INSTRUCTION MANUAL
IDM63N DIGITAL MULTIMETER

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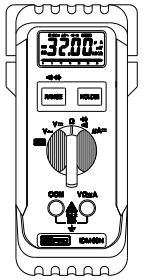


IDM 63N

DIGITAL MULTIMETER

INSTRUCTION MANUAL

INTRODUCTION

1-1 Unpacking and Inspection

Upon removing your new Digital Multimeter from its packing, you should have the following items:

1. Digital Multimeter.
2. Test lead (one black, one red).
3. Instruction Manual.

1-2 Meter Safety

Terms as Marked on Equipment

⚠ **ATTENTION** — Refer to Manual.

⧈ **DOUBLE INSULATION** — Protection Class II.

⚠ **DANGER** — Risk of electric shock.

Symbols in this Manual

⚠ This symbol indicates where cautionary or other information is found in the manual.

Battery

1-3 Front Panel

Refer to Figure 1 and to the following numbered steps to familiarize yourself with the meter's front panel controls and connectors.

1. **Digital Display** — The digital display has a 3200 counts LCD readout with 65 segments analog bar graph, auto polarity, decimal point, , AC, DC, RANGE, , , , μA, MΩ or KΩ or Ω and Unit annunciators.
2. **Function Switch** — Select the function and range desired.
3. **COM Input Terminal** — Ground input connector.
4. **V-Ω μA Input Terminal** — Positive input connector for Volts, Ohms and Diode and currents.
5. **Range Switch (Manual Range)** — The "RANGE" switch is pressed to select manual ranging and to change ranges. When the "RANGE" switch is pressed once, "RANGE" annunciator appears on the LCD. Press the "RANGE" switch to select the appropriate range to be used. Press the "RANGE" switch and hold for 2 seconds to return to Auto-ranging. In " , " function this key is used to select the or function.
6. **Hold Switch** — This switch is used to hold measured values for all functions. Press the Hold switch until the " " annunciator is displayed. Conversions are made but the display is not updated.

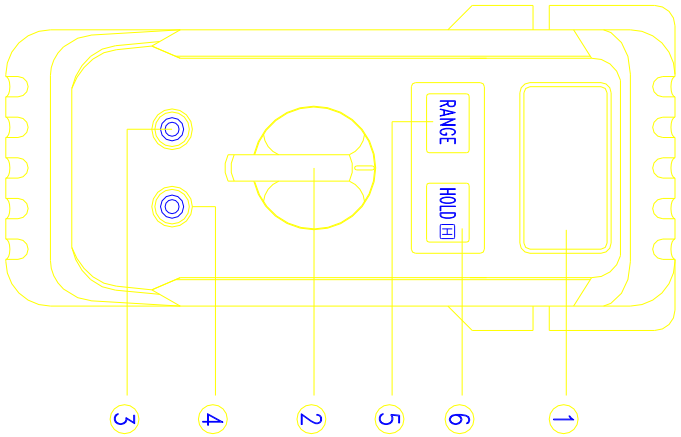


Figure 1

SPECIFICATIONS

2-1 General Specifications

This instrument has been designed in accordance with UL 3111 and IEC publication 1010 Pt 1, Class II, Safety Requirements for Electrical Equipment for Measurement, Control and Laboratory use. This level of safety can only be guaranteed while the limits of section 2.2 are observed.

Display : The Liquid Crystal Display (LCD) has a maximum reading of 3200, and 65 segments bar graph.
Polarity Indication : Automatic, positive implied, negative indicated.
Overrange Indication : "OL" or "-OL".
Low Battery Indication : "🔋" is displayed when the battery voltage drops below operating voltage.
Sampling : 2 times / sec for digit. 12 times / sec for analog bar graph.
Auto Power Off : Approx. 10 minutes after power on.

2-2 Environmental Conditions:

Indoor use.

Maximum Altitude : 2000 meters.

Installation Category : IEC 1010 600V, Cat III.

Pollution Degree : 2

Operating Temperature : 0°C ~ 30°C (≦ 80% R.H), 30°C ~ 40°C (≦ 75% R.H),
40°C ~ 50°C (≦ 45% R.H).

Storage Temperature : -20°C to 60°C, 0 to 80% R.H with battery removed from the meter.

Temperature Coefficient : 0.15 x (Specified accuracy) / °C, < 18°C or > 28°C.

Power Requirements : ALKALINE 1.5V x 2.

Battery Life : Alkaline 800 hours.

Dimensions (W x H x D) : 80mm x 165mm x 36mm with holster.

Supplied Accessories : Battery (installed) and Instruction Manual.

2-3 Electrical Specifications

Accuracy is ± (% reading + number of digits) at 23°C ± 5°C less than 80% R.H.

(1) DC Volts

Range	Resolution	Accuracy	Over voltage protection
300mV	100μV	±(0.5%reading + 2digits)	600V DC or 600V rms
3V	1mV		
30V	10mV		
300V	100mV		
600V	1V		

Input Impedance : 10MΩ.

