

## Trace Oxygen Analyser AMS 3160



available options:

- pressure reducer
- sample gas pump
- protective case
- charging unit
- different housings

### The Application:

The Trace Oxygen Analyser AMS 3160 operates on base of an electrochemical sensor. The analyser AMS 3160 is an analogue instrument for applications in which highly accurate, long life measuring technology has advantages over micro processor controlled electronic analysers. The available versions of the Trace Oxygen Analyser AMS 3160 are for general applications. The smallest measuring range is 0 ... 10 ppm of O<sub>2</sub>.

## 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 a 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 Trace Oxygen Analysers Model AMS 3110, AMS 3126, AMS 3160, AMS 3175 and AMS 3186 are operating on electrochemical sensors which are adapted to a specific customer application. The sensors are mounted on specially developed measuring chambers. To compensate temperature fluctuations during a measurement the sensor signal is temperature monitored. The entire sensor assembly is potted gas tight to avoid leakage. The operational life time of an electrochemical sensor is determined from the PPM-hours a sensor is 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 3160 is consisting of the analyser electronic the pneumatic components for gas extraction and flow control built into an electronic housing 42 TE / 3 HE. The analyser can be equipped with a pressure reducer for gas pressure of 10 bar (abs) and a purge valve to protect the electrochemical sensors against high gas pressure and high oxygen concentrations. For mobile applications the instrument can be installed in a portable housing. The Trace Oxygen Analyser AMS 3160 can be equipped with a rechargeable battery to make the instrument independent from external power sources in mobile applications. A list of available options allows adopting the Trace Oxygen Analyser AMS 3160 to almost every application in process gas analysis.

## Technical Data

Analyser	<b>AMS 3160</b>
Measuring principle	Electrochemical oxygen sensor
Measuring range	4, manual changeover 0 ... 10, 0 ... 100, 0 ... 1000, 0 ... 10000 ppm, (/25 Vol%) depends on measuring sensor
Analogue signal port	0 ... 10 V, 0 (4) ... 20mA
Reproducibility	+/- 2 % of the measuring value
Resolution	0,01 ppm – C(O <sub>2</sub> ) – 1 ppm depending on the O <sub>2</sub> concentration
T90-Time	Appr. 40 seconds
Display	4½ digit LCD display
Messages	2 free adjustable messages in relation to the O <sub>2</sub> concentration
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
ambient operating temp.	- 0 °C up to + 45 °C
Relative humidity of the gas	0 ... 99 % not condensing
Power supply	110 or 230 VAC / 60 - 50 Hz, 24 VDC
Protection / Housing / Dimensions	IP 20 / ½ 19" cassette IP 20 / 19" rack 3 HU Other on request
Weight	3-10 kg, depends on options
Options	Sample gas pump pressure reducer (max 10 bar in, 50 mbar out) charging unit protective case Different enclosure types
Version: AMS 3160 E V-2021-07	

Specifications subject to change.