

SYSTEMS AND PARTS

EARTHING CONTROL

Background

Static electricity is a frequent source of ignition

An electrostatic charge can be generated while handling conductive liquids or powders. This in turn can lead to the electrical charging of conductive objects such as barrels, filling pipes, tanker trucks, FIBCs (Big Bags), etc.

Preventing static spark discharges by earth connection

Spark discharges can be prevented by properly earthing the objects.

Product

The earth connection of a fixed installation can be checked on a regular basis. With mobile installations, such as a truck, a barrel or an FIBC, the situation is different: the earth connection can easily be forgotten. In addition, simple clamps are often used and this connection might be neglected and/or be working inefficiently (break in the cable, dirt, paint etc...). Continuous monitoring of the earth connection is essential in this case.

Earth control system with object recognition

The StuvEx earth monitoring system permanently monitors the earth connection and uses object recognition, thereby eliminating the possibility of incorrect use.

Functioning

A **resistive system** recognises the low conductive resistance of the object and of fixed installations. It is meant for general use with BARRELS, CARTS, RAILWAY WAGONS, METAL OBJECTS ...

- ▶ An earth connection might be working inefficiently or even be lacking altogether.
- ▶ A resistive earth monitoring system eliminates such human errors.

A **capacitive system** recognises the capacitance of TANKER TRUCKS. The monitoring system only reacts when a truck is connected.

- ▶ This way, one knows that the clamp is connected to the truck and not to another object such as the metal construction of the unloading bay.

A **conductive system** recognises the conductivity of an FIBC (Big Bag) type C, and reacts only to this application:

- ▶ Here again the system knows that the clamp is connected to the Big Bag and not to something else. A measurement of the conductivity verifies that it is indeed a type C Big Bag. When using two clamps, the measuring is done through the Big Bag. This allows verification that the Big Bag still meets the conductivity requirements (an often-occurring problem when reusing such Big Bags).



Control unit



Earth clamp



Cable reel

System description

The system consists of a control unit, an earth clamp and an optional cable reel.

The control unit handles five functions:

- ▶ Monitoring the quality of the clamp connection.
- ▶ Recognition of the object to be earthed.
- ▶ Connection of the object to earth. Since the static electricity is safely discharged through the control unit, no sparks are generated at the clamp.
- ▶ Potential free contact for the release of the loading and unloading functions.
- ▶ Status indication lights.

The earth clamp is 'active'

With active clamps, both clamp jaws are insulated from each other and from the clamp body. As long as the clamp is not connected to a conductive body, the circuit between the clamp jaws stays open. Once the clamp is connected, the circuit is closed.

The cable reel

The cable reel is equipped with cable and an automatic roll-up mechanism.

Intended use

The system, consisting of the control unit, the intrinsically safe measuring circuit and that circuit's components (clamp, plug connection and cable reel) is ATEX certified.

Depending on the type, the system can be set up in Ex zones 1, 2, 21, 22 or in an industrial environment IP 65.

Technical specifications


For more details on this product, we refer to the technical datasheet.





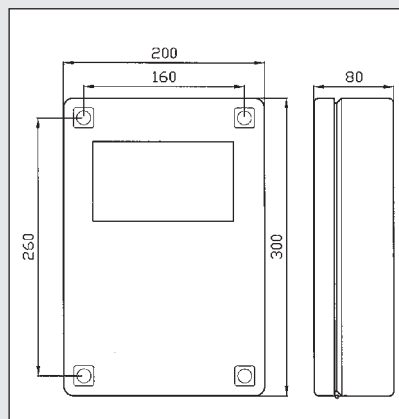
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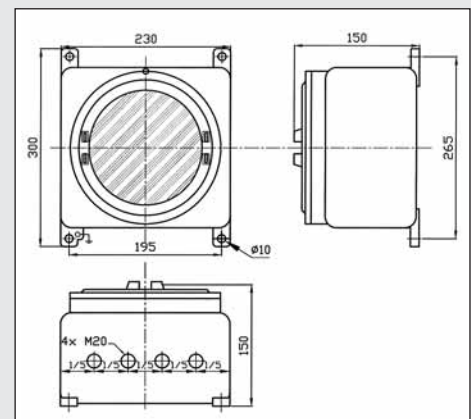
Characteristics			
Application and functioning			
Type	S 604	S 704	S 804
Application	For GENERAL use	For TRUCKS	For FIBCs (Big Bag) type C
Recognition	Resistive A low resistance R is detected between the two clamp jaws.	Capacitive In addition to low resistance R, the truck's capacitance C is also measured.	Conductive The conductivity R, measured between the clamp jaws, is recognised as that of an FIBC (Big Bag) type C. The system works with one clamp (type CS1) and with two separate clamps (double clamp type CB1).
ATEX-certification	ISSeP 04 ATEX 084X SYS. This certificate concerns: <ul style="list-style-type: none"> - The system's functionality with its intrinsically safe measuring/earth circuit that simultaneously recognises the object and makes the electrostatic earth connection. - The control unit's explosion-safe casing. - The intrinsically safe accessories. 		

Control Unit			
General data			
Threshold values for recognition	R < 20 ohm Adjustable on demand	R < 20 ohm and C between defined values Adjustable on demand	10 K < R < 400 K Adjustable on demand
Action at recognition	The control unit is triggered (the green signalling lamp lights and the potential free contact for remote signalling changes state).		
Mains	240 V AC \pm 10% ; 50/60 Hz ; 0.4 W and also 24 V DC \pm 20 %; 0.4 W		
Ambient temperature	- 10°C to + 40°C		
Humidity level	95% at 20°C (non condensing)		
Signalling lamps	Red: 'No earth connection'. Green: 'Correct earth connection'		
Remote signalling	Potential free two-way switch, 1 A at 250 V AC		
ATEX	The measurement and earth connection circuit is intrinsically safe EEx i for zones 0 and 20		
Casing			
Type	S xxx / Ex	S xxx / IP	
ATEX	For Ex zones 1, 2, 21 and 22	For Ex zone 22 and unzoned environments	
Marking 	1/2 GD EEx ia, d IIC T6, T85°C	1/3 D EEx ia IIc, tD T6, T85°C	
Material	Cast aluminium	Steel with impact-proof window	
Finish	Grey coloured coating	Varnished, RAL 7035	
Dimensions	233 h x 233 w x 152 d	300 h x 200 w x 80 d	
Weight	10 kg	2.5 kg	
Connections	4 pieces M20 x 1.5	7 pieces for M20	
Protection degree	IP 66	IP 65	

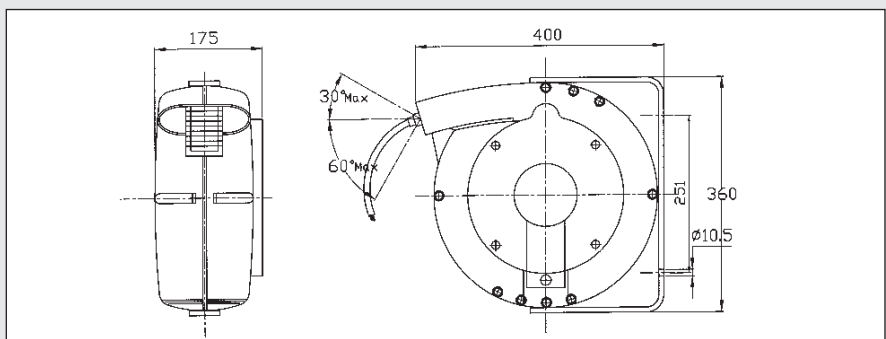
Accessories		
Earth connection clamps		
	Description	Application
Type CL 1	Large size: 260 mm, aluminium Jaw opening: min 3, max 15 mm	For extreme industrial environments
Type CM 2	Medium size: 210 mm, stainless steel Jaw opening: min 3, max 35 mm	For industrial use
Type CS 1	Small size: 162 mm, stainless steel Jaw opening: min 3, max 35 mm	For small objects: barrels, transportable reservoirs, Big Bags etc.
Type CB 1	Small size: 150 mm, galvanised steel Jaw opening: min 0, max 30 mm	For Big Bag (FIBC), '2 clamp' application
Size delivered	Delivered with loose plug connection	
ATEX	Passive EEx i component for Ex zone 0, 20	
Marking	CE  II 1 GD EEx ia IIC T6 T85°C	
Cable on reel		
Type CR 1/55	Closed cable housing in aluminium, pivotable on bracket. Shock and weather resistant Spring activated automatic winding, with blocking mechanism	
Degree of protection	IP 55	
Weight	12 kg	
Cable	24 meters H05W-F2 x 1.5 + 1.5 mm ²	
ATEX	Passive EEx i component and mechanical equipment for Ex zone 1, 21	
Marking	CE  II 2GD C EEx ia IIC T6 T85°C	
Cable WITHOUT reel		
Type CO 01/10	10 meters H05RN-F2 x 1.5 + 1.5 mm ²	



Industrial casing



Explosion proof casing



Cable reel

All dimensions in mm

