AKF10 Modbus

Duct-/Immersion temperature sensor

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Data Sheet

Subject to technical alteration
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Application

Duct-/Immersion temperature sensor for measuring temperature in gaseous media of heating, cooling and air-conditioning systems (e.g. fresh air/exhaust air ducts).

Designed for locking on to control and display systems.

In conjunction with an immersion pocket also suitable for temperature measurement in liquid fluids (e.g. pipeline systems).

Types available

AKF10.xxx.07 Modbus	AKF10, mounting length xxx*, ∅=7mm, active, RS485 Modbus interface
AKF10.yyy.04 Modbus	AKF10, mounting length yyy**, ∅=4mm, active, RS485 Modbus interface

* Mounting lengths ∅=7 mm: 62 mm, 135 mm, 192 mm, 240 mm, 320 mm, 392 mm, 465 mm
** Mounting lengths ∅=4 mm: 40 mm, 90 mm, 140 mm, 190 mm

Security Advice – Caution

The installation and assembly of electrical equipment must be performed by a skilled electrician.

The modules must not be used in any relation with equipment that supports, directly or indirectly, human health or life or with applications that can result in danger for people, animals or real value.

Before connecting devices with electrical power supply the installation must be isolated from power source!

Notes on Disposal

For disposal, the product is considered waste from electrical and electronic equipment (electronic waste) and must not be disposed of as household waste. Special treatment for specific components may be legally binding or ecologically sensible. The local and currently applicable legislation must be observed.

Electrical Connection

The devices are constructed for the operation of protective low voltage (SELV). For the electrical connection, the technical data of the corresponding device are valid.

Especially with regard to passive sensors in 2-wire conductor versions, the wire resistance of the supply wire has to be considered. If necessary the wire resistance has to be compensated by the follow-up electronics. Due to self-heating, the wire current affects the measurement accuracy. So it should not exceed 1 mA.

Sensing devices with transducer should always be operated in the middle of the measuring range to avoid deviations at the measuring end points. The ambient temperature of the transducer electronics should be kept constant. The transducers must be operated at a constant supply voltage (±0,2 V).When switching the supply voltage on/off, onsite power surges must be avoided.

When using lengthy connection wires (depending on the cross section used) the measuring result might be falsified due to a voltage drop at the common GND-wire (caused by the voltage current and the line resistance). In this case, 2 GND-wires must be wired to the sensor - one for supply voltage and one for the measuring current.

Technical Data

Mounting lengths**:**	∅=7 mm: 62 mm, 135 mm, 192 mm, 240 mm, 320 mm, 392 mm, 465 mm ∅=4 mm: 40 mm, 90 mm, 140 mm, 190 mm
Operating temperature sensor bushing:	Standard: -50..160 °C 260 °C version: -80..260 °C
Sensor bushing:	Stainless steel mat. 1.4571
Connection head:	Polyamide, Colour white
Protection:	IP65 according to EN 60529
Power supply:	15..24 V = (±10%) or 24 V ~ (±10%)
Power consumption:	typ. 0,7 W / 1,8 VA
Measuring range:	-20..+120 °C

Accuracy@21°C:	Typ. ±1% of measuring range
Interface:	RS485 Protocol: Modbus RTU or ASCII Baud rate: 9600, 19200, 38400 oder 57600 Parity: None, Even or Odd
Clamps:	Terminal screw max. 1,5 mm²
Ambient temperature connection head:	-35..+70 °C
Transport:	-35..+70 °C / max. 85% rH, no condensation
Weight:	approx. 120 g

