

Surface Resistance Meter

Instruction manual



Version No.: **3110-CH-00**

I. Introduction

As one resistance meter for object surface, GM3110 can measure the resistance value on object surface by putting two parallel electrodes close to object surface to be measured, so as to judge whether the measured object is a conductor, static material or insulator; meanwhile the meter can be used to measure the resistance to ground of object, which is specially applied to different anti-static fields.

Products specification

Measuring range of resistance	$10^3 - 10^{10} \Omega$
Resistance error	\pm One order of magnitude
Response time of resistance measurement	1S
Measuring range of temperature	$0^\circ\text{C} \sim 50^\circ\text{C} / 32 \sim 122^\circ\text{F}$
Measuring precision of temperature	$\pm 2^\circ\text{C} / \pm 3.6^\circ\text{F}$
Power supply	9V 6F22 battery
Dimension	63.6x31.x125.8mm
Weight	157.60g

The max range the unit measures is 20KM, and the $10^{11} / 10^{12}$ displayed in the product is just an approximation not accurate value.

For instance, a resistor of 10^{10} magnitude has its 10^9 or 10^{11} is within the error allowed.



II. Functions and features

This surface resistance meter has the following functions :



- ▶ Surface resistance test;
- ▶ Three modes to display resistance value on object surface or material property simultaneously;

- ▶ Ambient temperature measuring;
- ▶ Temperature unit conversion;
- ▶ Data holding;
- ▶ LCD backlight;

III. Key operation

1.  / °C / °F : press this key to control LCD backlight, and press and hold this key to realize conversion of temperature unit.
2. HOLD: for holding the measured data.
3.  : ON/OFF.

IV. Operating instructions

1. After pressing  to turn it on, normal measure interface and ambient temperature value shall be displayed on LCD.
2. By putting both electrodes of the meter close to material surface to be measured, the surface resistance value and its conductive property shall be displayed on LCD after about 1s, indicating that measured material is a conductor, anti-static material or insulator.
3. Measuring resistance to ground: insert the ground wire into the earth jack at front end of the meter, with the other end of the ground wire being grounded; keep right electrode of the meter close to object surface to be measured, and the resistance value displayed on LCD is the value of resistance to ground. (Do not make left electrode touch the object surface at this time).
4. Data holding: press HOLD after data are measured, and the data will be held on LCD; press HOLD again to exit data holding.
5. Backlight control: press  / °C / °F after startup and the backlight will be on, for ease of night measuring; press it again, to turn off backlight.

6. Temperature unit conversion: press and hold after startup to realize conversion of temperature unit.

V. LCD display and key function

1. LCD full-screen display: see the following figure (Figure 1)

- ①. Conductor display
- ②. Anti-static material display
- ③. Insulating material display
- ④. Resistance value display
- ⑤. Temperature value
- ⑥. Data holding
- ⑦. Battery level

