

## Trace Oxygen Analyser AMS 3186



available options:

electronic flow control  
sample gas pump  
auto-calibration, also with remote control  
automatic purge of the sensor  
pressure reducer  
heated cassette  
different housings

### The Application:

The Trace Oxygen Analyser AMS 3186 operates on base of an electrochemical sensor. The Trace Oxygen Analyser AMS 3186 is a micro-processor controlled analyser for the highly accurate measurement of lowest oxygen traces. Changes in concentrations of < 0,1 ppm of oxygen with a resolution of 0,01 ppm can be measured. The available housings are designed for use in General Applications. The lowest oxygen measuring range is 0 ... 1 ppm.

### The Measuring principle:

The electrochemical sensors for the measurement of trace oxygen are mainly consisting of five components:

- Oxygen sensitive cathode
- Anode
- Electrolyte
- Diffusion membrane
- Housing with electrical connections

The measuring gas diffuses through a membrane to a thin layer of electrolyte. At the cathode the oxygen reduces. The free flowing electrons are drifting to the Anode. This generates an electrical current which is direct proportional to the oxygen concentration of the measuring gas. The use of electrochemical sensors allows in standard applications the measurement of trace oxygen in a number of complex and aggressive gas mixtures. The fitting sensor for a specific application has to be selected considering the different available electrolytes and electrodes. It is therefore essential to know the physical and chemical application parameters such as temperature, gas pressure, humidity content and the consistency of a specific measuring gas. The operational life time of an electrochemical sensor is determined from the PPM-hours a sensor exposed to oxygen. Therefore the sensors have a shorter life expectancy in air than in low PPM-Oxygen concentrations. The life time in air is usually only a few months, but 3 years or longer in PPM-Oxygen concentrations

## **The Measuring system:**

The Trace Oxygen Analyser AMS 3186 consists of an electronic, the pneumatic components for the gas supply and flow control, installed in an electronic housing 84 TE / 3 HE. To protect the analyser against high gas pressure and high oxygen concentrations, the analyser can be equipped with a pressure reducer for gas pressure up to 10 bar (abs) and a manual purge valve. The Trace Oxygen Analyser AMS 3186 is the ideal system for automated process control. A micro processor controls the electronics and the display. Calibration and service are menu-driven. Automated components allow remote control of the Trace Oxygen Analyser AMS 3186 from the control room. For use of the Trace Oxygen Analyser AMS 3186 in hazardous areas classified as Zone 2 the system gas can be equipped with an inert gas purging system. Automatic calibration and purging of the electrochemical sensor are available options.

## Technical Data

Analyser	<b>AMS 3186</b>
Measuring principle	Electrochemical oxygen sensor
Application	Gases Industries, Chemical Industries, Process Measurement
Measuring range	Min: 0...1 ppm / Max: 0...10.000 ppm 4, automatic selection, digital ID, adjustable, for example 0 ... 10 / ...100 / ...1.000 / ...10.000 ppmv
Analogue signal port	0 (4) ... 20mA, galvanically separated, with measuring range changeover and digital identification
Reproducibility	+/- 2 % of the measuring value, +/- 0,5 % measuring range
Resolution	0,01 ppm - C(O <sub>2</sub> ) -1 ppm, depending on the O <sub>2</sub> concentration
T90-Time	< 40 seconds
Long term drift	< 1 % per month
Display	2* 16 digit, illuminated LCD display
Analyser Status Messages	System Status, Calibration, Service via potential free contact relays
Oxygen Messages	2 Messages, configurable as Oxygen Alarm High / Low via potential free contact relays
Gas connection	inlet / outlet 3 / 6 mm ferrule pack
Gas sampling	built-in inlet / outlet valve, flowmeter
Sample flow	min. 20 NI/h, max. 40 NI/h
Sample pressure (inlet)	min. 1,01 bar abs., max. 2 bar abs.
Sample pressure (measuring cell)	max. 50 mbar pressure
digital communication	serial interface RS 232
Ambient operating temp.	- 5 °C up to + 45 °C
Relative humidity of the gas	0 ... 99 % not condensing
Power supply	110...230 VAC, 24 VDC
Protection / Housing / Dimensions	IP 54 / wall mounting housing IP 20 / 19" rack, 3 HU / IP 20 / 63 TU portable housing Other on request
Ex-classification (*Option)	in IP 55 wall mounting housing with inert gas purge also qualified for applications in Ex-Zone 2
Weight	5 – 7 kg
Options	electronic flow control Sample gas pump auto-calibration, also with remote control automatic purge of the sensor pressure reducer max. 10 bar, out 50 mbar Heated cassette different housings
Version: AMS 3186 E V-2021-07	

Specification subject to change.

## Types of housings

