

OXITEC[®]

O₂ InSitu analyzer systems

**TOUGH, RELIABLE
AND ACCURATE**

DEVELOPED AND
MANUFACTURED
IN GERMANY



ENSitu[®]
SENSOR TECHNOLOGY

OXITEC[®] 5000
O₂ ANALYZERS FOR INTELLIGENT PROCESS MANAGEMENT

The family of *ENSitu* sensors are engineered for maximum durability. *ENOTEC* use only the most robust materials in creating sensors, giving them an operational life span superior to any comparative sensor on the world market. The sensors are leak-proof due to an elaborate *ENOTEC* soldering process, giving them lasting accuracy, reliability and safety.

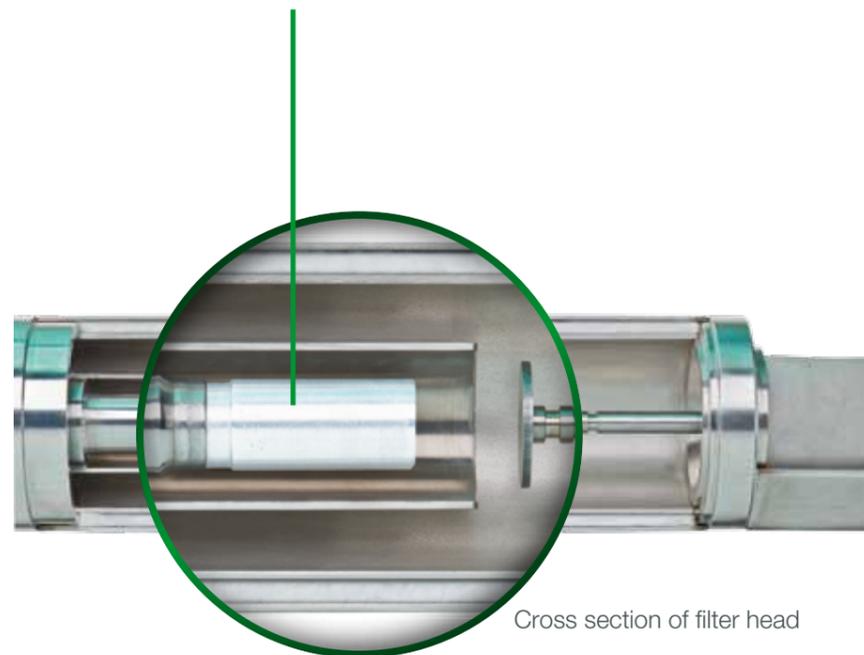
The *ENSitu* sensors are positioned directly in the flue at the end of the patented probes which allows for a quick and representative measurement. Any fluctuations in the gas composition can be quickly responded to. This allows for efficient combustion control, resulting in reduced energy usage which in turn keeps the output of emissions to a minimum.

The *ENSitu MLT* sensor is the premium sensor for measurement of oxygen in harsh process conditions such as with high dust load, aggressive or corrosive flue gas compositions. The MLT production method of the O₂ sensors make them highly resilient and robust.

**ROBUST SENSORS,
DESIGNED TO LAST**

ENSitu[®] MLT

The best sensor for measurement of O₂, which is just as reliable and robust in reducing atmospheres, thanks to integrated Cell Surface Protection.



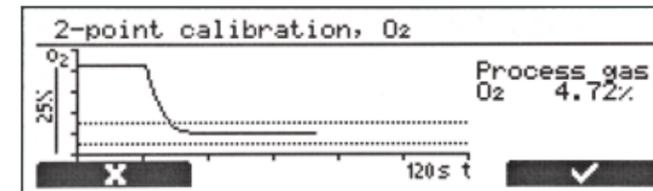
KEX-5002 probe
(immersion depth 950mm)

An essential precondition for a safe and efficient combustion process is the fast and exact measurement of O₂. The volume of oxygen in the combustion is the parameter which needs to be controlled. A target range of 0.5 - 2%

O₂ is desirable and also attainable with *ENOTEC* systems. Oxygen values below 0.5% O₂ are an indicator of an incomplete combustion which produces an increase in unburned molecules. Values above 2% O₂

will lead to an unnecessary cooling of the process which in turn requires a higher fuel usage. *ENOTEC*'s SME-5 electronic units offer built in plausibility for safer efficiency in all types of combustion.

