

# OMEGA

HHM596C  
Digital Clamp-On Meter



OMEGAnet<sup>SM</sup> On-Line Service  
<http://www.omega.com>

Internet e-mail  
[info@omega.com](mailto: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](mailto:info@omega.com)

**Canada:**  
976 Bergar  
Laval (Quebec) H7L5A1  
Tel: (514) 856-6928  
FAX: (514) 856-6886  
e-mail: [info@omega.com](mailto:info@omega.com)

### **For immediate technical or application assistance:**

**USA and Canada:**  
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**Mexico and Latin America:**  
Tel: (95) 800-TC-OMEGA<sup>SM</sup>  
FAX: (95) 203-359-7807  
En Español: (203) 359-7803  
e-mail: [espanol@omega.com](mailto: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](mailto:nl@omega.com)

**Czech Republic:**  
ul. Rude armady 1868, 733 01 Karvina-  
Hranice, Czech Republic  
Tel: 420 (69) 6311627 FAX: 420 (69) 6311114  
e-mail: [czech@omega.com](mailto:czech@omega.com)

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

**Germany/Austria:**  
Daimlerstrasse 26, D-75392  
Deckenpfronn, Germany  
Tel: 49 (07056) 3017 FAX: 49 (07056) 8540  
Toll Free in Germany: 0800 82 66342  
e-mail: [germany@omega.com](mailto:germany@omega.com)

**United Kingdom: ISO 9002 Certified**  
One Omega Drive  
Riverbend Technology Centre Northbank, Irlam,  
Manchester, M44 5EX, England  
Tel: 44 (161) 777-6611 FAX: 44 (161) 777-6622

Toll Free in England: 0800-488-488  
e-mail: [sales@omega.com.uk](mailto:sales@omega.com.uk)

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:** 3¾ digit (4300 counts), and function units sign annunciators.

**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 and push button no changes. (except MAX/MIN function)

**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:** 430mV, 4.3V, 43V, 430V, 600V (430mV only manual range)

**Resolution:** 100 $\mu$ V

**Accuracy:**  $\pm(0.25\%rdg + 1dgt)$  on 430mV to 430V ranges  
 $\pm(0.25\%rdg + 3dgts)$  on 600V range

**Input impedance:** >10M $\Omega$

**Overload protection:** 600VDC or AC rms

## **AC VOLTS (50Hz-500Hz)**

**Ranges:** 4.3V, 43V, 430V, 600V

**Resolution:** 1mV

**Accuracy:**  $\pm(1.2\%rdg + 4dgts)$  on 4.3V range  
 $\pm(0.75\%rdg + 4dgts)$  on other ranges

**Input impedance:** >10M $\Omega$

**Effect Reading:** 100 - 4300

**Overload protection:** 600VDC or 600VAC rms

## **RESISTANCE**

**Ranges:** 430 $\Omega$ , 4.3K $\Omega$ , 43K $\Omega$ , 430K $\Omega$ , 4.3M $\Omega$ , 43M $\Omega$

**Accuracy:**  $\pm(0.5\%rdg + 2dgts)$  on 430 $\Omega$  range  
 $\pm(0.5\%rdg + 1dgt)$  on 4.3K $\Omega$  to 430K $\Omega$  ranges  
 $\pm(0.8\%rdg + 1dgt)$  on 4.3M $\Omega$  range  
 $\pm(2.0\%rdg + 4dgts)$  on 43M $\Omega$  range

**Open circuit volts:** 2.8V on 430 $\Omega$  range, 0.7V on 4.3K $\Omega$  range  
0.47V on 43K $\Omega$  to 43M $\Omega$  ranges

