EXPLOSION PREVENTION

Cobra TRUCK EARTHING VERIFICATION E-TES01-V2 (IP) (EX)

General data sheet

Scope

Loading and unloading non-conducting liquids or powders from trucks can generate electrostatic charges. If enough electrostatic energy is generated, there will be an explosion hazard. This risk can be avoided by earthing the truck via a TES01-V2 earthing verification system.

Benefits

The StuvEx TES01-V2 earthing verification system has been specially designed for the safe earthing of trucks and offers the following benefits:

- Safe electrostatic discharge of the truck
- Verification of the truck's electrical capacity
- Low resistance (< 10 Ω) between truck and TES01-V2
- Clearly visible red and green LEDs
- Potential-free contact provides release of loading and unloading functions
- Power supply 110-240 V AC and 24 V DC as standard
- Easy 'plug and play' installation
- Truck detection ON/OFF, integrated for TES01/IP
- Stainless steel housing for TES01-V2 IP version
- ATEX and IECEx certified
- Complies with IEC/TS60079-32-1 and NFPA77
- Safety class SIL 2

Variants

The TES01-V2 IP variant may be used in ATEX/IECEx zones 21 and 22.

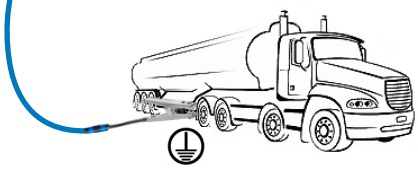
The TES01-V2 EX is suitable for use in ATEX/IECEx zones 1, 2, 21 and 22.



CBR/E-**TES01-V2/EX** with clamp hook and cable glands



CBR/E-**TES01-V2/IP**



IECEx CE Ex NFPA SIL2

Cobra GROUNDING SYSTEMS

Cobra TRUCK EARTHING VERIFICATION E-TES01-V2 (IP) (EX)
General data sheet

Operation

The StuvEx TES01-V2 earthing verification system has been designed to detect a low electrical resistance between the clamp jaws that are attached to the truck's earthing point. If resistance values are low enough, the TES01-V2 will conduct the electrostatic charge from the truck to earth in a controlled way. This will avoid sparks. The TES01-V2 will subsequently check the electrical capacity at the clamp. If the capacitance corresponds with that of the truck, the green indicator will light up and loading or unloading will be released. The TES01-V2 will now continuously monitor the connection between the truck and the clamp jaws to avoid an electrostatic charge build-up. If the clamp is removed from the truck, the TES01-V2 will see this as a potentially hazardous situation and the red indicator will light up. This will immediately interrupt loading or unloading thanks to the interlock relay.



CBR/E-**CR1/65-15SCF,** with F connector

The TES01-V2 earthing system is a set consisting of a control unit, a connecting cable and a stainless steel connection clamp. All components are ATEX certified.

Earthing verification unit TES01-V2

The control unit provides five important functions:

- Verification of the earth clamp connection with the truck
- Recognizes that the object to be earthed is a truck
- Earths the truck without forming sparks
- Potential-free contact to release loading and unloading functions
- Status indication



CBR/B-**SP1-HD,** with clamp and connector

Cable, spiral cable or cable reel

You can choose from a separate cable (10 m), spiral cable (3 m - 10 m) or cable reel (15 m) to connect the TES01-V2 to the truck. The cable reel has an automatic retractor.

Active earth clamp

With active clamps, the two clamp jaws are insulated from each other and from the clamp body itself. As long as the clamp jaw is not connected to a conductor, the circuit between the clamp jaws will stay open and no current can flow. Connecting the clamp to the truck's earthing point will close the circuit. The TES01-V2 becomes operational. An optional storage point for the clamp can be supplied, with or without a shelter.



CBR/B-**CMS1-SCM**, clamp with M connector

Cobra GROUNDING SYSTEMS

Cobra TRUCK EARTHING VERIFICATION E-TES01-V2 (IP) (EX)

Technical data sheet

Application

Use TES01-V2 truck earthing systems for safe electrical earthing of tanker trucks during loading and unloading of bulk liquids or solids.

Working principle

A TES01-V2 truck earthing system consists of a clamp, cable and control unit. When connecting the earthing clamp to the truck, the TES01-V2 will check if a low electrical resistance connection is established between the truck, clamp, cable and TES01-V2 control unit, then will check for the presence of a truck through a capacitive measurement.

When both the resistance and capacitance are within a safe range, the loading or unloading process is allowed to start. The electrical resistance is continuously monitored throughout the (un)loading process. Interlock contacts are provided to link the TES01-V2 to process equipment or PLCs providing for safe loading or unloading processes.

General characteristics

Power supply	110-240 V AC, +10% / -15%, 50/60 Hz, auto-ranging or 24 V DC +20% / -20%
Power consumption	Max. 20 W
Operating temperature	
TES01-V2/IP	-30°C to +54°C
TES01-V2/EX	-40°C to +52°C
Humidity	95% relative humidity at 20°C in non-condensing conditions
Interlock output 1	Voltage free contact, 1 A at 250 V AC or 30 V DC, NO
Interlock output 2	Voltage free SPDT contact, 6 A at 250 V AC or 30 V DC
Signalling LEDs	Red (fault/incorrect connection to earth) Green (correct connection to earth)
Protection class	IP66
Ground resistance	≤ 10 Ω
Monitoring circuit	Intrinsically safe
EMC tested	acc. EN-IEC 61000-6-4:2007;61000-6-2:2016
Safety class	SIL 2

The StuvEx TES01-V2 Truck Earthing System exists in two variants. For potentially explosive gas atmospheres, use TES01-V2/EX. For potentially explosive dust atmospheres use TES01-V2/IP.

