETURN (AR) NUMBER FROM OMEGA'S CUSTOMER SERVICE DEPARTMENT (IN ORDER TO AVOID PROCESSING DELAYS). The assigned AR number should then be marked on the outside of the return package and on any correspondence.

The purchaser is responsible for shipping charges, freight, insurance and proper packaging to prevent breakage in transit.

FOR **WARRANTY** RETURNS, please have the following information available BEFORE contacting OMEGA:

1. P.O. number under which the product was PURCHASED,
2. Model and serial number of the product under warranty, and
3. Repair instructions and/or specific problems relative to the product.

FOR **NON-WARRANTY REPAIRS**, consult OMEGA for current repair charges. Have the following information available BEFORE contacting OMEGA:

1. P.O. number to cover the COST of the repair,
2. Model and serial number of product, and
3. Repair instructions and/or specific problems relative to the product.

OMEGA's policy is to make running changes, not model changes, whenever an improvement is possible. This affords our customers the latest in technology and engineering.

OMEGA is a registered trademark of OMEGA ENGINEERING, INC.

omega.com

OMEGAnet℠ On-Line Service:
http://www.omega.com
Internet e-mail: info@omega.com

Servicing North America:

USA: *ISO 9001 Certified*
One Omega Drive, Box 4047
Stamford, CT 06907-0047
Tel: (203) 359-1660 FAX: (203) 359-7700
e-mail: info@omega.com

Canada:
976 Bergar
Laval (Quebec) H7L 5A1
Tel: (514) 856-6928 FAX: (514) 856-6886
e-mail: canada@omega.com

For Immediate Technical or Application Assistance:

USA and Canada:
Sales Service: 1-800-826-6342 1-800-TC-OMEGA℠
Customer Service: 1-800-622-2378 / 1-800-622-BEST℠
Engineering Service: 1-800-872-9436 / 1-800-USA-WHEN℠
TELEX: 996404 EASYLINK 62968934 CABLE: OMEGA

Mexico and Latin America:
Tel: (95) 800-TC-OMEGA℠ FAX: (95) 203-359-7807
En Espanol: (203) 359-1660 ext: 2203
e-mail: espanol@omega.com

Servicing Europe:

Benelux:
Postbus 8034,1180 LA Amstelveen, The Netherlands
Tel: (31) 20 6418405 FAX: (31) 20 6434643
Toll Free in Benelux: 06 0993344 e-mail: nl@omega.com

Czech Republic:
Ostravska 767, 733 01 Karvina
Tel: 420 (69) 6311627 FAX: 420 (69) 6311114
e-mail: czech@omega.com

France:
9, rue Denis Papin, 78190 Trappes
Tel: (33) 130-621-400 FAX: (33) 130-699-120
Toll Free/France: 0800-4-06342 e-mail: france@omega.com

Germany/Austria:
Daimlerstrasse 26, D-75392 Deckenpfronn, Germany
Tel: 49 (07056) 3017 FAX: 49 (07056) 8540
Toll Free in Germany: 0130 11 21 66
e-mail: germany@omega.com

United Kingdom: *150 9002 Certified*

25 Swannington Road,	P.O. Box 7, Omega Drive,
Broughton Astley, Leicestershire,	Irlam, Manchester,
LE9 6TU, England	M44 5EX, England
Tel: 44 (1455) 285520	Tel: 44 (161) 777-6611
FAX: 44 (1455) 283912	FAX: 44 (161) 777-6622

Toll Free in England: 0800-488-488
e-mail: uk@omega.com

It is the policy of OMEGA to comply with all worldwide safety and EMC/EMI regulations that apply. OMEGA is constantly pursuing certification of its products to the European New Approach Directives. OMEGA will add the CE mark to every appropriate device upon certification.

The information contained in this document is believed to be correct but OMEGA Engineering, Inc. accepts no liability for any errors it contains, and reserves the right to alter specifications without notice.

WARNING: These products are not designed for use in, and should not be used for, patient connected applications.

Table of Contents

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: Potentially 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.
- NEVER open the back of the instrument while connected to any circuit or input.
- 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 probes are protected by double or reinforced insulation. Use only 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.

