

Model 1735 Water Vapour Transmitter 1231 HWV Probe



In-situ Water Vapour analysis in high humidity applications

Moisture measurement improves product quality and consistency and reduces fuel costs for drying and baking processes.

Novatech has enhanced its range of analysers by adding the 1735 water vapour transmitter and the 1231HWV oxygen probe. The 1735 transmitter uses the measure of oxygen to calculate the level of water vapour by using the difference between the wet oxygen reading and the dry oxygen reading.

The Novatech zirconia probes incorporate the world's most rugged zirconia sensors. Now there is a Novatech oxygen probe designed especially for baking and drying ovens.

Used with the 1735 water vapour transmitter, the 1231HWV oxygen probe is capable of reading the oxygen concentration in atmospheres with up to 99.99% water vapour and at temperatures up to 600°C (1,100°F).

The 1735 / 1231HWV water vapour analysis provides rapid payback for processes such as:

- Drying ovens
- Baking ovens
- Paper drying hoods
- Gypsum and plasterboard dryers
- Timber drying kilns

The 1735 / 1231HWV water vapour analysis can provide accurate moisture control in atmospheres up to 600°C:

Easy to operate, reliable and no regular calibration needed. Select the unit of measure to display and output from:

- % water vapour
- Dew point
- Absolute humidity
- Mass fraction
- Dryer RH
- Oxygen

Accurate, rapid response, low drift, robust zirconia oxygen sensor.

Highly responsive, eg: typically 3 seconds for indirect heated applications.

RS232 / 485 Modbus™ interface.

Two isolated 4-20mA outputs.

Programmable alarms.

Accurate and reliable

The oxygen sensor, which measures water vapour due to oxygen displacement in the oven atmosphere, provides accurate and virtually drift-free measurement for years.

Controlling humidity

The 1735 / 1231HWV can be used with controllers, including PLC's, to provide accurate continuous control of the moisture level.

Direct fired processes

The 1735 / 1231HWV measures the "wet" oxygen level of the process using an in situ zirconia oxygen probe and can accept a remote signal input (4-20mA) proportional to the dry oxygen level to then calculate the percent water vapour in the process. If this signal is not available from an existing CEMS installation then the 1735 can be supplied with a reference gas sensor (See separate brochure, model 1234) and a simple sampling system to determine the "dry" oxygen level in the process.

The 1231HWV oxygen probe and the 1735 transmitter is designed in Australia and manufactured in the Melbourne factory. The sensor embodies the research and development of Australia's premier research organisation, CSIRO.

The probe can be inserted directly into the oven / dryer therefore eliminating the need for a high-maintenance sampling system.

Novatech CONTROLS PTY. LTD.

Specifications

Transmitter

Model 1735

Range

Keyboard set in any of the following ranges:

- 0 to 100% water vapour
- -50 to 100°C dew point
- 0.0 to 10.0 g/m^3 absolute humidity
- 0.00 to 1.00 kg/kg Mass fraction
- 0 to 100% dryer RH
- 0 to 25% oxygen

All ranges have an adjustable zero and span.

Outputs

- Two isolated 4-20mA or 0-20mA DC linear outputs for water vapour, dew point, absolute humidity, mass fraction, RH, oxygen and temperature.

Display

- 128 x 64 graphic with multiple font sizes

Alarms

- Self diagnosis for the transmitter and probe
- Process levels user configurable
- 4000 alarm log memory

Speed of Response

- Typically 3 seconds for indirect fired applications
- Typically 30 seconds for direct fired applications

Calibration

- Automatic, no adjustments are necessary

Accuracy

- Refer to Novatech for calculation for specific applications

Repeatability

- Refer to Novatech for calculation for specific applications

Power

- 100 to 240 VAC 50/60 Hz
- 110VAC – 1.1A for each oxygen sensor
- 240VAC – 2.4A for 1 or 2 oxygen sensors

Weight

- 3.0kg (6.6 lb)

Dimensions

315mm (12.4") W, 165mm (6.5") H, 100mm (3.9") D

Sensing Probe

Model - 1231HWV probe

Length

- 250mm, 350mm, 500mm, 750mm, 1,000mm

Process Temperature

- 0 to 600°C

Process Connection

- 1.5 inch BSPT or NPTT

Operating Temperature

- 720°C with integral heater safety interlock for applications where flammable gas may come in contact with the probe heater when the burner is not turned on

Head Temperature

- 100°C maximum

Reference Air

- Connection, ¼" tube
- Gas flow, <50cc/min

Probe Cable

- Supplied with weatherproof connector to specified length up to 50m

Power Supply

- Supplied from the transmitter

Reference Gas Sensor

Model 1234

Measuring Range

1ppm to 100%

Sensor Output

EMF = 2.154 x 10^{-2} x T x $\log_e$ x (0.209/ oxygen level)

Response Time

1234C 5 secs (gas flow 2 l/m)
1234E 3 secs (gas flow 0.5 to 25 l/m)
1234M 3 secs (0.1 to 0.5 l/m)

Accuracy

+/- 1% of the actual oxygen reading (0.5 to 95%)

Thermocouple

Type K

Warm Up Time

<15 minutes

Heater Power

Powered by the 1735 transmitter

Gas Flow Range

0.1 to 25 l/m

Gas Connection

¼" NPT female, inlet & outlet

Environmental

Non-weatherproof cabinet. If mounted outdoors, a weather-hood is required for electrical protection. Do not enclose in sealed cabinet or overheating may occur.
Ambient temperature, 0 to 100°C

Weight

2.2Kg

Dimensions

300mm (11.8") H, 125mm (4.9") W, 88mm (3.5") D

Optional Sample Pump

External electric diaphragm pump, 240 / 110 VAC, or Air operated ejector

Optional Process Sampling Probe

Filter and bush
Optional Titanium Filter
Process connection bush 1.5" BSP or NPT to 3/8" tube. (3/8", 16 gauge tube supplied by others)

Distributed by:

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