

WRF07

Flush mounting room operating unit

thermokon[®]
HOME OF SENSOR TECHNOLOGY

Datasheet

Subject to technical alteration
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WRF07 P



WRF07 P TD

(Illustration shows Insert switch program with support ring, frame optionally available depending on switch program range)

» APPLICATION

Room operating unit for room/space temperature measurement with fan stage adjustment and manual override. Designed for control and monitoring systems.

» TYPES AVAILABLE

Room operating unit temperature – without sensor

- WRF07 P without sensor
- WRF07 P TD without sensor, LED green

Room operating unit temperature – passive

- WRF07 P <Sensor>, LED green
- WRF07 P TD<Sensor>, LED green

Room operating unit 0..+50 °C – 0..10 V, active potentiometer

- WRF07 P TRV3
- WRF07 P TD TRV3, LED green

<Sensor>: PT100/PT1000/Ni1000/Ni1000TK5000/LM235Z/NTC.../PTC... 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



Declaration of conformity

The declaration of conformity of the products are available on our website
<https://www.thermokon.de/direct/en-gb/categories/wrf07-x>

» NOTES ON DISPOSAL



The crossed-out wheeled 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

» GENERAL REMARKS CONCERNING SENSORS

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.

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.

Sensing devices with a 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 ($\pm 0,2$ V). When switching the supply voltage on/off, onsite power surges must be avoided.

» MOUNTING ADVISE ROOM SENSORS

The Accuracy of the room sensors are influenced by the technical specifications as well as the positioning and the installation type.

During Assembly:

- Seal mounting box (if present).
- Installation type, air draught, heat source, radiation heat or direct sunlight can affect the measurement.
- Building material specific properties of the installation place (*brick-, concrete-, partition wall, cavity wall, ...*) can affect the measurement.

Assembly not recommendet in...

- Air draught (e.g.: close to windows / doors / fans ...)
- Near heating sources,
- Direct sunlight
- Niches / between furniture / ...

» 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.

» **TECHNICAL DATA**

Measuring values	temperature	
Output voltage <i>(type-dependent)</i>	TRV3 1x 0..10 V, min. load 5 kΩ	
Output passive <i>(type-dependent)</i>	passive optional, PT100/ PT1000/ NI1000/ NI1000TK5000/ LM235Z/ NTC.../ PTC... other sensors on request	
Power supply <i>(type-dependent)</i>	15..24 V = (±10%) or 24 V~ (±10%) SELV	
Power consumption	typ. 0,42 W (24 V =) 0,84 VA (24 V ~)	
Measuring range temp <i>(type-dependent)</i>	TRV3 +32..+122 °F	passive -31..+158 °F
Accuracy temperature <i>(type-dependent)</i>	TRV3 ±1% of measuring range (typ. at 70 °F)	passive depending on used sensor
Set point (P) <i>(optional)</i>	TRV3 active output 0..10 V	passive set point adjustment, 3-wire, default values 1 kΩ, 5 kΩ or 10 kΩ, optional active output 0..10 V*
Rotary switch (DS) <i>(optional)</i>	mini rotary switch for fan stage adjustment up to 5 stages available, switching capacity max. 24 V =/~, 5 W (only on request)	
Rocker switch (S) <i>(optional)</i>	for fan speed adjustment, optional switching stages, 0/I or 0/I/II, switching capacity max. 24 V =/~, 5 W (only on request)	
Button (T) <i>(optional)</i>	occupancy signal, 2-wire, switching capacity max. 600 mW	
LED (D) <i>(optional)</i>	status response, 2-wire, more LED's available, colour green, red or yellow	
Enclosure	Central disc in Thermokon design, Switch frame depends on frame manufacturer design (on request)	
Protection	IP20 according to EN 60529	
Connection electrical	terminal block max. 16AWG	
Ambient condition	-31..+158 °F, max. 85% rH non-condensing	
Weight	1.76 oz.	
Mounting	flush-mounting in standard EU box (Ø=60 mm, min. depth=45 mm)	
Notes	Switch programs on request, under certain circumstances an intermediate frame is used	

***Passive variant with active potentiometer:** The self-heating results in a deviation of the actually measured value. Therefore, it is necessary to compensate the actual deviation of the passive sensor in the BMS with an offset.

» **CONNECTION PLAN**



The terminal assignments vary depending on the type of the device. Terminal plan is attached to the device.

» **DIMENSIONS (IN.)**

WRF07 PTD + Gira E2 switch frame design (optional)

