

tio



Heating & Cooling Thermostat  
Installation & User Manual

# Welcome to your new thermostat.

Your smart thermostat comes fully integrated with the latest features and functions.



# Technical Data

The Tio Reversible Room Thermostat allows normal underfloor heating function in winter periods and can be switched to reversed, to allow passive cooling via the floor during the summer. Switching the system between heating and cooling mode should be done via the TIOSWI0001 - Tio Smart Switch.

Each thermostat is fitted with an integral RH (relative humidity) sensor which monitors RH% valves and calculates the resultant dew point. In cooling mode the thermostat floor probe is used as a cut off to prevent the floor becoming cold enough for moisture in the air to condensate. Factory setting for floor probe cut off is 2°C above dew point (adjustable 0-9°C).

If the floor temperature reaches this set point the demand function is disabled and the unit flashes RH%, thermostat demand will automatically resume once atmospheric conditions permit.

Power Consumption: < 1.5W

Timing Error: <1 %

Power Supply: 95 - 240VAC, 50 ~60Hz

Current Load: 5A

Sensor: NTC3977 10K

Shell material: PC+ABS (flame retardant)

Dimension: 86x86x13.3mm

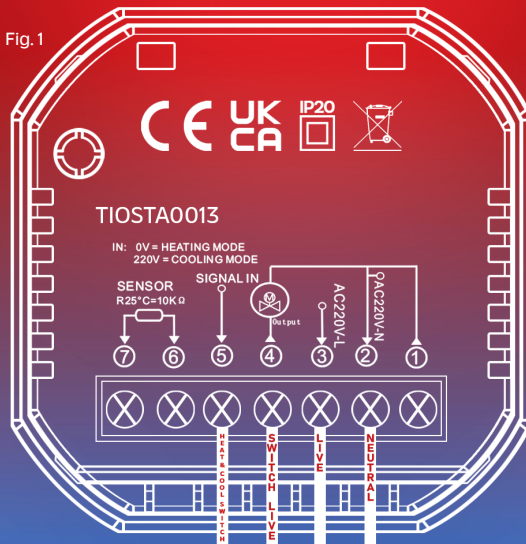
Ambient Temperature: 0-45°C, 5-95% RH (Non-condensing)

Storage Temperature: -5-55°C

Installation Hole Distance: 60mm

Pre-set temperatures maintained within +/- 1°C

Fig. 1



Please refer to the Heating & Cooling System brochure for full wiring schematic. It is recommended to use this product with the Tio Smart Switch (TIOSWI0001) and Wiring Centre (TIOWIR0005/07).

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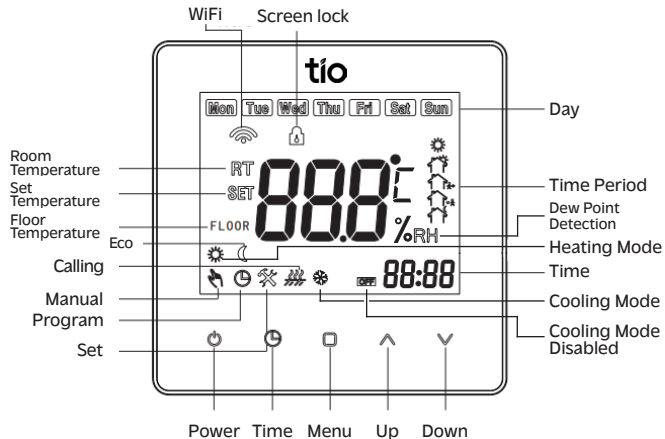
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# Icon Overview

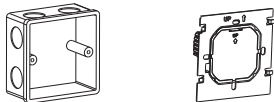


## Installation

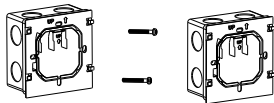
Your thermostat is suitable for installation within a standard 86mm pattress box or European 60mm round pattress box.

*Please ensure that the electrics are disconnected or isolated prior to making electrical connections. Contact with high voltage components can cause electrical shock, sever injury or death.*

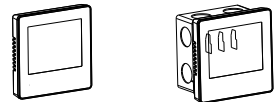
1. Remove the mounting backplate.



2. Connect power supply, load and external (floor) sensor into the appropriate terminals. Fix the mounting plate into the wall with the provided screws. (Floor sensor is recommended for dew point control)



3. Fasten the body of the thermostat and the mounting plate through the groove to complete the installation.



## Quick Functions

 Press this button to power your thermostat on or off.

 Time setting button to set minute, hour and day.

 Menu button which allows you to change between manual and programme mode.

Manual mode: Press  to select manual mode. A  symbol will appear in the bottom left corner when this mode has been selected. You can now set you desired temperature using  .

Temporary mode: During programme mode, you can manually change the temperature if required. You may use   to set the temperature accordingly. Both   icons will appear on screen. Your pre-programmed settings will return in the next period.

Child lock: Press and hold   over 5 seconds to lock/unlock your thermostat.

Factory reset: Press  over 5 seconds to enter programme mode. Next, hold   over 5 seconds. The thermostat will have been factory reset when 'def' flashes on screen.

## Cooling Function & Dew Point Sensor

The thermostat can only be switched between heating and cooling functions remotely. It is recommended to use this product with the Tio Smart Switch (TIOSWI0001) and Tio Wiring Centre (TIOWIR0002/04).

A single Tio Smart Switch (TIOSWI0001) can be used to switch multiple thermostats and wiring centres. (See Page 18 for integration wiring diagram)

Switch the thermostat between functions to change the programme settings for each mode, Heating and Cooling.

It is recommended that a floor temperature probe is used to achieve optimum efficiency, floor probes should be fitted as close to the floor surface as possible and away from areas of flooring with direct solar gain.

Each thermostat is fitted with an integral RH (relative humidity) sensor which monitors RH% values and calculates the resultant dew point value, in cooling mode the thermostat floor probe is used as a cut off to prevent the floor becoming cold enough for moisture in the air to condensate.

Factory setting for floor probe cut off is 2°C above dew point, however this is adjustable between 0 – 9°C within the unit's configuration menu (this should be adjusted if dew/condensation forms on the floor surface)

If the floor temperature reaches this set point the demand function is disabled and the unit flashes RH%, thermostat demand will automatically resume once atmospheric conditions permit. In periods of high humidity resultant cooling effect will be impacted (dehumidifiers can be used to increase cooling effect)

Hold down timer button for 7 seconds to show air RH% value press again for Dew Point temperature and again for floor probe temperature and on/off to return to main display.

It is recommended the floor probe is used for system efficiency however, the thermostat can operate without a probe and has a factory setting dew point cut off of +4°C measured at the thermostat location. If the floor probe is not connected the thermostat will flash an error message 'Floor Err' change the probe settings within the configuration to 'IN' if no probe is being used.

The cooling function can also be disabled completely for areas where cooling is not required in summers months such as bath and shower rooms, when disabled it is possible to use a remote probe for heating function only.

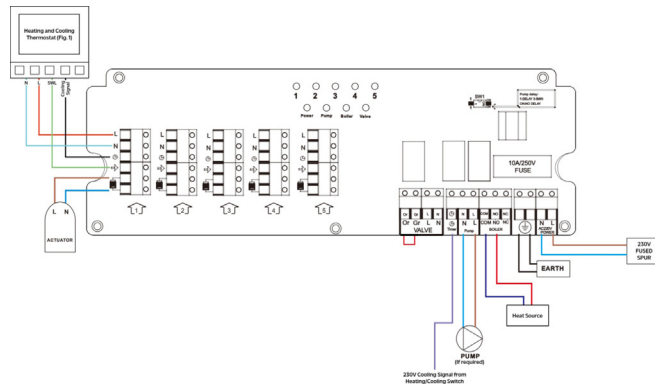
When cooling is disabled, OFF will be displayed next to the time.  
(As shown on page 4)

If condensation forms on surfaces – Increase dew point cut off temperature within configuration settings:  
(17 Floor Sensor) - (18 No Floor Sensor)

It is recommended that seasonal commissioning is carried out to achieve the correct dew point settings.

Passive cooling will reduce building fabric temperature, however atmospheric humidity conditions can affect cooling efficiency and resultant cooling effect cannot be guaranteed.

