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)

General features, ALMEMO® D6 sensors
see page 01.08

Common technical features FHAD 36 Rx

- Digital capacitive humidity sensor with integrated signal processor, designed to meet the highest accuracy requirements in humidity measurement
- Unique correction and adjustment process
  All sensor characteristics and adjustment data are saved in the humidity sensor itself.
- ***new:*** A digital atmospheric pressure sensor integrated in the ALMEMO® D6 plug itself provides automatic pressure compensation for all pressure-dependent humidity variables.
- ***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
- All relevant ambient parameters are measured with just one sensor.
- 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)
- This device can be configured directly on a PC using USB adapter cable ZA 1919 AKUV. (see chapter „Networking“).

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 T_{63}	<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 (Materials : 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 (length = 100 mm) with cable, length = 2 or 5 meters
(Materials : TPU, -40 to +90 °C) with ALMEMO® D6 plug

Digital atm. 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

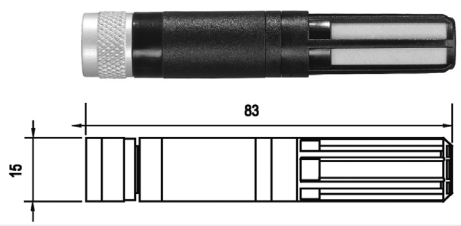
* Persistent use in the high-temperature range (>170 °C) may incur a loss in accuracy and / or damage to the measuring cell.

DAkkS / DKD or factory calibration KH9xxx temperature, humidity for digital sensor (see chapter „Calibration certificates“)

10/2013 • We reserve the right to make technical changes.

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



General description and common technical data
FHAD 36 Rx (see page 08.07)

Technical data

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

Accessorie	Order no.
Brackets for wall mounting (see page 08.05)	**ZB9600W**

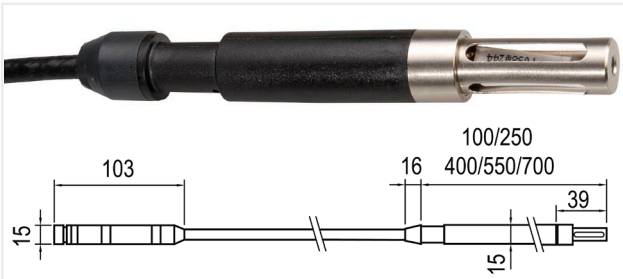
Variants Including factory test certificate and polyethylene filter	Order no.
High-precision digital temperature / humidity sensor, with plug connector, including ALMEMO® connecting cable with coupling and ALMEMO® D6 plug, and integrated digital atmospheric pressure sensor	
Connecting cable, length 2 meters	**FHAD36RS**
Same as above Connecting cable, length 5 meters	**FHAD36RSL05**

Filters



Variants	Order no.
Polycarbonate filter cartridge with a filter insert made from polyethylene for standard applications good response time and good protection against fine particulates	**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 particulates (risk of congestion)	**ZB9636WM**
Polycarbonate filter cartridge with a filter insert made from PTFE (polytetrafluoroethylene) good protection against fine particulates and salt (maritime environment) slower response time	**ZB9636TF**
POM (polyoxymethylene) filter cartridge with a filter insert made from PTFE water-proof very good protection against fine particulates slow response time	**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 plug, high-temperature cable, sensor

General description
and common technical data
FHAD 36 Rx (see page 08.07)

Technical data

Operative range	-100 to +200 °C *
Sensor length	100 mm
(Other lengths 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
Response time T_{63}	<10 seconds at typical 1 m/s, without filter

* Persistent use in the high-temperature range (>170 °C) may incur a loss in accuracy and / or damage to the measuring cell.

Accessories

	Order no.
Assembly screw fittings for 15 mm sensor Brass, nickel-plated Thread M20x1.5 Viton® seal, up to +200 °C	**ZB9636KV**
Mounting flange Steel, nickel-plated Diameter 80 mm	**ZB9636F**



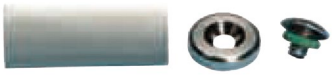


Variants Including factory test certificate and stainless-steel wire fabric filter

	Order no.
High-precision digital temperature / humidity sensor, industry-standard, 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	**FHAD36RIC102**
Same as above Sensor cable, length = 5 meters, Connecting cable, length 2 meters	**FHAD36RIC105**
Same as above Sensor cable, length = 2 meters, Connecting cable, length 5 meters	**FHAD36RIC102L05**
Same as above Sensor cable, length = 5 meters, Connecting cable, length 5 meters	**FHAD36RIC105L05**

Filter

for sensors with filter cartridge
for FHAD 36 RIC and FHAD 36 RHK



Variants (up to 200°C)

	Order no.
Stainless-steel wire fabric filter quickest response time not suitable for environments that are bioactive or contaminated with fine particulates (risk of congestion)	**ZB9636M15**
Stainless-steel sinter filter best protection in environments heavily contaminated with particulates good response time for low humidities (not to be used for high humidities)	**ZB9636S15**
PTFE filter good protection against fine particulates and salt (maritime environment) slower response time	**ZB9636T15**

Other designs are available on request

Industry-standard humidity sensor FHAD 36 RIM
in stainless steel Diameter 15 mm, -100 to +200 °C*



Screw-fit humidity sensor FHAD 36 RIE, up to 100 bar,
stainless steel Thread G 1/2-inch, -100 to +200 °C*

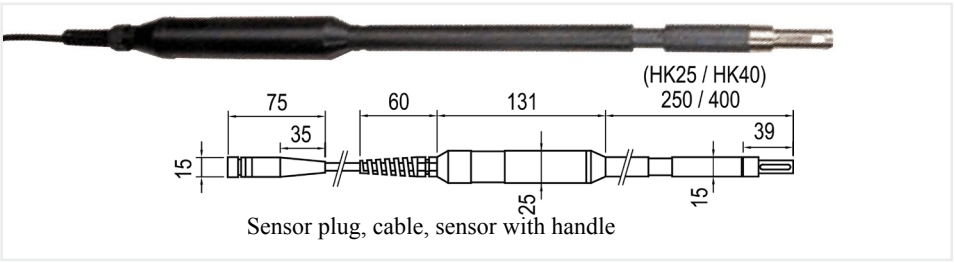


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High-precision sensor for temperature, humidity, atmospheric pressure FHAD 36 RHK
Hand-held sensor for temperatures up to +200 °C*
Automatic atmospheric pressure compensation, Digital sensor with ALMEMO® D6 plug



Sensor plug, cable, sensor with handle

For on-site test measurements, not for stationary installation

General description and common technical data FHAD 36 Rx (see page 08.07)

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 (polyphenylene sulfide)
Grip	POM (polyoxymethylene)
Filter cartridge	Brass, nickel-plated
Filter	Stainless-steel wire fabric filter
Response time T_{63}	<10 seconds at typical 1 m/s, without filter

* Persistent use in the high-temperature range (>170 °C) may incur a loss in accuracy and / or damage to the measuring cell.

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

	Order no.
High-precision digital temperature / humidity sensor Handle with 2-meter sensor cable 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	**FHAD36RHK25**
Operative range up to +200 °C Sensor length 400 mm	**FHAD36RHK40**

Other designs are available on request

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



Humidity probe with pointed tip, Diameter 5 / 10 mm
for taking meas. in loose bulk materials, -40 to +85 °C



Humidity probe with flat blade 18 x 4 mm
for taking meas. in paper or textile stacks, -40 to +85 °C

