



EN

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OXYGEN TRANSMITTER

TS236

flue gases temperature up to 300°C

TS237

flue gases temperature up to 600°C

USER INSTRUCTIONS

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TECHNICAL CHARACTERISTICS	
<i>O₂ ZIRCONIUM OXIDE SENSOR (TS236 Probe)</i>	
• Power Supply:	230 Vac
• Output:	4±20 mA (0-25% O ₂)
• Measuring range:	0-25%
• Resolution:	0.1%
• Calibration:	automatic
• Working Temperature:	Probe 0 / +800°C
	TS236 - Standard Probe Body 300°C
	TS237 High Temperature Probe Body 600°C
• Response Timing T ₉₀ :	< 10 seconds
• Repeatability:	1% on signal
• Medium Life:	>160.000 Hours

SERVICE

We suggest to allow service inspections only to trained and qualified people, especially for sensors test and calibration.

On demand TECNOCONTROL is able to offer programmed service agreements each six months (beginning and half season) or once a year depending on the type of boiler and its use.

The service normally includes functioning tests of the unit, test and calibration of Oxygen sensor, replacement (when necessary) of O₂ sensor.

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DESCRIPTION

The transmitter is used for measuring Oxygen (O₂) concentration into flue gases.

TS236 model is supplied with a standard Probe Body supporting flue gases temperature up to 300°C.

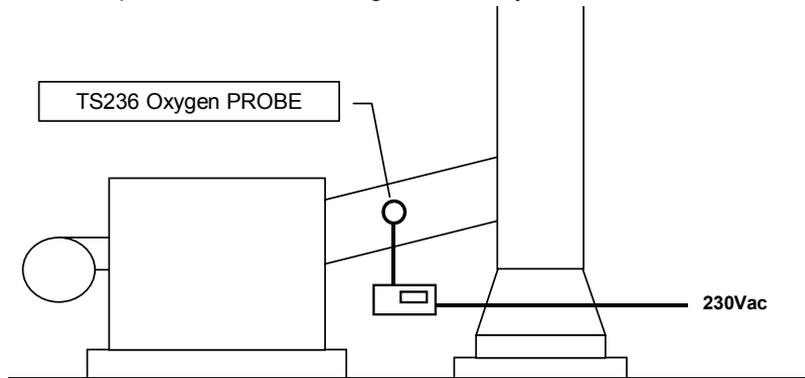
TS237 model is supplied with a standard Probe Body supporting flue gases temperature up to 600°C.

Consider that this instrument has not been designed as a security control system, therefore, if used for the control of air as supporter of combustion, you need all possible measures to avoid danger situations or whole plant stop in case of its fault.

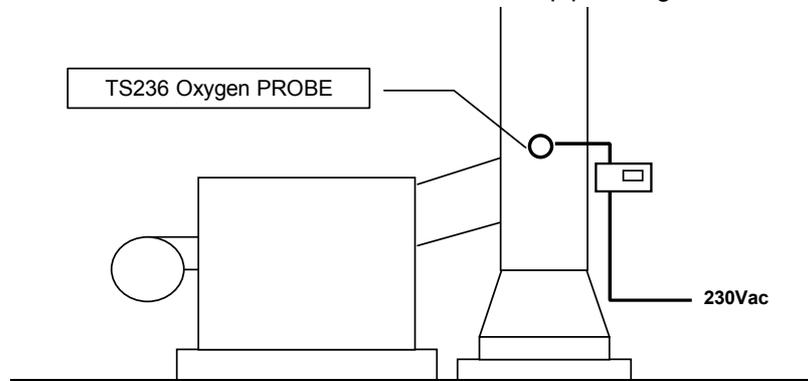
The Oxygen Transmitter is composed by aluminium housing with dimensions 210 x 110 x 120 mm with protection range IP55. Inside the housing there are: the power supply circuit, the oxygen concentration measuring circuit and the terminals for the external connections. The probe is connected to the housing by 1 meter cable.

INSTALLATION

The Oxygen Transmitter unit has to be installed near the boiler to analyze. The Oxygen probe has to be placed on the chimney pipe fitting to a distance equivalent to two diameters of the pipe fitting itself. The distance between the probe and the housing is bound by the 1 meter cable connection.



If the chimney pipe fitting is too short, you can fix the probe directly on the chimney to a distance equivalent to two diameters of itself from the connection to the pipe fitting.

