

FMH-220

Fan-Coil Super 3

Owner's Manual - Installation
and Operating Instructions



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Please read this manual carefully before installation and use.

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1. Introduction

The ***FMH-220-FAN-COIL-SUPER 3*** is an attractive and fully functional thermostat that will provide years of dependable and comfortable control of your home's heating and air conditioning system.

It is the best Flush mount, Fan-Coil thermostat solution, All In One™ that fits all fan coil applications.

2. Options and Accessories

- External or internal sensor (Meitav-tec type).
- Hand held remote control (RT-03)
- Manual cool/heat or Auto-change (dead band)
- Manual = 1 valve = one output for cool and heat.
- Auto-change = 2 valve = 2 outputs (one cool/one heat)
- Display for ambient temp. YES or NOT.
- Set point limits with password
- Option NO VALVES - thermostat work ONLY on the fan.



For details on where to purchase accessories, please contact Meitav-tec for you're nearest location or visit our web site at **www.meitavtec.com**

3. Installation Instructions



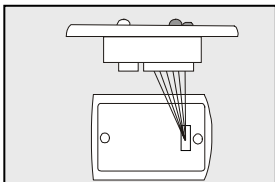
It is very important to find the right place to install the Flush Mount unit.

Please make sure to follow all the installation instructions in order to get an accurate reading of the temperature.

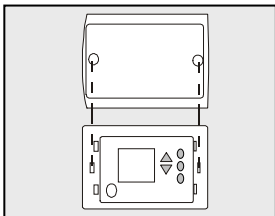
General points to follow:

- The unit **MUST** be fitted into a standard electrical box (Gewiss Box - GW00001481VR)
- The unit should not be installed on an outside wall or where there is an air draft.
- The unit must not be exposed to a direct sunlight.
- The standard height to install this unit is 1.5 meter from the floor (5 feet).

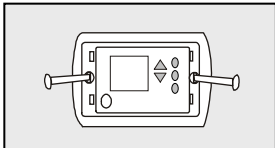
Installation procedure:



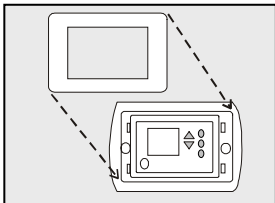
Connect the wires (see wiring connections #4)



Put the thermostat in the electrical box.



Tighten up the 2 screws.



Adapt the front frame-panel into its place,
by pushing it towards the wall.

4. Wiring Connections

4-pipe system – 2 valves

Switch	Function	Switch	Function
L	230 VAC	RE	Cool Valve
N	230 VAC	HE (H1)	Heat Valve
1	Fan High	T2	Bimetal Sensor
2	Fan Medium	T1	External Sensor
3	Fan Low	0	Common for External Sensor and/or Auto-Change Over Sensor / Contact input


2-pipe system – 1 valves

Switch	Function	Switch	Function
L	230 VAC	RE	Valve for Cool and Heat
N	230 VAC	HE (H1)	Valve for Cool and Heat
1	Fan High	T2	Auto-Change Over Sensor / Contact Input (option)
2	Fan Medium	T1	External Sensor
3	Fan Low	0	Common for External Sensor and/or Auto-Change Over Sensor / Contact input

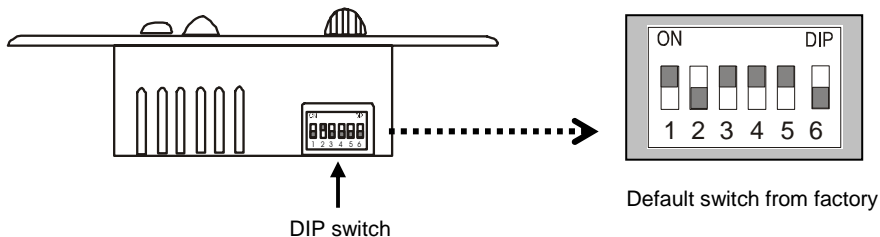
Fan coil – no valves

Switch	Function	Switch	Function
L	230 VAC	RE	Not in use
N	230 VAC	HE (H1)	Not in use
1	Fan High	T2	Auto-Change Over Sensor
2	Fan Medium	T1	External Sensor
3	Fan Low	0	Common for External Sensor and/or Auto-Change Over Sensor / Contact input

