KPS®

DMM3000

User Manual / MANUAL DEL USUARIO /
Manuel d'utilisation /
Benutzerhandbuch / Manuale Utente



UK CA

CE

RoHS

3 YEARS LIMITED WARRANTY

EN **All New True RMS Multimeter**

ES **Multímetro de valor eficaz verdadero totalmente rediseñado**

FR **Multimètre RMS (« valeurs efficaces vraies ») avec tout nouveau design**

DE **Ganz neu gestaltetes True RMS Vielfachmessgerät**

IT **Multimetro a vero valore efficace di progettazione assolutamente nuova**

⚠ *Read First*

⚠ *Safety Information*

Understand and follow operating instructions carefully.

⚠ *WARNING*

Identifies hazardous conditions and actions that could cause BODILY HARM or DEATH.

⚠ *CAUTION*

Identifies conditions and actions that could DAMAGE the meter or equipment under test.

⚠ *WARNING*

- When using test leads or probes, keep your fingers behind the finger guards.
- Remove test lead from Meter before opening the battery door or meter case.
- Use the Meter only as specified in this manual or the protection by the Meter might be impaired.
- Always use proper terminals, switch position, and range for measurements.
- Verify the Meter's operation by measuring a known voltage. If in doubt, have the Meter serviced.
- Do not apply more than the rated voltage, as marked on Meter, between terminals or between any terminal and earth ground.
- Only replace the blown fuse with the proper rating as specified in this manual.
- Use caution with voltages above 30 Vac rms, 42 Vac peak,or 60 Vdc. These voltages pose a shock hazard.
- To avoid false readings that can lead to electric shock and injury, replace battery as soon as low battery indicator.
- Disconnect circuit power and discharge all high-voltage capaci-tors before testing resistance, continuity, diodes, or capacitance.
- Do not use Meter around explosive gas or vapor.
- To reduce the risk of fire or electric shock do not expose this product to rain or moisture.

⚠ *CAUTION*

- Disconnect the test leads from the test points before changing the position of the function rotary switch.
- Do not expose Meter to extremes in temperature or high humidity.
- Never set the meter in Ω, →|, ⊣⊢, A function to measure the voltage of a power supply circuit in equipment that could result in damage the meter and the equipment under test.

Symbols as marked on the meter and Instruction manual

	Risk of electric shock
	See instruction manual
	DC measurement
	Equipment protected by double or reinforced insulation
	Battery
	Fuse
	Earth
	AC measurement
CE	Conforms to EU directives
	Do not discard this product or throw away
	Attention! Magnets might affect the correct functioning of cardiac pacemakers and implanted defibrillators. As a user of such medical devices, keep a sufficient distance to the magnet.

Unsafe Voltage

To alert you to the presence of a potentially hazardous voltage, when the Tester detects a voltage ≧30 V or a voltage overload (OL) in V, mV, AutoV . The ϟ symbol is displayed.

Maintenance

Do not attempt to repair this Meter.
It contains no user-serviceable parts. Repair or servicing should only be performed by qualified personnel.

Cleaning

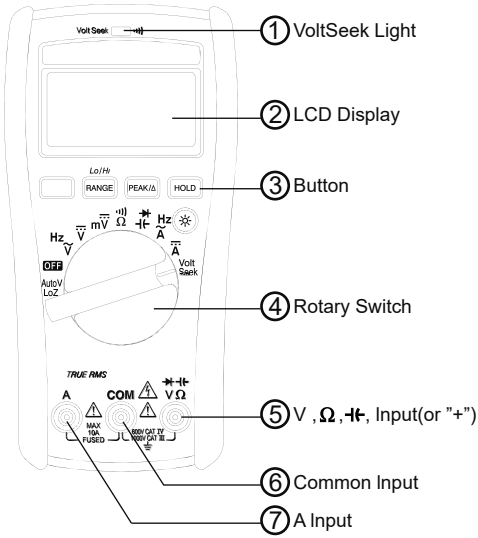
Periodically wipe the case with a dry cloth and detergent.
Do not use abrasives or solvents.

Introduction

The Meter Description

Front Panel Illustration

1. VoltSeek Light
2. 6,000 counts digital and 60 segments analog display
3. Push-buttons.
4. Rotary switch for turn the Power On / Off and select the function.
5. Input Terminal for Multi-function.
6. Input Terminal for A.
7. Common (Ground reference) Input Terminal.



