



**Operating Instruction  
for  
Humidity/Temperature-  
Measuring Instrument**

**Model: AFK-G**



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## 2. Note

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Please read and take note of these operating instructions before unpacking and setting the unit for operation, and follow the instructions precisely as described herein.

The instruction manuals on our website [www.kobold.com](http://www.kobold.com) are always for currently manufactured version of our products. Due to technical changes, the instruction manuals available online may not always correspond to the product version you have purchased. If you need an instruction manual that corresponds to the purchased product version, you can request it from us free of charge by email ([info.de@kobold.com](mailto:info.de@kobold.com)) in PDF format, specifying the relevant invoice number and serial number. If you wish, the operating instructions can also be sent to you by post in paper form against an applicable postage fee.

Operating instructions, data sheet, approvals and further information via the QR code on the device or via [www.kobold.com](http://www.kobold.com)

The devices are only to be used, maintained and serviced by persons familiar with these operating instructions and with the prevailing regulation applying to procedural safety and the prevention of accidents.

## 3. Instrument Inspection

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These devices are checked before dispatch and sent away in perfect condition. Should the damage to a device be visible, we recommend a thorough inspection of the delivery packing. In case of damage, please inform your parcel service/ forwarding agent immediately, since they are responsible for damages during transit.

### **Scope of delivery:**

- Measuring Unit Model "AFK-G"

## 4. Regulation Use

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The AFK-G is to be installed only in the specified applications. Every usage which exceeds the specifications is considered to be non-specified. Any damages resulting therefore are not the responsibility of the manufacturer. The user assumes all risk for such usage. The application specifications include the installation, start-up and service requirements specified by the manufacturer.

## 5. Operating Principle

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 up 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.

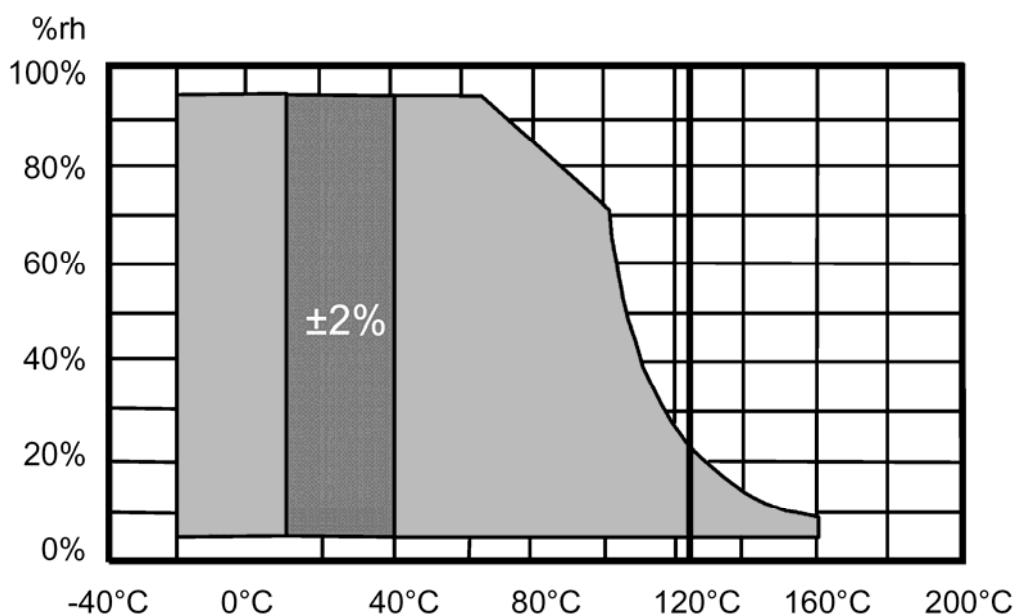
Capacitive humidity sensor elements form the basis of these sensors. An electrode system, a moisture-sensitive polymer layer and a gold layer that is permeable to water vapour are situated on a small thin glass or ceramic substrate.

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 in case of integrated temperature sensor.

