

AKF10 Ø=7 mm RS485 Modbus

Duct-/Immersion temperature sensor

thermokon
Sensortechnik GmbH

Datasheet

Subject to technical alteration
Issue date: 17.07.2015



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 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 RS485 Modbus AKF10, mounting length xxx*, Ø=7 mm, active with output RS485 Modbus

* Mounting length: 62 | 135 | 192 | 240 | 320 | 392 | 465 mm

Security Advice – Caution



The installation and assembly of electrical equipment should only be performed by authorized personnel.

The product should only be used for the intended application. Unauthorised modifications are prohibited! The product must not be used in relation with any equipment that in case of failure may threaten, directly or indirectly, human health or life or result in danger to human beings, animals or assets. Ensure all power is disconnected before installing. Do not connect to live/operating equipment.

Please comply with

- Local laws, health & safety regulations, technical standards and regulations
- Condition of the device at the time of installation, to ensure safe installation
- This data sheet and installation manual



Notes on Disposal

As a component of a large-scale fixed installation, Thermokon products are intended to be used permanently as part of a building or a structure at a pre-defined and dedicated location, hence the Waste Electrical and Electronic Act (WEEE) is not applicable. However, most the product may contain valuable materials that should be recycled and not disposed of as domestic waste. Please note the relevant regulations for local disposal.

Technical Data

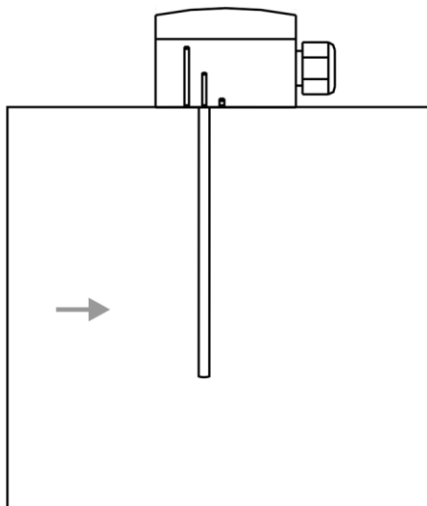
Measuring values	temperature
Network technology	RS485 Modbus, RTU or ASCII, half-duplex, baud rate 9.600, 19.200, 38.400 or 57.600, parity none, even or odd
Power supply	15..24 V = ($\pm 10\%$) or 24 V ~ ($\pm 10\%$)
Power consumption	typ. 0,7 W (24 V =) 1,8 VA (24 V ~)
Measuring range temperature	-50..+160 °C
Working range temp.	sensor pocket: -50..+160 °C
Accuracy temperature	$\pm 1\%$ of measuring range (typ. at 21 °C)
Enclosure	PA6, pure white
Protection	IP65 according to EN 60529
Cable entry	M20 for wire max. $\varnothing=8$ mm, seal insert for double cable entry for wire max. $\varnothing=6$ mm
Connection electrical	terminal block, max. 1,5 mm ² , 4-wire
Pocket	stainless steel 1.4571 mounting length: 62 135 192 240 320 392 465 mm
Ambient conditions	-35..+70 °C, max. 85% rH non-condensing
Weight	120 g

Mounting Advices

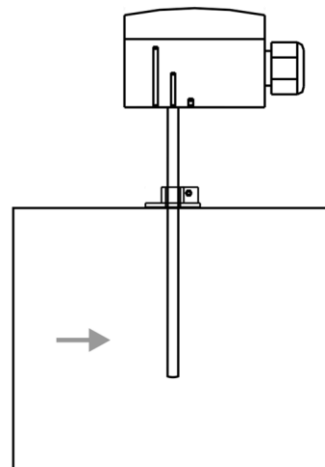
The sensor can be mounted on the ventilation duct either by means of a mounting flange or by screws.

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.

