

## GM35 In-Situ Gas Analyzer

Multi-Component Analyzer  
for CO, CO<sub>2</sub> and H<sub>2</sub>O as well as  
for Temperature and Pressure



# Efficient Control of Combustion Processes and Dehydration Plants

## AREAS OF APPLICATION

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- Power stations and cement plants
- Refuse incineration plants
- Petrochemical industry
- Chemical industry
- Pulp and paper industry
- Drying and dehydration plants

### GM35 PROBE VERSION GMP

- One side duct access
- Easy installation
- Integrated zero point path
- Measurement performance independent from the duct dimensions
- General purpose device, suitable for dust content up to 3 g/m<sup>3</sup>
- Economic version

### GM35 PROBE VERSION GPP

- One side duct access
- Suitable for applications with high dust contents
- Integrated zero point path
- Measurement performance independent from the duct dimensions
- EPA compliant test gas measurement possible
- Suitable for turbulent gas flow condition

### GM35 CROSS-DUCT

- Representative results due to the measurement across the entire duct cross-section
- Particularly low maintenance
- Fast response time

## KEY FEATURES

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- Compact sender/receiver unit with built-in zero-point reflector, gas cell and grid filter – thus enables a **real zero and span point test** (QAL 3)
- Provides the H<sub>2</sub>O measuring values
- Fullfills compliances for example:
  - Guidelines regarding qualification tests for measuring equipment intended for continuous emission measurements
  - Suitability test as a multi-component measuring device for plants as defined by 2001/80/EC and 2000/76/EC regulations and the German Clean Air Regulations TA Luft for the components CO, CO<sub>2</sub> and H<sub>2</sub>O (GMP, CD version)
  - Meets international standards, such as GOST and U.S. EPA specifications



## SYSTEM COMPONENTS

### GM35 model with measuring probe

- **Sender/receiver unit** with the optical and electronical modules.
- **Probe** with temperature and pressure sensor, 2 Versions:
  - Probe with an aperture (GMP)
  - Gas diffusion probe (GPP)

### GM35 cross duct model

- **Sender/receiver unit** with optical and electronical modules.
- **Reflector unit** with triple reflector and a purge air attachment with flange and tube.

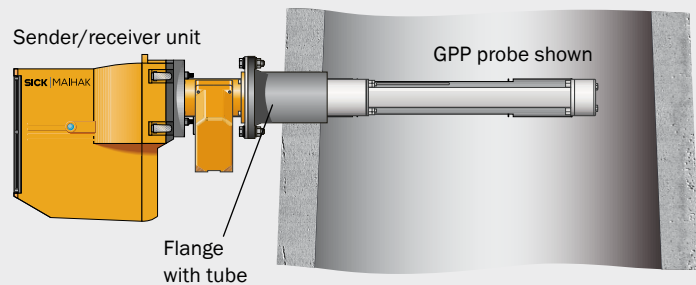
### Additional Components

- **Control unit** for processing, control and output of measuring data. The following parts are included: display and control components, interfaces and signals to the plant periphery. The control unit can be installed up to a distance of 1,000 m (3,300 ft) from the analyzer measuring point, for example in a control room.
- **Purge air unit** when using a GMP measuring probe or for the cross duct configuration, offering protection against contamination and aggressive gases.

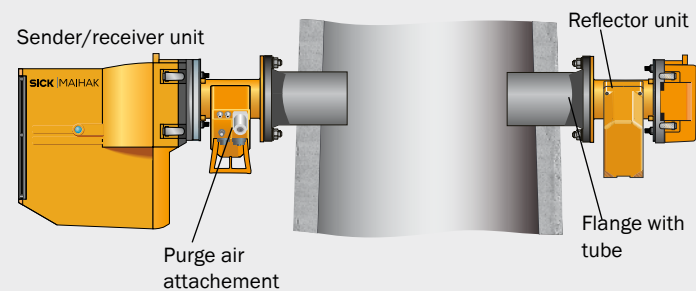
### Optional components

- Flange with tube for the mounting of device components
- Weather protection for outdoor applications
- Temperature and pressure probe for cross duct

