



Control Device EUS-1

According to the VOC Directive 94/63/E.C. and related European standard EN 13922 on Overfill Prevention Systems for bottom-loading tank trucks

As stationary part of the Euro Overfill Prevention System for liquid fuels the control device type EUS-1 complies with the harmonised requirements on overfill prevention systems for bottom-loading tank trucks according to Annex IV of the VOC-Directive (directive 94/63/EC). In this directive it was determined that since 01.01.2005 all bottom-loading gantries for A1 products had to be equipped with an Europe-wide harmonised overfill prevention controller.

The explosion-proof Control Device type EUS-1 has been developed in full compliance with correlated EN standard EN 13922 on "Overfill Prevention Systems for liquid fuels". As a result the full compatibility to corresponding truck equipment and level sensors of other manufacturers can be ensured.

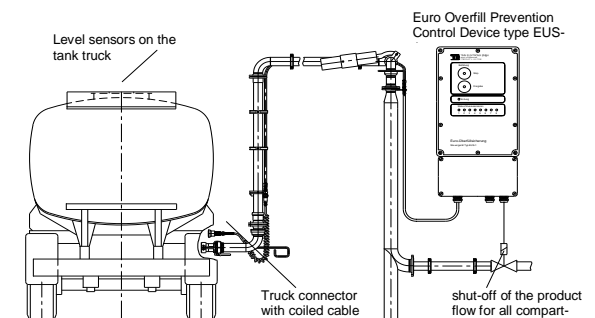
As an electrical equipment of the category II (1) 2 G the control device type EUS-1 is intended for use in potentially explosive atmospheres of the zone 1 and supplies the intrinsically energy for the level sensors on the tank truck (zone 0). It has been proofed by an EC type-examination according to the directive 94/9/E.C. (ATEX 95). The type of protection is Ex e ib q [ia] IIA T4.

Principle of Operating

During loading the level sensors on the tank truck side (one sensor per tank compartment) are connected to the control device at the filling gantry via a standard 10-pole plug and socket connector. The level sensors are positioned in such a way that they trigger the shut-off of the product flow for all compartments via the stationary gantry controller right in time to prevent an overfilling. Level sensors, cable and connectors are also specified by the EN standard EN 13922.



The Control Device type EUS-1 performs in combination with the level sensors on the tank truck the European Overfill Prevention System for bottom loading tank trucks in accordance with the VOC directive and CENELEC standard EN 13922. Up to 8 appropriate two-wire sensors or 12 five-wire sensors can be connected to the control device.



When being connected to a tank truck, the control device automatically recognises the type of level sensors (five-wire / two-wire sensors) and activates the required operating mode.

The vapour recovery hose connection is monitored on the tank truck side by means of a switching contact looped into the circuit of the level sensors. In addition the control device permanently observes the correct grounding of the truck, which is carried out as well by the 10-pole connection cable. As a result it is ensured that filling is only possible, if the vapour recovery system and the grounding line are connected properly.

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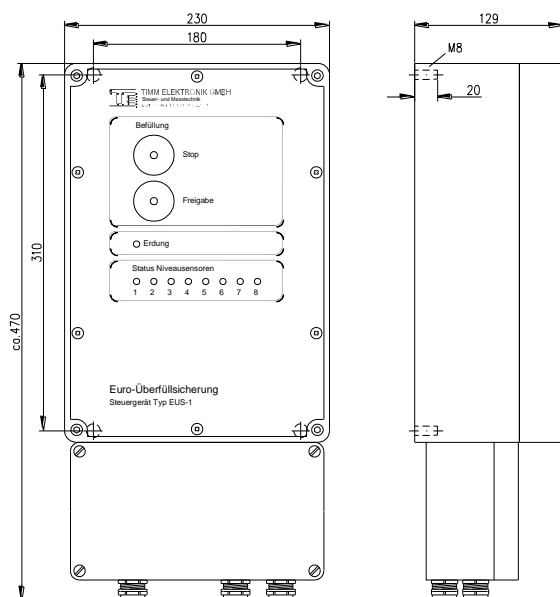
Special Features

The control device type EUS-1 is equipped with four control outputs (two potential-free contact outputs and two potential-free signal outputs), each optionally switchable to different operating modes. Referring to the control signals the control device meets the requirements of the standard for overflow prevention systems and furthermore provides additional control signals (e.g. „Earthing O.K.“ or „Truck Connector in Parking Position“) as well as the possibility of data communication for an optimum control and signalling during the filling process via the product managing system.

