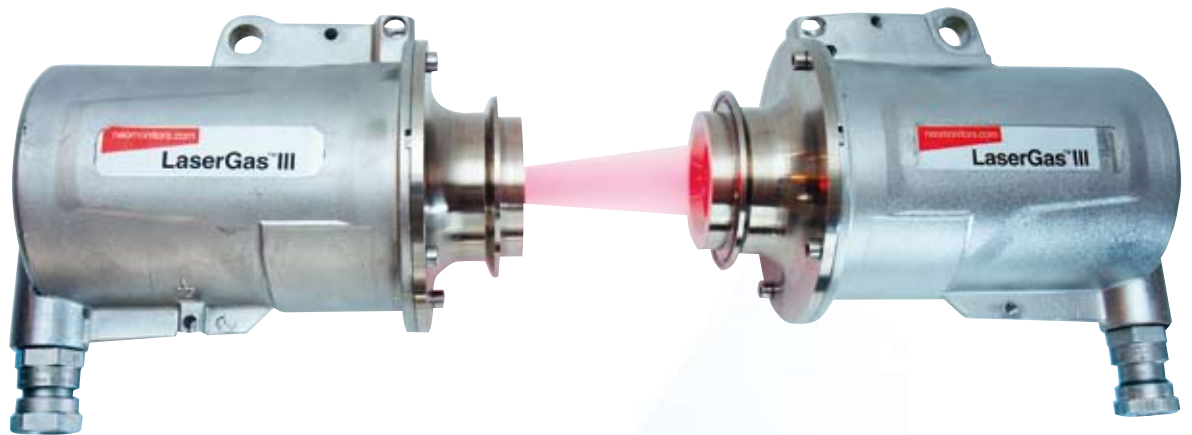


# LaserGas™ III Single Path Oxygen Analyser

## 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 built 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 O<sub>2</sub> Monitor

## Technical Data

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### Instrument Data

#### Specifications

Detection limit (O <sub>2</sub> )*	100 ppm **
Max. process gas temperature	1500 °C
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 °C to +55 °C (extended rating -40 °C and/or + 65 °C on request)
Storage temperature	-40 °C to + 70 °C
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 1.5°
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 (op is) IIC T4, II 2 D Ex tD A21 IP65 T88°C
ATEX rating connection box	II 2 GD Ex e II T6 tD A21 IP66 T80°C
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 °C / 1 bar abs.

**neo monitors as**

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