



Installation and Maintenance Manual

Handheld Electrostatic Meter

Type IZH10



1 Safety Instructions

- This manual contains essential information for the protection of users and others from possible injury and/or equipment damage.
- Read this manual before using the product, to ensure correct handling, and read the manuals of related apparatus before use.
- Keep this manual in a safe place for future reference.
- These instructions indicate the level of potential hazard by label of "DANGER", "WARNING" or "CAUTION", followed by important safety information which must be carefully followed.
- To ensure safety of personnel and equipment the safety instructions in this manual and the product catalogue must be observed, along with other relevant safety practices.

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

- Do not disassemble, modify (including the change of a printed circuit board) or repair.**
An injury or failure can result.
- Do not operate outside of the specification.**
Fire, malfunction or damage can result.
Please confirm the specifications before use.
- Do not operate in an environment of flammable, explosive or corrosive gas.**
Fire or an explosion can result.
The meter is not an explosion proof type.
- This instrument is supplied for the 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 and accidents.
- 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.

1 Safety Instructions (continued)

NOTE

Follow the instructions given below when handling the meter. If the instructions are not followed the meter may malfunction or become damaged.

Notes for use

- Do not carry or swing the meter by the sensor cable. If the sensor cable breaks, the meter can hit people or objects, causing injury or damage.
- Do not press setting buttons with sharp, pointed objects.
- Do not touch the detecting surface of the sensor by hand, directly or with a metal object. Such action can result in damage and accidents as well as a loss of specified function and performance.
- When measuring objects with a high 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 highly 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 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.

Environment for use/storage

- Do not use in areas where electromagnetic noise is generated. It can result in malfunction (display of incorrect value), deterioration and damage to internal components.
- Do not leave the meter in areas exposed to direct heat or sunlight, such as inside a closed car or near a heating appliance. High temperatures can cause deformation, discolouration and damage to the meter.
- Do not use in areas where the meter could be splashed by oil or chemicals.

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.

2 Model Indication Method

IZH10 - □

Option

Symbol	Contents
Nil	None
H	High voltage measuring handle

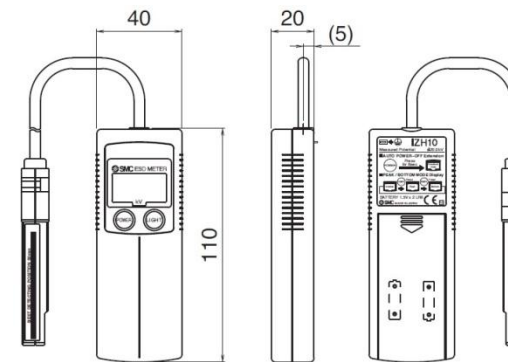
Accessories and Options/ Part Number for Individual Parts

Description	Part number
Ground wire (1.5 m)	IZH-A-01
Soft case	IZH-B-01
High voltage measuring handle	IZH-C-01

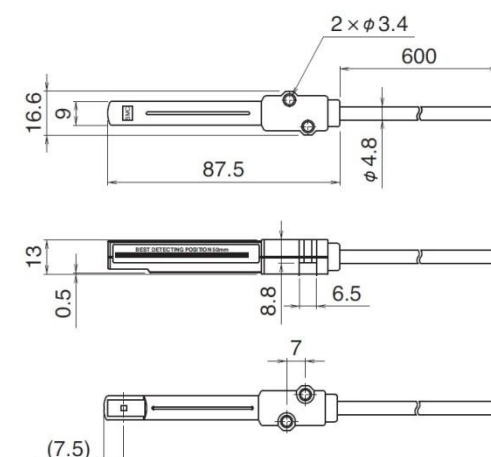
*The ground wire and soft case are included with all products.

