

*Danfoss*

IXA

# **Innovative** marine emission monitoring with **intelligent analysis technology**

NO<sub>x</sub>, SO<sub>2</sub> and NH<sub>3</sub> analyzer, MES 1001 MARPOL



## Best-in-class solution for safe performance

At Danfoss IXA we work together with all relevant class societies. This ensures that our products live up to the leading standards in the industry as well as ensuring the design quality.



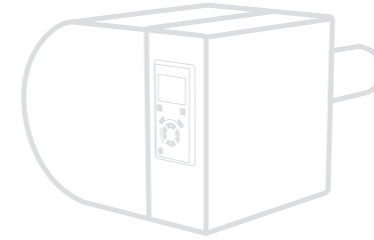
## Marine regulatory compliance calls for reliable and compliant solutions

The increasing global focus on the environment and energy efficiency are the key drivers for our NO<sub>x</sub>, SO<sub>2</sub> and NH<sub>3</sub> analyzer, MES 1001 MARPOL.

The analyzer has been developed with the purpose of enabling the maritime industry to create transparency of their emissions and turn this information into competitive advantages, through favorable total cost of ownership.



## Comply with environmental regulations



In an effort to reduce NO<sub>x</sub> emissions further, the Tier III requirements have been established for ships keel laid after 2016 by The International Maritime Organization (IMO).

The Tier III requirements have been established for ships operating in Emission Control Areas (ECA). More engine manufacturers and ship owners are looking towards Selective Catalytic Reduction (SCR) as a means to reduce NO<sub>x</sub> emissions.

The Danfoss IXA NO<sub>x</sub>, SO<sub>2</sub> and NH<sub>3</sub> analyzer, MES 1001 MARPOL, helps you ensure SCR performance and enables optimization of the SCR process.



## Selective Catalytic Reduction



The traditional approach to controlling Selective Catalytic Reduction (SCR) is by means of the engine load signal, where the amount of urea injected into the SCR is controlled as a function of the load.

An alternative and cost-efficient approach is to install a marine emission analyzer after the SCR and feed back the NO<sub>x</sub> signal to the urea dosing controller to control the dosing of urea more accurately and obtain a better transient performance as the regulation is based on the exhaust out of the SCR. In addition, the analyzer can measure an ammonia slip and thereby issue a warning, which will prevent damage to equipment further down the stack.

Danfoss IXA specializes in emission monitoring solutions that provide fast and accurate measurements, which is vital in ensuring optimum use of the SCR.

# MES 1001 MARPOL

## NO<sub>x</sub>, SO<sub>2</sub> and NH<sub>3</sub> Analyzer

MES 1001 MARPOL measures NO<sub>x</sub>, SO<sub>2</sub> and NH<sub>3</sub> gases directly in the exhaust pipe withstanding temperatures up to 500°C. The analyzer can send data updates every second and is self-calibrating – this means almost no maintenance and no special training. It is easy to install, requiring only pressurized air, data cable and power.

