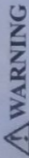


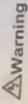
OPERATOR'S STRUCTION ANUAL

30 SERIES DIGITAL MULTIMETER



DO NOT UNDERSTAND THIS MANUAL
USING THE INSTRUMENT.

To understand and comply with the
instructions and operating instructions can
result in serious or fatal injuries and/or
damage.



To avoid possible electric shock or personal
injury, and to avoid possible damage to the Meter or
to the equipment under test, adhere to the following
rules:

- ▶ Before using the Meter inspect the case. Do
not use the Meter if it is damaged or the case
(or part of the case) is removed. Look for
cracks or missing plastic. Pay attention to
the insulation around the connectors.
- ▶ Inspect the test leads for damaged insulation
or exposed metal. Check the test leads for
continuity.
- ▶ Do not apply more than the rated voltage, as
marked on the Meter, between the terminals or
between any terminal and grounding.
- ▶ The rotary switch should be placed in the right
position and no any changeover of range shall
be made during measurement is conducted to
prevent damage of the Meter.
- ▶ When the Meter working at an effective voltage
over 60V in DC or 30V rms in AC, special care
should be taken for there is danger of electric
shock.
- ▶ Use the proper terminals, function, and range
for your measurements.
- ▶ Do not use or store the Meter in an
environment of high temperature, humidity,
explosive, inflammable and strong magnetic
field. The performance of the Meter may
deteriorate after dampened.
- ▶ When using the test leads, keep your fingers
behind the finger guards.
- ▶ Disconnect circuit power and discharge all

Replace the battery as soon as the battery
indicator appears. With a low battery,
the Meter might produce false readings that
can lead to electric shock and personal injury.
Remove the connection between the testing
leads and the circuit being tested, and turn the
Meter power off before opening the Meter
case.

When servicing the Meter, use only the same
model number or identical electrical
specifications replacement parts.

The internal circuit of the Meter shall not be
altered at will to avoid damage of the Meter
and any accident.

Soft cloth and mild detergent should be used
to clean the surface of the Meter when
servicing. No abrasive and solvent should be
used to prevent the surface of the Meter from
corrosion, damage and accident.

The Meter is suitable for indoor use.

Turn the Meter power off when it is not in use
and take out the battery when not using for a
long time. Constantly check the battery as it
may leak when it has been using for some time,
replace the battery as soon as leaking appears.
A leaking battery will damage the Meter.

General Specifications

Max display: LCD 3 1/2 digits (1999 count) 0.5" high
Polarity: Automatic, indicated minus, assumed plus.
Measure method: double integral A/D switch
implement

Sampling speed: 2 times per second
Over-load indication: "1" is displayed
Operating Environment: 0°C~40°C, at <80%RH
Storage Environment: -10°C~50°C, at <85%RH
Power: 9V NEDA 1604 or 6F22
Low battery indication:

Static electricity: about 4mA

Product Size: 126 x 70 x 26mm

Product net weight: 108g (including battery)

83 Series Multimeters Function Table

Model	DCV	ACV	DCA	OHM	Hz	fHz	BAT	LF	TC
830A	✓	✓	✓	✓	✓	✓	✓	✓	✓
830B	✓	✓	✓	✓	✓	✓	✓	✓	✓
830C	✓	✓	✓	✓	✓	✓	✓	✓	✓
830D	✓	✓	✓	✓	✓	✓	✓	✓	✓
831	✓	✓	✓	✓	✓	✓	✓	✓	✓
832	✓	✓	✓	✓	✓	✓	✓	✓	✓
838	✓	✓	✓	✓	✓	✓	✓	✓	✓

Technical Specifications

Accuracies are guaranteed for 1 year, 23°C±5°C,
less than 80%RH

DC VOLTAGE

RANGE	RESOLUTION	ACCURACY
200mV	100µV	±(0.5% of rdg + 3D)
2000mV	1mV	±(0.8% of rdg + 5D)
20V	10mV	
200V	100mV	
1000V	1V	±(1.0% of rdg + 5D)

OVERLOAD PROTECTION: 220V rms AC for

200mV range and 1000V DC or 750V rms for all
ranges.

AC VOLTAGE

RANGE	RESOLUTION	ACCURACY
200V	100mV	±(2.0% of rdg + 10D)
750V	1V	

RESPONSE: Average responding, calibrated in
rms of a sine wave.

FREQUENCY RANGE: 45Hz ~ 450Hz
OVERLOAD PROTECTION: 1000V DC or 750V
rms for all ranges.

AUDIBLE CONTINUITY

RANGE	DESCRIPTION
	Built-in buzzer sounds if resistance is less than 30±20Ω.

OVERLOAD PROTECTION: 15 second maxi-
mum 220 V rms.