Receiving Your Shipment

Upon receiving your shipment, make sure that the contents are consistent with the packing list. Notify Omega of any missing items. If the equipment appears to be damaged, file a claim immediately with the carrier and notify Omega at once, giving a detailed description of any damage.

Notes:

Maintenance

⚠ Warning

- For maintenance use only specified replacement parts.
- Avoid electrical shock: do not attempt to perform any servicing unless you are qualified to do so.
- Avoid electrical shock and/or damage to the instrument: do not get water or other foreign agents into the case. Turn the current probe OFF and disconnect the unit from all circuits before opening the case.
- Also see warning on page 2.

Battery Replacement

- When the probe is turned on, the green LED should light up. If it does not, replace the 9 V battery. Completely disconnect the probe from the circuit under test and from the oscilloscope or measuring instrument. Turn the probe “Off”, unscrew the battery compartment screw and remove cover. Replace the battery and put the cover back on.
- Do not replace the battery while the probe is in use.

Cleaning

- Clean the body of the clamp with a cloth lightly moistened with soapy water. Wipe clean with a cloth moistened with clean water and dry. Do not use solvent.

Packaging

The AC/DC Current Probes Model HHM73 and Model HHM76 include a 9 V battery and user manual.

Description

The Models HHM73 and HHM76 are the newest line of professional AC/DC current probes. They are designed to the latest safety and performance standards. Two different hook-shaped jaws are offered, both permitting the user to “pry” into or “hook” onto cables (will accept 2 x 500 MCM) or even smaller bus bars.

Differing from traditional AC transformers, AC/DC current sensing is often achieved by measuring the strength of a magnetic field created by a current-carrying conductor in a semiconductor chip using the Hall effect principle. When a thin semiconductor is placed at right angles to a magnetic field, and a current is applied to it, a voltage is developed across the semiconductor. This voltage is known as the Hall voltage, named after the US scientist Edwin Hall who first reported the phenomenon. Since the Hall voltage is not dependent on a reversing magnetic fiels, but only on its strength, the device can be used for DC measurement. Second, when the magnetic field strength varies due to varing current flow in the conductor, response to change is instantaneous. Thus, complex AC wave forms may be detected and measured with high accuracy and low phase shift. The basic construction of a probe jaw assembly is shown Figure 1. (Note: one or two Hall generators are used depending on the type of current probe).

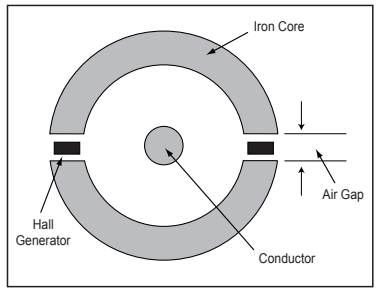


Figure 1

The electronics and batteries are self-contained in the handles. The output of the AC/DC probes is 1 mV/A and 10 mV/A. An auto zero push button ensures rapid and stable zeroing. There is no output filtering - True RMS with DC components is possible. Phase shift is excellent, making the probes well suited for power and power quality applications.

Model HHM73 is a portable 400 A AC (600 A peak), 600 A DC current probe. The unit has proportional mV output for direct readings on handheld and bench top oscilloscopes.

Model HHM76 is a portable 1000 A AC (1500 A peak), 1500 A DC curren probe that accurately measures AC or DC current waveforms using Ha effect technology.

HHM73 Specifications

ELECTRICAL

Current Range:
60 A range:
0.2 to 40 A AC (60 A Peak)
0.4 to 60 A DC

600 A range:
0.5 to 400 A AC (600 A Peak)
0.5 to 600 A DC

Output Signal:
10 mV/A on 60 A range
1 mV/A on 600 A range

Accuracy and Phase Shift*:
60 A Range:
0.5 to 40 A: 1.5% reading ± 0.5 A
40 to 60 A DC only: 1.5% reading