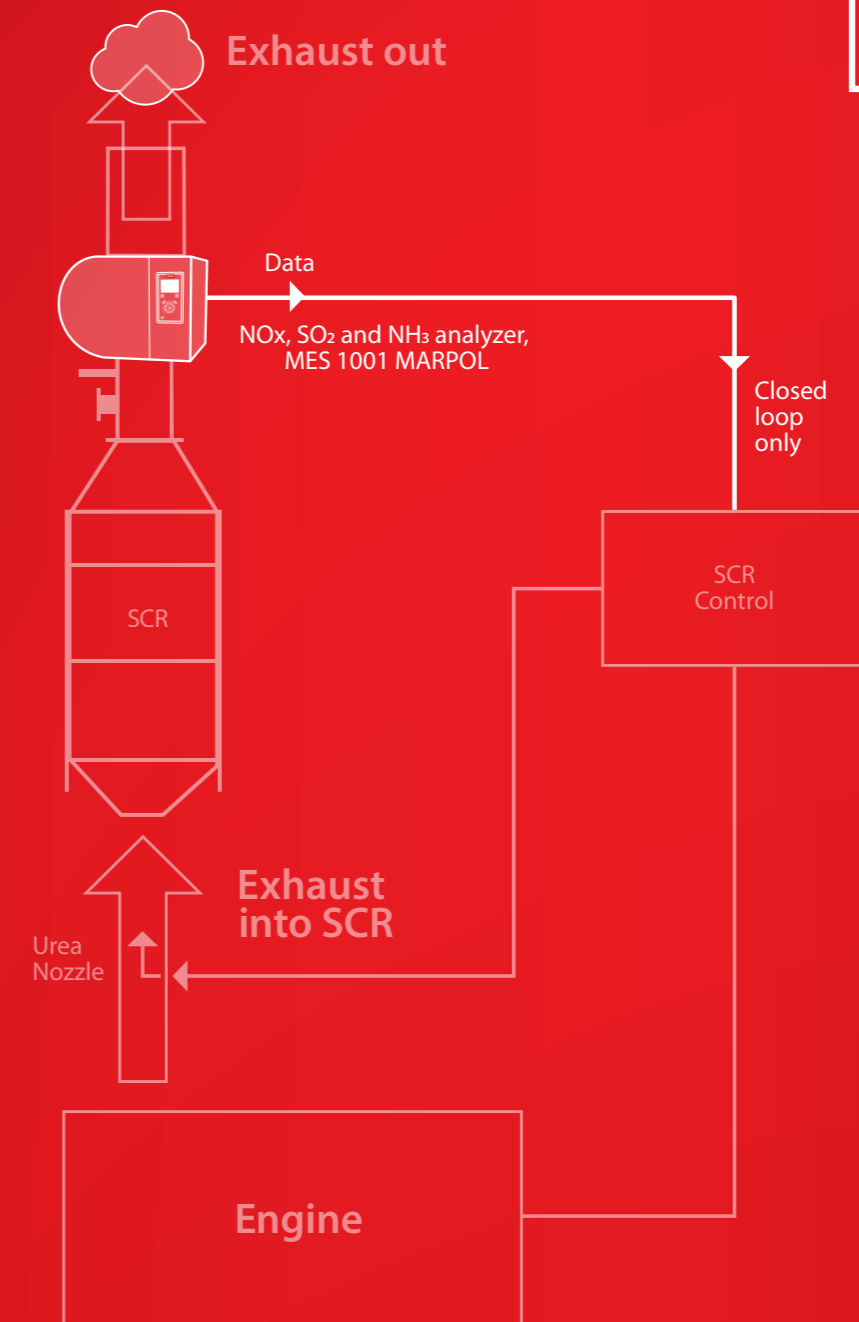


### KEY BENEFITS

- **No More Spot Checks**  
MES1001 MARPOL saves time and resources, eliminating costly spot checks.
- **Onsite Calibration by crew**  
Onsite calibration of MES 1001 MARPOL offers customer efficiency and peace of mind.
- **NH<sub>3</sub> slip Measurement**  
NH<sub>3</sub> Measurement in MES 1001 MARPOL empowers customers with precise data.

## Measurement that keeps you in control

Applicable for  
**UREA**  
savings



**The MES 1001 MARPOL is ideal for monitoring NO<sub>x</sub> and ammonia in maritime SCR applications.**

The analyzer can monitor NO<sub>x</sub> emissions in open-loop SCR systems as well as in SCR closed-loop systems. In the latter case, the fast response time of the analyzer makes it suitable for feeding back the NO<sub>x</sub> signal to the SCR control unit for fast and optimum dosing of the urea.

With the ever-increasing number of SCR systems being installed on ships worldwide to comply with the Tier 3 regulation, the monitoring of the ammonia becomes more and more important. An unmonitored ammonia slip is not only harmful to the environment, it can also over time damage the exhaust system of the ship with costly repairs as consequence. Last but not least, the ammonia slip is money out the exhaust stack as the dosed urea is not utilized in the optimum way. The MES 1001 MARPOL operates in both high and low sulfur applications.

# Accessible for visualization platforms

Experience simplified reporting as emission values are now conveniently accessible on CII index visualization platforms.

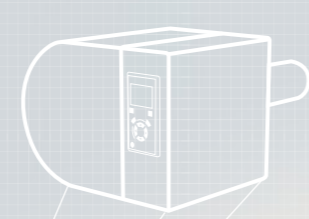
## MARPOL compliance made easy:

### Technical file modifications and connections simplified

Achieving MARPOL compliance is simplified through streamlined technical file modifications and connections. Ensure regulatory adherence effortlessly.

### Applicable for Norwegian NOx Fund Compliance

Simplify your reporting process with our solution, tailored to ensure compliance with Norwegian NOx Fund requirements.



