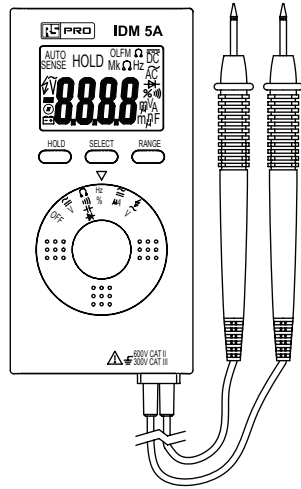




Instruction Manual IDM5A Digital Multimeter

EN



⚠ Safety Information

Read and understand this Instruction Manual completely before using this instrument. Failure to observe the warnings and cautions in this Instruction Manual may result in injury or death, or damage to the instrument and other equipment or property.

The following symbols may appear on the instrument and in this Instruction Manual:

	Risk of electric shock
	Refer to Instruction Manual
	Equipment protected throughout by double or reinforced insulation
	Battery
	Earth
	Conforms to applicable EU directives
	Dispose of this equipment in accordance with local regulations.

⚠ Warning

If this instrument is used in a manner not specified in these instructions, the protection provided by the instrument may be impaired. Examine the instrument, probes and leads before use. Do not use the instrument if it is wet or damaged, or if you suspect it is not operating correctly.

- Always use the correct switch position and range for measurements.

1

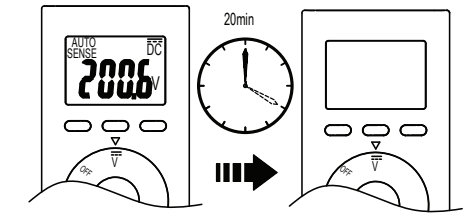
- Do not apply more than the rated voltage as marked on the instrument between terminals, or between any terminal and earth ground.
- To avoid incorrect readings that can lead to electric shock, replace the battery as soon as low battery indicator appears in the display.
- Use caution when measuring voltages above 30 Vac rms or 60 Vdc. These voltages pose a shock hazard.
- Disconnect the circuit power and discharge all high-voltage capacitors before making resistance, continuity, diode, or capacitance measurements.
- Do not use the instrument in a Hazardous Area or around explosive gasses or vapours.
- When using the instrument, test leads or probes, keep your fingers behind the finger guards.
- Wear suitable Personal Protective Equipment when working around or near Hazardous Live conductors which could be accessible.

⚠ Caution

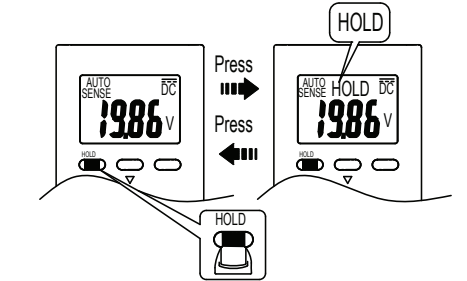
- When connecting the test leads to a circuit or device, connect the black lead before the red lead and disconnect the red lead before the black lead.
- If possible, do not work alone, so assistance can be given if required.
- If this instrument is used in the vicinity of equipment which generates electromagnetic interference, the display may become unstable or the measurements may be subject to large errors.
- Do not expose the instrument to extremes of temperature or high humidity.

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Auto Power-off



Display Hold



The internal sounder will operate continuously and the LCD display will flash in two situations in the Data Hold mode:

1. The instrument measures a signal different to that shown on the LCD.
2. The measured signal is the same units as the LCD reading, but different by more than 50 counts to the LCD reading.

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Africa
RS Components SA
P.O. Box 12182, Vorna Valley, 1686
20 Indianapolis Street, Kyalami Business Park,
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www.rs-components.com

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31 Tech Park Crescent
Singapore 638040
www.rs-components.com

China
RS Components Ltd.
Suite 23 A-C, East Sea Business Centre
Phase 2, No. 618 Yan'an Eastern Road
Shanghai, 200001, China
www.rs-components.com

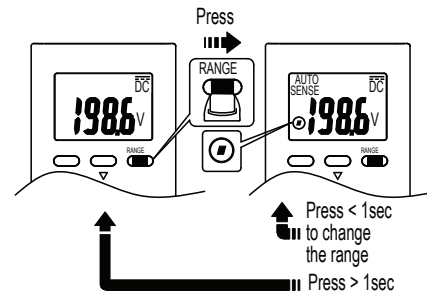
Europe
RS Components Ltd.
PO Box 99, Corby,
Northants. NN17 9RS, United Kingdom
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RS Components Ltd.
West Tower (12th Floor),
Yokohama Business Park, 134 Godocho,
Hodogaya, Yokohama, Kanagawa 240
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South America
RS Componentes Limitada
Av. Pdtte. Eduardo Frei M. 6001
Centro Empresas El Cortijo
Conchalí, Santiago, Chile
www.rs-components.com

