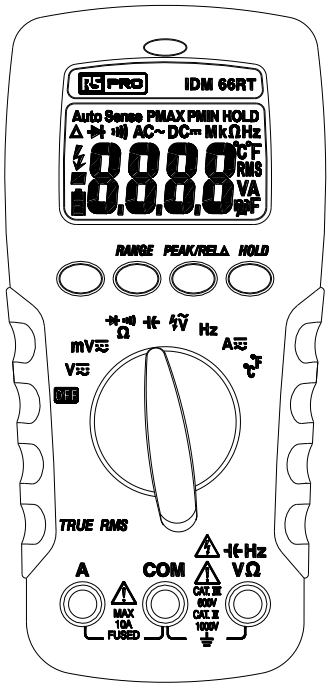
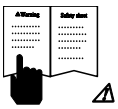
Instruction Manual
IDM 66RT
Digital Multimeter

EN





⚠ *Read First*

⚠ *Safety Information*

Understand and follow operating instructions carefully.

⚠ WARNING

- When using test leads or probes, keep your fingers behind the finger guards.
- Remove test lead from Meter before opening the battery door or Meter case.
- Use the Meter only as specified in this manual or the protection by the Meter might be impaired.
- Always use proper terminals, switch position, and range for measurements.
- Never attempt a voltage measurement with the test lead inserted into the A input terminal.
- Verify the Meter's operation by measuring a known voltage. If in doubt, have the Meter serviced.
- Do not apply more than the rated voltage, as marked on Meter, between terminals or between any terminal and earth ground.
- Do not attempt a current measurement when the open voltage is above the fuse protection rating. Suspected open circuit voltage can be checked with voltage function.
- Only replace the blown fuse with the proper rating as specified in this manual.
- Use caution with voltages above 30 Vac rms, 42 Vac peak , or 60 Vdc. These voltages pose a shock hazard.
- To avoid false readings that can lead to electric shock and injury, replace battery as soon as low battery indicator **<** appears.
- Disconnect circuit power and discharge all high-voltage capacitors before testing resistance, continuity, diodes, or capacitance.
- Do not use Meter around explosive gas or vapor.
- To reduce the risk of fire or electric shock do not expose this product to rain or moisture.

⚠ Caution

- Disconnect the test leads from the test points before changing the position of the function rotary switch.
- Never connect a source of voltage with the function rotary switch in Ω / ⊣◀ / ◁)) / ⊣⊢ position.
- Do not expose Meter to extremes in temperature or high humidity.
- Never set the meter in ⎓ ∼A function to measure the voltage of a power supply circuit in equipment that could result in damage the meter and the equipment under test.

Symbols as marked on the meter and Instruction card

⚠	Risk of electric shock
⚠	See instruction card
⎓	DC measurement
⧈	Equipment protected by double or reinforced insulation
▮	Battery
⎓	Fuse
⏚	Earth
∼	AC measurement
CE	Conforms to EU directives
	Do not discard this product or throw away

Maintenance

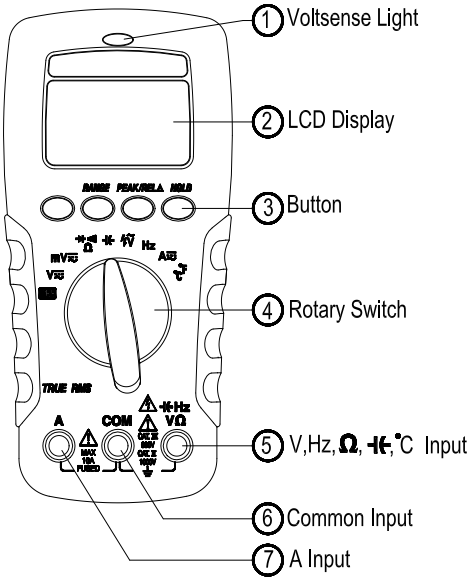
Do not attempt to repair this Meter. It contains no user-serviceable parts. Repair or servicing should only be performed by qualified personnel.