Phase Shift:
45 to 65 Hz 10 to 20 A: ≤ 3°
20 to 40 A: ≤ 2°

600 A Range:
0.5 to 100 A: 1.5% reading ± 1 A
100 to 400 A: 2.0% reading
400 to 600 DC only: 2.5% reading

Phase Shift:
45 to 65 Hz 10 to 100 A: ≤ 2°
100 to 400 A: ≤ 1.5°

Overload:
2000 A DC and 1000 A AC
continuous up to 1 kHz

HHM76 Specifications

ELECTRICAL

Current Range:
150 A Range:
0.2 to 100 A AC (150 A Peak)
0.4 to 150 A DC

1500 A Range:
0.5 to 1000 A AC (1400 A Peak)
0.5 to 1500 A DC

Output Signal:
10 mV/A on 150 A range
1 mV/A on 1500 A range

Accuracy and Phase Shift*:
150 A Range:
0.5 to 20 A: 1.5% reading ± 0.5 A
20 to 100 A: 1.5% reading
100 to 150 A DC only: 2.5% reading

Phase Shift:
45 to 65 Hz 10 to 20 A: ≤ 3°
20 to 100 A: ≤ 2°

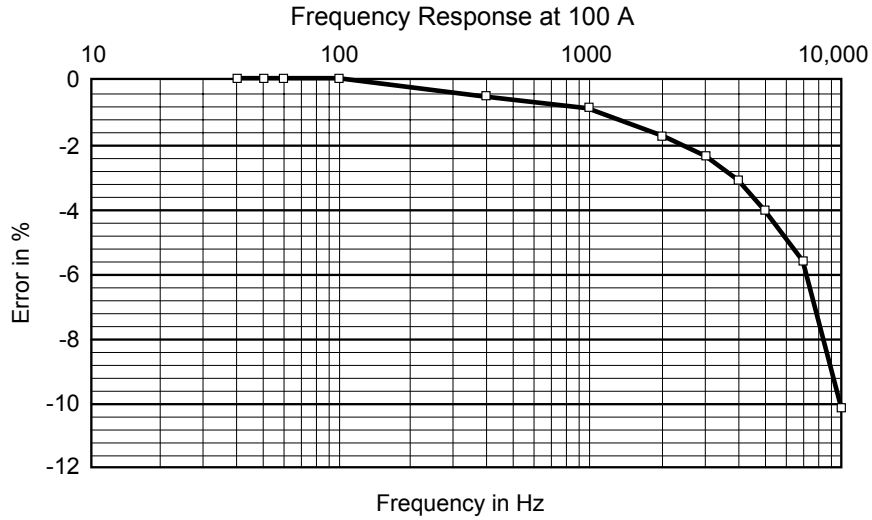
1500 A Range:
0.5 to 100 A: 1.5% reading ± 1 A
100 to 800 A: 2.5% reading
800 to 1000 A: 4% reading
1000 to 1400 DC only: 4% reading.

Phase Shift:
45 to 65 Hz 10 to 200 A: ≤ 2°
200 to 1000 A: ≤ 1.5°

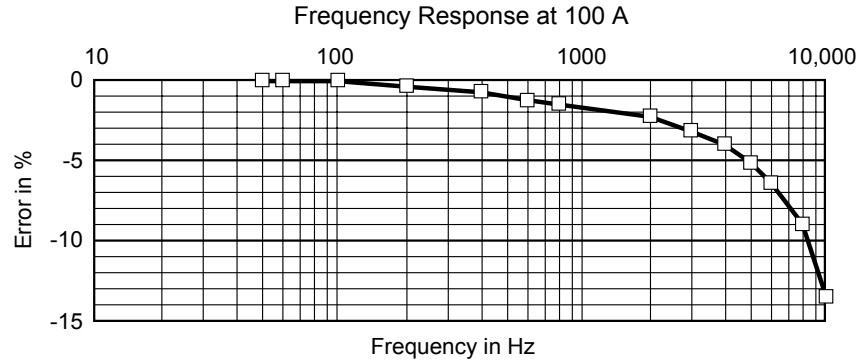
*Reference conditions: 18° to 28°C, 20 to 75% RH, external magnetic field <40 A/m, no DC component, no external current carrying conductor, test sample centered, 1 MΩ ≤100 pF load, zero adjustment prior to measurement [DC only] DC to 65 Hz. Battery voltage 9 V ± 0.1 V.