Auto Range / Manual Range



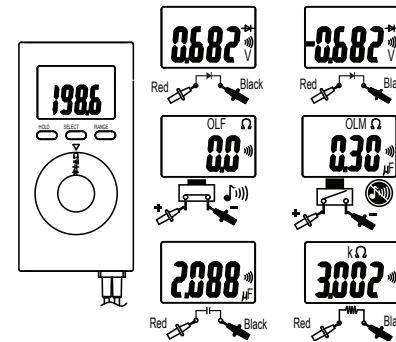
Selecting Function

Press "SELECT" key to select function.

Switch Position	Select Key Actions
	AutoSense → DCV → ACV
	AutoSense → μ A → mA
	Ω → Continuity → Diode → Capacitance
	Hz → %

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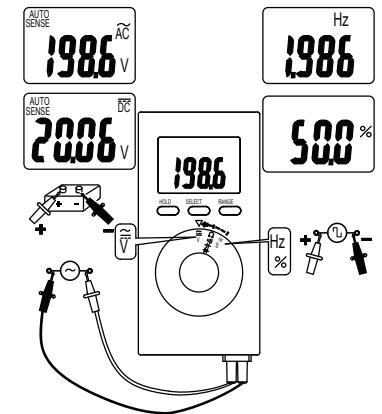
Resistor / Capacitor / Continuity / Diode



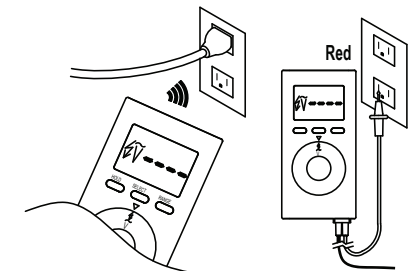
- For greater measurement accuracy of low-value capacitance, subtract the residual capacitance of the instrument and leads from the measured value.
- Under diode mode, the LCD will display "bad" when measuring a diode which conducts in forward and reverse bias.

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AC V / DC / Hz / Duty



Non-contact Volt Sense

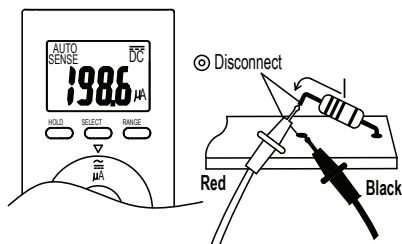


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Warning – For non-contact voltage sensing, do not touch Hazardous Live conductors with the red or black test-probe.

- For non-contact voltage sense, place the top of the instrument body or the red test-probe near the conductor.
- The buzzer will sound and the number of dashes shown on the LCD will indicate the relative electric field strength. If there is no indication, a voltage may still be present.

AC A / DC A



Maintenance

Do not attempt to repair this Instrument. It contains no user-serviceable parts. Repair or servicing should only be performed by qualified personnel. This instrument should be calibrated yearly or more frequently if used in harsh conditions or if it is suspected of being inaccurate.

For calibration and repair contact RS Components - the address is given at the end of these instructions.

Cleaning

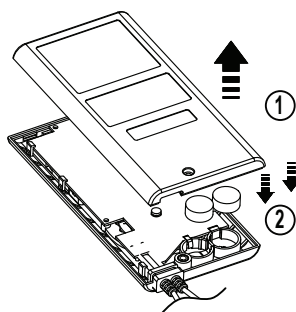
Periodically wipe the case with a dry cloth and detergent. Do not use abrasives or solvents.

Battery Replacement

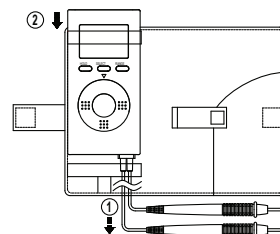
WARNING

Disconnect the test leads from the circuit before removing the battery cover.

Refer to the following figure to replace the batteries:



Carry Case Assembling



Specifications

1-1 General Specifications

LCD display digits:

4000-count large-scale Liquid Crystal Display.

Measuring rate: 3 times / sec.

Polarity Indication: Automatic, positive implied,

Overrange display: "OL" or "-OL"

Unit symbol indication.

Automatic power off time:

Approximately 20 minutes after power on.

Low battery indicator: E3 is displayed.

Power requirement: 2 x 1.5V LR44 type batteries.

Battery life: 50 hours (GPA76P)

1-2 Environmental Conditions

Indoor Use Only.

