Certificate No:
TAA000031E

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Monitoring System

with type designation(s)
SiCOMS / OCom

Issued to
motcom GmbH
Saarbrücken, Saarland, **Germany**

is found to comply with
Det Norske Veritas' Rules for Classification of Ships and Det Norske Veritas' Offshore Standards

Application :

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

Location classes:

Temperature	**B**
Humidity	**B**
Vibration	**B**
EMC	**A**
Enclosure	**B**

Issued at **Hamburg** on **2021-08-04**
This Certificate is valid until **2026-07-17**.
DNV local station: **Essen**

Approval Engineer: **Holger Jansen**

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.

Product description

SiCOMS/OCom is an oil mist concentration monitoring system. The system is capable of monitoring one engine with a maximum of 16 sensors.

The product consists of:
- Evaluator OCMEV Part number: 2 020 10 00000
- Remote Monitoring Unit RMU Part number: 2 020 00 00000
- Sensor SiSe/ OC20 Part number: 2 600 01 10000
- Sensor SiSe/ OC16 Part number: 2 600 01 30000
- Sensor SiSe/ OC14 Part number: 2 600 01 60000
- Sensor SiSe/ OC20EX Part number: 2 600 02 10000
- Sensor SiSe/ OC16EX Part number: 2 600 02 30000
- Sensor SiSe/ OC14EX Part number: 2 600 02 60000

The remote monitoring unit can monitor up to 8 different SiCOMS/OCom systems and connects to the evaluator by Modbus or Canbus connection.

Sensors are fitted with a Splash Oil Guard (SOG) ranging in sizes 65, 53 and 24 for the sensors 20, 16 and 14 respectively.

Measuring sensitivity is adjustable in 10 steps ranging from 0.2mg/l to 10mg/l.

Software:
- Evaluator OCMEV V2.0 B1006
- Remote Monitoring Unit RMU, V2.0 B1000
- Sensors SiSe/ OC14/16/20(EX) V3.50

Software revision history:
- Version history of OMD evaluator software ("version_history_OMD_eva.pdf")
- Version history of OMD sensor firmware ("version history OMD Sensor Firmware.pdf")

Application/Limitation

1. Sensitivity levels 8, 9 and 10 shall be blocked for DNV GL classed vessel to ensure that alarm setpoint and sensitivity requirements are according to IACS UR M67.
2. 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.
3. Cables are not covered by this certificate.

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)
- Software versions for the specific delivery

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 [1.2.3] will not be required. Correct configuration and set up for each delivery to be tested during commissioning after installation.

Clause for application software control
All changes in software are to be recorded as long as the system is in use on board. The records of all changes are to be forwarded to DNV GL for evaluation and approval.
Major changes in the software are to be approved before being installed in the computer.

Type Approval documentation

Tests carried out

Applicable tests according to DNV GL Class Guideline CG0339, December 2019.
Functional test required by IACS UR M67: Performed on Crankcase Monitoring System.

Marking of product

The products to be marked with:

- manufacturer name
- type
- manufactured date
- serial number
- operating voltage (evaluator) or thread length (sensor)

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