

Product overview

The room operating panel is designed for temperature detection and integrated manual control of HVAC applications (change set point, occupancy, fan speed).

The operating functions can be used very flexibly depending on the room requirements. Thus, different types with various numbers of function keys are available.

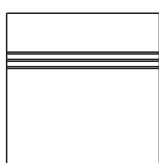
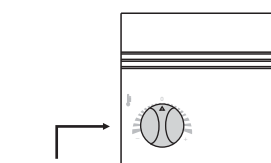
The universal room operating panel has a wiring clamp, where the sensor or the operating element (potentiometer, rotary switch, pushbutton, ...) is wired up.

The device disposes of the following features

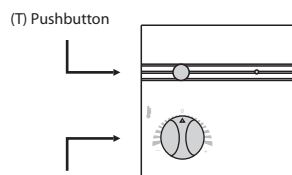
- Different function keys depending on the device type, e.g. for set point or occupancy or fan speed
- LED for status indication
- Integrated temperature sensor
- For wall mounting, mounting on standard installation box is possible


Types available

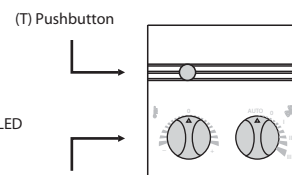
Type code	Type	Description
EXT-TN-1070408	WRF04 Ni1000	Ni1000
EXT-TN-1066579	WRF04 PT1000	PT1000
EXT-TN-1070415	WRF04 NTC10k	NTC10k
EXT-TN-1072600	WRF04 NTC10kPRE	NTC10k Precon
EXT-TN-1072617	WRF04 NTC10kPRE11k	NTC10k Precon 11k
EXT-TN-1066586	WRF04 NTC20k	NTC20k
EXT-TN-1070712	WRF04 TRA MultiRange	4...20mA
EXT-TN-1070736	WRF04 TRA3	4...20mA
EXT-TN-1070750	WRF04 TRV MultiRange	0...10V
EXT-TN-1070774	WRF04 TRV3	0...10V
EXT-TN-1072655	WRF04P PT1000	PT1000, 1k Potentiometer
EXT-TN-1072631	WRF04P NTC10k	NTC10k, 1k Potentiometer
EXT-TN-1072648	WRF04P NTC10kPRE	NTC10k Precon, 1k Potentiometer
EXT-TN-1070484	WRF04P Ni1000	Ni1000, 10k Potentiometer
EXT-TN-1070538	WRF04P PT1000	PT1000, 10k Potentiometer
EXT-TN-1070507	WRF04P NTC20k	NTC20k, 10k Potentiometer
EXT-TN-1070569	WRF04PS Ni1000	Ni1000, 10k Potentiometer, fan speed
EXT-TN-1070613	WRF04PS PT1000	PT1000, 10k Potentiometer, fan speed
EXT-TN-1070583	WRF04PS NTC20k	NTC20k, 10k Potentiometer, fan speed
EXT-TN-1072686	WRF04T PT1000	PT1000, pushbutton
EXT-TN-1072662	WRF04T NTC10k	NTC10k, pushbutton
EXT-TN-1072679	WRF04T NTC10kPRE	NTC10k Precon, pushbutton
EXT-TN-1072716	WRF04TD PT1000	PT1000, pushbutton, LED
EXT-TN-1072693	WRF04TD NTC10k	NTC10k, pushbutton, LED
EXT-TN-1072709	WRF04TD NTC10kPRE	NTC10k Precon, pushbutton, LED


WRF04


(P) Setpoint

WRF04P


(P) Setpoint

WRF04PTD


(P) Setpoint

WRF04PST

(S) Fanspeed

- WRF04 sensor
- WRF04 TRA
- WRF04 TRV
- WRF04P sensor
- WRF04PS sensor
- WRF04T sensor
- WRF04TD sensor

- Room operating panel, temperature sensor
- Room operating panel, 4...20mA temperature output
- Room operating panel, 0...10V temperature output
- Room operating panel, potentiometer, temperature sensor
- Room operating panel, potentiometer, fan speed, temperature sensor
- Room operating panel, pushbutton, temperature sensor
- Room operating panel, pushbutton, LED, temperature sensor

