

ELECTRONIC EARTHING EQUIPMENT SERIES GRD 4200

The **GRD 4200** is an electronic earthing equipment for tankers during loading and unloading operations of flammable liquids in places with danger of explosion.

Functioning is based on the survey of the resistive parameter to guarantee the earthing connection and to control the loading and unloading pump.

It allows the connection of the system (pump, valve, etc.) only when it detects the presence of a tanker and when the earthing connection is less than 20 ohms, preventing the loading while not simultaneously satisfy these two conditions.

DESCRIPTION






- Copper-free aluminium alloy body and cover with fastening brackets according to UNI-4514, UNI-3019 and UNI-3051.
- Cover screws are made of A2-R700 N/mm² stainless steel.
- Internal and external screws are made of AISI 604 UNI 7323 stainless steel.
- Standard RAL 7035 epoxy paint.
- Connecting clamps with 8-metre sheathed cable.
- Powering button.
- Red lock light and green OK light.
- Internal electronic earthing system.
- Nickel-plated brass cable gland.
- Three Ø³/₄" ISO 7/1 entries.

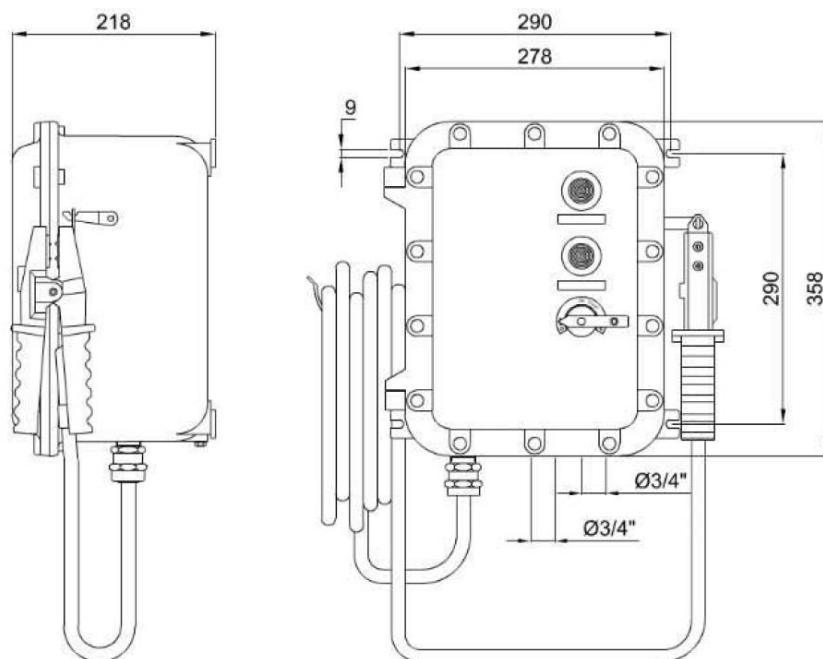


INSTALLATION AREAS

These electronic equipment can be installed indoors or outdoors in potentially hazardous atmospheres due to the presence of explosive or combustible gases and dusts. They are installed in the following zones: zone 1, zone 2, zone 21 and zone 22.

CERTIFICATION AND USE

Execution CE 0722:	 II 2(1) GD Ex d [ia] ia IIB + H2 T6 Ex tD [ia D] A21
Ambient temperature:	-20°C to 55°C
Max surface temperature:	85°C (T6)
Enclosures with silicone grease between body and cover:	IP65
Enclosures with seal between body and cover:	IP66
CE type test certificate:	CESI 04 ATEX 129 
Australian certification:	Available 
GOST R (Russia) certification:	Available 
GOST K (Kazakhstan) certification:	Available 



TECHNICAL FEATURES

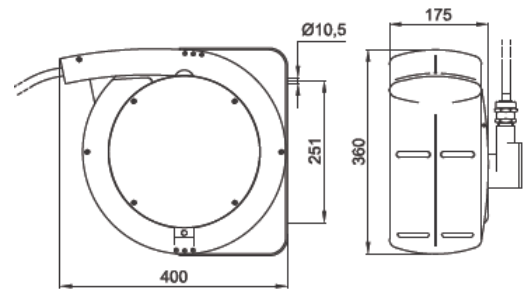
Voltage:	24, 110, 230Vac 24 Vdc
Frequency:	50 - 60 Hz

ACCESSORIES (*)

- Other threads are available upon request.
- RAL2004 condensation-proof inside coating.
- Air and drain valve.

