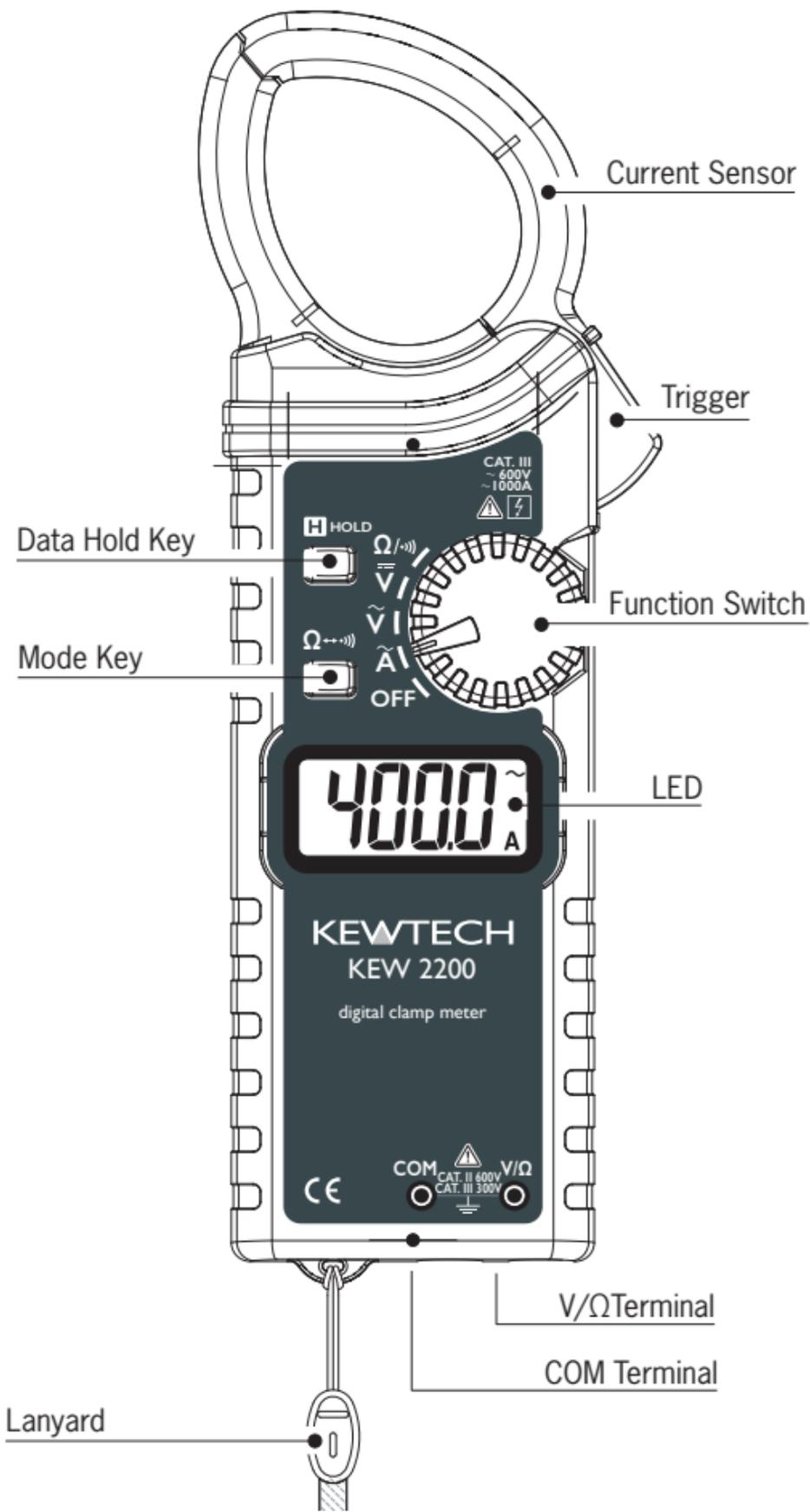
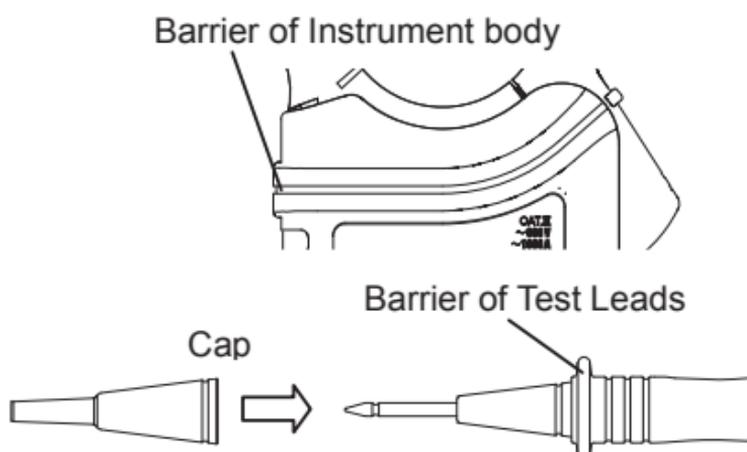


