

Salvico Environment



When Safety Matters



Salwico Emission Monitoring Systems

Advanced Emission Monitoring for Marine Applications



The Salwico Emission Monitoring Systems is the world's only true continuous measuring NO_x, SO₂ and CO₂ analysing equipment for marine applications.

Unlike other solutions based on electrochemical sensor technology, not equivalent to chemiluminescent analyzing principles, Consilium is the first and only supplier providing a fully compliant solution.

The analyzing technology is based on the regulatory chemiluminescent principle as stated in the "Marpol Annex VI NO_x Technical Code".

By adapting innovative design and combine that with our history of 40 years of experience in gas sampling technology used in some of our gas detection systems, we made it possible to offer a true and compliant system with capacity for NO_x, SO₂ and CO₂ analysis. In a short time this solutions is expected to be considered as the Standard of the market in the same way as our Salwico Fire & Gas Detection Systems have been for many years.

Why measure continuously

- Continuous monitoring can to some degree be a "fit and forget" answer.
- It can be used to help achieve optimum engine efficiency/performance and fuel economy.
- Continuous monitoring required if emissions trading schemes within the European Community will be introduced to shipping.
- Demonstrates environmental awareness (ISO 14001) when implemented to verify results from preventive actions.
- Control and verifying of your emission reducing equipment such as SCR, scrubber etc.

The impact of shipping on global NO_x, SO₂ & CO₂ levels

- World shipping is a major global source of air pollution.
- NO_x emissions from shipping currently represents 7%.
- SO₂ emissions currently represents 4% of total global emission.
- Measuring SO₂ through verified exhaust emission can possibly allow use of lesser quality and cheaper bunker.
- Already there are defined ECA waters worldwide that effect limits of NO_x/SO₂ exhaust emissions.
- Further regulation for CO₂.



The process

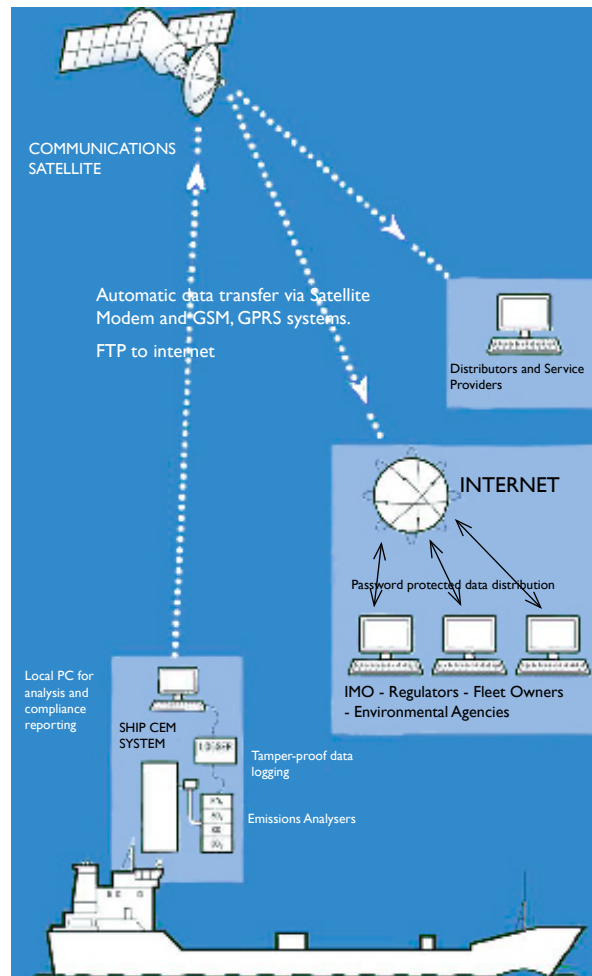
Sample gas from the ship's exhaust is diluted with dry, clean instrument grade compressed air and is transported back to the analyser using up to 100 m of typically unheated sample line. This is a much more effective and cheaper solution compared to using length limited and costly preheated sampling lines used with non compliant technology.

The sample gas flow is accurately controlled by the use of two temperature controlled critical flow orifices. A low maintenance pump is used to provide a continuous vacuum. The small sample is passing through our analysers using optics to measure, in order to keep a low maintenance product.

In its most simplistic format, the NO_x, SO₂ and CO₂ analysers provide as standard a 4-20 mA output which can be connected into the ships DCS/PLC/SCADA system.

Alternatively Consilium can provide tamper proof data logging equipment, data collection, analysis and reporting software and a range of communications options including satellite transmission, GSM or GPRS data transfer.

Password protected internet data distribution services are also available.



Communications options

GSM	FTP
GPRS	PLC/SCADA

Consilium can provide the following options for the NO_x, SO₂, CO₂

- NO_x measuring one to ten funnels with just one NO_x analyser
- Opacity monitoring
- O₂ measurement - fitted to dilution probe
- CO measurement available
- NH₃ monitoring
- Automatic calibration through the whole system including sampling lines

- Sampling lines up to 100 m as standard and up to 200 m with minor adaption
- Data loggers and reporting software
- Communications equipment, satellite GSM/GPRS
- Prefabricated mounting flanges
- Interface possibility to energy/power efficiency programs already installed onboard



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