

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 RAS)

**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.
- A digital atmospheric pressure sensor integrated in the ALMEMO® D6 plug itself provides automatic pressure compensation for all pressure-dependent humidity variables.
- 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
- 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 ±5 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 +170 °C Please observe operative range ! (depending on sensor type)
Accuracy at +23 °C ±5 K	±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 23 °C ±5 K)

ALMEMO® D6 plug

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

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

06/2018 • We reserve the right to make technical changes.



General description and common technical data
 FHAD 36 Rx (see page 08.11)

Technical data

Operative range	-50 to +90 °C	Filter cartridge	Polycarbonate
Sensor materials	Polycarbonate	Filter	Polyethylene

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

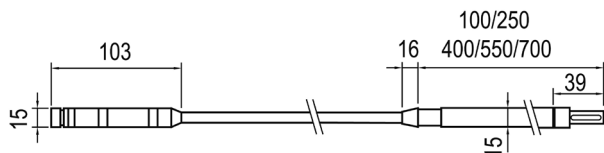
Variants	Order no.
Including factory test certificate and polyethylene filter	
High-precision digital temperature / humidity sensor, with plug connector, including ALMEMO® connecting cable with coupling and ALMEMO® D6 plug, and integrated digital atmospheric pressure sensor	
Connecting cable, length 2 meters	FHAD36RAS
Same as above Connecting cable, length 5 meters	FHAD36RASL05

Filters



Variants	Order no.
Filter insert made from polyethylene with a polycarbonate filter cartridge for standard applications good response time and good protection against fine particulates	ZB9636APE
Filter insert made from stainless-steel wire fabric with a polycarbonate filter cartridge quickest response time not suitable for environments that are bioactive or contaminated with fine particulates (risk of congestion)	ZB9636AWM
Filter insert made from PTFE (polytetrafluoroethylene) with a polycarbonate filter cartridge good protection against fine particulates and salt (maritime environment) slower response time	ZB9636APTFE

High-precision sensor for temperature, humidity, atmospheric pressure FHAD 36 RIC
Industrial-standard design for high temperatures up to +170 °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 08.11)

Technical data

Operative range	-100 to +170 °C	*	Filter cartridge	Brass, nickel-plated
Sensor length	100 mm		Filter	Stainless-steel wire fabric filter
(Other lengths 250 / 400 / 550 / 700 mm are available on request.)			Response time T ₆₃	<10 seconds at typical 1 m/s, without filter
Sensor materials	PPS (polyphenylene sulfide)			

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

Accessories

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



Variants

Including factory test certificate and stainless-steel wire fabric filter
 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

Variant	Order no.
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

Variant	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

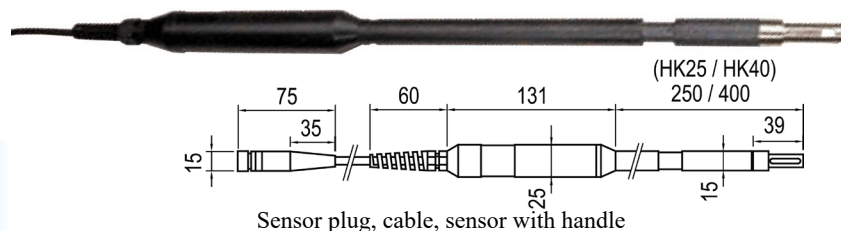
FHAD 36-RIMx :
Industry-standard humidity sensor FHAD 36 RIM
in stainless steel Diameter 15 mm, -100 to +170 °C

FHAD 36-RIEx :
Screw-fit humidity sensor FHAD 36 RIE, up to 100 bar,
stainless steel Thread G 1/2-inch, -50 to +170 °C



High-precision sensor for temperature, humidity, atmospheric pressure FHAD 36 RHK
Hand-held sensor for temperatures up to +170 °C
Automatic atmospheric pressure compensation, Digital sensor with ALMEMO® D6 plug

06/2018 • We reserve the right to make technical changes.



For on-site test measurements,
not for stationary installation

General description and
common technical data FHAD 36 Rx
(see page 08.11)

Technical data

Operative range	-100 to +150 / +170 °C (see variants)	Filter cartridge	Brass, nickel-plated
Operative range of the electronics in the grip	-40 to +85 °C	Filter	Stainless-steel wire fabric filter
Sensor materials	Shaft PPS (polyphenylene sulfide)	Response time T_{63}	<10 seconds at typical 1 m/s, without filter
Grip	POM (polyoxymethylene)		

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
 Operative range up to +170 °C Sensor length 400 mm

FHAD36RHK25
FHAD36RHK40

Other designs are available on request

FHAD 36-RHPx :
 Humidity probe with pointed tip, Diameter 10 mm
 for taking meas. in loose bulk materials, -40 to +85 °C

FHAD 36-RHSx :
 Humidity probe with flat blade 18 x 4 mm
 for taking meas. in paper or textile stacks, -40 to +85 °C



High-humidity sensor FHAD 36-E33x available on request

Digital humidity and temperature sensor for high humidity application. Humidity sensor
 with heatable monolithic measurement cell for measurement operations in the high-humidity range near condensation.