3 Outline with Dimensions (mm)

Meter body



Sensor



4 Specification

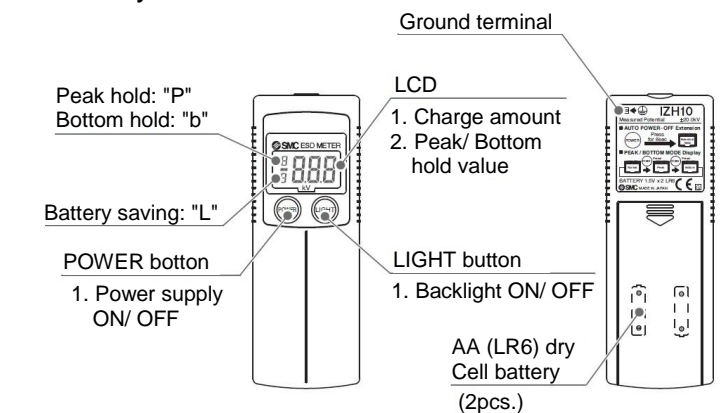
Item	IZH10	
Rated charge range	+/- 20.0 kV	
Display resolution	0.01 kV (0 to +/- 0.99 kV) 0.1 kV (+/- 1.0 kV to +/- 20.0 kV)	
Measurement distance	50 mm (between sensor and measurement target)	
Power supply Note 1)	1.5 V AA alkaline dry cell battery (2 pcs.) (Battery life: > 15 hours continuous use) Note 2)	
Display accuracy	+/- 5 %F.S. +/- 1 digit	
Environmental resistance	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	Meter body: PC/ ABS, Sensor: ABS	
Weight	85 g (excluding batteries)	
Standard	CE marking	
Accessory	Ground wire, soft case	

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

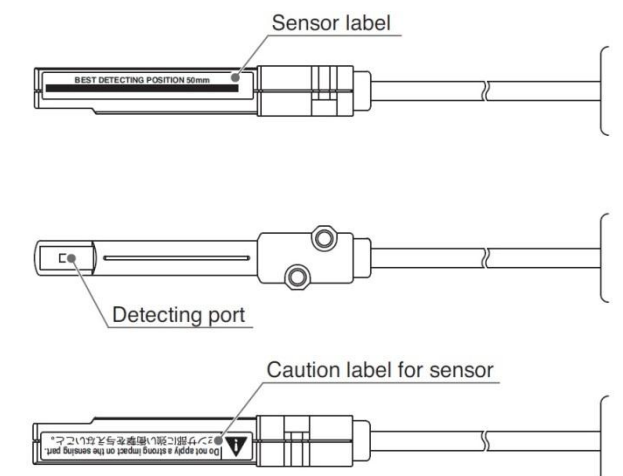
Note 2) With 2 new alkaline dry cell batteries at room temperature.

5 Names and Functions of Individual Parts

Meter body



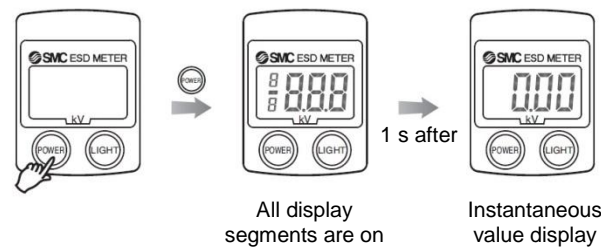
Sensor



6 Setting

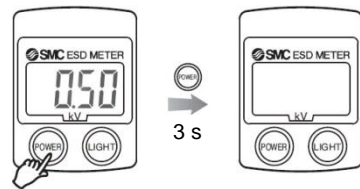
Power ON

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.



Power OFF

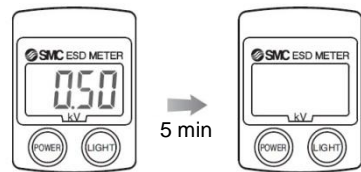
When the "POWER" button is pressed for 3 seconds or more with the meter on, the meter will be turned off. If no buttons are pressed for a set time the meter will automatically turn off. (For details, refer to Auto Power-off function.)



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

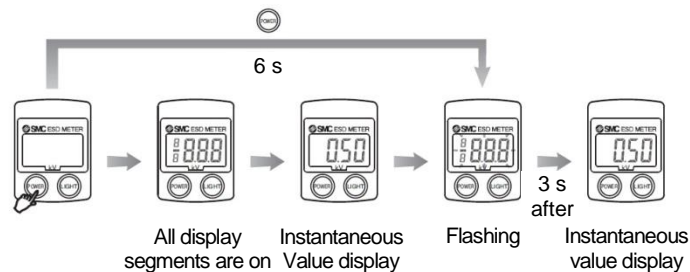
Auto Power-off

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



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.)



