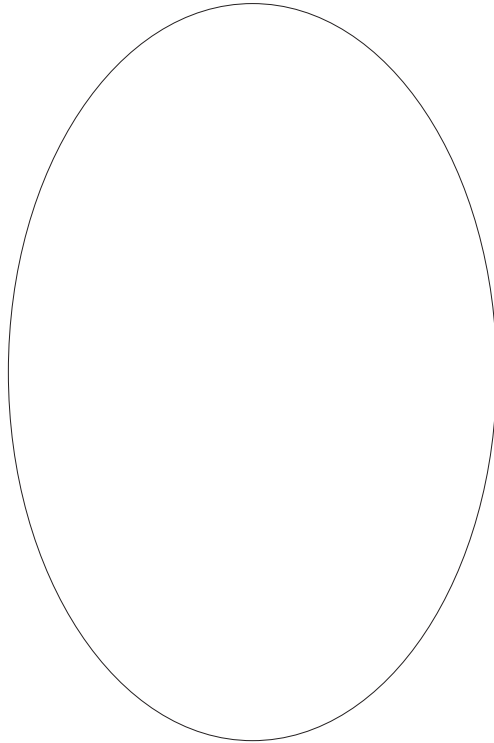


DURATOOL








MODEL: D03125

3½ DIGITAL MULTIMETER

IMPORTANT SAFETY INFORMATION

Please read these instructions carefully before use and retain for future reference.

	Important safety information. Read the instructions carefully.
	High voltage. Danger.
	Ground.
	Double Insulation (Class II safety equipment).
	Fuse must be replaced as per the specification herein.

- When using electrical appliances basic safety precautions should always be followed.
- The instrument can only be used in conjunction with the probe, for the compliance with safety standards. If the probe needs replacing due to damage, the replacement must be of the same type or of the same electrical specifications.
- Do not exceed the input limits specified for each range.
- When the instrument is measuring, do not touch the input terminal not in use.
- When a measurement range is uncertain, turn the function/range switch to the maximum range position.
- Before turning the function/range switch, make sure the probe is open with the circuit being measured.
- Before on-line resistance measurement of voltage higher than 60V DC/30V AC, remember to keep your fingers behind the hand shield of the probe.
- When measuring a TV set or switch power supply, watch for pulse in the circuit that may damage the multimeter.
- Before measuring any transistor, make sure the probe is not connected to any circuit being measured.
- Before taking the measurement of voltage with the probe, make sure there is no electronic element connected to the test socket of the transistor.

WHAT'S INCLUDED

- One Instruction manual
- One pair of probes
- One package
- One 9V battery NEDA 1604 6F22
- One K Thermocouple sensor (MAS838 only)
- Rubber case (optional extra)

MAINTENANCE

- Before moving the rear cover, disconnect the probe from the circuit to be measured.
- To protect the internal circuit, replace the fuse with one of the same specification:

F1 250mA/250V

F2 10A/250V

- Do not use the instrument until the rear cover is put back in place and the screws have been tightened.
- Clean the housing instrument with a wet cloth and a small amount of detergent, if required.
- Do not use chemicals, abrasives or solvents that may damage the instrument.

FEATURES

This 3½ digital multimeter features stable, high reliable and anti-drop performance. It is provided with an LCD display, 15mm in height, designed for clear reading. The circuit design takes LSI double integral A/D converter as its core under the protection of an overload protection circuit, making it a superior and handy instrument. It can be used to measure DC and AC voltage, DC current, resistance, diodes, transistors, temperature and in-circuit continuity.

MEASUREMENT FEATURES

Features	IN07445	MAS830B	IN07446	MAS838
Alternating Voltage (V~)	✓	✓	✓	✓
Direct Voltage (V=)	✓	✓	✓	✓
Direct Current (A=)	✓	✓	✓	✓
Resistance (Ω)	✓	✓	✓	✓
Diode (→)	✓	✓	✓	✓
Temperature (°C)				✓
On-Off (⦿)	✓		✓	✓
Data Hold	✓	✓	✓	✓
Backlight			✓	

Display

- 3½ digital, 15mm height, 7 sections LCD display.