### Tolerance validity range for humidity

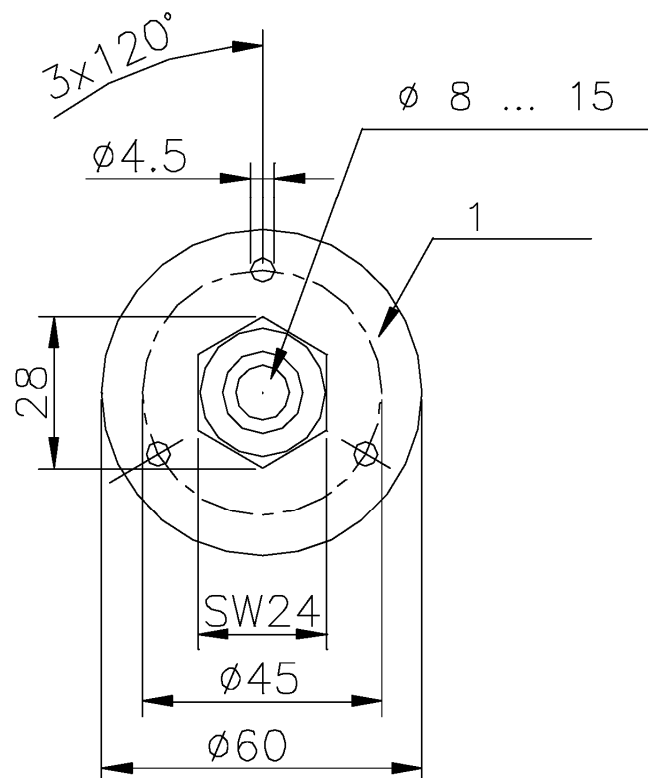


## 6. Mechanical Connection

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Install the humidity/temperature sensors in a place where characteristic climatic conditions can be measured. We recommend using the **mounting plate model AFK-GB** for wall or duct-mounting.

### Mounting Plate AFK-GB



The sensor can be installed in any position. However, do not position it in a position where water ingress can occur. Dew formation and splashes do not damage the sensor, although corrupted measurement readings are recorded until all the moisture on and directly around the sensor element have dried up.



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**Warning!! When you install the compression-resistant sensors (AFK-GB), do not apply a torque in excess of 25 Nm.**

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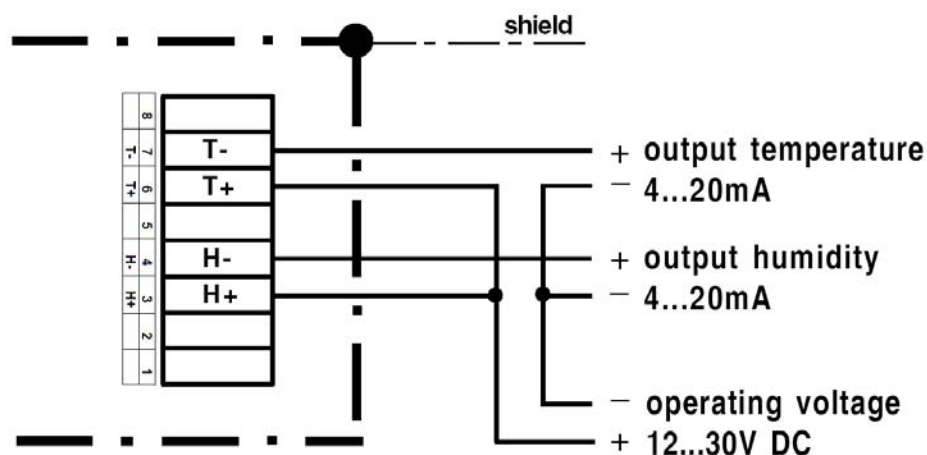
## 7. Electrical Connection

In order to maintain interference immunity in accordance with EN 61326-2-3 when it is in use, we recommend to use a screened cable for connecting the sensors, and have this fitted into the sensor's EMC heavy-gauge conduit thread by a qualified electrician.

