Certificate report no. H40-15210004

Received 2015-05-21

CALIBRATION CERTIFICATE

Instrument	GMP221 Carbon dioxide probe
Serial number	L2058005
Manufacturer	Vaisala Oyj, Finland
Calibration date	15th May 2015

The carbon dioxide probe was calibrated against accurate gas concentrations. Gas concentrations were made by mixing pure carbon dioxide and nitrogen gases with mass flow controller factory working standards. Communication with the probe was achieved via a Vaisala GMB220ACB module. Pressure and temperature compensation was made by using the compensation parameters of a non-volatile memory in the probe and by using actual ambient pressure and temperature values read from a Vaisala transmitter. At the time of shipment, the probe met its operating specifications.

The mass flow controller factory working standards have been calibrated at Vaisala Measurement Standards Laboratory (MSL) by using Vaisala's mass flow primary standards. The mass flow primary standards are traceable to the National Institute of Standards and Technology (NIST). The pressure and temperature readings of the Vaisala transmitter have been calibrated at an ISO/IEC 17025 accredited calibration laboratory (FINAS), MSL by using working standards traceable to NIST.

Calibration results

Reference % CO_2	Observed* % CO_2	Difference % CO_2	Permissible difference % CO_2
0.000	0.000	0.000	± 0.045
3.000	2.998	-0.002	± 0.105

*Reading after pressure and temperature compensation.

Ambient conditions / Humidity 31 ± 5 %RH, Temperature 23.3 ± 1 °C, Pressure 1004 ± 1 hPa.

Equipment used in calibration

Type	Serial number	Calibration date	Certificate number
SEC-Z512MGX	3444909986	2014-07-24	X01420
SEC-Z512MGX	3470356183	2014-07-21	X01422
PTU30T	C2050002	2014-05-06	K008-X00984
GMB 220 ACB	D2810036	2014-12-03	H40-14490064

Gas cylinders used in calibration

Type	Purity classification	Cylinder number	Reference number
Scientific nitrogen	6.0	7523010189392	100368816
Scientific carbon dioxide	5.2	2364719	103000357648

Technician

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