DC CURRENT

RANGE	RESOLUTION	ACCURACY
200µA	100nA	±(1.8% of rdg + 2D)
2000µA	1µA	
20mA	10µA	
200mA	100µA	±(2.0% of rdg + 2D)
10A	10mA	±(2.0% of rdg + 10D)

OVERLOAD PROTECTION: 500mA/250V fuse

MEASURING VOLTAGE DROP: 200mV**RESISTANCE**

RANGE	RESOLUTION	ACCURACY
200Ω	0.1Ω	±(1.0% of rdg +10D)
2000Ω	1Ω	
20KΩ	10Ω	±(1.0% of rdg +4D)
200KΩ	100Ω	
2000KΩ	1KΩ	

MAXIMUM OPEN CIRCUIT VOLTAGE: 3V.

OVERLOAD PROTECTION: 15 seconds maximum 220Vrms.

TEMPERATURE (with K-TYPE PROBE)

RANGE	RESOLUTION	ACCURACY
-40°C to 150°C	1°C	±(1.0% + 4)
150°C to 1370°C		±(1.5% + 15)

Battery Test (1.5V, 9V)

RANGE	RESOLUTION	LOAD RESISTOR
1.5V	10mV	2KΩ
9V		75Ω

OPERATING INSTRUCTIONS**DC & AC VOLTAGE MEASUREMENT**

- Connect red test lead to "VΩmA" jack, Black lead to "COM" jack.
- Set RANGE switch to desired VOLTAGE position, if the voltage to be measured is not known beforehand, set switch to the highest range and reduce it until satisfactory reading is obtained.
- Connect test leads to device or circuit being measured.
- Turn on power of the device or circuit being measured voltage value will appear on Digital Display along with the voltage polarity.

DC CURRENT MEASUREMENT

- Red lead to "VΩmA". Black lead to "COM" (for measurements between 200mA and 10A connect red lead to "10A" jack with fully depressed.)
- RANGE switch to desired DCA position.
- Open the circuit to be measured, and connect test leads IN SERIES with the load in with current is to measure.
- Read current value on Digital Display.
- Additionally, "10A" function is designed for intermittent use only. Maximum contact time of the test leads with the circuit is 15 seconds, with a minimum intermission time of seconds between tests.

RESISTANCE MEASUREMENT

- Red lead to "VΩmA". Black lead to "COM".
- RANGE switch to desired OHM position.
- If the resistance being measured is connected to a circuit, turn off power and discharge all capacitors before measurement.
- Connect test leads to circuit being measured.
- Read resistance value on Digital Display.

DIODE MEASUREMENT

- Red lead to "VΩmA", Black lead to "COM".
- RANGE switch to "M" position.
- Connect the red test lead to the anode of the diode to be measured and black test lead to cathode.
- The forward voltage drop in mV will be displayed. If the diode is reversed, figure "1" will be shown.

TRANSISTOR hFE MEASUREMENT

- RANGE switch to the hFE position.
- Determine whether the transistor is PNP or NPN type and locate the Emitter, Base and Collector leads. Insert the leads into the proper holes of the hFE Socket on the front panel.
- The meter will display the approximate hFE value at the condition of base current 10μA and $V_{CE}2.8V$.

TEMPERATURE MEASUREMENT

- RANGE switch to TEMP position, it will display room temperature in °C value.
 - Connect the K-type thermoelectric couple to "VΩmA" and "COM" jacks.
 - The display will read Temperature value °C.
- NOTE:** The TP-01 K-type thermocouple Max. Operating temperature of Probe: 250 C/482 F (300 C/572 F short-term). The sensor supplied with the instrument is an ultra fast response naked bead thermocouple suitable for many general purpose applications.

AUDIBLE CONTINUITY TEST

- Red lead to "VΩmA", Black lead to "COM".
- RANGE switch to "⦿" position.
- Connect test leads to two points of circuit to be tested. If the resistance is lower than $30Ω±20Ω$, the buzzer will sound.

TEST SIGNAL USE

- RANGE switch to "⌋" position.
- A test signal (50Hz) appears between "VΩmA" and "COM" jack, the output voltage is approx 5V p-p with 50KΩ impedance.

NOTE: OVERLOAD PROTECTION: 15 seconds maximum 220Vrms.

BATTERY TEST

- Set the FUNCTION switch to 9V or 1.5V.
- Connect the test lead to Battery.
- The display value is voltage.

BATTERY AND FUSE REPLACEMENT

Fuse rarely need replacement and blow almost always as a result of operator error. If "E" appears in display, it indicates that the battery should be replaced. To replace battery & Fuse (500mA/250V) remove the 2 screws in the bottom of the case, simply remove the old, and replace with a new one. Be careful to observe polarity.

ACCESSORIES

- Operator's instruction manual
- Set of test leads
- Gift box
- TP01 K-type thermoelectric couple (830C, 838 only)
- 9-volt battery, NEDA 1604 6F22 type.