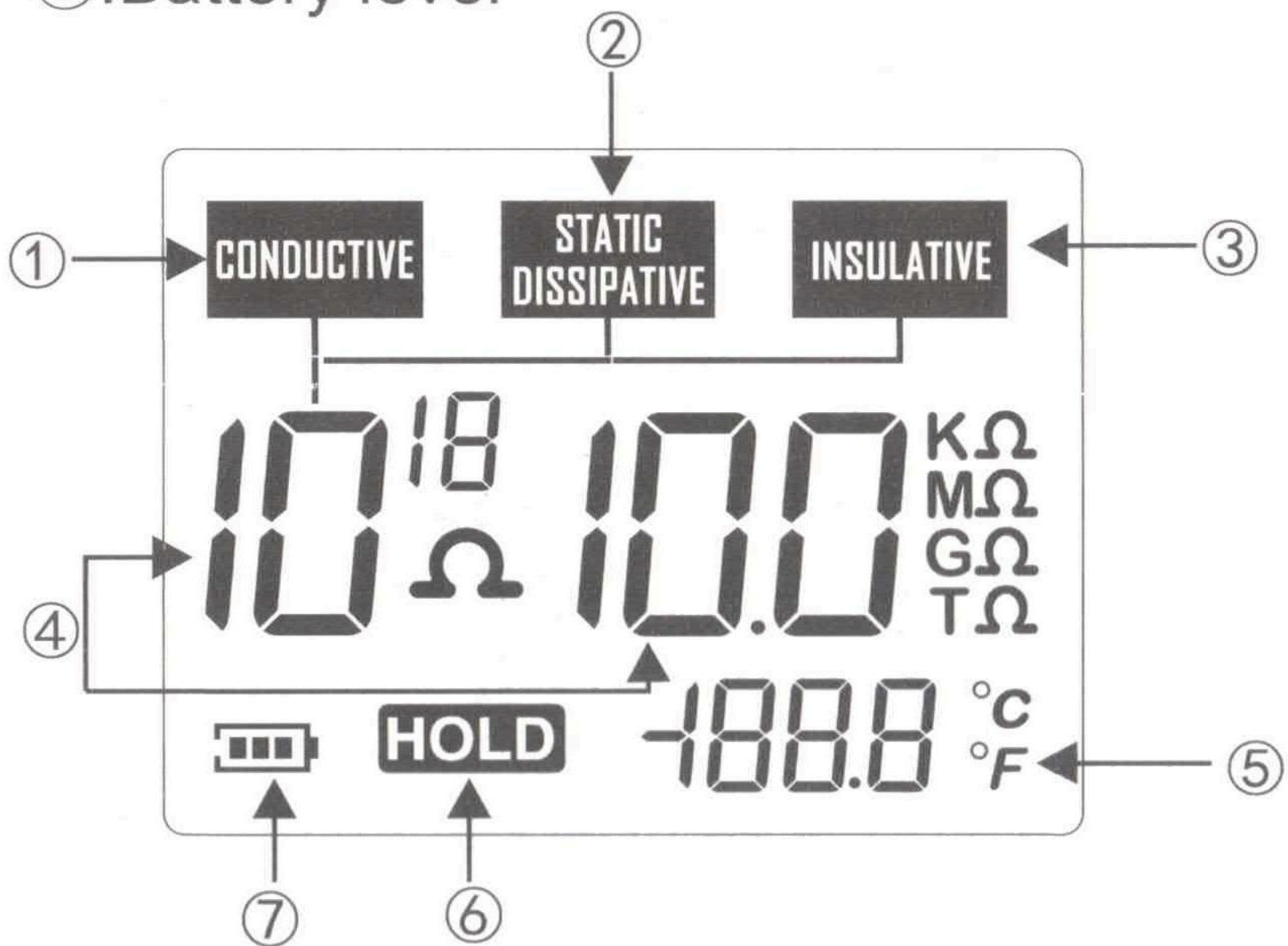


Figure 1

2. Components: see the following figure (Figure 2)

- A. LCD display
- B. LCD backlight and temperature unit conversion
- C. Data holding
- D. ON/OFF
- E. Jack of ground wire
- F. Measuring electrode for surface resistance
- G. Battery door