Technical data

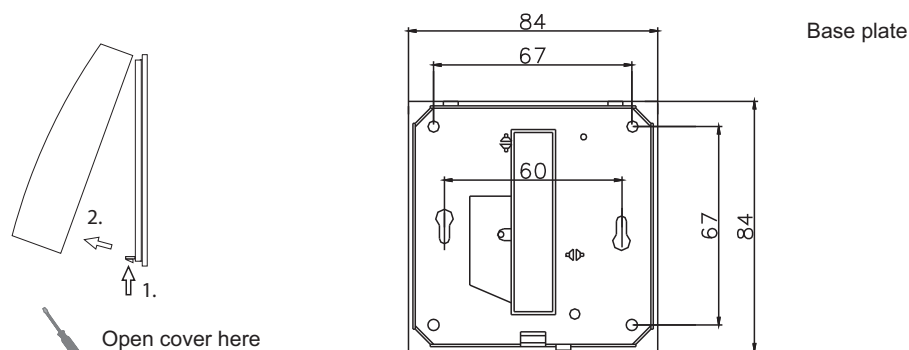
Standards	CE conformity	2004/108/EEC EMC directive
	EN conformity	- EN60730-1(2000) Interference resistance - EN60730-1(2000) Emitted interference
General Data	Power supply	- TRV : DC 15-24V(±10%) / AC 24V(±10%) - TRA : DC 15-24V(±10%)
	Power consumption	- TRV : max. 12mA / DC 24V - TRA : max. 20mA / DC 24V
	Measuring range	Adjustable at the transducer - TRA1 : -50°C...+50°C - TRA3 : 0°C...+50°C - TRA8 : -15°C...+35°C - TRV1 : -50°C...+50°C - TRV3 : 0°C...+50°C - TRV8 : -15°C...+35°C
	Output	- Sensor : depending on sensor used - TRV : 0...10V, min. load 5kΩ - TRA : 4...20mA, max. load 700Ω / DC 24V
	Accuracy@21°C	- Sensor : depending on sensor used - TRV/TRA : 1% of full scale
	Potentiometer (P)	Output resistance 1kΩ or 10kΩ, 3 wire, max. load 0.25W
	Rotary switch (S)	5 stages (Auto,0,I,II,III), max. load 5VA
	Presence key (T)	Close contact, max. load 600mW
	Status LED (D)	Colour green, supply voltage DC 15-24V / AC 24V
	Clamps	Terminal screws, max. 1.5mm ²
	Enclosure	For wall mounting, material ASA, colour pure white, similar to RAL9010
	Protection	IP30 according to EN60529
	Cable entry	From behind or side-mounted entry from top / below
Ambient temperature	-35...70°C	
Transport	-35...70°C / max. 85% RH, non-condensing	
Weight	50g	

Security advice

The installation and assembly of electrical equipment may only be performed by a skilled electrician. The modules must not be used with equipment that supports, directly or indirectly, human health or life or with applications that can result in danger for people or animals.

Mounting advice

The devices are supplied in an operational status. Installation is made by means of rawl plugs and screws (accessory) to the smooth wall surface. For wiring, the snap-on lid must be separated from the base plate. Installation must be made on representative places for the room temperature, to avoid a falsification of the measuring result. Solar radiation and draught should be avoided. If the device is mounted on standard flush box, the end of the installation tube in the flush box must be sealed, so as to avoid any draught in the tube falsifying the measuring result.



Electrical connection

The devices are constructed for the operation of protective low voltage (SELV). For the electrical connection, the technical data of the corresponding device is valid. With regard to passive sensors (e.g. PT100 etc.) in 2 wire conductor versions, the wire resistance of the supply wire has to be considered. It is likely that the same has to be compensated by the following electronics. Due to the self heating, the wire current affects the accuracy of the measurement. Therefore it should not exceed 1mA.

Sensing devices with transducers should in principle 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 constant supply voltage. The adjustment of the measuring ranges is made by changing the bonding jumpers (see terminal connection diagram). The output value in the new measuring range is available after approximately 2 seconds.

