



Certificate no.:  
**TAA00003EZ**

# TYPE APPROVAL CERTIFICATE

## This is to certify:

that the **Automatic Gas Detection System**

with type designation(s)  
**FMC2000-GDS**

issued to

**Jiujiang Huozhi Shipbuilding Industry Co., Ltd.**  
**Jiujiang, Jiangxi, China**

is found to comply with

**DNV 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 | <b>A</b> |
| Humidity    | <b>B</b> |
| Vibration   | <b>A</b> |
| EMC         | <b>B</b> |
| Enclosure   | <b>B</b> |

Issued at **Hamburg** on **2024-06-17**

This Certificate is valid until **2029-06-16**.

for **DNV**

DNV local unit: **Nanjing NB & CMC**

Approval Engineer: **Dariusz Lesniewski**

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.



## Product description

### Gas Detection and Alarm System FMC2000-GDS

consisting of the following main components:

|                                      |                                                                              |
|--------------------------------------|------------------------------------------------------------------------------|
| Control Cabinet                      | HH-2023GAS01                                                                 |
| Gas alarm controller (system)        | FMC2000 (FMC.B DC/DC, FMC.B CPU, FMC.B-AI, FMC.B-AI, FMC.B-DO)               |
| Display / Repeater HMI               | FMC.BFSQ/FMC.AFS                                                             |
| Gas detectors (inside cabinet):      | Honeywell Sensepoint XCD (O <sub>2</sub> ), XCD (FL), XCD (H <sub>2</sub> S) |
| Power Supply Unit                    | Phoenix Contact QUINT-PS/1AC/24DC 20A                                        |
| Network Switch:                      | MOXA EDS-205A                                                                |
| Siren/flash light (buzz with flash): | XB2BSB4LC                                                                    |
| Flame Arrestors:                     | WITT F53                                                                     |
| Power supply                         | 220V/50Hz (redundant)                                                        |
| Software version:                    | V1.01                                                                        |

## Approval conditions

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

- Reference to Type Approval Certificates TAA00001B9 and MEDB00004XK
- Reference to this Type Approval Certificate
- Functional description
- System block diagram
- User interface description
- Power supply arrangement (may be part of the System block diagram)
- List of monitored points

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

### Product certificate

Each delivery of the application system is to be certified according to Pt.4 Ch.9 Sec.1. The Certification is to be performed at the manufacturer before the system is shipped to the yard. After certification the clause for software control will be put into force.

## Application/Limitation

Type test certificates TAA00001B9 and MEDB00004XK to be observed.

## Type Approval documentation

### Tests carried out

Applicable tests according to class guideline DNV-CG-0339, August 2021.

## Marking of product

- 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 at least every second year and at renewal of this certificate.

END OF CERTIFICATE