

# AE Series ZrO<sub>2</sub> Oxygen Analysers



## Typical applications

- **Power plants and heating industry:** optimization of the combustion efficiency to reduce fuel consumption and emissions.
- **Waste incineration:** control of the burning process to reduce environmental emissions.
- **Iron & steel production:** regulating the oxygen content in the blasting air increases the productivity of the blast furnace
- **Annealing furnaces:** oxygen control and tempering of metal products is important for the surface quality
- **Cement plants:** control of the burning process in high temperature flue gases to reduce environmental emissions
- **Ceramic production:** simultaneous control of oxygen content and the transition to combustion reduction in certain phases of firing guaranty the quality of ceramic products.
- **Chemical and other process industries:** oxygen level control to prevent explosion risks
- **Glass industry:** oxygen monitoring is a key factor in terms of technology, energy savings and emission control
- **Lime production:** oxygen monitoring is important for the final product quality



**AE Series ZrO<sub>2</sub> analysers** are used for the determination of oxygen in flue gases.

This oxygen measurement provides one of the most important indicators to control the burning process because it helps reaching the optimal heating efficiency and minimizing environmental pollution.

**AE5 Series:** up to maximum 400°C with heated element. Control unit directly on the probe.

**AE8 Series:** up to 500°C with heated element or from 700°C to 1000°C with un-heated element. Remote wall-mount type control unit for connection to the probe

## General description

The basic measurement element is a solid electrolyte ZrO<sub>2</sub> sensor enclosed in a ceramic envelop with heating element (for flue gases up to 500°C) or without heating element (for flue gases from 700 to 1000°C) which keeps the sensor in its working temperature, approx. 700°C.

The stainless steel protective probe with the ZrO<sub>2</sub> sensor is placed inside the boiler or the stack in the flow of analysed combustion products. The analyser is fixed to the boiler or stack by a mounting flange.

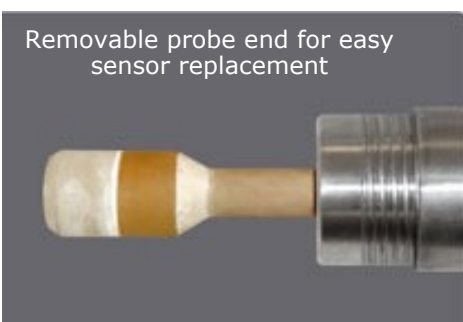
The control unit contains the electronics and other equipment necessary for the operation of the analyser as the reference air filter, power supply, communication connectors and the optional calibration gas inlet.

Each Series is available in several models, from the basic version with 500 mm probe insertion length and 2 points calibration (air +1 calibration gas) to the more complete version with 1200 mm probe insertion length and 4 points calibration capability (air + 3 calibration gases) via the optional calibration inlet.



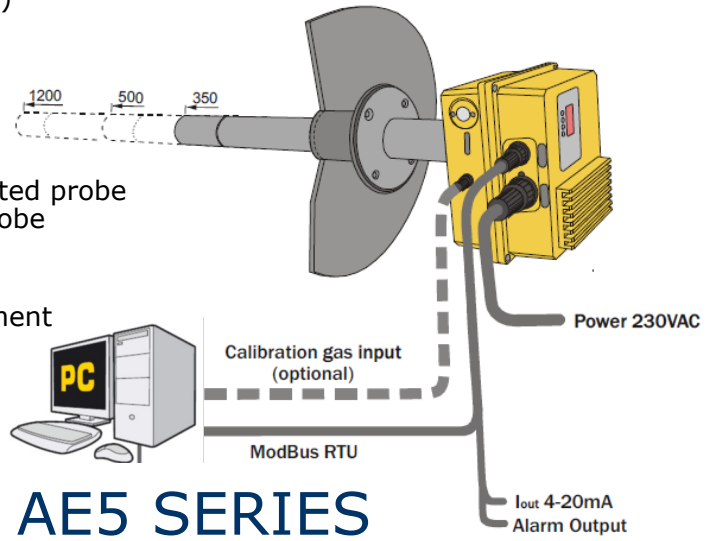
## Advantages

- User-friendly operation
- Compact design
- Easy assembly of the probe
- Low operation costs
- In-situ oxygen measurement, no sampling equipment requirement
- Easy installation and setup
- Immediate response to the oxygen content change
- Simple semi-automatic calibration
- Easy replacement of the sensor
- Calibration without removing the measurement probe from the stack.

