



TES-1600, Insulation Tester

- 2000M W /1000V, 200M W /500V, 200M W /250V.
- Power lock for 3 minutes (Auto power off).
- Auto-Zero adjustment.
- Data-Hold-Function.
- Digital readout easy to obtain by 0.65" LCD display.
- Automatic unit & sign annunciator.
- Rotary switch easy for range selection.
- Continuity beeper.
- Battery operated/Overload Protection.
- Safety test leads.
- 1mA test current.

General Specifications	
Display	3.5 digit 0.65" large LCD
Sampling rate (AID)	2.5 time/sec
Zero adjustment	Automatically
Operating temp. & Storage Environment	0°C-40°C <80% R.H. -10°C to 60°C <70% R.H.
Power source	6 'AA' 1.5V batteries
Dimension	165(L)x 100(W)x57(H) mm
Weight	500g
Accessories	Test leads, 6pcs. of battery, carrying case and manual

MEG OHMS

Range	Resolution	Accuracy	Terminal Voltage	Test Current
200 MΩ/250V	0.1 MΩ	±(3% of rdg + 3dgt)	250V+10%	1mA at 250KΩ load
200 MΩ/500V	0.1 MΩ		500V+10%	1mA at 500KΩ load
2000 MΩ/1000V	1 MΩ		1000V+10%	1mA at 1 MΩ load

OHMS

Range	Resolution	Accuracy	Max. Open Circuit Voltage	Overload Protection
200Ω	0.1Ω	± (1% of rdg + 2dgt)	3.3V	500V DC/AC

Continuity Beeper

Range	Resolution	Accuracy	Max. Open Circuit Voltage	Overload Protection
200Ω	0.1Ω	Resistance < 100Ω	3.3V	500V DC/AC

AC Voltage (40Hz-500Hz)

Range	Resolution	Accuracy	Max. Open Circuit Voltage	Overload Protection
750V	1V	± (0.8% of rdg+3dgt)	10 MΩ	1100 VCD & 800 VAC



DM-9680 KITS, multimeter, kits, RS232 cable+ software+ carrying case

- 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.

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.

Model	DM-9680 KITS
Display	18 mm (0.7") LCD, 3 1/2 digits.
Measurement & Function	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 Output	Isolated (photo couple) RS-232 serial data output, 9600 baud rate.
Operating Humidity	Less than 80% R.H.
Operating Temp.	0°C to 50°C (32°F to 122°F)
Power Supply	006P DC 9V battery (heavy duty).
Power Current	Approx. DC 7 mA.
Weight	322 g/0.71 LB.
Dimension	204 x 90 x 36 mm (7.3 x 3.4 x 1.5 inch).
Accessories Included	* Instruction manual: 1PC * Hard Carrying case, CA-06 * 0.5 Amp Spare Fuse: 1 PC * Red and Black Test Leads: 1 Pair * RS-232 cable: UPCB-02 * Application Software: SW-U801-WIN
optional Accessories	* RS232 cable, UPCB-02 * USB cable, USB-01 * Light adapter LX-02 * Anemometer adapter, AM-402 * Tachometer adapter TA-601 * 1000 A DC/AC current adapter, CA-501 * 1000 A DC/AC current adapter, CA-502 * 2000 A DC/AC current adapter, CA-203 * Mini ACA current adapter, CA-201 * Pressure adapter, PS-403 * EMF adapter, EMF-824 * Sound adapter, SL-406 * 50 A current shunt, ST-50 * High voltage probe, HV-40 * Soft carrying case CA-03, CA-05A * Alligator test lead, TL-02S * Heavy duty alligators, AL-04 * Holster, HS-01

Electrical Specifications (23±5°C):

DC Voltage

Range	Accuracy	Resolution	Input Impedance	Overload CKT. Protection
200mV	± (0.5%+1d)	100µV	10 M ohm	500V DC, 350V AC, 15 secs
2V	± (0.8%+1d)	1mV		DC 1000V AC 800 V 15 secs
20V		10mV		
200V		100mV		
1000V		1V		

AC Voltage, Freq. Response: 40Hz–500Hz, sine wave spec. tested on 60Hz/50Hz

Range	Accuracy	Resolution	Input Impedance	Overload CKT. Protection
200mV	± (1%+2d)	100µV	10 M ohm	500V DC, 350V AC, 15 secs
2V		1mV		DC 1000V AC 800 V 15 secs
20V		10mV		
200V		100mV		
750V		1V		

DC Current

Range	Accuracy	Resolution	Voltage Drop in F.S.	Overload CKT. Protection
200µA	± (1%+1d)	0.1µA	DC 200 mV	0.5 A Fuse
2mA		1µA		
20mA		10µA		
200mA		100µA		
A*		10mA		Un Fused

* A range: 0 to 10 A – continuous operation > 10 A to 20 A – 1 min. operation max.