Typical Response Curves

Model HHM73



Model HHM76



Tips for Getting the Best Accuracy

The Models HHM73 and HHM76 are capable of measuring DC to 10KHz currents over a wide range. Here are some key considerations for getting the most accuracy from your display instrument:

- When using the Models HHM73 and HHM76 with an oscilloscope, it is important to select the range that provides the best resolution.
- Make sure that probe jaw mating surfaces are free of dust and contamination.
- Beware of short-circuit currents. Large in-rush DC currents (which can occur when power is first applied in a circuit) and large high-current transients may cause varying degrees of residual readings. If in doubt of a particular reading, remove the probe from the conductor under test and check to see that the display device returns to zero. If not, it will be necessary to rezero the probe.

HHM73 Specs Cont.

Noise:
60 A Range:
DC to 1 kHz ≤ 8 mV
DC to 5 kHz: ≤ 12 mV
0.1 Hz to 5 kHz: ≤ 2 mV

600 A Range:
DC to 1 kHz ≤ 1 mV
DC to 5 kHz: ≤ 1.5 mV
0.1 Hz to 5 kHz: ≤ 500µV

Rise and Fall Time:
60 A Range:
≤ 100µs from 10 to 90% Vout

600 A Range:
≤ 70µs from 10 to 90% Vout

MECHANICAL

Humidity Influence:
10 to 90% RH @ reference temperature ≤ 0.5%

Maximum Cable Diameter:
One 1.18" (30 mm) or two 0.95" (24 mm) or two bus bars 1.2 x 0.4" (31.5 x 10 mm)

Dimensions:
8.8 x 3.82 x 1.73"
(224 x 97 x 44 mm)

Weight:
15 oz (440 g)

HHM76 Specs Cont.

Overload: 3000 A DC and 2000 A AC continuous up to 1 kHz

Noise:
150 A Range:
DC to 1 kHz: ≤ 8 mV
DC to 5 kHz: ≤ 12 mV
0.1 Hz to 5 kHz: ≤ 2 mV

1500 A Range:
DC to 1 kHz: ≤ 1 mV
DC to 5 kHz: ≤ 1.5 mV
0.1 Hz to 5 kHz: ≤ 500µV

Rise and Fall Time:
150 A Range:
≤ 100µs from 10 to 90% Vout

1500 A Range:
≤ 70µs from 10 to 90% Vout

MECHANICAL

Humidity Influence:
10 to 90% RH @ reference temperature ≤ 0.1%

Maximum Cable Diameter:
One 1.5" (39 mm) or one bus bar 1.96 x 0.49 (50 x 12.5 mm) or two 0.98" (25 mm) or two bus bars 1.96 x 0.19" (50 x 5 mm)

Dimensions: 9.31 x 3.82 x 1.73" (236.5 x 97 x 44 mm)

Weight: 16 oz (480 g)

Common Specifications (HHM73 & HHM76)

ELECTRICAL

Frequency Range: DC to 10 kHz at -3 dB

Load Impedance: >100 kΩ/100 pF

Insertion Impedance: 0.39 mΩ @ 50 Hz, 58 mΩ @1000 Hz

Working Voltage: 600 Vrms

Common Mode Voltage: 600 Vrms

Influence of Adjacent Conductor:
< 10 mA/A at 50 Hz at 23 mm from the probe

Influence of Conductor in Jaw Opening:
0.5% reading (DC to 440 Hz)

Battery: 9 V alkaline (NEDA 1604A, IEC 6LR61) recommended, 6LF22

Low Battery: Green LED when battery voltage ≥ 6.5 V

Battery Life: Approx. 50 hours with alkaline battery

Overload Indication:
Red LED indicates input greater than the selected range.