## KEW 2200 Instruction Manual






**WARNING**  
**Read through and understand the instructions contained in this manual before using the instrument.**

## 1. Specification

Accuracy guaranteed  
 100% or less of range  
 Temperature  $23 \pm 5^{\circ}\text{C}$   
 Humidity 45 - 75%

### AC A Auto Range

Range		Accuracy
40A	0.00, 0.03-41.99A	$\pm 1.4\% \text{rdg} \pm 6 \text{dgt}$ (50/60Hz)
400A	32.0-419.9A	
1000A	320-1049A	$\pm 1.6\% \text{rdg} \pm 6 \text{dgt}$ (45-65Hz)

Input protective current AC 1200A

### AC V Auto Range

Range		Accuracy
4V	0.000, 0.005-4.199V	$\pm 1.8\% \text{rdg} \pm 7 \text{dgt}$ (45-65Hz)
40V	3.20-41.99V	
400V	32.0-419.9V	$\pm 2.3\% \text{rdg} \pm 8 \text{dgt}$ (65-500Hz)
600V	320-629V	

### DC V Auto Range

Range		Accuracy
400mV	$\pm 0.0$ - $\pm 419.9 \text{mV}$	*1
4V	$\pm 0.320$ - $\pm 4.199 \text{V}$	$\pm 1.0\% \text{rdg} \pm 3 \text{dgt}$
40V	$\pm 3.20$ - $\pm 41.99 \text{V}$	
400V	$\pm 32.0$ - $\pm 419.9 \text{V}$	
600V	$\pm 320$ - $\pm 629 \text{V}$	

\*1 : Accuracy is not guaranteed

AC V/DC V Input impedance  
 $> 100 \text{M}\Omega$  (400mV Range)  
 $11 \text{M}\Omega$  (4V Range)  
 $10 \text{M}\Omega$  (40/400/600V Range)

**Resistance Auto Range / Continuity**

Range		Accuracy
400Ω	0.0-419.9Ω	±2.0%rdg±4dgt
4kΩ	0.320-4.199 kΩ	
40kΩ	3.20-41.99 kΩ	
400kΩ	32.0-419.9 kΩ	
4MΩ	0.320-4.199 MΩ	±4.0%rdg±4dgt
40MΩ	3.20-41.99 MΩ	±8.0%rdg±4dgt
Cont.	0.0-419.9Ω	Buzzer threshold value 50±30Ω

Open-loop voltage

<3.4V (400Ω / Cont Range)

0.7V typ (4kΩ Range)

0.47V typ (40k - 40MΩ Range)

Input protective voltage

AC/DC 600V 10 sec

**Measuring method**

Dual integration

**Over-range indication**

OL

**Measurement cycle**

2.5 times per second

**Applicable Standards**

- IEC/EN 61010-1/ 61010-2-032/ 61010-031 / 61010-2-030

Pollution degree 2

Indoor use

Altitude up to 2000m

Current measurement section CAT.III 600V

Voltage measurement section CAT.II 600V / CAT.III 300V

EN61326 (EMC)

In the radio-frequency electromagnetic field of 3V/m, accuracy is within five times the rated accuracy.

