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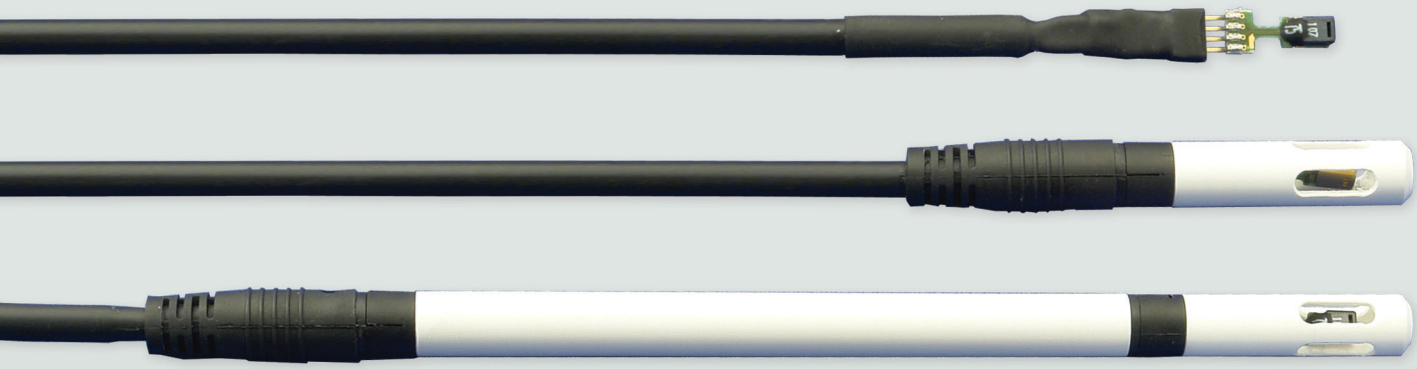
ALMEMO® D6 digital sensors



mbar Pa lux °C Hz kJ/kg W kg Upm %H l/min ppm mA V min W/m² mS bar g/Kg etc ...

Digital atmospheric humidity / temperature sensor
Digital high-precision atmospheric humidity / temperature sensor
Digital psychrometer
Digital thermoanemometer
Digital atmospheric pressure sensor
High-precision pressure sensor
Digital carbon dioxide sensor
Digital heat flow plate
Digital infra-red sensor for surface temperature

OVERVIEW

ALMEMO® D6 sensors

Digital atmospheric humidity / temperature sensor

FHAD 46-0 and FHAD 46-2, with ALMEMO® D6 plug

Measuring ranges: Temperature, relative humidity, dew point, absolute humidity, mixture, enthalpy, vapor pressure

High-precision digital atmospheric humidity / temperature sensor

FHAD 36 Rx, with ALMEMO® D6 plug,
new: With integrated atmospheric pressure sensor, for automatic pressure compensation

Measuring ranges: Temperature, relative humidity, atmospheric pressure, dew point, absolute humidity, mix-

Digital psychrometer

FNAD 46-3 with ALMEMO® D6 plug,
new: With integrated atmospheric pressure sensor, for automatic pressure compensation

Measuring ranges: Dry temperature, humid temperature, relative humidity, atmospheric pressure, dew point, absolute humidity, mixture, enthalpy, vapor pressure

Digital thermoanemometer

FVAD 35 THx with ALMEMO® D6 plug,
new: With integrated atmospheric pressure sensor, for automatic pressure compensation

Measuring ranges: Temperature, air flow, atmospheric pressure

Digital atmospheric pressure sensor

FDAD 12 SA, for barometric pressure
with ALMEMO® D6 plug

Measuring range: Barometric pressure

High-precision pressure sensor

FDAD33 und FDAD35M, with ALMEMO® D6 plug,
new: also for the detection of rapid pressure peaks

Measuring range: pressure

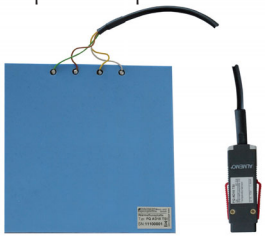
Digital carbon dioxide sensor

FYAD600CO2, with ALMEMO® D6 plug,
neu: With integrated atmospheric pressure sensor, for automatic pressure compensation

Measuring ranges: carbon dioxide in air

Digital heat flow plate

FQADx, with ALMEMO® D6 plug
new: With integrated temperature sensor for automatically correcting the heat flow plate's temperature coefficient



Measuring ranges: Plate's mean temperature, heat flow

Digital infra-red sensor for surface temperature

FIAD43, with ALMEMO® D6 plug

Measuring range: surface temperature

OVERVIEW

ALMEMO® D6 overview

ALMEMO® D6 sensor - with outstanding features

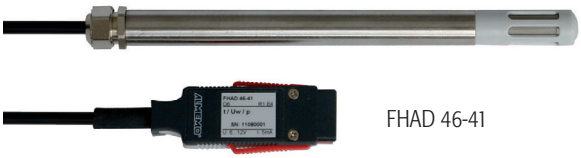
- This digital ALMEMO® D6 sensor can be connected to any ALMEMO® measuring instrument without in any way affecting its measuring accuracy. The measuring accuracy of the whole system is determined exclusively by the A/D converter incorporated in the ALMEMO® D6 sensor.
- This digital ALMEMO® D6 sensor is calibrated without involving the ALMEMO® measuring instrument (DKD / factory) and can be replaced or exchanged as and when convenient.
- The connecting cable for this digital ALMEMO® D6 sensor can be extended using pluggable extension cables quickly and easily and without any line losses. (see "General accessories for ALMEMO® D6 sensors") These digital extension cables have no effect on measuring accuracy and offer high transmission reliability.
- The digital ALMEMO® D6 sensor can - via USB - be connected directly to a PC or - via Ethernet - incorporated in an ALMEMO® network. Measured values can be processed directly using the WinControl software package.
- These digital ALMEMO® D6 sensors can be configured (e.g. measuring range selection) directly on the PC using USB adapter cable ZA1919AKUV. (see "General accessories for ALMEMO® D6 sensors")

General accessories

ALMEMO® extension cable, length 2 meters	Order no. ZA9060VK2
ALMEMO® extension cable, length 4 meters	Order no. ZA9060VK4
ALMEMO® extension cable, length 10 meters (For other lengths up to 100 meters, see page 07.03)	Order no. ZA9090VKC10
ALMEMO® USB adapter cable, length 1.5 meters For connecting an ALMEMO® D6 sensor directly to the USB port on a PC (power supply via USB)	Order no. ZA1919AKUV
ALMEMO® Ethernet adapter cable, total length 3 meters For connecting an ALMEMO® D6 sensor directly to an Ethernet PC network, including mains unit	Order no. ZA5045AKFBV
WinControl software for data acquisition, storage and processing for 1 ALMEMO® D6-sensor / device	Order no. SW5600WC1
for any lot of ALMEMO ® D6-sensors / devices	Order no. SW5600WC2

General description and other versions, options, add-on modules see Chapter 06, page 06.06

Digital temperature / humidity sensors FHAD 46x with ALMEMO® D6 plug



FHAD 46-41

Common technical features FHAD 46x

- Digital capacitive humidity sensor with integrated signal processor
- All sensor characteristics and adjustment data are stored in the humidity sensor element itself.
- Humidity sensor element, plug-in. Replacement elements are inexpensive. A replacement can be fitted quickly and easily on site by virtually anyone. It will be fully accurate and need no special adjustment.
- *new:* Humidity calculation on the basis of formulae as per Dr. Sonntag and 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.
- *new:* Humidity variable Absolute humidity in g/m³
- The humidity variables are calculated from the primary measuring channels (real measurable variables). (depending on sensor type) (see "Technical features")
- Freely selectable measurable variables
  Four measuring channels are programmed (at our factory). (depending on sensor type) (see "Technical features")
  Various humidity variables can be selected.
  Temperature (°C, T,t), Relative humidity (%H, RH, Uw), Dew point (°C, DT, td), Mixture (g/kg, MH, r), Absolute humidity (g/m³, AH, dv), Vapor pressure (mbar, VP, e), Enthalpy (kJ/kg, En, h)
  This device can be configured on a PC using USB adapter cable ZA 1919 AKUV.
  (see "General accessories for ALMEMO® D6 sensors").