Auto-Off:
10 minutes (may be disabled at power-up by pressing Zero button while turning on; green LED blinks three times to indicate that auto-off is disabled)

MECHANICAL

Operating Temperature Range:
14° to 131°F (-10° to 55°C)

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

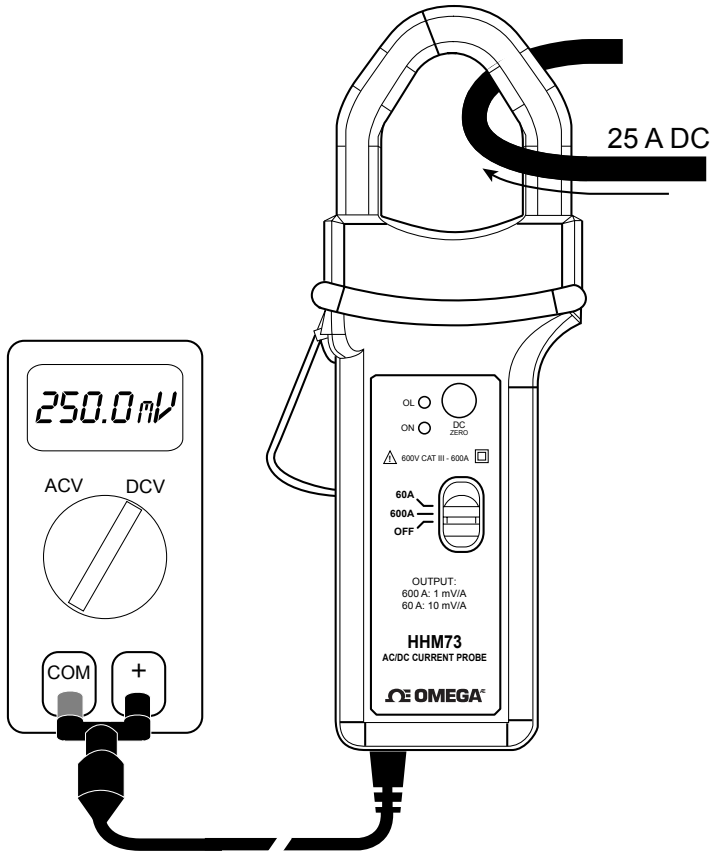
Temperature Influence:
≤ 300 ppm/°K or 0.3%/10°K

Operating Relative Humidity:
10-35°C: 90% ±5% RH (without condensation)
40-55°C: 70% ±5% RH (without condensation)

Operation Examples

DC Current Measurement Example for Model HHM73 with the Banana/BNC Connection (XF/SS Part #2111.32)

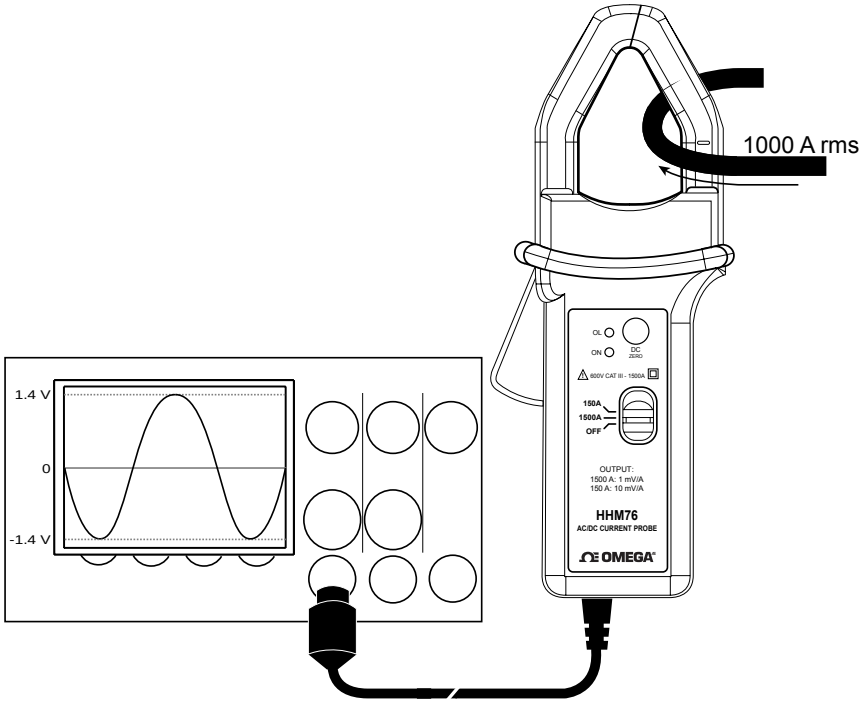
- Conductor carrying 25 A DC in the direction of the arrow
- DMM placed in DC volts mode
- DMM displays 250.0 mV with the probe in the 60 A (10 mV/A) range