5. DIP Switch Explanations

 **IMPORTANT!** Before making any changes in the DIP switch disconnect electricity in the main board.

The red DIP switch with 6 switches is situated as shown in the drawing below:



5.1 DIP switch Operation

- The DIP switch has 6 pins.
- Each pin can be ON or OFF. In the picture, pins 1,3,4,5-ON and pins 2,6-OFF

5.2 DIP switch options

- Switch 1 - Auto-Change Over Sensor or Contact Input
- Switches 2,3 – Internal/External sensor.
- Switch 4 – Manual cool/heat or auto change over.
- Switch 5 - Display ambient/set temperature or set temperature only.
- Switch 6 - Thermostat work ONLY on the fan (for no valve application) or normal.

5.3 DIP switch selection

Switch	Function	ON	OFF	Default
1	Auto-Change Over Sensor	X		ON
	Contact Input		X	
2	Internal Sensor Control		X	OFF
	External sensor control	X		
3	Internal Sensor Control	X		ON
	External sensor control		X	
4	With auto change over mode	X		ON
	Without auto change over mode		X	
5	Display - user can switch between Tamb and Tset using the mode button	X		ON
	Display - Tset only		X	
6	Auto fan or selectable fan		X	OFF
	Auto fan only	X		

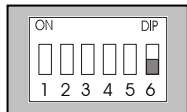
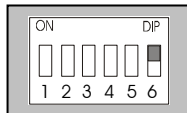
5.4 Configuration for NO VALVES application- thermostat work ONLY on the fan or normal.

In order to set the thermostat to work ONLY on the fan (fan will work or not depending on demand for heating or cooling) move switch 6 to ON position.

For applications with 2 & 4 pipes move Switch 6 to OFF position (default from factory). Fan ON or AUTO FAN selected by button.
See operating manual #6



When switch 6 in ON position (no valves) the display will not show fan mode.



5.5 External sensor connection - option



Important - the external sensor must be Meitav-tec type

N.T.C. Sensor; Temperature ~ Resistance Characteristics

Temp °C	7.2	10.0	12.8	15.6	18.3	21.1	23.9	26.7	29.4	32.2
Temp °F	45	50	55	60	65	70	75	80	85	90
Res. k	115.8	100.9	88.1	77.1	67.7	59.6	52.5	46.4	41.2	36.6



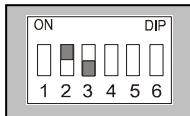
The default from factory is INTERNAL SENSOR.

5.5.1 Disconnect the power to the thermostat (220vac).

5.5.2 Move the DIP switch as shown in the picture.

Switch 2 - ON

Switch 3 - OFF



5.5.3 Connect the temperature sensor to T1-0 terminals.

5.5.4 Reconnect the power (220vac).

5.5.5 Adjust the offset for ambient temperature to "0" (see technician settings).

5.5.6 Make sure that the reading on the display is by the external sensor.



The length of the cable for the external sensor is 100 feet (30 meters) with standard cable. If longer distance is needed then the cable **MUST** be shielded.



There is a wide range of sensors for different applications, duct, rooms, etc.

There is also an option for averaging the temperature. For details please contact our technical line or visit our web site, see details at the end of this manual.

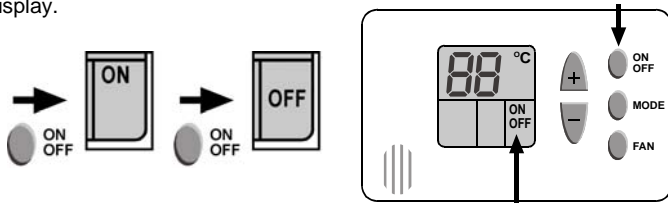


The external sensor can be connected in ALL the applications,
The remaining the pins, have to be as per the selection.