Common technical data FHAD 46x :

Digital temperature / humidity sensor (including A/D converter)

Operative range	depending on sensor type
Humidity	
Measuring range	0 to 100 % RH
Sensor	CMOSens® technology
Accuracy	±1.8 % RH in the range 10 to 90 % RH at nominal temperature
Hysteresis	typical ±1 % RH
Nominal temperature	+25 °C
Sensor operating press.	Atmospheric pressure
Response time T63	typical 8 seconds at 25 °C and 1 m/s (without filter)
Temperature	
Sensor	CMOSens® technology
Accuracy	±0.3 K at +25 °C ±0.4 K at +10 to +40 °C ±1.3 K at -20 to +80 °C
Reproducibility	typical ±0,1 K
Response time T63	typical 20 seconds (without filter)
ALMEMO® connecting cable	
PVC, For lengths, see variants with ALMEMO® D6 plug	
ALMEMO® D6 plug	
Refresh rate	2 seconds for all four channels
Supply voltage	6 to 13 VDC
Current consumption	12 mA

General features and accessories, ALMEMO® D6 sensors: see ALMEMO® D6 overview

Other designs are available on request:

Sensor with PTFE filter cap FHAD 46-3
Water-proof sensor
Sensor plug connection IP67

Digital temperature / humidity sensor FHAD 46-4AG in protective all-weather housing with integrated atmospheric pressure sensor in terminal box, cable length up to 100 meters with ALMEMO® D6 plug

Technical data and variants
see section 13, page 13.12

Digital temperature / humidity sensor FHAD 46-4x variant in stainless steel with filter cap with ALMEMO® D6 plug with integrated atmospheric pressure sensor, for automatic pressure compensation

Technical features

- *new:* Automatic atmospheric pressure compensation is provided for pressure-dependent humidity variables by means of a digital atmospheric pressure sensor integrated in the ALMEMO® D6 plug itself.
- All relevant ambient parameters are measured with one sensor.
- The humidity variables are calculated from the three primary measuring channels (real measurable variables). Temperature, Relative humidity ,Atmospheric pressure,
- Four measuring channels are programmed (at our factory). Temperature (°C, T,t), Relative humidity (%H, RH, Uw), Dew point (°C, DT, td), Atmospheric pressure (mbar, AP, p)

Technical data

Operative range	-20 to +80 °C / 5 to 98 % RH
Mechanical design	
Sensor tube	Stainless steel, diameter 12 mm (for available lengths see variants)
Filter cap	Metal-mesh filter, SK7
Screw-fit cable gland	Splash-protected
Digital atmospheric pressure sensor (integrated in ALMEMO® D6 plug)	
Measuring range	700 to 1100 mbar
Accuracy	±2.5 mbar (at 0 to +65 °C)

General description and common technical data FHAD 46x see page 09.24

Variants including manufacturer's test certificate:

Digital temperature / humidity sensor, with filter cap, stainless steel tube, fitted cable and ALMEMO® D6 plug, and integrated digital atmospheric pressure sensor.

Sensor length 160 mm, Connecting cable Length 2 meters	**Order no. FHAD4641**
Sensor length 160 mm, Connecting cable Length 5 meters	**Order no. FHAD4641L05**
Sensor length 160 mm, Connecting cable Length 10 meters	**Order no. FHAD4641L10**
Sensor length 270 mm, Connecting cable Length 2 meters	**Order no. FHAD4642**
Sensor length 270 mm, Connecting cable Length 5 meters	**Order no. FHAD4642L05**
Sensor length 270 mm, Connecting cable Length 10 meters	**Order no. FHAD4642L10**
Sensor length 530 mm, Connecting cable Length 2 meters	**Order no. FHAD4643**
Sensor length 530 mm, Connecting cable Length 5 meters	**Order no. FHAD4643L05**
Sensor length 530 mm, Connecting cable Length 10 meters	**Order no. FHAD4643L10**
Replacement sensor element, digital, adjusted, plug-in	**Order no. FH0D46**

Filter caps

Dimensions
Diameter 12 mm
Length approx. 33 mm

SK7

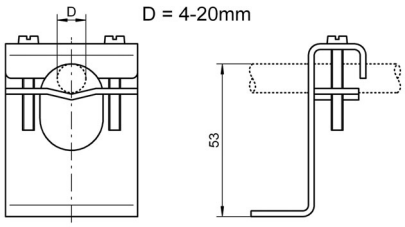
SK6

SK8

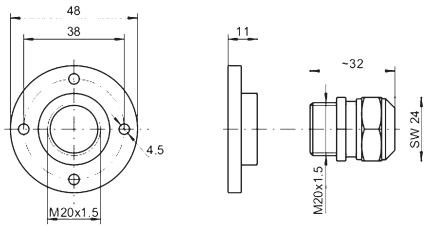
	Designation	Pore-size	Max. temp.	Typical Application	Order no.
SK7	Metal-mesh filter in PC-housing	100 µm	120°C	Universal, for medium, contamination, also high humidity	**ZB9600SK7**
SK6	PTFE-Sinterfilter	50 µm	180°C	High chemical resistance	**ZB9600SK6**
SK8	Stainless steel sinter filter	10 µm	180°C	For severe mechanical stress, heavy contamination, strong air flow	**ZB9600SK8**

* Sensor Application Note

Accessories



Brackets for wall mounting,
distance from wall approx. 40 mm
Order no. : ZB9600W



Movable brass screw connection with plastic sealing ring for sensor tube Ø 12 mm Order no. ZB9600KV20
Connecting flange for screw connection, pitch circle diameter 38 mm Order no. ZB9600F20

Digital temperature / humidity sensor FHAD 46-2 Version in plastic, with slotted sensor cap, with ALMEMO® D6 plug

FHAD462
Sensor element enclosed in slotted sensor cover, compact design, short response time

FHAD462 Option with plug-in extension tube

FHAD462L00

Technical features

- The humidity variables are calculated from the two primary measuring channels (real measurable variables). Temperature, Relative humidity
- Four measuring channels are programmed (at our factory). Temperature (°C, T,t), Relative humidity (%H, RH, Uw), Dew point (°C, DT, td), Mixture (g/kg, MH, r).

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 FHAD 46x see page 09.24

Variants including manufacturer's test certificate:

Digital temperature / humidity sensor, in slotted sensor cap, plug-in, including ALMEMO® connecting cable with coupling and ALMEMO® D6 plug.

Connecting cable, length 2 meters	**Order no. FHAD462**
Connecting cable, length 5 meters	**Order no. FHAD462L05**
Connecting cable, length 10 meters	**Order no. FHAD462L10**
Cable stub, length (including sensor cap) approx. 80 mm	**Order no. FHAD462L00**
Replacement sensor, digital, in slotted sensor cap, adjusted	**Order no. FH0D462**
Extension tube, Ø 8 mm, length 97 mm, plug-in, for FHAD462	**Order no. ZB0D462VR**

Other designs are available on request:

Sensor with terminal box FHD 462 KL

Terminal box with plug-in digital temperature / humidity sensor, cable lengths up to 100 meters

Digital temperature / humidity sensor FHAD 46-0 uncovered sensor element with ALMEMO® D6 plug.

