

Data Sheet

Subject to technical alteration
Issue date: 23.07.2015



Application

Duct humidity and temperature sensor for all HVAC duct applications.

Designed for control and monitoring applications.

Types available

FTK-SX	xxx	VV	xxx = 140/270/400 mm	2x output 0..10 V	rel. humidity, temperature
		VVS	xxx = 140/270/400 mm	2x output 0..10 V	rel. humidity, temperature (1x active + 1x passive*)
		AA	xxx = 140/270/400 mm	2x output 4..20 mA	rel. humidity, temperature
		AAS	xxx = 140/270/400 mm	2x output 4..20 mA	rel. humidity, temperature (1x active + 1x passive*)

* eg: PT100/PT1000/Ni1000/Ni1000TK5000/LM235Z/NTC.../PTC... and other sensors on request.

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.

Build-up of Self-Heating by Electrical Dissipative Power

Temperature sensors with electronic components always have a dissipative power, which affects the temperature measurement of the ambient air. The dissipation in active temperature sensors shows a linear increase with rising operating voltage. This dissipative power has to be considered when measuring temperature. In case of a fixed operating voltage ($\pm 0,2$ V) this is normally done by adding or reducing a constant offset value. As Thermokon transducers work with a variable operating voltage, only one operating voltage can be taken into consideration, for reasons of production engineering. Transducers 0..10 V / 4..20 mA have a standard setting at an operating voltage of 24 V =. That means, that at this voltage, the expected measuring error of the output signal will be the least. For other operating voltages, the offset error will be increased by a changing power loss of the sensor electronics. If a re-calibration should become necessary later directly on the sensor, this can be done by means of a trimming potentiometer on the sensor board.

Remark: Occurring draft leads to a better carrying-off of dissipative power at the sensor. Thus temporally limited fluctuations might occur upon temperature measurement.

Application Notice for Humidity Sensors

Refrain from touching the sensitive humidity sensor/element. Touching the sensitive surface will void warranty.

For standard environmental conditions re-calibration is recommended once a year to maintain the specified accuracy.

When exposed to high ambient temperature and/or high levels of humidity or presence of aggressive gases (i.e. chlorine, ozone, ammonia) the sensor element may be affected and re-calibration may be required sooner than specified. Re-calibration and deterioration of the humidity sensor due to environmental conditions are not subject of the general warranty.

Technical Data

Measuring values		temperature, humidity
Output voltage	VV VVS	2x 0..10 V 2x 0..10 V (min. load 10 k Ω) + passive sensor,
Output Amp	AA AAS	2x 4..20 mA 2x 4..20 mA (max. load 500 Ω) + passive sensor
Power supply	VV VVS AA AAS	15..24 V = ($\pm 10\%$) or 24 V ~ ($\pm 10\%$) 15..24 V = ($\pm 10\%$)
Power consumption	VV VVS AA AAS	max. 0,4 W (24 V =) 0,8 VA (24 V ~) max. 1 W (24 V =)
Measuring range temperature	passive active	depending on used sensor -20..+80 °C
Measuring range humidity		0..100% rH
Accuracy temperature		$\pm 0,5$ °C (typ. at 25 °C)
Accuracy humidity		$\pm 2\%$ between 10..90% rH (typ. at 21 °C)
Air speed		max. 10 m/s
Enclosure		PA6, pure white
Protection		IP54 according to EN 60529, IP65 with bolted cover
Cable entry		M20 for wire max. $\varnothing 6$ mm
Connection electrical		terminal block, max. 1,5 mm ²
Pipe		PA6, black, $\varnothing = 19$ mm
Filter		stainless steel wire mesh
Ambient condition		-20..+70 °C
Weight		ca. 120 g

Connection Plan

FTK AA

1	2	3	4	5	6
temp. +24 V =	Out temp. 4..20 mA	rH +24 V =	Out rH 4..20 mA		

FTK AAS

1	2	3	4	5	6
temp. +24 V =	Out temp. 4..20 mA	rH +24 V =	Out rH 4..20 mA	Sensor A-	Sensor B+

