

# FT-RDF18+

Room sensor temperature and humidity, flush mounting at ceiling

**thermokon**<sup>®</sup>  
HOME OF SENSOR TECHNOLOGY

## Datasheet

Subject to technical alteration  
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## » APPLICATION

Ceiling sensor for unobtrusive humidity and temperature measurement in the ceiling area of room and office spaces. Designed for control and monitoring applications. Replaces FT-RDF18 with the newly developed enclosure USE-M.

## » TYPES AVAILABLE

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

- FT-RDF18+ VV
- FT-RDF18+ AA

## » 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



### Declaration of conformity

The declaration of conformity of the products can be found on our website <https://www.thermokon.de/>

## » 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 ( $\pm 0,2$  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

For standard environmental conditions re-calibration is recommended once a year to maintain the specified accuracy. A re-calibration may be required sooner than specified, or the sensor element may have to be exchanged when exposed to the following environmental conditions:

- Mechanical stress
- Contamination (dust / fingerprints e.g.)
- Abrasive chemicals
- Environmental influences (e.g. condensation on measuring element)

Re-calibration and deterioration of the humidity sensor due to environmental conditions are not subject of the general warranty.

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

## » TECHNICAL DATA

Measuring values	temperature, humidity (humidity output configurable)	
Output voltage	<b>VV</b> 2x 0..10 V or 0..5 V, configurable via Jumper, min. load 5 k $\Omega$	
Output ampere	<b>AA</b> 2x 4..20 mA, max. load 500 $\Omega$	
Power supply	<b>VV</b> 15..24 V = ( $\pm 10\%$ ) or 24 V ~ ( $\pm 10\%$ ) SELV	<b>AA</b> 15..24 V = ( $\pm 10\%$ ) SELV
Power consumption	<b>VV</b> typ. 0,4 W (24 V =)   0,8 VA (24 V ~)	<b>AA</b> typ. 1 W (24 V =)
Measuring range temp.	adjustable at the transducer: 0..+200   +40..+140   -40..+160   0..+100 °F, default setting: 0..+200 °F	
Measuring range humidity	0..100% rH non-condensing	
Measuring range abs. hum.	adjustable at the transducer: 0..50   0..80 g/m <sup>3</sup> , default setting: 0..50 g/m <sup>3</sup>	
Measuring range enthalpy	0..85 KJ/kg	
Measuring range dew point	adjustable at the transducer: 0..50   -20..+80 °C, default setting: 0..50 °C	
Accuracy temperature	$\pm 0,3$ K (typ. at 21 °C within default measuring range)	
Accuracy humidity	$\pm 2\%$ between 10..90% rH (typ. at 70 °F)	
Enclosure	enclosure USE-M, PC, pure white	
Protection	<b>enclosure</b> IP65 according to EN 60529	<b>sensor head</b> IP30 according to EN 60529
Cable entry	Flextherm M20, for wire max. $\varnothing=0.18..0.35$ in., removable	
Connection electrical	removable plug-in terminal, max. 14AWG, connection wire sensor head to plug RJ12: PVC 6 in., connection wire bush RJ12 to enclosure: PVC 10 ft.	
Sensor head	ABS, white, $\varnothing=1.18$ in.	
Ambient condition	-31..+158 °F, max 85% rH, short term condensation	

» **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 of the products may contain valuable materials that should be recycled and not disposed of as domestic waste. Please note the relevant regulations for local disposal.

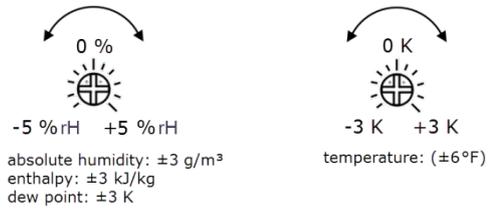
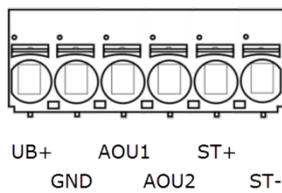
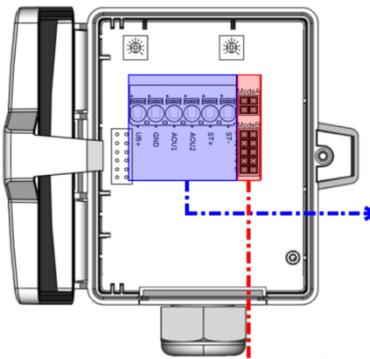
» **CONNECTION PLAN AND CONFIGURATION**

