



- Measurement of relative humidity and temperature
- also available in high pressure version (to 25 bar) and high-temperature version (to 200 °C)
- Operating range:
0-100 % rH, -25 to +125 °C
- Short response times
- Analogue outputs (4-20 mA) for relative humidity and temperature
- For indoors and air ducts
- Capacitive method of measurement



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KOBOLD Messring GmbH
Nordring 22-24
D-65719 Hofheim/Ts.
☎ +49(0)6192 299-0
Fax +49(0)6192 23398
E-Mail: info.de@kobold.com
Internet: www.kobold.com

Model:
AFK-G



Description

The range AFK-G humidity/temperature sensors are sensors for measuring relative humidity and temperature (optional) in air and other non-aggressive gases for an operating temperature to 200 °C. The high pressure variant can be used up to a pressure of 25 bar. The sensors are thus ideally suited for measuring humidity in industrial processes.

The sensors are based on capacitive metrology which is reasonably-priced, maintenance-free and highly accurate. Capacitive humidity sensor elements form the basis of these sensors. An electrode system, a moisture-sensitive polymer layer and a gold layer that is permeable to vapour are situated on a small thin glass or ceramic substrate.

Since the hygroscopic polymer layer can absorb water molecules that alter its dielectric constant, this layered system acts as a moisture-dependant capacitor, whose capacitance is a measure of the surrounding relative humidity.

The change in capacitance is converted to an electrical output signal by electronics normally mounted on the humidity sensor element. Both parts form a capacitive humidity sensor that can be adjusted using humidity references. Accuracy is approximately $\pm 2\%$ rH.

The transmitters offer a 4-20 mA analogue output for relative humidity and a second 4-20 mA output for temperature when specified.

Application examples

- Monitoring air conditioning systems, drying plant, humidifiers and dehumidifiers
- Bakery technology
- Warehousing
- Ripening warehouses for food
- R & D (e.g. environmental engineering)
- Household
- Greenhouses

Technical Details

Humidity

Measuring range: 0...100 % rH
 Measuring accuracy: $\pm 2\%$ rH
 (for range 5...95% rH and 10...40 °C)

Additional measurement error: 0.1 % / K (at $< 10\text{ °C}$, $> 40\text{ °C}$)

Response time (T 90 at 1 m/s): 1 min
 Analogue output: 4...20 mA
 Max load: 1000 Ω

Temperature

Measuring element: Pt 100, category B (according to DIN IEC 751)
 Measuring range: -25...+125 °C for AFK-G1 (standard version, duct mounting)
 -25...+125 °C for AFK-G3 (high pressure version)
 0...200 °C for AFK-G2 (high-temperature version)
 -20...+80 °C (standard variant)

Measuring accuracy: $\pm 0.3\text{ K}$
 Additional error: ($< 10\text{ °C}$, $> 40\text{ °C}$) $\pm 0.07\%$ / 10 K
 Analogue output: 4...20 mA
 Max load: 1000 Ω
 Response time (T 90 at 1 m/s): 1 min

General

Ambient temperature:

Transmitter: -40...+80 °C
 Sensor (standard, Kanalmontage): -40...+125 °C
 Sensor (high pressure): -40...+125 °C
 Sensor (high temp.): -60...+200 °C
 Sensor (standard, wall mounting): -40...+80 °C
 Ambient pressure: atmospheric to 25 bar (high pressure version)
 Operating voltage: 12...30 V_{DC}
 Power input: 24 mA each meas. channel

Degree of protection:

Transmitter: IP 54
 Sensor: IP 40

Material:

Transmitter: diecast aluminium
 Sensor: stainless steel

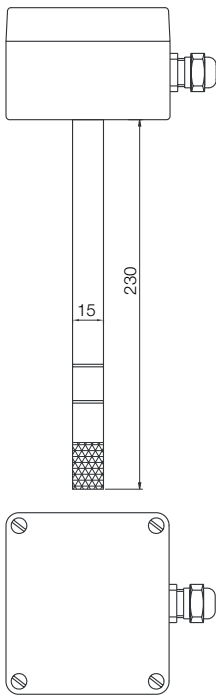
Electromagnetic compatibility:

Noise immunity: EN 50082-2
 Emitted interference: EN 55011 Class B
 Weight: approx. 0.4 - 0.6 kg (depending on version)

