LaserGas™ III Single Path Oxygen Analyser
Cutting-edge technology

Key Features
- Gen. 3 compact LaserGas electronics
- For operation in zone 1 and class I div 1 areas
- Sub second response times
- Low power < 10 Watt
- Suitable for use in SIL 2 systems
- No interference from other gases
- Stable calibration, no zero drift
- No gas sampling: In-situ measurement

The TDLS Process Solution
NEO Monitors new oxygen analyser is specifically designed for service in hazardous areas. Based on our third generation LaserGas electronics, the entire instrument is build into compact flameproof enclosures making it fit for zone 1 and division 1 applications. The LaserGas III O2 consists of a transmitter and receiver unit that are mounted diametrically opposite each other on stacks, ducts or reactors. The laser light will cross the process gas and concentration changes are detected in-situ and in real-time.

Fast and Reliable
The LaserGas III O2 sets a new standard for fast and reliable TDLS analysis. The laser scans the absorption line in milliseconds. This enables overall instrument response times of 100 msec and critical oxygen concentration changes are uncovered immediately. The LaserGas III O2 is our most reliable gas sensor with all electronics designed according to IEC 61508, SIL 2 (safety integrity level). Based on the fully digital Gen. 3 LaserGas electronics the instrument is very power efficient as well.

State of the Art Technology
NEO Monitors LaserGas is using Tuneable Diode Laser Spectroscopy (TDLS) i.e. a non-contact optical measurement method employing solid-state laser sources. Therefore, the sensor remains unaffected by contaminants and corrosives and does not require regular maintenance. The highly selective laser source scans a single gas absorption line specific to the target gas, thus eliminating cross interference from other gases.

Key Application Areas
The LaserGas III O2 is the solution for reliable and fast measurement of oxygen in safety critical applications or in combustion control. Some of the focused applications:
- Chemical industry (inertisation control of reactors, Vinyl Chloride or PVC, Acrylic acid, solvent acid recovery, carbon black etc.)
- Petrochemical industry (FCC Units, tail gas treatment, flare gas monitoring, vent headers of incinerators, process heaters etc.)
- Steel industry (Coke oven gas, converter coal gas, reheating furnaces)
**LaserGas™ III O₂ Monitor**

**Technical Data**

### Instrument Data

**Specifications**

- **Detection limit (O₂)**: 100 ppm **
- **Max. process gas temperature**: 1500 ºC
- **Max. process gas pressure**: 10 bar abs
- **Optical path length**: Typically 0.5 – 20 m
- **Response time**: 100 msec
- **Repeatability**: +/- Detection limit or +/- 1% of reading, whichever is greater
- **Linearity**: < 1%

**Environmental conditions**

- **Operating temperature**: -20 ºC to +55 ºC (extended rating -40 ºC and/or + 65 ºC on request)
- **Storage temperature**: -40 ºC to + 70 ºC
- **Ingress protection**: IP65

**Inputs / Outputs**

- **Analogue output (3)**: 4 – 20 mA current loop, source or sink
- **Digital output**: 10/100 Base T Ethernet (Modbus TCP), USB, RS-485
- **Relay output (2)**: High gas-, and fault relays (normally closed circuit relays)
- **Analogue input**: 4 – 20 mA process temperature and pressure reading

**Ratings**

- **Power supply**: 24 VDC, range 18 – 32 VDC
- **Power consumption**: Max. 10 W
- **4 – 20 mA output**: 500 Ohm max. load impedance, not isolated
- **Relay output**: 1 A at 30 V DC/AC

**Installation and Operation**

- **Flange dimension**: DN50/PN10 or ANSI 2”/150lbs (other dimensions on request)
- **Alignment tolerances**: Flanges parallel within 1.5º
- **Purging of windows**: Dry and oil-free pressurised air or gas, or by fan
- **Purge flow**: 10 – 50 l/min per flange (application dependent)
- **Calibration**: Check recommended every 12 months

**Security**

- **Laser class**: Class 1 according to IEC 60825-1, eye safe
- **CE Certified**
- **EMC Conformant with directive 2004/108/EC**

**Approvals**

- **ATEX rating TU/RU**: II 2 G Ex d IIC T4, II 2 D Ex tD A21 IP65 T88ºC
- **ATEX rating connection box**: II 2 GD Ex e II T6 tD A21 IP66 T80ºC
- **CSA**: Class I Div. 1, Groups B, C and D (pending)
- **Functional safety**: Compliant with SIL 2 requirements according to IEC 61508

**Dimension and weight**

- **Transmitter and receiver unit (TU/RU)**: 215 mm (length, add 50 mm for purge unit) x 125 mm (diameter), 3.5 kg each
- **Window unit (optional)**: 75 mm (length) x 90 mm (diameter), 1.1 kg
- **TU/RU connection box**: 260 x 160 x 90 mm, 2.5 kg

* Other gases on request

**Detection limits are specified as the 95% confidence interval for 1 m optical path and gas temperature / pressure = 25 ºC / 1 bar abs.

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**neo monitors as**

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