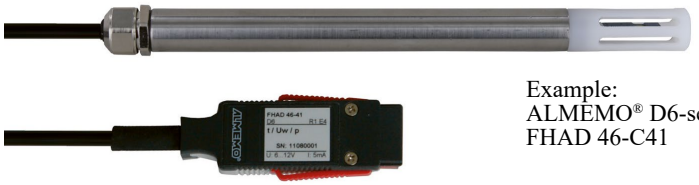
Digital sensor for temperature, humidity, and atmospheric pressure FHAD 46-Cx



Example:
ALMEMO® D6-sensor
FHAD 46-C41

Digital sensor for temperature, humidity, and atmospheric pressure FHAD46-Cx, with ALMEMO® D6 plug
Atmospheric pressure sensor integrated in the multi-sensor module, for automatic atmospheric pressure compensation

Common technical features FHAD 46-Cx

- All sensors in 1 multi-sensor module: capacitive digital sensor for humidity and temperature, digital atmospheric pressure sensor. Additional EEPROM data storage medium in the sensor module.
- The sensor module is thoroughly adjusted. All sensor characteristic and adjustment data are stored on the data storage medium of the sensor module itself. In the process of readjusting the individual sensors the adjustment values are directly saved on the data storage medium of the sensor module.
- Every sensor module has a unique serial number saved on the humidity sensor. The serial number is either displayed in the sensor menu of the measuring instrument or in the ALMEMO® Connect software. Hence, calibrated sensor modules can clearly be assigned to the calibration certificate.
- Replacement sensor modules are inexpensive: The sensor module is pluggable and can simply be exchanged on-site. Full accuracy without any adjustment, especially with calibrated sensors. The ALMEMO® connecting cable and the ALMEMO® measuring instrument have no influence on the calibration.
- New: The atmospheric pressure is measured directly at the measuring point in the sensor tip. Hence, the atmospheric pressure dependent humidity variables are automatically pressure compensated.
- All relevant ambient parameters are measured with just one sensor.
- Humidity calculation on the basis of formulae as per Dr. Sonntag and the enhancement factor as per W. Bögel (correction factor fw(t,p) for real mixed gas systems) This substantially widens the measuring range and improves the accuracy of humidity variable calculations.
- Humidity variable: Absolute humidity in g/m³
- The humidity variables are calculated from the three primary measuring channels (real measurable variables) temperature, relative humidity, atmospheric pressure
- Freely selectable measurable variables
  Four measuring channels are programmed (at our factory).
  temperature (°C, T, t), relative humidity (%H, RH, Uw), dewpoint (°C, DT, td), atmospheric pressure (mbar, AP, p)
  Other humidity variables can also be selected.
  mixture (g/kg, MH, r), absolute humidity (g/m³, AH, dv), vapor pressure (mbar, VP, e), enthalpy (kJ/kg, En, h)
  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”).

Common technical data FHAD 46-Cx

Digital temperature / humidity sensor (including A/D converter)	
Operative range	depending on sensor type
Humidity	
Measuring range	0 to 98 % RH
Sensor	CMOSens® technology
Accuracy	±3 % RH in range 10 to 90 % RH
(incl. hysteresis)	±5 % RH in range 5 to to 98 % RH at nominal temperature
Hysteresis	typical ±1 % RH
Nominal temperature	+23 °C ±5 K
Sensor operating pressure	Atmospheric pressure
Response time T_{63}	typical 8 seconds at +25 °C, 1 m/s (without filter)
Temperature	
Sensor	CMOSens® technology
Accuracy	typical ±0.2 K at 5 to 60 °C maximum ±0.4 K at 5 to 60 °C maximum ±0.7 K at -20 to +80 °C
Reproducibility	typical ±0.1 K
Response time T_{63}	typical 20 seconds (without filter)
ALMEMO® connecting cable	
PVC; Length (see variants) with ALMEMO® D6 plug	
FHAD 46-C4xAx silicone	
Digital atm. pressure sensor (integrated in the multi-sensor module)	
Measuring range	700 to 1100 mbar
Accuracy	±2.5 mbar (at 23 °C ±5 K)
ALMEMO® D6 plug	
Refresh rate	1 second for all four channels
Supply voltage	6 to 13 VDC
Current consumption	5 mA

DAkkS accredited calibration or factory calibration KH9xxx temperature, humidity for digital sensor, see chapter „Calibration certificates“.
DAkkS accredited calibration meets all the requirements regarding test resources laid down in DIN EN ISO/IEC 17025.

Digital sensor for temperature, humidity, and atm. pressure FHAD 46-C4AG in protective all-weather housing cable length up to 100 meters with ALMEMO® D6 plug



Technical data and variants
(see chapter „Meteorology“)

11/2025 • We reserve the right to make technical changes.

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Digital sensor for temperature, humidity, and atm. pressure FHAD 46-C4xAx
Version in stainless steel, with protective cap with ALMEMO® D6 plug





Replacement multi-sensor module FH0D 46-C

Technical features

- Extended operating temperature range.
- Silicone connecting cable.
- Four measuring channels are programmed (at our factory). temperature (°C, T, t), relative humidity (%H, RH, Uw), dewpoint (°C, DT, td), atmospheric pressure (mbar, AP, p)

Technical data

Operative range	-40...+85 °C / 5...98 % RH
Mechanical design	
Sensor tube	Stainless steel, diameter 12 mm
	Length (see variants)
Protective cap	slotted, open cap, SK10
Screw-fit cable gland	Splash-protected

