

## CALIBRATION CERTIFICATE

**Instrument** GMP343 Carbon dioxide probe  
**Serial number** L3420008  
**Manufacturer** Vaisala Oyj, Finland  
**Calibration date** 18th August 2015

The carbon dioxide probe was calibrated against accurate bottled nitrogen and carbon dioxide gas concentrations. High purity nitrogen gas was used for calibrating the zero value of the probe. For the CO<sub>2</sub> calibration, an accurate mixture of nitrogen and carbon dioxide traceable to VSL (Dutch Metrology Institute) was used.

Pressure and temperature compensation was made by using the compensation algorithm of the probe. The ambient pressure value was obtained from a Vaisala PTU200 transmitter, and the gas temperature was measured by the built-in temperature sensor of the probe. The temperature sensor of the probe was calibrated against the gas temperature sensor of the calibration system. At the time of shipment, the probe met its operating specifications.

The PTU200 and the gas temperature sensors have been calibrated at ISO/IEC 17025 accredited calibration laboratory (FINAS), MSL by using working standards traceable to the National Institute of Standards and Technology (NIST).

### Calibration results (for measurement range 0...1000 ppm)

Reference ppm CO <sub>2</sub>	Observed* ppm CO <sub>2</sub>	Difference ppm CO <sub>2</sub>	Permissible difference ppm CO <sub>2</sub>	Calibration gas temperature °C	Ambient pressure hPa
0	1	1	± 3	26.1	1024.3
200	202	2	± 5	26.1	1024.3
372	374	2	± 6	26.1	1024.3
600	602	2	± 9	26.1	1024.4
1001	1009	8	± 13	26.1	1024.4

\*Reading after pressure and temperature compensation.

**Ambient conditions** / Humidity 31 ± 5 %RH, Temperature 25.1 ± 1 °C.

### Equipment used in calibration

Type	Serial number	Calibration date	Certificate number
Agilent 34970A	US37010476	2015-04-16	1250-307065618
Pt-100 Sensor	TP12075	2015-04-22	Y00755

### Gas cylinders used in calibration

Type	CO <sub>2</sub> concentration (ppm)	Cylinder number	Reference number
Scientific nitrogen (N6.0)	0	7520010190325	100368816
Carbon dioxide mixture (± 0.5 %)	200	7527000001384	100375250
Carbon dioxide mixture (± 0.5 %)	372	7527110000397	100377685
Carbon dioxide mixture (± 0.5 %)	600	7520000288811	100374788
Carbon dioxide mixture (± 0.5 %)	1001	7522010217003	100380163

  
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 Technician