

ST-300 Ascent Programmable Digital Thermostat



Product Overview



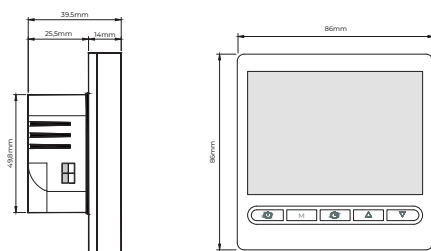
ST-300 is a modern classic styled thermostat with a large clear screen and clearly labelled buttons. The ST-300 can be used as a simple temperature controlling device or a time and temperature controller for improved energy efficiency.

- Positive, ergonomic, yet traditional push buttons
- Slim-lined styling at only 14mm thick
- +/- 1°C accuracy
- Ultra low power consumption of less than 1 Watt
- Child lock to prevent misoperation

Technical Data

Item	ST-300 230v Ascent Programmable Digital Thermostat 16A
Product code	PDT1-0300 -16A PDT1-0324 - 3A
Dimensions	86mm x 86mm x 39.5mm
Mounting type	In wall (35mm minimum)
Colour	White
Voltage	230V AC 50Hz
Power consumption	< 1W
Max load current	16A suitable for hydronic or electric
Max load	3680w
Protection rating	IP20
Probe sensor	NTC 10k, 1%
Working temperature	5-45°C
Accuracy	+/- 1°C
Programming ability	1 Week (5+2)

Dimensions



Safety

- This product should be installed by a qualified electrician.
- Ensure that the electrical wiring of the installation and connections to and from the thermostat and any remote sensor connected to it are in accordance with BS7971, the latest edition of IET wiring regulations.
- The thermostat must be wired to the electric mains through a switch capable of disconnecting all poles compliant with the current safety standards and with a contact separation of at least 3mm in all poles.
- Before commencing work on the installation, the electricity supply must be disconnected.
- During installation earthing a metal back box is critical to ensure fault current is safely directed to ground, thereby maintaining compliance with electrical safety standards and reducing the risk of exposed conductive parts becoming live during a fault condition.

Disposal

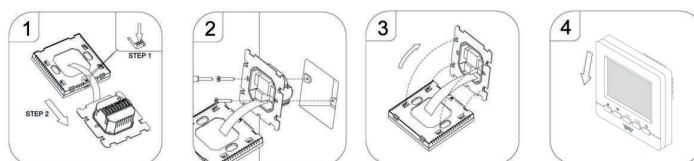


This product should not be disposed of in household waste. The product should be disposed of in accordance with your local waste and recycling schemes.

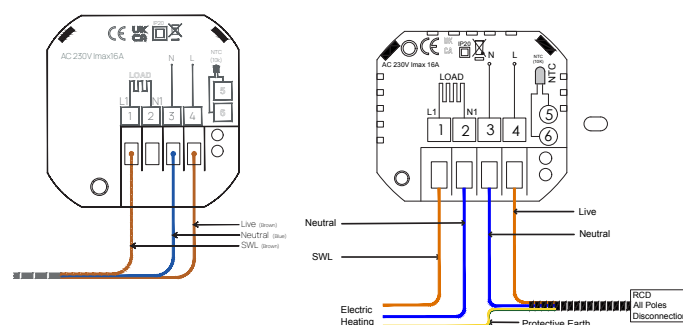
Installation

- Remove the front housing by sliding it upwards from the slots on the back plate, disconnect ribbon cable if needed.
- Set aside the front housing, ready to reattach once final work has finished.
- Make the wiring connections as shown in the diagram below.
- Screw the thermostat back plate on to the wall box through screw holes.
- Reconnect ribbon cable if removed, attach back together by sliding downwards into the slots on the rear housing.

Installation Process



Wiring Diagrams



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Electric Underfloor Heating

When connecting this thermostat to an electric underfloor heating product, it is absolutely essential that these instructions are read in conjunction with the electric heating product's own installation manual. Adherence to both sets of instructions is critical for safe and compliant operation. Do not exceed the max electrical load stated in the technical data list.

Ensure you access the thermostat's advanced settings and select "OU External Temperature sensor" as the primary sensor type when using electric underfloor heating.

Crucially, in line with UK electrical safety regulations (specifically BS 7671: The IET Wiring Regulations), an all-pole disconnecting Residual Current Device (RCD) with a tripping current not exceeding 30mA must be installed on the circuit supplying the electric heating. This RCD provides vital protection against electric shock and fire by rapidly disconnecting the supply in the event of an earth fault. Furthermore, the electric heating product itself must be correctly earthed to ensure electrical safety and compliance with the relevant legislation.

Failure to follow these safety requirements and national regulations could result in serious injury, fire, or damage to the installation.

Advanced Options Explanation:

01: Temperature Compensation

- Description: This setting allows you to adjust the temperature reading by a certain offset.
- Range: -9°C to +9°C
- Default: -2°C

02: Start Temperature Difference

- Description: This refers to the hysteresis or differential temperature before the heating switches on again.
- Range: 1°C to 5°C
- Default: 1°C

03: Sensor Type

- Description: This option lets you select which sensor the thermostat uses for temperature readings.
- Options:
 - In: Uses the built-in (internal) sensor.
 - OU: Uses an external sensor.
 - AL: Uses both internal and external sensors.

