

ETN24-P/PD-FC-SUPER2

Owner's Manual - Installation and Operating Instructions

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Meitav-tec Ltd (Contel group)

Tel: +972-3-9626462 Fax: +972-3-9626620

www.meitavtec.com - support@meitavtec.com



Please read this manual carefully before installation and use.

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1. Introduction

The **ETN24-P/PD-FC-SUPER2** is designed for heating and cooling systems.

It offers 0-10VDC proportional output for the valves.

There are 2 possible configurations, P and PD (DIP switch selectable).

In **PD** configuration, there is only 1 output for both Cool and Heat (0-10VDC, ideal for 2-pipe systems).

In **P** configuration, there are 2 separate outputs, 1 for Cool and 1 for Heat (0-10VDC, ideal for 4-pipe systems).

2. Options and Accessories

Remote sensor option

- TS01: Temperature Sensor with 0.8 meter cable.
- RS01: Remote temperature Sensor Wall mount into decorative box.
- RS02: Average temperature Sensor Wall mount into decorative box (2 required)
- RT03: Hand held remote control

 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

Installation

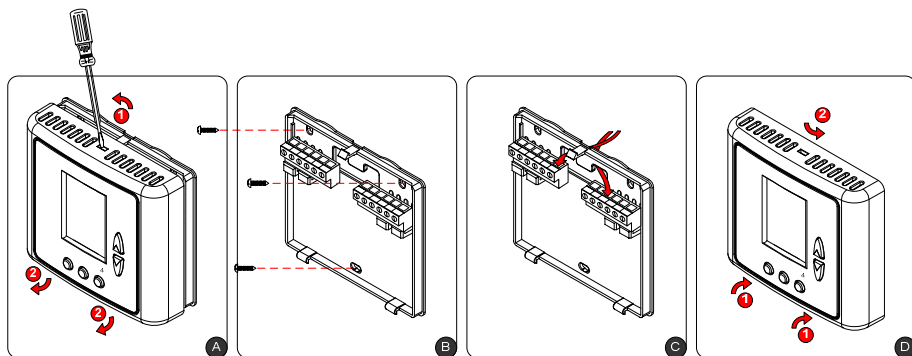
The ETN24-P-PD-FC-SUPER2 is designed for wall mounting in the room to be controlled. It should be located where the occupant can easily read the LCD display and use the controls. If the built in temperature sensor is being used to measure room temperature, the module should be placed where the temperature is representative of the general room conditions. Cold or warm air draughts; radiant heat and direct sunlight should be avoided.

General points to follow

- Disconnect power to the main board before installing the unit.
- 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 (5 feet) from the floor.

Installation procedure:

- A. Separate the front panel from back panel by pressing the tongue located in the top of the unit and pull the back panel out.
- B. Line the back panel up against the wall or flat surface. Install three screws as required.
- C. Make electrical connections as shown on enclosed electrical wiring diagram.
- D. Install the cover to the back panel; first the two tabs on the bottom and then the top tongue. Push until tight against the wall.



4. Wiring Connections

O | Proportional output
for Heat (0-10V)
 W |
 O | Proportional output
for Cool (0-10V)
 Y |
 T | External sensor
(option)
 To |

T2 | Auto change-over
Sensor (option)
 O |
 G1 | Not in use
 G2 | Not in use
 G3 | Fan
 C | 24VAC
 R |

P-1S Config.

O | Proportional output
for Heat (0-10V)
 W |
 O | Proportional output
for Cool (0-10V)
 Y |
 T | External sensor
(option)
 To |

T2 | Auto change-over
Sensor (option)
 O |
 G1 | Fan Low
 G2 | Not in use
 G3 | Fan High
 C | 24VAC
 R |

P-2S Config.

O | Proportional output
for Heat (0-10V)
 W |
 O | Proportional output
for Cool (0-10V)
 Y |
 T | External sensor (option)
 To |

T2 | Auto change-over
Sensor (option)
 O |
 G1 | Fan Low
 G2 | Fan Medium
 G3 | Fan High
 C | 24VAC
 R |

P-3S Config.

O | Not in use
 W |
 O | Proportional output
for Cool & Heat (0-10V)
 Y |
 T | External sensor
(option)
 To |

T2 | Auto change-over
Sensor (option)
 O |
 G1 | Not in use
 G2 | Not in use
 G3 | Fan
 C | 24VAC
 R |

PD-1S Config.

O | Not in use
 W |
 O | Proportional output
for Cool & Heat (0-10V)
 Y |
 T | External sensor
(option)
 To |

T2 | Auto change-over
Sensor (option)
 O |
 G1 | Fan Low
 G2 | Not in use
 G3 | Fan High
 C | 24VAC
 R |

PD-2S Config.

O | Not in use
 W |
 O | Proportional output
for Cool & Heat (0-10V)
 Y |
 T | External sensor
(option)
 To |

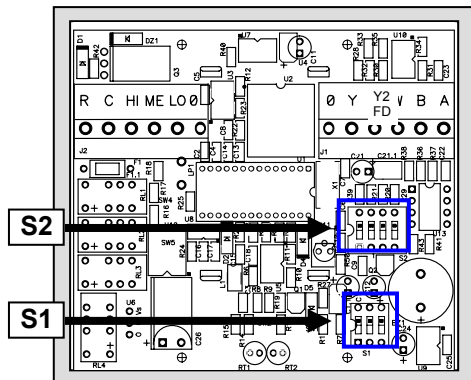
T2 | Auto change-over
Sensor (option)
 O |
 G1 | Fan Low
 G2 | Fan Medium
 G3 | Fan High
 C | 24VAC
 R |

PD-3S Config.

5. DIP switch Configuration

The DIP switches are located at the bottom right of the board as shown in the drawing.

Switch no.	Temperature sensor	
	Internal sensor	External sensor
S1.1	ON ¹	OFF
S1.2	OFF ¹	ON
S1.3	ON ¹	OFF



Switch no.	Fan speeds			Temperature scale		P/PD	
	1 speed	2 speeds	3 speeds	Fahrenheit	Celsius	PD (2-Pipe)	P (4-Pipe)
S2.1	OFF	ON	ON ¹	x	x	x	x
S2.2	OFF	OFF	ON ¹	x	x	x	x
S2.3	x	x		OFF	ON ¹	x	x
S2.4	x	x		x	x	OFF	ON ¹

#¹ – Default

x – Not applicable

6. External Sensor Connection

N.TC. 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

- Disconnect power to the thermostat 24VAC.
- Connect the External Sensor to terminals T - T0.
- Reconnect power to the thermostat.

The length of the cable for the external sensor is 30 meters with standard cable.

If longer distance is needed then the cable MUST be shielded.

7. Change-over Sensor Connection (For PD configuration only)

- Disconnect power to the thermostat 24VAC.
- Connect the change-over Sensor to terminals T2 - 0.
- Reconnect power to the thermostat.

When the change-over sensor is connected, the [Mode] button will not be active the and the thermostat will automatically switch between different modes according to the temperature.

Cool Mode	T2 < 20°C (68°F)
Heat Mode	T2 > 30°C (86°F)

8. Technician Settings

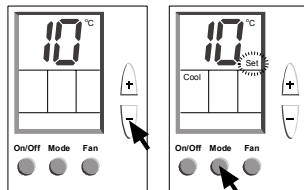
Set temperature limits for cool and heat, differential for proportional output, proportional output range 0-10VDC or 2-10VDC and offset for temperature readings.



Note: If no key is pressed for 5 seconds – the thermostat will automatically return to normal display mode.

Enter settings

- Set temperature to 10°C (50°F).
- Press and hold the [Mode] button (15 seconds) to enter settings – “Cool” will appear on display and “SET” will flash.



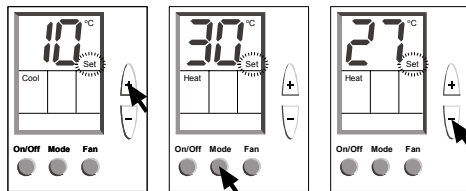
Set temperature limit for cool and heat

- Adjust the temperature limit for cool using the [+] or [-] buttons.

