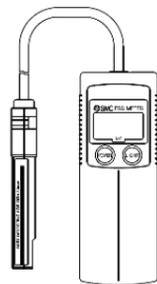




Instruction Manual

Handheld Electrostatic Meter

Type IZH10



The intended use of this product is to measure the electrostatic charge of an object.

1 Safety Instructions

These safety instructions are intended to prevent hazardous situations and/or equipment damage. These instructions indicate the level of potential hazard with the labels of "Caution," "Warning" or "Danger."

They are all important notes for safety and must be followed in addition to International Standards (ISO/IEC), and other safety regulations.

ISO 4414: Pneumatic fluid power - General rules relating to systems.

ISO 4413: Hydraulic fluid power - General rules relating to systems.

IEC 60204-1: Safety of machinery - Electrical equipment of machines. (Part 1: General requirements)

ISO 10218-1: Robots and robotic devices - Safety requirements for industrial robots - Part 1: Robots.

- Refer to product catalogue, Operation Manual and Handling Precautions for SMC Products for additional information.
- Keep this manual in a safe place for future reference.

Caution	If instructions are not followed there is a possibility of injury or equipment damage.
Warning	If instructions are not followed there is a possibility of serious injury or loss of life.
Danger	In extreme conditions, there is a possibility of serious injury or loss of life.

Warning

- Always ensure compliance with relevant safety laws and standards.**
- All work must be carried out in a safe manner by a qualified person in compliance with applicable national regulations.
- Use within the specified voltage and temperature limits.**
Voltage outside of the specification may cause malfunction, damage, electric shock and/or fire.
- This instrument is for measurement of high voltage up to ± 20 kV.**
The user must take all necessary precautions to use it safely, as high voltages are dangerous.
- Heavy impacts on the meter.**
Do not drop, allow any collision or apply excessive shock to the meter when handling. It can result in damage to the meter.
- Do not allow the sensor to come into contact with the measurement target.**
Failure and accidents may occur.
- Handling of ground wire.**
To ensure safety and accurate measurements always use the ground wire. If the ground wire is not connected properly, charge can accumulate in the sensor and/or the ground terminal and then discharge to operator. Handle the sensor and ground terminal carefully.

NOTE

Follow the Notes for safe use given below when handling the meter.

If these instructions are not followed the meter may malfunction or become damaged.

1 Safety Instructions (continued)

1.1 Notes for safe use

- Do not carry or swing the meter by the sensor cable.
- Do not press the setting buttons with sharp pointed objects.
- Do not touch the detecting surface of the sensor directly or with a metal object. Such action can result in damage or loss of specified function and performance.
- When measuring objects with a highly charged potential, there is a risk of electrostatic discharge to the hand of the user holding the sensor. In this situation use the high voltage measuring handle (optional extra) and wear protective rubber gloves. Starting from a safe distance, slowly move the sensor closer to the measurement target. Stop immediately if the display shows "HHH" or "LLL" as the charged potential is out of range. This means the charged potential is very high, which can be dangerous. The display will not change if the sensor is moved closer to the charged object.
- Do not place objects and cables other than the measurement target near the detecting port of the sensor. Doing so will cause interference and result in an inaccurate display reading.
- Handle cables carefully so they do not get tangled with the user's equipment, as this can be highly dangerous.
- The measurement distance is 50 mm. Refer to scales shown on the label attached to the sensor.
- The meter is designed to measure static electricity and must not be used for other purposes.

1.2 Environment

Warning

- Do not use in an environment where flammable or corrosive gases, chemicals, salt water or steam are present.
- Do not use in an explosive atmosphere.
- Do not expose to direct sunlight. Use a suitable protective cover.
- Do not install in a location subject to vibration or impact. Check the product specifications.
- Do not mount in a location exposed to radiant heat.

- Use within the ambient temperature range.
- Do not use this product in areas where dust explosion might be triggered or where flammable or explosive gas is present.

