

ARC EARTH MONITORING SYSTEM (EMS):

The Earth Monitoring System (EMS) ensures that tank containers, drums, road tankers, rail cars, and IBCs are correctly electrostatically grounded during the loading of flammable liquids. The device provides a conductive connection to the ground and monitors in parallel the quality of the electrostatic grounding. This guarantees that the electrostatic charge remains at a safe level and that no explosion hazard is generated by uncontrolled energy discharge.

ARC EMSs are manufactured in two models: EMS1 & EMS2. The difference between these two models is in their performance in features that presented in the below table:

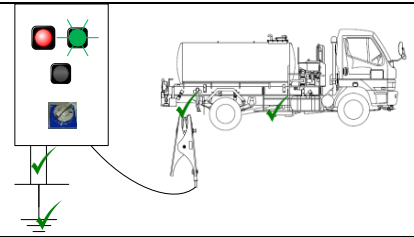
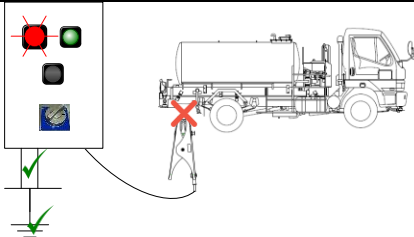
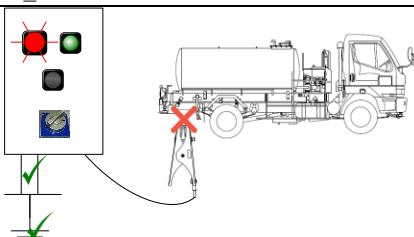
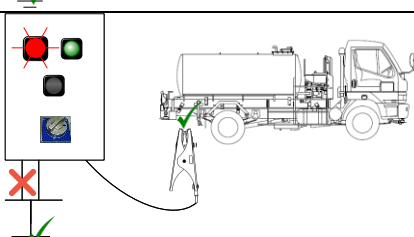
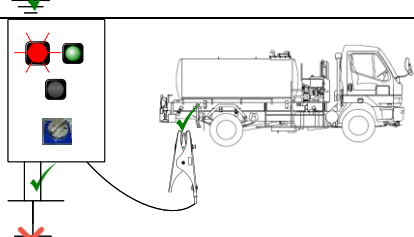


Features	EMS1	EMS2
Checking the connection to the real body of the tanker	☐	☒
Checking the connection to the true earth system	☐	☒
Checking and monitoring the low resistance connection	☒	☒
Monitoring the output voltage and current	☒	☒
Limit output voltage and current by the microprocessor based controlled and internal barrier and compatible with extra external barriers for providing intrinsically safe condition according to IEC 60079-11	☒	☒
Visual signaling of the true connection	☒	☒
Two internal relay for auxiliary circuits such as pumps	☒	☒

Technical

Marking	Ex db IIB+H2 T6 GB , EX tb IIIC T 80 °C Db IP66
Connection with hazardous area	II (1)GD, I (M1) [Ex ia Ga] IIC, [Ex ia Da] IIIC, [Ex ia Ma] I (-20 °C ≤ Tamb ≤ 60 °C) [circuit(s) in zone 0/1/2]
Conformity to standards	IEC 60079-0, IEC 60079-1, IEC 60079-11, IEC 60079-15, IEC 60079-31, IEC 60079-32-1, and NFPA-1077
Enclosure	
material	Copper-free aluminum, powder coated surface
Exposed fastener	Stainless steel
Ambient temperature	- 60<T<55
Dimensions (mm)	35×24×17 (height × width × depth)
Weight	10 Kg
Mounting	Surface type
components	1-Selector switch, 2-Green signal light, 3-red signal light
Cable entry	1No. M20×1.5A for clamp cables 1No. Plug for earth bar connection 1No. Plug for supplying 2No. Plug for auxiliary circuits
Electrical Datas	

Supply	230V AC 50Hz		
Protections	☒ input current and voltage protection		
	☒ Microprocessor based monitoring and protection		
	☒ Internal and certified external zenner barriers		
Auxiliary circuits	☒ 2 relay contactors I < 7A		
Hazardous area limitation	I < 89 mA		
	V < 8.9 V		
	Pout < 190 mW		
Clamp			
configuration	2 Pole stainless steel grounding clamp		
Cables	Specifications	2*1.5mm ² cable	
	length	10 m and more as request (lower than 50 m)	

Conditions	Description	EMS1	EMS2
	- clamp is connected to the tank. - Earth bar connections are connected properly. - Earth rod is connected to the conductor bar.	Ok.	Ok.
	- Clamp is not connected to the tank real body. - Earth bar connections are connected properly. - Earth rod is connected to the conductor bar.	Not Ok	Not Ok
	- Clamp is not connected to the tank real body but its two handle are connected due to clamp failure. - Earth bar connections are connected properly. - Earth rod is connected to the conductor bar.	Ok	Not Ok
	- Clamp is connected properly to the tank. - Earth bar is not connected properly. - Earth rod is connected to the conductor bar.	Not Ok	Not Ok
	- Clamp is connected properly to the tank. - Earth bar is not connected properly. - Earth rod is not connected properly.	Ok	Not Ok