FHAD460
Uncovered sensor element: smallest design, short response time

FHAD460 with option W Sensor terminals protected against damp

Technical features

- The humidity variables are calculated from the two primary measuring channels (real measurable variables). Temperature, Relative humidity
- Four measuring channels are programmed (at our factory). Temperature (°C, T,t), Relative humidity (%H, RH, Uw), Dew point (°C, DT, td), Mixture (g/kg, MH, r).

Technical data

Operative range	-20 to +80 °C / 5 to 98 % RH
Mechanical design	
Sensor element (dimensions over all)	approx. 6 x 14 x 3 mm
Plug connection	Width approx. 7 mm
New Option W	Each sensor connection is protected against damp by means of silicone and a shrink-fit sleeve. (sensor element no longer pluggable) Width approx. 8 mm.

General description and common technical data FHAD 46x see page 09.24

Variants including manufacturer's test certificate:

Digital temperature / humidity sensor element, uncovered, plug-in, including ALMEMO® connecting cable with coupling and ALMEMO® D6 plug.

Connecting cable, length 2 meters	**Order no. FHAD460**
Connecting cable, length 5 meters	**Order no. FHAD460L05**
Connecting cable, length 10 meters	**Order no. FHAD460L10**
Replacement sensor element, digital, adjusted, plug-in	**Order no. FH0D46**
new: option W: Each sensor connection is protected against damp (sensor element no longer pluggable)	**Order no. OAD9460W**

Digital sensor for temperature, atmospheric humidity, atmospheric pressure FHAD 46-4AG in protective all-weather housing with ALMEMO® D6 plug

- *new:* All relevant ambient parameters are measured with one sensor.
- Suitable for mounting on a wall or a mast
- *new:* Sensor cable up to 100 meters long, clamped in terminal box
- Digital capacitive humidity sensor with integrated signal processor
- All sensor characteristics and adjustment data are stored in the humidity sensor element itself.
- Humidity sensor element, plug-in
  Spare elements are inexpensive; a replacement can be fitted on site quickly and easily by virtually anyone; it will be fully accurate and need no special adjustment.
- *new:* Automatic atmospheric pressure compensation is provided for pressure-dependent humidity variables by means of a digital atmospheric pressure sensor integrated in the terminal box.
- *new:* 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.
- *new:* Humidity variable, Absolute humidity in g/m³
- The humidity variables are calculated from the three primary measuring channels (real measurable variables) - temperature, relative humidity. and atmospheric pressure.
- Four measuring channels are programmed (at our factory).
  Temperature (°C, T,t), Relative humidity (%H, RH, Uw),
  Dew point (°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).
  This device can be configured on a PC using USB adapter cable ZA 1919 AKUV.
  (see "General accessories for ALMEMO® D6 sensors")

General features and accessories, ALMEMO® D6 sensors: see ALMEMO® D6 overview

On request

new: Temperature sensor Pt100 in protective all-weather housing — Order no. FPA930AG

Technical data

Operative range	-30 to +60 °C, 5 to 98 % RH
Digital temperature / humidity sensor (including A/D converter)	
Humidity	
Measuring range	0 to 100 % RH
Sensor	CMOSens® technology
Accuracy	±1.8 % RH in range 10 to 90 % RH at nominal temperature
Hysteresis	typical ±1 % RH
Nominal temperature	25 °C
Sensor operating pressure	Atmospheric pressure
Temperature	
Sensor	CMOSens® technology
Accuracy	±0.3 K at +25 °C ±0.4 K at +10 to +40 °C ±1.3 K at -20 to +80 °C
Reproducibility	typical ±0.1 K
Digital atmospheric pressure sensor (integrated in the terminal box)	
Measuring range	700 to 1100 mbar
Accuracy	±2.5 mbar (at 0 to +65 °C)
ALMEMO® connecting cable	
PVC, for available lengths see variants with ALMEMO® D6 plug	
ALMEMO® D6 plug	
Refresh time	2 second for all four channels
Supply voltage	6 to 13 VDC
Current consumption	12 mA
Mechanical design	
Sensor tube	Plastic, diameter 12 mm
Filter cap	Metal-mesh filter, SK7
All-weather protection	Ø 105 mm, height approx. 110 mm
Terminal box	51 x 53 x 36 mm
Screw-fit cable gland	Splash-protected

Accessories

ALMEMO® transmitter 2450-1 with double analog output
10 V or 20 mA — Order no. MA24501R02

(For other data, options, accessories, see Chapter 02)

Standard delivery

Digital sensor for temperature, atmospheric humidity, atmospheric pressure in protective all-weather housing
with connecting cable and ALMEMO® D6 plug, manufacturer's test certificate, 2 fixtures for mounting on a mast

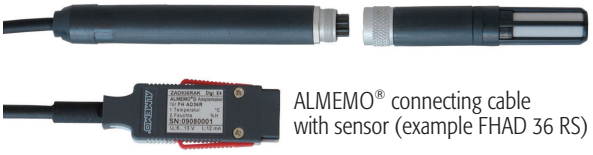
Connecting cable

Length = 5 meters	**Order no. FHAD464AGL05**
Length = 10 meters	**Order no. FHAD464AGL10**
Length = 20 meters	**Order no. FHAD464AGL20**
Length = 40 meters	**Order no. FHAD464AGL40**
Length = 100 meters	**Order no. FHAD464AGL100**
Replacement sensor element, digital, adjusted, plug-in	**Order no. FH0D46**

HUMIDITY

ALMEMO® D6

High-precision sensor for temperature, humidity, atmospheric pressure FHAD 36 Rx
Wide operating temperature range
Automatic atmospheric pressure compensation
Digital sensor with ALMEMO® D6 plug



ALMEMO® connecting cable with sensor (example FHAD 36 RS)

Common technical features FHAD 36 Rx

- This digital capacitive humidity sensor with integrated signal processor meets the highest accuracy specifications in humidity measurement.
- Unique correction and adjustment process
  All sensor characteristics and adjustment data are stored in the humidity sensor itself.
- *new:* Automatic atmospheric pressure compensation is provided for pressure-dependent humidity variables by means of a digital atmospheric pressure sensor integrated in the ALMEMO® D6 plug itself.
- *new:* Humidity calculation on the basis of formulae as per Dr. Sonntag and 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.
- *new:* Humidity variable Absolute humidity in g/m³
- All relevant ambient parameters are measured with one sensor.
- The humidity variables are calculated from the three primary measuring channels (real measurable variables) - temperature, relative humidity. and atmospheric pressure.
- Freely selectable measurable variables
  Four measuring channels are programmed (at our factory).
  Temperature (°C, T,t), Relative humidity (%H, RH, Uw),
  Dew point (°C, DT, td), Atmospheric pressure (mbar, AP, p)
  Other alternative 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)
  This device can be configured on a PC using USB adapter cable ZA 1919 AKUV. (see "General accessories for ALMEMO® D6 sensors")

General features and accessories, ALMEMO® D6 sensors

see ALMEMO® D6 overview

Common technical data FHAD 36 Rx

Digital temperature / humidity sensor (including A/D converter)

Operative range	depending on sensor type
Humidity	
Sensor	capacitive
Measuring range	0 to 100 % RH
Adjusted	at 23 °C and 10%, 35%, 80% RH
Accuracy	±1.3% RH (at 23°C ±3 K)
Reproducibility	0.3% RH
Response time T63	<15 seconds at typical 1 m/s, without filter
Temperature	
Sensor	Pt100 class A
Measuring range	-100 to +200 °C* Please observe operative range ! (depending on sensor type)
Accuracy at +23 °C	±0.2 K
Reproducibility	0.05 °C

