

# MT30 Grounding system



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## MT30 Grounding system

The electronic grounding system **MT30** allows safe loading and unloading of mobile tanks (mounted on trucks, wagons or trolleys and also big bags) in which flammable substances are poured at high speed generating electrostatic charges that can cause sparks and explosions.

MT30 has been designed and built on the basis of ATEX. To prevent the accumulation of static electricity, the device verifies that the correct connection to ground is performed before starting the loading procedure; in this way dangerous situations due to failures and human errors can be avoided. The device is connected through a bipolar cable, wound in a cable reel, and clamp to a mobile tank. With MT30/2 it's possible to connect separately two cables with corresponding clamp, e.g. one to the trailer and one to the semi-trailer.

The operation is (for one cable and clamp) as follows:

- » the clamp is connected to the tank to be protected
- » the electronic circuit measures the electrical parameters of the connection loop searching for interruptions due to breaking or oxide. In tank-truck application, by means of an impedance measurements (resistance and capacitance), the MT30 detects if the clamp is connected to the tank-truck.

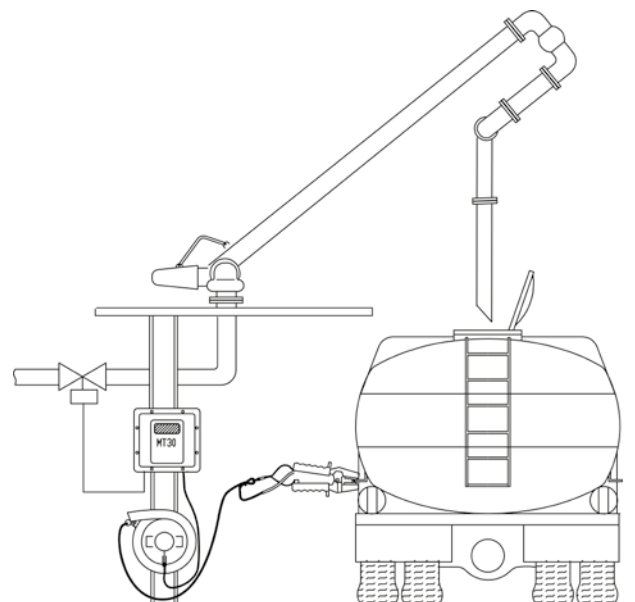
In case of a positive result:

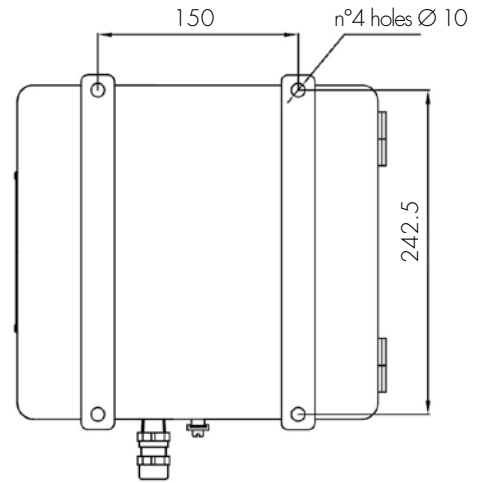
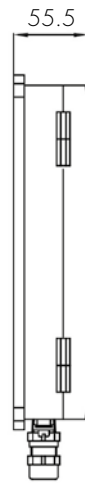
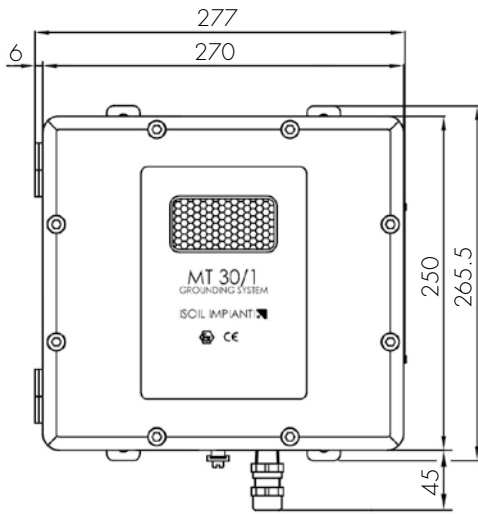
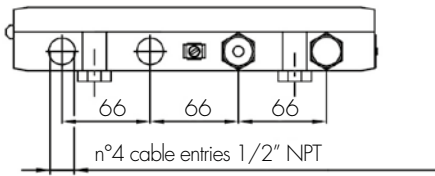
- » a ground relay is switched on and remains on during the loading operation
- » a LED indicator on the front cover switches from red to green
- » two internal relays, that can be used for pump or valves interlocking, switch on
- » the connection is supervised until the operation is completed, interrupting the operation suddenly in case of fail.

