

Gasmeter™ CEMS II

The Gasmeter CEMS FTIR measuring system is designed for continuous emissions monitoring measurements (CEM). Typical application is H₂O, CO₂, CO, N₂O, NO, NO₂, SO₂, HCl, HF, NH₃, CH₄, C₂H₆, C₃H₈, C₂H₄ monitoring from Waste incinerator or Large Combustion Plants. Measured components and calibration ranges can be changed according to application.

The GASMET CEMS is an ideal tool to use for measuring trace concentrations of pollutants in wet, corrosive gas streams. All parts of the GASMET CEMS are heated up to 180 °C. It can be used for undiluted gases and the sample gases do not need drying beforehand.

The GASMET CEMS consists of GASMET FTIR Gas Analyzer, GASMET Industrial Computer, GASMET Sampling System. As an option the system can be equipped with GASMET TDL or ZrO₂ Oxygen analyser and/or with total hydrocarbon analyser (FID). All parts of the system are 19" rack mounted and are installed on the pull-out shelves. The GASMET CEMS includes all power connections and temperature controllers for heated lines and heated sample probe. The operation of the system is fully automatic and controlled by the Calcmet software. Additionally all functions of CEMS can be controlled manually.

Comprehensive I/O functions make possible to connect CEMS into all kind of automation or reporting systems. Measuring data and alarms can be transferred from GASMET CEMS to other systems with analog or digital format. Gasmeter CEMS is also equipped with analog / digital inputs for external data (other analysers or process).

Gasmeter CEMS provides different alarm functions such as *System alarm*, *Service request*, *Maintenance on progress* (can be set also manually), *Concentration alarm*, and *Result valid*. Combination for each alarm can be set on Calcmet. If any of the critical alarm is activated, instrument air starts to flow automatically into the system to prevent condensation.

Standard CEMS is equipped with a two span gas valve to allow automated span/zero checks as required by the new legislation.

Gasmeter CEMS is air conditioned with a compressor-cooling unit on top of the cabinet. Cabinet includes ready made through-leading rubbers on each side and top of the cabinet for all cables and lines. Gasmeter CEMS is also supported by full remote control.

The Gasmeter CEMS FTIR has a very low cost of ownership; the equipment is extremely well designed, and requires very little maintenance. The system also has a number of in-built failsafe devices to protect the instrument from potential damage.



General parameters

Measuring principle:	FTIR (Fourier Transform Infrared)
Performance:	Simultaneous analysis of up to 50 gas components
Operating temperature:	20 ± 20 °C, non condensing,
Storage temperature:	-20 - +60 °C
Response time, T₉₀:	< 180 s, 20m heated line
Gas cell temperature:	180 °C
Sample gas:	non-condensing, particle free
Flow rate:	~ 4 l/min
Sample gas pressure:	ambient
Installation place:	dust free and clean ambient air, without external vibrations

Measuring Parameters

Zero point calibration:	24 hours, calibration with nitrogen (5.0 or higher N ₂ recommended)
Zero point drift:	< 2 % of measuring range per zero point calibration interval
Sensitivity drift:	none
Linearity deviation:	< 2 % of measuring range
Temperature drifts:	< 2 % of measuring range per 10 K temperature change
Pressure influence:	1 % change of measuring value for 1 % sample pressure change. Ambient pressure changes measured and compensated

Signals (Standard)

Analog Output:

- **Output range:** 4-20 mA, isolated
- **Channels:** 16 freely programmable

Analog Input:

- **Input range:** 4-20 mA, isolated
- **Channels:** 8 freely programmable

Digital Output:

- **Output range:** 24 VDC
- **Channels:** 16 freely programmable
- *System alarm, Service Request, Maintenance, Concentration alarm, Results valid.*

Digital Input:

- **Control:** By potential free contacts
- **Channels:** 16 freely programmable
- *Probe temp alarm, Zero gas pressure alarm, Cabinet temp alarm, Cabinet cooler alarm, Activate System Standby, Activate span test.*

Signals (Optional)

Up to 255 Terminals can be connected

Analog Output:

- **Output range:** 4-20 mA, isolated
- **Channels:** 4 or 8 channels / terminal

Analog Input:

- **Input range:** 4-20 mA, isolated
- **Channels:** 1, 4 or 8 channels / terminal
- **Input range:** 0-10V, isolated
- **Channels:** 8 channels / terminal

Digital Output:

- **Output range:** 24 VDC, isolated
- **Channels:** 8 channels / terminal

Digital Input:

- **Control:** By potential free contacts
- **Channels:** 4 or 8 channels / terminal

Interfaces (Optional)

Bus Output:

- **Output format:** ModBus, Profibus, ASCII, DDE link. RS 232 or RS422/485

Other Fieldbus formats on request

Industrial Computer

See GASMET Industrial Computer Technical Data Sheet

Air Conditioning

Cooling capacity: A35°C / A35°C 1500 W
A50°C / A35°C 1100 W

Internal Circulation: 500 m³/h

Electrical connections

Main supply: 3 x 16 A, 3 x L+N+PE

Power consumption: The full GASMET CEMS including sample probe and heated lines 21 m, ~7,5 kW

Enclosure

Material: Bake painted steel

Dimensions (mm): **Layout 1, (H x D x W)**

2115 x 600 x 600, (Top Cooling)

Layout 2, (H x D x W)

2100 x 800 x 600
(Back Door Cooling)

Weight: ~ 500 kg (Full System)

Protection: IP 54

Heated Line (Optional)

Tube: PTFE 4/6 mm

Temperature: max. 200 °C

Fittings: 6 mm Swagelok

Power supply: 230 VAC or 115 VAC

Power density: 120 Watts /meter

Sample Probe (Optional)

Sample Probe SP2000H

- **Power consumption:** 800 Watts
- **Operating temperature:** 180 °C
- **Filter element:** ceramic, 2µm
- **Dust loadings:** < 2 g/m³

Probe Tube

- **Material:** SS 316
- **Sample temperature:** 600 °C max.
- **Sample pressure:** 0.4 to 6 bar

Mounting flange: DN65PN6

Other probes or probe tubes on request