



# DET NORSKE VERITAS

## TYPE APPROVAL CERTIFICATE

CERTIFICATE NO. **P-14592**

This is to certify that the  
**5 ppm Bilge Alarm**

with type designation(s)  
**TD-107 5.0**

Issued to

**Turner Designs Hydrocarbon Instruments, Inc.**  
**FRESNO CA, United States**

is found to comply with  
**Det Norske Veritas' Type Approval Programme 771.61 5 ppm Bilge Alarms**

Application  
**This Type Approval covers system design and prototype testing of 5 ppm Bilge Alarms  
as required by Type Approval Programme 771.61**

This Certificate is valid until **2018-06-30**.

Issued at **Høvik** on **2014-04-22**

DNV local station: **Long Beach**

Approval Engineer: **Maya Rajinder Kaur**

for **Det Norske Veritas AS**

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**Dag Sæle-Nilsen**  
**Head of Section**

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.

If any person suffers loss or damage which is proved to have been caused by any negligent act or omission of Det Norske Veritas, then Det Norske Veritas shall pay compensation to such person for his proved direct loss or damage. However, the compensation shall not exceed an amount equal to ten times the fee charged for the service in question, provided that the maximum compensation shall never exceed USD 2 million. In this provision "Det Norske Veritas" shall mean the Foundation Det Norske Veritas as well as all its subsidiaries, directors, officers, employees, agents and any other acting on behalf of Det Norske Veritas.

## Product description

The 5 ppm Bilge Alarm by Turner Designs Hydrocarbon Instruments, Inc. is intended for installation onboard ships for bilge water monitoring/ alarm - max.5 ppm at discharge overboard.

The 5ppm Bilge Alarm is designed and tested to meet the requirements of the DNV Type approval program TAP771.61.

## Application/Limitation

The following shall be verified during installation :

- The response time of the bilge alarm is less than 20 s from the bilge separator discharges effluent exceeding 5 ppm oil, until the automatic stopping device prevents overboard discharge
- The alarm is always activated whenever:
  - clean water is used for cleaning or zeroing purposes
  - no flow through the alarm is detected by the flow sensor
- The pumps cannot run when any alarm is activated
- It shall not be possible to feed the alarm with clean water during normal operation

*The equipment is not permitted to be installed in spaces subject to explosion hazards.*

## Type Approval documentation

Mechanical/System;

Dwg. No.;	Rev.;	Date;	Title;
NAG2541	A	13-04-29	Bill of Materials Indented 7 Levels
NAG2541GA	A	13-04-25	General Arrangement, TD107 <sup>0.5</sup> , SST, 3-way valve
104652	A	13-03-06	Assembly Drawing, TD107 <sup>5.0</sup> F, SST Version, 3-way valve
104726	A	13-03-15	Assembly Drawing, Base Instrument SST Box TD107 <sup>5.0</sup> F, 5ppm, DNV

Electrical/Control;

Dwg. No.;	Rev.;	Date;	Title;
104757	A	13-04-25	Assembly, Internal Electronics, TD107 <sup>5.0</sup>
102453	F	13-08-16	TD107 Power Supply 20-240V
102473	A	08-09-04	TD-107C Datalogger Schematic
S 600-850	E.X	01-05-25	Schematic – PCB ASSY, Main, LED Controller
103XXX	0	09-10-21	TD-107C LED PA

*General Documents;*

Operation Manual "TD-107<sup>5.0</sup> Oil Content Monitor" doc. No P/N NAG2544 Rev. A, dated 31. May 2013

## Tests carried out

The equipment is tested in accordance with the requirements of the specification DNV Standard for certification 2.9 and Type approval program 771.61.

Type Test Reports by TEi –Testing Services;

Test report No. TS-P00888, Specimen: 15/5 ppm Bilge Alarm (Oil Content Monitor) Model TD-107<sup>5.0</sup> dated 26. April 2013  
Analysis No. TS-A05922, "Sample Description – Test Fluid "A", "B" and "C" (Influent Challenges)", dated 5. April 2013  
Analysis No. TS-A05923, "Sample Description – Effluent", dated 19. April 2013, revised 4. April 2014

Environmental Test Reports by TEi –Testing Services;

Test report No. TS-M00575, Specimen: 15/5 ppm Bilge Alarm (Oil Content Monitor) Model TD-107<sup>5.0</sup> dated 25. March 2013  
Test report No. TS-M00625, Specimen: 15/5 ppm Bilge Alarm (Oil Content Monitor) Model TD-107<sup>5.0</sup> dated 25. October 2013

## Marking of product

For traceability to this type approval, each unit to be marked with:

- Manufacturers name or trade mark
- Type designation
- Serial No.

## Periodical assessment

Retention survey to be performed every second year.

Certificate is valid for four years.