General description and common technical data see FHAD 46 Cx

Variants including manufacturer's test certificate

	Order no.
Digital sensor for temperature, humidity, and atmospheric pressure, protective cap, stainless steel tube, with fitted cable and ALMEMO® D6 plug.	
Sensor length 160 mm, Connecting cable, length 2 meters	**FHAD46C41A**
Sensor length 160 mm, Connecting cable, length 5 meters	**FHAD46C41AL05**
Sensor length 160 mm, Connecting cable, length 10 meters	**FHAD46C41AL10**
Sensor length 270 mm, Connecting cable, length 2 meters	**FHAD46C42A**
Sensor length 270 mm, Connecting cable, length 5 meters	**FHAD46C42AL05**
Sensor length 270 mm, Connecting cable, length 10 meters	**FHAD46C42AL10**
Sensor length 530 mm, Connecting cable, length 2 meters	**FHAD46C43A**
Sensor length 530 mm, Connecting cable, length 5 meters	**FHAD46C43AL05**
Sensor length 530 mm, Connecting cable, length 10 meters	**FHAD46C43AL10**
Replacement multi-sensor module, digital, adjusted, plug-in	**FH0D46C**

Protective caps

Dimensions: length approx. 33 mm, diameter 12 mm

SK10 SK7 SK6 SK8 DA









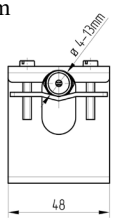


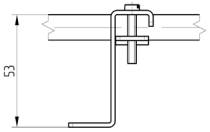
	Designation	Pore size	max. temp.*	Typical Application	Order no.
SK10	slotted, open cap without filter	open	100 °C	short response time, no dirt load	ZB9600SK10
SK7	Metal-mesh filter in PC-housing	100 µm	120 °C	Universal, for medium, contamination, also high humidity	ZB9600SK7
SK6	PTFE sinter filter	50 µm	180 °C	High chemical resistance	ZB9600SK6
SK8	Stainless steel sinter filter	10 µm	180 °C	For severe mechanical stress, heavy contamination, strong air flow	ZB9600SK8
DA	Pressure connection			Hose connection for the built-in air pressure sensor	ZB9600DA

* Observe application range

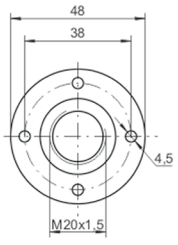
Accessories

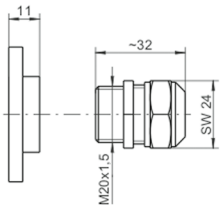
Brackets for wall mounting, distance from wall approx. 40 mm
ZB9600W





Movable brass screw connection with plastic sealing ring
ZB9600KV20
Connecting flange for screw connection, hole circle 38 mm Ø
ZB9600F20





Digital sensor for temperature, humidity, and atmospheric pressure FHAD 46-C2
Version in plastic, with slotted sensor cap with ALMEMO® D6 plug



FHAD 46-C2
Multi-sensor module incorporated
in slotted sensor cap
compact design, short response time



FHAD 46-C2 Option with plug-in extension tube



Replacement multi-sensor module FH0D 46-C2



FHAD 46-C2L00



Extension tube

- Four measuring channels are programmed (at our factory).
  Temperature (°C, T, t), Relative humidity (%H, RH, Uw)
  Dewpoint (°C, DT, td)
  Atmospheric pressure (mbar, AP, p).

Technical data

Operative range	-20 to +60 °C / 5 to 98 % RH
Mechanical design	
Sensor cap	Ø 8 mm, length 36 mm
Plug connection	Ø approx. 9 mm, IP40
Extension tube	Ø 8 mm, length 97 mm

General description and common technical data see FHAD 46-Cx

Variants including manufacturer's test certificate	**Order no.**
Digital sensor for temperature, atmospheric humidity, and atmospheric pressure, with multi-sensor module in slotted sensor cap, plug connector, including ALMEMO® connecting cable with coupling and ALMEMO® D6 plug.	
Connecting cable, length 2 meters	**FHAD46C2**
Connecting cable, length 5 meters	**FHAD46C2L05**
Connecting cable, length 10 meters	**FHAD46C2L10**
Cable stub approx.: 80 mm (incl. multi-sensor module)	**FHAD46C2L00**
Spare sensor element for FHAD462, digital, enclosed in slotted sensor cover, adjusted	**FH0D46C2**
Extension tube, Ø 8 mm, length 97 mm, plug-in, for FHAD 46-C2	**ZB0D462VR**

Digital sensor for temperature, humidity, and atm. pressure FHAD 46-C0
Uncovered multi-sensor module with ALMEMO® D6 plug



FHAD 46-C0
Uncovered multi-sensor module
most compact design, short response time



Replacement multi-sensor module FH0D 46-C

- Four measuring channels are programmed (at our factory).
  Temperature (°C, T, t), Relative humidity (%H, RH, Uw)
  Dewpoint (°C, DT, td),
  Atmospheric pressure (mbar, AP, p).

Technical data

Operative range	-20 to +80 °C / 5 to 98 % RH
Mechanical design	
Multi-sensor module (dimensions over all)	approx. 6 x 14 x 3 mm
Plug connection	Width approx. 7 mm

Variants including manufacturer's test certificate	**Order no.**
Digital sensor for temperature, humidity, and atmospheric pressure, with uncovered multi-sensor module, plug connector, including ALMEMO® connecting cable with coupling and ALMEMO® D6 plug.	
Connecting cable, length 2 meters	**FHAD46C0**
Connecting cable, length 5 meters	**FHAD46C0L05**
Connecting cable, length 10 meters	**FHAD46C0L10**
Replacement multi-sensor module, digital, adjusted, plug-in	**FH0D46C**

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