(2) AC Volts

Range	Resolution	Accuracy	Over voltage protection
3V	1mV	* ±(1.5%reading + 5digits)	600V DC or 600V rms
30V	10mV	±(1.5%reading + 5digits) 40Hz to 500Hz	
300V	100mV		
600V	1V		

* Frequency Response : 40Hz ~ 300Hz for 3V Range.

Input Impedance : 10MΩ //less than 100PF.

The reading will fluctuate approximately 2 ~ 5 counts over 200V.

(3) Resistance

Range	Resolution	Accuracy	Overload Protection
300Ω	0.1Ω	±(1.0%reading + 4digits)	600V DC or 600V rms
3KΩ	1Ω	±(0.8%reading + 2digits)	
30KΩ	10Ω		
300KΩ	100Ω		
3MΩ	1KΩ		
30MΩ	10KΩ	±(2.0%reading + 5digits)	

Open Circuit Voltage: 1.3V approx.

(4) Diode Check and Continuity

Range	Resolution	Accuracy	Max. Test Current	Max. Open Circuit Voltage
⊣◀	1mV	* ±(1.5%reading + 5digits)	1.5mA	3.3V

*For 0.4V ~ 0.8V.

Overload Protection : 600V DC/AC rms max.

Continuity : Internal sounder operates when resistance is less than approximately 20Ω.

(5) DC μ A

Range	Resolution	Accuracy	Burden Voltage	Overload Protection
300μA	0.1μA	±(1.0%reading + 2digits)	<4.5mV / μA @25°C	600V rms or 3200 μA rms
3000μA	1μA			

(6) Auto Power Off

The meter will automatically shut off, approximately 10 minutes after power on. The meter can be turned back on by pressing the "RANGE" switch.

OPERATION

This instrument has been designed and tested in accordance with IEC Publication 1010, Safety Requirements for Electronic Measuring Apparatus, and has been supplied in a safe condition. This instruction manual contains some information and warnings which must be followed by the user to ensure safe operation and to retain the instrument in safe condition.

3-1 Preparation and Caution before Measurement

1. Allow at least 60 seconds after switching on before taking measurements.
2. When the function switch selector is changed during measurement, be sure to do so only after removing the test leads from the equipment.
3. If the equipment is used near noise generating equipment, be aware that the display may become unstable or indicate large errors.
4. ⚠ Maximum rated voltage to earth for voltage measurements terminals is 600V AC/DC CAT III.

TEST EQUIPMENT RISK ASSESSMENT (UK RECOMMENDATION)

Users of this equipment and/or their employers are reminded that Health and Safety legislation require them to carry out valid risk assessments of all electrical work so as to identify potential sources of electrical danger and risk of electrical injury such as from inadvertent short circuits. Where the assessments show that the risk is significant then the use of fused test leads constructed in accordance with the HSE guidance note GS38 "Electrical Test Equipment for use by Electricians" should be used.

3-2 Voltage Measurements

1. Connect the red test lead to the "VΩ μA" input terminal and the black test lead to the "COM" terminal.
2. Set the function switch to " V~ or V⎓ " position.
3. Connect the test leads to the device to be measured.

⚠ **WARNING :** TO AVOID ELECTRIC SHOCK HAZARD, OR DAMAGE TO THE METER, DO NOT ATTEMPT TO MEASURE VOLTAGES THAT MIGHT EXCEED 600 V d.c. OR 600V a.c. DO NOT APPLY MORE THAN 600V d.c. OR 600V a.c. rms BETWEEN THE COMMON INPUT TERMINAL AND EARTH GROUND.

NOTICE : UNSTABLE DISPLAY MAY OCCUR ESPECIALLY ON THE 300mV RANGE, EVEN IF THE TEST LEADS ARE NOT CONNECTED TO THE METER. IN THIS CASE, IF AN ERRONEOUS READING IS SUSPECTED, SHORT THE "VΩ" TERMINAL AND THE "COM" TERMINAL AND MAKE SURE THE DISPLAY READS ZERO.

3-3 Resistance Measurement

1. Connect the red test lead to the "VΩμA" terminal and the black test lead to the "COM" terminal.
2. Set the function switch to "Ω" position.
3. For correct reading, ensure that the device being tested has no voltage present.
4. Connect the test leads across the resistor to be measured. To ensure the best accuracy in measurement of low resistance, short the test leads before measuring and note the test lead resistance. It is necessary to subtract the resistance of the test leads from the displayed reading.

3-4 Continuity Check by Sounder

1. Connect the red test lead to the " VΩ μA " terminal and the black test lead to the "COM" terminal.
2. Set the function switch to " " position.
3. Connect the test leads to the circuit to be measured. The sounder will operate if the resistance of the circuit measured is less than 20Ω.

3-5 Diode Check

1. Set the function switch at "•)) ⏩ " position.
2. Connect the black test lead to the "COM" terminal and the red lead to "VΩ μA" input terminal.
3. Connect the test leads to the diode. Normally the forward voltage drop of a good silicon diode is between 400V to .900V. If the diode under test is defective, "000" (short circuit) or "OL" (non-conductance) is displayed.

