

## Data Sheet

Subject to technical alteration  
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## Application

The fan coil room thermostat has been designed for individual control of temperature in commercial, industrial and residential buildings. It is tailored for two-pipe and four-pipe fan coil with two-wire electric valves. With its flush mounted modern design the device combines digital technology with a large LCD display and additional buttons, which enables the single room controller to be used intuitively.

## Security Advice – Caution



The installation and assembly of electrical equipment must be performed by a skilled electrician.

The modules must not be used in any relation with equipment that threatens, directly or indirectly, human health or life or with applications that can result in danger for people, animals or assets.

**Before connecting devices with electrical power supply the installation must be isolated from the power source!**

## Notes on Disposal

The product is considered electrical and electronic waste and must be disposed accordingly.

Special treatment for specific components may be legally binding or ecologically sensible. The local and current applicable legislation must be followed.

## Electrical Connection

The devices are powered by mains voltage (normally between 90 and 265 V). Please follow the technical data instructions on how to correctly power each device.

With regards to passive sensors with 2-wire conductor versions, the wire resistance of the supply wire has to be considered. If necessary the wire resistance should be compensated by the heat gain from the electronics. Due to self-heating, the wire current affects the measurement accuracy. So it should not exceed 1 mA.

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 turning the supply voltage on/off, onsite power surges must be avoided.

When using lengthy wiring (depending on the cross section used) the supply may be compromised 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.

## Remarks to Room Sensors

### Location and Accuracy of Room Sensors

The room sensor should be mounted in a suitable location for measuring accurate room temperature. The accuracy of the temperature measurement also depends directly on the temperature dynamics of the wall. It is important, that the back plate is completely flush to the wall so that the circulation of air occurs through the vents in the cover. Otherwise, deviations in temperature measurement will occur due to uncontrolled air circulation. Also the temperature sensor should not be covered by furniture or similar devices. Mounting next to doors (due to draught) or windows (due to colder outside wall) should be avoided.

The temperature dynamics of the wall will influence the temperature measurement. Various wall types (brick, concrete, dividing and hollow brickwork) all have different behaviours with regards to thermal variations.

### 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 behaviours 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 extreme cases they detect the radiant heat of the wall even if the air temperature in the room is lower for example. The quicker the dynamics of the wall (temperature acceptance of the wall) or the longer the selected inquiry interval of the temperature sensor is the smaller the deviations limited in time are.

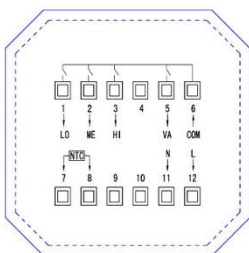
## Technical Data

Power supply:	90..265 V ~ 50/60 Hz
Power consumption:	<0,9 W
Temperature sensor:	NTC10K
Set point adjustment:	+1..+50 °C (default +16..+30 °C)
Accuracy:	$\pm 1$ °C
Display:	LCD, white backlight
Material:	ABS, scratch-resistant acrylic
Output:	Heating/cooling: Relay 250 V ~ / 30 V =, 5 A Fan stage: Relay 250 V ~ / 30 V =, 5 A

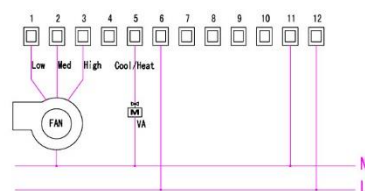
Cable entry:	from the rear
Clamps:	Terminal screw max 1,5 mm <sup>2</sup>
Protection:	IP20 according to EN 60529
Working condition:	-10..+50 °C, 5..95% rH non cond.
Storage temperature:	-25..+65 °C
Dimensions (LxWxD):	86x86x15,5 mm
Weight:	140 g

## Terminal Connection Plan

Wiring diagram for 2-pipe fan coil:

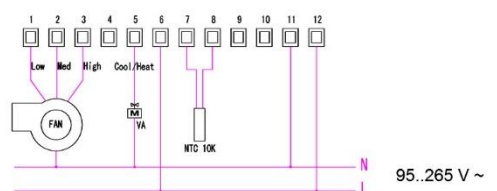


FCU 2-Pipe

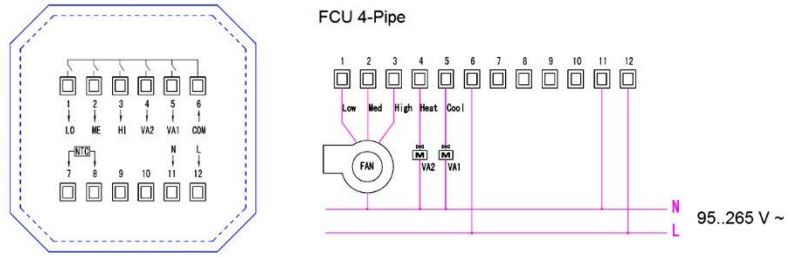


with external sensor:

FCU 2-Pipe

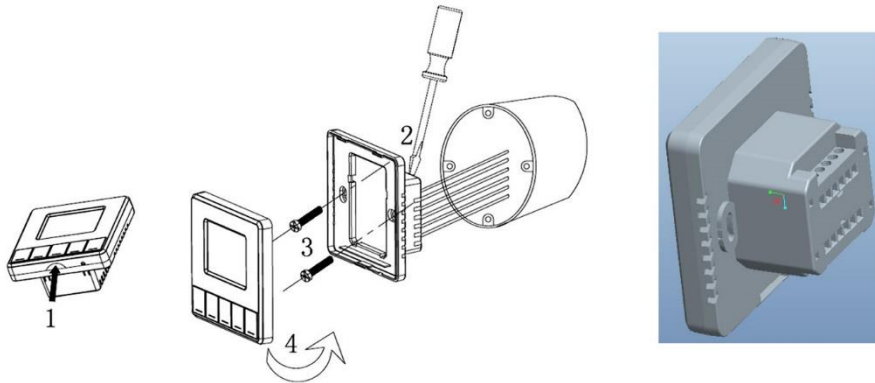


Wiring diagram for 4-pipe fan coil



Installation

For Installing or repairing, please make sure the power is disconnected.