### Configuration with Measuring Probe



### Cross Duct Configuration



### In-situ advantages:

- Continuous and rapid measurements, directly in the gas duct
- Easy to install, commission and very low maintenance
- Remote diagnosis via modem
- Integrated temperature and pressure measurement
- Calculated value output (ppm, vol %, mg/m<sup>3</sup> in operating/standard state)

Technical Data		GM35 series		
Model	GM35 Probe model (GMP)	GM35 Probe model (GPP)	GM35 Cross-duct model	
<b>Measuring parameters</b>				
Measuring principle	IR filter/gas filter correlation			
Measuring component	CO, CO <sub>2</sub> , H <sub>2</sub> O, temperature, pressure			
Available measuring range	Minimum measuring range <sup>1)</sup>		Maximum measuring range <sup>1)</sup>	
<ul style="list-style-type: none"> <li>• CO</li> <li>• CO<sub>2</sub></li> <li>• H<sub>2</sub>O</li> <li>• Temperature</li> <li>• Pressure</li> </ul>	0 ... 225 mg/m <sup>3</sup>	0 ... 22.5 vol.%	0 ... 25 vol.%	20.000 ppm 100 vol.% 100 vol.% according to the application range 600 ... 1200 hPa (8.7 ... 17.4 psi)
Accuracy	Stability related to measuring end value (full scale) <ul style="list-style-type: none"> <li>• zero point: ± 2%</li> <li>• sensitivity: ± 2% (within maintenance interval)</li> </ul>			
<b>Measurement conditions</b>	<b>Probe model (GMP)</b>	<b>Probe model (GPP)</b>	<b>Cross-duct model</b>	
Meas. gas temperature	max. 430 °C/ 806 °F	max. 430 °C	max. 500 °C / 932 °F	
Meas. gas pressure	< 120 hPa (1.74 psi)	< 250 hPa (3.63 psi)	depending on purge air supply	
<b>Ambient conditions</b>				
Ambient temperature	-40 ... +55 °C <sup>2)</sup>			
<b>Approval</b>				
Conformities	2001/80/EC, 2000/76/EC German Clean Air Regulations TA Luft GOST regulation, certificate no. DE.C.31.001.A no. 11933 U.S. EPA specifications CFR 40, Part 60, 75 and 29 CFR 1310			
Protection class	IP 66/NEMA 4x			
Electrical safety	CE, EN 14181			
<b>Inputs, outputs, controls via AWE evaluation unit</b>				
Analog outputs	3 analog outputs: 0 ... 20 mA max. load 500 Ω; electrically isolated			
Analog inputs	1 input: 0 ... 20 mA; optional for gas temperature and pressure			
Digital outputs	3 outputs: potential-free; 48 V AC/DC Status signal: malfunction (normally closed contact), maintenance request (normally open contact), Function control (normally open contact)			
Digital inputs	3 inputs for the connection of floating contacts; for 24 V			
Interfaces	RS232 (service)			
Bus protocol	PROFIBUS (option)			
<b>General</b>	<b>Probe model (GMP)</b>	<b>Probe model (GPP)</b>	<b>Cross-duct</b>	
System components	<ul style="list-style-type: none"> <li>• Sender/receiver unit</li> <li>• Probe</li> <li>• Control unit</li> <li>• Purge air unit for cross duct and GMP probe</li> </ul>	<ul style="list-style-type: none"> <li>• Sender/receiver unit</li> <li>• Probe</li> <li>• Flange with tube</li> <li>• Control unit</li> </ul>	<ul style="list-style-type: none"> <li>• Sender/receiver unit</li> <li>• Purge air adapters</li> <li>• Reflector</li> <li>• Control unit</li> <li>• Purge air unit for cross duct and GMP probe</li> </ul>	
Check function	Integrated check cycle for zero and span check			
Mounting	1 installation location on the duct	1 installation location on the duct	2 installation locations opposite on the duct	

<sup>1)</sup> At 20 °C, 1000 hPa, 1 m measuring path. The maximum measuring ranges are subject to conditions on-site and on the individual configuration.

<sup>2)</sup> For continuous operation