EU TYPE-EXAMINATION CERTIFICATE

1. **EU type-examination Certificate (Module B)**

2. **Equipment or Protective System intended for use in potentially explosive atmospheres (Directive 2014/34/EU)**

3. **EU type examination certificate Nr** **ITS-I21ATEX31360X R.2**

4. **Product:** Wireless Hart Communication Based Gas Detector: UE Vanguard: TCD60H1*

5. **Manufacturer:** UNITED ELECTRIC CONTROLS COMPANY **Applicant:** UNITED ELECTRIC CONTROLS COMPANY

6. **Address:** 180 Dexter Avenue **Address:** 180 Dexter Avenue
   Watertown, MA 02472-4200; USA Watertown, MA 02472-4200; USA

7. This product and any acceptable variation thereto are specified in the schedule to this certificate and therein referred to.

8. INTERTEK ITALIA S.p.A., Notified Body n° 2575 in accordance with article 17 of the Directive 2014/34/EU of the European Parliament and Council of the 26 February 2014, certifies that the equipment or protective system has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective system intended for use in potentially explosive atmosphere, given in Annex II of the Directive.

   The examination and tests results are recorded in confidential technical evaluation Intertek Report Nr. 105122626CRT-004A

9. Compliance with the Essential Health and Safety Requirements has been assured by compliance with EN IEC 60079-0:2018 Incorporating Corrigendum Jan 2020, EN 60079-1:2014 Incorporating Corrigenda Sep 2018 & Jun 2020, EN 60079-11:2012 Incorporating Corrigenda Jan 2012 & Nov 2014, and EN 60079-28:2015/A11:2024 except in respect of those requirements referred to at item 16 of the Schedule.

10. If the sign X is placed after the certificate number, it indicates that the product is subject to Specific Conditions of 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 2 (2) G
Ex db ia op is [ia] IIC T4 Gb IP66 (Excludes Sensor)
Tamb: X (*See General product information)

11 March 2024

Certificate issue date

Todd L. Relyea
Certification Officer
Intertek Italia S.p.A. (NB 2575)

PDR N° 277B

Membro degli Accordi di Mutuo Riconoscimento EA, IAF e ILAC

Signatory of EA, IAF and ILAC Mutual Recognition Agreements

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13. DESCRIPTION OF THE EQUIPMENT OR PROTECTIVE SYSTEM

The product (TCD60H1*) is a Wireless Hart Communication based Gas Detector for use in Zone 1 potentially explosive atmospheres.

The product (TCD60H1*) is comprised of a certified component (U) flameproof enclosure manufactured by Killark-Hubbell Inc., certified for IIC. The component flameproof enclosure comes with two compartments (front and rear). The front compartment uses a glass window cover. The rear compartment uses a solid metallic cover. The covers are threaded onto the housing. The front and rear compartments of the component (U) enclosure are completely separated from each other. The flameproof enclosure includes three threaded entries. Two of the threaded entries go to the front compartment and the third threaded entry goes to the rear compartment. The certified component enclosure is then modified by United Electric. The modification includes drilling between the front and rear compartments and making a pass-through potted/cemented bushing and populating with the electronics assemblies.

The front compartment entries/exits are populated with a certified equipment antenna coupler connecting to either direct antenna or remote cable and antenna and a gas sensor seal/bushing/pass-through. The front compartment is intended to be Flameproof (Ex d) with included Intrinsic Safety Barrier Circuits (QTY = 3) for connections to the Gas Sensor and the rear compartment items (Battery and HART Field Connection). The barriers are used to make the passed-through circuits suitable for Zone 1 outside the Ex db enclosure (Ex ia). “Ex ia” employed for North American Division 1 Use/Certification. The Gas Sensors have two mounting options: on to the Flameproof Housing or with Remote Cable. The gas sensor circuitry exits the flameproof hosing using a custom glass-metal seal and includes additional circuitry for limitation and interface to meet the needs of the Sensor.

The rear compartment is intended to be Intrinsically Safe (Ex ia [ia]) only even though the rear compartment is a flameproof enclosure. It is intended to be able to change the battery pack housed in the rear compartment while the product is in the potentially explosive atmosphere. The Hart Field Connection [ia] is allowed for use in certified Hazardous Area. Instruction present in operation manual for service and repair.

The last digit of the model number can be any alphanumeric number. This represents the mounting means used by the end user and does not impact the explosion protection aspects of the equipment.

CE Marking shall be accompanied by the identification number of the Notified Body responsible for surveillance of production.

General product information:

*The product’s Ambient Temperature Ratings Vary Based on Configuration (Gas Sensor): The Configuration which is based on the fitted Gas Sensor is indicated by the marked code on the Gas Sensor Module Body (Label): Code A or Code B (See Table Below).

Housing Without Remote Gas Sensor (No Cable):

Gas Sensor	Max Ambient Code	Assembly (Housing And Gas Sensor) Ambient:
MIPEX (IECEx ITS 11.0047U)	B	-40ºC to +65ºC
NET (NO CERT)	B	-40ºC to +65ºC
CITY TECHNOLOGY (NO CERT)	B	-40ºC to +65ºC
eLICHENS (IECEx INE 19 0031U)	A	-40ºC to +60ºC

Housing With Remote Gas Sensor (With Cable):

Gas Sensor:	Max Ambient Code	Housing Ambient:	Gas Sensor Ambient:
MIPEX (IECEx ITS 11.0047U)	B	-40ºC to +65ºC	-40ºC to +65ºC
NET (NO CERT)	B	-40ºC to +65ºC	-40ºC to +65ºC
CITY TECHNOLOGY (NO CERT)	B	-40ºC to +65ºC	-40ºC to +65ºC
eLICHENS (IECEx INE 19 0031U)	A	-40ºC to +65ºC	-40ºC to +60ºC