6. Operating Manual

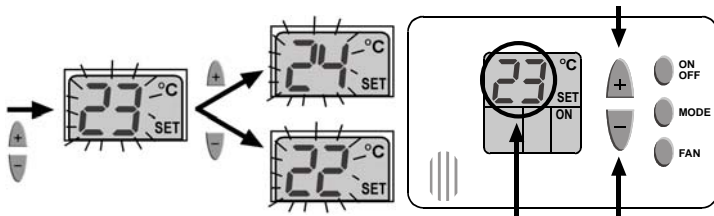
6.1 Switching the thermostat On/OFF

1. Press the **ON/OFF** button to activate or deactivate the thermostat.
2. ON or OFF will appear on display.



6.2 Setting the temperature

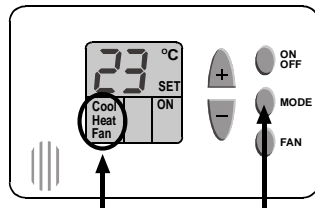
1. Press the (+) or (-) – the temperature will flash.
2. Change the set temperature using the
3. (+) or (-) buttons.




6.3 Selecting modes

1. Press the **MODE** button to switch between:

- Cool
- Heat
- Cool/Heat (auto change)
- Fan only

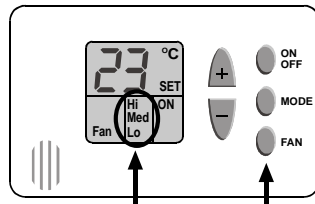


6.4 Selecting Fan Speeds

 **Changing Fan Speeds can be done only in Fan Mode (see #6.3)**


1. Press the **FAN** button to switch between:

- High Speed
- Medium Speed
- Low Speed
- Auto Speed (Fan speed will change according to the difference between the ambient temperature and the set temperature).

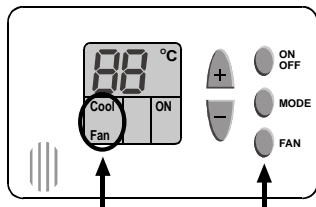
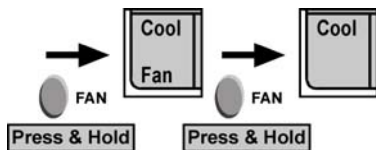


6.5 FAN/AUTO FAN function (not for NO VALVES applications)


1. Press and hold the **FAN** button, Fan will appear (FAN ON).
2. Press and hold the **FAN** button, Fan will disappear (AUTO FAN).

 In **AUTO FAN** the fan will only run when calling for heat or cool.

 When **FAN ONLY** mode is selected this function is not in use.



6.6 Setting the timer

 The timer switches the thermostat to the opposite mode. If the thermostat is **ON**, the timer will switch it **OFF**. If the thermostat is **OFF**, the timer will switch it **ON**.

1. Press and hold (4 seconds) the **ON/OFF** button.
2. The hours and "SET" will appear on display.
3. Adjust the timer (in hours) using the "+" and "-" buttons (Hours until timer is activated).
4. Press the **MODE** button to exit the setting mode.

 When the timer is set, **ON** or **OFF** will flash on display.

 In order to cancel the timer, follow the steps above and set the hours to "00".

 In case of an electrical blackout, the timer will not function as set (hours="00") and the temperature digits will flash.

7. RT03 - Hand Held Remote Control - Non-Program - Option

7.1 General

This is an Infrared Remote Control Unit, which means it must be pointed at the thermostat (or extra receiver) to operate.

Every time you change a parameter in the Remote Control, you must send it to the thermostat by pressing the "ON/SEND" button.