**Note (type FT-RDF18+ AA)**

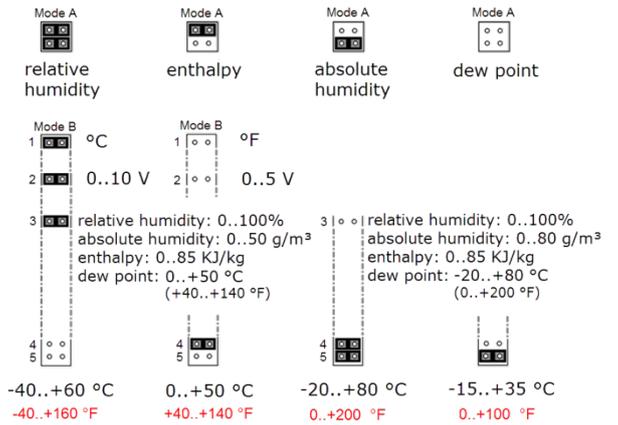
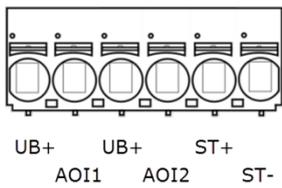
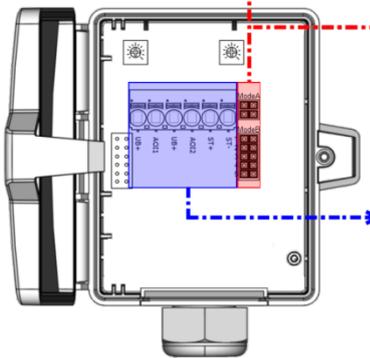
When only using the temperature output, the humidity output must always be connected to mass/GND of the analog input module.  
 fig. (Measuring range and offset adjustment, default settings: 0 °F..+200 °F | 0 °F)

AOI1 | AOU1 = humidity  
 AOI2 | AOU2 = temperature

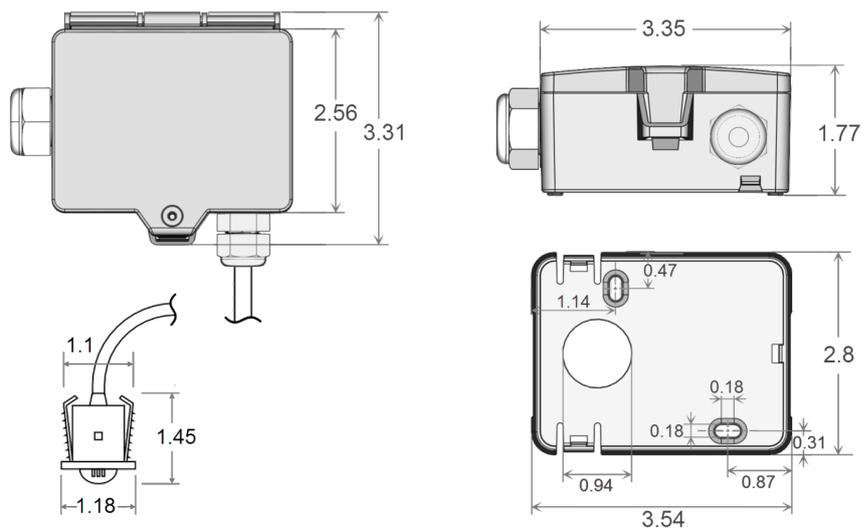
VV  
 2x 0..10 V | 0..5 V



AA  
 2x 4..20 mA



## » DIMENSIONS (IN.)



## » ACCESSORIES (INCLUDED IN DELIVERY)

Mounting base enclosure USE pure white

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)

Sealing insert M20 USE white, 2x  $\varnothing=0.28$  in. (for 2 wire; PU 10 pieces)

Item No. 641333