FAST RESPONSE TIME



Here a 2-point calibration is taking place showing the actual oxygen content - here 4.72% O₂. The fast reaction to process gas after calibration is evident and this speed of measurement is the same when the sensor reacts to changes of the oxygen concentration in flue. An immediate regulation of the combustion process is thus possible.

DYNAMICS OF THE PROCESS

| Calibration results | |
|------------------------------------|----------------|
| O ₂ volt.at testgas | 43.64 mV |
| O ₂ response to testgas | 2.1 s |
| O ₂ response to process | 5.4 s |
| O ₂ sensor life | 0 () 100% |

The possibility to refer to earlier calibrations enhances your knowledge of your process conditions and reduces the risk of handling errors during future calibrations. The self monitoring and self diagnostic functions of *ENOTEC* analyzer systems include „O₂ Sensor Life“. Here one is informed of the state of the sensor.



OXITEC® 5000
OXYGEN MEASUREMENT IN SAFE AREAS

OXITEC® 5000 GasEx
INSITU MEASUREMENTS IN HAZARDOUS AREAS

The **OXITEC 5000 InSitu** analyzer system has been proven in countless installations, in all possible combustion systems, using all possible fuel types, usually with more than **10 years life-span** in most flue gas applications.

The system comprises a robust probe which is inserted directly in the process for fastest and most representative measurement (the sensor is located at the tip of the probe directly in the process). The modern and highly intelligent electronic unit has a graphics enabled, bright LED backlit display for easy handling.

OXITEC 5000 has no need for calibration and thus provides maintenance-free O₂ analysis, typically for many years.

The DIN ISO 9001:2008 certification for all production stages guarantee perfect measuring equipment with a high service life - Made by **ENOTEC**.

TECHNICAL DATA

| | |
|--------------------------|--|
| INSERTION DEPTH OF PROBE | up to 3682mm |
| O ₂ RANGES | ppm to 100% O ₂ |
| MEASUREMENT ACCURACY | ± 0,2% of measured value |
| REACTION TIME | 0,5s (process flow velocity > 10m/sec.) |
| PROCESS GAS TEMPERATURE | max. 800°C max. 1400°C (with cooling protection tube) |
| AMBIENT TEMPERATURE | -40°C to 80°C (probe) -20°C to 55°C (electronic unit) |
| INTERFACE | HART, FIELDBUS, RS485 MODBUS RTU, RS232 |
| IP CODE | probe - IP65 electronic unit - IP66 |



**REDUCE EMISSIONS
AND INCREASE
FUEL EFFICIENCY**



SME-53 electronic unit and KES-5001 probe (immersion depth 520mm)

Safe, reliable and accurate are the main characteristics of the ATEX certified **OXITEC 5000 GasEx**. The proven **OXITEC** quality is integrated into an Ex protected system for safe operation in gas hazardous environments (gas explosion zones 1 and 2).

Using the **OXITEC 5000 GasEx**, plant safety is enhanced while lowering emissions by controlling fuel usage in the combustion process.

Also available is an DustEx solution for O₂ measurements in dust laden environments.

TECHNICAL DATA

| | |
|--------------------------|--|
| INSERTION DEPTH OF PROBE | up to 924mm |
| O ₂ RANGES | ppm to 100% O ₂ |
| MEASUREMENT ACCURACY | ± 0,2% of measured value |
| REACTION TIME | 0,5s (process flow velocity > 10m/sec.) |
| PROCESS GAS TEMPERATURE | max. 500°C max. 1400°C (with cooling protection tube) |
| AMBIENT TEMPERATURE | -20°C to 55°C (probe) -20°C to 55°C (electronic unit) |
| INTERFACE | HART, FIELDBUS, RS485 MODBUS RTU, RS232 |
| IP CODE | probe - IP66 electronic unit - IP66 |

Certified in operation for realistic process conditions by an independent German **ATEX** test house.



