FTA54+

Outdoor sensor for relative humidity and temperature

thermokon®
HOME OF SENSOR TECHNOLOGY

Datasheet

Subject to technical alteration
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» APPLICATION

Sensor for measuring humidity and temperature in outdoor areas. In delivery condition, the sensor is designed for measuring temperature and relative humidity. Alternatively the output can be set to absolute humidity, enthalpy or dew point. A mounting base for mounting on a level surface and fixing material are included in delivery.

» TYPES AVAILABLE

Outdoor humidity sensor temperature + humidity – active 2x 0..10 V | 4..20 mA

- FTA54+ VV
- FTA54+ AA

Options: Additional passive temperature sensor (type VVS|AAS)
eg: PT100/PT1000/NI1000/NI1000TK5000/NTC10K... 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 a 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

» PRODUCT TESTING AND CERTIFICATION

CE

Declaration of conformity
The declaration of conformity of the products are available on our website
https://www.thermokon.de/direct/en-gb/categories/fta54plus

» NOTES ON DISPOSAL



The crossed-out wheelie bin symbol indicates that the product or removable batteries must not be disposed of with household or commercial waste. Within the EU, you are legally obliged to dispose of the product separately and appropriately in accordance with the national laws of your country. Alternatively, please contact your supplier or Thermokon Sensortechnik GmbH. Further information can be found at: www.thermokon.com

»BUILD-UP OF SELF-HEATING BY ELECTRICAL DISSIPATIVE POWER

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 (±0,2 V) this is normally done by adding or reducing a constant offset value.

Thermokon transducers can be operated with variable operating voltages. The transducers are set at the factory with a reference operating voltage of 24 V =.

At this voltage, the expected measuring error of the output signal will be the least. Other operating voltages, can cause a measurement deviation changing power loss of the sensor electronics.

A recalibration can be carried out directly on the unit or via a software variable (app or bus).

Remark: Occurring draught 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

At regular environmental condition, it is recommended to calibrate the sensor annually to check the compliance with the accuracy required in the application. The following conditions can damage the sensor element or lead in long therm to loss of the specified accuracy:

- Mechanical stress
- Contamination (e.g. dust / fingerprints)
- Aggressive chemicals
- Ambient conditions (e.g. condensation on measuring element)

Do not touch the sensor elements!

Re-calibration or exchange of the sensor element are not subject of the general warranty.

»USE ENCLOSURE WITH UV AND WEATHER RESISTANCE

After some time, outdoor mounted plastics can lose their color and quality. Therefore, all USE housings are made of special white polycarbonate (PC). The light-stable colorants and additives are used to achieve optimum protection of the polymer while maintaining color stability. The titanium dioxide used is specially developed for polycarbonate and offers excellent UV protection through the reflection of the entire light spectrum including the UV component by 340 nm. This effectively counteracts the otherwise occurring photochemical polymer degradation. The colors stay full for a long time without fading. The material is also resistant to cold and frost.

»APPLICATION NOTICE

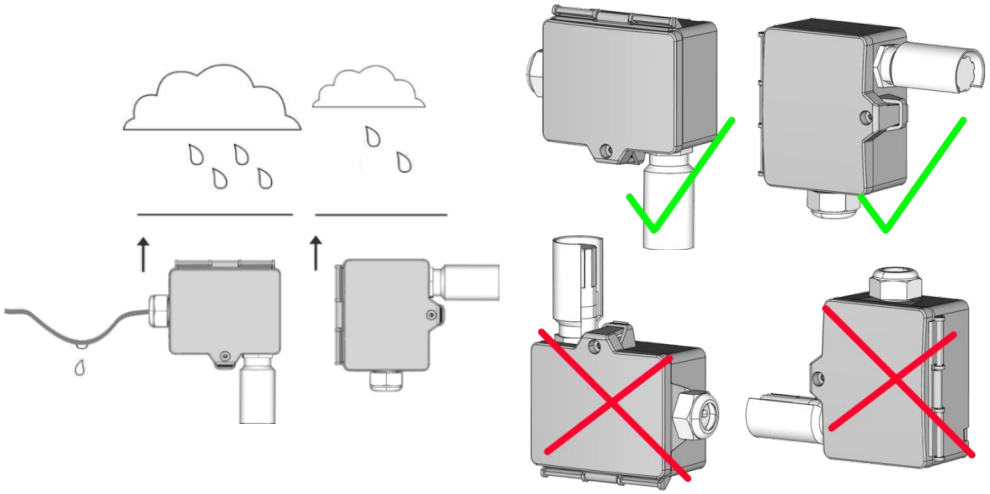
After a certain time, dirt in the air can collect on the filter and then adversely affect the operation of the sensor. Under normal ambient condition an annual maintenance is recommended. Rinse the filter after cleaning with distilled water and dry it using clean oil-free air or nitrogen. Extremely contaminated filters should be replaced. At extreme ambient conditions, e.g. corrosive gases, the humidity sensor may have to be changed.