EN50581 (RoHS)

### **Withstand voltage**

AC 5320Vrms 5sec between current sensor and enclosure

AC 3540Vrms 5sec between circuit and enclosure

### **Insulation resistance**

>100M $\Omega$  /1000V between enclosure and electrical circuit

### **Operating temperature and humidity range**

0 to 40°C 85%RH or less (no condensation)

### **Storage temperature and humidity range**

-20 to 60°C 85%RH or less (no condensation)

### **Power source**

DC3V $\times$ 2 / R03/LR03 (AAA)  $\times$ 2

### **Current consumption**

< 3mA

### **Battery life**

Approx. 350 hours (AC A, continuous, no load)

### **Dimension, Weight**

190(L) $\times$ 68(W) $\times$ 20(D)mm

approx. 120g (including batteries)

### **Accessories**

Test leads Model 7107A	1set
Battery R03(AAA)	2pcs
Instruction manual	1pce
Carrying case Model 9160	1pce

## **2. Other Function**

### **Data Hold**

Press the Data Hold Key to freeze the reading. Press the Data Hold Key again to release the display.



Indicated " **H** " on LCD

### **Low battery indication**

Indicated " **B** " on LCD at 2.3 $\pm$ 0.15V or less

### **Sleep Function**

Automatically powers off after about 10min of inactivity. To disable the sleep function, power the instrument on with the Data Hold Key pressed.

(indicated " **POFF** " for about 2 seconds on LCD)

### 3. AC A Measurement

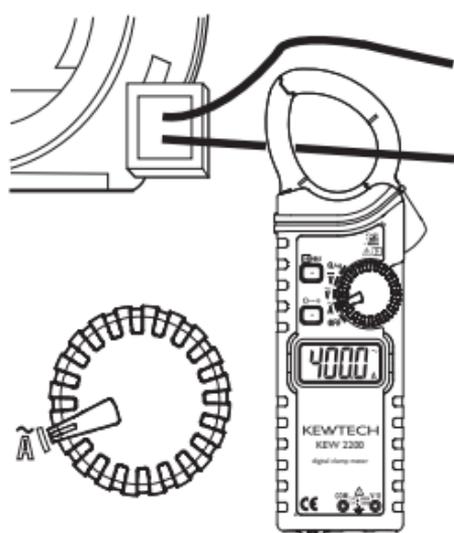


#### **DANGER**

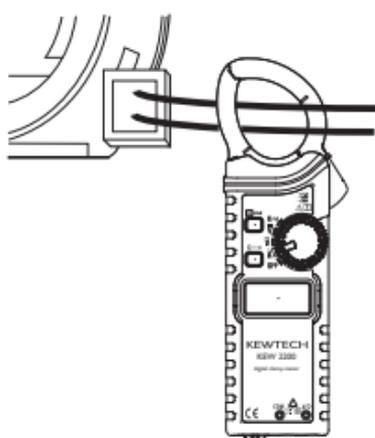
**Never measure current while the test leads are inserted into the V/ $\Omega$  and/or COM Terminals.**

Press the trigger to open the Current Sensor and clamp the single conductor (Dia. 33mm max.) under test.