Operation Examples

Oscilloscope Measurement Example for Model HHM76

- Model HHM76 on 1500 A range (1 mV/A)
- Conductor carrying 1400 A peak AC waveform
- Model HHM76 connected to oscilloscope



Common Specifications Continued

RH Influence:
10-35°C: 90% RH at reference
Temperature: ≤ 0.5% (HHM73)
≤ 0.1% (HHM76)

Altitude:
Operating: 0 to 2000 m
Non-operating: 0 to 12,000 m

Zero Adjustment:
Automatic zero (± 10 A) by simple push button increment of 25 to 40 mA. Red LED goes on at push of button and turns off when zero is reached; no need to hold button down.

Case protection: IP30 per IEC529

Drop Test:
1.0 m on 38 mm of oak on concrete; test according to IEC 1010

Mechanical Shock:
100 G, test per IEC 68-2-27

Vibration: Test Per IEC 68-2-6,

Frequency Range:
5 to 15 Hz, amplitude: 1.5 mm
15 to 25 Hz, amplitude 1 mm
25 to 55 Hz, amplitude: 0.25 mm

Handle: UL94 V0

Jaws: UL94 V0

Color:
Dark gray with red jaws

Output:
Insulated 6.5 ft (2 m) coaxial cable with insulated BNC connector

Common Specifications Continued

SAFETY

CE

Double insulation or reinforced insulation between primary, secondary and outer case of handle per IEC 1010-2-032.

- 600 V Category III, Pollution: 2

Electromagnetic Compatibility:

- Susceptibility in accordance with EN 50082-2 and EN 50082-1
- Electrostatic discharge IEC 1000-4-2
  Test voltages: 4 kV level 2 in contact, aptitude criteria B
  8 kV level 3 in the air, aptitude criteria B
- Radiated Field IEC 1000-4-3 (1995)
  With max. interference of 5% of the measurement range:
  3 V/m level 3, aptitude criteria A
- Fast transients IEC 1000-4-4 (1995):
  Test voltage: 1 kV level 2, aptitude criteria B
- Magnetic fields at the frequency of the network to IEC 1000-4-8 (1995):
  With a max. distortion of 0.5 A: 30 A/m 50 Hz level 4, aptitude criteria A
- Emissions in accordance with EN 50081-1
- Radiated emission through the case to EN 55022 (1994): class B
- Conducted emission to EN 55022 (1994): class B

Making Measurements with the Models HHM73 and HHM76 with the Accessory Banana/BNC Connector

- The probes may be used with a DMM with the use of a Banana/BNC Connector XF-SS Part #2111.32.
- Plug the probe into the display device (e.g., DMM, logger). Note the polarity of the probe output banana plugs (red = positive [+], black = negative [-]).
- Select the appropriate range on the display device Note that the probe's outputs are 1 mV/A and 10 mV/A AC or DC. Note the maximum current capability on 10 mV/A range
- Turn display device power on. Turn on (7) the probe: the green LED (6) should be on, and the red LED (5) off. If the green indicator does not come on or goes off before the probe has operated for 10 min., it is necessary to replace the battery (see "Battery Replacement," pg. 18).
- After approximately 10 minutes of operation, if none of the control buttons has been manipulated power will automatically shut off (see "Auto-Off" below).

Indicator Lights: Green LED and Red LED

- The green LED (6) indicates that the probe is on and that the battery is good. The green LED will not light under low battery conditions. Replace the 9 V battery if the green LED is not lit.
- The red LED (5) indicates a momentary or continuous overload of the instrument. Readings taken while the red LED is on or flashing should be considered inaccurate. Momentary or continuous currents exceeding 60 A peak on the 60 A range or 600 A peak on the 600 A range for the Model HHM73, and 150 A peak on the 150 A range or 1500 A on the 1500 A range for the Model HHM76 will trigger the red LED.

