

Technical Information

Electrostatic discharges (ESD) present a major problem in many sectors of industry, for instance in the electronic industry (integrated components), in the chemical industry (explosive substances), in printing and in packaging, in telecommunication and in the manufacture 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 EMF58 Eltex Influence Electric Fieldmeter was developed for this purpose, as well as for controlling the measures taken to prevent electrostatic charges and for monitoring the desired static charges.



Influence-E-Fieldmeter EMF58



The EMF58 is designed for measuring electrostatic field forces. It operates on the influence principle and offers five measuring ranges from ± 5 kV/m to ± 2 MV/m. This design was chosen to meet the various challenges of everyday measuring duties.

The EMF58 features extraordinary robustness and versatility and is easy to handle.

Highest technical comfort

The use of an integrated microcomputer ensures a simple mode of operation and technical comfort, like automatic self-testing, constant battery monitoring and "single button operation".

The use of an analog instrument greatly facilitates the detection of trends and constantly changing processes.

The EMF58 is equipped with a voltage output of ± 1 V ($R_i > 1$ K Ω) to connect external analysing units, such as YT plotters, display units, etc. The EMF58 is also available with a voltage output of $+ 1$ mA ($R_i < 1$ K Ω).

It allows both short-term measurements and long-term measurements. For long-term measurements the EMF58 is also equipped with a 3/8" threaded recess for inserting tripods at the base of the handle. Power in back-up operation is then supplied via the supply unit delivered with the instrument.

The EMF58 as voltmeter

By using the special accessory voltage measuring head and the HV measuring head, the EMF58 can be converted into an extremely high resistance voltmeter for electrostatic measurements with an internal resistance of $\geq 10^{15}$ Ω .

Technical specifications Influence-E-Field-meter EMF58

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.

The instrument is installed in an aluminium housing with a membrane front panel. The influence chopper electrode is starshaped. A grounded windmill-type 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 mechanical guard.

Dimensions:

180 x 73 x 178 mm (L x W x H)

Weight:

approx. 820 g

Power supply:

Mains operated with power supply (included);
optionally 230 V 50/60 Hz or
115 V 60 Hz

Battery:

NiCd rechargeable battery 7.2 V
(Eltex make, built in)

Operating period:

approx. 4 hours per charge

Battery monitor:

constant monitoring via μ P, LED
"Load" lights up when
dropping below the discharge
voltage

Charging:

use only the appropriate charger
(supplied)

Charging voltage:

12 V DC

Display:

analog instrument Kl 1.5

Measuring ranges:

$\pm 5 / \pm 20 / \pm 50 / \pm 200$ kV/m /
 ± 2 MV/m

Balance accuracy:

$< \pm 2\%$

Plotter port:

± 1 V, $\pm 2\%$ proportional to the
measured field strength,
optional power output ± 1 mA
($R_i < 1$ K Ω)

Balancing:

in the homogeneous field of a
plate capacitor 400 x 400 mm,
plate spacing 100 mm, chopper
electrode centered in a plate

Moisture condensation:

none

Temperature:

permissible ambient temperature
range 0°C to +40°C

Storage temperature:

-20°C to +70°C

EMV: EN 55011
group 1, class B



Technical details subject to change without notice.



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