

# 16 Gas concentrations in the air

**Digital carbon dioxide sensor FYAD 00 CO2 with grip, integrated atmospheric pressure sensor for automatic atmospheric pressure compensation, and ALMEMO® D6 plug**

## ALMEMO® D6



- Digital CO<sub>2</sub> sensor with integrated signal processor
- All sensor characteristics and adjustment data are stored in the CO<sub>2</sub> sensor itself.
- The unique automatic calibration procedure (without fresh air intake) automatically compensates any natural ageing effects.
- The sensor is very well protected against the effects of pollution by means of replaceable PTFE filter caps. Long-term stability is outstanding.
- Automatic atmospheric pressure compensation is provided for pressure-dependent CO<sub>2</sub> concentrations by means of a digital atmospheric pressure sensor integrated in the grip.
- The relevant ambient parameter, atmospheric pressure, is measured using the same sensor.
- Long-term measuring operations can be performed with an ALMEMO® data logger in sleep mode; this applies only to current device types with sleep delay (180 seconds).
- 2 primary measuring channels (real measurable variables) CO<sub>2</sub> concentration and atmospheric pressure
- Freely selectable measurable variables Two measuring channels are programmed (at our factory). CO<sub>2</sub> concentration, average value (ppm), Atmospheric pressure (mbar, AP, p). Alternatively a further variable can be selected. CO<sub>2</sub> concentration, current value (ppm) The configuration is performed on the ALMEMO® V7 measuring instrument or directly on the PC using the USB adapter cable ZA1919AKUV (see chapter "ALMEMO® Network technology").

**General features and accessories, ALMEMO® D6 sensors:**  
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## Technical Data

Digital carbon dioxide (CO <sub>2</sub> ) sensor (including A/D converter)		Filter cap	PTFE Diameter 18 mm Length appr. 41 mm
Measuring principle	non-dispersive infrared (NDIR) technology	Sensor connector	Plug connection
Sensor	2-beam infrared measuring cell	Grip	with socket, integrated electronics
Measuring range		Dimensions	Diameter 20 mm Total length including the sensor 245 mm
FYAD00CO2B10	0 to 10,000 ppm	ALMEMO® connecting cable	fitted cable, 2 meters With ALMEMO® D6 plug
FYAD00CO2B05	0 to 5,000 ppm	<b>Digital atmospheric pressure sensor</b> (integrated in grip)	
Accuracy		Measuring range	700 to 1100 mbar
FYAD 00-CO2B10	±(100 ppm +5 % of measured value)	Accuracy	±2.5 mbar (at 23 °C ±5 K)
FYAD 00-CO2B05	±(50 ppm +3 % of measured value)	<b>ALMEMO® D6 plug</b>	
Nominal conditions	+25 °C, 1013 mbar	Refresh rate	1 second for all four channels
Temperature dependence	typical 2 ppm CO <sub>2</sub> / K in range 0 to +50 °C	Supply voltage	7.5 to 13 VDC
Response time t63	105 s for averaged output value, 60 s for instantaneous value	Current consumption	30 mA
Operative range	-40 to +60 °C / 0 to 95 % RH (non-condensing)		
Measuring interval	Moving average 165 seconds (= 11 current values of 15 sec.)		

### Type (including factory test certificate)

Digital CO<sub>2</sub> sensor with grip, fitted cable with ALMEMO® D6 plug, and integrated digital atmospheric pressure sensor

Measuring range 10 000 ppm

Measuring range 5 000 ppm

**FYAD00CO2B10**

ÖKD calibration KY96xx carbon dioxide concentration for digital sensor, see chapter „Calibration Certificates“

### Order no.

**FYAD00CO2B10**

**FYAD00CO2B05**

ÖKD calibration KY96xx, carbon dioxide concentration, for digital probe, see chapter „Calibration Certificates“. The ÖKD calibration fulfills the requirements of DIN EN ISO/IEC 17025 for test equipment.

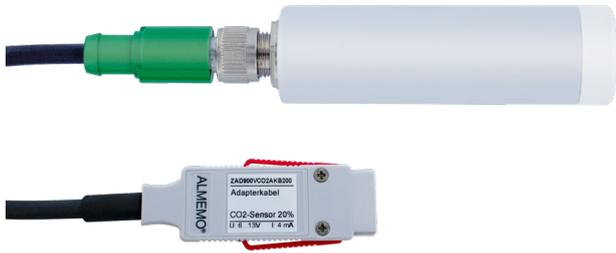
**new**

# Gas concentrations in the air

## Digital carbon dioxide sensor FYAD 00-VCO2B200.

Range up to 20 % CO<sub>2</sub>, with digital ALMEMO® plug.