(*) To be ordered specifying the item code

The cable winder is an ideal accessory for the GRD-4200 earthing system. It is made of reinforced die-cast aluminium resistant to knocks, temperature changes and atmospheric changes.



APPLICATIONS

In explosive atmospheres:

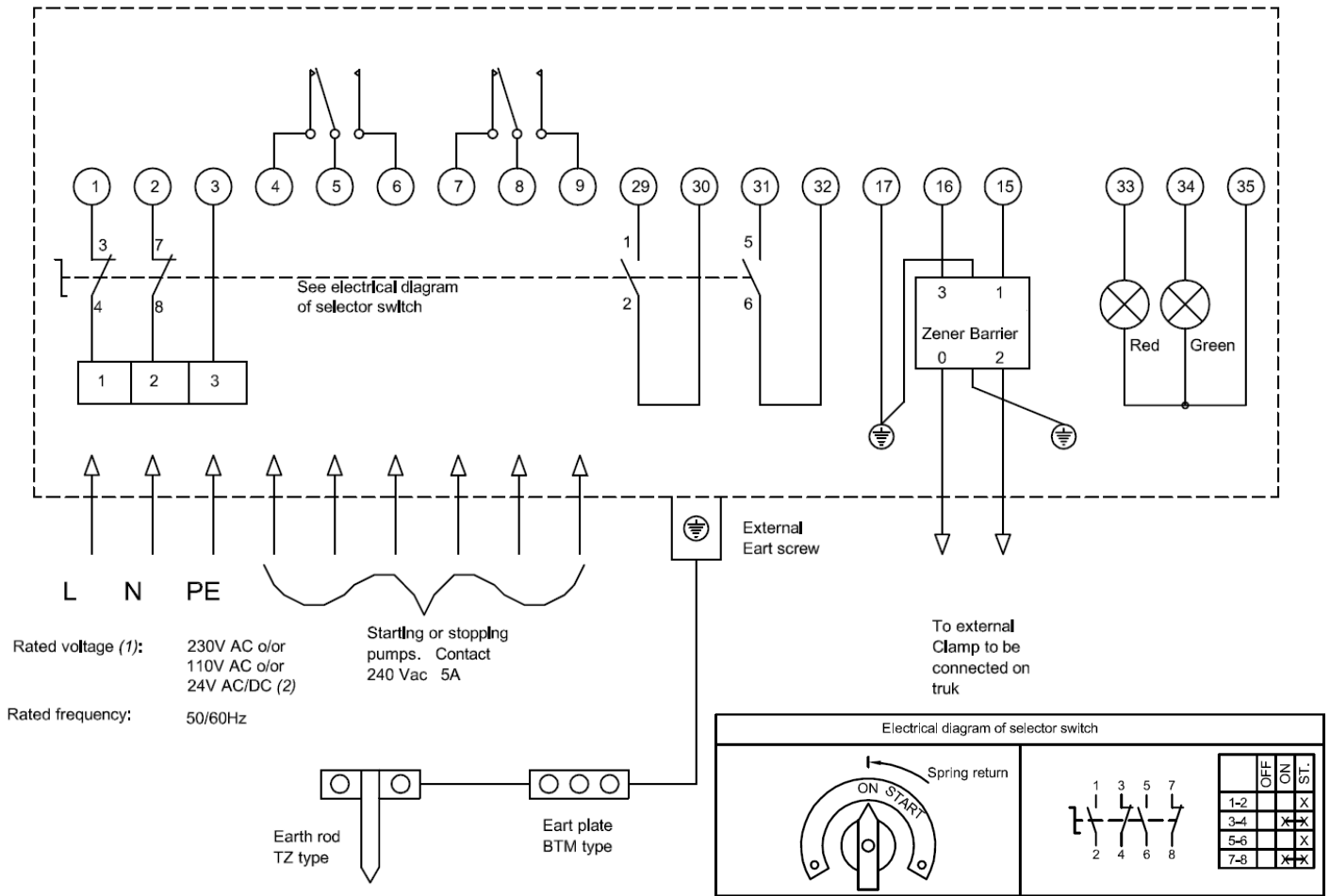
- Chemical, petrochemical and pharmaceutical industries.
- Onshore and offshore ship industries.
- Areas at risks of explosion and fire.
- Oil and gas industries.

