NEO Monitors LaserGas™ is using Tuneable Diode Laser Absorption Spectroscopy (TDLAS) 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 laser beam is coupled into a Herriott cell, where it is reflected multiple times between two spherical mirrors in order to enhance the analyser sensitivity.

The MP monitor is a turn-key instrument. No other operations than connecting power, sample gas tubes and optional purge are required during installation. To avoid fouling of optical parts in the Multipass cell the cleanliness of the sample gas must be ensured. Filtering the sample gas in an appropriate extractive system may be required for some applications.

### Features
- Short response time (flow depended)
- Very low detection limits (ppb for most gases)
- No interference from background gases
- Stable calibration
- No zero drift
- Offline gas analysis in controlled environment
- No moving parts, no consumables, turn-key instrument
- ATEX and CSA certified

### Applications
- Chemical industry
- Petrochemical industry (contaminants like H2S in NG)
- Industrial gas (impurities in pure gases)
- Semiconductor industry
- Power plants (stack testing of corrosive emission gases)
- H2S emission monitoring (pulp & paper, refineries, biogas production)
- and more

### Customer benefits
- The multipass cell concept combines a long measurement path length with a compact analyzer design
- Measures trace levels of gases, offline in a controlled environment
- Limited need for maintenance
- Highly reliable real time analyzer
- Low maintenance cost
- Reduce emission to the environment
- Easy to install and operate
- Reduce daily operation costs
- Optimize process
- Well proven measurement technique
## Technical Data

### LaserGas™ II MP

#### Specifications

- **Optical path length:** 11 m
- **Response time:** Typically 2 – 10 sec (depending on cell and sample gas flow)
- **Accuracy:** Application depended
- **Repeatability:** 1% of range (gas & application specific)

#### Environmental Conditions

- **Operating temperature:** -20 °C to +55 °C
- **Storage temperature:** -20 °C to +55 °C
- **Protection classification:** IP65

#### Inputs / Outputs

- **Analog output (3):** 4 – 20 mA current loop (concentration, transmission)
- **Digital output:** TCP/IP, MODBUS, Optional fibre optic
- **Relay output (3):** High gas-, Maintenance, Warning - and Fault relays
- **Analog input:** 4 – 20 mA process temperature and pressure reading

#### Ratings

- **Input power:** 100 – 240 VAC, 50/60 Hz, 0.36 – 0.26 A or 18 - 36 VDC, max 20 W
- **4 – 20 mA output:** 500 Ohm max. isolated
- **Relay output:** 1 A at 30 V DC/AC

#### Installation and Operation

- **Gas inlet / outlet:** 6 mm or 1/4” / 8 mm (5/16’’) Swagelok (other dimensions on request)
- **Sample gas flow:** Recommended 1 – 5 l/min
- **Sample inlet pressure:** 1 – 1.5 Bar abs (14.5 – 21.7 psia)
- **Sampling gas temperature:** 0-180 °C
- **Purging of laser chamber (optional):** Dry and oil free pressurised air and gas, Nitrogen for O₂ and CO₂
- **Purge flow:** Maximum 0.5 l/min

#### Maintenance

- **Visual inspection:** Recommended every 6 – 12 months (no consumables needed)
- **Calibration:** Check recommended every 12 months

#### Safety

- **Laser class:** Class 1 according to IEC 60825-1
- **CE:** Certified, conformant with LVD 73/23/EEC, including 93/68/EEC
- **EMC:** Conformant with directive 2004/108/EC

#### Explosion protection (optional)

- **ATEX zone 2:** II 3 G Ex nA nC op is IIC T4 Gb
- **CSA:** Class I, Div 2 Groups A, B, C and D; Temp. Code T4; non-incendive

#### Dimension and weight

- **Cabinet:** 500 x 510 x 215 mm, 18.4 kg

### Gas Detection Limit (ppm)

<table>
<thead>
<tr>
<th>Gas</th>
<th>Detection limit (ppm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>O₂</td>
<td>7 ppm</td>
</tr>
<tr>
<td>H₂S</td>
<td>0.5 ppm</td>
</tr>
<tr>
<td>CH₄</td>
<td>20 ppb</td>
</tr>
<tr>
<td>CO</td>
<td>20 ppb</td>
</tr>
<tr>
<td>CO₂</td>
<td>50 ppb</td>
</tr>
<tr>
<td>HCN</td>
<td>50 ppb</td>
</tr>
<tr>
<td>NH₃</td>
<td>30 ppb</td>
</tr>
<tr>
<td>HCl</td>
<td>10 ppb</td>
</tr>
</tbody>
</table>

**NOTE:** Detection limits are specified as the 95% confidence interval for the standard 11 m cell and gas temperature / pressure = 25 °C / 1 bar abs measured in N₂.

Also available are NO₂, CH₂Cl₂ (VCM), C₂H₂O (EtO), CH₂Cl₂ (DCM).

Other gases are available, please contact us with your request.

Dual Gas: CO+CO₂, CO+CH₄

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Your local distributor: