DIGITAL ROOM THERMOSTAT

DT–2005/U

For controlling fan coil units in two-pipe and four-pipe systems

The digital electronic room thermostat **DT-2005/U** is designed to control fan coil units in two-pipe and four-pipe systems. It is powered directly from the 230 V AC mains and controls the fan speeds via three 230 V outputs and the heating and cooling valves via two outputs. The room temperature is measured by the internal sensor or, if required, by an external sensor. The thermostat supports a window switch and day/night mode switching, and is operated with five buttons and an LED display with indication of the mode and fan speed.

230 V
Direct mains power supply

3 + A
Fan speeds and automatic

2 valves
Heating and cooling

0–50°C
Control range

2/4-pipe
Two-pipe and four-pipe systems

BUTTONS AND DISPLAY

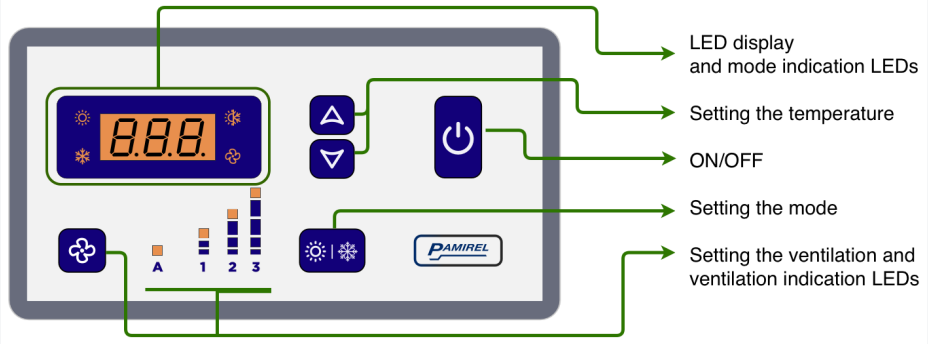

Figure 1: Button layout and functions, and indication LEDs of the thermostat.

KEY FEATURES

Operation

- LED display for temperature and adjustable parameters.
- 5 buttons for easy operation.
- Heating or cooling (two-pipe system) or automatic heating/cooling changeover (four-pipe system).
- 3 fan speeds or automatic speed selection.
- LED indication of mode, valves and fan speed.

Connections

- Power supply 230 V AC / 50 Hz, power consumption approx. 0.5 W.
- 3 outputs 230 V / 2 A for fan speeds.
- 2 outputs 230 V / 0.5 A for heating and cooling valves.
- Inputs for window switch and day/night mode.
- Optional external temperature sensor.

TECHNICAL DATA

PARAMETER	VALUE
Supply voltage	230 V AC / 50 Hz
Power consumption	approx. 0.5 W
Fan outputs	3 × 230 V / 2 A
Valve outputs	2 × 230 V / 0.5 A
Operating temperature	0–50°C
Control range	0–50°C
Front panel dimensions	135×75 mm
Housing depth	22 mm
Display dimensions	10×27 mm

TERMINAL	FUNCTION
N, L	Power supply 230 V AC
1	Minimum fan speed
2	Medium fan speed
3	Maximum fan speed
4	Heating valve
5	Cooling valve
MAG.ST D.O., GND	Window switch
Tset D/N, GND	Day/night mode
Sensor (3 terminals)	Internal or external temperature sensor

WARNINGS

- For correct operation, the thermostat must be installed in a location with minimal temperature influences – draughts, heating, cooling, direct sunlight.
- The electrical connection according to the diagram on the fan coil unit must be carried out by a qualified person.
- The main power supply must be switched off before connecting and before any work inside the thermostat.

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Installation and connection instructions

> **WARNING**
>
> **Switch off the power supply of the fan coil unit before connecting the thermostat!**

MOUNTING LOCATION

Mount the thermostat on a wall 1.5 m above the floor, in a part of the room with as constant a temperature as possible. There must be no draughts or heat sources such as fan coil units, radiators, stoves or windows nearby, as shown in Figure 2.