### Humidity-Temperature-Measuring Instrument

Output: 2 x 4...20 mA

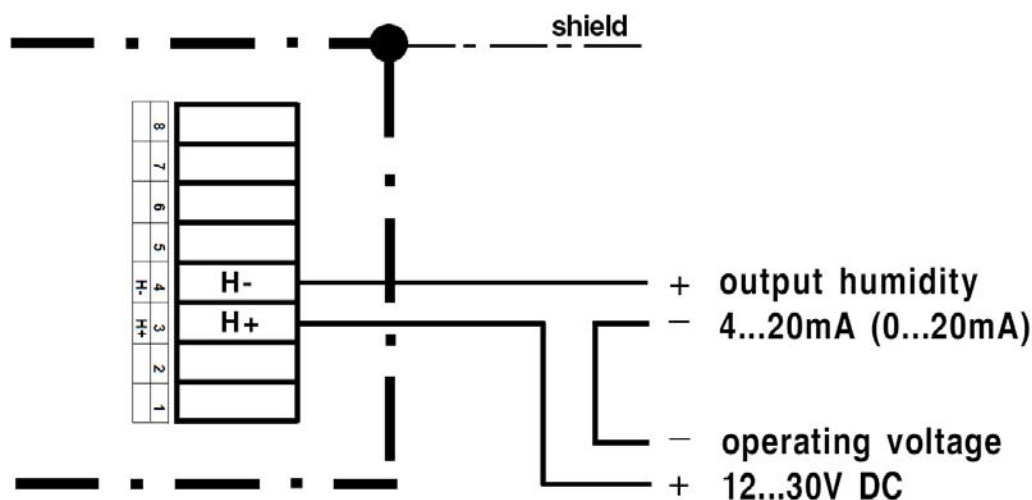
For products: AFK-G1T, AFK-G2T, AFK-G3T, AFK-G4T



### Humidity Measuring Instrument

Output: 4...20 mA (0...20mA)

For products: AFK-G1F, AFK-G2F, AFK-G3F, AFK-G4F



## 8. Maintenance

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Dust does not cause any harm to the humidity sensor, however, it does affect dynamic performance. If there is an excessive build-up of dust, carefully unscrew the sintered protective basket and rinse it out. Loose dirt can also be removed from the measuring element by blowing it off or by rinsing it carefully with distilled water. In order to avoid corrupted measurement readings, only screw the sintered protective basket back on when it is completely dry. Do not touch the highly sensitive sensor element.



## **9. Technical Information**

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Operating instructions, data sheet, approvals and further information via the QR code on the device or via [www.kobold.com](http://www.kobold.com)

## **10. Order Codes**

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Operating instructions, data sheet, approvals and further information via the QR code on the device or via [www.kobold.com](http://www.kobold.com)

## **11. Dimensions**

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Operating instructions, data sheet, approvals and further information via the QR code on the device or via [www.kobold.com](http://www.kobold.com)

## 12. Disposal

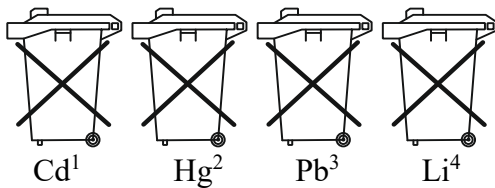
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### Note!

- Avoid environmental damage caused by media-contaminated parts
- Dispose of the device and packaging in an environmentally friendly manner
- Comply with applicable national and international disposal regulations and environmental regulations.

### Batteries

Batteries containing pollutants are marked with a sign consisting of a crossed-out garbage can and the chemical symbol (Cd, Hg, Li or Pb) of the heavy metal that is decisive for the classification as containing pollutants:



1. „Cd" stands for cadmium
2. „Hg" stands for mercury
3. „Pb" stands for lead
4. „Li" stands for lithium

### Electrical and electronic equipment



## 13. EU Declaration of Conformance

We, KOBOLD-Messring GmbH, Hofheim-Ts, Germany, declare under our sole responsibility that the product:

Humidity/Temperature-Measuring Instrument      **Model: AFK-G**

to which this declaration relates is in conformity with the standards noted below:

- EN 60730-1:2012**                      Automatic electrical controls for household and similar use - Part 1: General requirements
- EN 60730-2-13:2008**                Automatic electrical controls for household and similar use - Part 2-13: Particular requirements for humidity sensing controls
- EN 60730-2-9:2011**                 Automatic electrical controls for household and similar use - Part 2-9: Particular requirements for temperature sensing controls
- EN 61326-1:2013**                    Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 1: General requirements
- EN 61326-2-3:2013**                Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 2-3: Particular requirements - Test configuration, operational conditions and performance criteria for transducers with integrated or remote signal conditioning

**ElektroStoffV**                              Issue 05/13

Also, the following EC guidelines are fulfilled:

- 2014/30/EU**                              **EMC Directive**
- 2011/65/EU**                              **RoHS**
- 2015/863/EU**                            Delegated Directive (RoHS III)



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Hofheim, 15 Oct. 2019