Sensor connector on the sensor / sensor cable
Plug connector (Material Anticorodal aluminum, anodized) IP65

Operative range of the electronics

in the connecting cable (coupling)	-40 to +90 °C
in the grip (of hand-held sensors)	-40 to +85 °C

ALMEMO® connecting cable
Coupling (L = 100 mm) with cable, length = 2 or 5 meters
(Material, TPU, -40 to +90 °C) with ALMEMO® D6 plug

Digital atmospheric pressure sensor
(integrated in ALMEMO® D6 plug)

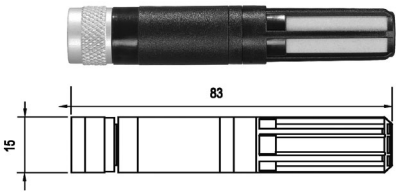
Measuring range	700 to 1100 mbar
Accuracy	±2.5 mbar (at 0 to +65 °C)

ALMEMO® D6 plug

Refresh rate	1 second for all four channels
Supply voltage	6 to 13 VDC
Current consumption	12 mA

* Persistent operation at high temperatures (> 170 ° C) can lead to loss of accuracy or damaging the cell.

High-precision sensor for temperature, humidity, atmospheric pressure FHAD 36 RS Automatic atmospheric pressure compensation Digital sensor with ALMEMO® D6 plug



Technical data

Operative range	-50 to +100 °C
Sensor materials	Polycarbonate
Filter	Polyethylene

General description and common technical data FHAD 36 Rx
see page 09.20

Accessorie

Brackets for wall mounting see 09.05 Order no. ZB9600W

Variants Including factory test certificate and polyethylene filter

Digital high-precision temperature / humidity sensor, plug connector, including ALMEMO® connecting cable
With coupling and ALMEMO® D6 plug, Integrated digital atmospheric pressure sensor
Connecting cable, length = 2 meters **Order no. FHAD36RS**
Same as above Connecting cable, length = 5 meters **Order no. FHAD36RSL05**

Filter

Variants

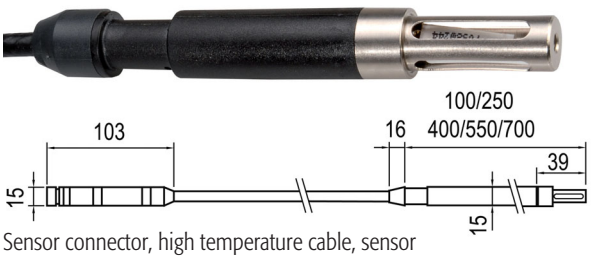
Polycarbonate filter cartridge with a filter insert made from polyethylene
For standard applications, good response time, good protection against fine dust particles **Order no. ZB9636PE**

Polycarbonate filter cartridge with a filter insert made from stainless-steel wire fabric, Quickest response time, not suitable for environments that are bioactive or contaminated with fine dust particles (risk of congestion) **Order no. ZB9636WM**

Polycarbonate filter cartridge with a filter insert made from PTFE (polytetrafluoroethylene), good protection against fine particulates and salt (maritime environment), slower response time **Order no. ZB9636TF**

POM (polyoxymethylene) filter cartridge with a filter insert made from PTFE,
water-proof, very good protection against fine dust particles, slow response time **Order no. ZB9636FD2**

High-precision sensor for temperature, humidity, atmospheric pressure FHAD 36 RIC Industrial-standard design for high temperatures up to 200 °C*, Automatic atmospheric pressure compensation, Digital sensor with ALMEMO® D6 plug



Sensor connector, high temperature cable, sensor

Technical data

Operative range	-100 to +200 °C *
Sensor length Other lengths	100 mm 250 / 400 / 550 / 700 mm are available on request.
Sensor materials	PPS (polyphenylene sulfide)
Filter cartridge	Brass, nickel-plated
Filter	Stainless-steel wire fabric filter

* Persistent operation at high temperatures (> 170 ° C) can lead to loss of accuracy or damaging the cell.

General description and common technical data FHAD 36 Rx
see page 09.20

Variants Including factory test certificate and stainless-steel wire fabric filter

Digital high-precision temperature / humidity sensor Industrial-standard design with high-temperature sensor cable and plug connector including ALMEMO® connecting cable, with coupling and ALMEMO® D6 plug, integrated digital atmospheric pressure sensor
Sensor cable, length = 2 meters Connecting cable, length = 2 meters **Order no. FHAD36RIC102**
Same as above Sensor cable, length = 5 meters Connecting cable, length = 2 meters **Order no. FHAD36RIC105**
Same as above Sensor cable, length = 2 meters Connecting cable, length = 5 meters **Order no. FHAD36RIC102L05**
Same as above Sensor cable, length = 5 meters Connecting cable, length = 5 meters **Order no. FHAD36RIC105L05**

HUMIDITY

ALMEMO® D6

Accessories

Assembly screw fittings for 15 mm sensor
Brass, nickel-plated Thread M20x1.5
Viton® seal, up to 200 °C
Order no. ZB9636KV

Mounting flange
Steel, nickel-plated Diameter 80 mm
Order no. ZB9636F

Other designs are available on request.

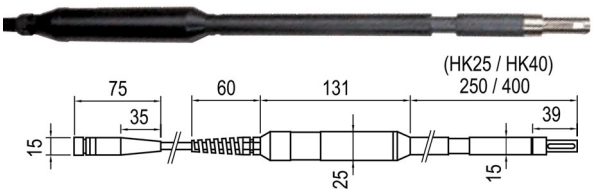
Industrial-standard humidity sensor FHAD 36 RIM
Stainless steel, diameter 15 mm -100 to +200 °C*

Screw-fit humidity sensor FHAD 36 RIE up to 100 bar
Stainless steel Thread G1/2 inch -100 to +200 °C*

* Persistent operation at high temperatures (> 170 ° C) can lead to loss of accuracy or damaging the cell.

High-precision sensor for temperature, humidity, atmospheric pressure FHAD 36 RHK
Hand-held sensor for temperatures up to +200°C*
Automatic atmospheric pressure compensation
Digital sensor with ALMEMO® D6 plug

For mobile test measurements, not for stationary installation



Sensor connector, cable, sensor with handle

Technical data

Operative range	-100 to +150/+200 °C* see variants
Operative range of the electronics in the grip	-40 to +85 °C
Sensor materials	Shaft: PPS, Grip: POM
Filter cartridge Filter	Brass, nickel-plated Stainless-steel wire fabric filter
Response time T_{63}	<10 seconds at typical 1 m/s, without filter

* Persistent operation at high temperatures (> 170 ° C) can lead to loss of accuracy or damaging the cell.