2 Specifications

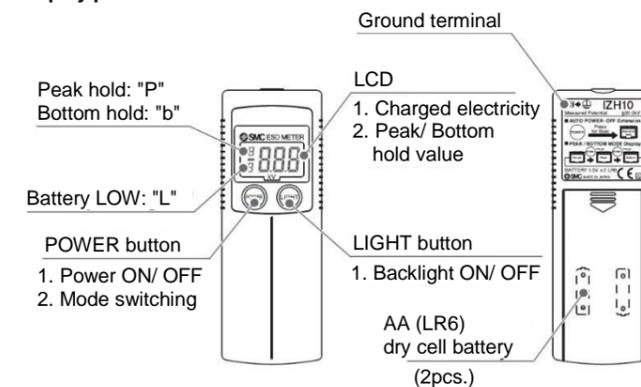
Item	IZH10	
Rated charge range	+/- 20.0 kV	
Display resolution	0.01 kV (0 to +/- 0.99 kV) 0.1 kV (+/- 1.0 kV to +/- 20.0 kV)	
Measurement distance	50 mm (between sensor and measurement target)	
Power supply ^{Note 1)}	1.5 V AA alkaline dry cell battery (2 pcs.) (Battery life: > 15 hours continuous use) ^{Note 2)}	
Display accuracy	+/- 5 %F.S. +/- 1 digit	
Environmental	Enclosure	IP40
	Temperature range	Operating: 0 to 40 °C Storage: -10 to 60 °C (No freezing or condensation)
	Humidity range	Operation and storage: 35 to 85 %R.H. (No condensation)
	Vibration resistance	10 to 150 Hz applied for 2 hours in each direction of X, Y and Z with 1.5 mm amplitude resistance and 98 m/s ² acceleration (with power OFF)
Impact resistance	100 m/s ² applied 3 times in each direction of X, Y and Z (with power OFF)	
Material	Display part: PC/ ABS, Sensor part: ABS	
Weight	85 g (excluding batteries)	
Accessory	Ground wire, soft case	

Note 1) AA alkaline dry cell batteries (2 pcs.) are not included and should be supplied separately.

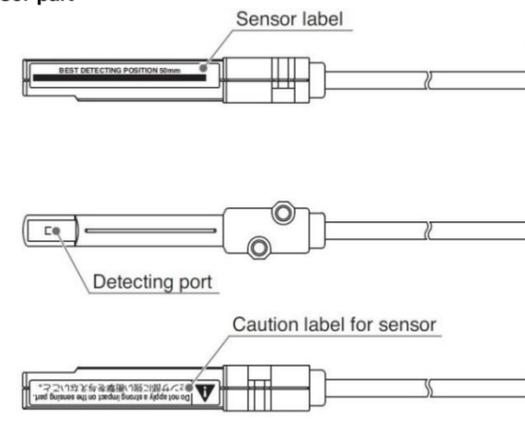
Note 2) With 2 new alkaline dry cell batteries at room temperature.

3 Names and Function of Parts

Display part



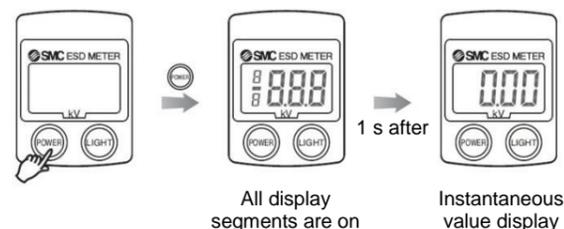
Sensor part



4 Setting

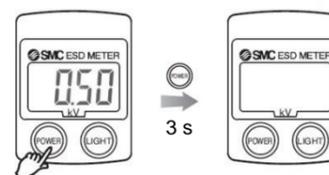
4.1 Power ON

When the "POWER" button is pressed with the meter off, the meter will be turned on. All display segments are displayed for 1 second after the meter is turned on.