#### **Correct**

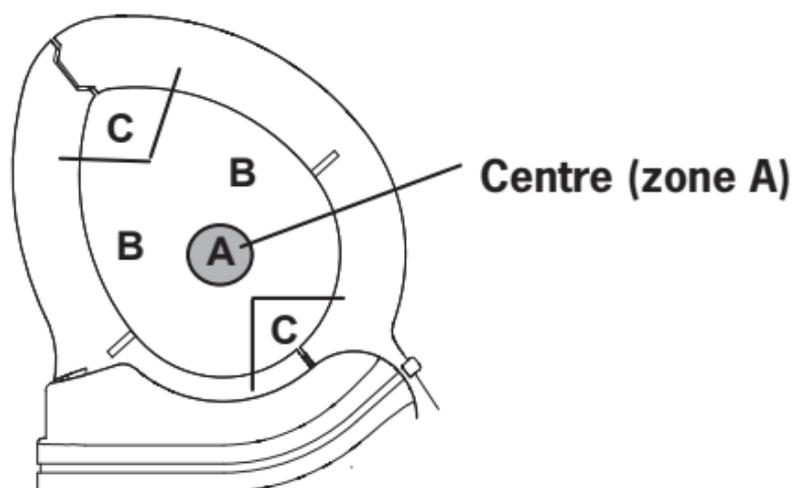


#### **Incorrect**



#### **NOTE**

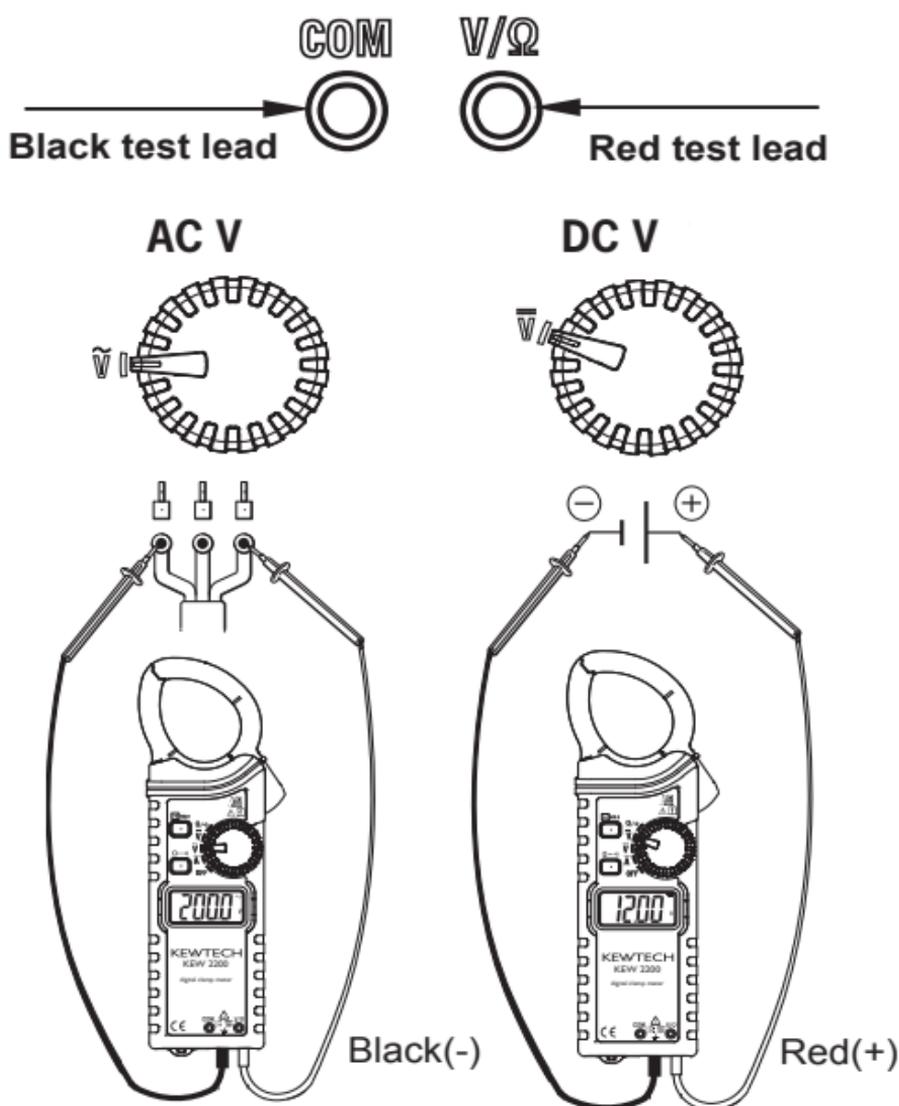
Measurement accuracy is guaranteed when the measured object is placed at the centre (zone A) of the Current Sensor. In zone B, 4% of tolerance should be added to the specified accuracy. In zone C, measured values should be considered as reference values (Accuracy is not guaranteed).