CONFORMITY TO STANDARDS

Electronic equipment are manufactured according to the following standards:

- EN 60079-0:2006
- EN 60079-1:2004
- EN 60079-11:2007
- EN 61241-11:2006
- EN 61241-0:2006
- EN 61241-1:2004
- European Directive 94/9/EC:1994

INSTRUCTIONS AND FUNCTIONING OF GRD-4200 ELECTRONIC SYSTEM



1. Connect grounding device as indicated in the diagram
 - a. Incoming cable on terminals 1-2
 - b. Yellow/Green wire of incoming cable on terminal 3
 - c. Connect the external earth terminal to the earth rod
 - d. Turn selector switch on ON posito to feed GRD-4200
2. Red signalling lamp lights on
3. Connect the ground clamp to the truck
4. Turn selector switch on START position for at least two seconds
5. When green signalling lamp lights on release the selector switch (the red signalling lamp lights off)
6. Now the truck is directly connected to the ground and the GRD device check the status of the ground
7. If the resistance of the ground is between 20 an 40 ohm the contact 5-6 and 8-9 will be closed the relevant pump can operate

Now, the truck is completely earthed and loading/unloading operations can be carried out. GRD 4200 checks the status of earthing connection and the resistance values by means of two different measurements:

- a) The resistance value between the grounding bar connected to GRD 4200 and the main grounding bar of power supply, which is also connected to GRD 4200 (pin 3) by the yellow/green wire (PE). If this value is less than 20 Ohm, the GRD 4200 will proceed automatically to a second measurement:
- b) The resistance value between the ends of the clamp. This is possible because the clamp is connected using 2 wires. This measurement continuously assures that the clamp is well connected to the tank truck and consequently the tank truck is well connected to earth, instant by instant. Also in this case this value has to be below 20 Ohms for the operation to proceed.

In summary, the GRD 4200 does not permit the operation of loading and unloading to begin unless both these resistance values are below 20 Ohms; on the contrary, when this occurs, the GRD 4200 will automatically send a signal by an internal relay to the change over which will activate pumps, valves and all what is related to loading/unloading operations. If during the operation of loading or unloading the clamp becomes disconnected or the earthing connection is lost (either accidentally or by increased resistance due to oxidation) the operation of any pump connected to the GRD 4200 is stopped and the red light is switched on again. The GRD 4200 internally uses an intrinsically safe zener diode (Ex-ia). In this way this device can also be used in Zone "0" areas.

HEALTHY AND SAFETY

All electrical equipment must be installed and maintained in accordance with your country regulations concerning health and safety at work, anyway in compliance with standards. The user is responsible for choosing, installing, operating and maintaining electrical equipment in compliance with the related laws and regulations in force. Each product is supplied with instructions for use, safety and maintenance manual.

For qualified electricians in accordance with national legislation, including appropriate standards:

- You must respect the technical information indicated in the boxes.
- Are not acceptable changes in the original design and equipment modifications.
- The boxes will be installed in planned areas and only if they are undamaged and in perfect conditions.
- Only can be used original spare parts as a replacement.
- Repairs may only be carried out by qualified electricians and therefore have to be certified by an expert.
- The rules, national security laws and safety instructions will be strictly observed to prevent accidents.

PERIODICAL MAINTENANCE

- It shall execute periodic visual checks by the manager or site safety responsible person.
- Every six months: isolate the power source, remove the cover and check all the connection terminals.
- Carry out all sequences of electrical and mechanical testing.
- Check that the nameplates and tags have the electrical data features, otherwise contact Marlia Ingenieros.
- Check that there are not external damage in the housing cover.
- Replacement lamps should not exceed from 3 W.

For more information, please contact us:

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