Features :

- 6,000 count digital and 60 segments analog display
- Large white LED backlight display
- True RMS measurements on ACV
- LoZ for prevent false reading from ghost voltage
- AutoVolt automatic AC/DC voltage selection
- Auto Ranging
- 0.5% DCV accuracy
- Smart Hold
- Peak Hold for capture peak readings
- Relative Function
- Auto Power Off (can be disabled)
- Capacitance measurements
- Frequency Counter on ACV
- Diode Test
- Frequency Counter on ACA
- 10Amp ACA/DCA
- 11A/1000V High Energy Fuse
- VoltSeekTM for non-contact voltage detection
- EasyStickTM holster with built in magnetic sticker
- ContiVisionTM for visible continuity beeper
- Battery Capacity indication in segments
- Included Holster with Probe Holder, Tilt Stand and Magnetic sticker
- CAT IV 600V/ CATIII 1000V standard

Making Basic Measurements

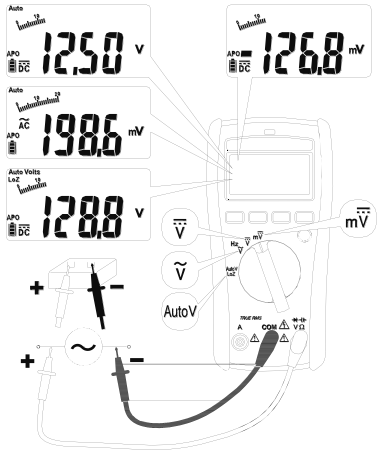
Preparation and Caution Before Measurement

⚠ *Observe the rules of* ⚠ *Warnings and* ⚠ *Cautions.*

⚠ *CAUTION*

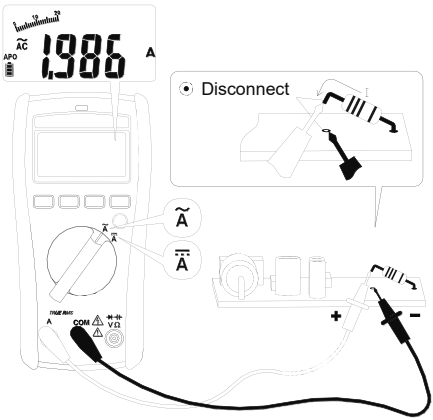
When connecting the test leads to the DUT (Device Under Test) connect the common test leads before connecting the live test leads ; when removing the test leads, remove the live test leads before removing the common test leads.

Measuring ACV/DCV/AutoV Voltage



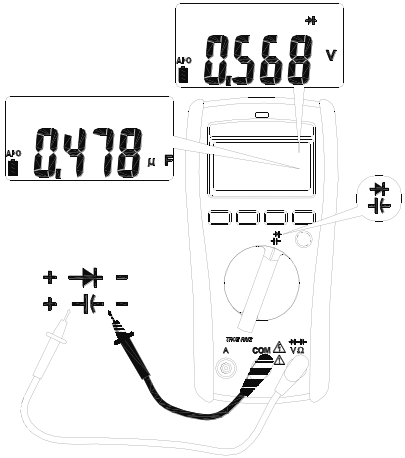
Dial the switch to select the measuring function.

Measuring AC/DC Current



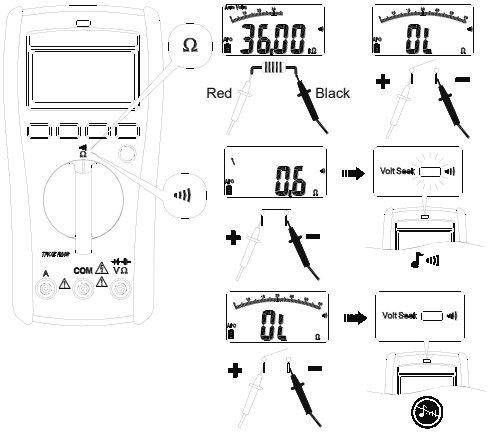
Dial the switch to select the measuring function.

Measuring Capacitance / Diode



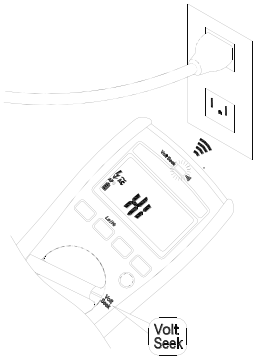
Dial the switch and press the Function button to select the measuring function

Measuring Continuity / Resistance



Dial the switch and press the Function button to select the measuring function.

VoltSeek



Dial the switch and press the RANGE button to select the measuring function and sensitivity.