Cleaning

Periodically wipe the case with a dry cloth and detergent. Do not use abrasives or solvents.

Front Panel Illustration

1. Voltsense Light
2. LCD display : 6000 counts
3. Push-buttons.
4. Rotary switch for turn the Power On / Off and select the function.
5. Input Terminal for ⊣⊢,Hz,V,Ω,°C functions.
6. Common (Ground reference) Input Terminal.
7. Input Terminal A function .



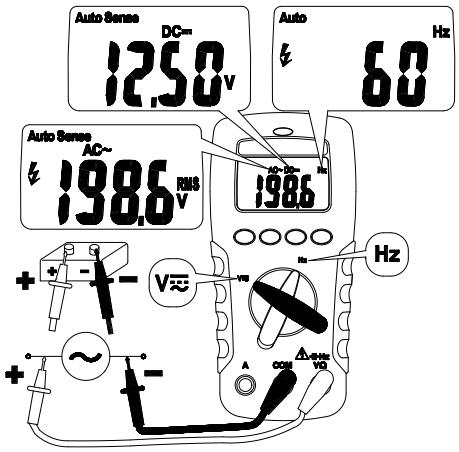
Making Basic Measurements

The figures on the following pages show how to make basic measurements.

⚠ Caution

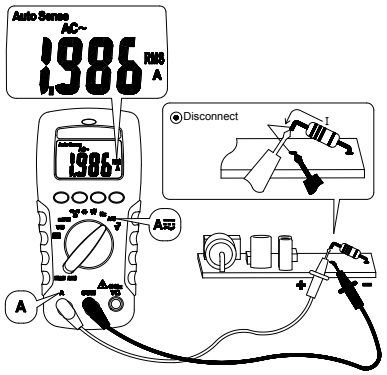
When connecting the test leads to the DUT (Device Under Test) connect the common test leads before connecting the live test leads ; when removing the test leads, remove the live test leads before removing the common test leads.

Measuring AC / DC Voltage / Frequency



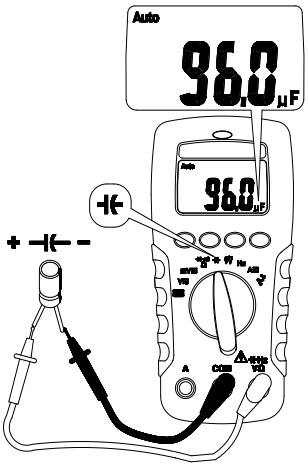
Dial the switch and press the Function button to select the measuring function.

Measuring AC/DC Current



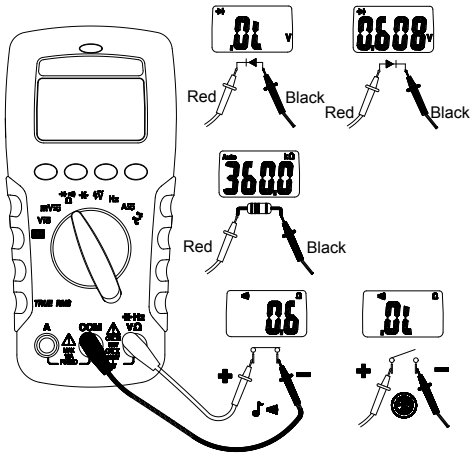
Dial the switch and press the Function button to select the measuring function.

Measuring Capacitance



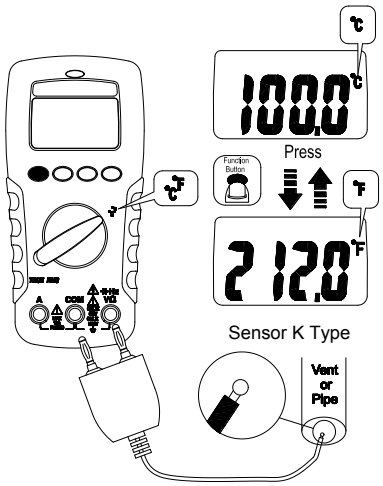
Dial the switch to select the measuring function.