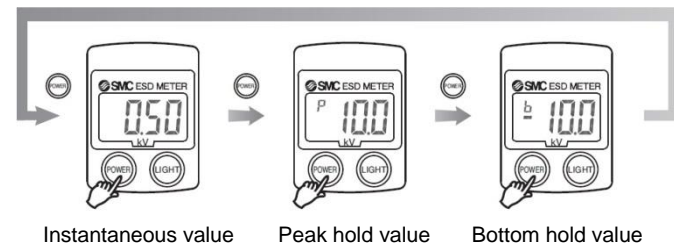
When the meter is turned off again, the auto power-off extension will be cleared.

6 Setting (continued)

Peak/Bottom Hold Value

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.

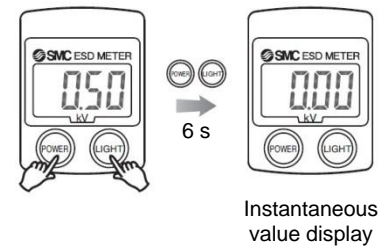
Bottom hold value

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.

Zero Clear

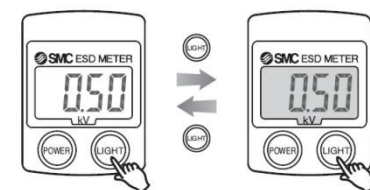
The displayed value can be adjusted to zero for a measured charged potential if it is in the range of the factory zero setting + 5 % F.S. (There may be a slight deviation from the factory setting, due to variations in the sensor itself and the ambient environment where the meter is used.)

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.



Backlight

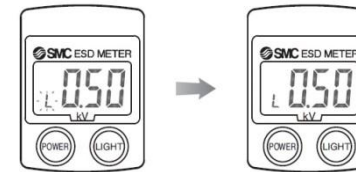
When the "LIGHT" button is pressed while the meter is in measurement mode, the backlight will turn on. Pressing the "LIGHT" button again will turn the backlight off.



6 Setting (continued)

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.



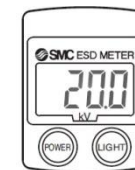
Display	Description
L (Flashing)	The batteries are low. Prepare to replace with new batteries.
L (ON continuously)	The batteries are very low. Replace with new batteries immediately.

Display resolution change

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

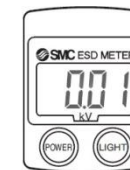
<Display example>

+/- 1.0 kV to +/- 20.0 kV



Display resolution: 20.0 kV

0 to +/- 0.99 kV



Display resolution: 0.01 kV

7 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.

7 Error Indication (continued)

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.

8 Disposal information

This product is classified as Waste Electrical or Electronic Equipment according to the WEEE Directive 2012/19 / EU and should not be disposed of as municipal waste, in order to reduce the impact on human health and the environment. Remove and dispose of old batteries and the remaining electrical or electronic equipment according to local environmental regulations.

9 Contacts

AUSTRIA	(43) 2262 62280-0	LATVIA	(371) 781 77 00
BELGIUM	(32) 3 355 1464	LITHUANIA	(370) 5 264 8126
BULGARIA	(359) 2 974 4492	NETHERLANDS	(31) 20 531 8888
CZECH REP.	(420) 541 424 611	NORWAY	(47) 67 12 90 20
DENMARK	(45) 7025 2900	POLAND	(48) 22 211 9600
ESTONIA	(372) 651 0370	PORTUGAL	(351) 21 471 1880
FINLAND	(358) 207 513513	ROMANIA	(40) 21 320 5111
FRANCE	(33) 1 6476 1000	SLOVAKIA	(421) 2 444 56725
GERMANY	(49) 6103 4020	SLOVENIA	(386) 73 885 412
GREECE	(30) 210 271 7265	SPAIN	(34) 945 184 100
HUNGARY	(36) 23 511 390	SWEDEN	(46) 8 603 1200
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ITALY	(39) 02 92711	UNITED KINGDOM	(44) 1908 563888

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