WARNING

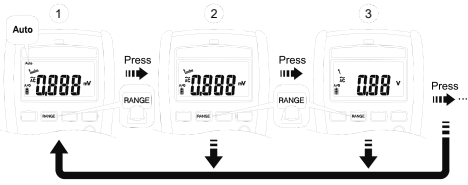
The VoltSeek LED indicates the electric field. If the VoltSeek LED is not on, voltage could still be present.

Using the Function

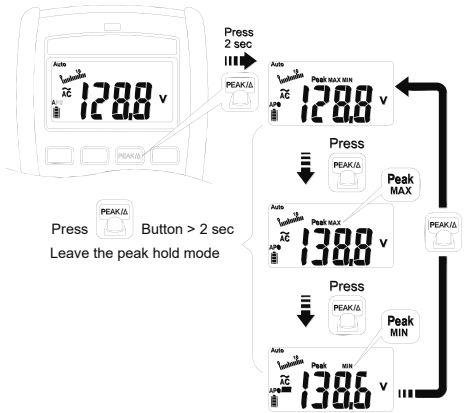
Switch Position	Function
$\tilde{V}$	V → Hz
$\tilde{A}$	$\tilde{A}$ → Hz
Ω	Ω →)))
⊣⊢	⊣⊢ → ⊳|

Press the Function button to change the function on the same switch position.

Range Button

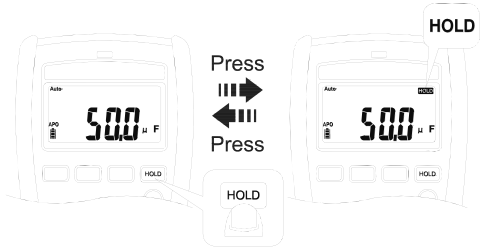


Peak Hold (for AC only)



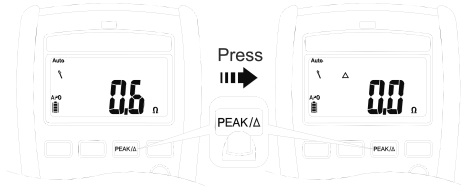
In the Peak Hold function ,the meter records the peak min. value and the peak max. value when the inputs goes below the recorded peak min. value or above the recorded peak max. value ,the meter records the new value . Press Hold button to pause the recording.

Smart Hold



The meter will beep continuously and the display will flash if the measured signal is larger than the display reading by 50 counts. (However ,it can not detect across the AC and DC Voltage / Current).

RelativeΔ



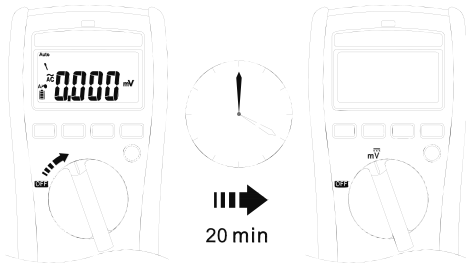
Press the Relative button to enable/disenable this function.

Backlight



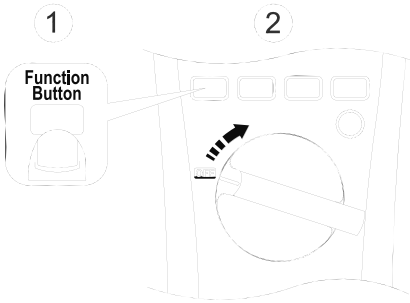
Press the Backlight button to turn the backlight on/off.

Auto Power Off



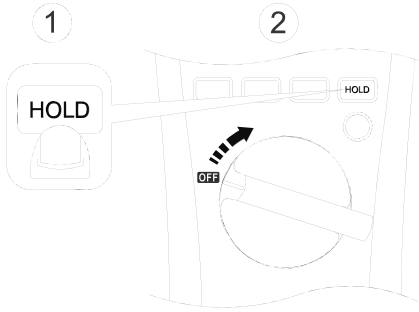
Wake-up the meter by dialing the switch or pressing any button.

Disable Auto Power Off



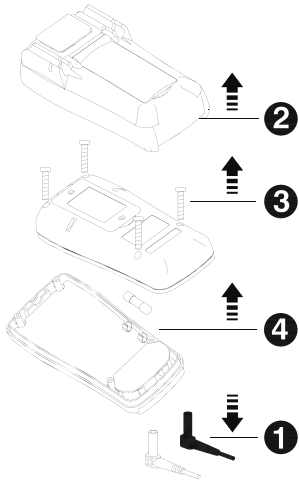
Dial the switch to off position ,then keep the Function button down and turn the meter on.

Testing LCD Monitor



Dial the switch to off position ,then keep the HOLD button down and turn the meter on.

