

OMEGA

HHM592D
Digital Clamp-On Meter



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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: Liquid crystal display (LCD) with a maximum reading of 2500.

Polarity: Automatic, positive implied, negative polarity indication.

Overrange: "OL" or "-OL" is displayed.

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.

Auto Power off: 30minutes after rotary switch or mode changes.turn the meter off then on to resume operation.

Clamp jaw: According to EN61010-2-032 CAT IV 600V.

Power: single standard 9-volt battery.

Battery life: 150 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: 250mV, 2.5V, 25V, 250V, 600V

Resolution: 100 μ V

Accuracy: $\pm(0.25\% \text{rdg} + 5 \text{dgt})$ on 250mV range
 $\pm(0.25\% \text{rdg} + 1 \text{dgt})$ on other ranges

Input impedance: >10M ω

Overload protection: 600VDC or AC rms

AC VOLTS (50Hz-500Hz)

Ranges: 250mV, 2.5V, 25V, 250V, 600V

Resolution: 1mV. (100 μ A on 250mV range)

Accuracy: $\pm(2.0\% \text{ of reading} + 5 \text{dgts})$ on 2.5V range
 $\pm(0.75\% \text{ of reading} + 4 \text{dgts})$ on 25V to 600V
no specification on 250mV range

Input impedance: 10M ω

Overload protection: 600VDC or AC rms

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

Ranges: 250A, 700A

Resolution: 100mA

Accuracy: $\pm(1.5\% \text{rdg} + 5 \text{dgts})$

Overload protection: 1200Adc max. for 1 minute

AC CURRENT (40Hz-500Hz) (Put conductor at the center of the jaws)

Ranges: 250A,700A

Resolution: 100mA

Accuracy: $\pm(1.75\%rdg + 5dgts)$ on 50Hz-60Hz

$\pm(3.5\%rdg + 5dgts)$ on 40Hz-500Hz

Overload protection: 1000Aac max. for 1 minute

RESISTANCE

Ranges: 250 Ω , 2.5K Ω , 25K Ω , 250K Ω , 2500K Ω , 25M Ω

Resolution: 100m Ω

Accuracy: $\pm(0.3\%rdg + 3dgts)$ on 250 Ω range

$\pm(0.3\%rdg + 1dgt)$ on 2.5K Ω to 2500K Ω ranges

$\pm(3.5\%rdg + 4dgts)$ on 25M Ω range

Open circuit volts: 0.4Vdc

Overload protection: 500VDC or AC rms

CONTINUITY

Audible indication: <100 Ω

Overload protection: 500VDC or AC rms

DIODE TEST

Accuracy: $\pm(3.0\%rdg + 3dgts)$

Resolution: 1mV

Test current: 0.5 \pm 0.3mA

Test voltage: <1.6V

CAPACITANCE (Autoranging)

Ranges: 2.5nF,25nF,250nF,2.5μF,25μF

Accuracy: $\pm(10\%rdg+10dgts)$ on 2.5n Frange(use REL)
 $\pm(3.0\%rdg + 10dgts)$ on other ranges

Overload protection: 500VDC or AC rms

FREQUENCY (Autoranging)

Ranges: 5.000Hz,50.00Hz,500.0Hz,5.000KHz,50.00KHz,
500.0KHz, 5.000MHz

Resolution: 0.001Hz

Accuracy: $\pm(0.05\%rdg + 2dgts)$

Sensitivity: 1.0V rms min on 5.000Hz to 500.0KHz ranges
5.0Vrms min on 5.000MHz range
TTL or SINE wave signal on all range

Overload protection: 500VDC or AC rms

DUTY CYCLE (2Hz to 20kHz)

Ranges: 0.1% to 99.9%

Resolution: 0.1%

Accuracy: $\pm[(0.3\text{multiplied by the pulse width in kHz})dgt + 2dgts]$
@ 2Vrms min

Pulse Width: 500nS

Overload protection: 500VDC or AC rms

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.

Auto Power-down mode

If unused for about 30 minutes, the tester will power-down automatically. If you should disable Auto Power-down mode, press SELECT button when you turn on the meter.

SELECT Function Button (DC/AC),(/•••)/

The SELECT Function button is Yellow in color. Press it to toggle to the alternate function (AC, Audible continuity , and Diode) shown in Yellow on the meter face.

HZ-% Function Button(In Voltage Measurements)

Press HZ-% button toggle between frequency and duty cycle mode.

RANGE Button

Press (RANGE) button to select the Manual Range mode and turn off the "AUTO" annunciator.

In the Manual Range mode. each time you press (RANGE) button, the range (and the input range annunciator) increments, and a new value is displayed. To exit the Manual Range mode and return to autoranging, press and hold down (RANGE) button for 2 seconds. The "AUTO" annunciator turns back on.

ZEROD Button

Press (RELD) to enter the Relative mode, zero the display, and store the displayed reading as a reference value. The relative mode annunciator(D) is displayed.

Press (RELD) again to exit the relative mode.

Back-Light and Data-Hold Switch (*>2sec),(H):

Press this button briefly to activate DATA-HOLD mode. The "H" annunciator is displayed.

Press this button for 2 seconds to turn the Back-Light on. As this also activates the DATA-HOLD mode, briefly press the button to return to normal display. The Back-Light will switch-off automatically after about 30 seconds.

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 function.
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 current function(AC or DC). In DC current measurement use **DZERO** button, offset the residual magnetic of the jaws.
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.

Resistance Measurements

1. Set the Function/Range switch to Ω position.
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 Tests

1. Set the Function/Range switch to $\omega/\rightarrow/\rightarrow$ position.
2. Remove power from the equipment under test.
3. To toggle the ω /continuity/diode modes, press SELECT Switch.
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 1k ω . In this case the diode must be disconnected from the circuit for accurate testing.

Continuity Measurements

1. Set the Function/Range switch to $\omega/\rightarrow/\rightarrow$ position.
2. Turn off power to the circuit under test. External voltage across the components causes invalid readings.
3. To toggle between the ω /continuity/diode modes, press SELECT button.
4. Connect the test leads to the two points at which continuity is to be tested. The buzzer will sound if the resistance is less than approximately 100 ω .

Frequency Measurements

1. Set the Function/Range switch to the Hz position, and then press Hz-% to toggle between "Hz" and "DUTY" mode.
2. Connect the red test lead to the "+" jack and the black test lead to the "COM" jack.
3. Connect the test leads to the point of measurement and read the frequency from the display.

Duty Cycle Measurements

1. Set the Function/Range switch to the Hz position, and then press Hz-% to toggle between "Hz" and "DUTY" mode.
2. Connect the red test lead to the "+" jack and the black test lead to the "COM" jack.
3. Connect the test leads to the point of measurement. The display will indicate 0.1% to 99.9% of the frequency duty cycle.

Capacitance Measurements


1. Set the Function/Range switch to the desired "**—|—**" range.
2. Discharge capacitors before trying to measure it.
3. Connect the "+" lead to the "+" jack and the "-" lead to the "COM" jack.
4. Read the capacitance directly from the display.

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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