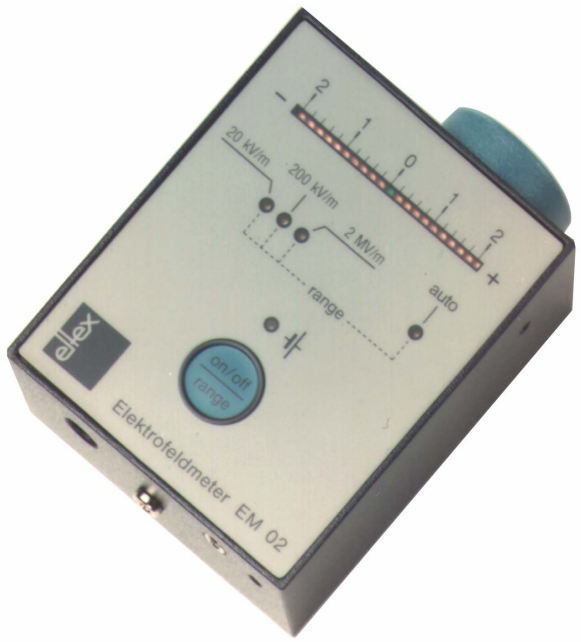
Technical Information

Electrostatic discharges (ESD) present a major problem in many sectors of industry, for instance in the electrical industry (integrated components), in the chemical industry (explosive substances), in printing and in packaging, in telecommunication and in the manufature and processing of synthetic materials.

Contact charges, also known as "tribo-electricity" (Greek: tribeia = to rub), generated by the friction and the separation of dissimilar materials, cause losses in time and quality and hence substantial financial damage.

There are different methods of preventing or leaking off electrostatic charges, but to find a reasonable and effective solution, the source of generation, the magnitude and the polarity of the charge must be measured. The EM02 Eltex Influence Electric Fieldmeter was developed for this purpose, as well as for controlling the measures taken to prevent electrostatic charges and for monitoring desired static charges.



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Influence-E-Fieldmeter EM02

TI-e-1010-0607

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Technical Specifications Influence-E-Fieldmeter EM02

The instrument is installed in an aluminium housing with a membrane front panel. The influence chopper electrode is star shaped. A grounded windmilltype chopper wheel of the same star-shape rotates a short distance in front of the chopper electrode. These components are hard gold-plated to protect from galvanic interference fields. A ring electrode encloses the entire measuring assembly and serves as a mechanical guard.

Operating period	approx. 3 hours in normal operation (Continuous duty not possible with connected charger)
Operating ambient temperature	0…+40°C (+32…+104°F)
Storage temperature	-20...+70°C (-4...+158°F)
Moisture condensation	none
Weight	approx. 400 g
Dimensions	80 x 100 x 40 mm (W x L x H)
Power supply	Battery operation (NiCd-Accu) 7.2 V
Battery monitor	LED "-ı |-" lights up at U_a< 6.8 V at 6.6 V the device cuts out
Charging	use only the appropriate charger (supplied)
Display	21 digit LED dot display
Measuring range	±20 kV/m, ±200 kV/m, ±2 MV/m and automatic
Measuring overrange	the last two LEDs ">±2" blink with correct polarity when exceeding the range limit and the unit transmits an acoustic signal
Plotter port	±1 V, ±5% proportional to the measured field strength ($R_i \geq 1$ KOhm)
Balancing	in the homogeneous field of a plate capacitor 300 x 300 mm, plate spacing 100 mm, chopper electrode centered in a plate

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The Measuring Principle

The Influence E-Fieldmeter is a parametric amplifier.
The charges induced by the electric field generate an alternating current proportional to the field strength. The a.c. is amplified via a selective amplifier, coincidence-demodulated and displayed, with the effect that no energy is drawn from the electrical field on time average. Gold-plated chopper electrodes ensure that no galvanic volta potentials are generated.

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Eltex-Elektrostatik-Gesellschaft mbH
Blauenstraße 67-69, D-79576 Weil am Rhein
Phone +49 (0) 76 21/ 79 05 - 230
Fax +49 (0) 76 21/ 79 05 - 330
eMail static-control@eltex.com
Internet www.eltex.com