Location and accuracy of room sensor

Besides a suitable representative mounting place, corresponding to the room temperature, the accuracy of the temperature measurement also depends directly on the temperature dynamics of the wall. It is important that the flush socket is completely closed at the wall side, so that the circulation of air may take place through the gaps in the cover. Otherwise, deviations in temperature measurement will occur due to uncontrolled air circulation. Furthermore, the temperature sensor should not be covered by furnitures, etc. A mounting place next to doors (occurring draught) or windows (colder outside wall) should be avoided.

Surface and flush mounting

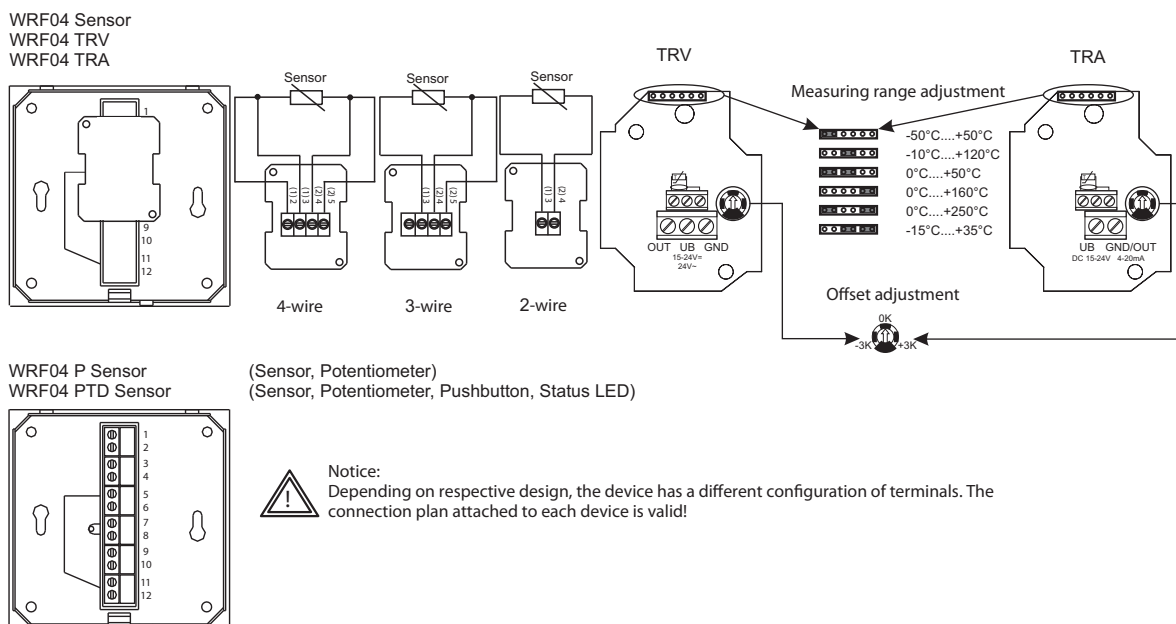
The temperature dynamics of the wall influence the measurement result of the sensor. Various wall types (brick, concrete, dividing and hollow brickwork) have different behaviour with regard to thermal variations. A solid concrete wall responds to thermal fluctuations within a room in a much slower way than a light-weight structure wall. Room temperature sensors installed in flush boxes, have a longer response time to thermal variations. In an extreme case, they detect the radiant heat of the wall even if the air temperature in the room is lower. The quicker the dynamics of the wall (temperature acceptance of the wall) or the longer the selected inquiry interval of the temperature sensor, the smaller are the deviations limited in time.

Build up of self heating by electrical dissipated power

Room temperature sensors with electronic components always have a dissipated 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 dissipated power has to be considered when measuring temperature. In case of a fixed operating voltage, this is normally done by adding or reducing a constant offset value. As transducers (TRA or TRV) work with a variable operating voltage, only one operating voltage can be taken into consideration, for reasons of production engineering. Transducers 0-10V / 4-20mA have a standard setting at a operating voltage of DC 24V. Therefore at this voltage, the expected measuring error of the output signal will be the least. As for other operating voltages, the offset error will be increased or lowered 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 (For sensors with LON-interface, a re-calibration can be done via corresponding software variable SNVT).

Remark: Occurred draft leads to a better carrying-off of dissipated power at the sensor. Thus, temporal limited fluctuations might occur upon temperature measurement.

Terminal connection plan



Dimensions (mm)