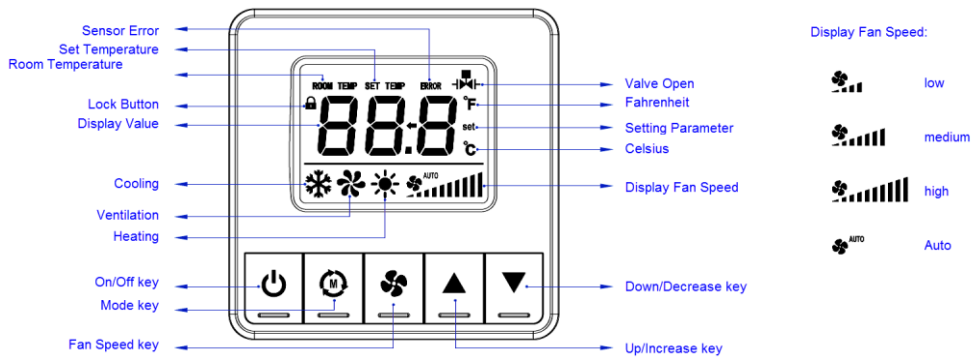


Insert the screw driver in the plastic teeth of thermostat. Clockwise rotation of the screwdriver will separate front cover from base plate. Please follow the wiring diagram to connect the wires.

Fix the thermostat base plate to the wall through the four screw holes with distance between axes of 60 mm.

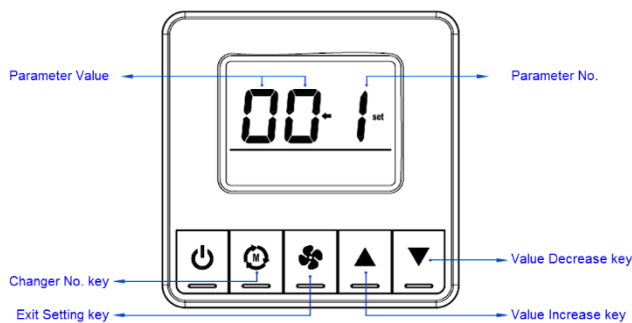
Fasten base plate and front cover. Do not press the panel in order to protect LCD.

Display Panel



Parameter

By pressing the MODE Button for more than 3 seconds, the parameter interface will appear.



No.	Name of parameter	Parameter definition	Default
1	Temp. correction	Range $\pm 10$ °C	0
2	Key-lock	0 – unlocked    1 - lock on/off    2 - lock Mode 3 - lock fan speed    4 - lock temp setting    5 - lock all the keystrokes	0
3	not used		
4	Temp. upper limit	Range: +1..+50 °C	30 °C
5	Temp. lower limit	Range: +1..+50 °C	16 °C
6	LCD backlight	0 - without backlight    1 - with backlight	1
7	Fan chain setting	0 – Independent    1 - Dependent	0
8	Fan coil selective	2 – 2-pipe system    4 – 4-pipe system	2

All parameters are stored within an EEPROM ensuring no data loss if the Thermostat is powered off.

### Commissioning

Pressing the “▲” and “▼” key at the same time for more than 3 s, the units °C or °F can be selected. Temperature display range is 0..+50 °C or +32..+99 °F. Factory default is °C.

Select 2-pipe or 4-pipe systems (Parameter 8). In both modes the control sequences Cooling – Ventilating – Heating can be selected.

Using Parameter No.1. the temperature offset can be adjusted. This feature should be used if the temperature at the mounting place of the Room Thermostat is not accurate to the average room temperature.

Key lock selection (Parameter 2), LCD backlight (Parameter 6) and set point ranges (Parameter 4 and 5) can be set by parameters. Under Fan operation “INDEPENDENT” (parameter 7) the fan will always run according the selected or automatic selected fan stage; under Fan operation “DEPENDENT” the fan will be tuned off in case the valve is closed. If the valve is open, the fan will run according the selected or automatic selected fan stage.

### Handling

By pressing “▲” or “▼” button the room temperature set point can be adjusted between +16..+30 °C (+60..+86 °F). See also parameter 4/5.

If an external temperature sensor is used in 2-pipe system to measure the temperature in the pipes, no change of mode is possible via MODE button. The system recognizes automatically, whether current mode is cooling or heating. When temperature is  $\leq 19$  °C cooling is active, when the temperature is  $\geq 30$  °C heating is active. The other mode is not available. A time delay between cooling/heating mode changes is implemented to ensure safe operation and ensures eco-friendly operation.

If no external sensor is used, the functions (heating-ventilation-cooling) can be selected using MODE button. In heating mode the valve will be opened, if temperature is below set point, in cooling mode it will be opened, if the temperature is above set point.

When using a 4-pipe system no sensor is necessary. Both functions (heating and cooling) are available. The function can be selected via MODE button.

Cooling or Heating mode fan stage options:

Low -> Med -> Hi -> Auto

Ventilation mode fan stage options:

Low -> Med -> Hi

If the NTC room temperature sensor is out of range, thermostat will switch off the fan and close the valve, fault code “E01” will be shown.

### Dimensions (mm)