Auto-Off

- The Models HHM73 and HHM76 have an Auto-off feature which turns off the instrument after 10 minutes if no control has been used.
- When the probe is switched off by this automatic function, the switch (7) must first be set to the off position before the probe may be powered up again.
- Auto-off may be disabled at power-up by the user. Simply press the auto zero button (4) at the same time as moving the switch (7) from the OFF position to one of the ranges. The green LED (6) blinks three times to indicate that the auto-off is disabled.

Operating Procedure

Making Measurements with the Models HHM73 and HHM76 with an Oscilloscope

- Connect the current probe to the proper input channel on the oscilloscope.
- Begin with the least sensitive range on the current probe (1 mV/A).
- Select the 0.5 V/Division on your oscilloscope.
- Turn oscilloscope power on. Turn on (7) the probe: the green LED (6) should be on, and the red LED (5) off. If the green indicator does not come on or goes off before the probe has operated for 10 min., it is necessary to replace the battery (See “Battery Replacement”, pg. 18).
- After approximately 10 minutes of operation, if none of the control buttons has been manipulated power will automatically shut off (see “Auto-Off”, pg. 13).

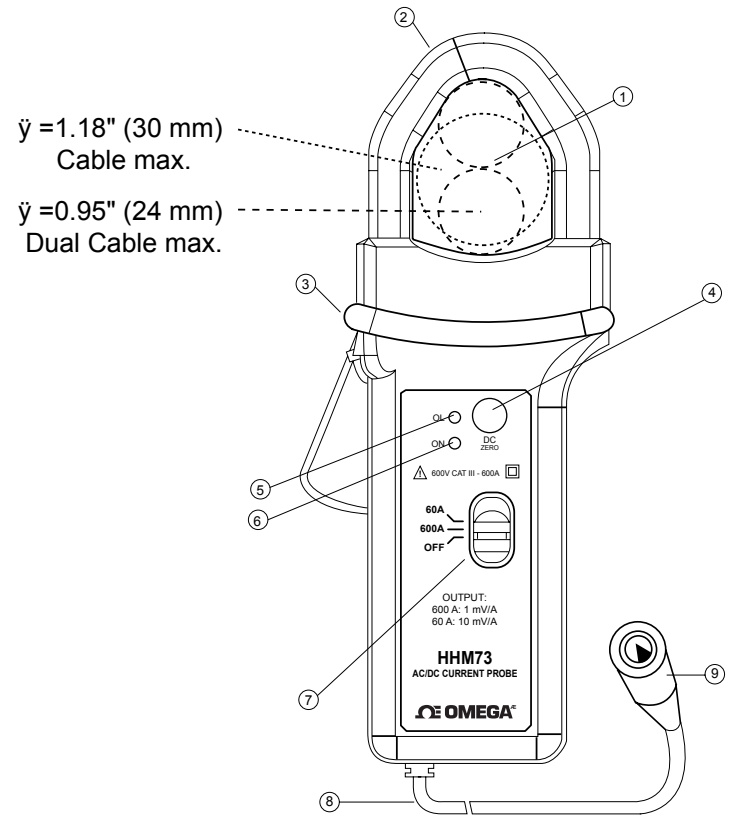
DC Measurement

- Select DC position on the oscilloscope.
- “Zero” the probe. With the probe disconnected from test samples (no conductor in probe jaw window), press the auto zero button (4). The red LED (%) comes on for approximately three seconds to indicate that the probe is zeroing. If the red LED remains lit, this indicates that zero has not been attained - repeat the zeroing operation. Alternatively, you may “zero” with the oscilloscope.
- For best accuracy, especially on low-level measurement, it is recommended that you zero the probe before each measurement.
- Clamp the probe around the conductor (1) to be tested. The oscilloscope should now display the measured conductor current. A positive reading indicates current flowing in the direction of the arrow located on the side of the jaw (2). A negative reading indicates current flow in the opposite direction of the arrow. Multiply the conversion ratio (1mV/A or 10 mV/A) times the V/Division range on your oscilloscope to get the value of the current.