General description and common technical data FHAD 36 Rx
see page 09.20

Variants Including factory test certificate and stainless-steel wire fabric filter

Digital high-precision temperature / humidity sensor, Grip, sensor cable, 2 meters, and plug connector including ALMEMO® connecting cable, length = 0.3 meters, with coupling and ALMEMO® D6 plug, integrated digital atmospheric pressure sensor
Operative range up to 150 °C, Sensor length = 250 mm **Order no. FHAD36RHK25**
Operative range up to 200 °C Sensor length = 400 mm **Order no. FHAD36RHK40**

Filter (for sensors with filter cartridge)
for FHAD 36 RIC and FHAD 36 RHK

Variants (up to 200 °C)

Stainless-steel wire fabric filter, quickest response time, not suitable for environments that are bioactive or contaminated with fine dust particles (risk of congestion) **Order no. ZB9636M15**

Stainless-steel sinter filter, best protection in environments heavily contaminated with dust particles, good response time, suitable for low humidity levels (Do not use for high humidity levels !) **Order no. ZB9636S15**

PTFE filter, good protection against fine particulates and salt (maritime environment), slower response time **Order no. ZB9636T15**

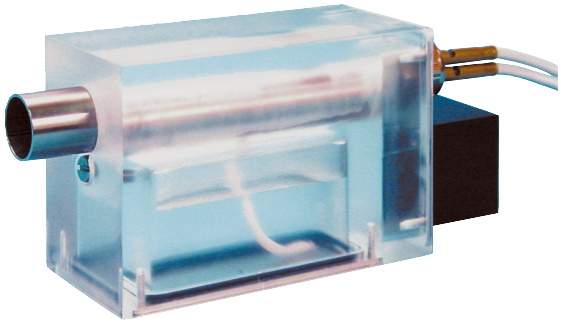
Other designs are available on request

Miniature cable humidity sensor
Diameter 4 mm -40 to +85 °C

Humidity sensor with round tip, Ø 5 / 10 mm
For taking measurements in loose bulk materials
-40 to +85 °C

Humidity sensor with flat blade 18 x 4 mm
For taking measurements in paper or textile stacks
-40 to +85 °C

Digital psychrometer FNAD 46-3 with ALMEMO® D6 plug with integrated atmospheric pressure sensor, for automatic pressure compensation



Special features

- *new:* Automatic atmospheric pressure compensation for pressure-dependent humidity variables with digital atmospheric pressure sensor integrated in the ALMEMO® D6 plug itself
- *new:* Humidity calculation on the basis of formulae as per Dr. Sonntag and 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.
- *new:* Humidity variable, Absolute humidity in g/m³
- Version optimized for long-term measuring operations
- High-precision NTC sensors for dry temperature and humid temperature
- Temperatures are measured using a 24-bit A/D converter incorporated in the ALMEMO® D6 plug.
- The humidity variables are calculated from the three primary measuring channels (real measurable variables).
  Dry temperature, humid temperature, atmospheric pressure
- Freely selectable measurable variables
  Four measuring channels are programmed (at our factory). Dry temperature (°C, TT,t), Humid temperature (°C, HT, tw), Relative humidity (%H, RH, Uw), Atmospheric pressure (mbar, AP, p), Other alternative humidity variables can also be selected. Dew point (°C, DT, td), Mixture (g/kg, MH, r), Absolute humidity (g/m³, AH, dv), Vapor pressure (mbar, VP, e), Enthalpy (kJ/kg, En, h),
  This device can be configured on a PC using USB adapter cable ZA 1919 AKUV. (see "General accessories for ALMEMO® D6 sensors")

General features and accessories, ALMEMO® D6 sensors: see ALMEMO® D6 overview

Technical data

Psychrometer	
Operating temperature	0 to +90 °C (no ice)
Humidity measuring range	0 to 100 % RH
Measuring system	psychrometric
Accuracy	±1 % RH under nominal conditions
Nominal conditions	+25 °C ±3 K, 1013 mbar, 50 % RH
Temperature sensor(s)	2 x NTC type N
Accuracy	0 to +70 °C ±0.1 K +70 to +90 °C ±0.4 K
Ventilator power supply	12 VDC via mains unit, cable approx. 1,5 m (included with delivery)
Housing	Plastic, polycarbonate
Dimensions	175 x 50 x 75 mm (LxWxH)
Weight	approx. 890 g
ALMEMO® connecting cable	Cable FEP / silicone, 5 m with ALMEMO® D6 plug
Digital atmospheric pressure sensor (integrated in ALMEMO® D6 plug)	
Measuring range	700 to 1100 mbar
Accuracy	±2.5 mbar (at 0 to +65 °C)
A/D converter incorporated in ALMEMO® D6 plug	
Inputs	2 NTC sensors (clamp connector in plug)
Measuring range	-50.00 to +125.00 °C
Linearization accuracy	±0.05 K
A/D converter	Delta-sigma, 24-bit resolution
System accuracy	0.02 % ±1 digit
Temperature drift	0.003 % / °C
Humidity variables	Analytic equation (not an approximation)
Refresh rate	0.4 seconds for all four channels
Supply voltage	6 to 13 VDC
Current consumption	4 mA

Accessories

Spare wicks (2 pieces) Order no. ZB98462ED

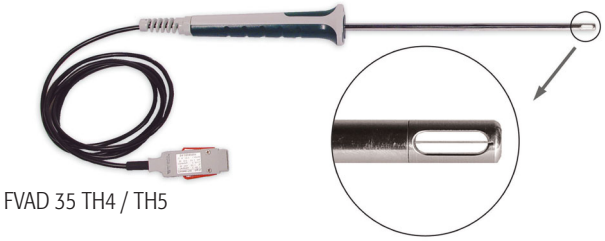
Extension cable for mains supply units with 3-pin bayonet coupling, length 5 meters Order no. ZB5090VK05

Variants

Digital psychrometer with NTC sensor
Psychrometer, cable permanently fitted, with ALMEMO® D6 plug, integrated digital atmospheric pressure sensor, mains unit, water bottle, two wicks, carry case **Order no. FNAD463**

AIR FLOW

Digital thermoanemometer FVAD 35 THx with ALMEMO® D6 plug with integrated atmospheric pressure sensor, for automatic pressure compensation



FVAD 35 TH4 / TH5

FVAD 35 TH4Kx / TH5Kx

Special features

- *new:* Automatic atmospheric pressure compensation is provided for pressure-dependent flow velocity by means of a digital atmospheric pressure sensor integrated in the ALMEMO® D6 plug itself.
- Digital thermoanemometer with A/D converter in the grip or integrated in the cable
- The probe tube has a small diameter, only 6 mm.
- All relevant measurable variables can be measured using just one sensor.
- Three measuring channels are programmed (at our factory). Temperature (°C, t), Flow velocity (m/s, v), Atmospheric pressure (mbar, AP, p))

General features and accessories, ALMEMO® D6 sensors: see ALMEMO® D6 overview

Accessories (for FVAD 35 THxK1 / K2 only)

Clamped screw connection with thread adapter for telescopic extension / extension set (maximum 80 °C)	Order no. ZV9915KV
Telescope extension Ø 15 to 24 mm 330 / 1010 mm	Order no. ZV9915TV
Extension set Ø 15 mm 4 x 255 mm	Order no. ZV9915VR3

Technical data

Digital thermoanemometer (Sensor including A/D converter)

Flow	
Measuring range	
FVAD 35 TH4 / TH4Kx	0.08 to 2 m/s
FVAD 35 TH5 / TH5Kx	0.2 to 20 m/s
Resolution	
FVAD 35 TH4 / TH4Kx	0.001 m/s
FVAD 35 TH5 / TH5Kx	0.01 m/s
Response time	<1.5 seconds
Accuracy	
FVAD 35 TH4 / TH4Kx	± (0.04 m/s +1% of meas. val.)
FVAD 35 TH5 / TH5Kx	± (0.2 m/s +2% of meas. val.)
Nominal conditions	22 °C ±2 K, 45 % RH ±10 % RH 1013 mbar
Temperature compensation	0 to +50 °C
Influence of temperature	
FVAD 35 TH4 / TH4Kx	±0.5 % of measured value /°C at 0.3 to 2 m/s
FVAD 35 TH5 / TH5Kx	±0.3% of measured value /°C at 0.3 to 20 m/s
Incidental flow	bidirectional
Angle dependence	<3% of measured value with deviation <15°
Pressure range	Ambient pressure
Pressure compensation	automatic in range 700 to 1100 mbar r
Temperature	
Measuring range	-20 to +70 °C
Resolution	0.1 °C
Accuracy	±0.7 °C at 0 to 50 °C and >0.5 m/s
Response time T_{90}	typical 10 seconds
Digital atmospheric pressure sensor (integrated in ALMEMO® D6 plug)	
Measuring range	700 to 1100 mbar
Accuracy	±2.5 mbar (at 0 to +65 °C)
ALMEMO® D6 plug	
Refresh rate	0.5 seconds for all 3 channels
Supply voltage	6 to 13 VDC
Current consumption	40 mA
Dimensions	
Probe diameter	6 mm
Flow aperture	approx. 10 x 3 mm
FVAD 35 TH4 / TH5	
Probe with grip, probe lengths 210 mm (plus grip) ALMEMO® cable 1.5 meters	
FVAD 35 TH4Kx / TH5Kx	
Probe with detached electronics unit integrated in the cable, Probe lengths THxK1, 80 mm / THxK2, 300 mm Probe cable 5 meters to the electronics ALMEMO® cable 1.5 m	

