MARINE DIVISION

Certificate number: 22543/A0 BV
File number: AP 4065
Product code: 3820I

This certificate is not valid when presented without the full attached schedule composed of 7 sections

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TYPE APPROVAL CERTIFICATE

This certificate is issued to

AUTRONICA FIRE AND SECURITY AS, div Tønsberg

Nøtterøy - NORWAY

for the type of product

GAS DETECTION AND ALARM SYSTEMS

Gas Sampling Systems, OGS3.1 and OGS3.11
Gas Alarm System, OGS2.1

Requirements:
BUREAU VERITAS Rules for the Classification of Steel Ships.
IEC 60079-29-1:2007, EN 50104:2010
MSC.1/Circ. 1370, MSC.292(87) (FSS Code Ch. 16)

This certificate is issued to attest that BUREAU VERITAS did undertake the relevant approval procedures for the product identified above which was found to comply with the relevant requirements mentioned above.

This certificate will expire on: 15 Nov 2017

For BUREAU VERITAS,

At BV OSLO, on 15 Nov 2012,

Rune MARSTEIN

Rune Marstein

BUREAU VERITAS SURVEYORS AT PARIS 1828 OSLO INTERNATIONAL REGISTER

THE SCHEDULE OF APPROVAL

1. PRODUCT DESCRIPTION:

OGS3.1/OGS3.11 are Gas Sampling Systems intended for permanent installation and are especially suitable for monitoring void spaces and tanks that normally should be explosive gas free.

OGS2.1 is a Gas Alarm System intended to detect potential toxic / explosive gases in pump room or other locations. It can be used on its own or combined with the OGS3.1/OGS3.11 Alarm / Control Cabinet.

1.1 - Hardware:

1.1.1 - OGS3.1/OGS3.11 consisting of the following parts:

Detector Cabinet	Contains all functions for detection and transport of the test samples (48 sampling lines max.). Gas detectors (Up to3), Solenoid valves, Sampling and transport pump, Flame Arresters, Flow meter. Detector PCB 110-230 VAC Power Supply Unit
Alarm / Control Cabinet	Alarm and Control Cabinet (High/Low Gas Alarms, Power/Detector Failures) Alarm & Display PCB RS 422 Communication Line with Detector Cabinet Gas in Cabinet Line (Cut Power) External Alarms Outputs (Power/System Failures, Gas Alarms) 110-230 VAC / 24 VDC Power Supply Unit and Filter (OGS3.1)* 110-230 VAC / 24 VDC Power Supply Unit, Filter and a Power Box IP65 (OGS3.11)**
Integrated Gas Detectors	Honeywell Optima Plus IR Sensor - HC (0-100% LEL) Honeywell XCD - Oxygen (0-25%), H2S***
Remote Unit	High/Low Gas Alarms, Power/Detector Failures Located in the Wheel House

* **OGS3.1:** A combined version has all the components within one cabinet with Operator Panel mounted on the door. This requires an External Power Control and Interface Cabinet to ensure a complete shut-off of the cabinet in case of gas leakage inside the Cabinet.

** **OGS3.11:** The internal IP65 powerbox is intended to shut-off the power in case of gas leakage inside the Detector Cabinet.

*** Detection and Measurement of H2S gas is not covered by the current BV Certificate.

1.1.2 - OGS2.1 consisting of the following parts:

Alarm Cabinet*	Alarm Unit (Gas Alarms, System Failures) Alarm PCB External Alarms Outputs (Power/System Failures, Gas Alarms) Inputs for field Gas Detectors 110-230 VAC / 24 VDC Power Supply Unit
Field Gas Detectors	Honeywell Optima Plus IR Sensor - HC (0-100% LEL) Honeywell XCD - HC (0-100% LEL), Oxygen (0-25%), H2S**
Remote Alarm Unit	High/Low Gas Alarms, Power/Detector Failures Located in the Wheel House.

* OGS2.1 can be combined with OGS3.1/OGS3.11 (OGS2.1 components installed within OGS3.1/OGS3.11 Alarm/ Control Cabinet).

** Detection and Measurement of H2S gas is not covered by the current BV Certificate.

1.1.3 - Covered Ex Components:

Component	Ex Marking
Honeywell Optima Plus IR	Ex d IIC Gb Ex tb IIIC Db, T100°C (Ta -40°C to +55°C, T135°C (Ta -40°C to 65°C)
Honeywell XCD	Ex d IIC T6 (Ta -40°C to +65°C) Gb
Flame Arresters (OFA 1/2)	Ex d IIC T6 Gb

1.2 - Software Versions:

1.2.1 - Systems Software:

OGS System	Alarm PCB	Detector PCB
OGS3.1	PCB rev. 1.01, SW Ver. 2.xx	PCB rev. 1.02, SW Ver. 1.xx
OGS3.11	PCB rev. 1.01, SW Ver. 3.xx	PCB rev. 1.02, SW Ver. 3.xx
OGS2.1	PCB rev. AU2.1, SW Ver. 2.xx	N/A

1.2.2 - Sensors Software

Sensor	SW Version
Honeywell Optima Plus IR	4V0
Honeywell XCD	1.10

2. DOCUMENTS AND DRAWINGS:

Autronica Fire & Security:

