

# MULTIMETER with RS-232 interface

## DM-9680

### 1. FEATURES

- \* Multi function measurement : ACV, DCV, ACA, DCA, OHM, Continuity Beeper, Transistor hFE, Diode,
- \* Meet IEC safety requirement.
- \* High accuracy in measuring.
- \* High internal impedance assures minimum measuring error.
- \* Rotary function switch, easy operation.
- \* Large size LCD display, easy reading.
- \* LCD display, clear readout even in high ambient light environment.
- \* Compact, light weight & excellent operativeness.
- \* Overload protection for any range.
- \* Drop proof.
- \* RS232 PC interface, photo couple isolated circuit.
- \* When apply the optional software, then the meter can be used as data logging, data recorder & other intelligent applications.



### 2. SPECIFICATIONS

#### 2-1 General Specifications

Display	18 mm (0.7") LCD, 3 1/2 digits.
Measurement & Functions	DCV, ACV, DCA, ACA, ohms, hFE, Continuity Beeper.
Polarity	Automatic Switching, '-' indicates negative polarity.
Zero Adj.	Automatic.
Over-input	Display shows '1' or '-1'.
Sampling Time	Approx. 0.4 second.
RS-232	Isolated (photo couple) RS-232 serial data output, 9600 baud rate.
Operating Temperature	0 °C to 50 °C (32 °F to 122 °F).
Operating Humidity	Max. 80% RH.
Power Supply	006P DC 9V battery (heavy duty type).
Power Consumption	Approx. DC 7 mA.
Dimension	204 x 90 x 36 mm (7.3 x 3.4 x 1.5 inch).
Weight	322 g/0.71 LB.
Standard Accessories	Red and Black Test Leads ..... 1 pair. 0.5 Amp Spare Fuse ..... 1 PC.
Included	Instruction Manual ..... 1 PC.
Optional Accessories	RS-232 cable ..... Model : UPCB-02 Application Software ..... Model : SW-U101-WIN Holster ..... Model : HS-01

#### 2-2 Electrical Specifications

DC VOLTAGE				
RANGE	ACCURACY	RESOLUTION	INPUT IMPEDANCE	OVERLOAD CKT. PROTECTION
200mV	±(0.5%+1d)	100uV	10 M ohm	500V DC, 350V AC, 15 secs DC ±1100V AC 800 V 15 secs
2V	±(0.8%+1d)	1mV		
20V		10mV		
200V		100mV		
600 V		1V		

AC VOLTAGE				
FREQ. RESPONSE: 40Hz-500Hz, SINE WAVE				
SPEC. TESTED ON 60Hz/50Hz				
RANGE	ACCURACY	RESOLUTION	INPUT IMPEDANCE	OVERLOAD CKT. PROTECTION
200mV	±(1%+2 d)	100uV	10 M ohm	500V DC, 350V AC, 15 secs DC ±1100V AC 800 V 15 secs
2V		1mV		
20V		10mV		
200V		100mV		
600 V		1V		

DC CURRENT				
RANGE	ACCURACY	RESOLUTION	VOLTAGE DROP in F.S.	OVERLOAD CKT. PROTECTION
200uA	±(1%+1d)	0.1 uA	DC 200 mV	0.5 A Fuse
2mA		1 uA		
20mA		10 uA		
200mA		100 uA		
10 A		10 mA		UN FUSED

\* A range : 0 to 10 A - continuous operation

AC CURRENT				
FREQ RESPONSE 40Hz-500Hz, SINE WAVE				
SPEC TESTED ON 60Hz/50Hz				
RANGE	ACCURACY	RESOLUTION	VOLTAGE DROP in F.S.	OVERLOAD CKT. PROTECTION
200uA	±(1.2%+2d)	0.1 uA	AC 200 mV	0.5 A Fuse
2mA		1 uA		
20mA		10 uA		
200mA		100 uA		
10 A		10 mA		UN FUSED

\* A range : 0 to 10 A - continuous operation

RESISTANCE				
RANGE	ACCURACY	RESOLUTION	OPEN CKT. VOLTAGE	OVERLOAD CKT. PROTECTION
200 ohm	±(1%+3d)	0.1 ohm	Approx. 3 V	AC/DC 500 V
2K	±(0.8%+1d)	1 ohm	Approx. 0.3 V Max.	
20K		10 ohm		
200K		100 ohm		
2 M		1K ohm		
20 M	±(2%+2d)	10K ohm		

**CONTINUITY BEEPER**  
A continuity test beeper is standard, when checking short or open circuit, it is not necessary to look at the meter. The beeper sounds if continuity is present.

**TRANSISTOR hFE MEASUREMENT**  
0 - 1000 hFE values of either p.n.p. or n.p.n. transistor. (Test condition: base dc current approx. 10 uA, VCE: approx. 2.8 V).

**RS-232 OUTPUT**  
Isolated (photo couple) RS-232 serial data output, 9600 baud rate. Other detail spec., please refer the "RS232 PC INTER-FACE" (page 9).

### 3. OPTIONAL ACCESSORIES & ADAPTERS

RS-232 cable UPCB-02	The RS-232 interface cable that can connect the DMM to computer, refer to Fig. 5.
Software SW-U001	The software that cooperate with the DMM & the computer will let the whole system be used as data logger, data recorder.....
Holster, HS-01	High quality rubber protective holster.
Carrying Case CA-03	Vinyl soft carrying case, high quality. 185 x 90 x 60 mm.
Temperature Adapter DH-802C, DH-802F	Match DMM to be used as the thermometer. DH-802C : CENTIGRADE MODEL DH-802F : FAHRENHEIT MODEL Sensor : Type k thermocouple probe, TP-01, included. Output : 0.1 mV DC / 0.1 °C or 0.1 °F
Test Lead, TL-02A	High quality and better performance test lead with silicon rubber wire & separate alligator clip sets.
LIGHT ADAPTER LX-02	Match DMM to be used as the Light meter. 3 ranges, 2000/20000/50000 LUX.
ANEMOMETER ADAPTER AM-402	Match DMM to be used as the Anemometer. Measurements : m/s, km/h, ft/min., knots.
HUMIDITY ADAPTER HA-701	Match DMM to be used as the humidity meter. Range : 10 % to 95 % RH.
TACHOMETER ADAPTER TA-601	Match DMM to be used as the Tachometer. Photo type : 2 ranges. 100 - 20,000 RPM
400 A AC/DCA CURRENT ADAPTER CA-501	Match DMM to be used as the DCA & ACA clamp meter. Range : 200A, 400A. Output : 1 ACmV/1 ACA, 1 DCmV/1 DCA.
2000 A AC/DCA CURRENT ADAPTER CA-202	Match DMM to be used as the DCA & ACA clamp meter. Range : 200A, 2000A. Output : 1 ACmV/1 ACA, 1 DCmV/1 DCA.
MINI ACA CURRENT ADAPTER CA-201	Match DMM to be used as the ACA clamp meter. clamp meter. Range : 20A, 200A. Output : 1 ACmV/1 ACA(200A), 10 ACmV/1 ACA(20A).
50 A CURRENT SHUNT, ST-50	50 A DCA/ACA resistance shunt. Match DMM to measure the current up to 50 A precisely.