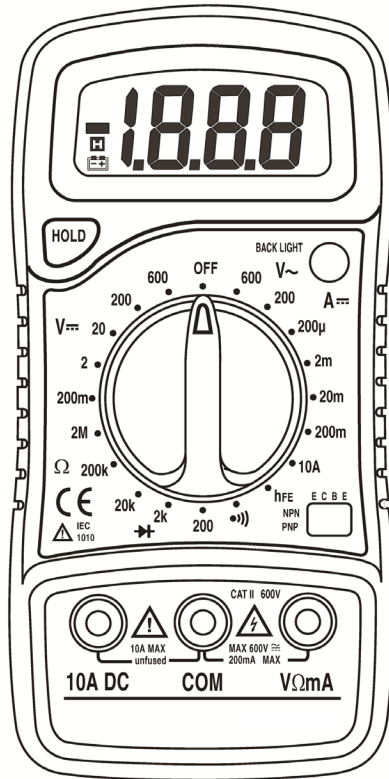


DURATOOL



MODEL: D03126






Digital Multimeter with Backlight

CONTENTS

Page Number	Description
3	Important Safety Information
3	What's Included?
4	Overview
4	Front Panel Description
5	General Specification
5	DC Voltage
5	DC Current
6	AC Voltage
6	Diode & Continuity
6	Resistance
6	Transistor hFE Test (0-1000)
6	Operation - DC Voltage Measurement
7	Operation - DC Current Measurement
7	Operation - AC Current Measurement
7	Operation - Resistance Measurement
7	Operation - Diode Test
7	Operation - Transistor Test
8	Operation - Audible Continuity Test
8	Battery & Fuse Replacement
8	Cleaning

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.

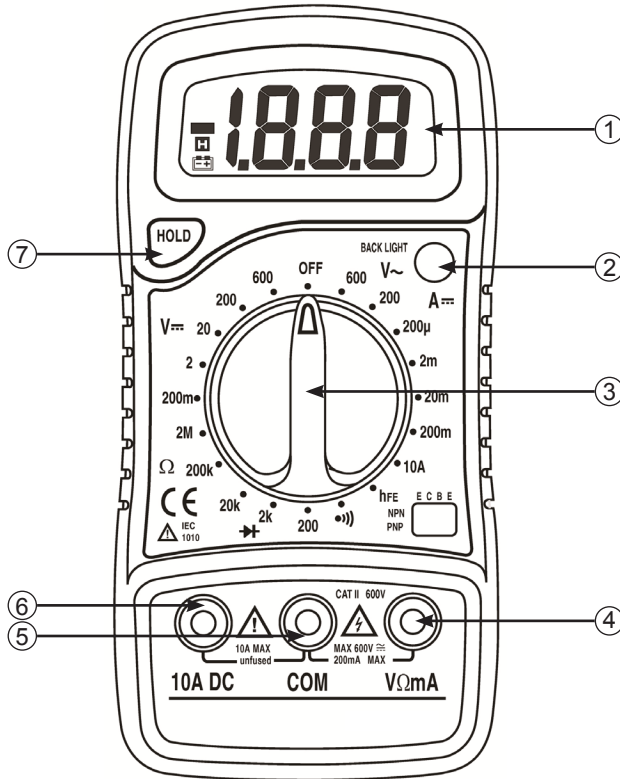
- When using electrical appliances basic safety precautions should always be followed.
- Do not exceed the protection limit values specified for each range range of measurement.
- Never use the meter to measure voltages that might exceed 600V above earth ground in category II installations.
- When the value scale to be measured is unknown beforehand, set the range selector to the highest position.
- Before rotating the range selector to change the functions disconnect the test leads from the circuit under test.
- When measuring a TV set or switching power supply, watch out for pulses in the circuit that may damage the meter.
- Before working with and measuring voltages higher than 60V DC or 30V AC RMS, keep your fingers behind the probe barriers.
- Before attempting to insert transistors for testing, always be sure that the test leads have been disconnected from any measurement circuits.
- Components should not be connected to the hFE socket when making voltage measurements with test leads.
- Do not perform resistance measurements on live circuits.
- The instrument can only be used in conjunction with the test leads supplied. If necessary, they must be replaced with the same type and specification.

