As exhaust gas emissions from the maritime industry are subject to international and national law and regulations, it is fundamental for ship owners to establish compliance with new environmental standards.

Being the de facto convention, IMO MARPOL Annex VI sets limits for airborne pollution for gas substances contributing to local and global environmental problems.

Inspired by environmental concerns, ShipCEMS is designed to monitor and report traces of \( \text{SO}_2 \), \( \text{CO}_2 \), and other gas substances that are contributing to local and global emission challenges. Our ShipCEMS is the clever choice for ship owners to help them ensuring that the forthcoming IMO regulations for emission control areas can be met.

The ShipCEMS design is based on a careful selection of maritime standard components, hence ship movements, vibrations and temperature loadings are attended to during system design. Our solution uses a heated sample treatment throughout to assure measuring the true composition of the exhaust flue.

ShipCEMS can be customised to individual requirements, covering all types of exhaust cleaning systems and all ship fuels from heavy fuel oil to low sulphur fuel oil or LNG-fuelled ships.

ShipCEMS can be installed on all vessels, such as cruise ships, ferries, tankers, gas carriers, bulk carriers and offshore supply vessels.

- Continuous monitoring of \( \text{SO}_2 \) and \( \text{CO}_2 \)
- \( \text{NO}_x \) and Oxygen monitoring as options
- Extractive measuring technology for demanding applications
- Rugged design for marine environment and operations
- Continuous operation with automatic analyser calibration
- Low-cost maintenance, long service lifetime
A typical ShipCEMS installation comprises:
- Flange mounted sample probe
- Sample conditioning system
- Analyser system

ShipCEMS can monitor up to four exhaust stacks simultaneously. One sample probe and one sample conditioning cabinet must be installed for each exhaust stack to be monitored. One analyser cabinet is required, taking care of the necessary sample stream switching.

**Technical specifications**

**Measuring range**
- SO₂: 0-50 ppm / 0-200 ppm full scale
- CO₂: 0-10 % / 0-20 % full scale
- NOₓ: 0-2000 ppm / 0-5000 ppm full scale
- O₂: 0-10 % / 0-25 % full scale
- Other gases on request

**Measuring principles**
- Industry standard NDIR measuring technology

**Type Approvals**
- Lloyd’s Register

**Environmental requirements**
- IACS E10
- IEC 60945
- IEC 60529

**Analyser System cabinet**
- Dimensions (WxDxH): 800 x 400 x 1000 mm
- Weight: 143 kg

**Sample Conditioning System cabinet**
- Dimensions (WxDxH): 400 x 300 x 700 mm
- Weight: 52 kg

**Heated sample probe**
- Length: 254 mm
- Flange diameter: 166 mm
- Weight: 10 kg

**Materials**
- Cabinets: SS316L
- Tubing: PFA/PTFE
- Fittings: SS316
- Sample probe counter flange: SS316L (or customer specific)

**Ingress protection**
- IP44

**Power requirements**
- 230 VAC, 2-phase, 50/60 Hz

**Power consumption**
- Analyser System: 590 W
- Sample Conditioning System: 490 W
- Sample probe: 350 W

**Communication**
- 4-20 mA analogue outputs
- Digital alarm outputs