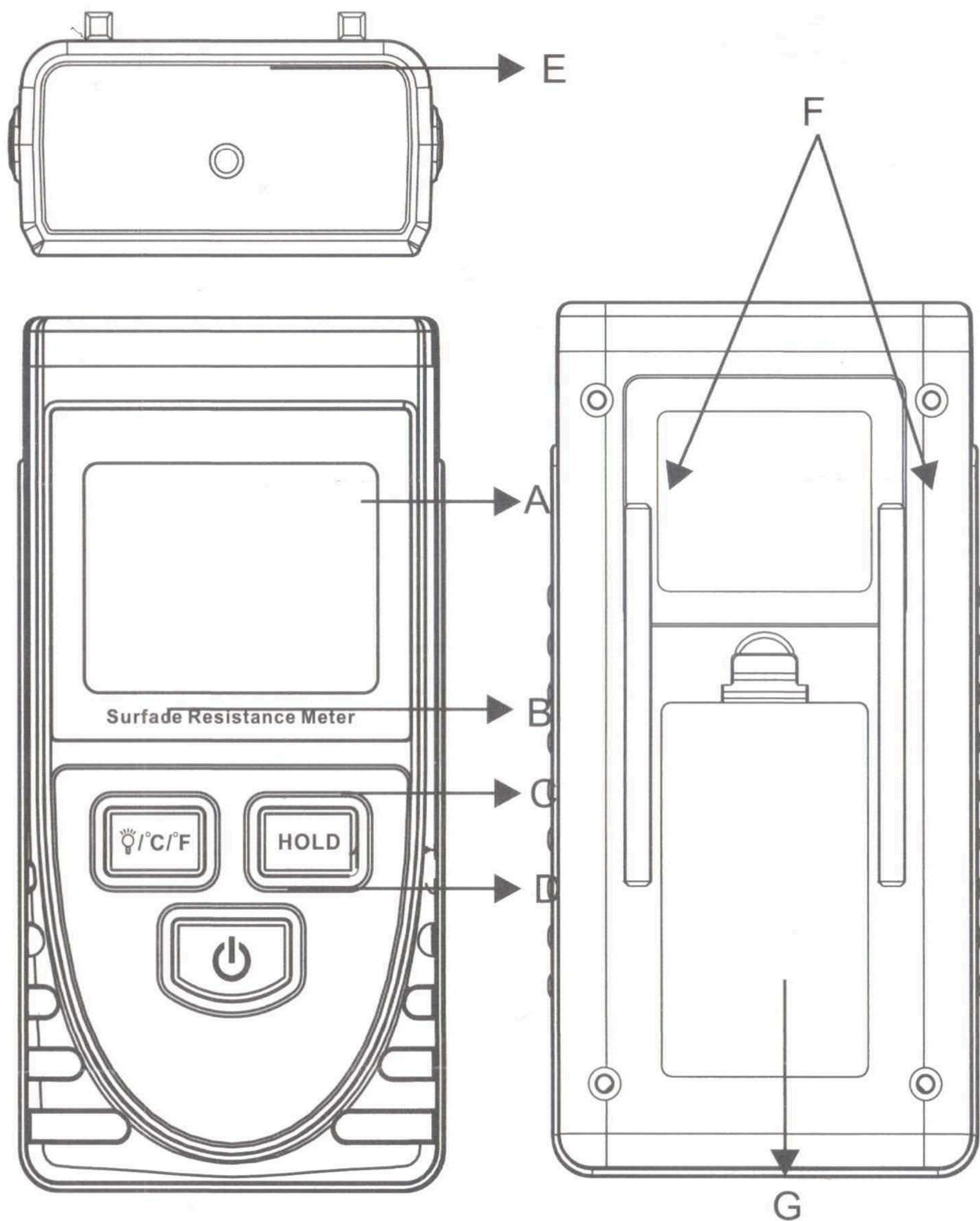


Figure 2

VI. LCD reading

- a). $10^3 \sim 10^5 \Omega$, conductor; $10^6 \sim 10^{11} \Omega$, anti-static material; $\geq 10^{12} \Omega$, insulating material;
- b). The measured resistance being less than $10^3 \Omega$ will be displayed as $10^3 \Omega$ on LCD;
- c). For example: the resistance reading in Figure 3 is $10^9 \Omega$, $1.0 \text{G}\Omega$, the measured material is anti-static material;