WHAT'S INCLUDED?

- One instruction manual
- One digital multimeter
- Set of test leads
- One 9V battery, NEDA 1604 6F22 006P type
- Holster (optional)

This meter is a handheld 3½ digital multimeter used for measuring DC and AC voltage, DC current, resistance, diode, transistor and continuity.


OVERVIEW



Front Panel Description	
1	Display - 3½ digit, 7 segment, 15mm high LCD
2	Backlight - once pushed the backlight of the display will turn on. It will self-turnoff after about five seconds. To turn the backlight on again, just push the button.
3	Rotary switch - used to select functions and desired ranges as well as turn the meter on or off.
4	“VΩmA” jack - plug in the connector for red (positive) test lead for voltage, resistance and current (except 10A) measurements.
5	“COM” jack - plug in the connector for the black (negative) test leads.
6	“10A” jack - plug in the connector for the red test lead for 10A measurement.
7	Hold button - once pushed, the display will keep the last reading and “H” symbol will appear on the LCD until the button is pushed again.

GENERAL SPECIFICATION

Accuracy is specified for a period of one year after calibration and at 18 to 28°C (64°F to 82°F) with relative humidity to 80%.

Max. voltage between terminals and earth ground	CAT II 600V
Fuse Protection	F 200mA / 250V
Power	9V battery, NEDA 1604 or 6F22
Display	LCD, 1999 counts, updates 2-3 seconds
Measuring Method	Dual-slope integration A/D converter
Overrange Indication	Only figure "1" on the display
Polarity Indication	"-" displayed for negative polarity
Operating Environment	0°C to 40°C
Storage Temperature	-10°C to 50°C
Low battery indication	"  " appears on the display
Size	138mm x 69mm x 31mm
Weight	Approx 170g

DC VOLTAGE

Range	Resolution	Accuracy
200mV	100µV	± 0.5% of rdg ± 2 digits
2V	1mV	± 0.5% of rdg ± 2 digits
20V	10mV	± 0.5% of rdg ± 2 digits
200V	100mV	± 0.5% of rdg ± 2 digits
600V	1V	± 0.8% of rdg ± 2 digits

Overload protection: 250V rms. For 200mV range and 600V dc or rms, ac for other ranges.

DC CURRENT

Range	Resolution	Accuracy
200µA	0.1µA	± 1% of rdg ± 2 digits
2mA	1µA	± 1% of rdg ± 2 digits
20mA	10µA	± 1% of rdg ± 2 digits
200mA	100µA	± 1.5% of rdg ± 2 digits
10A	10mA	± 3% of rdg ± 2 digits

Overload protection: F 200mA/250V fuse (10A range unfused).

AC VOLTAGE



Range	Resolution	Accuracy
200V	100mV	$\pm 1.2\%$ of rdg ± 10 digits
600V	1V	$\pm 1.2\%$ of rdg ± 10 digits

Overload protection: 600V DC or RMS. AC for all ranges.

Frequency range: 40Hz to 400Hz.

Response: average responding, calibrated in rms of a sine wave.

DIODE & CONTINUITY

Range	Description
	If continuity exists (about less than 1.5k Ω), the built-in buzzer will sound.
	Shows the approximate forward voltage drop of the diode.

Overload protection: 250V DC or RMS, AC.

RESISTANCE

Range	Resolution	Accuracy
200 Ω	0.1 Ω	$\pm 0.8\%$ of rdg ± 3 digits
2k Ω	1 Ω	$\pm 0.8\%$ of rdg ± 2 digits
20k Ω	10 Ω	$\pm 0.8\%$ of rdg ± 2 digits
200k Ω	100 Ω	$\pm 0.8\%$ of rdg ± 2 digits
2M Ω	1k Ω	$\pm 1.0\%$ of rdg ± 2 digits

Maximum open circuit voltage: 3.2V

Overload protection: 250V DC or RMS, AC for all ranges.

