

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



- Digital CO₂ sensor with integrated signal processor
- All sensor characteristics and adjustment data are stored in the CO₂ 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 CO₂ 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) CO₂ concentration and atmospheric pressure
- Freely selectable measurable variables Two measuring channels are programmed (at our factory). CO₂ concentration, average value (ppm), Atmospheric pressure (mbar, AP, p). Alternatively a further variable can be selected. CO₂ 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:
see page 01.08

Technical Data

Digital carbon dioxide (CO₂) 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	Digital atmospheric pressure sensor (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)	ALMEMO® D6 plug	
Nominal conditions	+25 °C, 1013 mbar	Refresh rate	1 second for all four channels
Temperature dependence	typical 2 ppm CO ₂ / K in range 0 to +50 °C	Supply voltage	6 to 13 VDC
Response time t63	105 s for averaged output value, 60 s for instantaneous value	Current consumption	25 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)	Order no.
Digital CO ₂ sensor with grip, fitted cable with ALMEMO® D6 plug, and integrated digital atmospheric pressure sensor	
Measuring range 10 000 ppm	FYAD00CO2B10
Measuring range 5 000 ppm	FYAD00CO2B05
FYAD00CO2B10	
ÖKD calibration KY96xx carbon dioxide concentration for digital sensor (see chapter Calibration certificates)	

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.

Carbon Dioxide Probe FYA600CO2



- Since the gas is supplied by means of free convection, this is especially suitable for climatology measurements.
- Various measuring ranges up to 25%.

Technical Data

Gas:	CO ₂	Power supply:	6.5 to 12VDC from the ALMEMO® device Operation with mains supply unit recommended !
Measuring principle:	IR optics	Current consumpt.	eff. 50mA/ max. 70mA
Measuring ranges:	nominal (% CO ₂): 0 ... 2.5%, 0 ... 10%, 0 ... 25%	Settling time t90:	< 60s
Accuracy:	±2% of final value	Temperature coefficient:	typical -0.4% signal/K
Reproducibility:	±1% of final value	Temperature range:	5 to +40°C
Resolution:	(depending on measuring range) <200ppm at 2.5%	Relative humidity:	0 to 95%, noncondensing
Output:	0 ... 2V on ALMEMO® connector Linearization in ALMEMO® device	Dimensions:	W 96mm x H 36mm x D 64mm
Current output:	referred to GND	Weight:	241g
max. burden (load resist.):	400W	Connecting cable:	1.5m long, ALMEMO® connector

! Operation with the device in SLEEP mode is not possible!
When operating more than one CO₂ probe on a single ALMEMO® device, these CO₂ probes will need their own external power supply ! On request we can offer a wide variety of power supply options to suit your particular measuring setup.

Type

Carbon dioxide sensor including connecting cable 1.5m long for CO₂ measurements in air
(Please specify measuring range !)

Factory calibration KY96xx carbon dioxide concentration for measuring chain (sensor + device) (see chapter Calibration certificates)

Order no.
FYA600CO2

Carbon Monoxide Probe ADOS 592 TOX



- Applications: For measurement, control and warnings in garages, for monitoring the air quality with respect to the maximum allowable concentration at work places (MAC value, e.g. in laboratories and engine test benches)

! Operation with the device in SLEEP mode is not possible!

Technical Data

Gas:	CO	Nominal conditions:	20 °C, 50 % r.H., 1013 mbar
Measuring principle:	electrochemical reaction	Operating conditions:	-10 to +40°C, Sensor in range temperature compensated > 15 to 90 % r.H. non-condensing
Measuring range:	see types	Life span of the meas. cell:	approx. 2 years typical
Zero point error:	< 10 ppm CO	Output:	4 ... 20 mA on ALMEMO® connector
Gauge reading balance:	< 3 ppm CO	Supply voltage:	24V via ALMEMO® connector
Error of meas. value:	±3% of full scale value	Dimensions of meas. head:	Ø 80mm, height 80mm
Zero point drift:	< 2% (1 year)	Weight:	600g
Reproducibility:	< 2% (1 year)	Connecting cable:	1.5m, with ALMEMO® connector
Linearity:	< 2% of full scale value		
Settling time t_{90} :	< 60s		
Transverse sensitivity:	< 2% by integrated filter		

Ausführung (incl. factory test certificate) Order no.