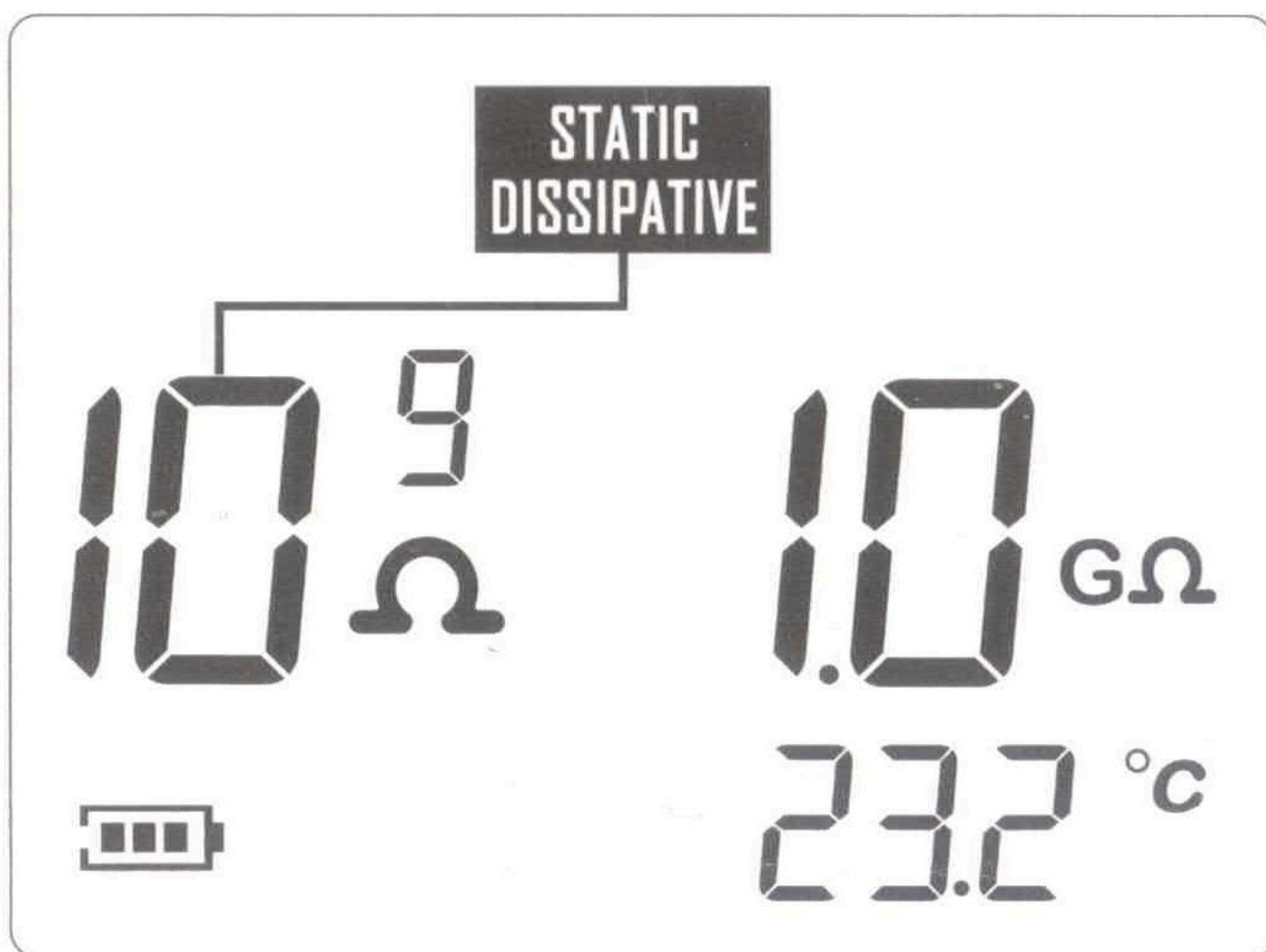


Figure 3

VII. Calibration (normally this step is unnecessary)

If the local environmental temperature or humidity vary largely some errors may be detected by the users who can calibrate the product by themselves.

1. Open circuit calibration: press $\text{ⓘ}/\text{°C}/\text{°F}$ and HOLD at same time, then press ⏻ to activate the device and then go to calibration mode. Please be noted that the two electrodes at the bottom must be in the air without contact with hand or other objects and a number less than 60 appears at the right bottom of the LCD. Press the ⏻ key again the open circuit data will be saved and calibration is completed.

2. Short circuit calibration press $\text{ⓘ}/\text{°C}/\text{°F}$ and HOLD at same time, then press ⏻ to activate the device and then go to calibration mode. Connect the two electrodes at the bottom with a metal object to make short circuit and a number about 700 appears at the right bottom of the LCD, then press the ⏻ key again to save the data and short circuit calibration completes.

Special declaration:

Our company reserves the right to modify the product design and the instruction. We will not give further notice for any changes!