The analysis of the different control signals enables the higher product management system to recognise whether a filling process is only interrupted due to a removable fault (e.g. missing vapour recovery hose connection) or finally completed because of an actual overfilling.

According to the standard, the control device type EUS-1 exhibits fail-safe behaviour. A filling release is only possible if the periodic self-test operates properly. Interruptions or short circuits in the cabling or in associated components prevent the periodic self-test and thus the filling release.

The filling status “Permissive” or “Non-Permissive” is indicated by two large LED-indicators, to be visible in a wide range. Additional 9 two-colour LED indicators signal the “Compartment Status” and the “Earthing Status”.



Operating data

- Type of protection: Ex e ib q [ia] IIA T4
- Device category acc. to ATEX 95: Ex II (1) 2 G
- Supply circuit: Type of protection „Increased safety“ Ex e, 230 V a.c. \pm 6%, 50 – 60 Hz, approx. 25 VA
- Protection of enclosure acc. to EN 60529: IP65
- Ambient temperature range: -25°C to +50°C

Output circuits

- Contact circuits (K1, K2): in type of protection „Increased safety“ Ex e, Maximum values: 250 V a.c., 5 A, 100 VA or 250 V a.c., 3 A, $\cos \varphi \geq 0,7$
- „Filling Release“ (K1): 1 potential-free closing contact
- „Filling Process“ (K2): 1 potential-free change-over contact, configurable by internal switches for signalling of „Truck connector in Parking position“ / „Earthing“
- Contactless control outputs (E1, E2): in type of protection „Intrinsic Safety“ Ex ib only for connection to certified intrinsically safe circuits with the following maximum values: $U_o = 20$ V, $I_k = 163$ mA, $P_o = 815$ mW
- „Filling Release“ (E1): 1 potential-free output, oscillating (fail-safe), NAMUR-compatible
- „Filling Process“ (E2): 1 potential-free output, optionally switchable static or dynamic, NAMUR-compatible

Sensor and earthing circuits: in type of protection „Intrinsic Safety“ Ex ia IIA, only for connection to appropriate level sensors maximum 8 two-wire-sensors or maximum 12 five-wire-sensors respectively

Serial data interface: in type of protection „Increased Safety“ Ex e, reversible: TTY [passive] / RS422 / RS 485; As communication protocol are selectable: DUST 3964R or AMCC-Protocol

Veight and dimensions

- Dimensions: 230 x 475 x 135 mm (L x H x D)
- Weight: approx. 12 kg

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Accessories for the EUS-1 device

The following types of connecting leads with standard truck connector and intrinsically safe disconnecter sockets are available:

Truck Coiled Cable type EUS-1-SK7:

Truck connector with PUR coiled cable (blue), overall cable length approx. 2.6 m, expandable to approx. 7 m; for direct connection to the control device.

Ex-i-Disconnecter Socket type EUS-1-ST:

Disconnecter socket (to be installed at the filling station) to connect a plug-in coiled cable type EUS-1-SSK3 or EUS-1-SSK7. Socket complete with normal 1 m tail cable for connection to the control device.

Ex-i-Disconnecter Socket type EUS-1-STP:

As previous, but with additional truck socket for recognition of the „Truck Connector in Parking Position“ status by integrated socket code generator.

Truck Coiled Cable type EUS-1-SSK7:

As type EUS-1-SK7, but with additional disconnecter plug for connection to socket EUS-1-ST or EUS-1-STP respectively.

Truck Coiled Cable type EUS-1-SSK3:

As type EUS-1-SSK7, but with short coiled cable. Normal cable length approx. 1.5 m, expandable to approx. 3.5 m; preferably in combination with disconnecter socket type EUS-1-STG... on loading arm.