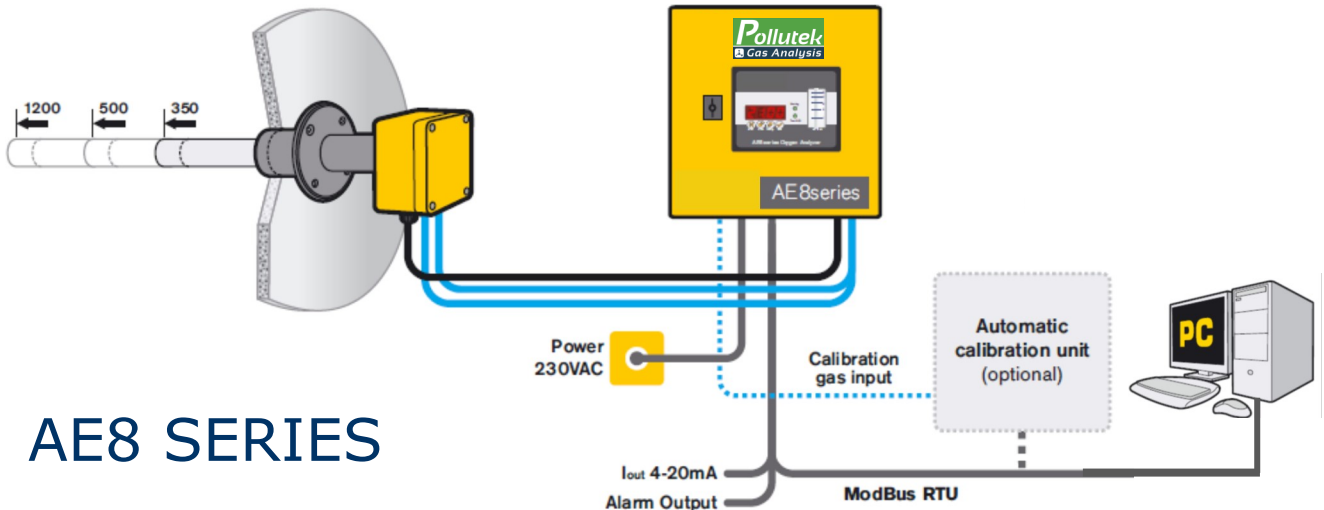


# Technical specifications

- Mechanical composition: compact design (AE5) or probe with remote control unit (AE8)
- Probe ingress protection: IP65 (outside of boiler)
- Measurement range: 0,1-21% O<sub>2</sub>
- Typical accuracy: <0,2% O<sub>2</sub>
- O<sub>2</sub> change response time: typical 1 sec.
- Probe length: 350mm, 500mm, 1200mm
- Flue gases temperature:
  - Up to 400°C (AE5) and 500°C (AE8), with heated probe
  - From 700 to 1000°C (AE8), with un-heated probe
- Max. gas pressure/vacuum: 4 kPa
- Outputs: 4-20mA, ModBus RTU, 1 alarm relay
- Error state signalling, Probe wear-out measurement
- Measurement of reference air flow (AE8)
- Max. ambient operating temperature:
  - flange outside of the stack: -10 to +80°C
  - control unit: -20 to + 55°C
- Calibration type:
  - 2 points (air + 1 gas) or
  - 4 points (Air + 3 cal gases)
- Semi-automatic calibration check (AE5, AE8)
- Automatic calibration check (AE8, option)
- Remote control unit dimensions (AE8): H300 x W300 x D150mm



## AE5 SERIES



## AE8 SERIES

### Probe selection AE5 Series

Model	Probe length	Version
AE501	350 mm	Heated probe <b>Max. 400°C</b> Basic version 2-point calibration
AE502	500 mm	
AE503	1200 mm	
AE511	350 mm	Heated probe <b>Max. 400°C</b> With calibration gas input 4-point calibration
AE512	500 mm	
AE513	1200 mm	

### Probe selection AE8 Series

Model	Probe length	Version
AE811	350 mm	Heated probe version <b>Max. 500°C</b> With calibration gas input Up to 4-point semi-automatic calibration
AE812	500 mm	
AE813	1200 mm	
AE821	350 mm	Un-heated probe version <b>From 700 to 1000°C</b> With calibration gas input Up to 4-point semi-automatic calibration
AE822	500 mm	
AE823	1200 mm	

Non contractual pictures and technical specifications - Doc. issue - EN17v1



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