OMEGA

HHM63F
Digital Multimeter

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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. This meter is not recommended for high voltage industrial use; for example, not for measurements of 440 VAC or 600 VAC industrial power mains. The unit is intended for use with low energy circuits to 600V AC/DC or high energy circuit to 250 VAC or DC.
3. Use caution when working above 60V dc or 30V ac rms. Such voltages pose a shock hazard.
4. When using the probes, keep your fingers behind the finger guards on the probes.
5. Measuring voltage which exceeds the limits of the meter may cause damage and expose the operator to a shock hazard. Always respect the voltage limits as stated on the meter.
6. If the equipment is used in a manner not specified by the manufacturer, the protection provided by 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: 32°F to 104°F at < 70% relative humidity.
Storage Temperature: -4°F to 140°F, 0 to 80% R.H. with battery removed from meter.
Accuracy: Stated accuracy at 73.4°F ± 9°F, <75% relative humidity.
Auto Power off: 30minutes after moving switch and push button no changes.turn the meter off then on to resume operation.
Safety: According to EN61010-1 protection class II overvoltage category (CAT II 600V) pollution degree 2.
Power: 4 pcs 1.5V (AAA size).
Battery life: 500 hours typical.
Dimensions: 170mm (H) x 44mm (W) x 40mm (D).
Weight: 140g including batteries.

DC VOLTS

Ranges	250mV,2.5V,25V,250V,600V
Resolution	100µV
Accuracy	±(0.25%rdg + 5dgts) on 250mV range ±(0.25%rdg + 1dgt) on other ranges
Input impedance	>10MW
Overload & protection	600VDC or AC rms

AC VOLTS (50Hz - 500Hz)

Ranges	2.5V,25V,250V,600V
Resolution	1mV
Accuracy	±(0.75% of reading + 4dgts) on 2.5V to 600V
Input impedance	>10MW
Overload & protection	600VDC or AC rms

RESISTANCE

Ranges	250W,2.5KW,25KW,250KW,2.5MW,25MW

Resolution: 100mW

Accuracy:	±(0.3%rdg + 3dgts) on 250Ω range ±(0.3%rdg + 1dgt) on 2.5KΩ to 2.5MΩ ranges ±(3.5%rdg + 4dgts) on 25MΩ range
Open circuit volts	0.4Vdc
Overload protection	500VDC or AC rms

CONTINUITY

Audible indication	<100Ω
Overload protection	500VDC or AC rms

DIODE TEST

Accuracy	±(3.0%rdg + 3dgts)
Resolution	1mV
Test current	0.25±0.2mA
Test voltage	<1.6V

CAPACITANCE (Autoranging)

Ranges	250nF,2.5µF,25µF
Accuracy	±(5.0%rdg + 10dgts)
Overload protection	500VDC or AC rms

FREQUENCY (Autoranging)

Ranges	5.000Hz,50.00Hz,500.0Hz,5.000KHz
Resolution	0.001Hz
Accuracy	±(0.05%rdg + 2dgts)
Sensitivity	1.0V rms min Alternating Pulse or SINE wave signal on all range
Overload protection	500VDC or AC rms

DUTY CYCLE (2Hz to 1kHz)

Ranges	10% to 90%
Resolution	0.1%
Accuracy	±5dgts @ 2Vrms min Alternating Pulse signal
Pulse Width	50µs
Overload protection	500VDC or AC rms

TEMPERATURE (Autoranging)

Ranges	-4°F to 2498°F
Resolution	0.1°F or 1°F
Accuracy	±(2.0%rdg + 6°F) on -4°F to 923°F ±(3.0%rdg + 4°F) on 923°F to 2498°F

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 diseble Auto Power-down mode, press SELECT buttom when you turn on the meter.

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. To turn the Back-Light off press again for 2 seconds.

SELECT Function Button (DC/AC),(Ω/•))/→|/⊣(⊢)

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

Voltage Measurements

1. Connect the red test lead to the "VΩ" 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.

Frequency Measurements

1. Set the Function/Range switch to the ACV position, and then press Hz-% button toggle the voltage/frequency/duty cycle mode.
2. Connect the red test lead to the "VΩ" 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 ACV position, and then press Hz-% button toggle the voltage/frequency/duty cycle mode.
2. Connect the red test lead to the "VW" jack and the black test lead to the "COM" jack.
3. Connect the test leads to the point of measurement. The display will indicate 10% to 90% of the frequency duty cycle.

Resistance Measurements

1. Set the Function/Range switch to W/•))/→|/⊣|← position.
2. Remove power from the equipment under test.
3. Connect the red test lead to the "VW" 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 Ω/•))/→|/⊣|← position.
2. Remove power from the equipment under test.
3. To toggle the Ω/continity/diode/capacitance 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 1kΩ. In this case the diode must be disconnected from the circuit for accurate testing.

Continuity Measurements

1. Set the Function/Range switch to Ω/•))/→|/⊣|← position.
2. Remove power from the equipment under test.
3. To toggle the Ω/continity/diode/capacitance modes, press SELECT switch.
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 100Ω.

Capacitance Measurements

1. Set the Function/Range switch to Ω/•))/→|/⊣(position.
2. Remove power from the equipment under test.
3. To toggle the Ω/continity/diode/capacitance modes, press SELECT switch.
4. Dischange capacitors before trying to measure it.
5. Connect the "+" lead to the "VΩ" jack and the "–" lead to the "COM" jack.
6. Read the capacitance directly from the display.

Temperature M easurements

WARNING
Remove test leads being measured

1. Set the Function/Range switch to the "°F" position, and then press °F button toggle the ohm/°F mode.
2. Connect a type k thermocouple to the jack on the instrument. 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 batteries or fuse or performing any servicing.

Battery Replacement

Power is supplied by four 1.5V (AAA size) batteries. The "  " appears on the LCD display when replacement is needed.To replace the batteries, remove the screw from the back of the meter and lift off the battery cover case. Remove the batteries from battery contacts.

Cleaning

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

WARRANTY

OMEGA warrants this unit to be free of defects in materials and workmanship and to give satisfactory service 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. However, 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 or which are damaged by misuse are not warranted. This includes contact points, fuses, and triacs.

OMEGA is glad to offer suggestions on the of use of its various products. Nevertheless, OMEGA only warrants 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.

Every precaution for accuracy has been taken in the preparation of this manual; however, OMEGA ENGINEERING, INC. neither assumes responsibility for any omissions or errors that may appear nor assumes liability for any damages that result from the use of the products in accordance with the information contained in the manual.

SPECIAL CONDITION: Should this equipment be used in or with any nuclear installation or activity, purchaser will indemnity OMEGA and hold OMEGA harmless from any liability or damage whatsoever arising out of the use of the equipment in such a manner.

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.

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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