4.2 Power OFF

When the "POWER" button is pressed for 3 seconds or more with the meter on, the meter will be turned off. If no buttons are pressed for a set time the meter will automatically turn off. (refer to the operation manual on the SMC website (URL: <https://www.smcworld.com>) for further details).

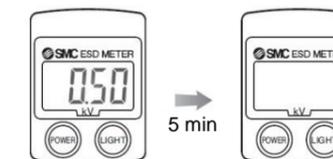


To conserve battery life turn the meter off immediately after use.

4 Setting (continued)

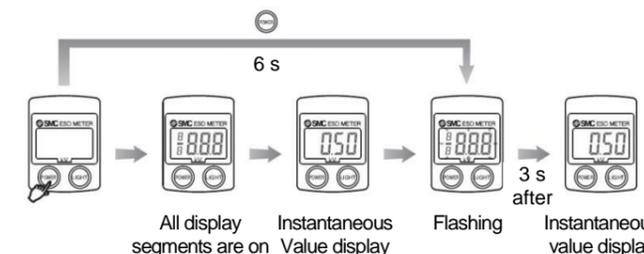
4.3 Auto Power-off

If no buttons are pressed for 5 minutes or more the meter will turn off automatically.



4.4 Auto Power-off Extension

When the "POWER" button is pressed for 6 seconds or more with the meter turned off, the auto power-off display will extend to 15 minutes (when the auto power-off extension is activated, all the display segments will flash for 3 seconds).

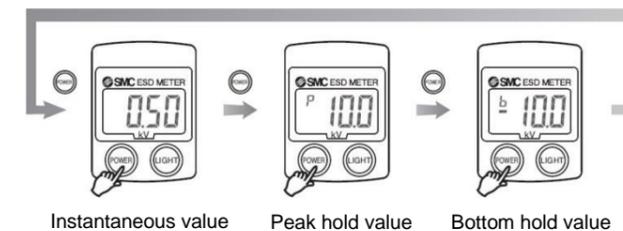


When the meter is turned off again, the auto power-off extension will be cleared.

4.5 Peak / Bottom Value Hold

When the "POWER" button is pressed with the meter turned on, the display will be changed to instantaneous value, peak hold value, bottom hold value and back to instantaneous value, in that order.

Note) Release the "POWER" button after "P" or "b" is displayed so the meter is not turned off.



Peak hold value

The maximum charged potential detected and "P" are displayed. The maximum charged potential is continuously detected and updated from when the peak hold is started. If a value greater than the displayed charged potential is detected, the display will update to show the new value.

Bottom hold value

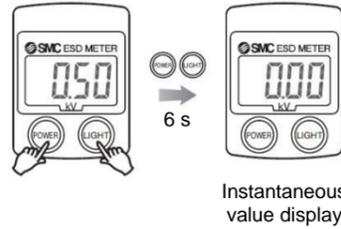
The minimum charged potential detected and "b" are displayed. The minimum charged potential is continuously detected and updated from when the bottom hold is started. If a value less than the displayed charged potential is detected, the display will update to show the new value.

4 Setting (continued)

4.6 Zero Clear

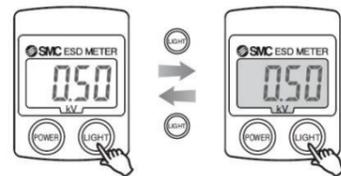
The displayed value can be adjusted to zero for a measured charged potential if it is in the range of the factory zero setting + 5 % F.S. (There may be a slight deviation from the factory setting, due to variations in the sensor itself and the ambient environment where the meter is used.)

When "POWER" and "LIGHT" buttons are pressed simultaneously for 6 seconds or more (with the meter on), the displayed value is reset to zero and the meter will then return to measurement mode. Once the meter is turned off, the offset value for Zero Clear is cleared.



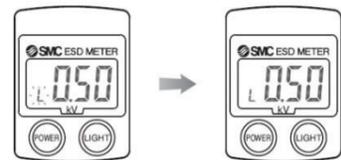
4.7 Backlight

When the "LIGHT" button is pressed while the meter is in measurement mode, the backlight will turn on. Pressing the "LIGHT" button again will turn the backlight off.