Limit cool range: 10°C-30°C (50°F-86°F), default 10°C (50°F)

- Press the [Mode] button again – “Heat” will appear on display.
- Adjust the temperature limit for heat using the [+] or [-] buttons.

Limit heat range: 10°C-30°C (50°F-86°F), default 30°C (86°F)

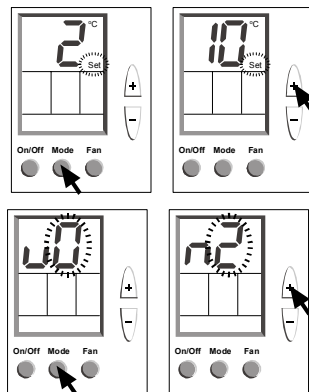


Differential for proportional outputs

The temperature Differential defines the ratio between the opening level of the valve and the temperature demand. The valve will be fully opened when the demand equals the differential (Demand = ambient temp – set temp).

Differential range: 2°C-10°C (4°F-18°F), default 2°C (4°F)

- Press the [Mode] button again – a number will appear on display.
- Adjust the differential using the [+] or [-] buttons.



Proportional outputs range 0-10VDC or 2-10VDC

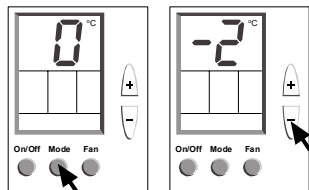
- Press the [Mode] button again – a number will appear on display.
- Using the [+] button, change the scale to 2-10VDC “2” will appear on display.
- Using the [-] button, change the scale to 0-10VDC “0” will appear on display.

Offset

The Offset is used for calibration of the measured temperature when needed.

- Press the [Mode] button again – the offset will appear on display.
- Adjust the Offset using the [+] or [-] buttons.

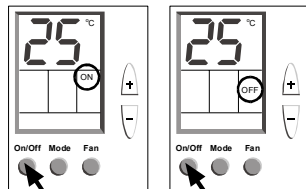
Offset range: [-5°C]-[+5°C] ([-9°F]-[+9°F]), default 0°C (0°F)



9. Operating manual

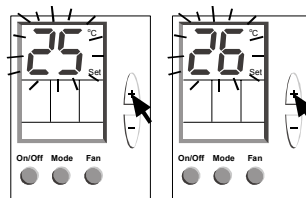
On/Off

- Press the [On/Off] button to activate the thermostat - The word "ON" will appear on display.
- Press and hold the [On/Off] button (3 seconds) to deactivate the thermostat - The word "OFF" will appear on display.



Temperature set-point adjustment

- Press the [+] or [-] buttons - the set-point temperature will flash and "SET" will appear on display.
- Adjust the set-point temperature using the [+] or [-] buttons.



Modes

- Press the [Mode] button to switch between:

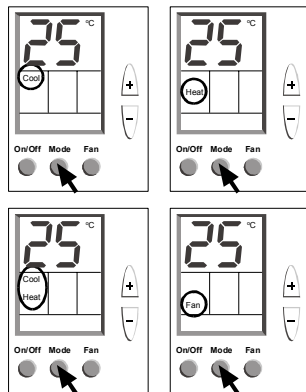
Cool – “Cool” will appear on display.

Heat – “Heat” will appear on display.

Auto Change-over – “Cool” and “Heat” will appear on display
(Available in “P” configuration only – see DIP switch configuration)

In Auto change-over mode the active mode will flash.

Fan Only – “Fan” will appear on display.



Fan Speeds (in 2 or 3 speeds configuration only)

- Press the [Fan] button to switch between:

Low Speed – “Lo” will appear on display.

