neo monitors
Experience - the Difference

LaserGas™ II Single Path Compact

- Data sheet

Key Features

- Response time down to one second
- No gas sampling: IN-SITU measurement
- No interference from background gases
- Stable calibration, no zero drift
- Applicable for measurement across pipes down to 10 cm diameter
- No moving parts, no consumables
- ATEX and CSA certified
- TÜV approved technology

NEO Monitors LaserGas II Single Path (SP) Compact Monitor is a compact, highly reliable gas analyser for true continuous in-situ monitoring. SP Compact Monitors are optimised for short distance measurement across pipes and along short cells. Due to its focused laser beam the SP Compact can measure through very thin nozzles (< 10 mm diameter). Thus, for applications with continuous purge to prevent dust from settling on the windows the SP Compact will require very small purge flow.

State of the Art Technology

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 absence of extractive conditioning systems further improves availability of the measurement and eliminates errors related to sample handling.

Easy Installation

The monitor is mounted directly onto measurement cells or DN50 / ANSI 2" flanges. The latter include purge gas connections and a tilting mechanism for easy alignment. A continuous purge flow will prevent dust and other contamination from settling on the optical windows. Once power and data lines are connected, measurements are performed in real-time.

Key Application Areas

With **market experience since 1995** and an installed base of more than 3000 LaserGas analysers we offer our customers a long-term experience from many challenging applications:

- Chemical industry (inertisation control of reactors, trace moisture in chlorine e.g. in Chloro-Alkali plants, trace moisture in olefin reactors etc.)
- Petrochemical industry (contaminants in natural gas, moisture in H_2 recycle gas, contaminants in high purity bulk gases etc.)
- Car industry (engine test stands)
- Non-contact analysis of corrosive, dusty, tarry, or sooty gases across pipes (e.g. cement plants, metallurgical industry etc.)

Technical Data LaserGas™ II SP Compact

Table of Principal Gases

Gas	Detection limit [ppm]	Max temperature [°C]	Max pressure [bar abs]
NH_3	0.15	600	2
HCl	0.05	600	2
HF	0.015	400	2
H_2S	3	300	2
O_2	100	600 *	20
% H_2O	50	600 *	2
ppm H_2O	0.1	400	2
% CO	30	600 *	2
% CO_2	30	600 *	2
ppm CO	0.3	600 *	2
ppm CO_2	0.2	300	2
NO	10	300	2
N_2O	1	200	2
CH_4	0.2	300	3

NOTE: Detection limits are specified as the 95% confidence interval for 1 m optical path and gas temperature / pressure = 25 °C / 1 bar abs.
Also available are HCN, NO_2, C_2H_2, C_2H_4, C_3H_6, CH_3I, CH_2O, CH_2CHCl (VCM), C_2H_4O (EtO), CH_2Cl_2 (DCM), HBr, and HI.
Dual Gas: NH_3+H_2O, HCl+H_2O, HF+H_2O, CO+CO_2, CO+H_2O, CO+CH_4, O_2+temp, CO+temp
Higher pressures may be available on request for certain gases. * Higher temperature on request. Please contact us!

Instrument data

Specifications	
Optical path length	typically 0.1 – 1 m
Response time	1 – 2 sec
Averaging time	Rolling average from 2 seconds to 24 hours (exp. decay)
Repeatability	+/- Detection limit or +/- 1% of reading, whichever is greater
Linearity	< 1%
Environmental conditions	
Operating temperature	-20 °C to +55 °C
Storage temperature	-20 °C to +55 °C
Protection classification	IP66
Inputs / Outputs	
Analogue output (3)	4 – 20 mA current loop
Digital output	RS – 232 format, Optional 10 or 10/100 Base T Ethernet, Optional fibre optic (ASCII – format)
Relay output (3)	High gas-, Maintenance-, Warning - and Fault relays (normally closed-circuit relays)
Analogue input	4 – 20 mA process temperature and pressure reading
Ratings	
Input power supply unit	100 – 240 VAC, 50/60 Hz, 0.36 – 0.26 A
Output power supply unit	24 VDC, 900 – 1000 mA
Input transmitter unit	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	
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) 2 – 4 l/min per flange when set up with thin nozzles (optional)
Maintenance	
Visual inspection	Recommended every 6 – 12 months (no consumables needed) Remote instrument check by Ethernet connection or external modem possible
Calibration	Check recommended every 12 months
Validation	With optional flow through cell
Security	
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 Gc IIC T4, II 3 D Ex td A22 IP65 T100°C
CSA	Class I, Div. 2, Groups A, B, C and D; Temp. Code T4; non-incendive
Dimension and weight	
Transmitter unit	195 (plus 65 for purge unit) x 270 x 170 mm, 4.8 kg
Transmitter unit (Ex version)	195 (plus 65 for purge unit) x 270 x 310 mm, 6.5 kg
Receiver unit	208 (plus 65 for purge unit) x 125 x 125 mm, 2.6 kg
Power supply unit	180 x 85 x 70 mm, 1.6 kg

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