CC Current, Freq. Response: 40Hz–500Hz, sine wave spec. tested on 60Hz/50Hz

Range	Accuracy	Resolution	Voltage Drop in F.S.	Overload CKT. Protection
200µA	± (1%+1d)	0.1µA	AC 200 mV	0.5 A Fuse
2mA		1µA		
20mA		10µA		
200mA		100µA		
A*		10mA		Un Fused

* A range: 0 to 10 A – continuous operation > 10 A to 20 A – 1 min. operation max.

Resistance

Range (ohm)	Accuracy	Resolution	Open CKT. Voltage	Overload CKT. Protection
200	± (1%+3d)	0.1 ohm	Approx. 3V	AC/DC 500V
2K	± (0.8%+1d)	1 ohm	Approx. 0.3V Max.	
20K		10 ohm		
200K		100 ohm		
2M		1k ohm		
20M	± (2%+2d)	10K ohm		



CM-9940

CM-9940, mini DCA/ACA Clamp

Features:

- Design meet IEC 1010 CATIII 600V safety requirement.
- 4000 counts, Auto range & multi-functions.
- Measurement for ACA, DCA, ACV, DCV, Ohms, Diode, Hz, Continuity beeper.
- Water resistance for the front panel.
- Data hold.
- Wide ranges (600A, 400A) clamp on current measurement both for ACA&DCA.
- Overload protection circuit is provided for all range.
- LSI circuit provides high reliability and durability.
- Pocket & slim housing case, easy carry out. Compact & heavy duty ABS housing case and durability.

Model	CM-9940
Display	10.8 mm (0.43") LCD, 4 digits, Max. indication 5000 (frequency range).
Measurement Range	ACA, DCA, ACV, DCV, Ohms, Diode, Hz, Continuity beeper, Relative.
Polarity	Automatic Switching, " - " indicates negative polarity.
Current Sensor	Hall effect sensor.
Zero adjustment	DCA : Push bottom adjustment. Other ranges : Automatic adjustment.
Over-input	Indication of " 1 " or " -1 ".
Sampling Time	Approx. 0.35 second.
Battery	2 x 1.5V AA (UM-3) batteries.
Operating Temp./Humidity	0°C to 50°C / Less than 80% RH.
Weight / Dimension	230 g/0.50 LB (including battery). / HWD : 178 x 64 x 33 mm (7.0 x 2.5 x 1.3 inch)
Max. Jaw Open Size	30 mm (1.18 inch) Dia.
Accessories Included	Operation manual: 1 PC, Test lead (red & black): 1 PC
Optional Accessories and Adapters	Carrying case, EMF Adapter, Light Adapter, Anemometer Adapter, Pressure Adapter, Sound Adapter, Tachometer Adapter, High Voltage Probe.

Electrical Specifications (23±5°C):

DC/AC Voltage

Range	Accuracy	Resolution	Overload Protection
400mV (DC only)	± (0.5%+2d)	0.1mV	AC/DC 600V
4V	DCV: ± (1%+2d) ACV: ± (1.2%+5d)	0.001V	
40V		0.01V	
400V		0.1V	
600V		1V	

DC/AC current (Clamp on)

Range	Accuracy	Resolution	Overload Protection
400 A ACA: 0.5 to 400A	± (2%+5d)	0.1 A	AC/DC 600A
600 A	± (2%+8d)	1 A	

Remark * Input impedance for ACV & DCV range is 10 Mega ohm. * ACA, ACV specification be tested on sine wave 50/60 Hz.

Ohms

Range	Accuracy	Resolution	Overload Protection
400 ohm	± (1%+5d)	0.1 ohm	AC / DC 400V
4 K ohm		1 ohm	
40 K ohm		10 ohm	
400 K ohm		100 ohm	
4 M ohm	± (2%+2d)	1 K ohm	
40 M ohm	± (3.5%+5d)	10 K ohm	

Frequency (5V)

Range	Accuracy	Resolution	Overload Protection
5 Hz	± (1%+5d)	0.001 Hz	AC / DC 1000V
50 Hz		0.01 Hz	
500 Hz		0.1 Hz	
5 KHz		1 Hz	
50 KHz		0.01 KHz	
100 KHz		0.1 KHz	

Diode	Short/non conductance, good/defect test
Continuity	If measuring resistance is less than 10 ohm, the beeper will sound .