## 4. AC V/DC V Measurement

**⚠ DANGER  
600V**

**Never make measurement on a circuit in which voltage over 600V exists.**



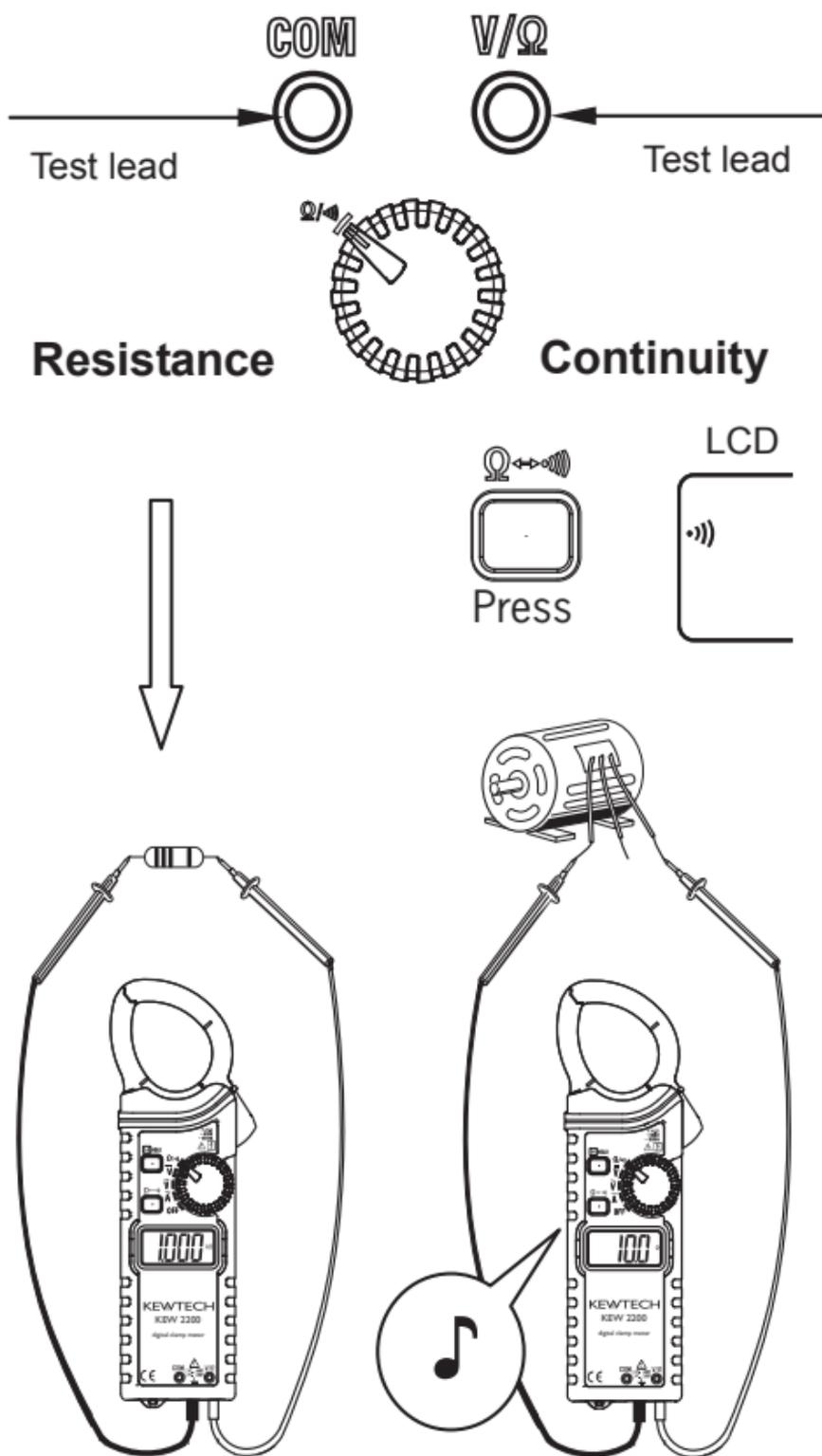
### NOTE

DC V LCD

If the connection is reversed, the LCD indicates the "-" mark (DC V measurement).

**5. Resistance (Continuity) Measurement**

**⚠ WARNING**  
**Never use the instrument on an energized circuit.**



Beeps when less than  $50 \pm 30 \Omega$ .

**NOTE**

LCD indicates "OL" when the test leads are open.

## 6. Safety Warnings

This instrument has been designed, manufactured and tested according to IEC 61010: Safety requirements for Electronic Measuring apparatus, and delivered in the best condition after having passed final inspection. This instruction manual contains warnings and safety rules which must be observed by the user to ensure safe operation of the instrument and retain it in a safe condition. Therefore, read through these operating instructions before using the instrument.

### **WARNING**

- Read through and understand the instructions contained in this manual before using the instrument.
- Keep the manual at hand to enable quick reference whenever necessary.
- The instrument is to be used only in its intended applications.
- Understand and follow all the safety instructions contained in the manual.
- It is essential that the above instructions are adhered to.
- Failure to follow the above instructions may impair the protection provided by the instrument and test leads, and may cause injury, instrument damage and/or damage to equipment under test.

The symbol  indicated on the instrument means that the user must refer to the related parts in the manual for safe operation of the instrument. It is essential to read the instructions wherever the symbol  appears in the manual.



**DANGER** is reserved for conditions and actions that are likely to cause serious or fatal injury.



**WARNING** is reserved for conditions and actions that can cause serious or fatal injury.



**CAUTION** is reserved for conditions and actions that can cause injury or instrument damage.

Marks listed below are used on this instrument.