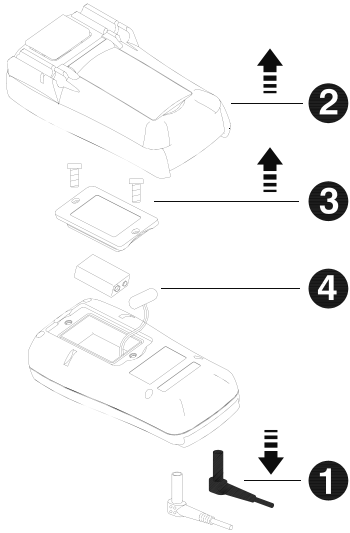
Fuse Replacement



Fuse:11A/1000V

Low Battery and Battery Replacement

Replace the battery as soon as the low battery indicator appears, to avoid false reading.
Refer to the following figure to replace the batteries



CAUTION

Remove test leads from meter before opening the battery cover or meter case.

Specifications

General Specifications

Maximum voltage applied to any terminal :
1000 Vac rms or 1000 Vdc. rms
Display : 6000 counts.
Polarity Indication : Automatic, positive implied, negative indicated.
Overrange Indication : OL
Batteries Life : 200 hours ALKALINE Battery
Low Batteries Indication :
Voltage drops below operating voltage will flash.
Power Requirement : 9V battery
Auto Power Off : 20 minutes.
Operating Temperature : -10 ~10°C
10°C ~ 30°C (≦80% RH),
30°C ~ 40°C (≦75% RH),
40°C ~ 50°C (≦45%RH)
Storage Temperature :
-40°C to 60°C , 0 to 80% R.H. (batteries not fitted)
Measure : Samples 3 times per second .
Altitude : 6561.7 ft (2000m)

CAT	Application field
Ⅰ	The circuits not connected to mains.
Ⅱ	The circuits directly connected to Low-voltage installation.
Ⅲ	The building installation.
Ⅳ	The source of the Low-voltage installation.

Weight : 250g (including battery)
Dimensions (W x H x D) : 74mm x 156mm x 44mm.
Pollution degree : 2
Safety : Complies with EN61010-1,CAT.IV. 600V, CAT.Ⅲ. 1000V
EMC : EN 61326-1
Shock vibration : Sinusoidal vibration per MIL-PRF- 28800F (5 ~ 55 Hz, 3g max.)
Drop Protection : 4 feet drop to hardwood on concrete floor.
Indoor Use.

Electrical Specifications

Accuracy is given as ±(% of reading + counts of least significant digit) at 23°C ± 5°C, with relative humidity Less than 80% R.H.

1. Temperature coefficient

0.1 x (Specified accuracy) / °C, < 18°C, > 28°C

2. AC Function

ACV and ACA specifications are ac coupled, true R.M.S. The crest factor may be up to 3.0 as 4000 counts.
For square wave, Accuracy is unspecified.
For non-sinusoidal waveforms, Additional Accuracy by Crest Factor (C.F.) : Add 3.0% for C.F. 1.0 ~ 2.0.
Add 5.0% for C.F. 2.0 ~ 2.5.
Add 7.0% for C.F. 2.5 ~ 3.0.

3. DC mV

Range	OL Reading	Resolution	Accuracy
600.0mV	660.0mV	0.1mV	±(0.5% + 5D)

Input Impedance : 10MΩ
Overload Protection : AC/DC1000V

4. DC Voltage

Range	OL Reading	Resolution	Accuracy
6.000V	6.600V	0.001V	±(0.5% + 2D)
60.00V	66.00V	0.01V	
600.0V	660.0V	0.1V	
1000V	1100V	1V	

Input Impedance : 10MΩ
Overload Protection : AC/DC 1000V

5. AC Voltage

Range	OL Reading	Resolution	Accuracy
600.0mV	660.0mV	0.1mV	±(1.0% + 5D)
6.000V	6.600V	0.001V	±(1.0% + 3D)
60.00V	66.00V	0.01V	
600.0V	660.0V	0.1V	
1000V	1100V	1V	

LCD displays 0 counts when the reading < 10 counts.
Input Impedance: 10MΩ // less than 100pF
Frequency Response: 45~500Hz(Sine Wave)
Overload Protection: AC/DC 1000V

6. Auto Voltage

Range	OL Reading	Resolution	Accuracy
600.0V	660.0V	0.1V	±(2.0% + 3D)
1000V	1100V	1V	

LCD displays 0 counts when the reading < 10 counts.
Input Impedance : less than 3kΩ
Frequency Response : 45 ~ 500Hz (Sine Wave)
Overload Protection : AC/DC 1000V