7.2 RT03 - Operating Manual

On/Send, OFF

- Press the **ON/SEND** button to activate the air conditioner and/or updating information.
- Press the **OFF** button to turn the air conditioner off and/or updating information.





Fan

In 1 speed configuration:

- Press the **FAN** button to change between FAN ON (⊗) or AUTO FAN (A).
- Press the **ON/SEND** button to send information to thermostat.



In 3 speeds configuration:

- Press the **FAN** button to change speeds between: Low, Medium, High, Auto Speed.
- Press the **SELECT** button 5 times – swing will flash.
- Switch between Fan On  and Auto Fan  using the **(+)** or **(-)** buttons.
- Press ON/SEND button to send information to thermostat.

Mode:

- Press the **MODE** button to change between: COOL, HEAT, AUTO CHANGE and FAN ONLY.
- Press the **ON/SEND** button to send information to thermostat.



Temperature Set Point:

- Select the desired temperature using the **(+)** or **(-)** buttons.
- Press the **ON/SEND** button to send information to thermostat.



Real Time Clock and Day:

- Press the **SELECT** button - CLOCK SET will flash.
- Press the **(+)** or **(-)** buttons - the hours will flash.
- Adjust the hours using the **(+)** or **(-)** buttons.
- Press the **SELECT** button again – the minutes will flash.
- Adjust the minutes using the **(+)** or **(-)** buttons.
- Press the **SELECT** button again – the weekdays will flash.
- Adjust the day using the **(+)** or **(-)** buttons.
- Press the **SELECT** button again to return to normal display mode.
- Press the **ON/SEND** button to send information to the thermostat.



Timer:



IMPORTANT: If no button is pressed for 10 seconds the display will return to normal mode.

Start Time:

- Press the **SELECT** button twice.
- PROGRAM & START (flashing) will appear on display.
- Press the **SELECT** button - the hours will flash.
- Adjust the hours using the **(+)** or **(-)** buttons.



- Press the **SELECT** button - the minutes will flash.
- Adjust the minutes using the **(+)** or **(-)** buttons.



Stop Time:

- Press the **SELECT** button.
- PROGRAM & STOP (flashing) will appear on display.



- Press the **SELECT** button - the hours will flash.
- Adjust the hours using the **(+)** or **(-)** buttons.



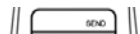
- Press the **SELECT** button - the minutes will flash.
- Adjust the minutes using the **(+)** or **(-)** buttons.



- Press the **SELECT** button - the TIMER will blink
- Using the **(+)** or **(-)** buttons, Select TIMER ON or OFF.



- If you changed between TIMER ON or OFF, SEND will blink.



- Press the **ON/SEND** button to send the information to the thermostat.

- **If you did not change** between TIMER ON or OFF, press the **SELECT** button to return to normal display mode.



8. Technician Settings

Technician can have access to the following features:

- High temperature limit (8.2)
- Low temperature limit (8.3)
- Lock buttons (8.4)
- Offset for calibration of ambient temperature (8.5)
- Auto change over sensor or contact input selection (8.6)
- Economy mode set-points (8.7)

8.1 Set temperature to 10°C.

8.2 Press and hold the **MODE** button (7 sec.) until the display flashes.

Using the **(+)** or **(-)** buttons adjust the High temperature limit (HEAT) (range 10-30°C).

8.3 Press the **MODE** button again.

Using the **(+)** or **(-)** buttons adjust the Low temperature limit (COOL) (range 10-30°C).

8.4 Press the **MODE** button again and choose the state of security:

OP = OPEN (enable all buttons).

LO (aux) = Lock buttons except set buttons, aux will appear in display.

Remark: every 20 seconds the system will pass from one position to other without pressing the **MODE** button.

8.5 Press the **MODE** button again – a digit between –6 and +6 will appear on display

Using the (+) or (-) buttons adjust the **OFFSET** for temperature reading.