User must refer to the manual.



Instrument with double or reinforced insulation



Indicates that this instrument can clamp on bare conductors when measuring a voltage corresponding to the applicable measurement category, which is marked next to this symbol.



AC



DC



Ground (Earth)



This instrument is subject to WEEE Directive (2002/96/EC). Please contact our dealer near you at disposal.

### Measurement Category

#### CAT.II

Primary electrical circuits of equipment connected to an AC electrical outlet by a power cord.

#### CAT.III

Primary electrical circuits of the equipment connected directly to the distribution panel, and feeders from the distribution panel to outlets.

#### CAT.IV

The circuit from the service drop to the service entrance, and to the power meter and primary over current protection device (distribution panel).

**Current measurement section of this instrument is designed for CAT.III 600V and Voltage measurement section is for CAT.III 300V / CAT.II 600V respectively.**

**Test leads 7107A with the Cap is designed for CAT.IV 600V / CAT.III 1000V and without the Cap is for CAT.II 1000V.**



### DANGER

- Never make measurement on a circuit in which voltage over AC/DC600V exists.
- Do not attempt to make measurement in the presence of flammable gasses. Otherwise, the use of the instrument may cause sparking, which can lead to an explosion.
- Never attempt to use the instrument if its surface or your hand is wet.

- Do not exceed the maximum allowable input of any measuring range.
- Never open the Battery cover during a measurement.
- To avoid electrical shock by touching the equipment under test or its surroundings, be sure to wear insulated protective gear.
- Never measure current while the test leads are inserted into the input terminals.
- Barriers on the instrument body and the test leads provide protection to keep your fingers and hands from touching an object under test.
- Keep your fingers and hands behind the barriers during measurement.