Variants (including works certificate) **:**
Digital thermoanemometer Fitted cable with ALMEMO® D6 plug and integrated digital atmospheric pressure sensor

Sensor 2 m/s, length = 210 mm, (with grip)	**Order no. FVAD35TH4**
Sensor 2 m/s, length = 80 mm, (detached electronics unit)	**Order no. FVAD35TH4K1**
Sensor 2 m/s, length = 300 mm, (detached electronics unit)	**Order no. FVAD35TH4K2**
Sensor 20 m/s, length = 210 mm, (with grip)	**Order no. FVAD35TH5**
Sensor 20 m/s, length = 80 mm, (detached electronics unit)	**Order no. FVAD35TH5K1**
Sensor 20 m/s, length = 300 mm, (detached electronics unit)	**Order no. FVAD35TH5K2**

Other designs are available on request

High-temperature thermoanemometer MT8635THx
Operative range -40 to +120 °C, up to 40 m/s
Probe with detached electronics unit integrated in the cable

Digital atmospheric pressure sensor FDAD 12 SA
For barometric pressure
Integrated in ALMEMO® D6 plug

Variants (including manufacturer's test certificate)

Digital atmospheric pressure sensor for barometric pressure
Integrated in ALMEMO® D6 plug **Order no. FDAD12SA**

Special features

- Digital atmospheric pressure sensor with temperature compensation
- Very accurate over a wide temperature range
- The value measured for atmospheric pressure can also be used to compensate other sensors on the ALMEMO® device (programming designation *P).
- Compact design, without pressure connection sleeve
  Can be connected directly to the measuring instrument.
- One measuring channel is programmed (at our factory).
  Atmospheric pressure (mbar, AP, p)

General features and accessories, ALMEMO® D6 sensors

see ALMEMO® D6 overview

Technical data

Digital atmospheric pressure sensor (integrated in ALMEMO® D6 plug)	
Measuring range	700 to 1100 mbar
Accuracy	±2.5 mbar (at 0 to +65 °C)
Operating range	-10 to +60 °C 10 to 90 % RH non-condensing
Dimensions	62 x 20 x 7.6 mm
ALMEMO® D6 plug	
Refresh rate	1 second for all channels
Supply voltage	6 to 13 VDC
Current consumption	4 mA

PRESSURE

ALMEMO® D6

High-precision pressure sensor FDAD33/35M. Very accurate over a wide temperature range Digital sensor with ALMEMO® D6 plug

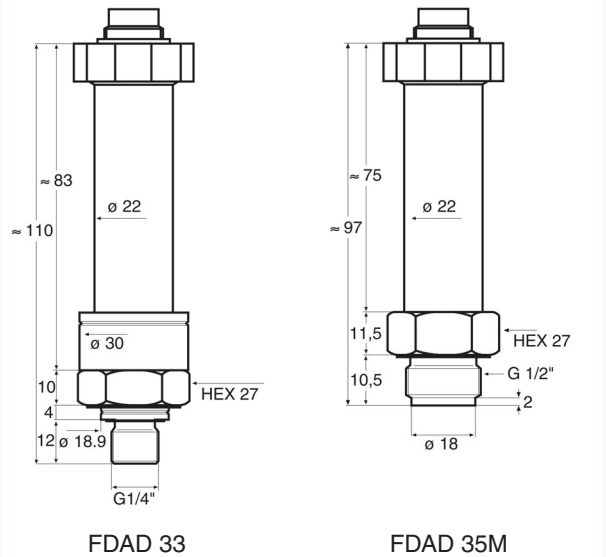
Technical features

- Stable piezo-resistive transducer with integrated A/D converter and signal processor
- Temperature-dependence and non-linearity are eliminated by means of mathematical compensation; this ensures a high level of accuracy.
- Digital output of measured value
- The current value is measured at the sensor's high sampling rate.
- To acquire transitory pressure fluctuations and pressure peaks the maximum value, minimum value, and average value are calculated from the current values in the ALMEMO® D6 plug and output in three function channels.
- One measuring channel is programmed (at our factory) :
  Pressure (bar, p)
  Up to three function channels can also be activated (via LMEMO® device V6) :
  Maximum value, minimum value, average value This device can be completely configured directly on a PC via USB adapter cable ZA 1919 AKUV.
  (see "General accessories for ALMEMO® D6 sensors").

General features and accessories, ALMEMO® D6 sensors: see ALMEMO® D6 overview

Technical data

Digital pressure sensor (including A/D converter)	
Pressure range	1 to 1000 bar see under variants
Relative pressure	Zero-point at ambient atmospheric pressure, current
Overpressure	Zero-point at ambient atmosph. pressure, production
Absolute pressure	Zero-point, vacuum
Pressure connection	
FDAD33	Outside thread G ¼" Diaphragm, internal
FDAD35M	Diaphragm, flush with front Outside thread G 1/2" In pressure range 700/1000 bar Outside thread G 3/4"
Storage / operating temperature	-40 to +120 °C
Accuracy	
Error margin* at -10 to +40 °C	0.05 % of final value
Error margin* at -10 to +80 °C	0.1 % of final value
*Linearity, hysteresis, reproducibility, temperature coefficients, zero-point	
Sampling rate, internal	200 Hz
Material in contact with medium	Stainless steel, AISI 316L, Viton
Protection	IP65
Dimensions	see dimensional drawings
Sensor connector	Built-in plug
ALMEMO® connecting cable	Coupling, 2-meter PVC cable, ALMEMO® D6 plug
ALMEMO® D6 plug	
Refresh time	0.005 seconds for all channels
Setting time	0.6 seconds
Delay after sleep mode	1 second
Supply voltage	6 to 13 VDC
Current consumption	approx. 11 mA



FDAD 33 FDAD 35M

Options

Connecting cable Total length = 5 m — Order no. OD0D33L05
Connecting cable Total length = 10 m — Order no. OD0D33L10
Greater lengths up to 100 meters On request.