The connection to the clamp (or clamps) is achieved through an intrinsically safe circuit; since the clamp is a "simple" mechanical contact, doesn't need Ex approval.

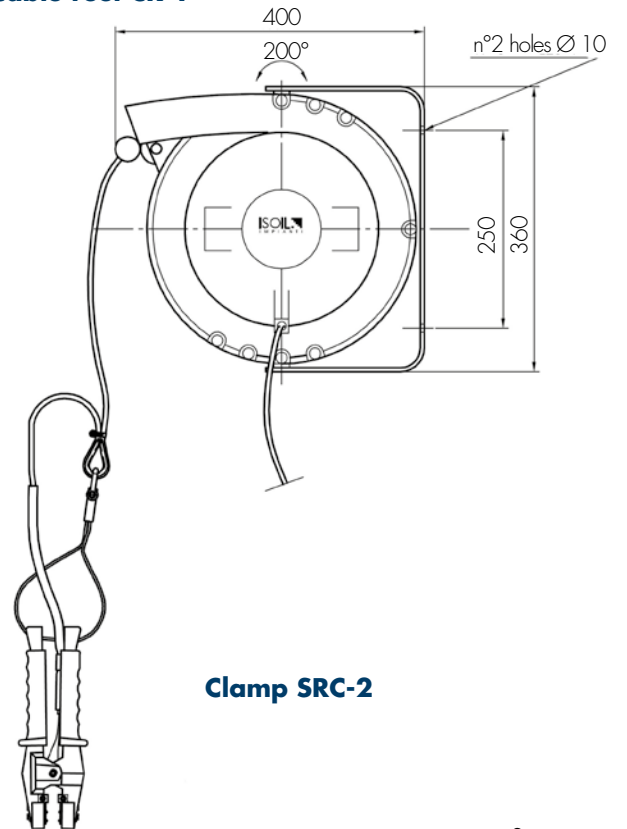
The microprocessor based electronics performs measurements, controls the LED panel and the relays and achieves unique features like:

- » external calibration (is not necessary to open the housing to calibrate the device). An additional row of LEDs indicates the sensibility level set
- » in case of particular weather conditions, authorised personnel can force the permissive signal using an identification key "transponder"
- » the operation mode (resistive/capacitive) is programmable.





**Cable reel CR-1**



Size in mm



# MT30 Grounding system

## General features

### Versions

MT30/1 one clamp; MT30/2 two clamps

### Environmental features

working temperature:  $-40^{\circ}\text{C} \div +55^{\circ}\text{C}$

storage temperature:  $-40^{\circ}\text{C} \div +65^{\circ}\text{C}$

moisture:  $5 \div 95\%$

## Mechanical characteristics

### Housing

anodized aluminium alloy, left side hinges, tempered glass. Wall mounting

**Dimensions** 277x265x55 mm

**Weight** 7 Kg

### Cable entrances

MT30/1 N°1 1/2"NPT with cable gland, N° 2 1/2"NPT without cable glands

MT30/2 N°2 1/2"NPT with cable glands, N° 2 1/2"NPT without cable glands

## Electrical characteristics

### Electrical protection

ATEX: II 2(1) GD

Protection modes: Ex db [ia Ga] IIB T6 Gb (gas)

Ex tb [ia Da] IIIC T85°C Db IP66 (dust)

Mechanical protection: IP66

### Power supply

110/230 VAC selectable

### Consumption

12 W

### Clamp output

intrinsically safe (separate terminal block)

### Display

red/green high efficiency LED matrix

### Calibration

external by identification key (transponder)

### Bypass

external by identification key (transponder)

### Permissive relays

2 SPDT contacts 250VAC/5A

## Accessories

### Cable reel CR-1 (including cable and clamp)

aluminium alloy body

working temperature:  $-25^{\circ}\text{C} \div +65^{\circ}\text{C}$

weight 11 kg

type of protection IP42

including cable  $2 \times 1,5 \text{ mm}^2$

length 10m wound + 1 m free to the clamp + 3 m free to the MT30 unit

including clamp SRC-2

### Clamp SRC-2

two poles, aluminium alloy with Neoprene handles, stainless steel sharp contacts, self releasing

working temperature:  $-40^{\circ}\text{C} \div +65^{\circ}\text{C}$

- opening 16 mm (SRC-2)

- opening 20 mm (SRC-2A)