



ThermoB.FC222V, output 0-10V, with WiFi

ELECTRONIC ROOM THERMOSTAT

for controlling AHU KIT / VRF systems

SETUP GUIDE

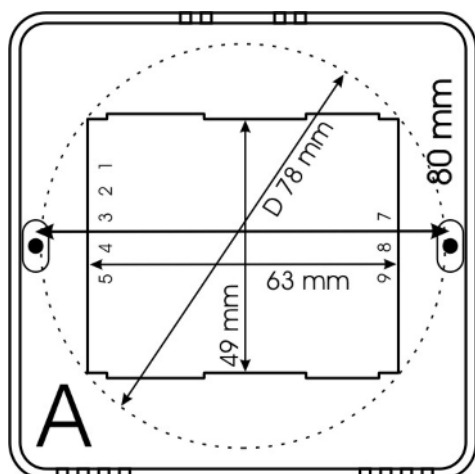
System type		Outputs			Sensors		Sensor NTC.2	Zones
		1 R1	2 R2	AHU demand 0-10V	Built-in	Exported NTC.2		
1	AHU 0-10V	Start/Stop	Heating/ Cooling	Stepless,PI	yes	yes	Alarm Defros Output T	1 / 2

Tables 1

Features:

FC.222V-C210	
LCD display with 4 buttons	2 commands, 0-10V, 1 or 2 zones
Built-in room temperature sensor	Additional temperature sensor NTC.2
Power supply 170-230V / AC / 50Hz (SELV)	Consumption <2VA
Relay outputs 2, with potential 230V, ≤4A	AHU set point output - 1 x 0-10V, RL ≥ 5k
Overall dimensions	
on the front panel 90 x 90 x 17mm	of the built-in part 62 x 51 x 23.5 mm
Degree of protection IP20	Working conditions, -5T45, RH80%
Measured temperature -10° .. +45° / 0.5°C	Set temperature range +15°C .. +45°C / 0.5°C
Panel or socket mounting D80	fastening 80mm ±1 or 60mm ±3
Transport and storage -20T60, RH90%	Internet and WiFi management
Two types of user interface Basic and Advanced: - Basic – simplified operation with 1 set temperature, on/off and heating/ventilation/cooling mode - Advanced – with up to 2 set temperatures, weekly schedule, on/off, heating/ventilation/cooling mode	
AHU set point control - by PI with selectable P and I Global start/stop	

INSTALLATION:



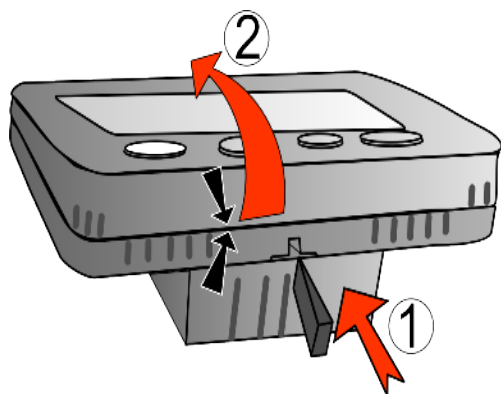
The device is suitable for panel mounting.
And for wall mounting of D80mm.

The joining dimensions are given
on sketch 1

Use fasteners with a diameter of
stem up to 3.5mm
The orientation for fastening and installation, correct
view, is marked with "A"

sketch 1

To access the mounting holes, you need to open the device by separating the front panel from its rear.

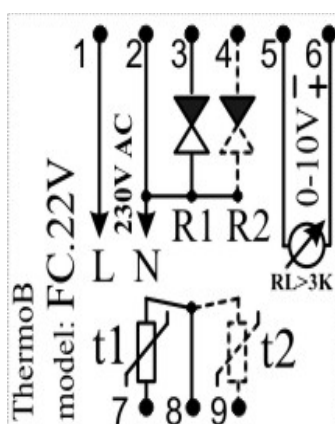


- Press lightly with the tip of the flat screwdriver in the indicated slot and direction (1) of underside of the front panel, sketch 2
 - Simultaneously separate upper side on the panel in the indicated direction (2).
 - The two parts are connected by cable, at necessity, take out the terminal from to the front side
- sketch 2**

Reassemble in reverse by first pressing the two parts together at their top sides, then pressing from the bottom until the two parts lock together. Don't forget to reattach the terminal!

