



CEMS-in-a-box

NDIR gas analyzer for CEMS

SO_2
 NO_x
 CO
 CO_2
 O_2



This all-in-one solution represents a compact and cost efficient gas analyzing system for **Continuous Emission Monitoring (CEMS)**. It can be used for various operation units to monitor the emission limits required by authorities and to optimize process parameters.

CEMS-in-a-box includes a high precision NDIR analyzer, which operates in change-flow-mode (CFM) to ensure a stable zero point. Furthermore, this system includes an electric gas cooler, an autocalibration unit, a purge unit, a HMI and various I/O functions.

various applications

compact in size

cost-efficient

- Simultaneous measurement of CO , NO_x , SO_2 , CO_2 and O_2
- For boilers, furnaces, rotary-kilns, SRU's, coke ovens and others
- Long-term stability by NDIR operating in CFM
- Installation close to stack/boiler
- Pressure-, temperature- and humidity regulation

TRACE-GAS
we simply measure

- Suitable for a variety of applications due to different measurement ranges.
- An integrated housing cooler unit ensures a stable air conditioning inside the box.
- Includes compact gas cooler, pumps, filters, valves.
- Change-flow-mode: The Control Valve Unit is managing the automated Zerogas and Spangas calibration, the purging function and ensures a stable pressure regulation.
- An integrated HMI is managing the analog and digital communication as well as the 7" Touch-Panel for operation purposes.



- Any industry using boilers
- Metal industries
(iron, steel, zinc, copper)
- Cement Plant
- Refineries
- Petrochemical
- Power Plants
- Waste incinerators

Note: Specifications are subject to change without notice. While due caution has been exercised in the production of this document, possible errors and omissions can occur.

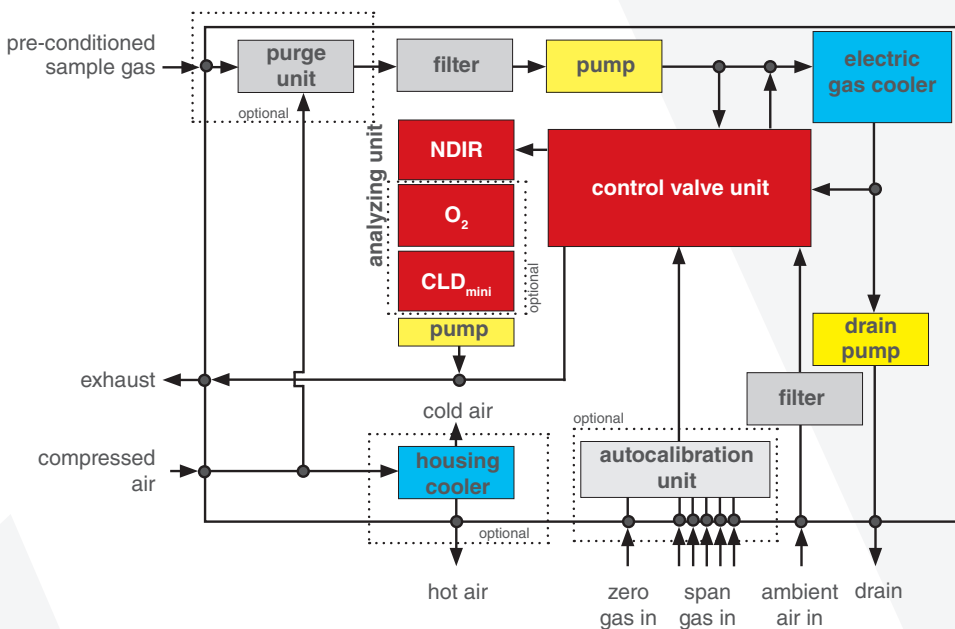
Measurement principle

SO₂, NO_x, CO and CO₂ are measured by a nondispersive infrared (NDIR) analyzer. As sample gas enters the analyzer, it gets filtered and precisely cooled down to 4°C, which minimizes humidity influences. Additional pressure regulation as well as temperature regulation allow measurements with highest accuracy.

A Control Valve Unit enables a change-flow-mode technique to ensure a long-term stability.

Furthermore, an O₂-sensor, a purge unit, a housing cooler and an autocalibration unit can be integrated if necessary.

Flow diagram



We are developing and producing custom electronic and mechatronic solutions for 40 years. Our cost-efficient solutions in the field of trace-gas analysis (from CLD, TDLAS, PAS, NDIR to FIDs) convince with precision and quality.

Join a first-class partnership with us and profit from our innovative team. We simply measure.

	max. range	min. range	optional
Measuring range			
SO ₂	0 - 5.000 ppm	0 - 250 ppm	0 - 50 ppm
NO	0 - 5.000 ppm	0 - 450 ppm	0 - 100 ppm
CO	0 - 5.000 ppm	0 - 200 ppm	0 - 100 ppm
CO ₂	0 - 20%		
O ₂	0 - 25%		
Specifications			
Linearity	≤ ± 1% of full scale		
Zero drift	≤± 1% of full scale per week		
Span drift	≤± 1% of full scale per week		
Repeatability	≤± 0,5% of full scale		
Response Time	< 180 s		
Ambient conditions	Temperature -5 to 35°C (50°C optional), Humidity: < 90%, shelter or roof required, no direct sun exposure		
Sample gas	pre-conditioning required, heated sample line, filtered		
Gas flow	3 l/min ⁽¹⁾ , warning message for incorrect flow values		
Power supply	90 - 264 VAC, 50 - 60 Hz, internal safety management, max. power consumption 380 W		
Dimensions	860 x 687 x 360 mm		
Assembly	Outdoor wall installation under shelter or installation in control room		
Analog output	Current output 4 - 20 mA for each measured gas		
Analog input	External sensors (e.g. H ₂ O, pressure) can be connected		
Digital output	Analyzer status, warnings, purging		
Digital input	Remote calibrations		
Communication	Modbus TCP/IP		
Weight	40 kg		
Gas connections	1 x zero gas, 5 x span gas, sample gas, exhaust, drain, compressed air		
Zero point correction	Automatically done by change-flow-mode		
Interface	Integrated HMI with 7" LCD (capacitive touch)		
Options	Probe purging unit, autocalibration unit, O ₂ -sensor, housing cooler, CLD _{mini}		

¹ can be adjusted if necessary