**The system provides passive heat reduction and should not be considered as equivalent to air conditioning.**



# Configuration Menu

| No. | Function                            | Press ^ v to set                                                                                                                          | Default |
|-----|-------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|---------|
| 1   | Temp. Calibration                   | -9°C to 9°C                                                                                                                               | 0°C     |
| 2   | Dead zone                           | 0.5°C to 5°C                                                                                                                              | 0.5°C   |
| 3   | Lock                                | 0: Lock all buttons<br>1: All buttons locked except power                                                                                 | 1       |
| 4   | Sensor selection                    | IN: Temp and Dew Point from Internal sensor<br>OUT: Heating only (If Cooling disable func 19)<br>ALL: Dew point and High Limit from probe | ALL     |
| 5   | Minimum temperature setting         | 5°C to 15°C                                                                                                                               | 5°C     |
| 6   | Maximum temperature setting         | 15°C to 45°C                                                                                                                              | 35°C    |
| 7   | Display mode                        | 0: Room and Set Temperature<br>1: Set Temperature Only                                                                                    | 0       |
| 8   | Standby backlight                   | 0 - 100                                                                                                                                   | 10      |
| 9   | High temperature protection setting | 25°C to 70°C                                                                                                                              | 45°C    |
| 10  | Anti-freeze temperature range       | 2°C to 20°C                                                                                                                               | 5°C     |
| 11  | Anti-freeze protection              | 0: OFF<br>1: ON                                                                                                                           | 0       |

|    |                                     |                                                                 |      |
|----|-------------------------------------|-----------------------------------------------------------------|------|
| 12 | Eco Mode                            | 0: OFF<br>1: ON                                                 | 0    |
| 13 | Eco heating temperature range       | 5°C to 30°C                                                     | 16°C |
| 14 | Eco cooling temperature range       | 5°C to 30°C                                                     | 28°C |
| 15 | Backlight                           | 0 - 100                                                         | 80   |
| 16 | RH% Humidity Calibration            | -10°C to 10°C                                                   | 0    |
| 17 | Dew point cut off (external sensor) | 0°C to 9°C                                                      | 2°C  |
| 18 | Dew point cut off (internal sensor) | 0°C to 9°C                                                      | 4°C  |
| 19 | Disable cooling function            | 0: Cooling Function <b>ON</b><br>1: Cooling Function <b>OFF</b> | 0    |

To access the configuration menu;

Firstly, turn off your thermostat .

Then, press and hold  over 5 seconds to enter the menu.

Using  to change through the different parameter and   to change the settings.

Once you have selected your desired settings, press  to confirm these settings.

# Programme Settings

Below you will find your thermostats default programme settings for heating. These can be fine tuned to your requirements.

## Heating Mode:

|              | Monday - Friday |                 | Saturday |                 | Sunday |                 |
|--------------|-----------------|-----------------|----------|-----------------|--------|-----------------|
| Time Display | Time            | Set Temperature | Time     | Set Temperature | Time   | Set Temperature |
| Period 1     | 06:00           | 22°C            | 06:00    | 22°C            | 06:00  | 22°C            |
| Period 2     | 08:00           | 16°C            | 08:00    | 16°C            | 08:00  | 16°C            |
| Period 3     | 12:00           | 22°C            | 12:00    | 22°C            | 12:00  | 22°C            |
| Period 4     | 14:00           | 16°C            | 14:00    | 16°C            | 14:00  | 16°C            |
| Period 5     | 18:00           | 22°C            | 18:00    | 22°C            | 18:00  | 22°C            |
| Period 6     | 22:00           | 16°C            | 22:00    | 16°C            | 22:00  | 16°C            |

Below you will find your thermostats default programme settings for cooling. These can be fine tuned to your requirements.

## Cooling Mode:

|              | Monday - Friday |                 | Saturday |                 | Sunday |                 |
|--------------|-----------------|-----------------|----------|-----------------|--------|-----------------|
| Time Display | Time            | Set Temperature | Time     | Set Temperature | Time   | Set Temperature |
| Period 1     | 06:00           | 24°C            | 06:00    | 24°C            | 06:00  | 24°C            |
| Period 2     | 08:00           | 28°C            | 08:00    | 28°C            | 08:00  | 28°C            |
| Period 3     | 12:00           | 24°C            | 12:00    | 24°C            | 12:00  | 24°C            |
| Period 4     | 14:00           | 28°C            | 14:00    | 28°C            | 14:00  | 28°C            |
| Period 5     | 18:00           | 24°C            | 18:00    | 24°C            | 18:00  | 24°C            |
| Period 6     | 22:00           | 28°C            | 22:00    | 28°C            | 22:00  | 28°C            |

Please familiarise yourself with your thermostats pre-programmed factory settings. Both heating and cooling modes have separate timetables.