Measuring Continuity / Diode / Resistance



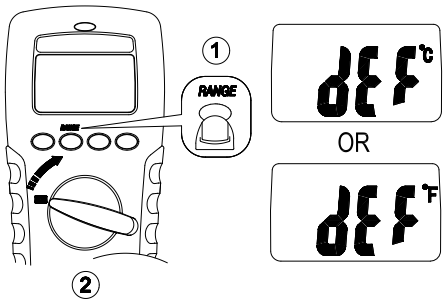
Dial the switch and press the Function button to select the measuring function.

Measuring Temperature °C / °F



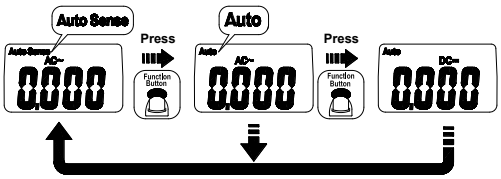
Dial the switch and press the Function button to select the measuring function. (°C / °F)

Set the default temperature units



Using The Function

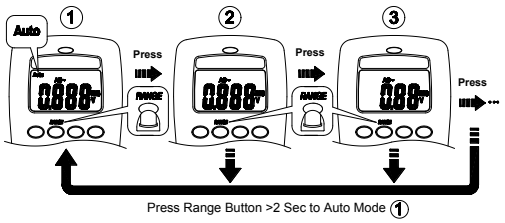
Function Button



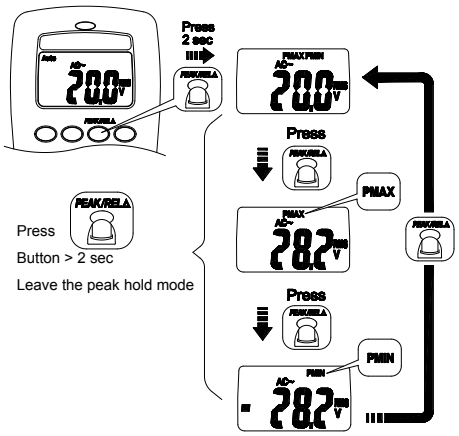
Switch Position	Function
V ≂ ⎓	Auto Sense V ≂ ⎓ → Auto ~V → Auto ⎓V
mV ≂ ⎓	Auto Sense V ≂ ⎓ → Auto ~mV → Auto ⎓mV
Ω	Ω →))) → ⊣
A ≂ ⎓	Auto Sense A ≂ ⎓ → Auto ~A → Auto ⎓A
°C °F	°C → °F

Press the Function button to change the function on the same switch position.

Range Button

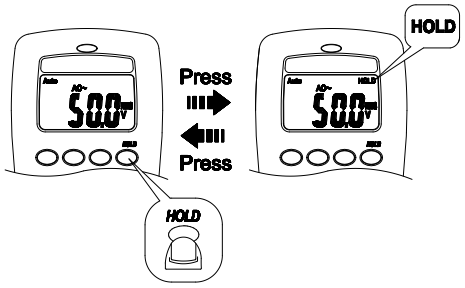


Peak Hold



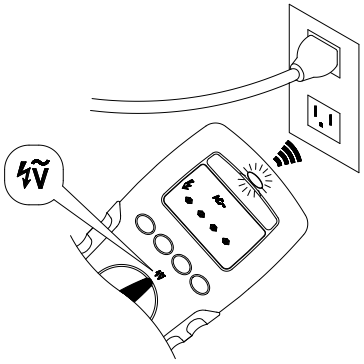
In the Peak Hold function ,the meter records the peak min. value and the peak max. value when the inputs goes below the recorded peak min. value or above the recorded peak max. value ,the meter records the new value . Press Hold button to pause the recording.

