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 23 ATEX 0141

[4] Equipment or Protective System: **Magnetostrictive level gauge**
Models: DELPHI-xxx

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

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

[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 23 EX 040

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

EN IEC 60079-0:2018; EN 60079-11:2012; EN 60079-26:2015

[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:

Ex II 1G Ex ia IIB T4 Ga

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

Issue date: **11th October 2023**

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 722255389.

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[13] **SCHEDULE**

[14] **EU-TYPE EXAMINATION CERTIFICATE**
no. TÜV IT 23 ATEX 0141

Certificate History

Revision:	Description:	Report rev.:	Issue Date:
-	First issued	-	11/10/2023

[15] **Description of equipment**

DELPHI probe is a magnetostrictive probe assembly system intended to transmit liquid level from a potentially hazardous area represented by the internal of a liquid storage tank. DELPHI probe consists of a microcontroller based electronic circuit placed inside one stainless-steel head or stainless-steel/plastic case (depends on version) 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 magnetostrictive effect. The sensors placed inside the head convert the torque of wire due to magnetostrictive effect to an electrical signal managed by an analogic interface circuit and read by microcontroller. DELPHI is intended to be powered through a battery pack or by a low voltage DC power supply through an intrinsically safe barrier respecting the safety parameters below cited.
The entire apparatus is designed to work in zone 0, zone 1 or zone 2 classified area. The apparatus can be installed also at interface between zone 0 and zone 1 but see special conditions for installations. Instruction manual and safety notes detail applicable process connections in accordance with EN 60079-26. The apparatus exists in different communications type interfaces listed in the following table.

Interface versions:

Type	Interface	Description	Order code
1	RS485	Probe powered by 9-20Vdc power supply with RS485 cable interface. Tamb.: -40°C ÷ +80°C	DF/IS-SP-2F DF/IS-SP-1F DF/IS-DP-2F DF/IS-DP-1F DF/IS-FX-2F DF/IS-FX-1F
2	RADIO 169MHz	Probe powered by battery with 169MHz radio modem, steel case. Tamb.: -40°C ÷ +60°C	DW/IS-SP-2F DW/IS-SP-1F DW/IS-DP-2F DW/IS-DP-1F DW/IS-FX-2F DW/IS-FX-1F
3	RADIO 169MHz	Probe powered by battery with 169MHz radio modem, steel/plastic case. Tamb.: -40°C ÷ +60°C	DW/IS-SP-2F-BOX DW/IS-SP-1F-BOX DW/IS-DP-2F-BOX DW/IS-DP-1F-BOX DW/IS-FX-2F-BOX DW/IS-FX-1F-BOX
4	RADIO 433/868MHz LoRa	Probe powered by battery with 433MHz/ 868MHz LoRa radio modem, steel/plastic case. Tamb.: -40°C ÷ +60°C	DW/IS-SP-2F-BOX-LR DW/IS-SP-1F-BOX-LR DW/IS-DP-2F-BOX-LR DW/IS-DP-1F-BOX-LR DW/IS-FX-2F-BOX-LR DW/IS-FX-1F-BOX-LR

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Order code description:

DF=Delphi Field Bus , DW=Delphi Wireless

IS = Intrinsically Safe probe

SP = Single Pipe , DP = Double Pipe

FX = Flex Wire

1F = One Float , 2F = Two Floats

-BOX = option with separated Box

-LR = option with LoRa 433/868MHz radio module

Rated characteristics

Operating ambient temperature range	-40°C ÷ +80°C (probe type 1) -40°C ÷ +60°C (probe type 2, 3, 4)
Power supply	Low voltage DC : 9…20Vdc (wired version RS485) Lithium primary battery 3.6Vdc, Size C or D (Wireless version)
Case protection degree	IP68 (Type 1 and Type2), IP67 (Type3 and Type4)
Case material	Head: Stainless-steel or Stainless-steel+plastic Shaft: Stainless-steel Float: Stainless-steel or plastic material (NBR, PVC)
Wireless version	RADIO 169MHz max radiated power 27dBm (500mW) LoRa 433/868MHz max radiated power 17dBm (50mW)

Safety parameters:

Intrinsically safe interfaces safety parameters (only for Type 1 interface):

Interface	**Term.**	**Ui (V)**	**Ii (mA)**	**Pi (mW)**	**Ci (uF)**	**Li (uH)**	**Uo (V)**	**Io (mA)**	**Po (mW)**	**Co (uF)**	**Lo (mH)**
Pwr.supply input	M1 Pin2-4	20	108	600	0	0	-	-	-	-	-
RS485	M1 Pin1-3	8.5	-	-	0	0	5.36	161	216	999	5.4

The equipment which has been to be connected to the interfaces port must be ATEX separately certified and matching the safety parameters above declared.

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Warning label

All probes:

"WARNING – TURN OFF THE POWER SUPPLY BEFORE TO CONNECT OR DISCONNECT THE CONNECTOR FROM THE PROBE"

Probes types 2 or type 3 or type 4:

" WARNING – USE ONLY 3.6Vdc BATTERIES LISTED IN THE MANUAL"

"WARNING – DO NOT REPLACE BATTERY WHEN AN EXPLOSIVE ATMOSPHERE IS PRESENT"

Probes type 3 or type 4, only version contains plastic material on case:

" WARNING - POTENTIAL RISK OF STATIC ELECTRICITY - SEE INSTRUCTIONS"

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Routine tests

Only Type 1 version dielectric strength test 500Vdc as per EN 60079-11 §10.3 between metallic case and wires of the interface.

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

None.

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

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

[19] **Drawings and Documents**

Listed documents (prot. 722255389)

Title:	Description:	Pag.:	Rev.:	Date:
DELPHI PROBE_Technical_File + ACALCOLI ATEX n01	Technical file, risk analysis and EX nameplate	78 8	03 n01	05/10/2023 -
SIGPRE_SCHEMATIC	Schematic circuit (measure)	03	V4	29/03/2022
GRB_SIGPRE_V7 GRB _SIGPRE_V8	Gerber files (measure)	10files	V7 V8	10/06/2022
Bill of Materials-SIGPRE(SIGPRE)	Bill of materials (measure)	01	V7 V8	10/07/2023
CPUBOARD_V4	Schematic circuit (CPU)	06	V4	-
GRB_CPU	Gerber files (CPU)	10files	V4	10/07/2022
Bill of Materials-CPU(CPU)	Bill of materials (CPU)	01	V4	10/07/2023
SCH_SKE060_REV03	Schematic circuit (RADIO 169)	01	03	15/07/2022
GRB_SKE060_REV03	Gerber files (RADIO 169)	15files	03	03/02/2022

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SKE060_REV03_n02	Bill of materials (RADIO 169)	01	03	03/02/2022
SCH_SKE064_REV01_169Mhz	Schematic circuit (SKE064 - 169 PROBE V2)	01	01	15/07/2022
GRB_SKE064_REV01	Gerber files (RADIO 169 V2)	15Files	01	23/03/2022
SKE064_REV01_n00	Bill of materials (RADIO 169 V2)	01	01	10/07/2023
SCH_SKE065_REV00	Schematic circuit (SKE065 - 169 PROBE V2 PCB B)	01	00	15/07/2022
GRB_SKE065_REV00	Gerber files (RADIO 169 V2 PCB B)	14Files	00	11/08/2021
SKE065_REV00_n00	Bill of materials (RADIO 169 V2 PCB B)	01	00	10/07/2023
SCH_ SKE068_REV01	Schematic circuit (SKE068 - Lora PROBE V2)	01	01	15/07/2022
GRB_SKE068_REV00	Gerber files (SKE068 - Lora PROBE V2)	16Files	01	23/03/2022
SKE068_REV01_n00	Bill of materials (SKE068 - Lora PROBE V2)	01	01	10/07/2023
SCH_SKE062_REV01	Schematic circuit (SKE062 – RS485)	01	01	15/07/2022
GRB_SKE0062_REV01	Gerber files (SKE062 – RS485)	16Files	01	07/06/2022
SKE062_REV01_n04	Bill of materials (SKE062 – RS485)	01	01	04/07/2022
DELPHI - User manual and safety notes	User manual and Safety notes	00	78	-

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