AC Measurement

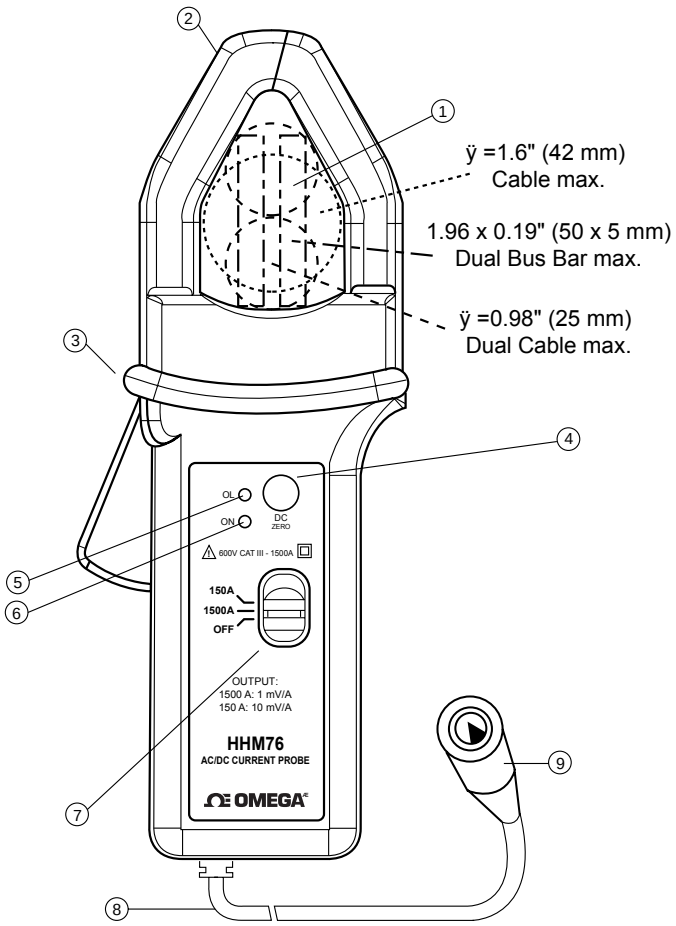
- Select the AC position range on the oscilloscope.
- The DC zero adjustment is not required when measuring AC current.
- Clamp the probe around the conductor (1) to be tested. The oscilloscope should now display the measured conductor current. Apply the conversion ratio (1mV/A or 10 mV/A) times the V/Division range on your oscilloscope to get the value of the peak current.

HHM73



1. Conductor
2. Jaws
3. Protective non-slip guard
4. Automatic zero DC button
5. Red light (overrange and incorrect zero adjustment)
6. Green light (on when battery voltage ≥ 6.5 V)
7. Three-position range selection switch:
   - On/Off
   - 600 A (1 mV/A)
   - 60 A (10 mV/A)
8. Coaxial cable, 6.5 ft (2 m)
9. BNC Connector

HHM76



1. Conductor
2. Jaws
3. Protective non-slip guard
4. Automatic zero DC button
5. Red light (overrange and incorrect zero adjustment)
6. Green light (on when battery voltage ≥ 6.5 V)
7. Three-position range selection switch:
   - On/Off
   - 1500 A (1 mV/A)
   - 150 A (10 mV/A)
8. Coaxial cable, 6.5 ft (2 m)
9. BNC Connector

Instrument Display Compatibility

The Models HHM73 and HHM76 current probes are compatible with any hand held and bench top oscilloscope which has the following features:

- BNC input
- Range and resolution capable of displaying 1 mV of output per amp of measured current
- Instrument accuracy of 0.3% or better to take full advantage of the probe accuracy
- Input impedance of 1 MΩ / 100 pF or greater

When the probe is making a measurement, the current-carrying conductor is not broken and remains electrically isolated from the probe output. As a result, the probe output common may be either floated (isolated) or grounded.

Warning: User Safety:

Always use an oscilloscope, voltmeter or other display, appropriately rated for safety to the voltage of the sample being tested.

Also see warning on page 2.