

# LaserGas™ R2P Monitor



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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 measurement cell, where it is reflected one time from a flat mirror in order to enhance the analyzer sensitivity.

The R2P Monitor employs a measurement cell concept to combine extractive measurement with a compact analyzer design. The measurement path length will enhance the detection limit. Heated and nonheated cells are available. To avoid fouling of optical parts in the measurement 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	Applications	Customer benefits
<ul style="list-style-type: none"><li>• Short response time</li><li>• Low detection limits (ppm for most gases)</li><li>• No interference from background gases</li><li>• Stable calibration</li><li>• No zero drift</li><li>• Offline gas analysis in controlled environment</li><li>• Rack mounted</li></ul>	<p>LaserGas™ R2P monitor is designed for reliable and fast measurement of all kinds of gases in any environment, most typically:</p> <ul style="list-style-type: none"><li>• Laboratory and university</li><li>• Chemical industry</li><li>• Petrochemical industry</li><li>• Industrial gases</li><li>• Power plants</li><li>• H2S emission monitoring</li><li>• and more</li></ul>	<ul style="list-style-type: none"><li>• Compact analyzer design</li><li>• Rack mounted</li><li>• Measures trace levels of gases, offline in a controlled environment</li><li>• Limited need for maintenance</li><li>• Highly reliable real time analyzer</li><li>• Low maintenance cost</li><li>• Reduce emission to the environment</li><li>• Easy to install and operate</li><li>• Reduce daily operation costs</li><li>• Optimize process</li><li>• Well proven measurement technique</li><li>• Heated samples are optimal</li></ul>

# LaserGas™ R2P Monitor

## Technical Data

<p><b>Specifications</b></p> <p>Optical path length: 0.7 m (Can be delivered with Heated cell) Max 180°C</p> <p>Response time: Typically 2 – 10 sec (depending on gas flow)</p> <p>Repeatability: 1% of range (gas and application specific)</p> <p><b>Environmental conditions</b></p> <p>Operating temperature: -20 °C to +55 °C</p> <p>Storage temperature: -20 °C to +55 °C</p> <p>Protection classification: 19" Rack</p> <p><b>Inputs / Outputs</b></p> <p>Analog output (3): 4 – 20 mA current loop (concentration, transmission)</p> <p>Digital output: TCP/IP, MODBUS, Optional fibre optic</p> <p>Relay output (3): High gas, Maintenance Warning and Fault (normally closed-circuit relays)</p>	<p><b>Ratings</b></p> <p>Input power supply: 100/240 VAC, 50/60 Hz</p> <p>4 – 20 mA output: 500 Ohm max. isolated</p> <p>Relay output: 1 A at 30 V DC/AC</p> <p><b>Safety</b></p> <p>Laser class: Class 1 according to IEC 60825-1</p> <p><b>Installation and Operation</b></p> <p>Gas inlet/ outlet: 6 mm or 1/4" Swagelok (other dimensions on request)</p> <p>Sample gas flow: Recommended 1 – 5 l/min</p> <p>Sample inlet pressure: 0.2 - 2.0 Bar abs (2.9- 29 psia)</p> <p>Sample input temprature: Max 180 °C</p> <p>Purging of laser/mirror chamber (optinal): Dry and oil-free pressurised air or gas, Nitrogen for O<sub>2</sub> and H<sub>2</sub>O applications Maximum 0.5 l/min</p> <p>Purge flow:</p>	<p><b>Maintenance</b></p> <p>Visual inspection: Recommended every 6 – 12 months (no consumables needed) Remote instrument check by Ethernet connection or external modem possible check</p> <p>Calibration: Recommended every 12 months</p> <p><b>Dimension and weight</b></p> <p>19" Rack version: 483 mm x 506 mm x 266 mm, 10 – 14 kg</p>
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Gas	Detection limit (ppm)
O <sub>2</sub>	140ppm
HCL	0.07 ppm
H <sub>2</sub> S	4.5 ppm
CH <sub>4</sub>	0.3 ppm
CO	0.4 ppm
CO <sub>2</sub>	43 ppm
NO	25 ppm
N <sub>2</sub> O	7 ppm
NH <sub>3</sub>	0.2 ppm

NOTE: Detection limits are specified as the 95% confidence interval for the standard 0.7 m measurement cell and gas temperature / pressure = 25 °C / 1 BarA measured in N<sub>2</sub>.

Other gases on request.

\* NEO Monitors reserve the right to change specifications without prior notice

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