Backlight

- Press the BACKLIGHT button to turn on the backlights, which will last for five seconds. To turn it on again, press the button when required.

Function and Range Switch

- Select different functions and range.

VΩmA Jack

COM Jack

10A Jack

Data Hold button


- Press the HOLD button. The LCD will hold the last reading measured and display the H symbol.
- When the button is released, the instrument will return to normal.

TECHNICAL INFORMATION

Accuracy ±% of reading five digits, guaranteed for one year.

Ambient temperature: 18°C to 28°C.

Ambient humidity: 80%.

Maximum voltage between input and the ground	CATII 600V
Fuse	F1 250mA/250V F2 10A/250V
Power	9V battery, NEDA 1604 or 6F22
Maximum display value	1999
Over-range indication	“ 1 ”
Polarity display	“ - ” for negative polarity
Operating temperature	0°C to 40°C
Storage temperature	-10°C to 50°C
Low voltage indication	“  ” on the display
Appearance dimension	138mm x 69mm x 31mm
Weight	170g

Direct Current Voltage Measurement		
Range	Resolution	Accuracy
200mV	100µV	±0.5% of reading, ±3 digits
2V	1mV	±0.5% of reading, ±3 digits

20V	10mV	±0.5% of reading, ±3 digits
200V	100mV	±0.5% of reading, ±3 digits
600V	1V	±0.8% of reading, ±5 digits

- Overload protection: 200mV range: 250V DC or RMS;
- The rest ranges: 600V DC or RMS.

Direct Current Measurement		
Range	Resolution	Accuracy
20μA	0.01μA	±1% of reading, ±3 digits
200μA	0.1μA	±1% of reading, ±3 digits
2mA	1μA	±1% of reading, ±3 digits
20mA	10μA	±1% of reading, ±5 digits
200mA	100μA	±1.5% of reading, ±5 digits
10A	10mA	±3% of reading, ±10 digits



- Overload protection: F1 200mA/250V Fuse F2 10A/250V
- *MAS838, no 20μA position

Alternating Voltage Measurement		
Range	Resolution	Accuracy
200V	100mV	±1.2% of reading, ±10 digits
600V	1V	±1.2% of reading, ±10 digits

- Overload protection: 600V DC or RMS
- Frequency range: 40Hz to 400Hz
- Display: Average (effective value of sinusoid)

Resistor		
Range	Resolution	Accuracy
200Ω	0.1Ω	±0.8% of reading, ±5 digits
2kΩ	1Ω	±0.8% of reading, ±2 digits
20kΩ	10Ω	±0.8% of reading, ±2 digits
200kΩ	100Ω	±0.8% of reading, ±2 digits
2MΩ	1kΩ	±1.0% of reading, ±5 digits



- Maximum open circuit voltage: 3.2V
- Overload protection: 250V DC or RMS

Diode and Circuit On-Off Measurement	
Range	Description
	When the on-resistance is smaller than $(70 \pm 30)\Omega$, the built-in buzzer will sound.
	Displays the approximate diode positive voltage.

- Overload protection: 250V DC or RMS. AC.

Temperature Measurement			
Range	Resolution	Measurement	Accuracy
°C	1°C	-20°C to 0°C -0°C to 400°C 400°C to 1000°C	±10% Range, ±2 digits ±1.0% Range, ±3 digits ±2.0% Range

OPERATION

- Plug the instrument in and check the 9V battery. If it is low the “” symbol will display, meaning the battery needs replacing.
- The  besides the probe jack indicates that the input voltage or current should not exceed the specified limits, in order to protect the internal circuit.
- Before measurement, turn the function/range switch to the desired range.

Direct Voltage Measurement

- Insert the red probe into the “**VΩmA**” jack and the black one into the COM jack.
- Turn the function/range switch to the range of **V** and connect the probe to the power supply or load to be measured. The polarity touched by the red probe will be on the display.

