VAISALA

GMP251 Carbon Dioxide Probe for %-Level Measurements

The GMP251 is shown in the actual size in the above image.

Features/Benefits

- Measurement range 0 ... 20 %CO_2
- Intelligent, stand-alone probe with analog (V, mA) and digital (RS485) outputs
- Superior long-term stability with the 2nd-gen proprietary CARBOCAP® technology
- Wide operating temperature range -40 ... +60 °C
- IP65 classified housing
- Full temperature and pressure compensations
- Integrated temperature measurement for CO_2 compensation purposes
- Compensations for background gases, O_2, and humidity
- Sensor head heated to prevent condensation
- Applications: life science incubators, cold storages, fruit and vegetable transportation

The Vaisala CARBOCAP® Carbon Dioxide Probe GMP251 is a new intelligent probe for measuring carbon dioxide. This robust, stand-alone measurement device is designed for use in demanding applications, like life science incubators, where stable, reliable, and accurate performance is required. The GMP251 is based on Vaisala's unique, second-generation CARBOCAP® technology that enables exceptional stability. A new type of infrared (IR) light source is used instead of the traditional incandescent light bulb, which extends the lifetime of the GMP251.

The GMP251 incorporates an internal temperature sensor for compensation of the CO_2 measurement according to ambient temperature. The effects of pressure and background gas can also be compensated for. The measurement range is 0 ... 20 %CO_2 and the sensor performance is optimized at 5 %CO_2 measurement. The operating temperature range of the probe is wide and the probe housing is classified as IP65. Condensation is prevented as the internal sensor head is heated.

The GMP251 is resistant to dust and most chemicals, such as, H_2O_2 and alcohol-based cleaning agents.

Ease of Use

The GMP251 is a compact probe that is easy and fast to install in a number of ways. It's easy to plug in and plug out. The surface of the probe is smooth, which makes it easy to clean. The probe provides several outputs for the CO_2 measurement, analog current and voltage outputs as well as digital RS485 with Modbus protocol.

Applications

The GMP251 is ideal for life science incubators, cold storages, fruit and vegetable transportation, and for all demanding applications where stable and accurate %-level CO_2 measurements are needed.

Technical Data

Performance

Measurement range	0 ... 20 %CO_2
Accuracy (including repeatability and non-linearity) at 25 °C and 1013 hPa	
0 ... 8 %CO_2	±0.3 %CO_2
8 ... 20 %CO_2	±0.5 %CO_2
Calibration uncertainty	
at 5 %CO_2	±0.1 %CO_2
at 20 %CO_2	±0.2 %CO_2
Long-term stability	
0 ... 8%CO_2	±0.4 %CO_2 / year
8 % ... 12%CO_2	±0.8 %CO_2 / year
12 % ... 20%CO_2	±1.5 %CO_2 / year
Start-up time	< 20 s
Warm-up time (for full specifications)	< 15 min
Response time (T90)	< 1 min

Operating Environment

Operating temperature	-40 … +60 °C
Storage temperature	-40 … +70 °C
Pressure (compensated)	500 … 1100 hPa
operating	< 1.5 bar
Humidity	0 ... 100 %, non-condensing
Condensation prevention	sensor head heating when power is on
Chemical tolerance (temporary exposure during cleaning)	H_2O_2 (2000 ppm) non-condensing; alcohol-based cleaning agents (e.g. ethanol and IPA); DMSO; acetone, acetic acid
Electromagnetic compatibility	EN61326-1, Generic Environment

Inputs and Outputs

Operating voltage	
when digital output in use	12 … 30 VDC
when voltage output in use	13 … 30 VDC
when current output in use	20 … 30 VDC
Digital output	RS485, Modbus, Vaisala Protocol
Analog outputs	0 … 5/10 V (scalable), min. load 10 kΩ
	0/4 … 20 mA (scalable), max. load 500 Ω
Power consumption	0.4 W in continuous operation

Mechanics

Probe housing material	PET plastic
Filter material	Porous PTFE
Connector	Stainless steel, M12 / 5 pin
Housing classification	IP65
Weight	
probe	60 g

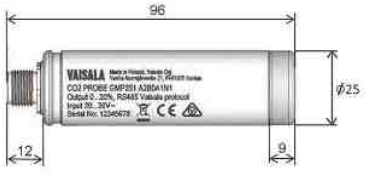
Spare Parts and Accessories

Cable with open wires (1.5 m)	223263SP
High temperature durable cable (1.1 m, special plug)	CBL210347SP
Porous PTFE filter	DRW243649SP
USB cable for PC connection	242659

Dimensions

Probe diameter	25 mm

Dimensions in mm



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