4.8 Battery LOW

When the power from the batteries is running low, "L" will appear on the display. Depending upon how much power is left in the batteries, "L" will be displayed differently.



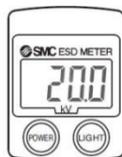
Display	Description
L (Flashing)	The batteries are low. Prepare to replace with new batteries.
L (ON continuously)	The batteries are very low. Replace with new batteries immediately.

4.9 Display resolution change

The display resolution changes depending upon the measured charged potential value.

<Display example>

± 1.0 kV to ± 20.0 kV



Display resolution: 20.0 kV

0 to ± 0.99 kV



Display resolution: 0.01 kV

5 Error Indication

When a malfunction or an error occurs, information about the affected part and type of error will be displayed.

Error name	Error display	Error contents	Troubleshooting
Zero Clear error	Er 1	A charged potential greater than +/- 5 %F.S. of the factory zero setting was present when Zero Clear was performed. *The error display lasts for approx. 1 s and then the meter returns to measurement mode. There may be a slight deviation from the factory setting, due to variations in the sensor itself and the ambient environment where the meter is used.	Return to uncharged condition and perform Zero Clear again.
Sensor error	Er 2	The sensor is broken.	Stop using immediately and contact the local SMC sales branch.
System error	Er 3	There is an internal data error.	Turn the meter off and on again. If the error has not cleared, contact the local SMC sales branch.

Error name	Error display	Error contents	Troubleshooting
Measurement error	HHH	The value of charged potential being measured is higher than the upper limit for the sensor or the sensor is too close to the measurement target.	Eliminate static electricity until the charge is within the measurable voltage range. Also, check if the sensor is the correct distance from the measurement target.
	LLL	The value of charged potential being measured is lower than the bottom limit for the sensor or the sensor is too close to the measurement target.	
Cable breakage	-	Correct measurements cannot be made if any of the wires in the cable are broken. Even if the sensor is still, functioning and detects a charged potential the display may not change.	Stop using immediately and contact the local SMC sales branch.

6 How to Order

Refer to the operation manual or catalogue on the SMC website (URL: <https://www.smcworld.com>) for "How to Order" information.

7 Outline Dimensions (mm)

Refer to the operation manual or catalogue on the SMC website (URL: <https://www.smcworld.com>) for "Outline dimensions".

8 Maintenance

8.1 General Maintenance



- Not following proper maintenance procedures could cause the product to malfunction and lead to equipment damage.
- Before performing maintenance, turn OFF the power supply.
- After installation and maintenance, apply power to the equipment and perform appropriate functional tests to make sure the equipment is installed correctly.
- Do not make any modification to the product.
- Do not disassemble the product, unless required by installation or maintenance instructions.

8.2 Specific Maintenance and Other Precautions

- Use 2 of AA (LR6) alkaline dry cell batteries in the meter. Other batteries are not suitable and their use may result in damage.
- When fitting the batteries pay particular attention to the polarity markings ("+" and "-") stamped on the body of the meter. If fitted incorrectly, the batteries may leak or even burst.
- Remove the batteries when the meter will not be used for extended periods.
- If the meter body becomes dirty, clean by wiping with a soft cloth. For more stubborn dirt wipe with a cloth dampened with a dilute solution of neutral detergent, then dry thoroughly with another clean, dry cloth.

9 Limitations of Use

9.1 Limited warranty and disclaimer/compliance requirements

Refer to Handling Precautions for SMC Products.

10 Product Disposal

This product shall not be disposed of as municipal waste. Check your local regulations and guidelines to dispose this product correctly, in order to reduce the impact on human health and the environment.

11 Contacts

Refer to www.smcworld.com or www.smc.eu for your local distributor/importer.

SMC Corporation

URL : <https://www.smcworld.com> (Global) <https://www.smc.eu> (Europe)
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 Specifications are subject to change without prior notice from the manufacturer.
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