

TYPE APPROVAL CERTIFICATE

Certificate no.:
TAP00001ZH
Revision no.:
1

This is to certify:
that the 5 ppm Bilge Alarm

with type designation(s)
GPS, EXS

issued to
Inov8 Systems Ltd
Belfast, Northern Ireland

is found to comply with

DNV class programme DNV-CP-0485 – Type approval – 5 ppm bilge alarms
IMO Resolution MEPC.107(49) – Revised Guidelines and Specifications for Pollution Prevention Equipment
for Machinery Space Bilges of Ships

Application:

This is to certify that the 5 ppm Bilge Alarm listed above has been examined and tested in accordance with the requirements contained in the DNV programme for type approval DNV-CP-0485. The Bilge Alarm also complies with IMO Resolution MEPC.107(49). This certificate is valid only for the 5 ppm Bilge Alarm referred to above.

System design limitations / limiting operating conditions imposed are described in this document.

A product approved by this certificate is accepted for installation on all vessels classed by DNV, unless otherwise instructed by relevant Maritime Administration.

5 ppm bilge alarms are required on vessels with DNV class notation CLEAN DESIGN.

Issued at **Høvik** on **2025-03-04**

This Certificate is valid until **2030-03-03**.
DNV local unit: **UK & Ireland CMC & VMC**
Approval Engineer: **Martin Olofsson**

for **DNV**



Digitally Signed By:
Michael Lehmann
Location: **DNV Høvik, Norway**

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid.
The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to USD 300 000.

Product description

The Bilge alarms of type GPS (non-hazardous location model) and EXS (hazardous location model) detect hydrocarbons in water using laser radiation and fluorometry in combination with a proprietary flow cell and ultrasonic homogenization. Both GPS and EXS are side stream controllers, meaning the sample oily water from a side stream is passing through a measuring cell of the controller. The manufacturer also offers other type of controllers with a probe, arranged for measurements directly in the main stream (see DNV TAP000021K).

Two oil alarm relays and two 4-20 mA output signals are provided to control the overboard discharge and to monitor oil content level remotely.

Application/Limitation

The controllers of type GPS and EXS are intended for installation on board ships as 5 ppm bilge alarms for monitoring the oil content of bilge water. The bilge alarm monitors the effluent from an approved Bilge Water Separator and sends an alarm signal that facilitates the activation of discharge control devices that divert bilge water from overboard to bilge tank(s) when the oil content exceeds 5 ppm.

Installation of bilge alarms in spaces subject to explosion hazard is only acceptable for the type EXS and shall be according to EU Type Examination certificate no. FM19ATEX0172X, issued by FM Approvals Europe Ltd., dated 13 December 2024 (originally issued 05 July 2019, now as supplement 7 or later).

The piping arrangement on board a ship for the extraction of samples from the 5 ppm bilge separator discharge line to the 5 ppm bilge alarm shall give a truly representative sample of the effluent.

The bilge alarm is not fitted with a no-flow sensor. The control system/wiring diagram is fitted with interface for an external sensor. The final installation on board a ship is to be installed with a no-flow sensor in the inlet sample line to a bilge alarm. Monitoring of the sample flow in the sample line is an explicit requirement in DNV-CP-0485.

The bilge alarm does not require clean water inlet for cleaning or zeroing purposes.

The bilge alarm is not fitted with an automatic stopping device but fitted with an electrical outlet to control an automatic stopping device.

The following shall be verified during installation:

- The alarm is always activated whenever clean water is used for cleaning or zeroing purposes.
- The alarm is always activated whenever no flow of sample through alarm is detected by the flow switch.
- Any alarm will activate the automatic stopping device preventing overboard discharge and lead to recirculation.
- The overall response time (including the response time of the alarm) between the effluent discharge exceeding 5 ppm oil and the operation of the automatic stopping device preventing overboard discharge is less than 20 seconds.
- By-passing the alarm during normal operation shall by no means be possible.
- Every access of the alarm (beyond check on instrument drift, repeatability of the instrument reading, and the ability to re-zero the instrument) requires the breaking of a seal.