Smart Hold



The meter will beep continuously and the display will flash if the measured signal is larger than the display reading by 50 counts. (However ,it can not detect across the AC and DC Voltage /Current).

VoltSense

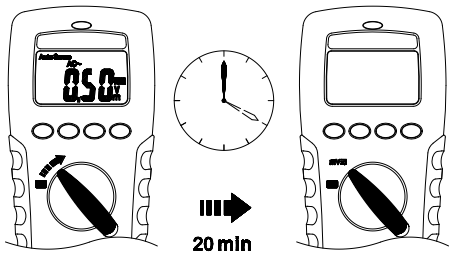


Dial the switch to select the measuring function.

⚠ Caution

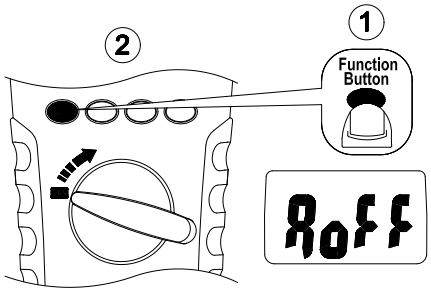
The number of dashes displaying on the display indicates the electric field in density.
If no indication, voltage could still be present.

Auto Power Off



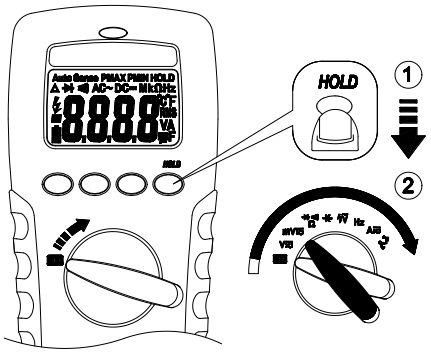
Wake-up the meter by dialing the switch or pressing any button.

Disable Auto Power Off



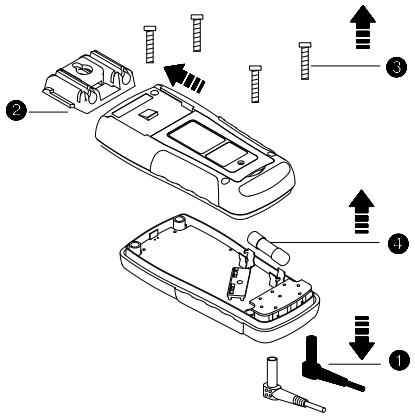
Dial the switch to off position ,then keep the Function button down and turn the meter on.

Testing LCD Monitor



Dial the switch to off position ,then keep the HOLD button down and turn the meter on.

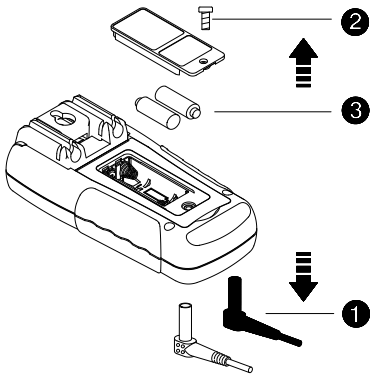
Fuse Replacement



Fuse type : 11A/1000V – 20KA (10x38mm)

Low battery and Battery Replacement

Replace the battery as soon as the low battery indicator appears, to avoid false reading.
Refer to the following figure to replace the batteries



⚠ Caution

Remove test leads from Meter before opening the battery cover or Meter case.

