1 EU - Type Examination Certificate

2 Equipment intended for use in Potentially Explosive Atmospheres Directive 2014/34/EU

3 Certificate Number: ExVeritas 24ATEX1811X Issue: 0

4 Equipment: GEN003-EXI Wireless Node

5 Manufacturer: Corrosion Radar

6 Address: Future Business Centre, Kings Hedges Road, Cambridge, CB4 2 HY, United Kingdom

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

8 ExVeritas, Notified Body number 2804 in accordance with Article 17 of the Council Directive 2014/34/EU of 26 February 2014, certifies that this equipment or protective system has been found to comply with the Essential Health and Safety Requirements relating to design and construction of equipment and protective systems for use in potentially explosive atmospheres given in Annex II to the Directive

9 Compliance with the applicable Essential Health and Safety Requirements has been assured by compliance with the following Standards and section 16 of this certificate:

EN IEC 60079-0: 2018	EN 60079-11: 2012

10 If the sign “X” is placed after the certificate number, it indicates that the equipment 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, construction, examination and tests of the specified equipment or protective system in accordance to the Directive 2014/34/EU. Further requirements of the Directive apply to the manufacturing process and supply of this equipment or protective system. These are not covered by this certificate.

12 The marking of the equipment shall include the following:

II 3(2)G
Ex ic [ib Gb] IIB T4 Gc
Ta = -30°C to +60°C

DANAK
PROD Reg.No. 7044
Member of EA MLA

On behalf of ExVeritas

Peter Lauritzen
Managing Director

Schedule

13 Description of Equipment or Protective System

The GEN003-EXI Wireless Node scans and collects data from Sensor Cables, and transfers this data wirelessly via LoRa transmissions protocol. The sensor cables are two galvanically isolated outputs.

The equipment is housed in an enclosure manufactured by Hawke International model PL612. This enclosure is certified according to the certificates Baseefa06ATEX0116U and IECEx BAS 06.0027U for the marking Ex eb IIC Gb. There is a suitable certified cable gland for connection to the 4-20 mA output.

The electronic system comprises two PCBAs, the Main Control PCB integrating the LoRa wireless communications protocol and the PocketVNA PCB. The equipment includes two outputs for the Sensor Cables (or antennas), one LoRA external antenna and one 4-20 mA Loop output. The system is powered by two Lithium Manganese Dioxide (Li- MnO_2) batteries 2S1P. The Control PCB also includes a Wireless HART port (J6) for future use.

Equipment is battery powered, only the battery pack SAFT M20 EX SV (12.4 Ah @ 150 mA) can be used:

Chemistry: Lithium Manganese Dioxide (Li- MnO_2) (Primary)
Configuration: 2S1P
Nominal voltage: 6 V
Maximum open-circuit voltage: 7.4 V

4-20 mA Loop Output, associated circuit output [Ex ib]:

Uo = 21.000 V
Io = 0.100 A
Po = 0.525 W
Co = 1.000 µF
Lo = 10.000 mH
The values of Lo and Co are allowed for:
distributed inductance and capacitance e.g. as in a cable or,
if the total Li of the external circuit (excluding the cable) is < 1 % of the Lo value or,
if the total Ci of the external circuit (excluding the cable) is < 1 % of the Co value.
The values of Lo and Co shall be reduced to 50 % if both of the following conditions are met;
the total Li of the external circuit (excluding the cable) ≥ 1 % of the Lo value and
the total Ci of the external circuit (excluding the cable) ≥ 1 % of the Co value.
The reduced capacitance of the external circuit (including cable) shall not be greater than 1 µF for Groups I, IIA, and IIB and 600 nF for Group IIC.

Wireless HART Port, associated circuit output for future use [Ex ic]:

Uo = 5.880 V
Io = 1.949 A
Po = 2.865 W
Co = 1.000 µF
Lo = 23.379 uH
The values of Lo and Co are allowed for:
distributed inductance and capacitance e.g. as in a cable or,
if the total Li of the external circuit (excluding the cable) is < 1 % of the Lo value or,
if the total Ci of the external circuit (excluding the cable) is < 1 % of the Co value.
The values of Lo and Co shall be reduced to 50 % if both of the following conditions are met;
the total Li of the external circuit (excluding the cable) ≥ 1 % of the Lo value and
the total Ci of the external circuit (excluding the cable) ≥ 1 % of the Co value.

Schedule

The reduced capacitance of the external circuit (including cable) shall not be greater than 1 µF for Groups I, IIA, and IIB and 600 nF for Group IIC.

Sensors Outputs are to be connected to the Corrosion Radar designated sensors and their protection concept is “Ex ib”. Sensors shall provide a Lo/Ro ratio < 58.22 µH/Ω and are evaluated as simple apparatus.

14 Descriptive Documents

14.1 Associated Report and Certificate History:

Report Number	Cert Issue Date	Issue	Comment
R5140/A/1		0	Initial issue of the Prime Certificate

14.2 Compliance Drawings:

Title:	Drawing No.:	Rev. Level:	Date:
GA Assembly	CR-000547-EX	07	14/06/2024
PVNA PCBA Schematics	CR-000901-EX	4	31/07/2024
Fabrication files pVNA20240325 [3.4.0.12]	CR-000929-EX	5	14/06/2024
Control PCBA BOM	CR-000937-EX	9	13/06/2024
Control PCB	CR-000897-EX	4	13/06/2024
PVNA PCBA ATEX Bill of Materials	CR-000938-EX	5	31/07/2024
Gen3 Exi General Assembly Drawing ATEX Bill of Materials	CR-000979-EX	2	14/06/2024
Control PCB Manufacturing Data	CR-000963-EX	5	10/09/2024
GEN3 Exi ATEX ID Plate	CR-000974-EX	5	09/09/2024
GEN3 Exi WARNING Plate	CR-000975-EX	2	14/06/2024
Gen3 Exi Safety Instructions	CR-000903-EX	4	09/09/2024

15 Conditions of Certification

15.1 Special Conditions for Safe Use

- The battery pack can only be replaced by the battery pack SAFT M20 EX SV. Only replace the battery in safe area.
- The USB port can only be used in safe area.
- In extreme conditions, the enclosure can accumulate electrostatic charges that represent a risk of ignition. The enclosure shall not be subjected to any process that could lead to electrostatic charges and the enclosure can only be cleaned with a damp cloth.

15.2 Conditions for Use (Routine tests)

- None

16 Essential Health and Safety Requirements

Essential Health and Safety Requirements are addressed by the standards listed in section 9 and where required the report listed in section 14.1

The manufacturer shall inform the Notified Body of any modifications to the design of the product described by this schedule.