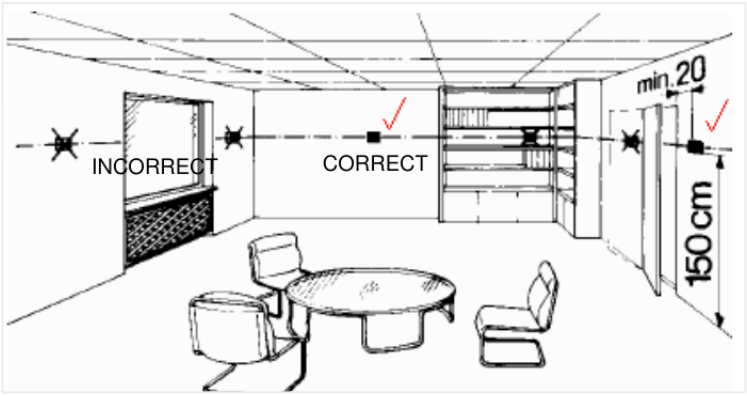

Figure 2: Correct and incorrect mounting locations of the thermostat.

OPENING THE HOUSING AND WALL MOUNTING

1. Remove the 4 screws on the sides of the housing (2 on the left and 2 on the right) and detach the front part of the thermostat from the back part of the housing.
2. Fix the back part of the housing to the wall with screws through the mounting holes provided in it.
3. Connect the wires to the terminals on the front part of the thermostat as described below.
4. Place the front part back onto the back part of the housing, which is now fixed to the wall, and secure it with the 4 screws on the sides (2 on the left and 2 on the right).

The connection to the fan coil unit must be made according to the wiring diagram attached to the fan coil unit.

CONNECTING THE POWER SUPPLY, FAN SPEEDS AND VALVES

The supply voltage (230 V AC) is connected to terminals **L** and **N**. The fan speeds are connected to terminals **1** – minimum speed, **2** – medium speed and **3** – maximum speed. The valves are connected to terminals **4** – heating and **5** – cooling, as shown in Figure 3.



Figure 3: Terminals for power supply (N, L), fan speeds (1, 2, 3) and valves (4, 5).

CONNECTING THE EXTERNAL TEMPERATURE SENSOR

To measure the room temperature with an external sensor, first remove the internal sensor shown in Figure 4. The external sensor is connected to the same terminals, with the wire colours in the following order from the edge of the housing: **brown, white, green**, as shown in Figure 5.

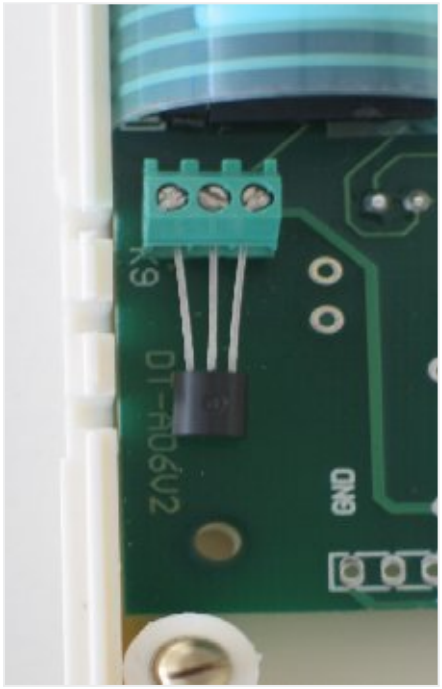

Figure 4: Internal temperature sensor.