FTK VV

1	2	3	4	5	6
Out temp. 0..10 V	Out rH 0..10 V	UV 24 V ~ / UV 24 V =	GND		

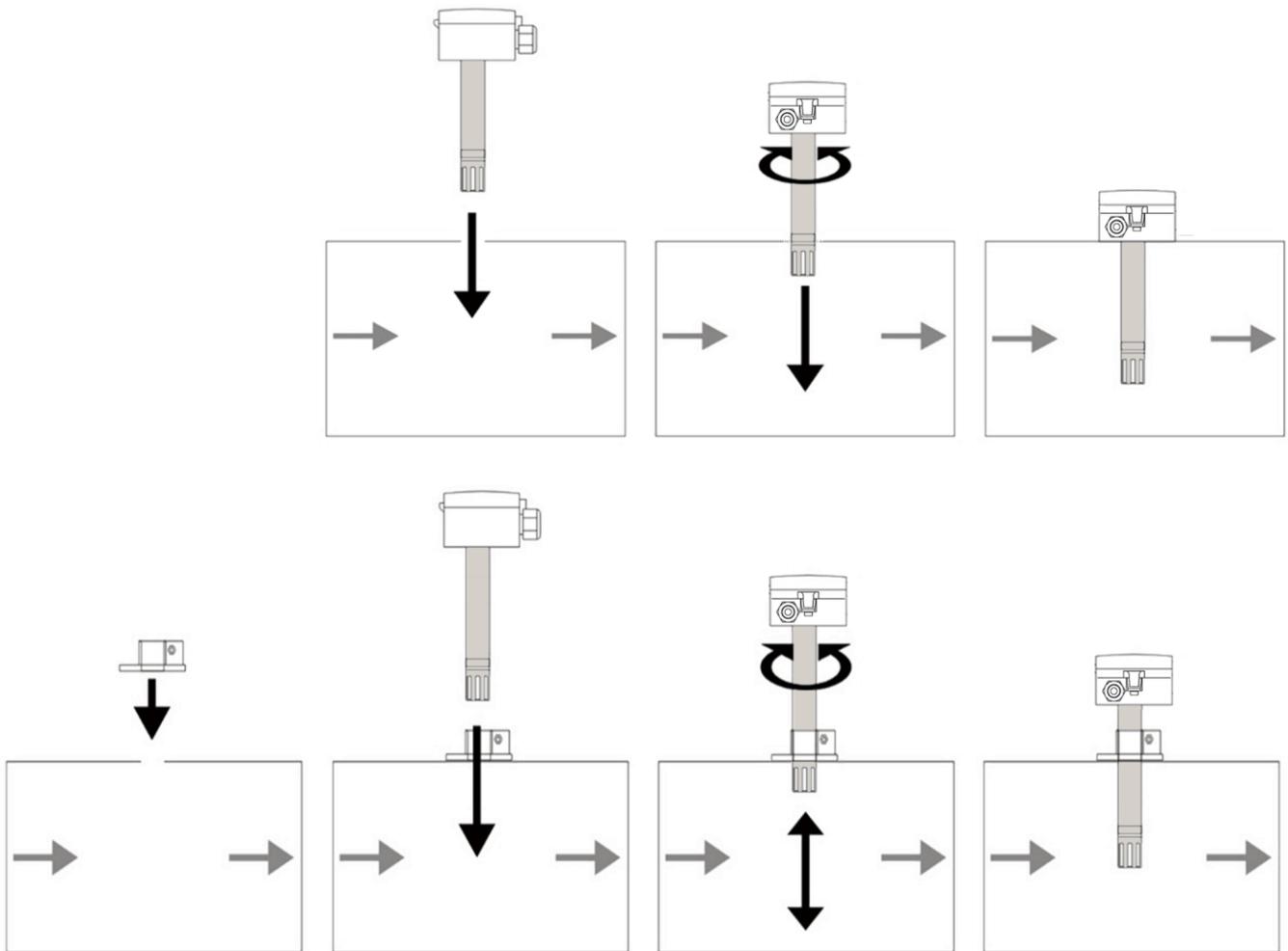
FTK VVS

1	2	3	4	5	6
Out temp. 0..10 V	Out rH 0..10 V	UV 24 V ~ / UV 24 V =	GND	Sensor A-	Sensor B+

Mounting advices

The sensor can be mounted on a flange (recommended) or directly into the ventilation duct.

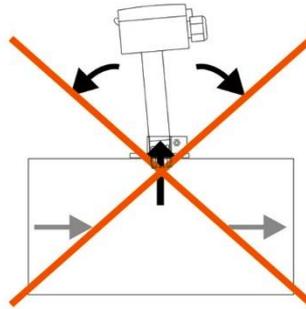
Mounting without and with mounting flange:



Dismounting Advices

Remove the lower section of the sensor carefully and pulling straight out.

Pay close attention to the correct dismantling of the component!



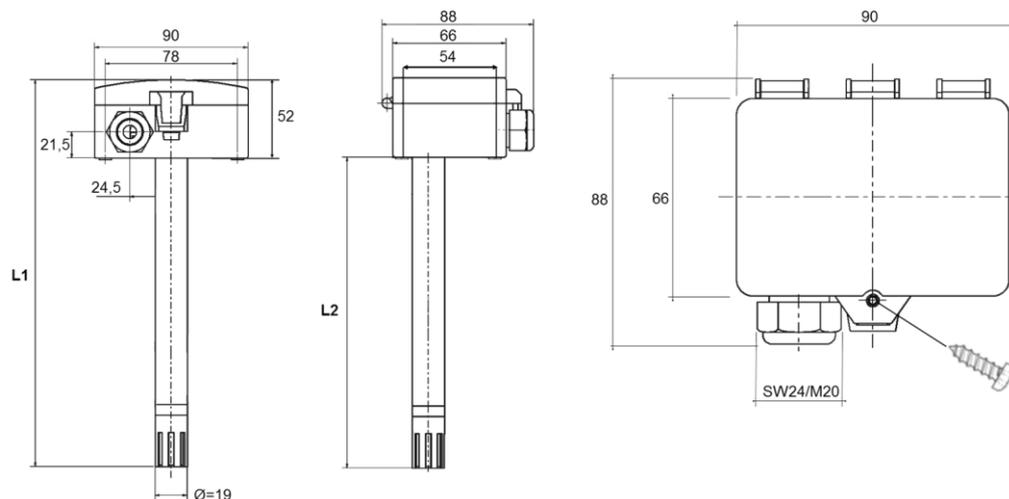
Application notice

After a certain time, dirt in the air can collect on the filter and then adversely affect the operation of the sensor.

Under normal ambient condition an annual maintenance is recommended. Rinse the filter after cleaning with distilled water and dry it using clean oil-free air or nitrogen. Extremely contaminated filters should be replaced.

At extreme ambient conditions, e.g. corrosive gases, the humidity sensor may have to be changed.

Dimensions (mm)



Lengths depending on the type:

Lengths over all	L1	192 / 322 / 452 mm
Lengths sensor tube	L2	140 / 270 / 400 mm

Accessories (optional)

Mounting flange MF19/TPO
 Replacement filter, V2A
 Raw plugs and screws (2pcs each)

Item No. 527705
 Item No. 231169
 Item No. 102209