Ex-i-Disconnecter Socket type EUS-1-STG11:

Disconnecter socket on loading arm (close to coupling) to connect the plug-in coiled cable type EUS-1-SSK3. With normal 11 m tail cable for installation on the vapour recovery arm and to the control device.

Ex-i-Disconnecter Socket type EUS-1-STG11P:

As previous, but with additional truck socket for recognition of the „Truck Connector in Parking Position“ status by integrated socket code generator.

Testing Equipment type EUS-1-TST2:

The testing equipment serves to check the functions of the control device. It is provided with a truck socket to be connected to the truck connector cable as well as with appropriate testing switches to simulate the criteria *Earthing*, *Vapour Recovery Hose Connection* and *Sensor Status*.

Truck Coiled Cable type EUS-1-SSK3 with disconnecter plug



Ex-i-Disconnecter Socket type EUS-1-STP with additional truck socket for recognition of the „Truck Connector in Parking Position“ status



Testing Equipment type EUS-1-TST2

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Certificates of the control device EUS-1

EC Type Examination Certificate according to directive ATEX 95:

Safety Certificate in accordance with national regulations relating to the preservation of water against pollution with fuels:

TÜV CERT

Translation
EC TYPE-EXAMINATION CERTIFICATE

(1) Equipment or Protective System intended for use in potentially explosive atmospheres - **Directive 94/9/EC**

(2) EC-Type Examination Certificate Number
TÜV 98 ATEX 1363

(3) Equipment or Protective System: Euro Overfill Prevention Control Device type EUS-1

(4) Manufacturer: Timm Elektronik GmbH

(5) Address: D-21509 Glinde, Humboldtstr. 29

(6) This equipment or protective system and any acceptable variation thereto is specified in the schedule to this certificate.

(7) The TÜV Hannover/Sachsen-Anhalt e.V., TÜV Certification Body N° 0032 in accordance with Article 9 of the Council Directive of the EC of March 23, 1994 (94/9/EC), certifies that this equipment or protective system has been found to comply with the Basic Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in the confidential report N° 98/PX24980.

(8) Compliance with the Basic Health and Safety Requirements has been assured by compliance with:
EN 50 014:1997 EN 50 017:1994 EN 50 019:1994 EN 50 020:1994

(9) If the sign "X" is placed after the certification number, it indicates that the equipment or protective system is subject to special conditions for safe use specified in the schedule to this certificate.

(10) This EC-type examination certificate relates only to the design and construction of the specified equipment or protective system according to Directive 94/9/EC. Further requirements of this Directive apply to the manufacture and placing on the market of this equipment or protective system.

(11) The marking of the equipment or protective system must include the following:
II (1) 2 G EEx qe Ib (ia) IIA T4

TÜV Hannover/Sachsen-Anhalt e.V.
TÜV CERT-Zertifizierungsstelle
Am TÜV 1
D-30559 Hannover
Hannover, 1998-10-29

[Signature]
Head of the Certification Body

TÜV NORD

This certificate may only be reproduced without any change, schedule included. Excerpts or changes shall be allowed by the TÜV Hannover/Sachsen-Anhalt e.V.

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Allgemeine bauaufsichtliche Zulassung


Zulassungsnummer: Z-65.14-243

Antragsteller: Timm Elektronik GmbH
Humboldtstraße 29
21509 Glinde bei Hamburg

Zulassungsgegenstand: Steuerungseinrichtung vom Typ "EUS-1" für Standgrenzschalter von Überfüllsicherungen in Form eines Standaufnehmers mit integriertem Messumformer (Niveausensör) zur Abfüllung von Mineralölprodukten in ortsbewegliche Behälter

Geltungsdauer bis: 31. März 2005

Der oben genannte Zulassungsgegenstand wird hiermit allgemein bauaufsichtlich zugelassen. Diese allgemeine bauaufsichtliche Zulassung umfasst sechs Seiten und vier Blatt Anlagen.


Deutsches Institut für Bautechnik

07/99/01