

MT30 Grounding Unit



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MT30 Grounding Unit

The electronic grounding unit **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 94/9/CE directive with type of protection "Ex d [ia] IIB T6 (gas) & Ex tD [iaD] A21 IP 66 T85°C (dust)" and completely water tight (IP 66).

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.

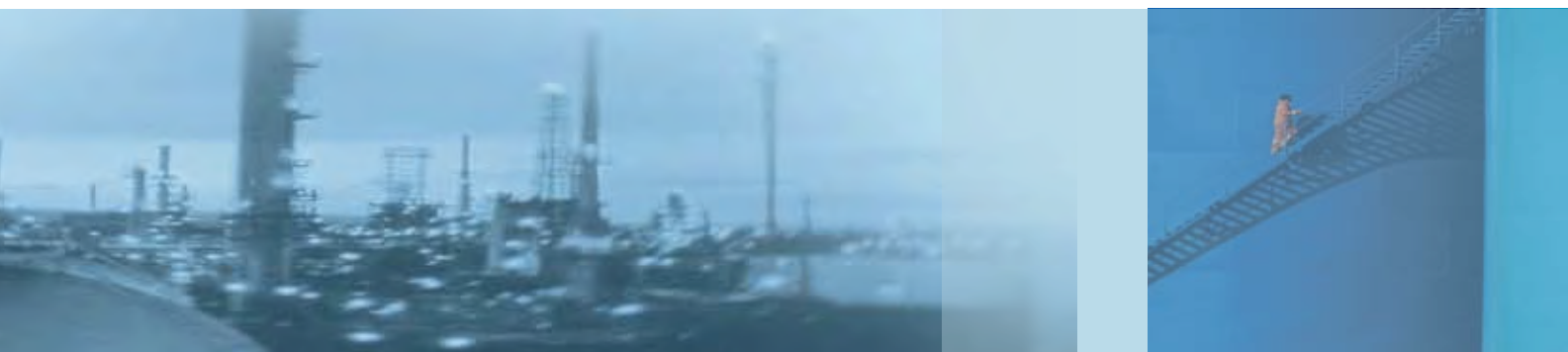
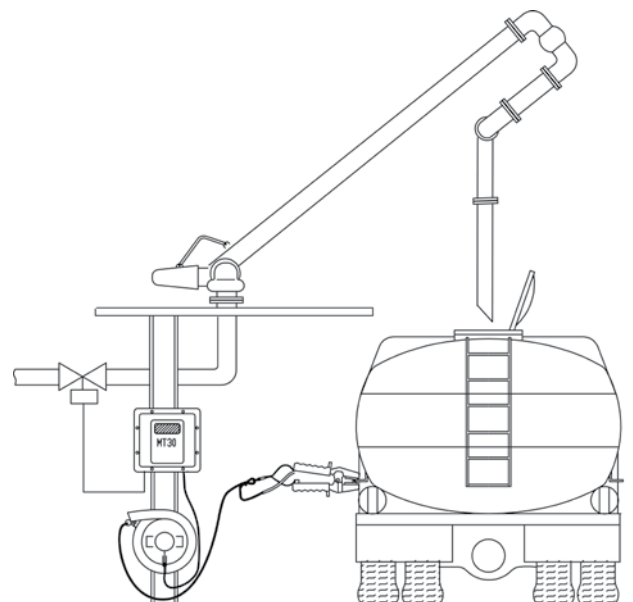
In case of a positive result:

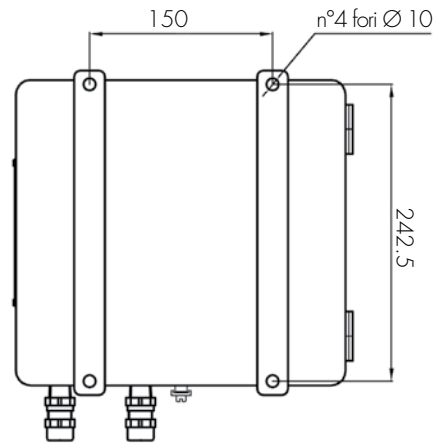
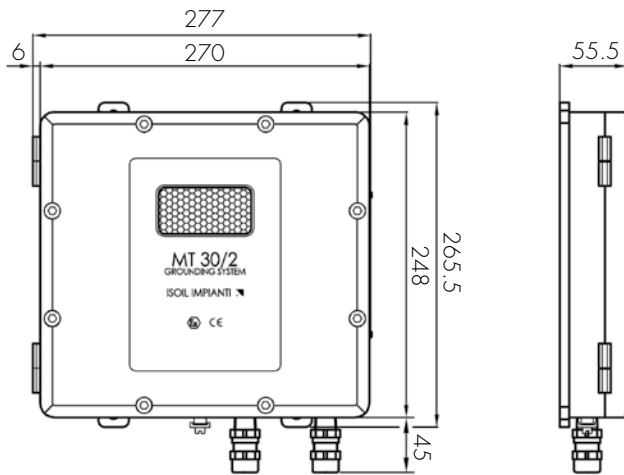
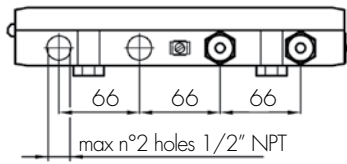
- » a ground relay is switched on and remains on during the loading operation
- » a LED indicator on the front cover switches from red to green
- » two internal relays, that can be used for pump or valves interlocking, switch on
- » the connection is supervised until the operation is completed, interrupting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

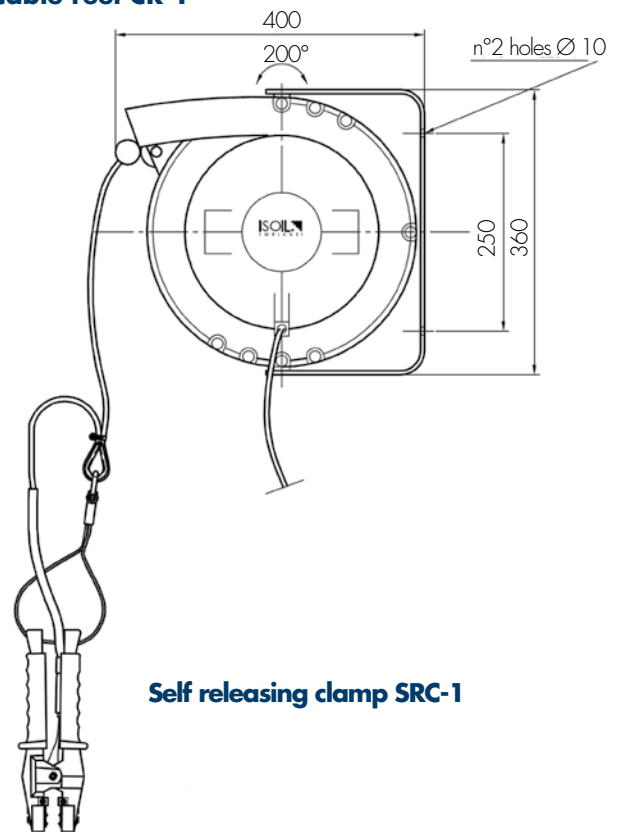
The microprocessor based electronics performs measurements, controls the LED panel and the relays and achieves unique features like:

- » 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



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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÷95%

Mechanical characteristics

Housing

anodized aluminium alloy, left side hinges, hardened glass. Type of protection Ex consistent with ATEX: II 2 (1) GD; protection modes: Ex d [ia] IIB T6 (gas) & Ex tD [iaD] A21 IP 66 T85°C (dust). 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 gland

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

Electrical characteristics

Power supply

115/230 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

aluminium alloy body

weight 11 kg

type of protection IP42

including cable 2x1,5 mm²

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

Self releasing clamp SRC-2

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

16 mm opening, self releasing



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