



Technical data sheet # TST01E

## Art. EOS 2001 ESD FIELDMETER HANDBOOK



### GENERAL

EOS 2001 is an accurate, compact electrostatic field-meter used for locating and measuring static charge potentials. The EOS 2001 field-meter features:

- Pocket-size convenience
- sample and hold measurement modes
- 2 distance ranging lights
- conductive case and ground snap
- digital display
- 9 volt battery powered
- analog output
- designed for use in ionized areas

EOS 2001 field-meter 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  $\pm 19.99$  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 area using air ionization.

### OPERATION

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1. CONTROLS: EOS 2001 field-meter 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.
2. TURNING THE METER ON AND OFF: 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.
3. 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 below before using the meter.
4. ZERO 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 from a GROUNDED metal surface. If necessary, adjust the ZERO control until the display reads zero. IMPORTANT: the EOS 2001 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 is grounded or discharged by touching ground, or that the meter is grounded using the ground snap on the rear of the case.

5. **TAKE A READING:** place the meter 1 inch from the object to be measured. The 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 bulls-eye pattern on a flat, opaque surface 1-inch from the front edge of the meter. This can most easily be seen by aiming the meter at a sheet of white paper.
6. **HOLD A READING:** with the meter in position 1 inch from the object being measured, press the push-button so that it latches in the lower or HOLD position. This freezes the reading on the display and allows 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 goes on and the word HOLD disappears from the display.
7. **BATTERY REPLACEMENT:** to change the battery, slide open the battery compartment door on the back of the meter and remove the battery from the battery clip. Replace the battery with a fresh one and replace the battery compartment door. If the meter is to be stored for an extended period of time, disconnect and remove the battery.
8. **MEASUREMENT ACCURACY:** the accuracy of measurement is dependent on a stable ground reference and the 1 inch 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 three for best accuracy, i.e. the object should be at least a 3 inch square when measuring at a 1 inch 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 three inches, 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 9 inch square.

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## MAINTENANCE

The only maintenance necessary for the EOS 2001 field-meter is occasional changing of the 9V battery. Slide off the battery compartment door on the rear 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.

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## CALIBRATION

EOS 2001 field-meter 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" distance. The EOS 2001 fieldmeter has a basic accuracy of  $\pm 5\%$  measured with 1000 volts on the plate.

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## SERVICE

The case of EOS 2001 has been sealed. If for any reason you believe the meter is not working correctly, contact ELME.

**CAUTION:** THE EOS 2001 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.

## SPECIFICATIONS

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- **Input** 9 VDC alkaline battery, battery life in excess of 40 hours, battery included
- **Display** 3 ½ digits, 0,4 " (1 cm) digit height
- **Output** Analog output through miniature jack, 1 V corresponds to 10 KV
- **Response** 5 Hz at analog output, digital display updates 3 time per second
- **Features** HOLD and low BATTERY indicators, automatic polarity
- **Controls** ON/OFF slide switch, SAMPLE/HOLD push-button, ZERO control
- **Range**  $\pm$  -0.00 to 19.99 KV at 1" (2,5 cm); higher voltages may be measured at distances greater than 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** 4,2" L x 2,4" W x 0,9" D (10,7 x 6,1 x 2,3 cm)
- **Weight** 5 oz. With battery (141,8 g)

*The datas shown above are intended only as general indication of the standard production values. The do not refer to specific production lots. The document has no legal value.*

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## REFERENCE ITEM

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