CONNECTION:

Electrical connection – see diagram 1



	Terminal				
	1	2	3	4	5
Conventional	N	L	R1 Start/Stop	R2 Heating/ Cooling	0-10V AHU power
Contact R1- closed	Start				
Contact R2- open	Cooling				
Contact R2- closed	Heating				
Defrost AHU	Open circuit of NTC2 (t1)				
Alarm	Input NTC2 (t1) shorted				

scheme 1

- power supply 230V/AC/50Hz - sensor NTC.2 – terminals 7 and 8

*wire cross-section 0.5 - 1.5mm²

* connect the other valve terminals together to the neutral "N"

Parameters

Number	Description	step	Fabr. st-t
PR.01.	<i>Hysteresis [0.5°C~3.0°C], not used</i>	0.5°	0.5°
PR.02.	Frost protection. At T.Room < PR02 and heating mode starts operation to maintain PR02 when set to "--" the function is not active [-9°C~12.0°C]	1°	3°
PR.03.	Selecting functionality and selecting "Heating" / "Cooling" =1: Advanced, "Heating" - Work on temperatures T.COMF, AUTO =2: Advanced, "Cooling" - Work on temperatures T.COMF, AUTO =3: Basic, "Heating" - Work only on T.COMF =4: Basic, "Cooling" - Work only on T.COMF	1	3
PR.04.	Pause "AHU set point" when changing heating/cooling [10~240sec]	1 sec	120 seconds
PR.05.	<i>Time zone [-12~+14] every 1 hour, not used</i>	1 hour	2
PR.06.	Temperature correction [-5°~+5°C]	0.5°	0°
PR.07.	PIN lock, at 0 – no lock;	1	0

	= 1 access to parameters after entering PIN >1 access to parameters with PIN, access to change temperature, mode, time schedule prohibited		
PR.08.	<i>Not used</i>	1 hour	1 hour
PR.09.	Minimum T. set point in cooling [12°~40°]	0.5°	15°
PR.10.	Maximum T. set point in cooling [12°~40°]	0.5°	15°
PR.11.	Minimum T. set point in heating [12°~40°]	0.5°	35°
PR.12.	Maximum T. set point in heating [12°~40°]	0.5°	35°
PR.13.	Scheme selection, fixed =18	1	18
PR.14.	Using the external sensor "Input Sensor 2/ NTC.2"	1	0
= 0:- only the built-in sensor works. NTC.2 is used for Alarm/Defrost = 1-99: Measured temperature is an intermediate value between the built-in sensor and the NTC2 sensor according to the formula:		Measured temperature= $\frac{NTC2 \cdot PR.14 + \text{Built-in} \cdot (100 - PR.14)}{100}$ t.Room=----- = 100: Sensor NTC.2 replaces NTC.1	
PR.15-17	<i>Not used</i>	1°C	45°
PR.17.	Proportional coefficient "P", adds % to every 0.5° difference [1.6%~ 32%]	1.6%	10%
PR.18.	Integration period, coefficient for "I", adds 1.6% to each 0.5° difference [20 seconds~ 600sec]	10 seconds	60
PR.19.	Visualization of measured temperature from the sensor NTC.2		
PR.20.	<i>Automatic temperature setting T.ECON according to T.COMF</i> <i>-at 0: freely selectable</i> <i>-at 0.5~ 5 : fixed to T.COMF</i> <i>*in "Heating" T.ECON = T.COMF – [PR20]</i> <i>*in "Cooling" T.ECON = T.COMF + [PR20]</i>	0.5°	0°
PR.21.	Not used	0.5°	0°
PR.22.	Manually setting the output "AHU Power"[0%~100%] at 0 – automatically by PI, step 1.6%	1%	0%
PR.23.	Limiting the maximum AHU power value[20%~100%], step 1.6%	1%	100%
PR.24.	Fan hold (command "Start") during cooling, for dehumidification. (if AHU has been running). The value is every 10 sec (12=> 120 sec) [0~60 x10 sec]	10 seconds	12
PR.25.	Manual/automatic activation of outputs = 0 : Automatic = 1 : R1 – off R2 – off = 2 : R1 – on R2 – off = 3 : R1 – off R2 – on = 4 : R1 – on R2 – on	1	0
PR.26.-	Not used	1-247	1
PR.27.	Not used	0-11	2
PR.24.	System type and version	C2.10	-
PR.29.	Filter washing time [0~999h] every 4 hours	4 hours	300