Cobra TRUCK EARTHING VERIFICATION E-TES01-V2 (IP) (EX)

Technical data sheet

TES01-V2/EX	
ATEX information	Approved for use in zones 1, 2, 21 and 22
ATEX marking	II 2 (1) GD Ex db [ia Ga] IIC T6 Gb -40° ≤ Ta ≤ +52°C Ex tb [ia Da] IIIC T85°C Db -40° ≤ Ta ≤ +52°C
IECEx marking	Ex db [ia Ga] IIC T6 Gb -40° ≤ Ta ≤ +52°C Ex tb [ia Da] IIIC T85°C Db -40° ≤ Ta ≤ +52°C
Housing	Cast aluminium (copper-free)
Dimensions (h, l, w)	230 x 230 x 150mm
Weight	10 kg
Cable glands	4 x (tapped) M20 x 1.5 mm, clamping range 3-12 mm
Truck detection ON/OFF	Optional via separate key switch IP66, zones 1, 21; 1 NO 1 NC contact

TES01-V2/IP	
ATEX information	Approved for use in zones 21 and 22
ATEX marking	II 2 (1) D Ex tb [ia Da] IIIC T135°C Db -30° ≤ Ta ≤ +54°C
IECEx marking	Ex db [ia Ga] IIIC T135°C Db
Housing	Stainless steel AISI 304
Dimensions (h, l, w)	300 x 200 x 155 mm
Weight	5 kg
Cable glands	3 x M20 cable glands, clamping range 5-10 mm
Truck detection ON/OFF	Integrated

Cobra TRUCK EARTHING VERIFICATION E-TES01-V2 (IP) (EX)
Technical data sheet

All of the accessories are compatible with both the EX and IP variants of the TES01-V2 Truck Earthing System.

Accessories	
Clamp *	II 1 GD Ex c, ia IIC, IIIC T6 T85°C passive EEx i component for use in zones 0, 1, 2, 20, 21, 22 210 mm stainless steel clamp, jaw opening 3-30 mm, -10°C to +80°C, integrated strain relief
Cables *	II 2 GD Ex c, ia IIC, IIIC T6 T85°C passive EEx i component for use in zones 1, 21
C01/10	3G 1.5 mm² **straight cable** without reel, UV and oil-resistant cable sheathing, flame retardant, -25°C to + 60°C, black, available length: 10 m
SP1-HD	3G 0.75 mm² **spiral cable**, UV and oil resistant cable sheating, flame retardant, -30°C to +80°C, blue, available lengths: 3 m, 5 m, 10 m
CR1/65	15 m, 2 x 1.5 + 1.5 mm² **cable and reel**; housing IP65, aluminium, pivotable on stainless steel bracket, shock and weather resistant; spring activated automatic rewinding, 1,7 m connecting cable; earthing connection
Clamp hook	Stowage point clamp in SS/plastic
Clamp station	Stowage point clamp with cover, SS/plastic
SSTD	Selection switch truck detection on/off in glass-fiber-reinforced polyester box, II 2G Ex de ICC T6 Gb, II 2D Ex tb IIIC T80 Db, IP66
Cable glands Ex	Set of 2 plugs M20, 4 cable glands M20, nickel-plated brass, II 2G ID-EExd IIC, IP66
Connector set	M+F, plastic, blue IP65, -40° to +100°C, with integrated strain relief
ReConn	Test device, for cobra control units, incl. test cable and clip

***Available with or without pre-mounted connector**

Cobra TRUCK EARTHING VERIFICATION E-TES01-V2 (IP) (EX)
Technical data sheet

Parts and ordering information

Article reference	Description
502-4010-006	CBR/E-**TES01-V2/IP** control unit
501-4010-006	CBR/E-**TES01-V2/EX** control unit
503-1210-003	CBR/B-**CMS1-N**, earthing clamp excluding connector
503-1230-003	CBR/B-**CMS1-SCM**, earthing clamp with M connector
503-5900-100	CBR/B-**LD10SCF**, 10 m flat cable black with F connector
503-5910-030	CBR/B-**SP1-HD3SCF**, 3 m spiral cable blue with F connector
503-5910-050	CBR/B-**SP1-HD5SCF**, 5 m spiral cable blue with F connector
503-5910-100	CBR/B-**SP1-HD10SCF**, 10 m spiral cable blue with F connector
503-9910-030	CBR/B-**SP1-HD3N**, 3 m spiral cable blue excluding connector
503-9910-050	CBR/B-**SP1-HD5N**, 5 m spiral cable blue excluding connector
503-9910-100	CBR/B-**SP1-HD10N**, 10 m spiral cable blue excluding connector
503-3250-000	CBR/E-**CR1/65-15N**, cable reel with 15 m cable
503-3250-010	CBR/E-**CR1/65-15SCF**, cable reel with 15 m cable and F connector
503-1500-000	CBR/A-**CONSET**, connector set (M+F)
503-0900-003	CBR/A-**CST1**, clamp station
503-0900-103	CBR/A-**CHO1**, clamp hook
501-5800-000	CBR/A-**Cable glands**-Eexd
502-5800-000	CBR/A-**Cable glands**-IP
503-0200-100	CBR/T-**RECONN01-V1** test device
641-1100-020	CBR/E-**TES01-V2/EX-**SSTD01, selector switch truck detection ON/OFF

Spare parts

Article reference	Description
503-8050-005	CBR/E-**TES01-V2/IP**-MODULE
503-8050-105	CBR/E-**TES01-V2/EX**-MODULE
503-1500-000	CBR/A-**CONSET**, connector set (M+F)

Cobra GROUNDING SYSTEMS

StuvEx International NV reserves the right to implement changes to these products without prior notification.

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GROUNDING SYSTEMS



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