**DM-6056, 1000A DCA/ACA Clamp Meter****Features:**

- Design meet IEC 1010 safety requirement.
- Compact & heavy duty ABS housing plastic case.
- Measure DCA & ACA on the inductive conductor.
- Wide ranges (1000 A, 200 A) for ACA/DCA measurement.
- LSI circuit provides high reliability and durability.
- Multi-functions for ACA, ACV, DCV, OHMS, Diode, Continuity beeper measurement.
- LCD display allows clear readout even at high ambient light level.
- Overload protection circuit is provided for all range.

Model	DM-6056
Display	13 mm (0.5") LCD, 3 1/2 digits. Max. indication 1999.
Measurement	ACA, ACV, DCA, DCV, Resistance, Diode, Continuity, Data hold, Peak hold.
Polarity	Automatic Switching, "--" indicates negative polarity.
Current Sensor	Hall effect sensor.
Zero adjustment	DCA : Manual adjustment. Other ranges except the DCA range: Automatic adjustment.
Over-input	Indication of " 1 " or " -1 ".
Sampling Time	Approx. 0.4 second.
Battery	006P DC 9V battery (heavy duty type).
Power Consumption	Approx. DC 9.6 mA.
Operating Temp.	0°C to 50°C
Operating Humidity	Less than 80% RH.
Weight	380 g/0.85 LB (including battery).
Dimension	HWD : 230 x 70 x 36 mm. (9.1 x 2.8 x 1.4 inch)
Max. Conductor Size	32 mm (1.3 inch) Dia.
Accessories Included	Operation manual: 1 PC, Test lead (red & black): 1 Set, Carrying case, CA-05A: 1PC
Optional Adapters	Temperature Adapter, Light Adapter, Anemometer Adapter, EMF Adapter, Tachometer Adapter, RH Adapter, 50 Amp Shunt, High Voltage Probe.

Electrical Specifications (23±5°C):**DC Voltage**

Range	Accuracy	Resolution	Overload Protection
200mV	± (0.8%+1d)	0.1mV	AC/DC 400 V
200V		0.1V	AC/DC 600 V
600V		1V	

AC Voltage

Range	Accuracy	Resolution	Overload Protection
200mV	± (1%+2d)	0.1mV	AC/DC 600 V
200V		0.1V	
600V		1V	

AC/DC current

Range	Accuracy	Resolution	Overload Protection
200 A	± (1.5%+10d)	0.1 A	AC/DC 1000 A
1000 A	± (2%+2d)	1 A	

OHMS

Range	Accuracy	Resolution	Overload Protection
2 k ohm	± (1%+1d)	1 ohm	AC/DC 400 V
Diode	Short/non conductance, good/defect test		
Peak Hold	Acquisition Time: Approx. 150 ms. Display Decay Rate: < 2 digits/sec. Application: Use for measuring transient signal for current.		
Data Hold	Available for all functions to keep the data hold on the display		



CM-9930, 2000A DCA/ACA Clamp+DMM

Features:

- 2 in 1, 2000 A clamp meter + Digital multimeter.
- Meet IEC 1010 CATIII 1000V safety requirement.
- True rms reading for ACV & ACA measurement.
- 4000 counts, Auto range, multi-functions for ACA, DCA, ACV, DCV, Ohms, Capacitance, Hz, Diode, Duty cycle and continuity check.
- LSI circuit provides high reliability and durability.
- Wide ranges (2000A, 400 A) clamp on current measurement both for ACA & DCA.
- 4 ranges (400 uA, 4000 uA, 40 mA, 400 mA) direct current input measurement both for ACA & DCA.
- Overload protection circuit is provided for all ranges.
- Data hold, Relative key, Back light.

Model	CM-9930
Display	15 mm (0.6") LCD, 4 digits, Max. indication 5000 (frequency range).
Measurement Range	ACA, DCA, ACV, DCV, Ohms, Diode, Hz, Capacitance, Duty cycle, Continuity beeper.
Polarity	Automatic Switching, "--" indicates negative polarity.
Current Sensor	Hall effect sensor.
Zero adjustment	DCA : Push bottom adjustment. Other ranges : Automatic adjustment.
Over-input	Indication of " OL " or " -OL ".
Sampling Time	Approx. 0.35 second.
Battery	DC 9V battery, heavy duty or Alkaline type, 006P, MN1604 (PP3) or equivalent.
Power Consumption	Approx. DC 5 mA.
Operating Temp.	0°C to 50°C
Operating Humidity	Less than 80% RH.
Weight	380 g/0.85 LB (including battery).
Dimension	HWD : 255 x 73 x 38 mm. (10 x 2.9 x 1.5 inch)
Max. Jaw Open Size	51 mm (2.1 inch) Dia.
Accessories Included	Operation manual: 1 PC, Test lead (red & black): 1 Set, Fuse (500mA, 5mm dia. x 20mm): 1 PC
Optional Accessories & Adapters	Carrying case, EMF Adapter, Light Adapter, Anemometer Adapter, Pressure Adapter, Sound Adapter, Tachometer Adapter, High Voltage Probe.

