MODEL
1231 / 1232 Oxygen Probes

In-situ oxygen analysis for concentrations as low as 1 x 10^{-30} to 100%

The Novatech 1231 and 1232 Oxygen Probes incorporate the world's most rugged zirconia sensors.

They are ideal for:

- Flue gas analysis
- Oxygen levels in boilers, kilns and furnaces
- Combustibles analysis
- Carbon potential measurement
- Water vapour concentration and dew point measurement
- Inert and sterile packaging
- General industrial use
- Annealing furnaces

The Novatech 1231 and 1232 Oxygen Probes are Australian-made and embody the research and development of one of Australia's premier research organisations, the CSIRO.

The Novatech 1231 and 1232 Probes are highly accurate, and have minimal drift (±1%).

The Novatech in situ probes are highly durable; choose the Novatech 1231 for analysing gases with temperatures below 900ºC and the Novatech 1232 for temperatures 700°C to 1400°C.

The Novatech 1231 and 1232 Probes have a very rapid response to changes in oxygen levels

A response time of between 1 and 4 seconds to oxygen level concentration changes means that potentially hazardous situations such as those caused through the build-up of dangerous, fuel-rich conditions can be avoided.

The Novatech 1231 and 1232 Probes are easy to install

The probes are inserted into the flue, or other measuring point, and the threaded nipple (1231 has 1.5 " BSP/NPT; 1232 has 0.75" BSP/NPT) is screwed on to a mating socket welded to the process. Connect the probe cable to the transmitter, and you are ready to measure and/or control the combustion process.

Novatech offers you safety of operation

Use the Novatech 1732 which has a main burner safety interlock. This is the ONLY reliable way of preventing potentially explosive situations; SHOULD THE MAIN BURNER FAIL OR SHUT DOWN THEN THE SENSOR'S HEATER IS DE-ENERGISED SO THAT DANGEROUS FLUE GASES CANNOT BE IGNITED BY THE PROBE!

Notes

1. Care must be taken to avoid contact with explosive or inflammable gases with 1231 heated Oxygen Probes when hot. Novatech Oxygen Transmitters have built-in safety protection which disconnects the heater when the main flame is off.
2. A flue gas thermocouple is required with a 1232 Probe if a flue gas temperature display on the transmitter is required. A 1231 Oxygen Probe has an integral type K thermocouple which is used to control the sensor temperature.
3. If your process requires a specific length probe not listed in specifications, contact Novatech to discuss non-standard lengths.
4. The precise weight of a probe will vary slightly depending on the configuration of head connectors and filters.
5. Probes exceeding 1000mm (40") in length must be mounted vertically in the process.

Ordering information

Probes are made to order based on the following information:

- Probe Type; 1231 heated or 1232 unheated
- Probe insertion length. Available lengths are displayed in the specifications overleaf
- Weather-proof plug or screw terminal connections
- No filter / sintered 30µm or 15µm titanium alloy filter (1231 only)
- Process connection thread type NPT by request
- Non-standard thermocouple type (1232 only)
- Cable supplied with plug connector or no connector

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SPECIFICATIONS

Model 1231 Probe

Applications
Combustion flue gasses below 900°C (1650°F) (see note 1 on front page)

Temperature range
0°C to 900°C (32°F to 1650°F)

Probe insertion length
Standard lengths: 250, 350, 500, 750, 1000, 1500mm (10", 14", 20", 30", 40", 60") (see notes 3 & 5 on front page)

Process connection
1.5" BSPT or NPT

Outer sheath
32mm OD 316 s/steel, 42mm with optional filter

Electrical connection
Weather-proof plug-in connector or optional screw terminals. The plug connector can be supplied with the cable

Cable
1231 Cable can be supplied with a separate polyurethane reference airline

Heater
Yes

Internal thermocouple
Type 'K'

Response time
Typically <4 seconds

Head temperature

With weatherproof connector	-25°C to 100°C (-15°F to 212°F)
With optional screw terminals	-25°C to 150°C (-15°F to 300°F)

Reference gas
Air 50 cc/minute approx. Pump can be supplied within transmitter

Cal. check gas flow
Approx. 2 litres per minute

Ref. air connection
1/4" tube

Particulate filter
Optional sintered titanium alloy 30 µm standard, 15µm extra fine

Cal. check gas connection
1/8" NPT female

Weight
Approx. 2kg + 165g per 100mm insertion length (see note 4 on front page)

Model 1232 Probe

Applications
Combustion flue gasses above 700°C (1290°F) with no contaminants; Eg natural gas, light oils

Temperature range

253MA stainless steel	700°C to 1100°C (1290°F to 2010°F)
Alumina ceramic	700°C to 1400°C (1290°F to 2550°F)

Probe insertion length
Standard lengths: 500, 750, 1000mm (20", 30", 40")

Process connection
3/4" BSPT or NPT

Outer sheath
19mm OD 253MA stainless steel or alumina ceramic

Cable
1232 cable has an integral airline

Heater
No

Internal thermocouple
Typically Type 'R'. Also available with no TC, Type 'S' or 'K' (see note 2 on front page)

Response time
Typically <1 second

Head temperature
-25°C to 150°C (-15°F to 300°F)

Ref. air connection
Integral air line through connector or 1.4" tube

Particulate filter
Not available

Cal. check gas connection
1/8" NPT female

Weight
Approx. 1kg + 100g per 100mm insertion length

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