

# Hot gas UV analyser



Hot-wet spectrometer-based gas analyser for measurement of pollutants in flue gas with low concentrations and for process control

## APPLICATION

The UV analyser UVA 17 HW can be used for monitoring of e.g. NO, NO<sub>2</sub>, NH<sub>3</sub>, SO<sub>2</sub> and O<sub>2</sub> in incineration plants as well as for process measurements in the chemical and pharmaceutical industry.

This analyser is based on a heated spectrometer and measures all UV absorbing gas components. An ejector supplies the sample gas. Due to the heated measuring cell (200 °C) an elaborate gas conditioning is not required. The applied Xenon flash light is characterised by a 2 to 3 times higher lifetime compared to other light sources.

The integrated zirconium dioxide sensor serves the oxygen measurement. A small PC with 7" colour display and an app-based menu allow an intuitive operation on site as well as remotely.

## YOUR BENEFITS AT A GLANCE

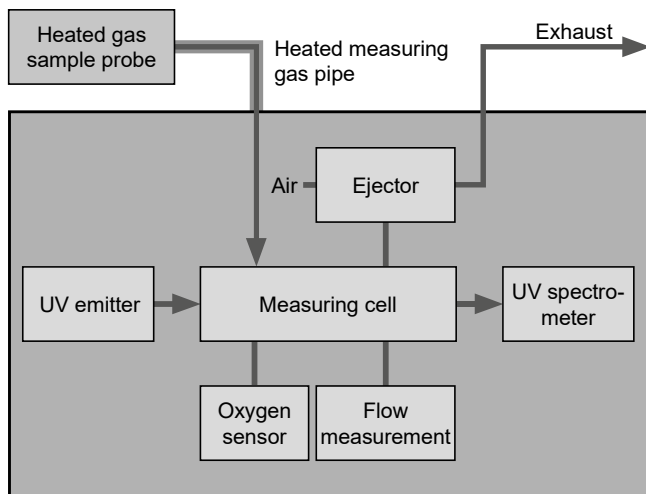
- compact design
- long-term stable signal
- hot gas measurement up to 200 °C
- no gas conditioning, no gas cooler needed
- low-maintenance measuring gas conveyance by ejector
- extension of measuring components without additional hardware possible
- user-friendly touch display
- remote access

## PRECONDITIONS ON SITE

- installation place indoors and dust-free
- protection against wetness
- protection against percussions/vibrations
- instrument air according to ISO 8573.1, class 2
- appropriate gas sampling

MEASURING RANGES	
Component	possible application specific measuring ranges
NO:	0...50 - 5,000 mg/m <sup>3</sup>
NO <sub>2</sub> :	0...100 - 5,000 mg/m <sup>3</sup>
NH <sub>3</sub> :	0...10 - 1,000 mg/m <sup>3</sup>
SO <sub>2</sub> :	0...50 - 5,000 mg/m <sup>3</sup>
H <sub>2</sub> S:	0...300 - 3,000 mg/m <sup>3</sup>
Cl <sub>2</sub> :	0...300 - 3,000 mg/m <sup>3</sup>
CHOH:	0...100 - 5,000 mg/m <sup>3</sup>
O <sub>2</sub> :	0...25 vol. %
<i>Other components (e.g. Hg<sup>0</sup>) and measuring ranges on request. Combination of measuring components and ranges is limited.</i>	

## SCHEMATIC DESIGN



## FUNCTION

The function of the UV analyser is based on the measurement of an integrated spectrometer in the spectral range of ultraviolet radiation of 180 to 400 nm. Fundamentally, the device is composed of light source, measuring cell and spectrometer which are interconnected via the optical path. The emitted radiation is absorbed partly by the process gas in the measuring cell and detected by a spectrometer afterwards. By using a chemometric model the gas component as well as the concentration can be determined.

Because of the modular design, there is the possibility for application of different spectrometers for adaptation to variable requirements.

## TECHNICAL DATA

Housing:	robust housing with compact 19" format, IP40; 483 mm x 133 mm x 350 mm (w x h x d), approx. 12 kg
Measuring methods:	<ul style="list-style-type: none"> <li>• spectrometer 180-400 nm (NO<sub>2</sub>, SO<sub>2</sub>, NO, NH<sub>3</sub>, CH<sub>2</sub>O, H<sub>2</sub>S, Cl<sub>2</sub>, Hg<sup>0</sup>)</li> <li>• zirconium dioxide sensor (O<sub>2</sub>)</li> </ul>
Number of meas. components:	up to 12 components (dependent on application) and oxygen
Accuracy:	< 2% of the respective measuring range
Ambient conditions:	5...40 °C (temperature stability max. 5 K/h); humidity: max. 90% (non-condensing)
Optical bench:	<ul style="list-style-type: none"> <li>• gas path: continuously heated, standard 200 °C (higher temperatures on request)</li> <li>• path length of measuring cell: adjustable               <ul style="list-style-type: none"> <li>- short path cell: 260 mm</li> <li>- long path cell: 730 mm</li> </ul> </li> <li>• particle filter: 2 µm</li> </ul>
Zero point setting:	automatically with instrument air
Measuring gas conveyance/ flow rate:	via ejector/100...200 l/h
Display / Operating:	7" touch display, 800 x 480 Pixel, status messages for failure, maintenance and maintenance request; Language selection: German, English, French, Chinese
Data storage:	data logger function
Interfaces:	RS232 (Modbus)
Inputs/outputs:	<ul style="list-style-type: none"> <li>• 8 analogue outputs, 4...20 mA, potential-free, burden max. 500 Ω</li> <li>• 14 digital inputs (optocoupler), max. 30 V</li> <li>• 16 digital outputs, potential-free, max. 60 V, 500 mA</li> </ul>
Remote control:	VNC, remote control via PC
Power supply:	110-250 V AC / 50-60 Hz, 350 W
Other functions:	integrated flow measurement; integrated pressure monitoring
<i>Special models are possible on request.</i>	