The ultimate  
**CARB**  
regulation-compliant

Ensure CARB regulation compliance with the Danfoss IXA analyzer, the optimal choice for vessels without shore power.

# One solution provider of emission monitoring

Danfoss IXA is one solution provider of emission monitoring.

This covers monitoring and gathering of all emission data to be used for compliance, control, documentation, and optimization of processes in various applications throughout the engine room. This is done through platforms provided by the Danfoss IXA product portfolio.

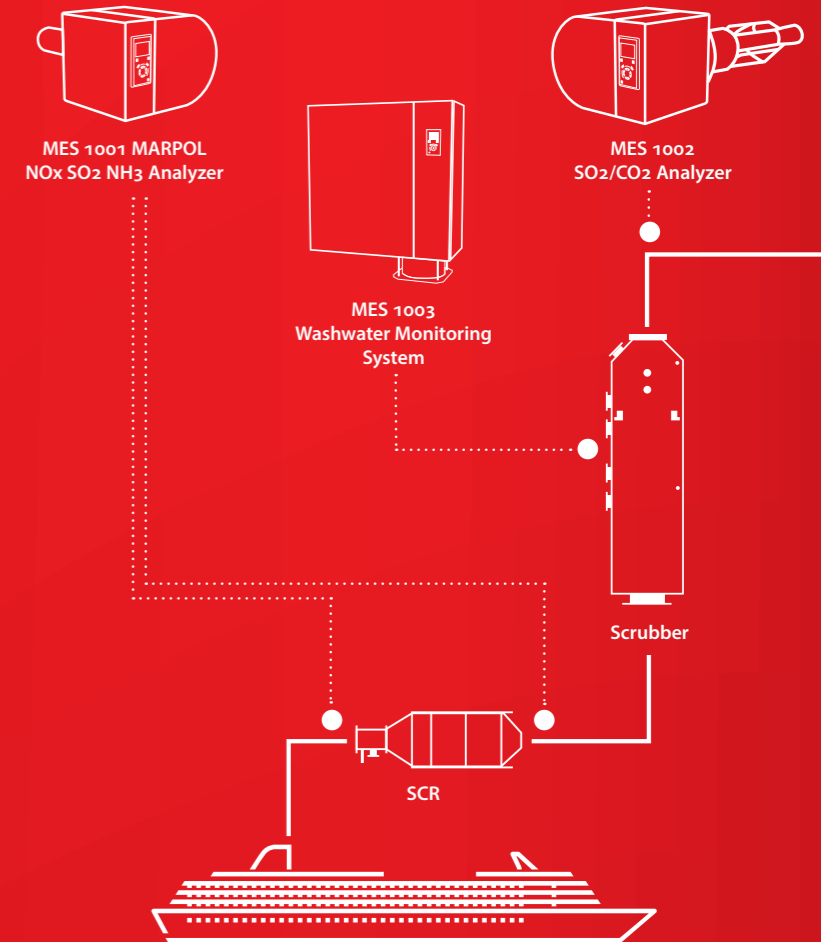
All Danfoss IXA products together provide you with the best solution for emission monitoring that is easy to install, operate and maintain.

Danfoss IXA is world class provider of emission monitoring solutions.

Watch our introduction video and discover MES 1001 Technology



Scan QR code



## MES 1001 MARPOL Measurement ranges

NO <sub>x</sub>	0 – 2000 ppm
SO <sub>2</sub>	0 – 1000 ppm
NH <sub>3</sub>	0 – 100 ppm

# One solution provider of emission monitoring in the maritime industry

Danfoss IXA A/S, part of the Danfoss Group, is a leading player in certified marine emission monitoring solutions. We develop analyzers and systems, and our innovative analyzers precisely and continuously measure climate parameters and environmentally harmful gases, providing documentation of regulatory compliance and essential input for energy optimization.

## Engineering a more sustainable shipping industry

### Maritime expertise across divisions

To serve the marine industry in the best possible way, several Danfoss divisions bring a particular range of technical know-how and benefits on board. On their own, each division is at the forefront of its field with industry-leading insight and innovation. Working together, the Danfoss divisions form a comprehensive array of components that help major ships around the world ashore safely and on-time.

### Maritime Products with High Standards

Danfoss IXA's products are designed for the maritime environment and comply with industry standards. Thorough testing and third-party approvals ensure high technical standards.

Learn more at [danfoss-ixa.com](https://danfoss-ixa.com)