IECEx Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION
IEC Certification System for Explosive Atmospheres

for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.: **IECEx CSAE 26.0024X**

Certificate history:

Status: **Current**

Issue No: 0

Date of Issue: 2026-08-13

Applicant: **Detectronic Ltd**
Ground Floor Office Suite
16 Lindred Road
Brierfield, Nelson
Lancashire BB9 5SR
United Kingdom

Equipment: **P146-2-1 – Alarm 2 – LoRaWAN & P147-2-1 – Alarm 2 - CELLULAR Liquid Level Monitors**

Optional accessory:

Type of Protection: **Intrinsic Safety 'i'**

Marking: Ex ia IIB T4 Ga
-20˚C ≤ Tamb ≤ +50˚C

Approved for issue on behalf of the IECEx Certification Body: **Michelle Halliwell**

Position: **Senior Director of Operations**

Signature:
(for printed version)

Date:
(for printed version)

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The Status and authenticity of this certificate may be verified by visiting www.iecex.com or use of this QR Code.

Certificate issued by:

CSA Group Testing UK Ltd
Unit 6, Hawarden Industrial Park
Hawarden, Deeside CH5 3US
United Kingdom

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Manufacturer: **Detectronic Ltd**
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Manufacturing locations: **Detectronic Ltd**
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This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements.This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended

STANDARDS :
The equipment and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards

IEC 60079-0:2017 Explosive atmospheres - Part 0: Equipment - General requirements
Edition:7.0

IEC 60079-11:2023 Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
Edition:7.0

This Certificate **does not** indicate compliance with safety and performance requirements other than those expressly included in the Standards listed above.

TEST & ASSESSMENT REPORTS:
A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in:

Test Report:

GB/CSAE/ExTR26.0048/00

Quality Assessment Report:

GB/SIR/QAR08.0019/16

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EQUIPMENT:
Equipment and systems covered by this Certificate are as follows:

The P146-2-1 Alarm 2 - LoRaWAN & P147-2-1 Alarm 2 - CELLULAR Liquid Level Monitors are designed to monitor liquid levels in tanks and sewer manholes. The equipment is a battery-powered IoT (Internet ofThings) device that uses low power radar to measure the liquid level and communicate the information via either the LoRaWAN radio network (P146-2-1 Alarm 2 - LoRaWAN) or cellular modem (P147-2-1 - Alarm 2 - CELLULAR) communications.

The equipment is housed in a custom moulded plastic housing containing a partially encapsulated printed circuit board (PCB) with only the radar, and connections for an external antenna and battery pack protruding the encapsulation. The P146-2-1 and P147-2-1 variants of the equipment contain the same PCB, but are populated with different components.

Both variants of the equipment are powered by either the P160-1 2-Cell or P162-1 1-Cell 3.6V Lithium Thionyl Chloride (LiSOCl2) primary battery packs that fits inside the equipment and must only be changed in the non-hazardous area.

The only external connection to the equipment is the external antenna, which has the following output parameters:

External Antenna Port – Coax Connector

The external antenna connection is designed for the connection of a suitably certified antenna or antenna assessed as simple apparatus, and has the following port parameters:

U_o = 4.1V, I_o = 0.9mA, P_o = 1mW, C_o = 1,000µF, L_o = 1mH

SPECIFIC CONDITIONS OF USE: YES as shown below:

1. The enclosure of the device is made from non-metallic materials that under certain conditions may accumulate ignition-capable electrostatic charges. It shall not be installed in areas with external conditions which allow the accumulation of electrostatic charges. Additionally, the equipment may only be cleaned with a damp cloth.
2. The equipment's P160-1 2-Cell or P162-1 1-Cell Battery Packs must only be replaced in the non-hazardous area.
3. Only suitably certified antennas that meet the following port parameters or antennas that have been defined as Simple Apparatus can be connected to the optional external antenna port:
   $U_i \geq 4.1V$
   $I_i \geq 0.9mA$
   $P_i \geq 1mW$
   $C_i < 1{,}000\mu F$
   $L_i < 1mH$

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Equipment (continued):

Conditions Of Manufacture

1. After the PCB assembly has been encapsulated, the encapsulated areas of the PCB shall be inspected to ensure the minimum depth of encapsulation of at least 1mm is met, and the encapsulant is free from bubbles in accordance with IEC 60079-11:2023 / EN IEC 60079-11:2024 clause 10.4.