

G3500s Stack Gas Oxygen Analyzer

Zirconia Sensor for Direct Wet Measurement
Boiler Combustion Control



Perfecting Sensible Technology

Optimize your boiler efficiency and control the combustion of both marine and industrial boilers. We at Green Instruments have extensive know-how ranging from controlling the fuel-air ratio of burners on auxiliary boilers of ships to designing robust sensor probes for biomass heating plants.



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True Wet Measurement of Excess Oxygen



The G3500s Stack Gas Oxygen Analyzer Board

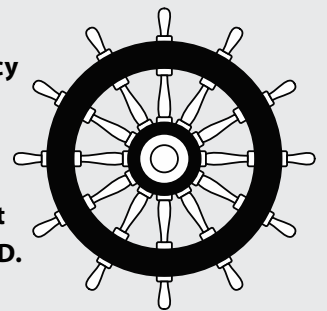
The fuel-air ratio in the burner is crucial for optimizing the combustion and for boiler efficiency. Insufficient oxygen supply leads to incomplete combustion. The unburned fuel escapes and its energy is lost. Beside wasting fuel, there is more soot and black smoke coming out of the exhaust. On the other hand, too much excess air takes heat away, which also means that valuable energy is lost.

The G3500s Stack Gas Oxygen Analyzer provides real-time data for you to control the fuel-air ratio. The system is installed directly in the stack close to the boiler, thus giving the true wet oxygen measurement under actual flue gas conditions.

With a G3500s Stack Gas Oxygen Analyzer, it is possible to save up to 3-5% fuel consumption. Even on smaller boilers, a G3500s achieves a pay-back time of a few months. In addition, controlling the combustion condition helps to give early alarms for boiler malfunctions. This keeps the boiler clean and you can save the expensive man hours for boiler maintenance. Last but not least, by saving fuel you spare the environment of emissions.

Key Features

- Optimize boiler efficiency
- Keep the boiler clean
- Save fuel
- Get early alarms
- Protect the environment
- Certified under the M.E.D. by Bureau Veritas
- Compact design — Easy to install
- Automatic in-situ calibration — Easy to use
- Automatic back-flushing for purging the filter at the probe head — Easy to maintain
- Configurable measuring and output range
- Long time sensor stability
- Inexpensive spare parts
- Worldwide customer support via service partners



For Boiler Safety and Fuel Economy



**The Probe of the G3500s
Stack Gas Oxygen Analyzer**

The G3500s Stack Gas Oxygen Analyzer relies on a robust design that makes it appropriate for marine use with lots of vibrations. Also for special industrial applications with unusual combustion conditions, it has proven its durability. It is a compact system including a probe with protection housing connected by an umbilical cord to the monitoring board with valves for calibration and back-flushing.

The system is based on a zirconia cell, which has proven its function in many different environments. Our analyzer is type approved by Bureau Veritas under the M.E.D. (EU Marine Equipment Directive). Both monitoring range and signal output are fully scalable according to your needs and external requirements.

The automatic simplified calibration of the G3500s Stack Gas Oxygen Analyzer makes it easier for the crew to operate the system. At regular intervals (free configurable), the analyzer calibrates itself using instrument air. The automatic back-flushing of the probe with instrument air cleans the probe head from loose soot and dust thus assuring minimum maintenance and crew disruption.

Specifications

Analyzer:

Power supply	standard 210–250 V AC – 50/60 Hz – 20 VA max. or optional 105–130 V AC – 50/60 Hz
Consumption	30 VA per analyzer (during calibration 50 VA)
Ambient temperature	0°C to 55°C
Digital display	LED type 5 digits
Alarm relays	2 relays – volt free – max. 250 V AC/8 A – alarm level configurable
Output signal	Active 4...20 mA linearized – range selectable – default 0.0...25.0% – Load (max.): 20 mA/200 Ω /4 VDC
Measurement range	0.2 to 21.0%
Response time	90% of full scale in 10 sec.
Reliability	Repeatability: 0.1% of reading – Accuracy: +/- 0.1% O ₂
Analyzer casing	Aluminum casing – IP55

Analyzer Board with Connections:

Dimensions / Weight	H×W×D: 500 × 260 × 160 mm / ca. 5 kg (without umbilical cord)
Test gas reduction regulator	Max. 8 bar – 1/8" BSP Connection
Air supply reduction regulator	incl. filter – max. 8 bar – 1/8" BSP connection
Filter retention	95% of 1 µm particles
Air supply	Instrument air quality according to ISO 8573-1.3.3.2 – consumption up to 5 l/min

Ejector Probe:

Sensor technology	Heated Zirconia type sensor
Sample temperature	0°C to 400°C
Probe length / Socket	Insert length: app. 130-380 mm depending on probe length and socket insertion — see diagram below
Calibration air flow	App. 2 l/min
Ejector air flow at 1 bar	App. 2 l/min ≈ Vacuum 80 mm H ₂ O – adjustable if more suction is needed
Dimensions / Weight	H×W×D: < 285 × 180 × 650/475 mm / ca. 5 kg (without umbilical cord) — see diagram below
Umbilical cord	3.0 m length in 28 mm Nylon Conduit

Optional Equipment:

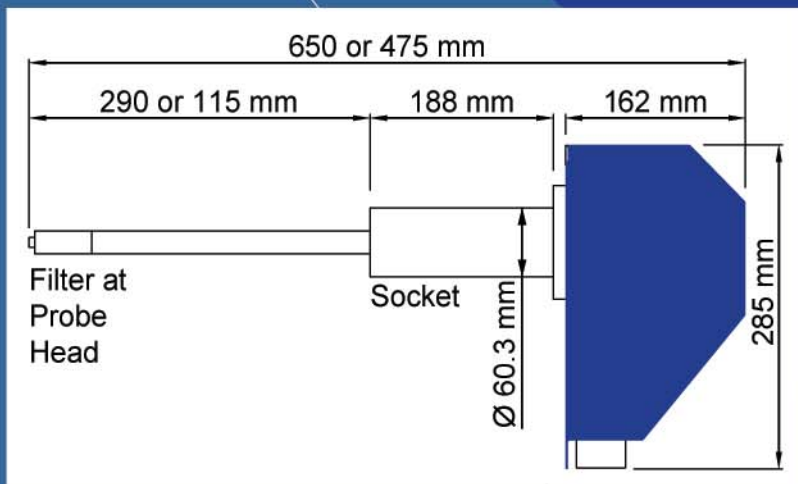
Remote display with alarm relays
Visualization and data logging
Extension kit for umbilical cord

Specifications subject to changes without notice



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