

# TYPE APPROVAL CERTIFICATE

This is to certify that the undernoted product(s) has/have been tested in accordance with the relevant requirements of the DNV GL Type Approval System.

Certificate No. **42 238 - 15 HH**

Company **Danfoss IXA A/S**

**Ulvehavevej 61  
7100 Vejle, DENMARK**

Product Description **Marine Emission Sensor**

Type **MES 1001**

Environmental Category **D, EMC1**

Technical Data /  
Range of Application

**Supported gases:**                      **Accuracy (when calibrated):**  
 • NO 0 - 1500 [ppm]                      ±2% of reading or ±0,3% fs whichever is greatest  
 • NO<sub>2</sub> 0 - 500 [ppm]                      ±2% of reading or ±5 ppm whichever is greatest  
 • SO<sub>2</sub> 0 - 1000 [ppm]                      ±2% of reading or ±0,3% fs whichever is greatest  
 • NH<sub>3</sub> 0 - 100 [ppm]                      ±2% of reading or ±1 ppm whichever is greatest

**Technology: UV absorption spectroscopy**

**Mounting flange: circular, bolted connection - DIN 2633, NT 16**

**Ingress protection: IP 65**

**Power supply: 24 VDC**

**Inputs / Outputs:**

- 4 x analogue output: 4 - 20 mA
- Digital inputs: 2 (relay controlled)
- Digital outputs: 2 (relay controlled)

**Communication interfaces: Modbus TCP/IP, CAN, RS-422**

**Local Control Panel: display, menu keys, navigation keys, operational key status indication lights**

**Software version: 4.0.0**

**Place of production: BB Electronics  
Ane Staunings Vej 21  
8700 Horsens, Denmark**

Test Standard **GL Guidelines for the Performance of Type Approvals, Chapter 2- Test Requirements for Electrical / Electronic Equipment and Systems (VI-7-2), Edition 2012**

Documents **Test Report: DELTA-T210140-2  
Qualification Test Reports: 100331-RPT, Rev. A, 100345-RPT Rev. B  
Danfoss Doc.: 100343-RPT Rev. A, 100344-RPT Rev. A, 100346-RPT Rev. B  
Data Sheet 100300-DSH Rev. C, User Guide 100320-MAN Rev. A  
Installation Guide 100310-MAN Rev. A  
Construction drawings; Circuit diagrams; Part lists  
Software Development Documentation**

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

Valid until **2021-08-31**

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File No. **I.A.02**

**Hamburg, 2016-09-01**

Type Approval Symbol

