OPERATOR'S INSTRUCTION MANUAL

83 SERIES

DIGITAL MULTIMETER

⚠ WARNING

READ AND UNDERSTAND THIS MANUAL BEFORE USING THE INSTRUMENT

Failure to understand and comply with the WARNINGS and operating instructions can result in serious or fatal injuries and/or property damage.

General

These 83 series instruments are a series of compact pocket- sized 3 ½ digital multimeters for measuring DC and AC Voltage, DC Current, Resistance and Diode. Some of those also provide Temperature, Transistor measurement and audible continuity test function or can be used as a signal generator (see table). Full range overload protection and low battery voltage indication are provided. They are ideal instruments for use in fields, such as laboratory, workshop, DIYers and home applications.

83 Series Multimeters Function Table

Model	DCV	ACV	DCA	OHM	→|	)))	hFE	BAT	⎍⎍	T	RT
830A	√	√	√	√	√		√	√			
830B	√	√	√	√	√		√				
830C	√	√	√	√	√	√	√			√	
830D	√	√	√	√	√	√	√		√		
830E	√	√	√	√	√	√	√			√	
831	√	√	√	√	√	√					
832	√	√	√	√	√	√	√		√		
833	√	√	√	√	√	√		√	√		
835	√	√	√	√	√	√		√	√		√
837	√	√	√	√	√	√		√	√	√	
838	√	√	√	√	√	√	√			√	

***RT: Room Temperature**


HV
000
DCV
1000
OFF
750
ACV
200
200
20
2000m
200m
2000k
200k
DCA
200µ
2000µ
20m
200m
10A
20k
2000
Ω
200
hFE
NPN
PNP
CE
10ADC
VΩmA
COM
DT-830B
DIGITAL
MULTIMETER
1000vDC
200mAmax
500Vmax
1
2
3
4
5

FRONT PANEL DESCRIPTION

1. FUNCTION AND RANGE SWITCH

This switch is used to select the function and desired range as well as to turn on the instrument.

To extend the life of this battery, the switch should be in the “OFF” position when the instrument is not in use.

2. DISPLAY

3 ½ digit, 7 segment, 0.5” high LCD.

3. “Common” JACK

Plug in connector for black (negative) test lead.

4. “VΩmA” JACK

Plug in connector for red (Positive) test lead for all voltage and resistance and current (except 10A) measurements.

5. “10A” JACK

Plug in connector to red (positive) test lead for 10A measurement.

SPECIFICATIONS

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

DC VOLTAGE

RANGE	RESOLUTION	ACCURACY
200mV	100uV	±(0.5% of rdg + 3D)
2000mV	1mV	±(1.0% of rdg + 5D)
20V	10mV	
200V	100mV	
1000V	1V	±(1.2% 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	±(1.2% 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 then 30± 20Ω

OVERLOAD PROTECTION: 15 second maximum 220 V rms.

DC CURRENT

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

OVERLOAD PROTECTION: 500mA 250V fuse (10A range unfused).
MEASURING VOLTAGE DROP: 200mV

RESISTANCE

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

MAXIMUM OPEN CIRCUIT VOLTAGE: 3.2V.
OVERLOAD PROTECTION: 15 seconds maximum 220Vrms.

TEMPERATURE (K TYPE PROBE)

RANGE	RESOLUTION	ACCURACY
-20℃ to 1370 ℃	1℃	± (1.0% + 4) (up to 150℃)
		± (1.5% + 15) (over 150℃)

OPERATING INSTRUCTIONS

WARNING

- **To avoid electrical shock hazard and/or damage of the instrument, do not measure voltages that might exceed 500V above earth ground.**
- **Before the use of instrument, inspect test leads, connectors and probes for cracks, breaks, or crazes in the insulation.**

DC & AC VOLTAGE MEASUREMENT

1. Connect red test lead to “VΩmA” jack, Black lead to “COM” jack.
2. 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.
3. Connect test leads to device or circuit being measured.
4. 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

1. Red lead to “VΩmA”. Black lead to “COM” (for measurements between 200mA and 10A connect red lead to “10A” jack with fully depressed.)

2. RANGE switch to desired DCA position.
3. Open the circuit to be measured, and connect test leads INSERIES with the load in with current is to measure.
4. Read current value on Digital Display.
5. 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

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

DIODE MEASUREMENT

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

TRANSISTOR hFE MEASUREMENT

1. RANGE switch to the hFE position.
2. Determine whether the transistor is PNP of 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.
3. The meter will display the approximate hFE value at the condition of base current 10μA and V_{CE}2.8V.

TEMPERATURE MEASUREMENT

1. Connect the K type thermoelectric couple to "VΩmA" and "COM" jacks.
2. RANGE switch to TEMP position.
3. The display will read Temperature value □.

AUDIBLE CONTINUITY TEST

1. Red lead to "VΩmA", Black lead to "COM".
2. RANGE switch to "•))" position.
3. Connect test leads to two points of circuit to be tested. If the resistance is lower then 30Ω±20Ω, the buzzer will sound.

TEST SIGNAL USE

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

BATTERY AND FUSE REPLACEMENT

Fuse rarely need replacement and blow almost always as a result of operator error.

If "  " 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.

CAUTION

Before attempting to open the case of the instrument, be sure to disconnect test leads from any energized circuits to avoid shock hazard.

ACCESSORIES

- Operator's instruction manual(31.11.8355)
- Set of test leads
- Gift box
- K type thermoelectric couple (830C,830E, 837,838 only)
- 9-volt battery, NEDA 1604 6F22 type.