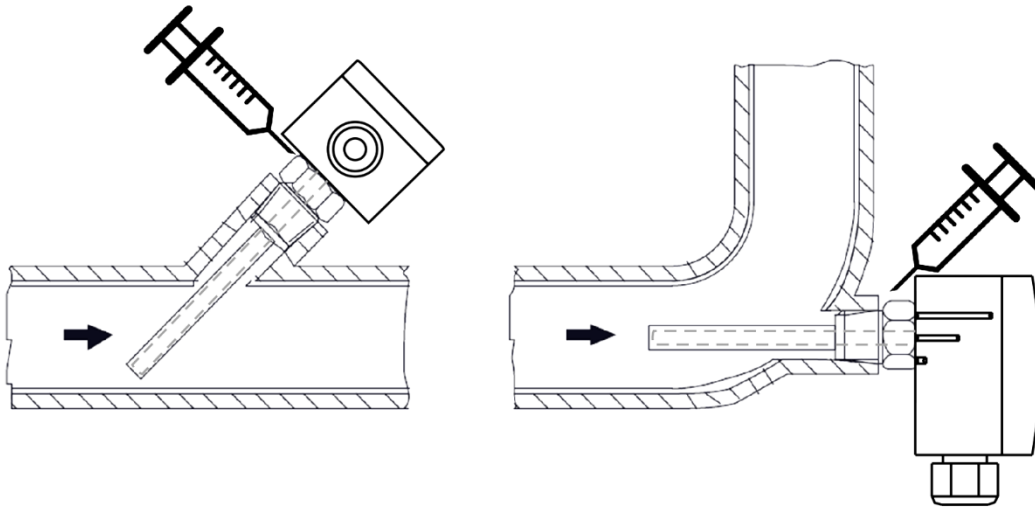
Mounting without mounting flange



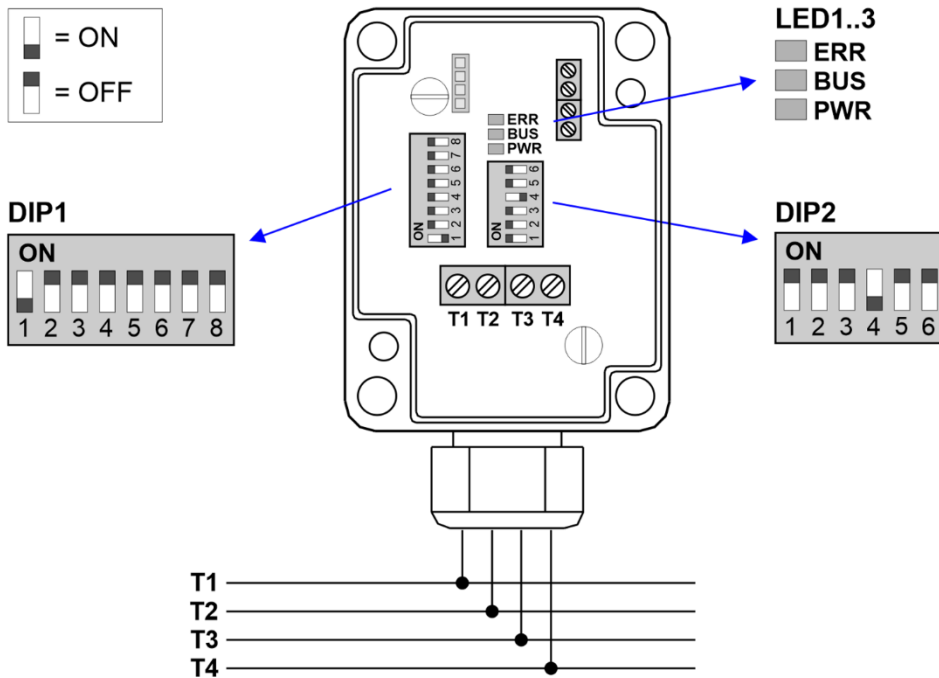
Mounting with mounting flange



Mounting with immersion pocket for usage in liquid media. Use contact fluid for better heat transfer between sensor and measuring medium.