Before configuring your thermostat, please consider key parts of your day in order to maximise it's efficiency and efficacy.

Please remember that your underfloor heating will need a longer period of time to heat up when compared to your typical radiator system.

With this in mind, it is advised to have your heating turn on roughly an hour in advance.

Using  to change through the different parameters, adjustments can be made to Day, Time & Temperature for each of the time periods detailed in the table. Use   to adjust the flashing parameter.

The programme cycle uses a 5+1+1 layout which groups Monday to Friday (5) and gives you individual customisation for Saturday (1) and Sunday (1) for more flexibility.

To access these settings, firstly with the thermostat powered on, press  over 5 seconds.

Using  to change through the different parameters are explained above and using   to set the relative values.

## App Connection

Your smart thermostat is compatible with both the Smart Life and Tuya apps. You can control your devices with voice control by integrating your amazon echo or google assistant.

Integrating a simple user friendly interface with elegant features for pleasant and straightforward control over your devices.

You can remotely control your heating from anywhere with a Wi-Fi connection. With the option to also share control of the devices among family members.

### Getting connected:

1. Start with installing the app on your device.
2. Open the application and register for an account.
3. The app will automatically detect your country code. In case it does not detect, you will be required to submit manually.
4. You will receive a verification code in order to confirm your details.

5. Click on the plus icon in the top right of the app to add a device.

6. The app should automatically pair with the device.

If the connection fails, you will be required to pair with the app manually.

7. Please follow the on-screen prompts to connect your device manually.

### Troubleshooting:

To reset the thermostats Wi-Fi chip, press the power  button over 7 seconds. You will notice that the Wi-Fi symbol will start flashing. This means that the Wi-Fi has been reset.

Repeat this process to switch Wi-Fi mode.

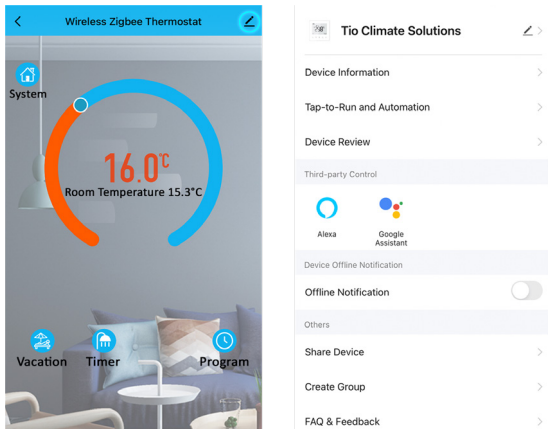
**Slow Blink** - AP Mode, suitable for most Wi-Fi setups. (Access Point)

**Rapid Blink** - EZ Mode, requires EZ compatibility. (Easy/Smart Config)

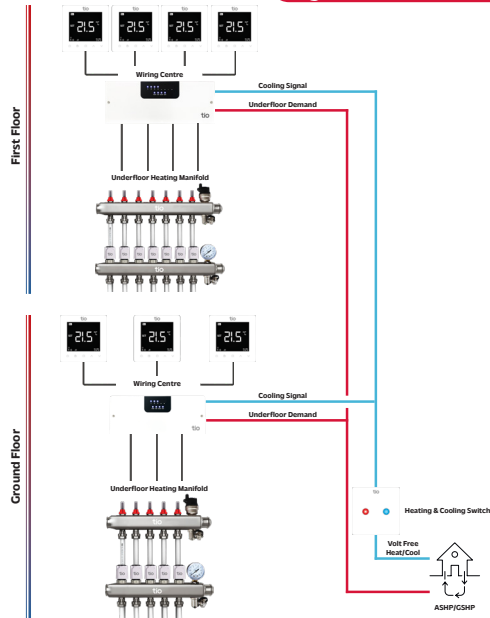
# Voice Control

Select  icon to access the settings menu. You can now access both Alexa and Google Assistant under the “Third-Party Control” tab.

Please note that the compatibility and connection between the Smart Life app and third-party voice control platforms is facilitated via Smart Life and not Tio Climate Solutions Ltd.



# System Overview





[www.tioclimatesolutions.co.uk](http://www.tioclimatesolutions.co.uk)



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