Carbon monoxide sensor including connecting cable 1.5m long for CO measurements in air
range: 0 ... 150 ppm

FYA600COB1

range: 0 ... 300 ppm
range: 0 ... 5000 ppm
range: 0 ... 5 Vol.%

FYA600COB2
FYA600COB3
FYA600COB4

Oxygen Probe FYA600O2



- Examples from the range of applications: Measurements in air conditioning systems, air purifiers, oxygen rectifiers, greenhouses and oxygen incubators.
- Approved by PTB and approved for exhaust emission measurements in the automotive industry.

! A correction value can be stored in the ALMEMO® connector plug to compensate for the natural ageing of the probes, so optimum output characteristics can be ensured for the whole operating life.

Technical Data

Gas:	O ₂	Operating life:	2 years, if operated in 20.9% O ₂
Measuring principle:	electrochemical cell	Nominal conditions:	20°C, 50% rH, 1013mbar
Measuring range:	1 ... 100% O ₂ , linear	Temperature range:	-20 to +50°C
Accuracy :	1% O ₂	Temperature compensation:	effective in range -10 to +40°C
Resolution :	0.01% O ₂	Pressure range:	atm. pressure ±10%
Response time:	< 40s	Relative humidity:	0 to 99% non-condensing
Signal drift:	< 2% signal/month (typ. < 5% over operating life)	Connecting cable:	adapter cable 1.5m long
Offset voltage at 20°C:	< 20mV	Dimensions:	H 43 mm x Ø 29,3 mm

Types

Oxygen sensor including connecting cable 1.5m long for O₂ measurements in air

Order no.
FYA600O2

For Reordering:
Oxygen sensor
ALMEMO® connecting cable

FY9600O2
ZA9600AKO2

Gas probe for various gases ADOS 592 TOX



- Range:
Measurement of gas concentration in air
- multiple ranges / Modelvariants

! Operation with the device in SLEEP mode is not possible!

Technical Data

Gas:	see model variants	Operating conditions:	-10 to +40°C, Sensor in range temperature compensated > 15 to 90 % r.H. non-condensing
Measuring principle:	electrochemical reaction	Life span of the meas. cell:	approx. 2 years typical
Measuring range:	see model variants	Output:	4 ... 20 mA on ALMEMO® connector
Error of meas. value:	±3% of full scale value	Supply voltage:	24V via ALMEMO® connector
Zero point drift:	< 2% (1 year)	Dimensions of meas. head:	Ø 80mm, height 80mm
Reproducibility:	< 2% (1 year)	Weight:	600g
Linearity:	< 2% of full scale value	Connecting cable:	1.5m, with ALMEMO® connector
Settling time t_{90} :	< 60s		
Transverse sensitivity:	< 2% by integrated filter		
Nominal conditions:	20 °C, 50 % r.H., 1013 mbar		



Model variants (including factory test certificate)

Gas probe, including connecting cable, 1.5 meters, for measuring gas in air

Model variants (including factory test certificate)	Order no.
Ammonia NH₃ Range: 0 ... 250 ppm	FYA600ANH3
Nitrogen dioxide NO₂ Range: 0 ... 30 ppm	FYA600ANO2
Nitrogen oxide NO Range: 0 ... 50 ppm	FYA600ANO
Chlorine gas Cl₂ Range: 0 ... 50 ppm	FYA600ACL2
Sulfur dioxide SO₂ Range: 0 ... 20 ppm Range: 0 ... 50 ppm Range: 0 ... 250 ppm	FYA600ASO2B1 FYA600ASO2B2 FYA600ASO2B3
Hydrogen sulfide H₂S Range: 0 ... 50 ppm Range: 0 ... 250 ppm	FYA600AH2SB2 FYA600AH2SB3
Ethylene oxide C₂H₄O Range: 0 ... 20 ppm Range: 0 ... 50 ppm Range: 0 ... 100 ppm	FYA600AC2H4OB1 FYA600AC2H4OB2 FYA600AC2H4OB4