Electrostatic grounding
Systems/Components

eltex electrostatic innovations

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EN

Electrostatic grounding – safety for production systems and employees

Did you know that uncontrolled electric discharges are one of the most frequent causes of explosions and fires – and thus the third largest hazard source for your employees?

Protect people and production systems with electrostatic grounding systems from Eltex. Eltex grounding systems provide greater safety when handling slightly flammable and explosive substances. In real-life applications, we often see inadequate grounding. Sometimes, the consequences of this can be fatal. We would be glad to provide advice or carry out an on-site assessment of your production system.

Some Eltex grounding products are available in our online shop:
> https://shop.eltex.de/en

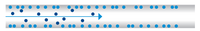
Smart electrostatic grounding helps you avoid risks. We explain how in a concise explanatory video:
> www.eltex-grounding.de

When handling flammable substances, uncontrolled electrostatic discharges can have fatal consequences. In industry and production, they are one of the most frequent causes of explosions and fires when flammable substances are moved.

The sources of error in electrostatic grounding are often not visible to the naked eye. Incorrect grounding attempts often give production employees a false sense of security. Tragically so, because this increases the risk of an explosion or fire.

Why is electrostatic grounding so important?

Electrostatics occurs when solid or liquid surfaces rub against each other. For example, when pumping explosive media through a pipeline. Ions of one potential (+) are deposited on the inside pipe wall, while ions of the opposite potential (–) are distributed in the medium being moved.



As a result of the movement, the charge carriers on the inner wall of the tube are separated from those in the moving medium. The latter becomes charged – and when it flows out of the tube, it releases the charge uncontrollably into the collection container. If this container is not grounded, it acquires an electrostatic charge. If you then move this container close to grounded machine part, there will be a sudden flow of charge. The resulting discharge spark can ignite the existing gas/air mixture and thus cause a fire or explosion.

It is imperative to avoid this effect and the risk it incurs.

GROUNDING

Overview of grounding systems

Electrostatic grounding provides greater safety in these industries:

- Chemicals/Pharmaceuticals/Life Science
- Filling plants
- Paint shops
- Printing plants
- Any operations that handle explosive materials (liquid, solid or gaseous)

Grounding with electrostatic systems is particularly beneficial in the following applications:

- Loading and unloading tanker trucks
- Explosion protection in production
- Securing big bags
- Filling and emptying containers
- Process assurance

Features	Smart Grounding Solution TERRA**SMART**	Active Grounding Solution TERRA**LIGHT**	Passive Grounding Solution
Supply voltage	24 – 48 V DC +/– 20% or 100 – 240 V AC	batteries	–
Process release	1 / 2 / multiple	–	–
Number of objects that can be monitored	1 / 2	1	–
Type of objects	conductive / dissipative	conductive	conductive
Object detection	fixed threshold value / adjustable	fixed threshold value	–
Communication	potential-free contacts / CANopen®/ Modbus TCP	–	–
Cable gland material	brass / stainless steel	brass / stainless steel	–
Remote monitoring / networking	via CANopen® / fieldbus in connection with ECC	–	–

Active grounding systems

Safe monitoring through continuous measurement of the ground connection

Using their intrinsically safe electrical circuit, Eltex grounding systems monitor and control the entire ground connection between an object (tanker vehicle, container, etc.) connected to the ground contactor and the equipotential bonding conductor. If a flawless, safe and reliable ground connection is detected, depending on the ground monitoring device, an optical signal can be output or the process can be enabled. This ensures safe and reliable dissipation of any electrostatic charges.

The Eltex ground contactors, rewinding cable reels and grounding cables ensure a stable and fault-free connection between the object to be grounded and the active ground monitoring device.

Ground monitoring devices

Smart Grounding Solution

TERRA**SMART** for grounding systems is the smart way to get started with Industry 4.0 in this area. The system can be coupled with the multifunctional Eltex Connected Control (ECC) unit. This enables intelligent networking and convenient monitoring of workflows. A quick glance at the graphic interface of the ECC shows which grounding units are active or inactive. And, above all, tells you whether the systems are working without faults. This enables you to work safely, reliably and without risks.

Active Grounding Solution

In manual processes that are not integrated into the process monitoring, the battery-operated Eltex TERRA**LIGHT** ground monitoring system provides safety and reliability. It checks whether the ground contactor is conductively connected with the object to be grounded, whether the object has a sufficient conductivity and whether it is itself connected to the equipotential bonding conductor. This makes it possible to prevent dangerous electrostatic charges reliably without major installation effort.

Grounding clamps

TERRACLAMP **TERRA-C**

TERRACLIP **70AK**

TERRACLIP **70HK**

Cable reels/grounding cables

TERRACORD **601KR/AW**

TERRACORD **601KR/DW**

TERRACORD **KG/BS**

TERRACORD **KG/BN**

Test Device

With the TERRATEST TERRA-TU, the capacitive/resistive switching thresholds of all Eltex grounding devices can be checked quickly and easily in conjunction with the Eltex grounding clamps used.

Passive Grounding

Passive Grounding Solution

Simple electrostatic grounding without monitoring

Available in different versions, the passive Eltex ground clamps are used to dissipate electrostatic charges without monitoring. The Eltex cable reels are the ideal accessories for the passive ground clamps and ensure safe storage of the ground cable and clamp. When using the passive ground clamps, make sure that the grounding point selected for connection complies with the relevant standards and directives with regard to the grounding resistance.

TERRACLAMP **TERRA-C/P**

TERRACLIP **70PK**

TERRACLIP **700K**

TERRACORD **601KR/EW**

TERRACORD **KG/GS**

TERRACORD **KG/GN**