LaserGas™ III SP CO Combustion

NEO Monitors LaserGas™ III SP CO analyzer (3rd generation) is specially designed for operation in hazardous areas and it provides real time in-situ CO measurements for virtually any type of combustion control. The configuration is transmitter/receiver units for cross-stack installation. An external junction box simplifies installation and maintenance. The operation principal is based on the well proven Tunable Diode Laser Absorption Spectroscopy (TDLAS) implemented using a fast scanning absorption technique with fully digital signal processing. Years of experience allowed us to carefully design this highly compact CO analyzer which offers exceptional performance in harsh environments, is truly robust and provides immediate benefits in terms of operational ease and low cost of ownership.

Features

- In-situ real time measurements
- Fast response time
- Compact design
- Low power consumption (< 10W)
- Suitable for SIL2 applications
- TDLAS technology
- Low detection limit
- No interference from other gases
- Not affected by high dust load
- Lifetime calibration, no zero drift
- Integrated span check
- Optional components: CH_4, H_2O, Temperature
- Ethernet connectivity

Applications

- Combustion control
- Boilers

To:

- Refineries
- Powerplants
- Chemical industries
- Petrochemical industries
- Steel industries
- and more

Customer benefits

- Reliable in-situ CO measurements in real time
- Process optimization
- Reduce fuel consumption
- Minimize emission
- Simple installation, ease of use
- Low maintenance cost
- No consumables
- No sampling systems
- Compressed air purge (no need for Nitrogen)
- No regular calibrations needed
- Automatic span check available

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Technical Data

Specifications

Detection limit (CO):	0.5 ppm **
Max process gas temperature:	1300 °C
Max process gas pressure:	1.5 barA
Optical path length:	Typically 0.5 - 20m
Repeatability:	+/- 0.5 ppm or +/-1% relative, whicever is greater (application dependent)
Linearity:	< 1 % of range
Response time:	≤ 5 sec

Environmental conditions

Operating temperature:	-40 °C to +65 °C
Storage temperature:	-40 °C to +70 °C
Protection classification:	IP65

Inputs / Outputs

Analog output (3):	4 - 20 mA current loop (concentration CO, transmission, concentration CH4)
Digital output:	10/100 Base T Ethernet (Modbus TCP)
Relay output (2):	High gas, warning and fault (normally closed
Analog input:	4 - 20 mA process temperature and pressure reading

Ratings

Power supply:	24VDC 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

Safety

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

Approvals

ATEX zone 1:	II 2 G Ex d [op is] IIC T4 Gb
(TU/RU)	II 2 D Ex tb IIIC T78°C Db II 2 D Ex tb IIIC T88°C Db (Lasergas III Ext)
CSA:	Class I Div. 2, Groups B, C and D

ATEX rating connection box: II 2 GD Ex e IIC T5 Gb
-40°C ≤TA≤65°C

Functional safety:	Designed according to SIL 2; IEC 61508

Installation and Operation

Flange dimension:	DN50/PN10 or ANSI 2"/150 lbs (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 (application dependent)

Maintenance

Calibration:	Check recommended every 12 months
Validation:	In-situ span check with optional internal cell (application depenent)

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
TU/RU connection box:	260 mm x 160 mm x 90 mm, 2.5kg

**NOTE: Detection limits are specified as the 95% confidence interval for 1 m optical path and gas temperature / pressure = 25°C / 1 barA. Measured in N_2.

Special process conditions on request

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

Process temperature below 500°C

	Min	Max	LDL/precision
CO	0-50 ppm	0-10000ppm*m	0.5 ppm**
CH4 add-on	0-1% * m	0-10% * m	0.01%
Process path length	0.5	30m	
Process temperature	-40 °C	500 °C	
Process pressure	0.7 BarA	1.5 BarA	

Process temperature above 500°C

	Min	Max	LDL/precision
CO	0-200ppm	0-20000ppm*m	3 ppm
CH4 add-on	0-5% * m	0-10% *m	0.05%
H2O add-on	-	0-40%	2%
Temperature add-on	500 °C	1300 °C	30 °C
Process path length	0.5m	30m	
Process temperature	500 °C	1300 °C	
Process pressure	0.7 BarA	1.5 BarA	

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