

Smart Lock SE

Smart Lock SE is a grounding device that effectively detects the loss of connectivity of earth i.e. it checks the continuity of tank or any vessel to ground.

- Intrinsic safe design
- Single channel
- Area Classification: Exd [ia], IIB, IP65, Zone 1
- Used in wide range of applications like Process, Chemical, Petrochemical, Pharmaceutical, Paint Industries and Terminal Automation
- Used in standalone operations
- Varieties of Earth clamps are available to suit the application



The problem of static electricity in hazardous atmospheres is ever present in many sectors of Process industries. Due to physical movement, some materials generate high degree of static charge; at times it is in kilovolts. Insulating materials like rubber tyres, paints, gaskets and seals do not offer sufficient low resistance path to safely dissipate any static charge generated to earth. When this happens, high level of charge may accumulate on the isolated part, posing the risk of energetic static discharges. If this occurs in hazardous atmosphere there is a chance of occurrence of explosion, fire, or ignition of hazardous material.

Smart Lock SE helps in analyzing the aforesaid problem by ensuring the continuity of the static charge grounding. The instrument monitors the earth loop continuity and only when this loop continuity is confirmed, the instrument permits further loading or unloading operations. Throughout the fueling operation, the instrument monitors the continuity of grounding of the static charge on the body of the vehicle and ensures that the condition remains safe till the loading is completed. In case there is any break in grounding of static charge, the Smart Lock SE will identify the breakage and give the indication.

The Smart Lock - SE is line powered intrinsically safe, self proving ground verification system. It can also be used in the process industries; where, a product is transferred into drums or containers, by ensuring that all the containers are at earth potential. The Smart Lock - SE may also be used to provide safe and secure ground to movable metal containers & mobile vessels within the plant in the process industries. A dedicated heavy duty crocodile clamp supplied along with the unit which connects vessel / tank body at earth potential through dedicated earth pit. The Smart Lock - SE will consider this potential as a reference ground point. The other clamp along with specially designed mechanically rugged & chemical resistant coiled cable used to monitor the earth potential of vessel/ tank body.

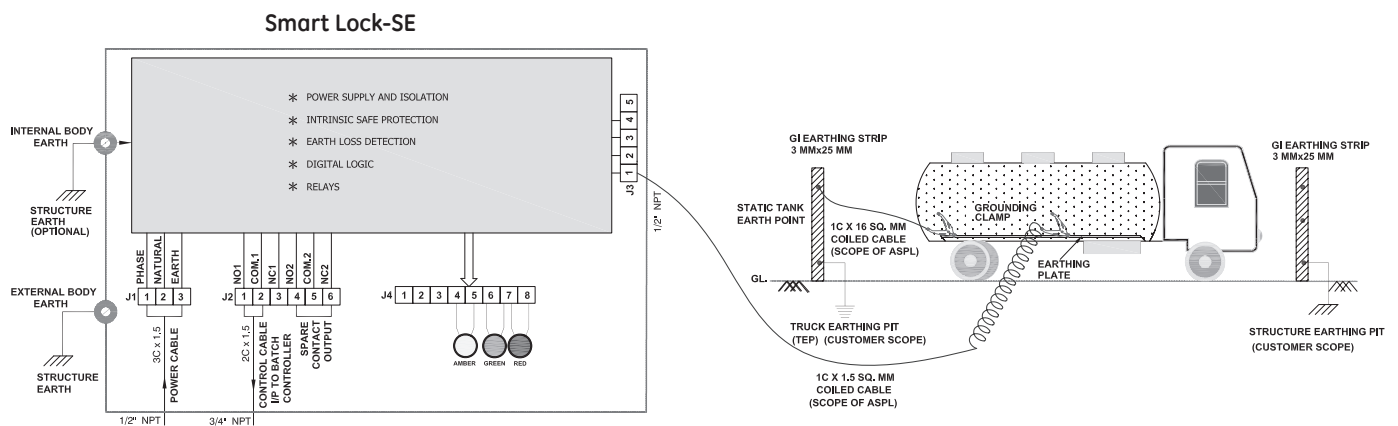
Two sets of interlock outputs in the form of potential free relay contacts as standard are available to connect to the Batch controller, which immediately stops loading operation under the un-safe condition. The potential free contact may be interlocked with pumps, valves, PLC, alarms, etc. Using two LED indicator lamps available on the front cover, Earth OK (Green Lamp On) or Defective Earth (Red Lamp On) status are displayed.



Specifications:

Model	: Smart Lock SE
Detection Principle	: Detection of loss of static ground.
Mode of Operations	: Single Channel
Indicating Lamps	: Three Nos. LED Cluster lamps Red (Earth Fail) Green (Earth OK) Amber (Power ON)
Area Classification	: Exd [ia], Group IIB, IP65, Zone 1
Temperature Class	: T6
Ingress Protection	: IP 65
Operating Temperature	: -10 to 60°C
Storage Temperature	: -20 to 70°C
Humidity	: 95% at 25°C (Non-condensing)
Response Time	: 50 mSec (typical)
Supply Voltage	: 230VAC ±10% / 115VAC ±10%, 10 W /24VDC ±5%, 10VA (Max.)
Output Characteristics	: Potential free 2-change over relay, Contact rating 230V, 5A, 100 VA (AC) / 230V, 5A, 100 Watt (DC)
Body	: Flameproof Cast Aluminum LM6
Mechanical Dimensions	: 283mm (H) x 260mm (W) x 155mm (D) (Mounting holes provided at 130 x 240mm apart)
Approvals	: CMRI & CCOE (Approved)
Clamp Type	: Crocodile type (Aluminum or SS) Ball type, socket with stud connector

Block Schematic and Typical Connections:



Note: Detection of TT Earth and Branding cable achieved only with dedicated earth PIT (TEP) (it should not be a part of Earth Grid).



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