T2500

CEMS Analyser

The air we breathe is a mixture of numerous gases, balanced and fine-tuned through thousands of years. As anthropogenic emissions increase, this balance is repeatedly disrupted. By identifying the exact content of the gases that are emitted, the true impact on air quality will be known. This is made possible by our T2500 CEMS analyser.

- All-in-One multi-gas analyser
- Direct measurement of NO and NO_2 , no converter required
- Real time data - 24/7
- Tolerates vibration
- Simple cleaning
- No consumables

the challenge

Climate change is one of the biggest challenges of our time. The UN Sustainable Development Goals and the Paris Agreement both express the need to move towards a climate neutral world. To be able to control and reduce Green House Gas (GHG) emissions, new legislations and emission limits are introduced rapidly.

In 2021 IMO adopted new mandatory measures to cut the carbon emissions intensity of international shipping.

Consequently, all large vessels will be required to calculate its energy efficiency existing ship index (EEXI) and to measure their rating in a new carbon intensity indicator (CII) that will be addressing operational efficiency. Incentives for ships with the best CII ratings are expected to be in place by 2025.

Emission regulations and limits are expected to change rapidly in the coming years. With the T2500 CEMS analyser incorporated, any operator will be well positioned to tackle current and future operational and regulative requirements.

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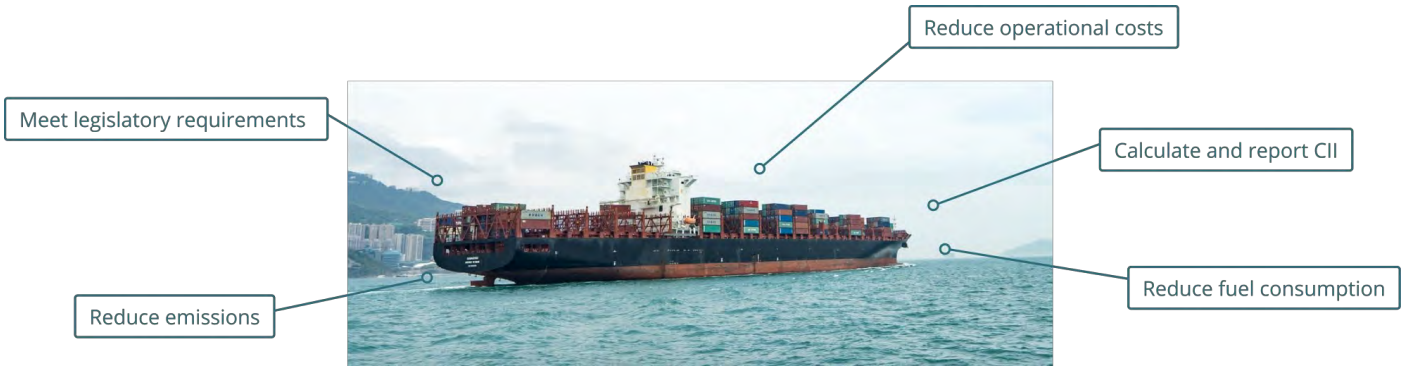
improve your performance

When the true composition of emissions are known, it is possible to reduce them effectively. Conventional emission monitoring principles are based on calculations depending on fuel consumption and estimated process conditions. By continuously monitoring emissions, we can provide a real-time online analysis of the gases emitted, allowing for process optimization and motor control. This makes it possible to instigate operational measures that reduce fuel consumption, operational costs and emissions.

engine optimization

GHG emissions from the marine industry can be reduced by switching to LNG as fuel. Dual fuel engines make it possible to operate continuously with varying fuel availability and pricing. By constantly monitoring the CO_2, CO, NO and NO_2 levels versus the levels of unburnt methane (CH_4) in the exhaust gas, engine optimization and emission reduction is possible. This enables operators to maintain CO_x and NO_x emissions below regulatory levels without compromising performance.



esg transparency

Environmental, Social, and Governance (ESG) scores are of increasing interest to investors and consumers. In addition to contributing to transparency with regards to chemical emissions, our CEMS analyser is a great tool for both achieving and documenting regulatory compliance.

The T2500 analyser provides reliable and real emissions data that will simplify and enhance emissions accounting and reporting.

control your emissions

The formation of nitrogen oxides (NO_x) in propulsion is a complex process. Parameters like combustion temperature and air/fuel ratio need to be controlled carefully to reduce the emissions of these gases and optimize the combustion processes. The T2500 analyses the true composition of NO and NO_2, thus there is no need for a NO to NO_2 converter. NO_x emissions also contribute to small particulate matter (PM2.5) formation in the atmosphere. By continuously monitoring these emissions, it will be possible to initiate effective countermeasures.

a unique technology

The T2500 CEMS analyser uses a unique, patented technology to continuously monitor all key flue gas components. The instrument is fast, reliable and accurate. It is designed to simplify emission monitoring. The combination of a reliable, field-proven IR source, our proprietary MEMS filter and no moving parts, ensures a robust solution. Required maintenance is at a minimum. The result is low operational costs and exceptional stability. The instrument is suitable for both new installations and retrofit.

tailored to your needs

The Tunable T2500 CEMS analyser offers a wide range of gas analysis possibilities. The T2500 is optimised for analysis of CO, CO_2, SO_2, NO, NO_2 and CH_4 at ppm levels. The data collected by the analyser are available in real-time via user-friendly interfaces meeting industry standards. Reliable and continuous emissions data provide crucial information on the process performance and status. Combined with our T1000 natural gas analyser, true optimization of fuel consumption and emissions can be achieved.

ID	Parameter	Range (per volume)	Precision / LDL
CO_2	Carbon dioxide	0 - 10% (10-15%)	0.2% (0.5%)
CO	Carbon monoxide	0 - 2000 ppm	15 ppm
H_2O	Water moisture	0 - 10 000 ppm	150 ppm
NO	Nitrogen monoxide	0 - 2000 ppm	20 ppm
NO_2	Nitrogen dioxide	0 - 500 ppm	2 ppm
CH_4	Methane	0 - 10 000 ppm	25 ppm
SO_2	Sulphur dioxide	0 - 250 ppm	2 ppm

Typical performance ratings

applications

The T2500 fits a wide range of applications for process and emission monitoring. Typical areas is where it is important to accurately analyse emissions of NO_x and CH_4 in combination with SO_2, CO_2 and CO. This enables documenting IMO 2020 sulphur cap compliance. Continuous NO_x data can demonstrate actual IMO Tier compliance during operation under real life conditions. Continuous CO analysis enables monitoring of engine efficiency as well as early warnings and preventive maintenance scheduling based on engine performance.

about tunable

Tunable was founded in 2015 to build the world's most versatile gas analyser. The core technology is based on a patented tunable optical filter.

Tunable's gas analysers offer market leading performance and unprecedented size. The instruments rely on state-of-the-art nano- and MEMS- technology. The core technology enables continuous analysis operation and exceptional selectivity. All the components in the gas mixture are precisely determined and operation is supported by auto-calibration and rugged design.

A full product description can be found in the product data sheet

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