Specifications

General Specifications

Maximum voltage applied to any terminal :
1000 V_{ac} rms or 1000 V_{dc}.
Display : 6000 counts.
Polarity Indication :
Automatic, positive implied, negative indicated.
Overrange Indication : "OL" or "-OL"
Batteries Life : 150hours ALKALINE Battery
Low Batteries Indication :
Voltage drops below operating voltage, ▯ will flash.
Power Requirement : AAA Size Batteryx2
Operating Temperature : -10 ~10°C
10°C ~ 30°C (≦80% RH),
30°C ~ 40°C (≦75% RH),
40°C ~ 50°C (≦45%RH)
Storage Temperature :
-20°C to 60°C , 0 to 80% R.H. (batteries not fitted)
Measure : Samples 3 times per second .
Altitude : 6561.7 ft (2000m)
Safety : Complies with EN61010-1 / IEC61010-1, CAT III 600V, CAT II 1000V, EN61010-2-030, EN61326-1

CAT	**Application field**
Ⅰ	The circuits not connected to mains.
Ⅱ	The circuits directly connected to Low-voltage installation.
Ⅲ	The building installation.
Ⅳ	The source of the Low-voltage installation.

Weight : 320g (including battery)
Dimensions (W x H x D) : 74mm x156mm x 44mm
Pollution degree : 2
Shock vibration : Sinusoidal vibration per MIL-PRF-28800F (5 ~ 55 Hz, 3g max.)
Drop Protection : 4 feet drop to hardwood on concrete floor.
Indoor Use.

Electrical Specifications

Accuracy is given as ±(% of reading + counts of least significant digit) at 23°C ± 5°C, with relative humidity Less than 80% R.H. Accuracy is specified for a period of one year after calibration.

1. Temperature coefficient

0.15 x (Specified accuracy) / °C , < 18°C , > 28°C

2. AC Function

ACV and ACA specifications are ac coupled, true R.M.S. The crest factor may be up to 3.0 as 4000 counts.

For non-sinusoidal waveforms, Additional Accuracy by Crest Factor (C.F.) :

Add 3.0% for C.F. 1.0 ~ 2.0.
Add 5.0% for C.F. 2.0 ~ 2.5.
Add 7.0% for C.F. 2.5 ~ 3.0.

There is a little rolling less than 10 digits in Auto AC & DC Test Mode when measuring AC signal.

3. DC Voltage

Range	Resolution	Accuracy
60.00mV	0.01mV	±(0.5% + 10 dgt)
600.0mV	0.1mV	±(0.5% + 2 dgt)
6.000V	0.001V	
60.00V	0.01V	
600.0V	0.1V	
1000V	1V	

Input Impedance : 3.5MΩ (600.0mV Range)
12MΩ (Others)

Overload Protection : 1000V for V, 600V for mV.

4. AC Voltage

Range	Resolution	Accuracy (Sine Wave)
60.00mV	0.01mV	±(1.2% + 5 dgt)
600.0mV	0.1mV	
6.000V	0.001V	±(1% + 5 dgt)
60.00V	0.01V	
600.0V	0.1V	
1000V	1V	

LCD displays 0 counts when the reading < 20 counts (60.00mV range only)
LCD displays 0 counts when the reading < 10 counts (other ranges)
Input Impedance : 3.5MΩ (600.0mV Range)
12MΩ // less than 100pF (Others)
Frequency Response : 45 ~ 500Hz (Sine Wave)
Overload Protection : 1000V for V, 600V for mV.

5. DC Current

Range	Resolution	Accuracy
6.000A	0.001A	±(1% + 2 dgt)
10.00A	0.01A	

Maximum measurement time : 5 minutes at 10A with at least 20 minutes rest time.
Overload Protection : AC/DC 11A

6. AC Current

Range	Resolution	Accuracy (Sine Wave)
6.000A	0.001A	±(1.5% + 5 dgt)
10.00A	0.01A	

LCD displays 0 counts when the reading < 20 counts (6.000A range)

LCD displays 0 counts when the reading < 10 counts (10.00A range)
Frequency Response: 45 ~ 500Hz (Sine Wave)
Maximum measurement time: 5 minutes at 10A with at least 20 minutes rest time.
Overload Protection: AC/DC 11A

7. Resistance

Range	Resolution	Accuracy
600.0Ω	0.1Ω	±(0.8% + 5 dgt)
6.000kΩ	0.001kΩ	±(0.8% + 2 dgt)
60.00kΩ	0.01kΩ	±(0.8% + 2 dgt)
600.0kΩ	0.1kΩ	±(0.8% + 2 dgt)
6.000MΩ	0.001MΩ	±(0.8% + 2 dgt)
40.00MΩ*	0.01MΩ	±(2% + 3 dgt)

* There is a little rolling less then ±50 digits when measuring > 10.00 MΩ.