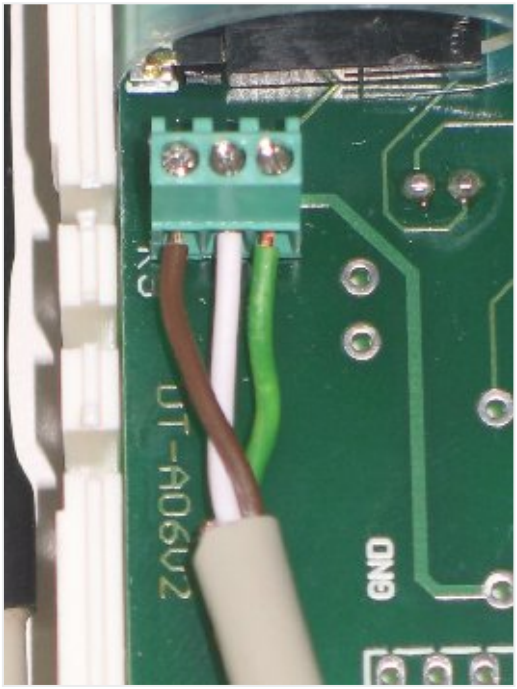

Figure 5: Connecting the external sensor.

CONNECTING THE WINDOW SWITCH AND DAY/NIGHT MODE

The window switch is connected to the mini terminals inside the thermostat marked **MAG.ST D.O.** and terminal **GND**, as shown in Figure 6. The day/night mode input is connected between terminals **Tset D/N** and **GND**, as shown in Figure 7.

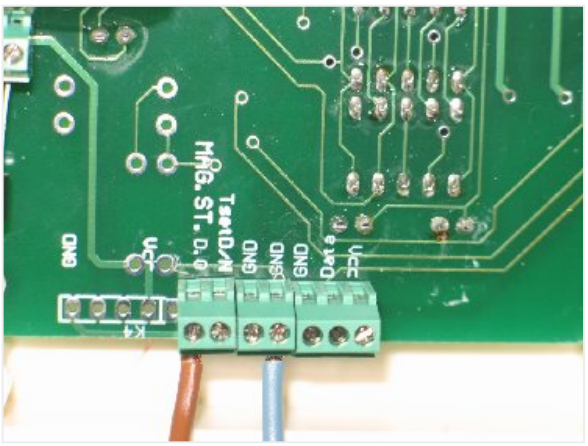

Figure 6: Connecting the window switch.

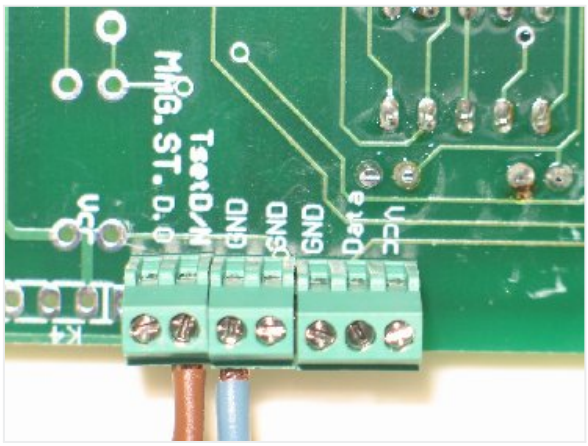

Figure 7: Connecting the day/night mode input.

Operating instructions

OPERATING THE THERMOSTAT

The button layout is shown in Figure 1.

- Use the **up/down** buttons to set the desired room air temperature (from 0 to 50°C); the value flashes on the display while it is being set.
- Use the **ON/OFF** button to switch the fan coil unit on or off. The button is also used to cancel an entered value.
- Use the **fan** button to set the fan speed (1, 2, 3 or automatic – A). The button is also used to confirm entered values.
- Use the **sun/snowflake** button to switch between modes: *heating* – two-pipe system, *cooling* – two-pipe system and *automatic* – four-pipe system.