Calibration: One year calibration cycle.

Operating temperature:

0°C to 30°C (80% RH)

30°C to 40°C (75% RH)

40°C to 50°C (45%RH)

Storage temperature:

-20 to +60°C, 0 to 80% RH (batteries not fitted).

Temperature coefficient: Add 0.2 x (Specified accuracy) / °C, < 18°C, > 28°C.

Shock and vibration: Sinusoidal vibration per MIL-T-28800E (5 to 55 Hz, 3g maximum).

Drop Protection: 4 feet drop onto hardwood or concrete floor.

Overvoltage (Measurement) category:

IEC 61010-1 300V CAT III, 600V CAT II.

Measurement Category I

is for measurements performed on circuits not directly connected to mains. Examples include: Measurements on battery powered equipment and specially protected (internal) mains-derived circuits.

Measurement Category II

is for measurements on circuits directly connected to the low voltage installation. Examples include: Household appliances, portable tools and similar equipment.

Measurement Category III

is for measurements performed in the building installation. Examples include measurements on distribution boards, junction boxes, socket-outlets and wiring and cables in the fixed installation.

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Operating altitude: 2000m (6562 ft)

Pollution degree: 2

EMC: EN 61326-1

Dimensions (W x H x D): 56 x 12 x 112mm

Weight: 115g

Accessories: Batteries (installed), carry case and Instruction manual.

1-3 Electrical Specifications

Accuracy is \pm (% reading + number of digits) at 23°C \pm 5°C < 80%RH.

Function	Range	Resolution	Accuracy
DCV	400.0mV	0.1mV	\pm (0.7%+ 5 D)
	4.000V	0.001V	\pm (0.6%+ 2 D)
	40.00V	0.01V	
	400.0V	0.1V	
	600V	1V	\pm (0.7%+ 5 D)

Input Impedance: 10M Ω || <100pF.

Overload protection: 600V rms.

Function	Range	Resolution	Accuracy
Ohm	400.0 Ω	0.1 Ω	\pm (0.9%+ 5 D)
	4.000k Ω	0.001k Ω	\pm (0.9%+ 2 D)
	40.00k Ω	0.01k Ω	
	400.0k Ω	0.1k Ω	
	4.000M Ω	0.001M Ω	\pm (1.5%+ 5 D)
	40.00M Ω *	0.01M Ω	

Open Circuit Voltage: 0.4V

* Rolling of digits of less than \pm 2%

Overload protection: 600V rms.

CONTINUITY CHECK

Continuity Threshold: Approx. <50 Ω

Continuity Indicator: 2.7KHz Tone Buzzer.

Input Protection: 600V rms.

Function	Range	Resolution	Accuracy
Cap	40.00nF	0.01nF	\pm (5%+ 0.4nF)
	400.0nF	0.1nF	\pm (2.9%+ 5 D)
	4.000 μ F	0.001 μ F	
	40.00 μ F	0.01 μ F	
	400.0 μ F	0.1 μ F	

Measuring Time: <30sec. (400.0 μ F range),

<10sec. (40.0 μ F range), <3sec. (other range)

Overload protection: 600V rms.

Function	Range	Resolution	Accuracy
Hz	40.00Hz	0.01Hz	\pm (0.3%+ 5 D)
	400.0Hz	0.1Hz	
	4.000KHz	0.001KHz	
	40.00KHz	0.01KHz	

Sensitivity: > 10Vp-p (40KHz range) > 1.5Vp-p (other ranges)

The signal must have positive and negative portions of a cycle.

Max. Sensitivity: 600V rms.

Overload protection: 600V rms.

Function	Range	Resolution	Accuracy
%	0.1 - 99.9%	0.1%	\pm (0.5%+10 D) *

*30% \leq Duty \leq 70%, Square Wave (5 Hz to 1KHz)

Sensitivity: 1.5Vp-p

Overload protection: 600V rms.

Function	Range	Resolution	Accuracy
ACA	400.0 μ A	0.1 μ A	\pm (1.5%+ 5 D)
	4.000mA	0.001mA	

Frequency Response: 50 to 500Hz

AC Conversion Type: AC Coupled Average Sensing, RMS Indicating.

Input Impedance: Approx. 3K Ω

Overload protection: 600V rms.

Function	Range	Resolution	Accuracy
DCA	400.0 μ A	0.1 μ A	\pm (0.9%+ 5 D)
	4.000mA	0.001mA	

Input Impedance: Approx. 3K Ω

Overload protection: 600V rms.

DIODE TEST

Test Current: Typical. 350 μ A

Open Circuit Voltage: Max. 1.8V DC

Input Protection: 600V rms.

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