» TECHNICAL DATA

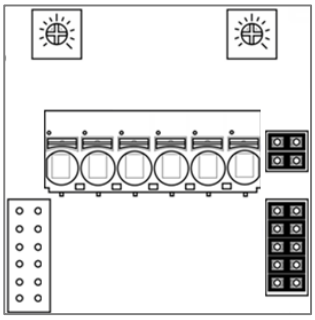
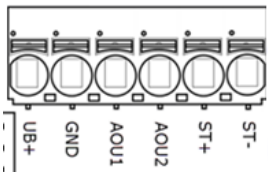
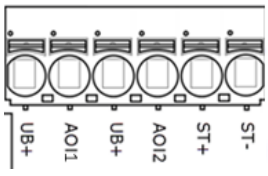
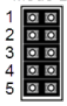
Measuring values	temperature, humidity (humidity output configurable)			
Output voltage	**VV** 2x 0..10 V or 0..5 V, configurable via Jumper, min. load 10 kΩ			
Output ampere	**AA** 2x 4..20 mA, max. load 500 Ω			
Output passive	**VVS | AAS** optional, PT100/PT1000/NI1000/NI1000TK5000/NTC10K... and other sensors on request			
Power supply	**VV** 15..24 V = (±10%) or 24 V ~ (±10%) SELV		**AA** 15..24 V = (±10%) SELV	
Power consumption	**VV** typ. 0,4 W (24 V =) | 0,8 VA (24 V ~)		**AA** typ. 1 W (24 V =)	
Measuring range temp.	**VV | AA** adjustable at the transducer: 0..+200 | +40..+140 | -40..+160 | 0..+100 °F, default setting: 0..+200 °F		**passive** -4..+158 °F	
Measuring range humidity	**rel. humidity** 0..100% rH non-condensing	**abs. humidity** 0..50 | 0..80 g/m³, default: 0..50 g/m³	**enthalpy** 0..85 KJ/kg	**dew point** +40..+140 | 0..+200 °F, default: +40..+140 °F
Accuracy temperature	**VV | AA** ±0,3 K (typ. at 70 °F within default measuring range)		**passive** typ. ±0,3 K (typ. at 70 °F), depending on used sensor	
Accuracy humidity	±2% between 10..90% rH (typ. at 70 °F)			
Enclosure	enclosure USE-M, PC, pure white, UV resistant			
Protection	IP65 according to EN 60529			
Cable entry	Flextherm M20, for wire max. Ø=0.18..0.35 in., removable			
Connection electrical	removable plug-in terminal, max. 14AWG			
Filter	stainless steel wire mesh			
Ambient condition	-4..+158 °F, short term condensation			

» MOUNTING ADVICES

When installing outdoors, avoid direct sunlight and disturbing heat sources. If necessary, use sun or rain protection.
Cable entry from below or from the side. If cable entry is from the side, lay a loop so that precipitation can drain off in a defined manner. The permissible ambient conditions must be observed during use.