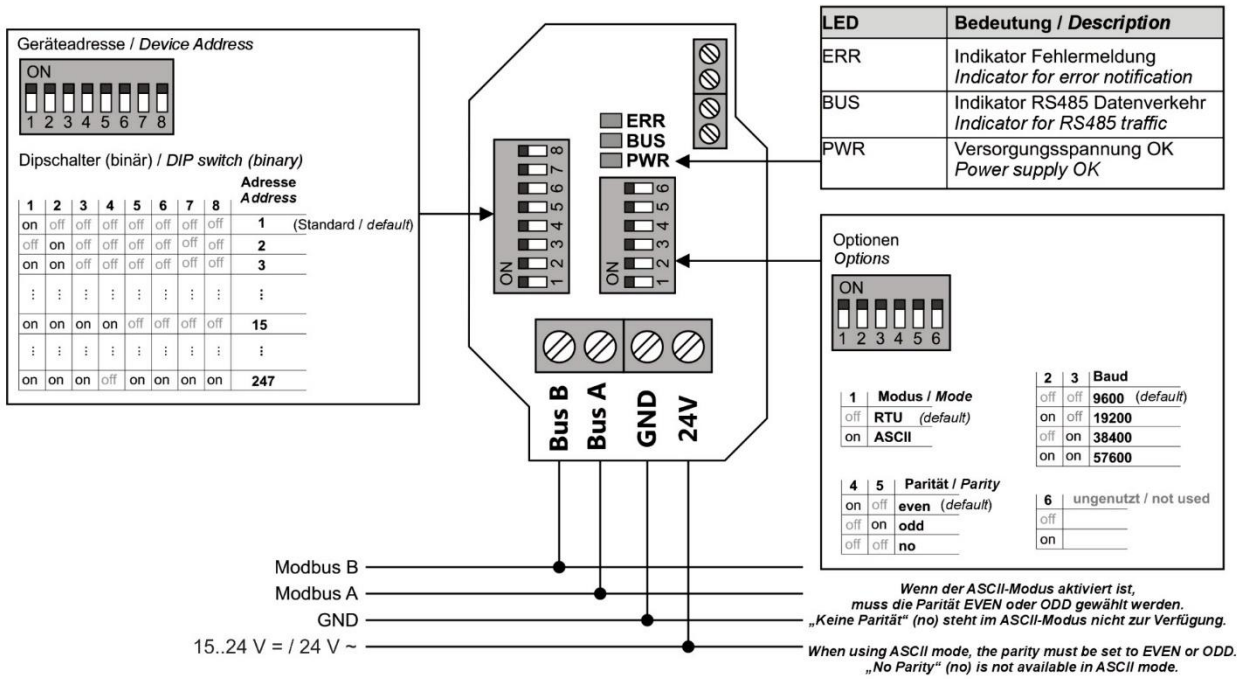
Mounting Advices

The sensor can be mounted on the ventilation duct either by means of a mounting flange or by screws.

For risk of condensate permeation in the sensor tube respectively in the immersion pocket the bushing must be installed in a position that occurred condensate can run off.

Please also note the general remarks in our INFOBLATT THK.

Terminal connection plan

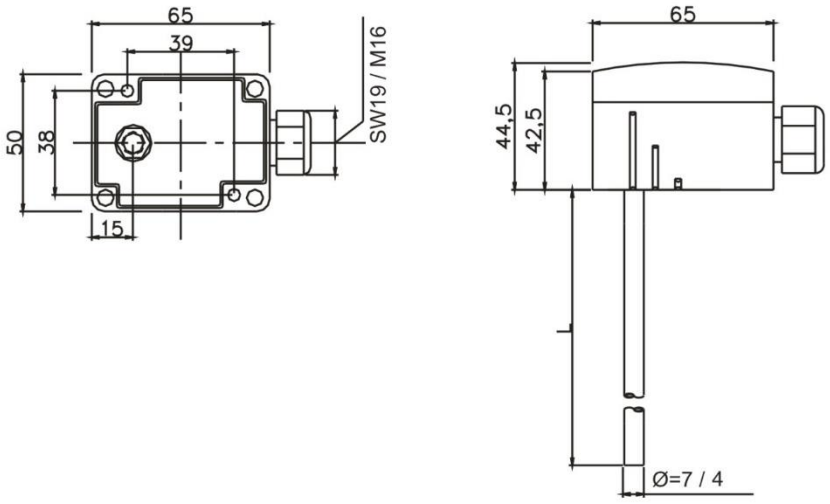


LED	Bedeutung / *Description*
ERR	Indikator Fehlermeldung *Indicator for error notification*
BUS	Indikator RS485 Datenverkehr *Indicator for RS485 traffic*
PWR	Versorgungsspannung OK *Power supply OK*

Modbus register definition

Data-Address Input Register	Function Code	Description	Type
580dec 0x244hex	4	Temperature [1/100] °C	SIGNED 16 Bit
581dec 0x245hex	4	Temperature [1/100] °F	SIGNED 16 Bit

Dimensions (mm)



Accessories (optional)

(THMS)	Immersion pocket for ∅=7 mm, material brass nickel-plated, safe up to 16 bar
(THVA)	Immersion pocket für ∅=7 mm, material stainless steel, safe up to 40 bar
(MF7)	Mounting flange for ∅=7 mm
(MF4)	Mounting flange for ∅=4 mm
(MF7/TPO)	Mounting flange for ∅=4/7 mm