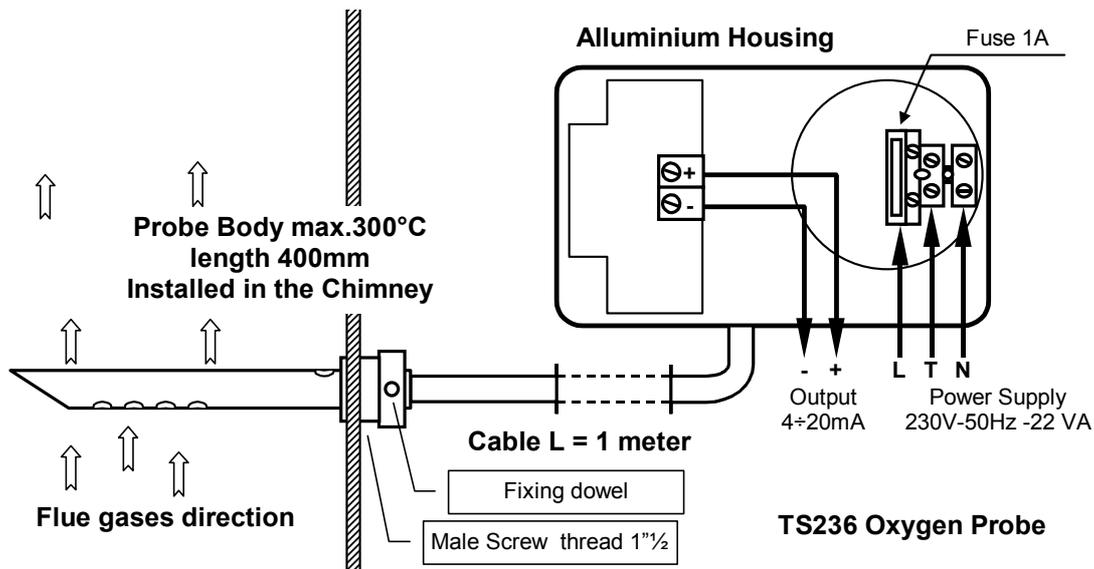


EXTERNAL CONNECTIONS

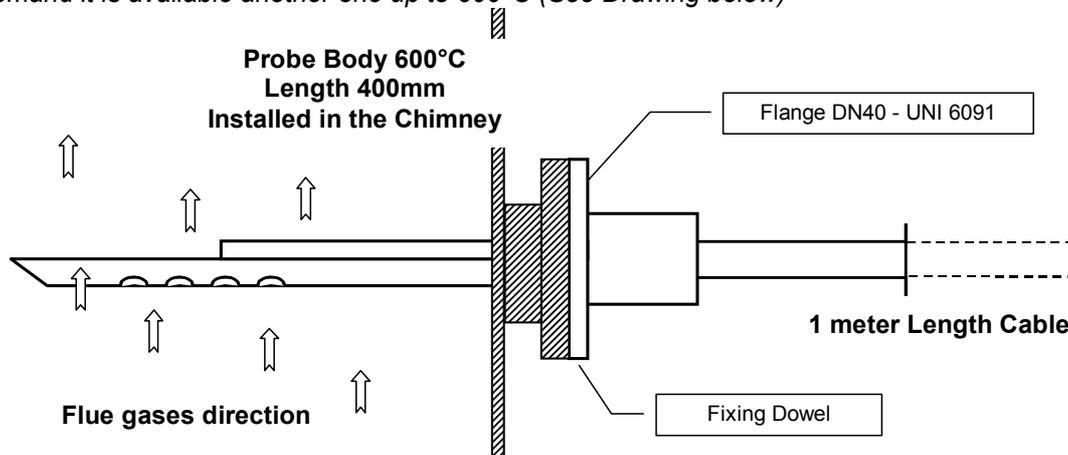
Connections to the Oxygen Transmitter terminal are for the power supply and for the 4÷20mA Output.

TS236 Oxygen (O₂) Probe Power Supply

Terminal	Connection	Cable
L	Connect to "L" 230V of TS236 Oxygen Probe	Black 1,5 mm ²
T	Ground Terminal	Yellow/Green 1,5 mm ²
N	Connect to "N" 230V of TS236 Oxygen Probe	Blue 1,5 mm ²
-	"-" 4÷20mA of TS236 Oxygen O ₂ Probe	2 x 0,75 mm ²
+	"+" 4÷20mA of TS236 Oxygen O ₂ Probe	Shielded



TS236 Probe is supplied with a standard Probe Body supporting flue gases temperature up to 300°C. On demand it is available another one up to 600°C (See Drawing below)



UNIT USE

Oxygen Transmitter Unit, when switched on, needs about 30÷40 seconds to stabilize. After this time, the probe (automatically calibrated) is able to start measuring Oxygen concentration into the flue gases.

SERVICE INSPECTIONS

O₂ SENSOR CALIBRATION CHECK

Oxygen Sensor automatically calibrates itself; to check the O₂ sensor calibration it is necessary:

- Unthread the Probe Body from the chimney.
- Verify that after 1-3 minutes in clean air, the output is about 20mA that correspond to 20,9% Oxygen. In case you don't see this value turn the **SPAN** trimmer of the O₂ transmitter circuit (Placed inside the aluminium housing) up to obtain the right value (20mA).

Check and/or calibration for the "**ZERO**" point:

- With a gas bottle at a know Oxygen concentration (about 2% O₂).
- Give gas to the sensor (TECNOCONTROL Service Department uses a particular connector). After 1÷3 minutes, necessary to stabilize the sensor, turn the **ZERO** trimmer on the O₂ transmitter circuit up to obtain the mA value correspondant to the used concentration bottle (example: if the certificate of the bottle says O₂ at 2,0% the correspondant mA value has to be about:

$$\left(\frac{16}{20} \times 2,0\right) + 4 = 5,6\text{mA}$$

PROBE BODY CLEANING

Periodically, at least once a year, unthread the Probe Body from the Chimney and check that it is clean and that the holes are not obstructed by combustion residual, if necessary clean it blowing with compressed air.