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14. DRAWINGS AND DOCUMENTS

TITLE	DOCUMENT Nr	LEVEL	DATE
Vanguard Agency Drawing, GRP A-D	62174-86	A	11/2/2021
Molded Battery Pack	B-62149-181	M	3/10/21
Battery Pack	B-62149-184	C	12/19/2017
Group A Gas Detector Main PC Board Schematic	6247-719	A	10/14/21
Group A Methane Sensor Board Schematic	6247-720	A	10/14/21
Enhanced Gas Detector Sensor Schematic	6247-721	A	10/14/21
GROUP A PCB ASS'Y. GAS DETECTOR	63136-440	A	10/14/21
GROUP A GAS DETECTOR MAIN PCB	62137-520	A	10/14/21
GROUP A ENHANCED GAS DETECTOR SENSOR PCB ASSY.	63136-441	A	10/14/21
GROUP A ENHANCED GAS DETECTOR SENSOR PCB	62137-521	A	10/14/21
GROUP A PCB ASS'Y VANGUARD GAS DETECTOR METHANE	63136-442	A	10/14/21
GROUP A GAS DETECTOR PCB, METHANE	62137-522	A	10/14/21
WirelessHART® Toxic & Combustible Gas Detector P/N: TCD60H1X Installation and Maintenance Instructions	IM_TCD60-01	1	11/06/2021
VANGUARD TCD60 GROUPS A,B,C,D ELECTROCHEMICAL SENSORS (PART 1)	62174-87	A	10/29/2021
VANGUARD TCD60 GROUPS A,B,C,D ELECTROCHEMICAL SENSORS (PART 2)	62174-88	A	10/29/2021
VANGUARD APPROVED ANTENNAS	62174-77	A	10/29/2021
VANGUARD APPROVED ANTENNA COUPLERS	62174-79	A	10/29/2021
VANGUARD MIPEX SENSORS	62174-78	A	10/29/2021

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TITLE	DOCUMENT Nr	LEVEL	DATE
*VANGUARD GAS DETECTOR, TCD60 AGENCY DRAWING	62174-86	B	1/18/2024
*VANGUARD AGENCY DRAWING, REMOTE ANTENNA OPTION	62174-112	A	1/18/2024
*VANGUARD AGENCY DRAWING, REMOTE SENSOR OPTION	62174-113	A	1/18/2024
*VANGUARD MIPEX SENSORS	62174-78	B	01/18/2024
*VANGUARD eLICHENS SENSORS	62174-92	A	01/18/2024
*Enhanced Gas Detector Sensor Schematic	6247-721	B	1/9/24
*GROUP A ENHANCED GAS DETECTOR SENSOR PCB ASSY BOM	63136-441	2	No Date
*Group A Methane Sensor Board Schematic	6247-720	B	1/9/24
*GROUP A PCB ASS'Y VANGUARD GAS DETECTOR METHANE BOM	63136-442	2	No Date
*E-Lichens Cranberry board	6247-723	A	1/9/24
*GROUP A ELICHEN SENSOR BOARD PCB ASSEMBLY BOM	63136-448	1	No Date
*Gas Detector Remote Socket Board	6247-724	A	1/9/24
*Group A Remote PCB Assembly	63136-451	1	No Date
*Group A PCB ASSY GAS Detector BOM	63136-440	1	No Date
*GROUP A ENHANCED GAS DETECTOR SENSOR PCB ASSY	63136-441	B	2/1/2024
*GROUP A PCB ASS'Y VANGUARD GAS DETECTOR METHANE	63136-442	B	2/1/2024
*Installation and Operation Instructions	IM_TCD60	02	2/2/2024

Note: An * is included before the title of documents that are new or revised.

Copies of the above listed documents are kept at Intertek Italia S.p.A. archive.

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15. **SPECIFIC CONDITIONS OF USE**

- 1. Solexy RX and SX series antenna couplers must be connected to an RF source with a minimum internal impedance of 50 Ω.
- 2. It is considered inappropriate to provide conventional IS parameters for this equipment. For connection to external antenna, refer to the Instruction and Operating Manual for clarification of the antenna requirements and calculation of the RF power.
- 3. Solexy RX and SX series antenna coupler does not provide any RF power limitation. The threshold power must be limited by the user in order to achieve the levels defined in IEC/EN 60079-0 Table 5.
- 4. Equipment marked with an ambient temperature of -40°C to +70°C/+85°C is limited to a max RF input of 2 W.
- 5. No repair/modification to the flameproof joints is permitted.
- 6. The ambient temperature range rating is based on the configuration (Fitted Gas Sensor); Reference Product Description in Certificate. The Configuration which is based on the fitted Gas Sensor is indicated by the marked code on the Gas Sensor Module Body (Label): Code A or Code B (See Table In Product Description).

16. **ESSENTIAL HEALTH AND SAFETY REQUIREMENTS**

The relevant Essential Health and Safety Requirements have been identified and assessed in Intertek Report Nr. 105122626CRT-004A

17. **ROUTINE (FACTORY) TESTS**

- None

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18. **DETAIL OF CERTIFICATE CHANGES**

R.2 (8 February 2024)

1. Addition of E-Lichens Gas Sensors (IECEx INE 19.0031U: Ex ia op is IIC Ga)
2. Addition of new Gas Sensor Board (for E-Lichen)
3. Addition of 3 Microprocessors for new Gas Sensor Board
4. Addition of Remote Gas Sensor: New Fittings And Extension Cables
5. Addition of Antenna Extension Cable

R.1 (11 March 2022)

Performed under Intertek Report No. 105002878CRT-002.

This variation comprises the following changes to the equipment:

- Updated model from TCD60H1* to TCD60.