

High-precision in-situ Gas Analyzer SITRANS SL

Remote sensing of gas concentrations
directly in the process



SITRANS SL is the new in-situ technology pace maker for process control, even in a harsh environment. The gas analyzer combines proven-in-use technology with a compact and robust in-situ design. Powerful features of SITRANS SL are the integrated laser diode and the reference gas cell. This technology allows laser locking completely independent of process gas concentrations. This leads to extremely stable operation, negligible drift values and extended maintenance intervals.

Allied to state-of-the-art communication capabilities, these features make SITRANS SL the best performing in-situ laser gas analyzer available today. SITRANS SL is the perfect solution for single-point measurement applications in rough or hazardous environments.



SITRANS SL

Answers for industry.

SIEMENS

Mode of Operation

Incorporating tunable diode laser-based technology, this in-situ device enables high-performance measurements. The sensors (transmitter and receiver) are mounted directly on the process, with no need of sampling systems. Laser light is sent from the transmitter, passing through the process gas, arriving at the detector on the receiver side. The measurements are carried out on-line with a very short response time, permitting fast and effective process control.

The operating principle allows measurements to be almost independent of interference from other gases, dust or aerosols. Other process influences, such as pressure and temperature, are easily eliminated due to the excellent inherent compensation capabilities of this technique. An in-line reference cell filled with a non-interfering reference gas provides unique user benefit in terms of long term stability with minimum need for maintenance and recalibration. This allows higher availability and lower maintenance cost.

Applications

Depending on the actual plant situation and in accordance with local regulations, typical applications for SITRANS SL are:

- Process monitoring and control (chemical industry)
- Process optimization (steel industry)
- Off-limit monitoring, i.e. minimum or maximum concentration for explosion protection
- Combustion control (boilers, waste to energy plants)

Benefits

- In-situ measurements – no gas sampling required
- In-line reference cell – stable instrument operation with outstanding performance
- Dynamic dust load compensation
- Fast response time
- Almost no cross interference
- ATEX version for Ex zones I and II (ATEX II 2 G Ex de IIC T6 / II 2 D Ex td A21 IP65 T85°C)
- FM version for Ex zones Div. 1 (FM XP/Class I/Div. 1/ABCD/T6 Ta=55°C; FM Cl. I/Zone 1/AEx d IIC T6 Ta=55°C; FM DIP/Cl. II, III/Div. 1/EFG/T6 Ta=55°C; FM Cl. II/Zone 21/AEx td 21 T85°C/Type 4X/IP65)
- Enhanced communication integrated in the "Totally Integrated Automation" (TIA) platform concept
- Unparalleled cost / performance ratio for single-point measurements
- Low maintenance, easy to align and service

Technical Specifications

Gases	O ₂ , CO ¹⁾
Measuring range	O ₂ : 0 ... 1 Vol% up to 0 ... 100 Vol% ²⁾ CO: 0 ... 100 ppmv up to 0 ... 1 000 ppmv ²⁾
Detection limit ⁴⁾	O ₂ : 200 ppmv CO: 0.6 ppmv
Repeatability ⁴⁾	< 2 % of measuring range
Effective optical path length	0.3 ... 8 m
Process gas pressure/temperature	O ₂ version (B): 900 ... 1 100 hPa/0 ... 600 °C O ₂ version (C): 700 ... 5 000 hPa/0 ... 200 °C CO: 900 ... 1 100 hPa/0 ... 700 °C or 900 ... 2 000 hPa/max. 200 °C with same version
Response time (min. T90)	1 ... 3 s, application dependent
Power supply	24 V DC
Electrical connections	2 analog inputs/outputs ³⁾ 1 digital input 2 digital outputs PROFIBUS DP V0 (optional) Modbus (optional)
Protection	IP65
Flange type	Alternatively: DN50/PN25 or ANSI 4" Class 150

¹⁾ For information about additional gases please contact your nearest Siemens representative

²⁾ Dependent on process conditions and effective optical path length

³⁾ 4...20 mA, isolated, specified for external temperature / pressure sensors (optional use)

⁴⁾ Value at standard conditions:
- process gas temperature 20 °C (68 °F)
- process gas pressure 1013 hPa
- effective optical path length 1 m (39")
- without influence of other process gases
- no influence by dust
For application-specific data please contact your nearest Siemens representative