v1.15

CEMS II e Sampling System

Gasmet CEMS II e Sampling Unit

The Gasmet CEMS II *e* sampling unit is especially designed for continuous emission monitoring (CEM) in fixed installations, e.g. as an integral part of the Gasmet continuous emissions monitoring system (CEMS).

The Gasmet CEMS II *e* sampling unit is used for on-line measurements. It is an ideal tool to use for measuring trace concentrations of pollutants in wet, corrosive gas streams. The sample pump, filter and sample lines can be heated up to 180 ºC. It can be used for undiluted gases and the sample gases do not need drying beforehand.

The Gasmet CEMS II *e* sampling unit is built in 19" rack and includes all valves, flow meters, pump and filters that are needed for measuring and maintenance. Sample flow and instrument air pressure alarms are provided. It also has bus connector for digital and analog (optional) signal terminals, eliminating need for PCI slots in computer.

The Gasmet CEMS II *e* sampling unit includes temperature controllers for heated sample lines and heated module. The function of the sampling unit is fully automatic and controlled by the Calcmet software. It is connected to Gasmet computer

Alarm outputs are displayed on LED lights and unit has corresponding digital outputs. Alarm outputs are: *System alarm, Service request, Maintenance on progress* (can be set also manually) and *Result valid*. Combination for each alarm can be set on Calcmet. Unit has digital output command for oxygen analyser to start calibrating.

Digital inputs for cabinet cooler, cabinet temperature, probe temperature, zero gas pressure, and oxygen analyser alarms are included as a standard. It is also possible to activate span gas test via probe or *System standby* by digital input.

As an option, the Gasmet CEMS II *e* sampling unit can be equipped with analog input and output signals. Optional digital I/O signals are also available.

General parameters

There is no need to dry or dilute the sample gas before Gasmet sampling unit. All parts before the sampling unit must be heated up to 180 °C to avoid condensation

Operating temperature: 20 ± 20 °C, non-condensing

AC

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Heated sample pump

Material:	316 SS
Diaphragms:	Teflon
Maximum flow:	~4.0 l/min
Pressure:	1.5 bars max.
Temperature:	180 °C

Heated filter

Material:	Bonded microfiber (sintered steel 0.1 as an option)
Gas filtration:	Filtration of particulates 2 µm
Temperature:	180 ºC

Electrical connectors

Power connection:	CEE22 Double fused 6.3 AT
Control:	RJ45

Gas connections

All gas connections are pearl connectors for 4/6 mm (ID/OD) tube.

Gas inputs:	Sample gas (heated) Span gas Zero gas Instrument air
Gas outputs:	Sample out 1 (heated) Sample out 2 (heated) Span gas to probe Interferometer purge air O_2 reference air

Valves

Sampling unit includes automatic solenoid valves for gas inlets and check valves to avoid sample gas flow to unheated side.

Solenoid valves:	Sample gas / backflush Span gas via sample out Span gas via probe Zero gas Safety air
Pressure:	0 - 10 bar (max.)
Check valves:	Sample gas / backflush Maintenance gases
Cracking pressure:	0.3 bars

Flow meters

The Gasmet CEMS II *e* sampling unit includes adjustable flow meters for unheated gases.

4 l/min:	Safety air Zero gas Span gas
0.5 l/min:	Interferometer purge O_2 analyser reference air

Temperature controllers

The control module includes temperature controllers for heated module and for three sample lines. Sample line 1 connector has 24 VDC control for external solid-state relay.

Temperature range:	0 – 180 ºC
Sensor type:	TcK
Display:	Calcmet

Digital I/O

Relay outputs are potential free contacts. Digital inputs are controlled by relay contacts.

Digital outputs:	System alarm Service request Maintenance Result valid
Digital inputs:	Probe temperature alarm Cabinet temperature alarm Cabinet cooler alarm Zero gas pressure alarm O_2 analyser alarm Activate span gas test via probe Activate system standby

Sampling unit signals to Calcmet

Sensors:	Sample out 1 flow low Sample out 2 flow low Instrument air pressure low Maintenance switch
Temperatures:	Sample Line 1 temp & alarm Sample Line 2 temp & alarm Sample Line 3 temp & alarm Heated module temp & alarm
Counters:	Pump membrane age in hours All valve ages in times
Digital inputs:	All listed in *Digital I/O* section above

Optional analog I/O

Analog outputs:	4 - 20 mA, active
Analog inputs:	4 - 20 mA, passive
Digital outputs:	24 VDC, active
Digital inputs:	24 VDC, active

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