MEANING OF THE DISPLAY SYMBOLS

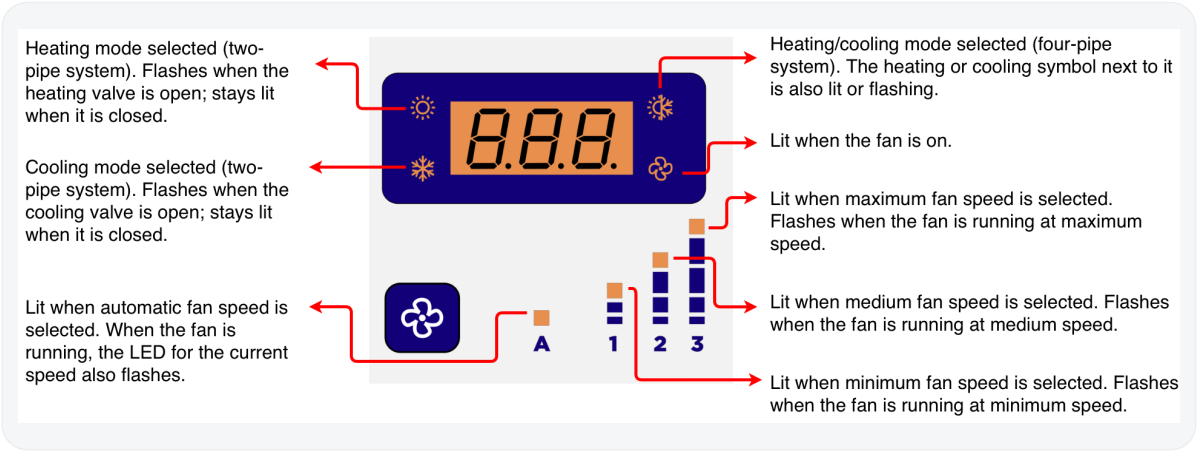

Figure 8: Meaning of the individual symbols and LEDs. The mode is changed with the sun/snowflake button.

HEATING MODE (TWO-PIPE SYSTEM)

The fan coil unit runs when the desired set temperature has not been reached, i.e. when the room temperature is at least ½ of the hysteresis below the set value. In this case the valve is also open, if used. When the room temperature exceeds the desired set temperature, the fan switches off and the valve closes.

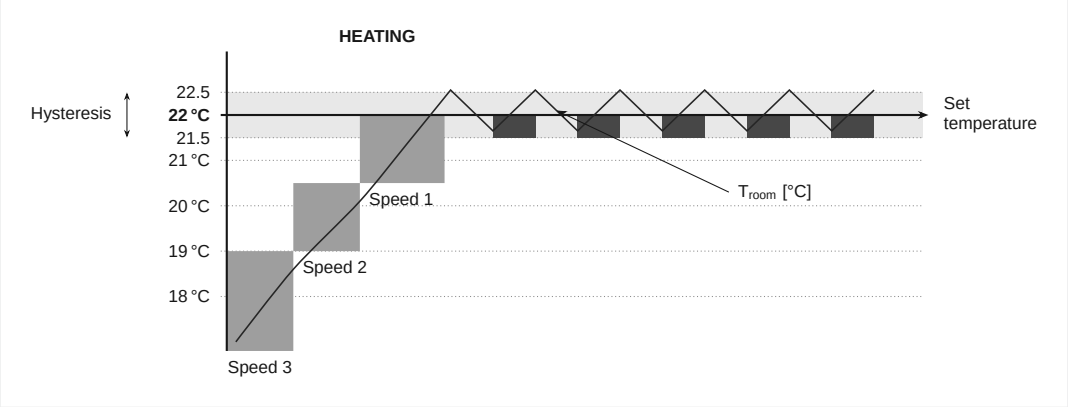

Figure 9: Automatic fan speed switching for heating.

COOLING MODE (TWO-PIPE SYSTEM)

The fan coil unit runs as long as the room temperature is at least ½ of the hysteresis above the desired set temperature; during this time the chilled water valve is also open. When the room temperature reaches the desired set temperature, the valve closes and the fan switches off.