MODE CHANGE: HEATING / COOLING / VENTILATION

[M] – press once - changes the mode:

"heating" → "ventilation" → cooling → "ventilation" →

ON / OFF

[ON/OFF] – single press

LOCK / UNLOCK

[ON/OFF] + [▲]	button lock
[ON/OFF] + [▼]hold for 10 seconds	unlocks the buttons

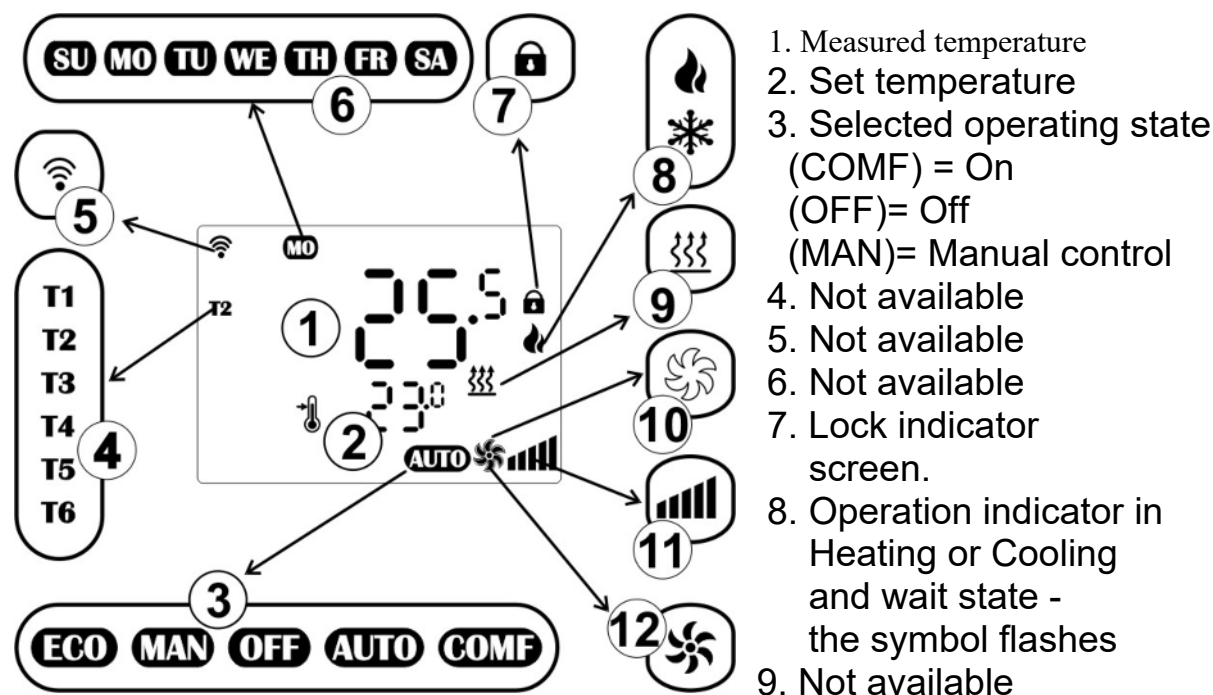
VISUALIZATION

Fountain	dirty filter (set operating hours have elapsed)
AL	Alarm
dEF	Defrost

INFO MENU:

Enter: [M] – hold 5 sec, [▲/▼]- menu movement, exit [M]

t1	temperature built-in sensor	dEU%	AHU setpoint in %
t2	temperature sensor NTC2	HR	Remaining hours filter



Sketch 4

10/12. Ventilation operation:

- the "fan" icon is just a contour (10) - ventilation is not working
- the "fan" icon is solid (12) – ventilation is working

11. Degree of operation of AHU

Notes: