Italia

CERTIFICATE

[1] EU-TYPE EXAMINATION CERTIFICATE

[2] **Equipment or Protective System intended for use in potentially explosive atmospheres Directive 2014/34/EU**

[3] EU-Type Examination Certificate number:

TÜV IT 25 ATEX 0253 X

[4] Equipment or Protective System: Magnetostrictive/reed chain level gauge
Models: DELPHI-xxx-ExD, DELPHI REE, DELPHI CTC

[5] Manufacturer: **ALISONIC S.r.l.**

[6] Address: **Via Ercolano, 3**
I-20900 Monza (MB) - ITALY

[7] This equipment or protective system and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

[8] TÜV Italia, notified body no. 0948 in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in confidential report no. R 24 EX 092

[9] Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN IEC 60079-0 : 2018 ; EN 60079-1 : 2014 ; EN 60079-26:2015 ; EN ISO 80079-36:2016

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

[11] This EU - TYPE EXAMINATION CERTIFICATE relates only to the design and construction of the specified product. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by this certificate.

[12] The marking of the product shall include the following:

II 1/2G Ex h / Ex db IIB T4 Ga/Gb

This certificate may only be reproduced in its entirety and without any change, schedule included.

Issue date: 03th March 2025

ACCREDIA
L'ENTE ITALIANO DI ACCREDITAMENTO
PRD N° 081B

Membro degli Accordi di Mutuo Riconoscimento EA, IAF e ILAC
Signatory of EA, IAF and ILAC Mutual Recognition Agreements

TÜV Italia Srl Industrie Service 09 48 Notified Body

TÜV Italia S.r.l.
Notified body N° 0948

Alberto Carelli
Industry Service - Real Estate & Infrastructure
Managing Director

TÜV Italia has been authorized by Italian government to operate as notified body for the certification of equipment or protective system intended for use in potentially explosive atmospheres. This document is not valid without official signature and logo. The internal reference code is 722347119.

[13] **SCHEDULE**

[14] **EU-TYPE EXAMINATION CERTIFICATE**
no. TÜV IT 25 ATEX 0253 X

Certificate History

Revision:	Description:	Report rev.:	Issue Date:
-	First issued	-	03/03/2025

[15] **Description of equipment**

DELPHI probe is a probe assembly system intended to transmit liquid level from a potentially hazardous area represented by the internal of a liquid storage tank. DELPHI is intended to be powered a low voltage DC power Vmax=30Vdc.
The floating and rod is suitable to be installed inside the tank in the liquid with area classified zone 0. The head sensor having explosion-proof enclosure is designed to work outside the tank in zone 1 or zone 2 classified area. The apparatus can be installed also at interface between zone 0 and zone 1 respecting conditions for installations. Instruction manual and safety notes detail applicable process connections in accordance with EN 60079-26.

The apparatus exists in three types of sensors configurations:

1) **DELPHI Magneto-strictive level gauge (DELPHI ExD)**.
Magneto-strictive probe consists of a microcontroller based electronic circuit placed inside one flameproof stainless-steel head and a stainless-steel shaft containing a wave guide placed inside the tank who transmit by aid of float coupled with shaft the level gauge based on magneto-strictive effect. The sensors placed inside the head convert the torque of wire due to magneto-strictive effect to an electrical signal managed by an analogic interface circuit and read by microcontroller.
2) **Level-gauge reed chain (DELPHI REE)**.
Reed-chain sensor consists of a stainless steel/brass rod inserted inside the tank, a head in an explosion-proof case placed outside the process (well) and an armored explosion-proof cable. The measuring head contains: the terminal block and the possible resistive to 4-20mA converter. The "reed chain" level transmitters base their operation on the movement of a magnet contained inside the float.
The magnetic field activates, without physical contact, reed contacts placed inside the measuring rod and allow a continuous reading of the levels of liquids contained in underground or open-air tanks. The activation of these contacts allows the gradual insertion or removal of a network of resistances also placed inside the measuring rod, allowing measurement in with ohmic reading instruments or by a converter placed inside the case to obtain an analog output 4 - 20 mA with power supply 12 - 30 Vdc (2-wire technique).
3) **Level-switch reed contact (DEPLHI CTC).**
Level switches have been designed for point-based control of the level of a liquid inside the tank. They allow to control up to 6 level points located along a single measuring rod. On/off level controls consisting of a measuring rod on which the / the float slide, and a connection to the process that can be threaded, flanged, sliding.
The floats magnetically activate the reed contacts placed inside the measuring rod.
The position of these contacts is predefined at the time of ordering and cannot be changed subsequently. Normally the contacts are wired on the terminal board inside the explosion-proof case.

The apparatus exists in different communications type interfaces listed in the following table

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Table Versions:

Type	Interface	Description	Family code
1	RS485	Magnetostrictive level sensor with RS485 data transmission die-cast aluminum housing.	DELPHI 485 ExD
2	RS485	Magnetostrictive level sensor with RS485 data transmission stainless steel housing.	DELPHI 485 ExD-SS
3	RS485	Magnetostrictive level sensor with RS485 data transmission, oxidized aluminum housing.	DELPHI 485 ExD-AL
4	TTL	Magnetostrictive level sensor with logic data transmission TTL.	DELPHI TTL ExD-AL
5	4÷20mA	Magnetostrictive level sensor with analog current output 4÷20mA.	DELPHI 420 ExD-AL
6	4÷20mA HART	Magnetostrictive level sensor with analog current output 4÷20mA and HART protocol.	DELPHI 420H ExD-AL
7	0÷5V	Magnetostrictive level sensor with analog voltage output 0÷5Vdc.	DELPHI 005-ExD-AL
8	0÷10V	Magnetostrictive level sensor with analog voltage output 0÷10Vdc.	DELPHI 010-ExD-AL
9	4÷20mA Reed	Reed chain level sensor 4÷20mA output.	DELPHI REE-420-AL
10	Ohmic Reed	Reed chain level sensor with resistive network output.	DELPHI REE AL
11	Dry contact	Reed contact level switch, N.O. clean contact output.	DELPHI CTC AL

Rated characteristics

Operating ambient temperature range	-40°C ÷ +70°C
Max process temperature	120°C
Max pressure side process	40 bar
Power supply	Low voltage DC : 10V…30V max , 900mW max Dry contact 48Vdc 0.1A/100mW (only CTC version)
Case protection degree	IP68
Case material	Head: Stainless-steel AISI 303/304 or aluminium Shaft: Stainless-steel AISI 316 or AISI 303/304 Float: Stainless-steel AISI 316
Electrical Connection	Robust type cable 2-4 conductors, resistant to hydrocarbons, length up to 10m.

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Warning label

None.

[16] **Report no.** R 24 EX 092

Routine tests

Overpressure test according EN 60079-1 §Annex D at 1.5 times the measured reference pressure 36.5 bar.

[17] **Special conditions for safe use**

- The operating temperature range is -40°C ÷ +70°C.
- Class temperature T4(135°C) is determined considering the maximum operating temperature of the device +70°C and the maximum admitted process temperature (inside tank) +120°C.
- The device has to be installed and maintained in accordance with the standards for areas classified against the risk of an explosion for presence of gas (e.g. EN60079-14, EN60079-17 or other national standards).
- In case of installation with the riser, the probe riser shall comply with EN 60079-26 and form a suitable process connection across the boundary between zone 0 and zone 1 subject to the approval of the local authority. The cable gland used in the riser have to be Ex d certified.

[18] **Essential Health and Safety Requirements**

Assured by compliance with the standards set out in the [9].

[19] **Drawings and Documents**

Listed documents (prot. 722347119)

Title:	Description:	Pag.:	Rev.:	Date:
DELPHI Ex d PROBE_Technical_File	Technical file and risk analysis + Nameplate	25	00	15/10/2024
DELPHI EXD – (M-001-IT) Istruzioni per l'uso	Instruction manual and Safety notes	16	00	24/01/2025
Dwg PROBE STRUCTURE	Drawing DELPHI ExD Structure	Zip 2 Files 406KB	CRC32= DF87F284	04/02/2025

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Dwg STANDARD PROBE PARTS	Drawing DELPHI ExD Standard Probe Parts	Zip 15 Files 6489KB	CRC32= EDB7A209	04/02/2025
Dwg DOUBLE PIPE PARTS	Drawing DELPHI ExD Standard Double Pipe parts	Zip 7 Files 2325KB	CRC32= 66B91AB0	04/02/2025
Dwg TRUCK VERSION	Drawing DELPHI ExD Truck version	Zip 3 Files 1476KB	CRC32= 072BF395	04/02/2025
Dwg DELPHI Exd ASTA ATTACCO A PROCESSO	Drawing DELPHI Exd Process attachment rod	01	804c	02/05/2018
Dwg DELPHI REE-420 v5	Drawing DELPHI REE AL	01	1.0	20/02/2025
Dwg DELPHI CTC v5	Drawing DELPHI CTC AL	01	1.0	20/02/2025

One copy of all documents is kept in TÜV Italia files.