Reverse Check of Diode: If the diode under test is good "1" is displayed. If the diode under test is defective "000" or other values will be displayed.

3-6 Current Measurement

1. Set the function switch at "μA" position.
2. Connect black test lead to "COM" terminal and red lead to "VΩμA" input terminal.
3. Connect the test leads to the circuit to be measured.

MAINTENANCE

To keep the instrument clean, wipe the case with a damp cloth and detergent, do not use abrasives or solvents.

Any adjustment, maintenance and repair of opened instrument with voltage applied should be avoided as far as possible and, if inevitable, shall be carried out by a skilled person who is aware of the hazard involved.

Whenever it is likely that the protection has been impaired, the instrument must be made inoperative and be secured against any unintended operation.

The protection is likely to be impaired if, for example, the apparatus:

— shows visible damage,
— fails to perform the intended measurements,
— has been subjected to prolonged storage under unfavourable conditions,
— has been subjected to severe transport stresses.

⚠ : CAUTION (refer to User Instructions).
⧈ : Double Square Symbol for Class II product.

BATTERY REPLACEMENT

The meter is powered by a two 1.5V battery. Refer to Figure 2 and use the following procedure to replace the Battery :

1. Disconnect the test leads and turn the meter off. Remove the test leads from the input terminals.
2. Position the meter face down. Remove the screw from the case bottom.
3. Lift the end of the case bottom until it gently unsnaps from the case top at the end nearest the input terminal.
4. Lift the battery from the battery box.
5. Fit the new battery into the battery box.
6. Replace the case top and case bottom. Reinstall the screw.

BATTERY REPLACEMENT

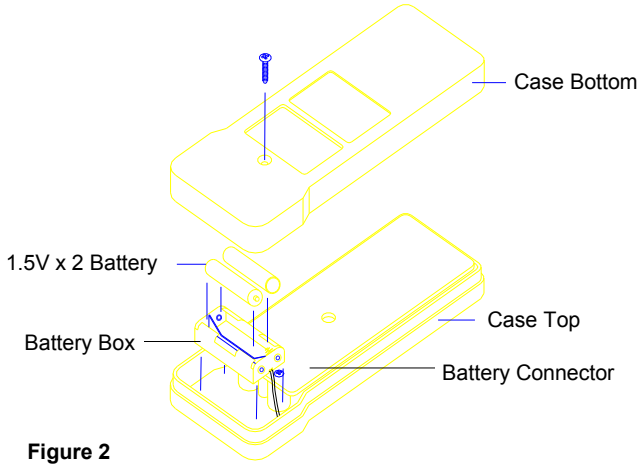
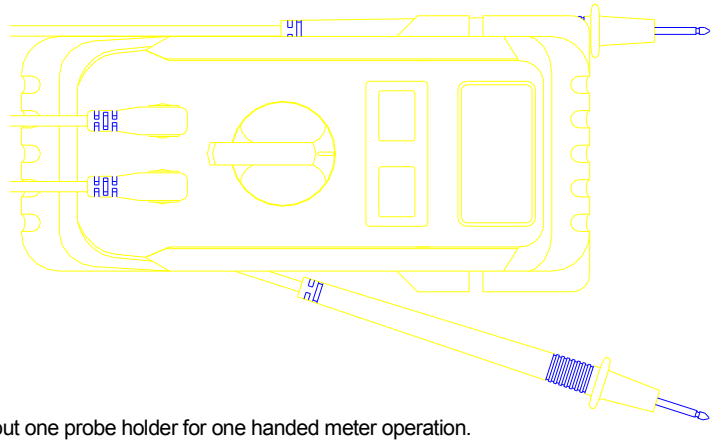


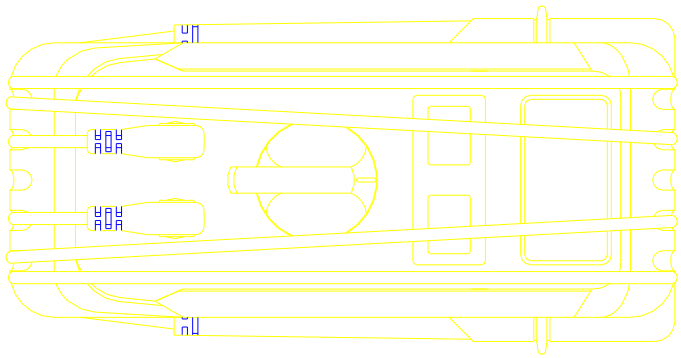
Figure 2

HOW TO USE THE PROBE HOLDER



Slide out one probe holder for one handed meter operation.

HOW TO USE THE PROBE HOLDER



Wrap the leads around the holster to store the test probes.

HOW TO USE THE TILT STAND AND HOLSTER

Hang on a nail at the workbench.

Swing the stand out for easier meter reading.

Swing the upper holder out and hook it over a door.

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