### **WARNING**

- Never attempt to make measurement if any abnormal conditions, such as broken case and exposed metal parts are found on the instrument or test leads.
- Verify proper operation on a known source before use or taking action as a result of the indication of the instrument.
- **Firmly attach the Caps to the test leads when performing measurements at CAT. III or higher test environment.**
- **When the KEW2200 and the test leads are combined and used together, whichever is the lowest category & voltage to earth specification applies.**
- Do not rotate the Function Switch while the test leads are being connected.
- Do not install substitute parts or make any modification to the instrument. For repair or re-calibration, return the instrument to your local distributor from where it was purchased.

### **CAUTION**

- Use of this instrument is limited to domestic, commercial and light industry applications.
- If equipment generating strong electromagnetic Interference or strong magnetic fields due to large currents exist nearby, the instrument may not work correctly.
- Set the Function Switch to an appropriate position before starting measurement.
- Firmly insert the test leads.
- The LCD may show some readings at the ACV and the DCV ranges even while the test leads are open. And, it may show some digits

instead of 0 when short-circuiting the test leads. However, these phenomena doesn't affect measurement results.

- This instrument isn't dust & waterproof.
- Keep away from dust and water.
- Be sure to power off the instrument after use.
- When the instrument will not be in use for a long period, place it in storage after removing the batteries.
- Do not expose the instrument to the direct sun, high temperature and humidity or dewfall.
- Use a slightly damp cloth or neutral detergent for cleaning the instrument. Do not use abrasives or solvents.

## 7. Battery Replacement

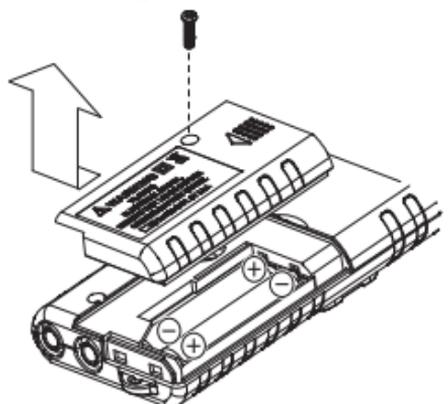
### **WARNING**

- Replace the batteries when a Low Battery Voltage warning " **B** " mark ( $< 2.3 \pm 0.15V$ ) is indicated on the LCD. Otherwise, precise measurement cannot be made. Note that when the battery is completely exhausted, the LCD goes blank without showing " **B** " mark.
- Do not try to replace the batteries if the surface of the instrument is wet.
- Disconnect the test leads from the object under test and power off the instrument before opening the Battery Compartment Cover for Battery replacement.

### **CAUTION**

- Do not mix old and new batteries.
- Install batteries in correct polarity as indicated in the Battery Compartment.

- (1) Set the Function Switch to "OFF" position.
- (2) Unscrew and remove the Battery Compartment Cover on the bottom of the instrument.
- (3) Replace the batteries observing correct polarity. Use new two R03/LR03 (AAA) 1.5V batteries.
- (4) Install the Battery Compartment and tighten the screw.



# KEWTECH

## Certificate of Conformity & Warranty Registration

This instrument has been calibrated using equipment which has itself been calibrated to standards traceable to International Standards monitored by BIPM (International Bureau of Weights and Measures)

This certificate guarantees that the product has been fully inspected and conforms to all the relevant published specifications.

### Free Two Year Warranty

Kewtech's Two Year Warranty enhances the customers' legal rights/ it covers all manufacturing defects for a two year period but Kewtech reserves the right to exclude abuse or accidental damage.

To register your free guarantee simply go to [kewtechcorp.com](http://kewtechcorp.com) - the link is on the home page.

### Re-calibration Service

Regular re-calibration is recommended for this instrument. Kewtech recommends that with normal use the instrument is calibrated at least once in every 12 month interval.

When the instrument is due for re-calibration return it to the address below marked for the attention of the Calibration Department.

Kewtech Corp Ltd  
Shaw Wood Business Park  
Shaw Wood Way  
Doncaster DN2 5TB  
t: 01302 761044