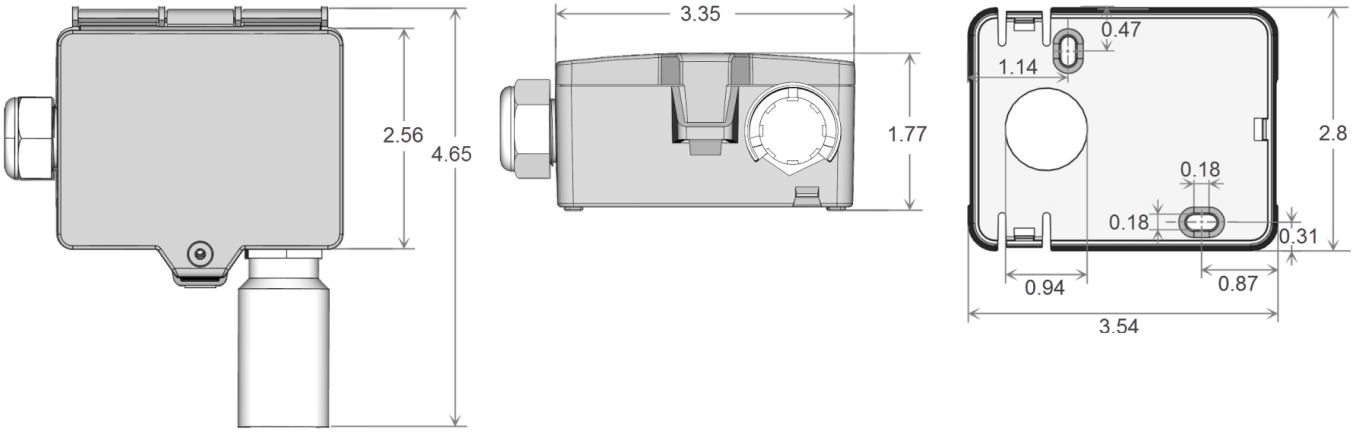
»CONNECTION PLAN

Offset	Terminal assignment	Device configuration
Temperature 0 K -6°F +6°F Humidity 0 % -5 %rH +5 %rH abs. humidity: ±3g/m³ enthalpy: ±3 kJ/kg dew point: ±3 K	 VV, VVS 0..10V | 0..5V  AOU1: Humidity AOU2: Temperature AA, AAS 4..20mA  AOI1: Humidity AOI2: Temperature Clamp ST+ | ST- : passive sensor (VVS | AAS)	Jumper 1-2 (humidity)  relative humidity | enthalpy | absolute humidty | dew point Jumper1-5  1: °F | °C (additional information below) 2: 0..10V | 0..5 V | *VV, VVS only* 3: relative humidity: 0..100% absolute humidity: 0..80 g/m³ enthalpy: 0..85 kJ/kg dew point: 0..+200 °F relative humidity: 0..100% absolute humidity: 0..50 g/m³ enthalpy: 0..85 kJ/kg dew point: +40..+140 °F 4 5: -40°F..+160°F | 4 5: +40°F..+140°F 4 5: 0°F..+200°F | 4 5: 0°F..+100°F EN datasheet with additional information about °C

The adjustment of the measuring ranges is made by changing the jumpers in a de-energized state. The output value of the new measuring range is available after 2 seconds. *fig. (Measuring range and offset adjustment, default settings: 0 °F..+200 °F | 0 °F)*

Note *(type FTA54+ AA)*
When only using the temperature output, the humidity output must always be connected to mass/GND of the analog input module.

»DIMENSIONS (IN.)



»ACCESSORIES (INCLUDED IN DELIVERY)

Rain protection	Item No. 850687
Mounting base	Item No. 631228
Mounting kit universal	Item No. 698511

• Cover screw + screw cover• 2 Rawlplugs • 2 Screws (countersunk head) • 2 Screws (rounded head)

»ACCESSORIES (OPTIONAL)

Cable entry M25 USE white, sealing insert 4x Ø=0.28 in. (4 pcs)	Item No. 641364
Filter stainless steel, wire mesh	Item No. 231169
Sealing insert M20 USE white, 2x Ø=0.28 in. (for 2 wire; PU 10 pieces)	Item No. 641333