



Electrostatic Fieldmeter Model 775

User's Manual

About Simco-Ion

Simco-Ion develops, manufactures, and markets system solutions to manage electrostatic charge. As the world's largest provider of electrostatics management products and services, Simco-Ion improves its customers' business results by providing a total solution to their electrostatic discharge and electromagnetic interference challenges. Simco-Ion is a wholly-owned subsidiary of Illinois Tool Works (ITW) with its Technology Group located in Alameda, California. For more information about Simco-Ion visit www.simco-ion.com or call 800-367-2452. Simco-Ion is ISO 9001 and ANSI ESD S20.20 certified.

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1 Description	1
2 Operation	3
2.1 Powering the Meter	4
2.2 Battery Check	5
2.3 Zeroing the Meter	6
2.4 Taking and Holding a Reading.....	7
2.5 Measurement Accuracy	8
3 Maintenance	9
4 Specifications	11
5 Warranty & Service	13

Description

Simco-Ion Model 775 Electrostatic Fieldmeter is a compact electrostatic fieldmeter used to accurately locate and measure static charge potentials.

The 775 Fieldmeter features both Sample and Hold measurement modes that allow measurements to be made in places that would be difficult to reach or see with other instruments. A set of ranging lights ensure accurate and repeatable measurement. No range switching is required as the digital display covers the range of 0 to ± 19.99 kilovolts. An analog output jack provides a 1 volt output corresponding to a 10 kilovolt reading on the meter display. The circuitry has been designed to make accurate measurements in areas using air ionization.

The 775 Electrostatic Fieldmeter features

- Pocket-size convenience
- Sample and Hold measurement modes
- Distance ranging lights
- Conductive case and ground snap
- Digital display
- 9 Volt battery power
- Analog output
- A special designed for use in ionized areas

2

Operation

- 2.1 Powering the Meter
- 2.2 Battery Check
- 2.3 Zeroing the Meter
- 2.4 Taking and Holding a Reading
- 2.5 Measurement Accuracy

2.1 Powering the Meter

The Model 775 has a slide switch for ON/OFF and a push button switch for modes. The ZERO knob can be turned to the left or right to change the zero setting of the display.

Push the slide switch actuator into its upper (ON) position. The display will come on. To turn the meter OFF, slide the switch down to its lower OFF position. The display should now be off.

2.2 Battery Check

After turning on power to the meter, check the display and make sure that the low battery indicator “BAT” is *not* showing on the display. If the “BAT” indicator is lit, replace the battery as described in **Chapter 3: Maintenance** before using the meter.

2.3 Zeroing the Meter

Turn on the meter with the on/off switch. Put the meter in the SAMPLE mode (up position). Place the meter 1 inch (2.54 cm) from a **grounded** metal surface. If necessary, adjust the ZERO control until the display reads zero.

Note: The Model 775 is built in a conductive case that provides the ground reference for the measuring circuit. For accurate measurements and zeroing, ensure that the person holding the meter grounded or discharged by touching ground, or that the meter is grounded using the ground snap on the rear of the case.

2.4 Taking and Holding a Reading

Place the meter 1 inch (2.54 cm) from the object to be measured. This distance is measured from the stainless steel front panel to the surface of the object. The meter now displays a reading of the electrostatic field in kilovolts per inch.

Note: In the SAMPLE position the RANGING LIGHTS are on. The RANGING LIGHTS are provided to help you place the meter at the correct distance from an object. The lights are factory-adjusted to produce a concentric ring bullseye pattern on a flat, opaque surface 1 inch (2.54 cm) from the front edge of the meter. This can most easily be seen by aiming the meter at a sheet of white paper.

With the meter in position 1 inch (2.54 cm) from the object being measured, press the push-button so that it latches in the upper or HOLD position. This freezes the reading on the display and allow the meter to be moved to a position where it can be more easily read or saved for later reference. When the meter is in the HOLD position, the word HOLD will appear in the display.

Note: In the HOLD position the RANGING LIGHTS are off. When the push-button is returned to the SAMPLE position, the RANGING LIGHTS goes on and the word HOLD disappears from the display.

2.5 Measurement Accuracy

The accuracy of measurement is dependent on a stable ground reference and the 1 inch (2.54 cm) measuring distance as previously noted. It is also dependent on the aspect ratio, relating the size of the object to be measured to the measurement distance. This ratio should be at least 3 for best accuracy, meaning that the object should be at least a 3 inches square (7.62 cm square) when measuring at a 1 inch (2.54 cm) distance.

Accurate measurements may be made at other measurement distances by scaling the meter range and observing the proper aspect ratio. For example, at a measurement distance of 3 inches (7.62 cm), multiply the meter reading by 3 to give a range of 0 to 59.97 kilovolts. For accuracy, the object being measured at this distance should be at least a 9 inches square (22.86 cm square).

3

Maintenance

The only maintenance necessary for the Model 775 Fieldmeter is occasional changing of the 9V battery. Slide off the battery compartment door on the back of the unit. Carefully remove the battery from the compartment, noting the routing of the battery clip wires, and detach the battery clip. Replace with a 9V alkaline battery of the same type. Carefully reinsert the battery in the compartment, routing the wires so that they do not interfere with the battery compartment door. Slide the battery compartment door back into position.

The Model 775 Fieldmeter is factory-calibrated to an accuracy of better than 5%. No attempts should be made to recalibrate the unit without factory authorization. The accuracy of measurement is dependent on stable ground reference and measurement at a precise 1 inch (2.54 cm) distance. The Model 775 Fieldmeter has a basic accuracy of $\pm 5\%$ measured with 1000 volts on the plate.

4

Specifications

Input	VDC alkaline battery, battery life in excess of 40 hours, battery included
Display	3 1/2 digits, 0.4 in. (1 cm) digit height
Output	Analog output through miniature jack, 1 V corresponds to 10 KV
Reponse	5 Hz at analog output, digital display updates 3 times per second
Features	HOLD and low BATTERY indicators, automatic polarity
Controls	On/off slide switch, SAMPLE/HOLD pushbutton, ZERO control
Range	± 0.00 -19.99 kV @ 1" (2.5 cm); higher voltages may be measured at distances >1"
Accuracy	$\pm 5\%$, chopper stabilized (accuracy unaffected by air ionization); least significant digit of display indicates tens of volts
Environment	Operates at 0-40
Ground	Ground through conductive case or snap fastener
Dimensions	4.2L x 2.4W x 0.9D in. (10.7 x 6.1 x 2.3 cm)
Weight	5 oz with battery (141.8g)
Certifications	

5

Warranty & Service

Simco-Ion provides a limited warranty for the Model 775 Fieldmeter. New products manufactured or sold by Simco-Ion are guaranteed to be free from defects in material or workmanship for a period of two (2) years from date of initial shipment. Simco-Ion liability under its new product warranty is limited to servicing (evaluating, repairing, or replacing) any unit returned to Simco-Ion that has not been subjected to misuse, neglect, lack of routine maintenance, repair, alteration, or accident. In no event shall Simco-Ion be liable for collateral or consequential damages.

Caution: The 775 Fieldmeter is a precision electronic instrument. It must not be subjected to extremes of shock and vibration. Damage to the field sensor may result from dropping the unit from an excessive height onto a hard surface. Such damage is not covered by the warranty.

The case of the 775 Fieldmeter is sealed. Breaking the seal voids the warranty.

To obtain service under this warranty, please contact Simco-Ion Technical Support.

Notes

Notes

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