OMEGA

HHM590
Digital Clamp-On Meter

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OMEGA

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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 application.

SAFETY INFORMATION

The following safety information must be observed to insure maximum personal safety during the operation at this meter:

1. Do not use the meter if the meter or test leads look damaged, or if you suspect that the meter is not operating properly.
2. Use caution when working above 60V dc or 30V ac rms. Such voltages pose a shock hazard.
3. When Using the probes, keep your fingers behind the finger guards on the probes.
4. Measuring voltage which exceeds the limits of the clampmeter may damage the meter and expose the operator to a shock hazard. Always recognize the meter voltage limits as stated on the front of the meter.
5. If the equipment is used in a manner not specified by the manufacturer, the protection provided the equipment may be impaired.

SPECIFICATIONS

Display: 3½ digit liquid crystal display (LCD) with a maximum reading of 1999.
Polarity: Automatic, positive implied, negative polarity indication.
Overrange: (OL) or (-OL) is displayed.
Zero: Automatic.
Low battery indication: the "🔋" is displayed when the battery voltage drops below the operating level.
Measurement rate: 2.5 times per second, nominal.
Operating Environment: 0°C to 40°C at < 70% relative humidity.
Storage Temperature: -20°C to 60°C, 0 to 80% R.H. with battery removed from meter.
Accuracy: Stated accuracy at 23°C ± 5°C, <75% relative humidity.
Safety: According to EN61010-1 protection class II overvoltage category (CAT III 600V) pollution degree 2.
Clamp jaw: According to EN61010-2-032 CAT IV 600V.
Power: single standard 9-volt battery.
Battery life: 200 hours typical.
Dimensions: 250mm (H) x 100mm (W) x 46mm (D).
Weight: Approx. 380g including battery.
Accessories: One pair test leads, 9V battery.

DC VOLTS
Ranges: 2V,200V,600V
Accuracy: ±(0.5%rdg + 1dgt)
Input impedance: 10MW
Overload protection: 600VDC or AC rms

AC VOLTS (50Hz - 500Hz)
Ranges: 200V,600V
Accuracy: ±(1.2%rdg + 4dgts) on 50-60Hz
±(2.0%rdg + 4dgts) on 40-500Hz
Input impedance: 10MW
Overload protection: 600VDC or AC rms

RESISTANCE
Ranges: 200W ,200KW
Accuracy: ±(1.2%rdg + 2dgts)
Open circuit volts: 0.3Vdc (3.0Vdc on 200W range)
Overload protection: 600VDC or AC rms

DIODE & CONTINUITY TEST
Test current: 1.0mA±0.6mA
Accuracy: ±(6.0%rdg + 3dgts)
Open circuit volts: 3.0Vdc typical
Audible indication: <30mV
Overload protection: 600VDC or AC rms

AC CURRENT (Put conductor at the center of the jaws)

Ranges: 20A,200A,700A

Accuracy: 50-60Hz ±(1.5%rdg + 4dgts)

40-500Hz ±(3.5%rdg + 5dgts)

*700A to 1000A(50Hz-60Hz): ±(2.0%rdg + 4dgts)

Overload protection: 1000Aac max. for 1 minute

OPERATION

Before taking any measurements, read the Safety Information Section. Always examine the instrument for damage, contamination (excessive dirt, grease, etc.) and defects. Examine the test leads for cracked or frayed insulation. If any abnormal conditions exist do not attempt to make any measurements.

Ⓗ Button:

Press "Ⓗ" button to toggle in and out of DATA Hold mode, In the DATA Hold mode, the "H" annunciator is displayed. (The DATA Hold mode may be exited when changing function.)

Voltage Measurements

1. Connect the red test lead to the "V" jack and the black test lead to the "COM" jack.
2. Set the Function/Range switch to the desired Voltage type (AC or DC) and range. If magnitude of voltage is not known, set switch to the highest range and reduce until a satisfactory reading is obtained.
3. Connect the test leads to the device or circuit being measured.
4. For dc, a (-) sign is displayed for negative polarity, positive polarity is implied.

Current Measurements

1. Set the Function/Range switch to the highest 700A ac range.
2. Press the trigger to open transformer jaws and clamp onto one conductor only. Read the current directly on the display. It is recommended that the conductor be placed at the center of the closed jaws for maximum accuracy.
3. When the reading is lower than 200 counts, set the range switch to the next lower range position. For maximum accuracy, select the lower range possible without overranging the meter.

Resistance Measurements

1. Set the Function/Range switch to the desired resistance range.
2. Remove power from the equipment under test.
3. Connect the red test lead to the " + " jack and the black test lead to the "COM" jack.
4. Touch the probes to the test points. In ohms, the value indicated in the display is the measured value of resistance.

WARNING

The accuracy of the functions might be slightly affected, when exposed to a radiated electromagnetic field environment, eg, radio, telephone or similar.

Diode & Continuity Tests

1. Connect the red test lead to the "+" jack and the black test lead to the "COM" jack.
2. Set the Function/Range switch to the "⊣◀)))" position.
3. Turn off power to the circuit under test.
4. Touch probes to the diode. A forward-voltage drop is about 0.6V (typical for a silicon diode).
5. Reverse probes. If the diode is good, "OL" is displayed. If the diode is shorted, ".000" or another number is displayed.
6. If the diode is open, "OL" is displayed in both directions.
7. If the junction is measured in a circuit and a low reading is obtained with both lead connections, the junction may be shunted by a resistance of less than 1kW. In this case the diode must be disconnected from the circuit for accurate testing.
8. Touch the probes to the test points. the beeper sounds continuously, if the resistance is less than 100W.

MAINTENANCE

WARNING
Remove test leads before changing battery
or performing any servicing.

Battery Replacement

Power is supplied by a 9 volt "transistor" battery. (NEDA 1604, IEC 6F22). The "🔋" appears on the LCD display when replacement is needed. To replace the battery, remove the two screws from the back of the meter and lift off the battery cover. Remove the battery from battery contacts.

Cleaning

Periodically wipe the case with a damp cloth and detergent, do not use abrasives or solvents.

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.

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