Connection Plan



Connections/LEDs:

Connections	
T1	RS485 Modbus B
T2	RS485 Modbus A
T3	GND
T4	15..24 V = 24 V ~

LEDs	
ERR	Indicator error message
BUS	Indicator RS485 data traffic
PWR	Power supply OK

DIP1 device address (binary coded):

DIP 1.1	DIP 1.2	DIP 1.3	DIP 1.4	DIP 1.5	DIP 1.6	DIP 1.7	DIP 1.8	Address
2 ⁰	2 ¹	2 ²	2 ³	2 ⁴	2 ⁵	2 ⁶	2 ⁷	Valence
ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	1
OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF	2
ON	ON	OFF	OFF	OFF	OFF	OFF	OFF	3
...
ON	ON	ON	ON	OFF	OFF	OFF	OFF	15
...
ON	ON	ON	OFF	ON	ON	ON	ON	247

default

DIP2 Options:

DIP 2.1	Mode
OFF	RTU
ON	ASCII

DIP 2.2	DIP 2.3	Baud
OFF	OFF	9.600
ON	OFF	19.200
OFF	ON	38.400
ON	ON	57.600

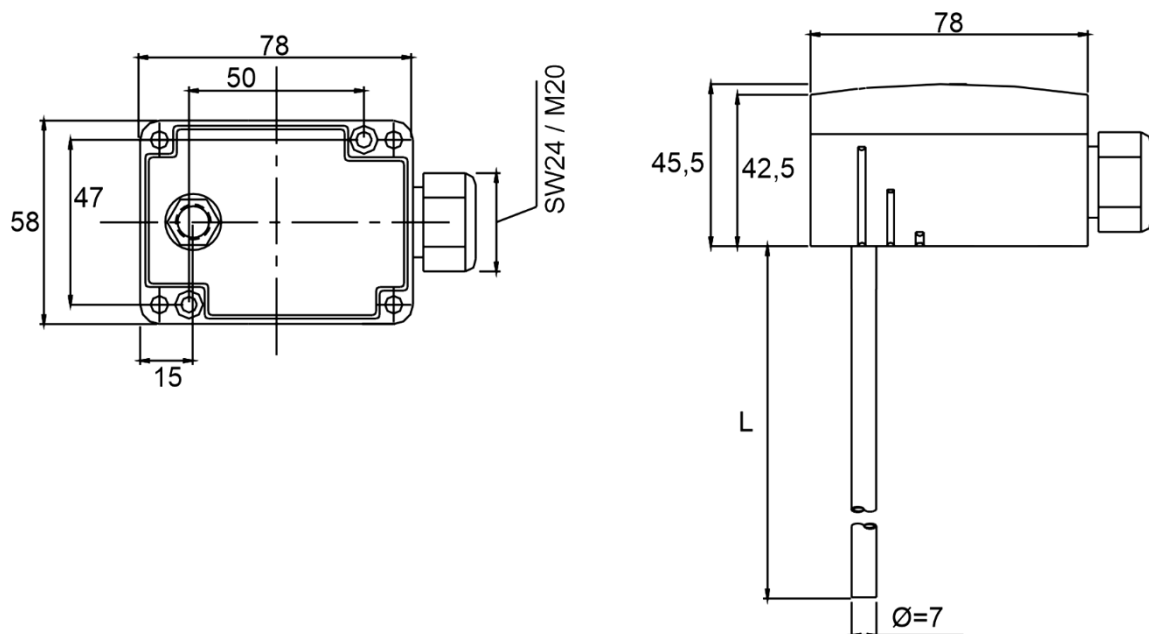
DIP 2.4	DIP 2.5	Parity
ON	OFF	even
OFF	ON	odd
OFF	OFF	none
ON	ON	not used

DIP 2.6	not used
OFF	not used
ON	not used

When using ASCII mode, the parity must be set to EVEN or ODD; no parity is not available in ASCII mode.

RS485 Modbus Register

Data-Address	Function Code	Description	Type
Input Register			
580 _{dec} 0x244 _{hex}	4	temperature [1/100] °C	SIGNED 16 Bit
581 _{dec} 0x245 _{hex}	4	temperature [1/100] °F	SIGNED 16 Bit

Dimensions (mm)**Accessories**

Mounting flange MF7 flexible (incl. inserts for $\varnothing=4 / 6$ mm)

Item No. 399098

Mounting flange MF7 (brass)

Item No. 102360

Immersion probe stainless steel, suitable up to 40 bar THVAxxx
 Immersion probe Messing, suitable up to 16 bar THMSxxx

xxx=length immersion probe, depending on mounting length
 xxx= length immersion probe, depending on mounting length

Syringe thermal contact fluid

Item No. 102308