Notice

- If you do not know the measured voltage range in advance, set the function/range switch to the maximum range and then gradually turn to smaller ranges until you reach a satisfactory resolution.
- If the display shows “1”, this indicates an overrange measurement, therefore the switch should be set to a higher range.
- Do not input a voltage of more than 600V. It is capable of indicating a higher voltage, but with the risk of damaging the inside circuit.
- When taking the measurement of high voltage, pay special attention to avoid an electric shock.

Direct Current Measurement

- Place the black probe into the COM jack. For current, not exceeding 200mA, to be measured, put the red one into the “**VΩmA**” jack. For current to be measured between 200mA and 10A, insert the red probe into the 10A jack.
- Set the function/range switch to the desired **A** range and connect the probe in series with the load to be measured. The current value and the polarity connected to the red probes will be shown on the display.

Note

- If you do not know the measured voltage range in advance, set the function/range switch to the maximum range and then gradually turn to smaller ranges until you reach a satisfactory resolution.
- If the display shows “ 1 ”, this indicates an overrange measurement, therefore the switch should be set to a higher range.
- The symbol “ Δ ” beside the probe indicates the maximum input current is 200mA or 10A, depending on the inserted jack. Overcurrent will blow the fuse.

Alternating Voltage Measurement

- Place the red probe into the “**VΩmA**” jack and the black one into the “COM” jack.
- Turn the switch to **V~** and connect the probe to the power supply or load to be measured.

Resistance Measurement

- Place the black probe into the COM jack and the red one into the **V/Ω/Hz** jack.
- Turn the switch to the COM jack and connect the probe to the resistor being measured and read the results on the display.

Note


- If the resistor being measured is greater than the maximum value of the selected range, the display will show “ 1 ”, requiring the selection of a higher range. It normally takes a few seconds for the reading to get stable when measuring a resistor larger than 1MΩ.
- In default of input for instance, open circuit, the display shows “ 1 ”.
- When measuring an online resistor, de-energize the circuit being measured and discharge all capacitors.

Diode Measurement

- Insert the black probe into the COM socket and the red one into the “**VΩmA**”, then the red probe will be of positive polarity.
- Turn the switch to the **→|←** range and connect the red probe to the positive

pole of the diode being measured and the black one to the negative pole. Read the approximate forward voltage drop of the diode on the display.

Circuit On-Off Measurement

- Insert the black probe into the COM jack and the red one into the **V.Ω.mA** jack.
- Turn the switch to the  position and connect the probes in parallel with two points of the circuit being measured. If the resistance between the two points is less than 100Ω, the built-in buzzer will sound to indicate the continuity between the two points.

Temperature Measurement

- Turn the switch to the °C position and insert the black probe of the thermocouple sensor into the COM jack and the red into the **V.Ω.mA** jack.
- Place the operating terminals (temperature measurement terminals) onto or inside the object being measured and directly read the temperature value in °C on the display.
- When the switch is turned to the °C position and the sensor is in an open circuit, the display shows room temperature.

Replacement of battery and fuse

- Under normal conditions it is unnecessary to replace the fuse.
- Do not replace it until the probes are unplugged and the power is shut down. Take out the two screws of the rear cover to remove the housing.
- The specification of the fuse is:
- F1 250mA/250V, F210A/250V

(Any replacement should be of the same specification.)

- The battery for this multimeter is 9V NEDA 1604 or 6F22.
- Do not put the instrument into use until the rear cover is screwed after replacing the battery or fuse.



INFORMATION ON WASTE DISPOSAL FOR CONSUMERS OF ELECTRICAL & ELECTRONIC EQUIPMENT.

When this product has reached the end of its life it must be treated as Waste Electrical & Electronics Equipment (WEEE). Any WEEE marked products must not be mixed with general household waste, but kept separate for the treatment, recovery and recycling of the materials used. Contact your local authority for details of recycling schemes in your area.

