

Salwigo NOx/SO<sub>2</sub>/CO<sub>2</sub>



When Safety Matters

**Emission Monitoring System**

*Reliable and Customized Solutions*

# Salwico NO<sub>x</sub> / SO<sub>2</sub> / CO<sub>2</sub> Analyzing System

## *Advanced Emission Monitoring for marine applications*

Proudly presenting the latest addition to the Salwico product range we now introduce the world's only true continuous measuring NO<sub>x</sub>, SO<sub>2</sub> and CO<sub>2</sub> analysing equipment for marine applications.

Experiencing a more firm demand from our customers to also include the NO<sub>x</sub>, SO<sub>2</sub> and CO<sub>2</sub> analyzing capacity into our Salwico product range is encouraging as they trust our expertise in this field. It will be a logical extension of our business as this will benefit our customers in a very positive way from our already learnt experiences over the years in more ways than one.

Unlike other competitors non-compliant solutions based on electrochemical sensor technology, which is not equivalent to chemiluminescent analyzing principles, Consilium can now as the first and only supplier provide a fully compliant solution.

Our analyzing technology is based on the regulatory chemiluminescent principle as stated in the "Marpol Annex VI NO<sub>x</sub> Technical Code". By adapting innovative design and combine that with our history of more than



40 years of experience in 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<sub>x</sub>, SO<sub>2</sub> and CO<sub>2</sub> analysis, which in a short time 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.
- Can be used to help achieve optimum engine efficiency/ performance and fuel efficiency.
- Continuous monitoring required if emissions trading schemes within European Community will be introduced to shipping.
- Demonstrates environmental awareness (ISO 14001) when implemented to verify results from preventive actions.

### The impact of shipping on global NO<sub>x</sub>, SO<sub>2</sub> & CO<sub>2</sub> levels

- World shipping is a major source of air pollution.
- NO<sub>x</sub> emissions from shipping currently represents 7%.
- SO<sub>2</sub> emissions currently represents 4% of total global emission.
- Measuring SO<sub>2</sub> through verified exhaust emission can allow use of lesser quality and cheaper bunker.
- Already there are defined SECA waters within EC that effects limits SO<sub>2</sub> exhaust emissions.
- Further regulation for CO<sub>2</sub>



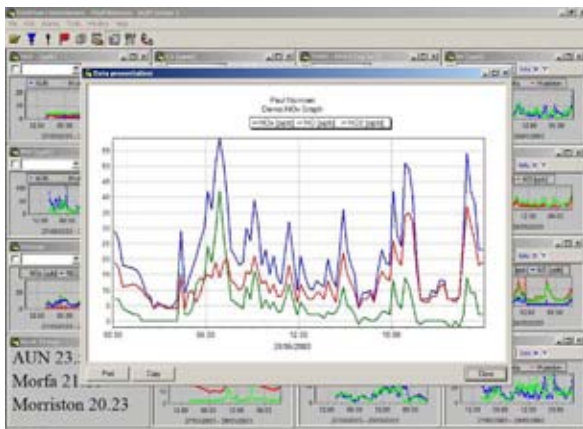
### The process

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.

In its most simplistic format, the NO<sub>x</sub>, SO<sub>2</sub> and CO<sub>2</sub> analysers provide as standard a 4-20 mA output which can be connected into the ships DCS/PLC/SCADA system.

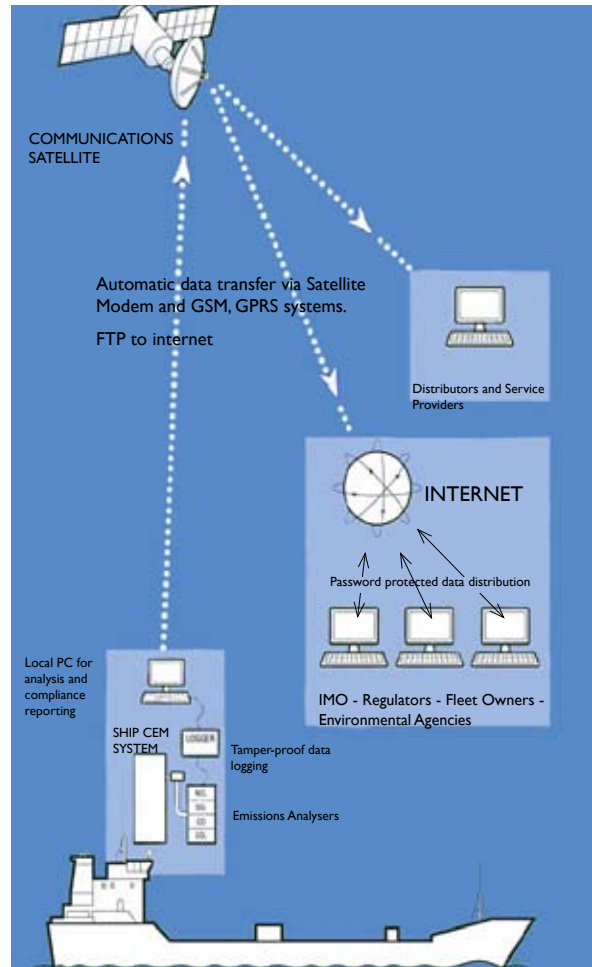
Alternatively Consilium can provide tamper proof data logging equipment, data collection, analysis and reporting software and a range of communications options including satellite modem, GSM or GPRS data transfer. Password protected internet data distribution services are also available.