Electrical Specifications (23±5°C):

DC/AC Voltage

Range	Accuracy	Resolution	Overload Protection
400mV (DC only)	± (0.5%+2d)	0.1mV	AC/DC 1000V
4V	DCV: ± (1%+2d) ACV: ± (1.2%+5d)	0.001V	
40V		0.01V	
400V		0.1V	
1000V		1V	

DC/AC current (Direct input)

Range	Accuracy	Resolution	Overload Protection
400 μ A	$\pm (1.2\%+5d)$	0.1 μ A	AC/DC 500 mA (Fuse)
4000 μ A		1 μ A	
40 mA		0.01 mA	
400 mA		0.1 mA	

DC/AC current (Clamp on)

Range	Accuracy	Resolution	Overload Protection
400 A	$\pm (2\%+5d)$	0.1 A	AC/DC 2000A/1000V
2000 A	$\pm (2\%+8d)$	1 A	

Remark * True rms measurement both for ACV, ACA function. * Input impedance for ACV & DCV range is 10 Mega ohm.
* ACA, ACV frequency response is from 45 to 1 KHz. * ACA, ACV specification be tested on sine wave 50/60 Hz.

Ohms

Range	Accuracy	Resolution	Overload Protection
400 ohm	$\pm (1\%+5d)$	0.1 ohm	AC / DC 400V
4 K ohm		1 ohm	
40 K ohm		10 ohm	
400 K ohm		100 ohm	
4 M ohm	$\pm (2\%+2d)$	1 K ohm	
40 M ohm	$\pm (3.5\%+5d)$	10 K ohm	

Capacitance

Range	Accuracy	Resolution	Overload Protection
50 nF	$\pm (3\%+5d)$ * See Remark	10 pF	AC / DC 400V
500 nF		100 pF	
5 μ F		0.001 μ F	
50 μ F		0.01 μ F	

Frequency (>5V)

Range	Accuracy	Resolution	Overload Protection
5 Hz	$\pm (1\%+5d)$	0.001 Hz	AC / DC 1000V
50 Hz		0.01 Hz	
500 Hz		0.1 Hz	
5 KHz		1 Hz	
50 KHz		0.01 KHz	
100 KHz		0.1 KHz	

Duty cycle

Range	Accuracy	Resolution	Overload Protection
1% to 99%	$\pm (1\%+5d)$	0.1%	AC / DC 1000V

Diode	Short/non conductance, good/defect test
Continuity	If measuring resistance is less than 10 ohm, the beeper will sound .



DW-6093, 3 phase power analyzer, 3 phase/4 wire, 3 phase/3 wire, RS232/USB 1 phase/2 wire, 1 phase/3 wire, SD card data recorder

- Analysis for 3 phase multi-power system, 1P/2W, 1P/3W, 3P/3W, 3P/4W.
- Voltage & Current are the True RMS value.
- True Power (KW, MW, GW) measurement.
- Apparent Power (KVA, MVA, GVA) measurement.
- Reactive Power (KVAR, MVAR, GVAR) measurement.
- Watt-Hour (WH, SH, QH, PFH).
- Power Factor (PF), Phase Angle(Φ).
- Voltage measurement range: 10 to 600 ACV.
- Current probe input signal voltage (ACV): 200mV/300mV/500mV/1 V/2 V/3 V.
- Current probe input current range (ACA): 20A/200A/2000A(1200A)/30A/300A/3000A.
- Meter can cooperate the universal current probe.
- Programmable CT ratio (1 to 600) and PT ratio (1 to 1000).
- ACV input impedance is 10 Mega ohms.
- Safety Standard: IEC 1010, CAT III 600V.
- Built-in clock & Calendar, real time data record with SD memory card, sampling time set from 2 to 7200 seconds. Just slot in the SD card into the computer, it can down load the all the measured value with the time information (year/month/data/hour/minute/second) to the Excel directly, then user can make the further data analysis by themselves.
- Complete set with 4 PCs Test Leads, 4 PCs Alligator clips, 3 PCs Clamp Probe, AC to DC 9V adapter, 2 G SD memory card and Carrying bag.
- Computer data output, can cooperate with USB Cable/USB-01 RS232 cable/UPCB-02 and Data Acquisition software, SW-U811-WIN.