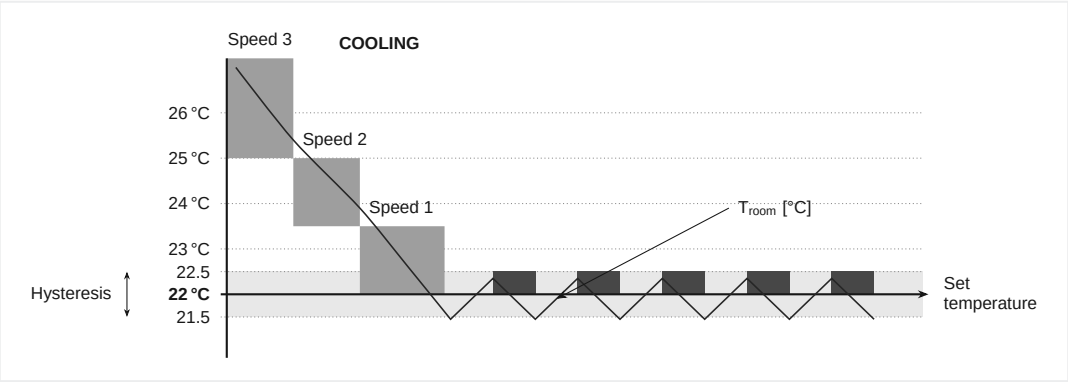

Figure 10: Automatic fan speed switching for cooling.

AUTOMATIC HEATING/COOLING CHANGEOVER (FOUR-PIPE SYSTEM)

Automatic changeover is a combined mode of room temperature control. If the desired set temperature has not been reached, heating is activated; if the room temperature is higher than the desired set temperature, cooling is activated.

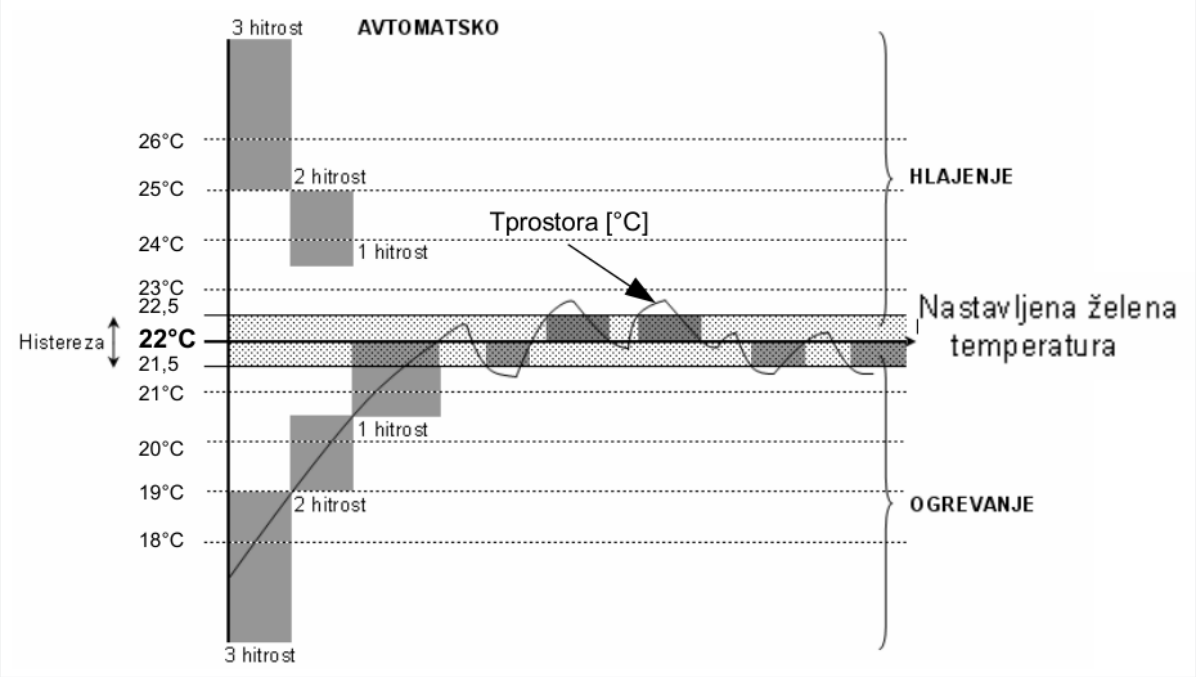

Figure 11: Automatic heating/cooling changeover and fan speed switching.

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