Integrated temperature and atmospheric pressure sensor for automatic compensation.



- Digital carbon dioxide sensor for concentrations in the percentage range.
- Applications in biotechnology, e.g. in bio-incubators and in the food industry, e.g. in cold stores for the storage and transportation of fruit and vegetables.
- Robust housing for operation in a wide temperature and humidity range.
- Protection of the sensor against contamination with replaceable filter.
- All calibration and sensor data are stored in the carbon dioxide sensor.
- Temperature compensation of the sensor element with the built-in temperature sensor.
- The relevant ambient parameter air pressure is measured with the same sensor. Automatic air pressure compensation of the air pressure-dependent carbon dioxide concentration with digital air pressure sensor, built into the ALMEMO® connector.
- Long-term measurements with ALMEMO® data logger in continuous operation; no sleep mode possible.
- 4 measuring channels: Carbon dioxide concentration (compensated with the measured temperature and the measured air pressure), carbon dioxide concentration not compensated (for own compensation in the measuring software with external measured variables temperature and air pressure), temperature, air pressure.

## Technical Data

<b>Digital carbon dioxide (CO<sub>2</sub>) sensor (including A/D converter)</b>		Operating conditions	-40 ... 60 °C, 500 ... 1100 mbar compensated (max. 1.5 bar), 0 to 95 % r.H., non-condensing
Measuring principle	non-dispersive infrared sensor (NDIR) based on silicon, measurement at two wavelengths (ratiometric)	Materials	
Measuring range	0 ... 20 % CO <sub>2</sub>	Sensor housing	PBT plastic
Accuracy	incl. non-linearity, repeatability	Filter	PTFE membrane, PBT plastic grid
at 5 % CO <sub>2</sub>	±0.1 % CO <sub>2</sub>	Dimensions	Diameter 25 mm
at 0 ... 8 % CO <sub>2</sub>	±0.2 % CO <sub>2</sub>		Total length of the sensor: 84 mm
at 8 ... 20 % CO <sub>2</sub>	±0.4 % CO <sub>2</sub>		without plug
Nominal conditions	25 °C, 1013 mbar	Sensor connection	Built-in connector, digital output
Temperature dependence	Measuring range CO <sub>2</sub> compensated	Power supply	12 V DC, max. 0.5 W via ALMEMO® plug
at 5 % CO <sub>2</sub>	±0.05 % CO <sub>2</sub> in range 0 ... 50 °C	ALMEMO® plug-in connection cable, 1.5 m cable, with digital ALMEMO® plug	
at 0 ... 20 % CO <sub>2</sub>	±0.045 % of meas. value / °C in range -40 ... 60 °C	<b>Digital atmospheric pressure sensor (integrated in ALMEMO® plug)</b>	
Air pressure dependence	Measuring range CO <sub>2</sub> compensated	Measuring range	700 ... 1100 mbar
at 5 % CO <sub>2</sub>	±0.05 % CO <sub>2</sub> in range 700 ... 1100 mbar	Accuracy	± 2.5 mbar (23 °C ± 5 K)
at 0 ... 20 % CO <sub>2</sub>	±0.015 % of meas. value / mbar in range 500 ... 1100 mbar	<b>Digital ALMEMO® plug</b>	
Response time t90	< 1 min with standard filter	Refresh rate	2 sec for all channels
Warm-up time	4 min after switching on for full accuracy	Supply voltage	12 V DC from the ALMEMO® device
Measuring interval	2 s (current value)	Current consumption	typ. 40 mA, starting current typ. 120 mA

### Type (including factory test certificate)

Digital carbon dioxide sensor up to 20 % CO<sub>2</sub>, integrated temperature sensor, plug connection, incl. ALMEMO® adapter cable with digital ALMEMO® plug, digital atmospheric pressure sensor integrated

**Order no.**

**FYAD00VCO2B200**

Accredited calibration KY9621D, carbon dioxide concentration, for digital sensor FYAD00VCO2B200, see chapter „Calibration Certificates“. The accredited calibration meets all the requirements regarding test resources laid down in DIN EN ISO/IEC 17025.