Certificate No:
TAA000030B

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Monitoring System

with type designation(s)
GAS-OVS Vapour Alarm System

Issued to
Guangzhou Fokstone Automation Company Limited
Guangzhou, **China**

is found to comply with
DNV GL rules for classification – Ships, offshore units, and high speed and light craft

Application :

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV.

Temperature	**A/D (Alarm panel/Detector cabinet)**
Humidity	**B**
Vibration	**A**
EMC	**B**
Enclosure	**B/C (IP44 Alarm panel/ /IP66 Detector cabinet)**

Issued at **Hamburg** on **2021-05-28**
This Certificate is valid until **2026-05-27**.
DNV local station: **China South NB**

Approval Engineer: **Didier Girardin**

for **DNV**

Joannis Papanuskas
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.

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 300,000 USD.

GAS-OVS Vapour Alarm System, monitoring oxygen content and inert gas pressure in waste vapour lines, consisting of the following main units:

Electronic Cabinet with alarm Panel	**(Safe Area)**	
ALARM UNIT	X3200	IP 44
Detector cabinet	**(Ex-Area)**	
FLOW METER	DK800-6	
INDUCTIVE RING SENSOR	RC15-14-N3	IP 66
PRESSURE TRANSMITTER	FAP610	
OXYGEN DETECTOR	XGARD Type 1	

X3200 Specification

- Number of input channels 12
- Number of output channels 3
- Protocol MODBUS
- Communication port Two RS485 for redundancy
- Communication baud 4800, 9600, 19200, 38400 bauds
- Built-in alarm function Upper/Lower limit , Alarm delay
- Power requirements 18 ~ 32VDC
- Power consumption 5W
- Operating temperature -5 ºC ~ 55 ºC

Software version: 1.1

Approval conditions

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)

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

As long as the units are covered by the Type Approval, a product certificate according to Pt.4 Ch.9 Sec.1 [1.4] will not be required. Correct configuration and set up for each delivery to be tested during commissioning after installation.

Software control
All changes in software are to be recorded as long as the system is in use on board. Documentation of major changes is to be forwarded to DNV GL for evaluation and approval before implemented on board. Certification of modified functionality may be required for the particular vessel.

Application/Limitation

Ex-certification is not covered by this certificate. Application in hazardous area 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

Hidden

Tests carried out

Applicable tests according to class guideline DNVGL-CG-0339, December 2019.
Applicable tests according to IACS Unified Requirements E10, Rev.7

Marking of product

The products to be marked with:
- manufacturer name
- model name
- serial number
- power supply ratings

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 after 2 years and after 3.5 years. A renewal assessment will be performed at renewal of the certificate.

END OF CERTIFICATE