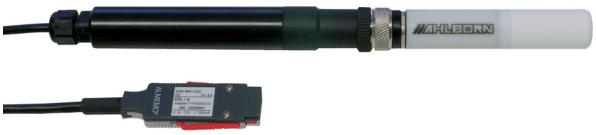
Variants

Digital pressure sensor, plug connection, 2-meter connecting cable with ALMEMO® D6 plug, factory test certificate

Pressure range	Resolution	Overload	Order no. Diaphragm, internal	Order no. Diaphragm, flush with front
Relative pressure				
0 to 1 bar	0.0001 bar	2 bar	**FDAD3301R**	**FDAD35M01R**
0 to 3 bar	0.0001 bar	5 bar	**FDAD3302R**	**FDAD35M02R**
0 to 10 bar	0.001 bar	20 bar	**FDAD3303R**	**FDAD35M03R**
0 to 30 bar	0.001 bar	60 bar	**FDAD3304R**	**FDAD35M04R**
Overpressure				
0 to 100 bar	0.01 bar	200 bar	**FDAD3305U**	**FDAD35M05U**
0 to 300 bar	0.01 bar	400 bar	**FDAD3306U**	**FDAD35M06U**
0 to 700 bar	0.1 bar	1000 bar	**FDAD3307U**	**FDAD35M07U**
0 to 1000 bar	0.1 bar	1000 bar	**FDAD3308U**	**FDAD35M08U**
Absolute pressure				
0,8 to 1,2 bar	0.0001 bar	2 bar	**FDAD3300A**	**FDAD35M00A**
0 to 1 bar	0.0001 bar	2 bar	**FDAD3301A**	**FDAD35M01A**
0 to 3 bar	0.0001 bar	5 bar	**FDAD3302A**	**FDAD35M02A**
0 to 10 bar	0.001 bar	20 bar	**FDAD3303A**	**FDAD35M03A**
0 to 30 bar	0.001 bar	60 bar	**FDAD3304A**	**FDAD35M04A**

GAS CONCENTRATION IN AIR ALMEMO® D6

Digital carbon dioxide sensor FYAD 00 CO2B10 with grip, integrated atmospheric pressure sensor for automatic atmospheric pressure compensation, and ALMEMO® D6 plug



Technical features

- Digital CO_2 sensor with integrated signal processor
- All sensor characteristics and adjustment data are stored in the CO_2 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.
- *new:* Automatic atmospheric pressure compensation is provided for pressure-dependent CO_2 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.
- *new:* 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_2 concentration and atmospheric pressure
- Freely selectable measurable variables Two measuring channels are programmed (at our factory).
  CO_2 concentration, average value (ppm), Atmospheric pressure (mbar, AP, p).
  Alternatively a further variable can be selected.
  CO_2 concentration, current value (ppm)
  This device can be configured on a PC using USB adapter cable ZA 1919 AKUV. (see "General accessories for ALMEMO® D6 sensors").

General features and accessories, ALMEMO® D6 sensors: see ALMEMO® D6 overview

Technical data:

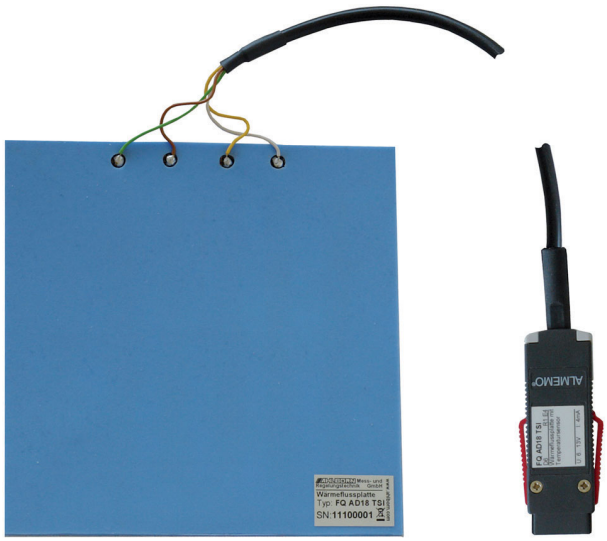
Digital carbon dioxide (CO_2) sensor (including A/D converter)	
Measuring principle	non-dispersive infrared (NDIR) technology
Sensor	2-beam infrared measuring cell
Measuring range	0 to 10,000 ppm
Accuracy	±(100 ppm +5 % of meas. value)
Nominal conditions	+25 °C, 1013 mbar
Temperature dependence	typical 2 ppm CO_2 / K in range 0 to +50 °C
Response time	<195 seconds
Operative range	-40 to +60 °C / 0 to 95 % RH (non-condensing)
Measuring interval	Moving average 165 seconds (= 11 current values of 15 sec.)
Filter cap	PTFE Diameter 18 mm Length appr. 41 mm
Sensor connector	Plug connection
Grip	with socket, integrated electronics
Dimensions:	Diameter 20 mm Total length including the sensor 245 mm
ALMEMO® connecting cable	fitted cable, 1.5 meters With ALMEMO® D6 plug
Digital atmospheric pressure sensor (integrated in grip)	
Measuring range	700 to 1100 mbar
Accuracy	±2.5 mbar (at 0 to +65 °C)
ALMEMO® D6 plug	
Refresh rate	1 second for all four channels
Supply voltage	6 to 13 VDC
Current consumption	25 mA

Type (including factory test certificate)
Digital CO_2 sensor with grip, fitted cable with ALMEMO® D6 plug, and integrated digital atmospheric pressure sensor

Order no. FYAD00CO2B10

Digital heat flow plate FQADx

With integrated temperature sensor for automatically correcting the heat flow plate's temperature coefficient
With ALMEMO® D6 plug



Special features

- *new:* This automatically corrects the heat flow plate's temperature coefficient using a miniature NTC sensor integrated in the heat flow plate for the purpose of measuring the plate's mean temperature.
- It measures heat flows and temperatures using a 24-bit A/D converter incorporated in the ALMEMO® D6 plug.
- Two measuring channels are programmed (at our factory).
  Plate's mean temperature (°C, t)
  Heat flow, temperature-compensated (W/m², fq))

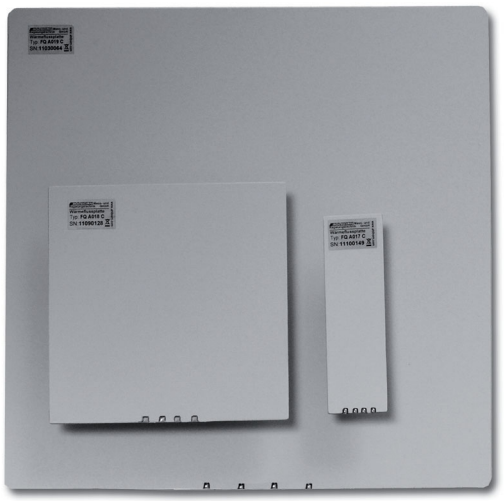
General features and accessories, ALMEMO® D6 sensors
see ALMEMO® D6 overview

Technical data

Heat flow sensor (see table on page 14.04)	
Accuracy of calibration value at nominal temperature	5 %
Nominal temperature	23 °C
Temperature coefficient	-0.12 % / K (epoxide plate) or -0.17 % / K (silicone plates)
Temperature sensor	
Sensor element	Miniature NTC type N
Accuracy	±0.5 K at 0 to +80 °C
A/D converter incorporated in ALMEMO® D6 plug	
Input 1	NTC sensor (clamp connector in plug)
Measuring range	-50.00 to +125.00 °C
Linearization accuracy	±0.05 K
Input 2	Voltage mV (clamp connector in plug)
Measuring range	0 to 26 mV, 0 to 260 mV
A/D converter	Delta-sigma, 24-bit resolution
System accuracy	0.02 % ±1 digit
Temperature drift	0.003 % / K
Refresh rate	0.4 seconds for both channels
Supply voltage	6 to 13 VDC
Current consumption	4 mAA

Accessories

see page 14.04

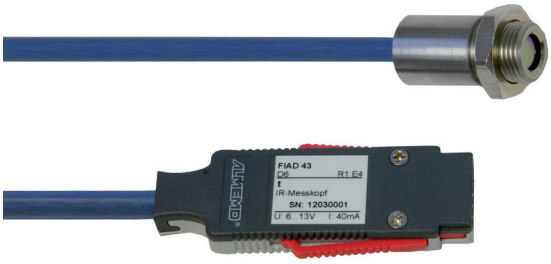


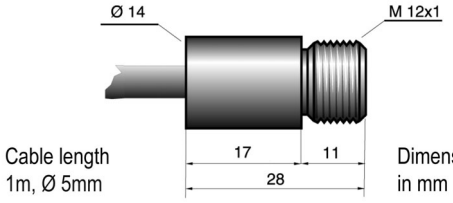
Type 117, 118, 119

Variants including manufacturer's test certificate
Heat flow plate with integrated temperature sensor cable permanently fitted, PVC, length 2 meters with ALMEMO® D6 plug.