**Overload protection:** 600VDC or AC rms

## **CONTINUITY**

**Audible indication:** less than 50 $\Omega$   $\pm$ 30 $\Omega$

**Overload protection:** 600VDC or AC rms

## **DIODE TEST**

**Test current:** 1.0mA  $\pm$ 0.6mA

**Accuracy:**  $\pm$ (10.0%rdg + 3dgts)

**Open circuit volts:** 3.0Vdc typical

**Overload protection:** 600VDC or AC rms

## **FREQUENCY**

**Ranges:** 430Hz, 4.3KHz

**Resolution:** 0.1Hz

**Accuracy:**  $\pm$ (1.0%rdg + 3dgts)

**Sensitivity:** 1.0Vrms min

**Effect reading:** 100-4300

**Overload protection:** 600VDC or AC rms

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

**Ranges:** 430A, 700A

**Resolution:** 100mA

**Accuracy:**  $\pm$ (1.5%rdg + 5dgts)

\*700A to 1200A:  $\pm$ (2.0%rdg + 5dgts)

**Overload protection:** 1200Adc max. for 1 minute

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

**Ranges:** 430A,700A

**Resolution:** 100mA

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

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

\*700A to 1000A(50Hz/60Hz):  $\pm(2.5\%rdg + 5dgts)$

**Overload protection:** 1000Aac max. for 1 minute

## **TEMPERATURE(K-TYPE)**

**Ranges:** -20°C to 850°C

-4°F to 1562°F

**Accuracy:**  $\pm(0.5\%rdg + 3dgts)$  on °C range

$\pm(0.5\%rdg + 6dgts)$  on °F range

# 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.

## **H** Button

In voltage, current, frequency and doide functions, Press "**H**" button to toggle in and out of the Auto Hold mode, the "**H**" annunciator is displayed. In Auto hold mode, the meter will capture and hold the first stable non-zero(>100 digits) reading after a zero reading(<100 digits). Several consecutive measurements can be held and displayed without pressing the (A-H) button. Simply by shorting the test leads together between measurements. In resistance, continuity and temperature functions, press "**H**" button to toggle in and out of the Data Hold mode, the "**H**" annunciator is displayed.

## **PEAK HOLD Button:** (only AC functions 40-60Hz)

Press "PEAK" button to toggle in and out of PEAK Hold mode. In the PEAK Hold mode, the "MAX **P**" annunciator is displayed. [Accuracy:  $\pm(10\% \text{ rdg} + 10\text{dgt})$ , effect reading: 800~4300]



## **MIN / MAX button**


Press (MAX/MIN) to enter the MAX MIN AVG Recording mode (manual range only). The RECORD annunciator turns on and the automatic power-off feature is disabled.


Push (MAX/MIN) to cycle through the maximum(MAX), minimum(MIN), average(AVG) and present readings. (AVG) is average last ten times reading can be displayed. Press and hold down the (MAX/MIN) for 2 seconds to exit and erase recorded reading.

## **DZERO Button**

In voltage, current, frequency and doide functions, Press (DZERO) button to toggle in and out of the Relative mode, the "ZERO" annunciator turn on, zero the display, and store the displayed reading as a reference value.

## **RANGE Button**

Press (RANGE) button to select the Manual Range mode and turn on the "  " annunciator. (The meter selected next range it was in when manual ranging was selected).

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 "  " annunciator will disappear.

## **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 range (AC or DC). The meter will automatically select the best voltage range.
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 desired highest 700A range (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.
3. When the reading is lower than 430 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 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.

## **Continuity Measurements**

1. Set the Function/Range switch to the "••)" 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. the beeper sounds continuously, if the resistance is less than  $50\Omega \pm 30\Omega$ .

## **Diode 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.

## Frequency Measurements

1. Set the Function/Range switch to the Hz desired range.
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.

## Temperature Measurements

### **WARNING**

Remove test leads being measured


1. Set the Function/Range switch to the "°C" position.
2. Connect the temperature transition adaptor to the meter and make sure " + " and " - " polarity is right position.
3. Connect a type k thermocouple to the jack on the transition adaptor. Place the probe or thermocouple tip on or in the material to be measured and take the temperature reading 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.

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**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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