7. DC Current

Range	OL Reading	Resolution	Accuracy
6.000A	6.600A	0.001A	±(1.0% + 3D)
10.00A	20.00A	0.01A	

Maximum measurement time :
>5A for max.3 minutes with at least 20 minutes rest time.
>10A for max.30 seconds with at least 10 minutes rest time.
Overload Protection : AC/DC 11A

8. AC Current

Range	OL Reading	Resolution	Accuracy
6.000A	6.600A	0.001A	±(1.5% + 3D)
10.00A	20.00A	0.01A	

In 6A Range,LCD displays 0 counts when the reading < 20 counts.
In10A Range,LCD displays 0 counts when the reading < 10 counts.
Maximum measurement time :
>5A for max.3 minutes with at least 20 minutes rest time.
>10A for max.30 seconds with at least 10 minutes rest time.
Frequency Response : 45 ~ 500Hz (Sine Wave)
Overload Protection : AC/DC 11A

9. Resistance

Range	OL Reading	Resolution	Accuracy
600.0Ω	660.0Ω	0.1Ω	±(0.9% + 5D)
6.000kΩ	6.600kΩ	0.001kΩ	±(0.9% + 2D)
60.00kΩ	66.00kΩ	0.00kΩ	±(0.9% + 2D)
600.0kΩ	660.0kΩ	0.1kΩ	±(0.9% + 2D)
6.000MΩ	6.600MΩ	0.001MΩ	±(0.9% + 2D)
40.00MΩ*	44.00MΩ	0.01MΩ	±(1.5% + 5D)

* There is a little rolling less than ±50 digits when measuring > 10.00 MΩ.
Overload Protection : AC/DC 1000V

10. Continuity

Range	OL Reading	Resolution	Accuracy
600.0Ω	660.0Ω	0.1Ω	±(0.9% + 5D)

Continuity : Built-in buzzer sounds when measured resistance is less than 20Ω and sounds off when measured resistance is more than 200Ω, Between 20Ω to 200Ω the buzzer maybe sound or off either.
Continuity Indicator : 2KHz Tone Buzzer
Response Time of Buzzer : < 500μsec.
Overload Protection : AC/DC 1000V

11. Diode

Range	OL Reading	Resolution	Accuracy
1.500V	1.550V	0.001V	±(0.9% + 2D)

Open Circuit Voltage : Approx. 1.8V
Overload Protection : AC/DC 1000V.

12. Capacitance

Range	OL Reading	Resolution	Accuracy
1.000μF	1.100μF	0.001μF	±(1.9% + 5D)
10.00μF	11.00μF	0.01μF	±(1.9% + 2D)
100.0μF	110.0μF	0.1μF	
1.000mF	1.100mF	0.001mF	
10.00mF	11.00mF	0.01mF	

Overload Protection : AC/DC 1000V.

13. Frequency

Range	OL Reading	Resolution	Accuracy
100.00Hz	100.00Hz	0.01Hz	±(0.1% + 2D)
1000.0Hz	1000.0Hz	0.1Hz	
10.000kHz	10.000kHz	0.001kHz	
100.00kHz	100.00kHz	0.01kHz	

Minimum Sensitivity : > 5V (for ACV 1Hz ~ 10kHz)
> 20.0V (for ACV 10kHz ~ 50kHz)
unspecified (for ACV 50kHz ~ 100kHz)
>0.6A (for ACA)
Minimum Frequency : 1Hz
Overload Protection : AC/DC 1000V or 11A

14. Peak Hold
Specified accuracy ± 150 digits.
Accuracy of Square Wave is unspecified.

15. VoltSeek
Voltage Range of High Sensitivity :
80V ~ 1000V (At the top edge of the meter)
Voltage Range of Low Sensitivity :
160V ~ 1000V (At the top edge of the meter)

Limited Warranty

This meter is warranted to the original purchaser against defects in material and workmanship for 2 years from the date of purchase. During this warranty period, Manufacturer will, at its option, replace or repair the defective unit, subject to verification of the defect or malfunction.
This warranty does not cover fuses, disposable batteries, or damage from abuse, neglect, accident, unauthorized repair, alteration, contamination, or abnormal conditions of operation or handling.
Any implied warranties arising out of the sale of this product, including but not limited to implied warranties of merchantability and fitness for a particular purpose, are limited to the above. The manufacturer shall not be liable for loss of use of the instrument or other incidental or consequential damages, expenses, or economic loss, or for any claim or claims for such damage, expense or economic loss. Some states or countries laws vary, so the above limitations or exclusions may not apply to you.