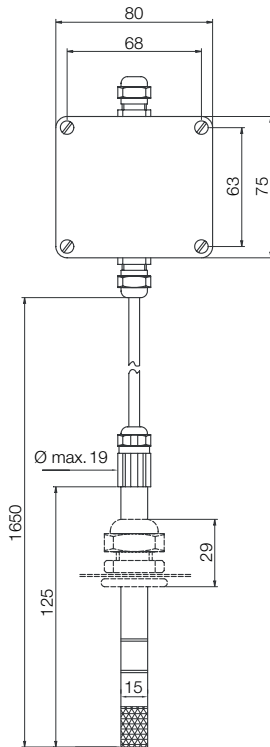


Dimensions

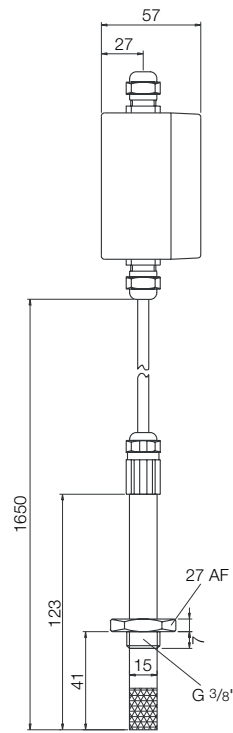
Standard version
(duct mounting)



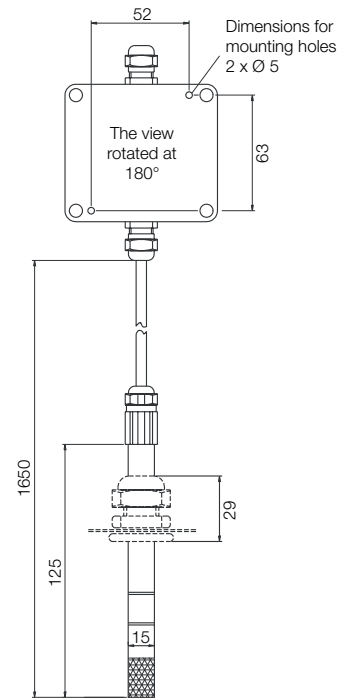
High temperature
version



High pressure
version



Mounting dimensions



Order Details (Example: AFK-G 1 F)

Model	Description	Instrument version	Measuring parameter
AFK-G	Humidity measuring instrument	<p>1 = standard version duct mounting, t_{max}: 125 °C</p> <p>2 = high temperature version t_{max}: 200 °C</p> <p>3 = high pressure version p_{max}: 25 bar, t_{max}: 125 °C</p> <p>4 = standard version wall mounting, t_{max}: 80 °C</p>	<p>F = humidity</p> <p>T = humidity and temperature</p>

Accessories:

Mounting plate for duct mounting

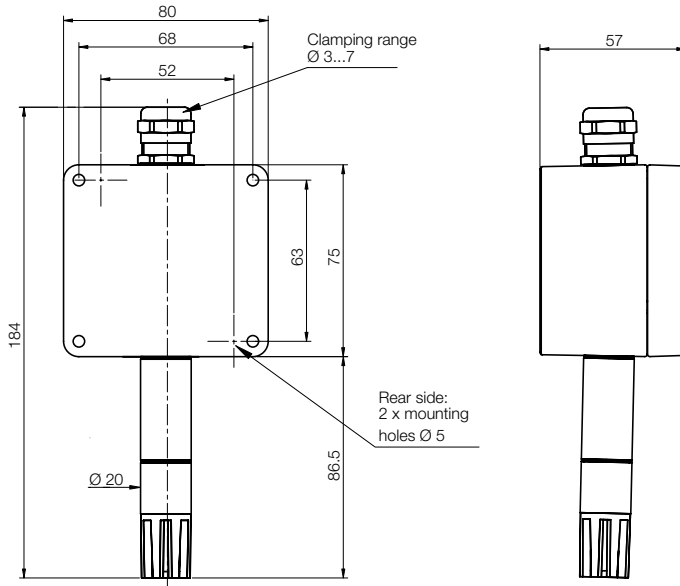
Model AFK-GB

(Details see page 8)

Dimensions

Standard version

(wall mounting)



Accessories:

Mounting plate for duct mounting
Model AFK-GB

