

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Automatic Gas Detection System**

with type designation(s)

OGS 3.1 and OGS 3.11 Gas Sampling System, OGS 2.1 Gas Alarm System

Issued to

**Autronica Fire and Security AS
NØTTERØY, Norway**

is found to comply with

DNV GL rules for classification – Ships and offshore units**Application :****Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.****Location classes:**

Temperature	B
Humidity	B
Vibration	A
EMC	A
Enclosure	Required protection according to the Rules to be provided upon installation on board

This Certificate is valid until **2017-06-30**.Issued at **Høvik** on **2015-12-09**DNV GL local station: **Sandefjord**Approval Engineer: **Jan Aksel Nilsen**for **DNV GL**

Odd Magne Nesvåg
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.

Product description

OGS 2.1 / 3.1 / 3.11 is a control and supervision system of different modules and software in combination with a number of gas detectors. The software continuously supervises the system and determines how the system will react in case of a gas indication from the gas detectors, in case of a system malfunction or any other input that can generate an alarm.

The OGS 2.1 Gas Alarm System comprises the following modules:

- Alarm panel with AU2.1 Alarm Unit, AU2.1 SW Version V1.xx (version 1.10 applicable at Type Approval Date)
- Remote Alarm Unit (approved for installation on bridge)
- Galvanic isolating barrier, GM International, S.R.L D10xx series

The OGS 3.1 / 3.11 Gas Sampling System comprises the following modules:

- Alarm cabinet OGS 3.1, display PCB rev. 1.10, SW version V2.xx (version 2.09 applicable at Type Approval date)
- Detector cabinet OGS 3.1, detector PCB rev. 1.10 SW version V1.xx (version 1.12 applicable at Type Approval date)
- Alarm / detector cabinet OGS 3.11, Display PCB rev. 1.10, SW version V3.xx (version 3.03 applicable at Type Approval date), Detector PCB rev. 1.10 SW version V3.xx (version 3.03 applicable at Type Approval date)
- Operator panel / Repeater panel
- Remote Alarm Unit (approved for installation on bridge)

Approval conditions

The Type Approval covers hardware and software listed under Product description.

Instruction Manual covering each specific installation is to be available on board.

The following documentation of the actual application is to be submitted for approval in each case:

- Reference to this type approval certificate
- System Block diagram
- Power Supply arrangement (may be part of the System block diagram)
- Arrangement drawings showing location of suction points and central units, including external piping design data.

As long as the units are covered by the Type Approval, no product certificate will be required according to Pt.4 Ch.9 – Control and monitoring systems.

Clause for application software control

All changes in software are to be recorded as long as the system is in use on board. Major changes in the software are to be approved before implementation.

Application/Limitation

The type approval does not cover the external piping system.

System application to be in accordance with relevant parts of the Rules

Ex installations to be approved in each case according to the Rules and Ex-Certification/ Special Condition for Safe Use listed in valid Ex-certificate issued by a notified/recognized Certification Body.

When the type approved software is revised (affecting all future deliveries) DNV GL is to be informed by forwarding updated software version documentation. If the changes are judged to affect functionality for which rule requirements apply a new functional type test may be required and the certificate may have to be renewed to identify the new software version.

Type Approval documentation

Tests carried out

Hardware tested according to applicable tests in Standard for Certification No. 2.4.

Periodical assessment

The scope of the periodical assessment is to verify that the conditions stipulated for the type are complied with, and that no alterations are made to the product design or choice of systems, software versions, components and/or materials.

The main elements of the assessment are:

- Ensure that type approved documentation is available
- Inspection of factory samples, selected at random from the production line (where practicable)
- Review of production and inspection routines, including test records from product sample tests and control routines
- Ensuring that systems, software versions, components and/or materials used comply with type approved documents and/or referenced system, software, component and material specifications
- Review of possible changes in design of systems, software versions, components, materials and/or performance, and make sure that such changes do not affect the type approval given
- Ensuring traceability between manufacturer's product type marking and the type approval certificate

Periodical assessment is to be performed at least every second year and at renewal of this certificate.

END OF CERTIFICATE