Type 117	Substrate Epoxy resin, Dimensions 100 x 30 x 1.5 mm	Order no. FQAD17T
Type 118	Substrate Epoxy resin, Dimensions 120 x 120 x 1.5 mm	Order no. FQAD18T
Type 119	Substrate Epoxy resin, Dimensions 250 x 250 x 1.5 mm	Order no. FQAD19T
Type 117	Substrate Silicone, Dimensions 100 x 30 x 3 mm	Order no. FQAD17TSI
Type 118	Substrate Silicone, Dimensions 120 x 120 x 3 mm	Order no. FQAD18TSI

Digital infra-red sensor for measuring surface temperature FIAD43
Miniature probe head, integrated electronics, ALMEMO® D6 plug





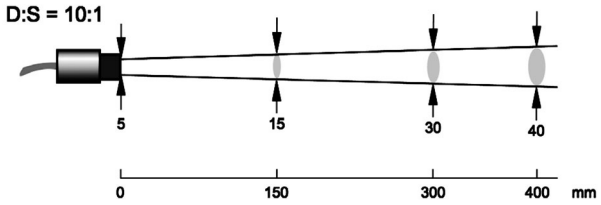
Cable length
1m, Ø 5mm

Dimensions
in mm

Technical features

- Digital infra-red probe head with integrated signal processor
- All sensor characteristics and adjustment data are stored in the probe head itself.
- Digital transmission ensures that measured values are not affected by the sensor cable being moved, bent, or twisted.
- Surface temperature is measured over a wide range up to 600 °C.
- Robust stainless steel housing, protection class IP65
- The probe head, thanks to its small dimensions, can be installed in cramped and restricted conditions.
- The probe head is threaded for quick and easy installation.
- The sensor cable in polyurethane (PUR) is suitable for industrial use and is resistant to oily, acidic, basic environments.
- The sensor can be connected directly via the cable's ALMEMO® D6 plug to any ALMEMO® device.
- One measuring channel is preprogrammed on leaving our factory - surface temperature (°C).
- Emissivity 0.95 are preprogrammed (on leaving our factory). This can be programmed from 0.1 to 1.0 at the current ALMEMO® V6 devices via the device (some only via interface).
- Transmittance 1.0 are preprogrammed (on leaving our factory). Transmittance can be modified directly on the PC using USB adapter cable ZA1919AKUV. (see "General accessories for ALMEMO® D6 sensors").

Measuring Field

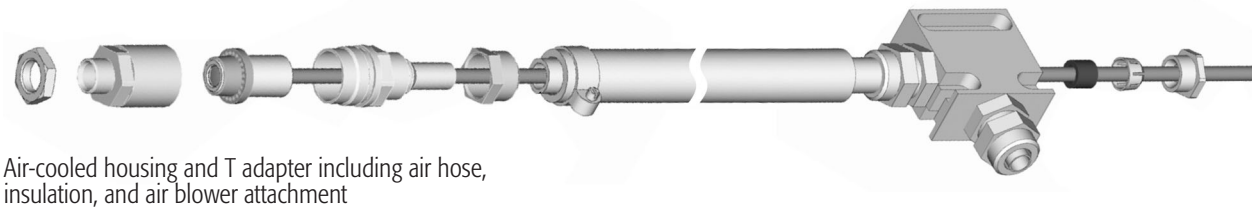


General features and accessories, ALMEMO® D6 sensors
see ALMEMO® D6 overview

Options fitted at our factory

Air blower attachment OR7843LB

Deflecting mirror with integrated air blower attachment OR7843US1



Air-cooled housing and T adapter including air hose, insulation, and air blower attachment
Length of air hose 0.8 meters OR7843KL1
Length of air hose 2.8 meters OR7843KL2

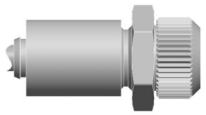
Deflecting mirror for air-cooled housing OR7843US

Standard delivery
Infra-red probe head with cable and ALMEMO® D6 plug and 1 mounting nut
Cable length = 1 meter **Order no. FIAD4332**
Cable length = 3 meters **Order no. FIAD4332L3**

Technical data

Digital infra-red probe head (including A/D converter)		
Temperature measuring range	-40 to +600 °C	
Spectral sensitivity	8 to 14 mm	
Optical resolution (90 % energy)	10:1 with focal point lens attachment 1 mm at distance of 10 mm Transmittance can be programmed to 0.75. (see below)	
Accuracy	±1 % of meas. value or ±1 K (whichever value is higher) ±2 K for meas. values <20 °C	
Reproducibility	±0.5 % of measured value or ±0.5 K (whichever value is higher)	
Nominal conditions	23 °C ±5 K, emissivity 1.0	
Temperature coefficient	±0.05 K / K or ±0.05 % of measured value / K (whichever value is higher)	
Temperature resolution	0.1 K	
Response time	130 ms (90 %)	
Emissivity	0.95 (preprogrammed on leaving our factory) This can be programmed from 0.1 to 1.0 at the current ALMEMO® V6 devices via the device (some only via interface).	
Transmittance	1.0 (preprogrammed on leaving our factory) This can be programmed from 0.1 to 1.0 directly on the PC using USB adapter cable ZA1919AKUV. (please place a special order) (see "General accessories for ALMEMO® D6 sensors")	
Protection class	IP65 (NEMA 4) (National Electric Manufacturers Association)	
Ambient temperature	-10 to +120 °C with air-cooled housing -10 to +200 °C	
Storage temperature	-20 to +120 °C	
Relative atmospheric humidity	10 to 95 % non-condensing	
Housing	Stainless steel	
Dimensions	Probe head Length 28 mm x Ø 14 mm Thread M12 x 1	
Weight	Probe head 50 grams with 1-meter cable	
Connecting cable(s)	permanently fitted Polyurethane (PUR) For available lengths see variants. with ALMEMO® D6 plug	
ALMEMO® D6 plug	Refresh time	0.25 seconds for all channels
	Supply voltage	6 to 13 VDC
	Current consumption	4 mA

Accessories

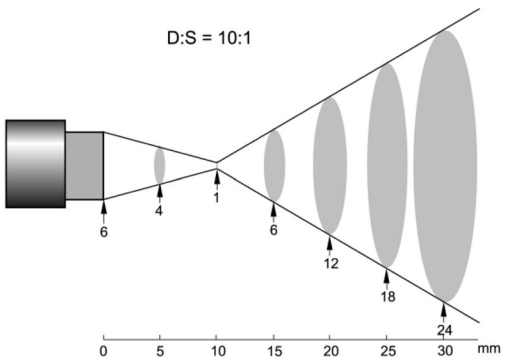


Focal point lens attachment (cannot be used together with air blower attachment or air-cooled housing)
Transmittance 0,75 ZR7843CFL

Protective window (cannot be used together with air blower attachment or air-cooled housing)
Transmittance 0,75 ZR7843PW

Mounting bracket, rigid ZR7842H

Measuring field with focal point lens attachment



Mounting bracket, adjustable ZR7842JH