TRANSISTOR hFE TEST (0-1000)

Range	Test Range	Test Current	Test Voltage
NPN & PNP	0-1000	I _b = 10 μ A	V _{ce} = 3V

OPERATION - DC VOLTAGE MEASUREMENT

- Connect the red test lead to the "V Ω mA" jack and the black lead to the "COM" jack.
- Set the rotary switch at the desired DCV position. If the voltage to be measured is not known beforehand, set the range switch at the highest range position and then reduce it until a satisfactory resolution is obtained.
- Connect the test leads across the source or load being measured.
- Read the voltage value on the LCD display along with the polarity of the red lead connection.

OPERATION - DC CURRENT MEASUREMENT

- Connect the red test lead to the “VΩmA” jack and the black test lead to the “COM” jack.
- Note: for measurements between 200mA and 10A, remove the red lead to the “10A” jack.
- Set the rotary switch at the desired DCA position.
- Open the circuit in which the current is to be measured and connect the test leads in series with the circuit.
- Read the current value on the LCD along with the polarity of the red lead connection.


OPERATION - AC VOLTAGE MEASUREMENT

- Connect the red test lead to the “VΩmA” jack and the black test lead to the “COM” jack.
- Set the rotary switch at the desired ACV position.
- Connect test leads across the source or load being measured.
- Read the voltage on the LCD.

OPERATION - RESISTANCE MEASUREMENT

- Connect the red test lead to the “VΩmA” jack and the black test lead to the “COM” jack.
- Note: the polarity of the red lead is positive.
- Set the rotary switch at the desired “Ω” range position.
- Connect the test leads across the resistor to be measured and read the LCD.
- If the resistance being measured is connected to a circuit, turn off the power and discharge all capacitors before applying test probes.


OPERATION - DIODE TEST

- Connect the red test lead to the “VΩmA” jack and the black test lead to the “COM” jack.
- Note: the polarity of the red lead is positive.
- Set the rotary switch at the “” position.
- Connect the red test lead to the anode of the diode to be tested and the black test lead to the cathode of the diode.
- The approximate forward voltage drop of the diode will be displayed. If the connection is reversed, only figure “1” will be shown.


OPERATION - TRANSISTOR TEST

- Set the rotary switch at the “hFE” position.
- Determine whether the transistor under testing is NPN or PNP and locate the emitter, base and collector leads. Insert the leads into the proper holes of the hFE socket on the front panel.
- Read the approximate hFE value and the test condition of the base current 10μA and Vce 3V.

OPERATION - AUDIBLE CONTINUITY TEST

- Connect the red test lead to the “VΩmA” jack and the black test lead to the “COM” jack.
- Set the range switch to “” position.
- Connect the test leads to the two points of the circuit to be tested. If continuity exists, the built-in buzzer will sound.

BATTERY & FUSE REPLACEMENT

- If the “” symbol appears on the display it indicates that the battery should be replaced.
- To replace a battery and fuse (200mA/250V) remove the two screws in the bottom of the case.
- Before opening the case, always disconnect the test leads from all energised circuits.
- Remove the old fuse or battery and replace it with a new one of the same specification.
- Be careful to observe the battery polarity.
- Never use the meter unless the back cover is in place and securely fastened.

CLEANING

- Use a soft, clean, dry cloth to clean the meter.
- Do not use any chemicals, abrasives or solvents that may damage the meter.



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

This symbol indicate that separate collection of Waste Electrical and Electronic Equipment (WEEE) or waste batteries is required. Do not dispose of these items with general household waste. Separate for the treatment, recovery and recycling of the materials used. Waste batteries can be returned to any waste battery recycling point which are provided by most battery retailers. Contact your local authority for details of the battery and WEEE recycling schemes available in your area.