II 2G Ex d IIC T3 Gb (probe)
II 2G Ex d IIC T6 Gb (electronic unit)

**ATEX APPROVED
FOR YOUR PROCESS
CONDITIONS**



SME-5D electronic unit and KEX-5001 probe (immersion depth 464mm)

OXITEC® Economy

AFFORDABLE MEASUREMENT IN SAFE AREAS

OXITEC® 500E

EXTRACTIVE MEASUREMENTS

TECHNICAL DATA

| | |
|--------------------------|--|
| INSERTION DEPTH OF PROBE | up to 1000mm |
| O ₂ RANGES | ppm to 100% O ₂ |
| MEASUREMENT ACCURACY | ± 0,2% of measured value |
| REACTION TIME | 0,5s (process flow velocity > 10m/sec.) |
| PROCESS GAS TEMPERATURE | max. 400°C max. 1400°C (with cooling protection tube) |
| AMBIENT TEMPERATURE | -40°C to 80°C (probe) -20°C to 55°C (electronic unit) |
| INTERFACE | HART, FIELDBUS, RS485 MODBUS RTU, RS232 |
| IP CODE | probe - IP20 electronic unit - IP66 |

The **OXITEC** Economy is the budget friendly and affordable O₂ analyzer which is recommend for small combustion plants in the form of steam boilers burning natural gas or heavy oil such as found in biomass combustion plants, container and cruise ships etc.

The Economy analyzer is delivered pre-assembled and factory-configured and includes cables with a simple plug system ready for installation - completely Plug and Play. The filter head has a sintered metal filter as standard which also allows for O₂ measurement in dust laden flue gases. The system has a calibration connection which allows the user to confirm the measurement at any time if necessary.

Countless **OXITEC** Economy installations worldwide are proof of the system's reliability and durability over many years without the necessity of constant maintenance and part replacements.

**COST EFFICIENT AND
MAINTENANCE FREE
FOR MANY YEARS**

SME-53 electronic unit
and KES-1000 probe
(immersion depth 500mm)

TECHNICAL DATA

| | |
|-----------------------|--|
| O ₂ RANGES | ppm to 100% O ₂ |
| MEASUREMENT ACCURACY | ± 0,2% of measured value |
| AMBIENT TEMPERATURE | -20°C to 55°C |
| INTERFACE | HART, FIELDBUS, RS485 MODBUS RTU, RS232 |
| IP CODE | IP20 |

The extractive analyzer **OXITEC** 500E was specially developed as a 19" rack for continuous measurement of O₂ in analyzer cabinets. The 500E is equipped with the same tried and tested **ENSitu** O₂ sensor in use in all **OXITEC** probes.

In combination with an **ENOTEC** gas sampling and conditioning system, oxygen content can be measured in wet/dry flue gas and water vapour with a detection limit of 1ppm.

Apart from the 19" version, a desktop version is also available for standalone applications such as in laboratories.



**TÜV APPROVED
QUALITY GERMAN
PRODUCT**



OXITEC 500E

OXITEC®

SAFE AND CLEAN COMBUSTION

COMPANY

ENOTEC has provided gas sensing solutions since 1980, producing products with a high degree of accuracy, quality and durability - Made in Germany.

Our flexibility allows us to quickly develop solutions individually designed to meet your problems.

On request, we also offer after delivery service concepts - the world over.

SYSTEM FEATURES

- > Highest accuracy
- > Overview of calibration history
- > Sensor life expectancy on display
- > Gas tight sensor construction
- > Self-monitoring
- > InSitu measurement in real-time
- > Unrivaled long service life

CONTACT

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ENOTEC has three subsidiaries:
ENOTEC USA, ENOTEC ASIA, ENOTEC UK, ENOTEC OOO and over 50 distributors world wide...

The ENOTEC product configurator: Configure your analyzer in 5 minutes.



Watch the ENOTEC product videos on our YOUTUBE channel
www.youtube.com/ENOTECsensors