Open Circuit Voltage :
Approx. 1.0V @ 600.0Ω ~ 600.0kΩ range.
Approx. 1.7V @ other ranges.
Overload Protection: AC/DC 600V

8. Continuity

Range	Resolution	Accuracy
600.0Ω	0.1Ω	±(0.8% + 5 dgt)

Open Circuit Voltage : Approx. 1.0V
Max. Short Current : Approx. 250uA
Continuity : Built-in buzzer sounds when measured resistance is less than 30Ω and sounds off when measured resistance is more than 200Ω, Between 30Ω to 200Ω the buzzer maybe sound or off either.

Continuity Indicator : 2kHz Tone Buzzer
Overload Protection : AC/DC 600V

9. Diode

Range	Resolution	Accuracy
1.500V	0.001V	±(1% + 3 dgt)

Open Circuit Voltage : Approx. 1.8V
Max. Short Current : Approx. 400µA
Overload Protection : AC/DC 600V

10. Capacitance

Range	Resolution	Accuracy
10.00nF	0.01nF	±(1.9% + 8 dgt)
100.0nF	0.1nF	±(1.9% + 8 dgt)
1000nF	1nF	±(1.9% + 8 dgt)
10.00µF	0.01µF	±(1.9% + 8 dgt)
100.0µF	0.1µF	±(1.9% + 8 dgt)
1000µF	1µF	±(1.9% + 8 dgt)
10.00mF	0.01mF	±(1.9% + 8 dgt)

Response Time :
Approx. 7 sec. when measuring 10.00mF
Approx. 1 sec. when measuring 100uF
Overload Protection : AC/DC 600V

11. Temperature

Range	Resolution	Accuracy
-40.0 °C ~ 400.0 °C	0.1 °C	±(1% + 10 dgt)
-40.0 °F ~ 752.0 °F	0.1 °F	±(1% + 18 dgt)

Do not include accuracy of the thermocouple probe. Accuracy specification assumes surrounding temperature stable to ±1 °C. For surrounding temperature changes of ±3 °C, rated accuracy applies after 2 hours.
Overload Protection : AC/DC 600V.

12. Frequency

Range	Resolution	Accuracy
6000Hz	1Hz	±(0.1% + 2 dgt)
60.00kHz	0.01kHz	±(0.1% + 2 dgt)
100.0kHz	0.1kHz	±(0.1% + 2 dgt)

Min. Sensitivity (Sine Wave, RMS Value) : 8V
Min. Frequency : 1Hz
Overload Protection : AC/DC 1000V

13. Peak Hold

Specified accuracy ± 200 digits.
Response Time of DC signal : 50ms
Response Time of AC signal : 250µs

14. VoltSense

Voltage Range : 80V ~ 1000V (At the top of the meter)

Limited Warranty

This meter is warranted to the original purchaser against defects in material and workmanship for 3 years from the date of purchase. During this warranty period, RS Components will, at its option, replace or repair the defective unit, subject to verification of the defect or malfunction.
This warranty does not cover fuses, disposable batteries, or damage from abuse, neglect, accident, unauthorized repair, alteration, contamination, or abnormal conditions of operation or handling.
Any implied warranties arising out of the sale of this product, including but not limited to implied warranties of merchantability and fitness for a particular purpose, are limited to the above. RS Components shall not be liable for loss of use of the instrument or other incidental or consequential damages, expenses, or economic loss, or for any claim or claims for such damage, expense or economic loss. Some states or countries laws vary, so the above limitations or exclusions may not apply to you. For full terms and conditions, refer to the RS website.

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