8.6 Press the **MODE** button again and choose between activating the Input (T2-0)- (option for Auto-Change Over Sensor or Contact Input), or not.

bF = Input (T2-0) is **not active**- thermostat works normally

bO = Auto-Change Over sensor logic (available for 2-pipe system only) or Contact Input logic.

Follow steps below to configure the output application:

Auto-Change Over Sensor (Cool/Heat Logic)

When Auto-Change Over sensor is selected, the system mode (Cool/Heat) is automatically selected according to the temperature. The **MODE** button is not active.

- Move DIP switch S1.1 to “**ON**” position
- Press the **MODE** button and select the “**EF**” option.



Contact input (remote switch)

The Contact Input can be set to work in three different modes:

- Move DIP switch S1.1 to “**OFF**” position
- Press the **MODE** button and select one of the following options:



EF = Mode selection (via the remote switch)

Change the system mode through one remote switch, attached to one or more thermostats. It is suitable for hotel rooms and offices, when the system mode cannot be defined differently for each thermostat.

- Remote switch close - HEAT
- Remote switch open – COOL

E1 = Turn system On/Off (via the remote switch)

- Remote switch close – Thermostat work normally (ON)
- Remote switch open – Thermostat OFF and “EC” appears on the display.

E2 = Activate Economy mode (via the remote switch)

- Remote switch close – Thermostat work normally (ON)
- Remote switch open – Thermostat works according to economy set-points (see 8.7).
 - Thermostat in cool mode → economy set-point for cooling.
 - Thermostat in heat mode → economy set-point for heating.

8.7 Press the **MODE** button again – “AUX” and “Cool” will appear on the display.

Using the **(+)** or **(-)** buttons adjust the temperature set-point for cooling in economy mode.

Press the **MODE** button again – “AUX” and “Heat” will appear on the display.

Using the **(+)** or **(-)** buttons adjust the temperature set-point for heating in economy mode.

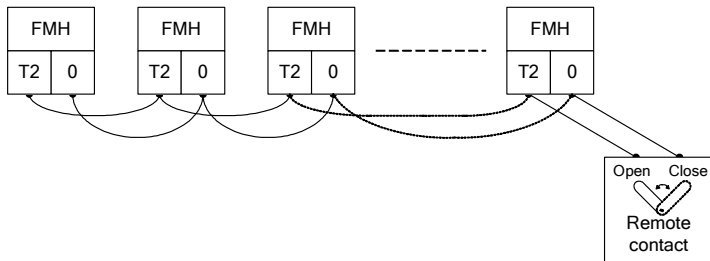
8.8 Press the **MODE** button to return to normal display.

9. Connection of Remote Switch

Installation of remote switch:

Connect the T2 and the "0" terminals of the thermostats as shown in the illustration below.

Connect the T2 and "0" terminals of the last thermostat to the remote switch.



10. Troubleshooting for Technician

Problem: The display is blank.

Solution: The unit is not getting 220 Vac.

Check the wiring connections, Rh (Phase for heat), Rc(Phase for cool), C(common).

If you are using one phase for cool and heat, check that Rc, Rh are shorted and common is tight.

Problem: In heat mode, unit sends cool air.

Solution: The Auto Fan is not ON.

Problem: Ambient temperature with external sensor is not accurate.

Solution: Adjust Offset to 0°C (see 8.5).



Meitav-tec Ltd offers a WIDE range of products for the HVAC industry

These include:

- Flush Mount Thermostats - Programmable and Non-Programmable.
- HVAC Analyzer that can measure BTU's, for technicians.
- Tamper proof thermostats that can be operated ONLY with the remote control, for public places.
- Thermostat with phone communication; listen to your thermostat from ANYWHERE and change settings

To obtain more information or technical support:

E-mail: support@meitavtec.com Web site: www.meitavtec.com

Your suggestions or comments regarding these units would be appreciated.

At our web site, you can find technical details regarding the units, as well as operating manuals, electrical drawings, etc.

The company reserves the right to change the specifications any time without prior notice.