Model	DW-6093
Circuit	Custom one-chip of microprocessor LSI circuit.
Display	LCD size : 81.4 X 61 mm (3.2 X 2.4 inch) * Dot Matrix LCD (320 X 240 pixels) with back light.
Measurement	* ACV * ACA * AC WATT (True Power) AC WATT(Apparent Power) AC WATT(Reactive Power) * Power factor * Phase angle * Frequency
Wire connections	1P/2W, 1P/3W, 3P/3W, 3P/4W.
Voltage ranges	10 ACV to 600 ACV, auto range.
Current probe input signal & range	* Current probe input signal voltage (ACV): 200mV/300mV/500mV/1V/2V/3V. * Current probe input current range (ACA): 20 A/200A/2000A (1200A)/30A/300A/3000A * Meter can cooperate the universal current probe.
Safety standard	IEC1010 CAT III 600 V.
ACV input impedance	10 Mega ohms.
Range select	ACV: Auto range; ACA: Manual range
Clamp frequency response	40 Hz to 1 KHz.
Spec. tested frequency	45 to 65 Hz.
Over load protection	ACV: 720 ACV rms; ACA: 1300 ACA with clamp probe * For the Clamp ,CP-1201
Over Indicator	* LCD display show "OL". * The data save into the SD card will show "9999" or "999" (overleap the decimal point).
Under Indicator	* LCD display show "UR". * The data save into the SD card will show "9999" or "999" (overleap the decimal point).
Data Hold / Data Record	Freeze the display reading. / SD Card Record.
Sampling Time	Approx. 1 second.
Power ON/OFF	Manual OFF by push button.
Real time datalogger	* Real time datalogger, saved the data into SD memory card & down load the all the measured value with the time information (year/month/data/hour/minute/second) down load to the Excel * Integration time for datalogger: 2 seconds to 7200 seconds, the during of setting step are 2 sec.
Data Output USB/RS232 * Computer interface	RS 232/USB PC computer interface. * Connect the optional RS232 cable UPCB-02 will get the RS232 plug * Connect the optional USB cable USB-01 will get the USB plug.
Operating Temperature	0 to 50°C (32 to 122°F).
Operating Humidity	Less than 80% R.H.
Power Supply	* DC 1.5V, AA (UM-3) BatteryX8 PCs (Alkaline or heavy-duty battery) * AC to DC 9V power adapter
Power Consumption	* Meter: 300 DCmA. * Clamp: 34 DCmA.
Clamp max. conductor Size	50 mm (2.0 inch) Dia. * For the Clamp ,CP-1201
Weight	* Meter: 948g (includes batteries) * Clamp (included cable): 467g
Dimension	Meter: 225 X 125 X 64 mm (8.86 X 4.92 X 2.52 inch)
	Clamp : 210 X 64 X 33mm (8.3 X 2.5 X 1.3 inch)
	Clamp Jaw : 86 mm (3.4 inch)- outside
Accessories Included	* Instruction manual: 1PC * Test Leads (TL88-4AT): 1 Set (4 PCs) * Alligator clips (TL88-4AC): 1 Set (4 PCs) * Clamp Probe (CP-1201): 3 PCs * AC to DC 9V adapter: 1 PC * SD card (2G): 1 PC * Carrying bag: 1 PC
Optional Accessories	* 2000 Amp current probe, CP-2000 * 200 Amp current probe, CP-200 * Flexible 3000 Amp current probe, CP-3000 * USB Cable , USB-01 * RS232 cable, UPCB-02 * Data Acquisition software, SW-U811

Electrical Specifications (23±5°C):**ACV**

Range	Resolution	Accuracy
10.0V to 600.0V * Phase to neutral line	0.1V	± (0.5%+0.5V)
10.0V to 600.0V * Phase to phase		

ACA

Range	Resolution	Accuracy
20A	0.001A, < 10 A	± (0.5%+0.1A)
	0.01A, ≥ 10 A	
200A	0.01A, < 100 A	± (0.5%+0.5A)
	0.1A, ≥ 100 A	
1200A	0.1A, < 1000 A	± (0.5%+5A)
	1A, ≥ 1000 A	

Power factor

Range	Resolution	Accuracy
0.00 to 1.00	0.01	±0.04

Remark:
* PFH: Long term average power factor (WH/SH)
* PFΣ:
For 3Φ 4W, 3Φ 3W For 1Φ 3W
 $PF\Sigma = (PF1 + PF2 + PF3) / 3$ $PF\Sigma = (PF1 + PF2) / 2$

Φ (Phase angle)

Range	Resolution	Accuracy
-180° to 180°	0.1°	± 1° * ACOS(PF)

Frequency

Range	Resolution	Accuracy
45 to 65 Hz	0.1 Hz	0.1 Hz

Active (Real) Power Active (Real) Power

Range	Resolution	Accuracy
0.000 to 9.999 KW	*0.001/0.01/0.1 KW	± (1%+0.008 KW)
10.00 to 99.99 KW	*0.01/0.1 KW	± (1%+0.08 KW)
100.0 to 999.9 KW	0.1 KW	± (1%+0.8 KW)
1.000 to 9.999 MW	0.001 MW	± (1%+0.008 MW)

Apparent Power

Range	Resolution	Accuracy
0.000 to 9.999 KVA	*0.001/0.01/0.1 KVA	± (1%+0.008 KVA)
10.00 to 99.99 KVA	*0.01/0.1 KVA	± (1%+0.08 KVA)
100.0 to 999.9 KVA	0.1 KVA	± (1%+0.8 KVA)
1.000 to 9.999 MVA	0.001 MVA	± (1%+0.008 MVA)

Reactive Power

Range	Resolution	Accuracy
0.000 to 9.999 KVAR	*0.001/0.01/0.1 KVAR	± (1%+0.008 KVAR)
10.00 to 99.99 KVAR	*0.01/0.1 KVAR	± (1%+0.08 KVAR)
100.0 to 999.9 KVAR	0.1 KVAR	± (1%+0.8 KVAR)
1.000 to 9.999 MVAR	0.001 MVAR	± (1%+0.008 MVAR)

Watt Hour (Active Power Hour): WH

Range	Resolution	Accuracy
0.000 to 9.999 KWH	0.001 KWH	± (2%+0.008 KWH)
10.00 to 99.99 KWH	0.01 KWH	± (2%+0.08 KWH)
100.0 to 999.9 KWH	0.1 KWH	± (2%+0.8 KWH)
1.000 to 9.999 MWH	0.001 MWH	± (2%+0.008 MWH)

VA Hour (Apparent Power Hour): SH

Range	Resolution	Accuracy
0.000 to 9.999 KVAH	0.001 KVAH	± (2%+0.008 KVAH)
10.00 to 99.99 KVAH	0.01 KVAH	± (2%+0.08 KVAH)
100.0 to 999.9 KVAH	0.1 KVAH	± (2%+0.8 KVAH)
1.000 to 9.999 MVAH	0.001 MVAH	± (2%+0.008 MVAH)

VAR Hour (Reactive Power Hour): QH

Range	Resolution	Accuracy
0.000 to 9.999 KVARH	0.001 KVARH	± (2%+0.008 KVARH)
10.00 to 99.99 KVARH	0.01 KVARH	± (2%+0.08 KVARH)
100.0 to 999.9 KVARH	0.1 KVARH	± (2%+0.8 KVARH)
1.000 to 9.999 MVARH	0.001 MVARH	± (2%+0.008 MVARH)



PDS5022, Portable Digital Storage Oscilloscope

Application:

- Electronic circuit test and debug
- In house Design
- Education and Training
- Service and Maintenance

Model	PDS5022	
Bandwidth	25MHz	
Sample Rate (Real time)	100MS/s	
Rise time	≤14ns	
Display	7.8 inch colored LCD, STN	
Channel	Dual channels + external trigger	
Sampling mode	Normal sample, Peak detect and Average	
Record length	Max. 5000 per channel	
Horizontal scale (s/div)	5ns/div ~ 100s/div	
Vertical sensitivity	5mV ~ 5V/div (at BNC input)	
DC Gain Accuracy	±5%	
Max. input voltage	300V (PK-PK) (DC + AC PK-PK)	
Input impedance	1MΩ±2% in parallel with 20pF±5pF	
Input coupling	AC, DC	
Trigger Mode	Edge, Video	
Vertical resolution (A/D)	8 bits (2CH simultaneously)	
Sampling rate / relay time accuracy	±100ppm	
Interval (ΔT) accuracy (DC~100MHz)	Single: ±(1 interval time+100ppm×reading+0.6ns) Average>16: ±(1 interval time +100ppm×reading+0.4ns)	
Waveform storage	4 waveforms	
Automatic measurement	Peak-to-Peak, Average, Root mean square, Frequency, and Cycle	
Waveform math	+, -, Invert, FFT	
Lissajou's figure	Bandwidth	25MHz
	Phase difference	±3 degrees
Interface	USB	
AC	100-240 VACRMS, 50Hz, CAT II	
Dimension	350mm(L)*157mm(H)*103mm(W)	
Weight	1KG	



DSO-1060

DSO-1000 Series, 500MSa/s, 200MHz, 2CH, 6000 Count DMM Handheld Oscilloscope

Features:

- 200/60MHz bandwidth with 2 channels.
- 500MSa/s, 250MSa/s real time sampling rate.
- 50GSa/s equivalent time sampling rate.
- 6,000 count DMM resolution with AC at 600V/1.0A and DC at 800V/10A.
- Large 5.7 inch TFT color LCD display.
- Multi-language support.
- 1000 waveforms save and record.
- Labview\VB\VC second design instance.

Model		DSO-1060	DSO-1200
Horizontal	Channel	2	2
	Bandwidth	60MHz	200MHz
	Rise Time	32k at single channel, 16k at double channels	
	Memory Depth (Sample Points)	≤ 5.8ns	≤ 1.7ns
	Real-time Sampling Rate	250MSa/s	500MSa/s
	Equivalent Sampling Rate	Equivalent max. sampling rate is 50GSa/s	
	Time Base Range	5ns/div-1000s/div	
Time Base Precision	±50ppm		
Vertical	Input Impedance	Resistance: 1MΩ ; Capacitance: 15 pF	
	Input Sensitivity	10mV/div to 5V/div	
	Input Coupling	AC, DC and GND (ground level indicator)	
	Vertical Resolution	8 bits	
	Maximum Input	400V (DC+AC Peak)	
Trigger	Source	CH1, CH2	
	Mode	Edge, Pulse Width, Alternative, Video	
	Edge trigger	Trigger on the rising or falling edge	
	Pulse Width trigger	Trigger on an NTSC, PAL or SECAM standard video signal	
	Video Trigger	Line Range: 1-525 (NTSC), 1-625 (PAL/SECAM) Trigger (when >,<,-,≠) on a positive or negative slope Set Time: 20ns-10s	
X-Y Mode	Alternative trigger	Internal trigger on edge, pulse width, video or slope	
	X-Axis Input	Channel 1	
	Y-Axis Input	Channel 2	
Measurement	Phrase Shift	Max. 3 degree	
	Voltage Measurement	Vpp, Vamp, Vmax, Vmin, Vtop, Vmid, Vbase, Vavg, Vrms, Vcrms, Preshoot, Overshoot	
	Time Measurement	Frequency, Period, Rise Time, Fall Time, Positive Width, Negative Width, Duty Cycle	
	Delay Measurement	Delay time from CH1 rising edge to CH2 rising edge Delay time from CH1 falling edge to CH2 falling edge	
	Cursors Measurement	Manual, Track, Auto Measure Modes	
Meter Mode	Waveform Signal Process	CH1+/- CH2, CH1xCH2, CH1/CH2, FFT, Invert	
	Storage	15 Waveforms and Setups	
	Maximum Resolution	6,000 Counts	
	DMM Testing Modes	Voltage, Current, Resistance, Capacitance, Diode & Continuity	
	Maximum Input Voltage	AC: 600V, DC: 800V	
Display	Maximum Input Current	AC: 10A, DC: 10A	
	Input Impedance	10 MΩ	
Interface	Type	5.7 inch with LED backlight display	
	Display Resolution	240 (vertical) x 320 (horizontal) dots	
Power Source	USB	USB host / device 2.0 full speed supported	
	Optional	RS232, LAN	
General Feature	Line Voltage Range	AC 100V ~ 240V, 50Hz ~ 60Hz	
	Battery Power (Installed)	6 hours (Li-ion Battery)	
General Feature	Dimension	Length: 245mm Width: 163mm Height: 52mm	
	Weight	1.3KGS (exclusive of packing and accessories)	
	Accessories	2pcs probes, 2pcs multimeter probes, 1pc power cable, 1pc USB cable	
	GND Reference	Oscilloscope and Multimeter Independence	



MO-2013, high precision milliohm meter

- 4 terminal devices for accurate measurement of very low resistance.
- Ideal for measuring the resistance of components precisely.
- Ideal for testing protective conductors, lightning conductors & welded points.
- High/Good/Low set-function for input quality control.
- Build in buzzer sound (GOOD STATUS) to assist the Q.C. judgment.
- Especial "CALCULATE" function to measure cable/wire length.
- Wide measuring range, 0.01 m ohm - 20K ohm, 7 ranges.
- RS232/USB computer interface.
- 26.7 mm large size and back-light LCD display, easy read-out.
- LSI circuit provides high accuracy, reliability and durability.
- Built-in over input protection.
- Durable bench type housing plastic case stand.