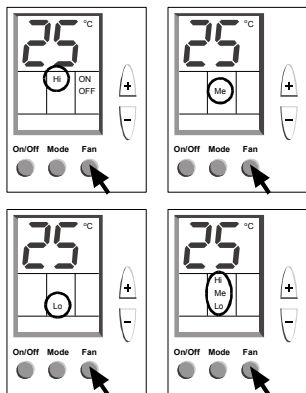
Medium Speed – “Me” will appear on display.

High Speed – “Hi” will appear on display.

Auto Speed – “Hi”, “Me” and “Lo” will appear on display.

In Auto Speed mode the active speed will flash.

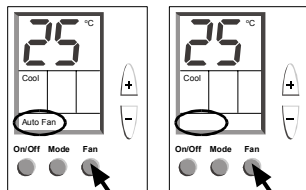
In 2 speeds configuration the medium speed is not available.



Auto Fan

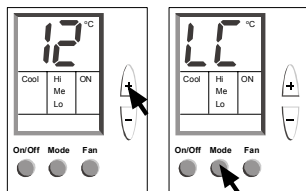
The Auto Fan mode is available in all modes except for Fan Only mode

- Press the [Fan] button to select Auto Fan – “Auto Fan” will appear on display (Press and hold in 2 or 3 speeds configuration).
In Auto Fan mode – the fan will run only during demand for cooling or heating.
- Press the fan button again to cancel the Auto Fan mode (Press and hold in 2 or 3 speeds configuration).



Lock/Unlock

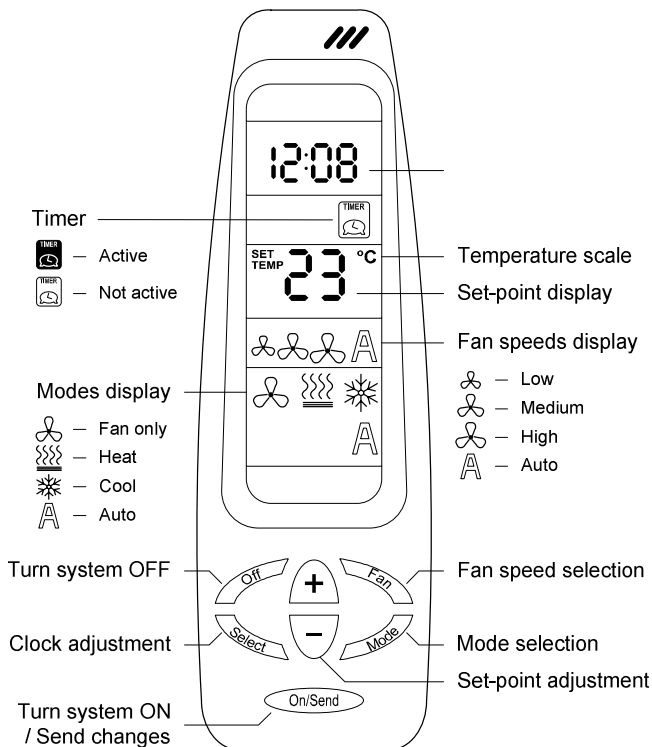
- Set the temperature to anything but 10°C (50°F).
- Press and Hold the [Mode] button (20 seconds) to lock the thermostat's buttons.
- Press and Hold the [Mode] button again to unlock the thermostat's buttons.



When the thermostat is locked, the display will alternate between “LC” and normal display.

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

General



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 to return to normal display.
- Press the [On/Send] button to send information to the thermostat.

Timer

Start Time:

- Press the [Select] button twice – “PROGRAM & START” will flash 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” will flash 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
- Select TIMER ON (black icon) or OFF (white icon) using the [+] or [-] buttons.
- Press the “On/Send” button to send the information to the thermostat.

Batteries Replacement

When the batteries are low, the display of the remote control will dim.

If the batteries will not be replaced the display will turn off completely.

- Pull the batteries cover down to reveal the batteries.
- Remove the old batteries.
- **Wait for 10 minutes before installing the new batteries.**
- Install two new AAA batteries – Pay attention to the polarity.
- Return the batteries cover to place.

Important: The remote control will not operate unless at least 10 minutes pass between removing the old batteries and installing the new ones.