General Documentation, OMICRON Drawings, Data Sheets, Ex Certificates filed in AP 4065
Software Versions, Doc. No. 841-JE 178 010 last updated on 13 Nov. 2009, No. 841-JE 178 020 last updated on 19 May 2011, No. 841-JE 185 010, last update on 8 Dec. 2010, No. 842-JE 178 010 last updated on 19 May 2011
Performance Test Reports OGS2.1/3.1/3.11 - Gas Sampling System dated 2/03/2012 and Witnessed by BV's Surveyor
OMICRON Documents for OGS2.1: No. OGT-001-XCD and No. OGT-001-2plus, OGS3.1: No. AGT-001G-3 and No. AGT-001G-7, OGS3.11: No. AGT-101-2 and No. AGT-101-7, all undated
Main Drawings: No. AGS-412A, AGM-612 Rev. 0, OGE-251D Rev. 2, OGE-212 Rev. 0, OGT-011 Rev. 1, AGM-355 Rev. 1, AGP-401 Rev. 1, AGE-400 Rev. 2, AGE-311C Rev. 0, AGT-003 Rev. 7, AGT-006 Rev. 6, AGT-011A Rev. 0, AGT-012 Rev. 1, AGT-013 Rev. 0, AGT-121 Rev. 1 and AGS-380 Rev. 3 (MSC.292(87)).

3. TEST REPORTS:

Nemko:

EMC - Test Report No. 15994 dated 2003-12-17
EC Type-Examination Certificate No. Ex 98E127X, issued on 1998-04-28 and its three Variations, last update issued on 2010-05-26 (Flame Arresters OFA 1 and OFA 2).

DNV:

Mechanical and Climatic Tests of 4 various Alarm Systems, Test Report No: 2008-3542 rev. 01 issued on 2008.11.06
EC Type-Examination Certificate No. MED-B-6360, issued on 2010-08-05 (Honeywell Sensepoint XCD)

EECS/Baseefa:

EC Type-Examination Certificate No. BAS99ATEX2259X, issued on 19 November 1999 and its seven Variations, last update issued on 8 August 2011 (Honeywell Optima 2)
EC Type-Examination Certificate No. Baseefa08ATEX0222, issued on 31 October 2008 and its two Variations, last update issued on 30 June 2010 (Honeywell XCD Transmitter)
EC Type-Examination Certificate No. Baseefa08ATEX0316X, issued on 9 March 2009 and Variation 1 issued on 8 April 2009 (Honeywell XCD Head).

Hursley EMC services:

EMC Test Report for Honeywell Optima+ No. 09A205 CR, issued on 19th January 2010.

DEKRA:

Measuring Function of Gas Detection Apparatus - Optima Plus (EN 60079-29-1), PFG-no. 41300406P NV issued on 06 July 2011.

TUV SUD:

Test House Certificate No. SJ614977/01 Issue 1, dated 8th September 2006 (Searchpoint Optima Plus).

4. APPLICATION / LIMITATION:

4.1 - BUREAU VERITAS Rules and Regulations for the Classification of Steel Ships.
4.2 - Approval valid for ships intended to be granted with the following additional class notations: **AUT-UMS, AUT-CCS, AUT-PORT and AUT-IMS.**
4.3 - BUREAU VERITAS Environmental Category, **EC Code: 31**
4.4 - The equipment fulfils the EMC requirements for installation in General Power Distribution Zones. Remote / Repeater Unit can be installed on bridge or deck zones.
4.5 - Approval also valid for ships having to comply with SOLAS 74 Convention, as amended, and for units having to comply with IMO Resolution A649 (The "MODU Code").
4.6 - Only Hardware and Software successfully tested together in compliance with the regulations as referred to in page one, according to the declaration of the manufacturer are covered by this certificate.
4.7 - Each application and configuration is to be submitted to the Society's examination prior to fitting on board.
4.8 - Ex-components other than those specified in § 1.1.3 are not covered by this certificate. Applications with non-covered components are to be approved in each case according to the Rules and Conditions for Safe Use specified in a valid Ex-Certificate issued by a Notified or Recognised Certification Body.
4.9 - Factory Acceptance and On-board Tests are to be performed in accordance with requirements for Category II Equipment.

5. PRODUCTION SURVEY REQUIREMENTS:

5.1 - The **OGS systems** are to be manufactured, examined and tested by **AUTRONICA FIRE AND SECURITY AS** in accordance with the type described in this certificate and Bureau Veritas Rules for the Classification of Steel Ships.
5.2 - Arrangements shall be made for a Society's Surveyor to attend the relevant tests and examinations at manufacturer's works or to perform the relevant audits when an alternative survey scheme (BV Mode I) has been agreed. Relevant Bureau Veritas certificate will be issued after satisfactory completion of the procedure.

6. MARKING OF PRODUCT:

According to EN 60079-29-1 and EN 50104.

7. OTHERS:

This approval is given on the understanding that the Society reserves the right to require check tests to be carried out on the gas sampling system at any time, and that:

AUTRONICA FIRE AND SECURITY AS
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NORWAY

will accept full responsibility for informing shipbuilders, ship-owners or their sub-contractors of the proper methods of use and general maintenance of the units and the conditions of this approval.

***** END OF CERTIFICATE *****