Model	MO-2013
Test Range (Test Current)	20 m ohm (1A DC), 200m ohm (1A DC), 2 ohm (100mA DC), 20 ohm (10mA DC), 200 ohm (1mA DC), 2K ohm (100uA DC), 20K ohm (10uA DC)
Warning Setup	* Warning LED Indicator * Buzzer
Operating Temp.	0 to 50°C (32 to 122°F).
Operating Humidity	Less than 80 % R.H.
Power Supply	AC 110V ± 15%, 50/60 Hz or AC 230V ± 15%, 50/60 Hz.
Power Consumption	AC 110V: Approx. 33 mA, AC 230V: Approx. 15 mA
Fuse for Power Supply	* 500 mA/250 V * Size: 5 X 20 mm dia.
Data Output	RS 232/USB PC serial interface. *Connect the optional RS232 cable UPCB-02 will get the RS232 plug. *Connect the optional USB cable USB-01 will get the USB plug.
Dimension	280 x 210 x 90 mm (11.0 x 8.3 x 3.5 inch)
Weight	Approx. 2.04 Kg (4.49 LB).
Standard Accessories	* Power cord: 1 PC. * Instruction manual: 1 PC. * 4 wire with 2 Kelvin clips: 1 pair
Optional Accessories	*RS232 cable, UPCB-02 * USB cable, USB-01 * Data Acquisition software, SW-U801-WIN



FG-2003, Function Generator

- The FG-2003 is a deluxe function generator combined with a 5 digit, high resolution 60 MHz counter.
- The FG-2003 is a deluxe function generator combined with a 5 digit, high resolution 60 MHz counter.
- Function Generator: 6 waveforms selected by rotary wihch instead of push button, to prevent miss-touch or bad connection. Maximum output 20Vp-p(No-load), and Minimum output 0.1Vp-p (No-load).
- Pulse Generator: FG-2003 provides positive pulse and negative pulse output, Maximum output 20Vp-p (No-load). Frequency is displayed by LEDs, pulse width is from 0.4sec to 100ns. This will meet most of your audio, Video and other basic electronic application requirements.
- Sweep Generator: FG-2003 provides linear

sweep or log sweep selection switch to select the sweep mode. Maximum sweep width is 1:100 and sweep speed is from 5sec to 10ms. The FG-2003 also provides VCF input and synchronous Output Function.

- The FG-2003 has a 5 digit micro controlled counter. FG-2003 features include auto ranging, auto gate time, high resolution 0.001Hz, high input impedance 1MΩ, and high bandwidth 0.2Hz~60MHz. FG-2003 also provides triggering features such as an adjustable trigger ±2.5V with LED indicator, AC/DC selector, 100KHz filter, and input attenuator input x 20 for 300Vrms high voltage signal. The unit will also display the frequency of the signal produced by the function generator.

Model	FG-2003
Generator	
Frequency	0.5 Hz ~ 3 MHz with 5 digit LED display, Max. resolution 0.001 Hz in 6 steps.
Waveform	Sine, Square, Triangle, Ramp, Positive Pulse and Negative Pulse; 6 waveforms total.
Stability	0.1 % ~ 15 minutes after power-on.
Counter	
Display	5 digits 0.36" red LED.
Max. Resolution	0.001 Hz.
Display Unit	Hz / KHz Automatically controlled by CPU.
Common Specification	
Limits of Operation	0 ~ 40 °C, 10 ~ 80 %R.H.
Storage Environment	-20 ~ 70 °C, 0 ~ 90 %R.H.
Power Consumption	25W.
Power Source	AC 115 V (±10%) 50/60 Hz, FUSE:600 mA, AC 230 V (±10%) 50/60 Hz, FUSE:300 mA
Ventilation	DC 12 V / 100 mA Fan.
Dimension	275 x 90 x 300 mm.
Weight	2.5 Kg / 5.5 LB.
Standard Accessories	* Power cord: 1 PC. * operation manual: 1 PC.
Optional Accessories	AT-20: Telescoping RF pick-up antenna with BNC connector.
	PB-21: Direct cable with BNC connector & alligator clip pairs. (Be used only for the measuring frequency ≥ 500 MHz)
	BB-22: Direct cable with double BNC connector.
	NN-23: Direct cable with double N coaxial connector.
	NB-24: BNC to N coaxial connector adapter.