04: Low Temperature Protection Setting

- Description: This feature ensures that if the indoor temperature in the shutdown state falls below the set value, the thermostat will automatically turn on the heating to prevent the temperature from dropping too low.
- Range: 5°C to 10°C
- Default: 10°C
- Note: Displaying "-" means this function is turned off.

05: High Temperature Protection Setting

- Description: If the probe detects that the temperature is higher than this set value, the heating device will be forcibly shut down.
- Range: 25°C to 50°C
- Default: 25°C
- Note: Displaying "-" means this function is turned off. This function is only available when an external sensor power supply is used.

06: Keylock Option

- Description: This setting determines which keys are locked when the keylock is active.
- Options:
 - **: In locked state, locks the switch key.
 - 1: In locked state, all keys are locked, including the power on/off key.

07: Programming Type

- Description: This selects the weekly programming schedule for the thermostat.
- Options:
 - 01: 5+2 weekly programming (five weekdays and two weekend days with distinct schedules).
 - 02: 6+1 weekly programming (six days with one schedule and one distinct day).
 - **: Non-programmable (manual control only).
 - Default: 01

08: Backlight Selection

- Description: Controls the behaviour of the display backlight.
- Options:
 - 00: Backlight turns off automatically after 10 seconds.
 - 1: Backlight is always on.

09: Temperature Upper Limit

- Description: This sets the maximum temperature that can be set on the thermostat.
- Range: 5°C to 99°C
- Default: 45°C

10: Restart the Power Drop

- Description: This determines the thermostat's behaviour after a power failure.
- Options:
 - 0: Power on.
 - 1: Power off.
 - 2: Restores the state the thermostat was in before the power failure



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Operation

Button	Description
	• Turn ON/OFF: Short press to turn on/turn off.
M	• Short press to switch between programming and manual mode.
	• Short press to set time and week day. • Long press to enter programming function.
	• Increases temperature and increases setting.
	• Decreases temperature and decreases setting.

Key lock: in the powered on state press and hold and for 5 seconds to activate button lock. The symbol will be displayed on the screen.

To unlock press and hold and for 5 seconds and the symbol will disappear.



- Calling for heat
- Manual mode
- Time programming mode
- Temporary manual mode (end when next time period starts)
- Button lock active

Setting the time of day

Time and week setting: In the power on state, short press the button to switch the minute, hour and week option settings, and press the button or button to adjust the parameter value.

Programming the thermostat

5+2 weekly programming style with six time periods a day

With the thermostat in the power on state, press and hold for 5 seconds to enter programming mode. The days that are being programmed and the time period will be displayed at the top of the screen, (1 representing the first time period). The start time will start flashing, use the and to set the start time required then press the button to move to setting the temperature, the temperature will start flashing. Use the and to adjust the temperature. Press the to move to the next time period. The number at the top will increase but the days will stay the same. Continue to set the start times and the temperature required on all 6 periods using the same process as the previous. Once all 6 periods have been set it will move on to the weekend programming. The days will change and the number will revert back to 1. Program the start time and temperature of the 6 periods for the weekend day(s) once happy with the setting, press M to save and exit the program.

1	2	3
Wake up	Leave home	Back home
06:00 20°C	08:00 15°C	11:30 18°C
4	5	6
Leave home	Back home	Sleep
13:30 15°C	17:00 20°C	22:00 18°C

The optimum comfort temperature is 18°C-22°C.

The end of the previous time period is always 1 minute before the start of the next time period.

Advanced options

In the shutdown state, press and hold the M and keys for 5 seconds to enter the advanced parameter setting mode. The display 01 indicates the symbol at the time position below, and the display -2 flashes at the indoor temperature position to indicate the parameter value. Press the key in the blinking state or the key to change the parameter value, press M key to switch to the next item, after adjusting the parameters, press the power on to automatically confirm and save.

Time display	Options content	Default	Press or adjust
01	Temp compensation	-2°C	-9°C~+9°C
02	Start temp difference	1°C	1°C~5°C
03	Sensor type	In	In: Built-in sensor OU: External sensor AL: Internal and external sensors
04	Low temp protection setting	--	5°C~10°C, press at 10°C, display -- means to turn off the indoor temperature in the shutdown state, the thermostat will automatically turn on the heating.
05	High temp protection setting	70	25°C - 50°C, press at 10°C, display -- means to turn off the function, if the probe detects that the temperature is higher than the set temperature, the heating device will be forcibly shut down. (This function is only available with external sensor power supply.)
06	Keylock option	0	0: In locked state, lock the switch key 1: In locked state, all key locks include the open key
07	Programming type	01	01 = 5+2 02 = 6+1 -- = Non Programmable
08	Backlight selection	0	0: Turn off automatically for 10s 1: always on
09	Temp upper limit	45°C	5°C~99°C (such as: The default is 45°C when setting the temperature.)
10	Restart the power drop	2	0: power on 1: power off 2: restore the state before power failure

External probe temperature view: Press and hold the button for 3 seconds to display the floor temperature at the time position, and after 5 seconds it will be displayed before it is restored (optional: this function is only available when the dual sensor is configured).

Sensor failure alarm: When the sensor fails, it will display Err or E1, E2 code alarm and disconnect the heating output, it will not return to normal until the fault is removed.

Factory reset: Press and hold the and keys for 5 seconds in the power on state. After the full screen is displayed for 1 second, the power off indicates that the factory reset is successful.



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