Please feel free to contact us for more detailed information should you have an interest in our exhaust emission solutions.



### Communications options

- Satellite
- GSM
- GPRS
- FTP
- PLC/SCADA



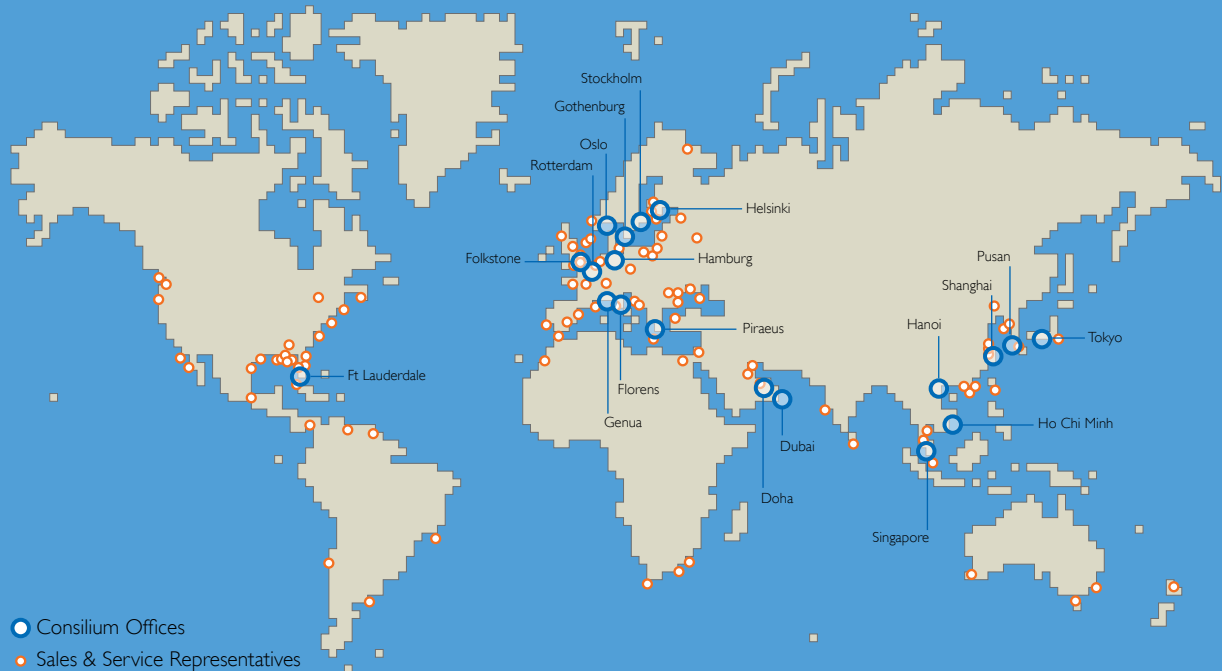
### Options for NO<sub>x</sub>, SO<sub>2</sub> & CO<sub>2</sub>

Consilium can provide the following options for the NO<sub>x</sub>, SO<sub>2</sub> and CO<sub>2</sub> products:

- NO<sub>x</sub> - measure one to four funnels with just one NO<sub>x</sub> analyser
- O<sub>2</sub> measurement - fitted to dilution probe
- CO<sub>2</sub> measurement available
- Temperature, pressure and humidity available
- Mounting flanges
- Automatic calibration set
- 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



# Global Service and Support



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