# ESRTP4

## Programmable Room Thermostat with TPI, Optimum Stop, Delayed & Optimum Start


Energy Saving Innovative Controls Limited

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# User Instructions

## What is a Programmable Room Thermostat?...
### An explanation for householders


Put simply a Programmable Room Thermostat is a timer and thermostat combined in one unit. With a standard timer you choose your heating ON times and set your room thermostat (fitted usually away from the timer) to the desired comfort temperature required. With a Programmable Room Thermostat this is done within just one unit. i.e. for your heating ON times you assign a comfort temperature to those times.

The added bonus is that you can also attach a chosen temperature to the OFF time of your heating. This is called the set back temperature and is designed to prevent the temperature in the house falling below a pre-set temperature while the heating is programmed OFF. The advantage to this function is that by narrowing the gap between OFF house temperature and ON house temperature (usually 20°c) less energy will be required to bring the house temperature back up to 20°c when the heating is turned back ON. The recommended set back (OFF) temperature is 16°c, although it can be set higher or lower depending on personal choice (scale is 7°c-34°c).

Having this function can be of assistance to elderly people as it prevents the house getting too cold when heating is programmed OFF.

(**N.B!!** The unit is capable of operating in an air conditioning/cooling mode also. See instructions for further details.)

## Introduction to the ESRTP4

The ESRTP4 is an easy to install and use 7 Day, 5/2 Day or 24 Hr Programmable Room Thermostat which offers four to six time and temperature changes each day, with different programmes available for weekdays and for weekends. It is designed to provide automatic time and temperature control of heating systems in domestic or light commercial premises. A large backlit LCD screen and easy-to-use function buttons ensures simplified programming and operation for all users.

Your ESi Controls Programmable Room Thermostat includes special features designed to save you energy. These features are factory set to be OFF to enable the homeowner to choose whichever features are preferred. Also, please note these features only apply to your home heating and not the hot water system.

## What is Chronoproportional Control (TPI)?

A chronoproportional (or TPI) room thermostat makes boilers operate more efficiently and provide close accurate control. Chronoproportional control is a load compensator as it ensures that the boiler 'ON' time is reduced to a minimum and matches the boiler heat output with the heat loss. This reduces the net temperature of the return water to the boiler. This is due to the TPI (Time Proportional and Integral) advanced energy saving feature.

Rather than just a simple ON/OFF control, like other domestic room thermostats, room thermostats with TPI increases boiler efficiency by firing the boiler at regular intervals, adjusting firing duration with demand, to

maintain set room temperatures. This gives them a great advantage over other domestic room thermostats and achieves a constant ambient environment for the user e.g. if a property only has a simple mechanical thermostat installed, the energy saving benefits of a replacement high efficiency condensing boiler will not be realised as the boiler will rarely be running in condensing mode. Heating and hot water can account for over 80% of total household energy usage. Chronoproportional (TPI) thermostats can provide great cost savings. It can be used on any boiler, with underfloor and radiator systems, zoned heating and electric heating systems. The use of an electronic thermostat with chronoproportional capability provides closer temperature control plus possible reductions of 10% in both fuel cost and carbon emissions. This thermostat has the option of standard setting or TPI.

## What is Delayed Start?

Thermostats with the Delayed Start function have been shown to reduce heating costs by as much as 10%. This feature delays the start-up of the heating, depending on how warm the room temperature is at the time when the central heating is due to come on.

The heating start can be delayed for up to 45 minutes if the room is already relatively warm, when the weather is milder for example. This often reduces how long the heating is on per day, with no comfort loss, saving you energy and money! The Delayed Start feature can be fully automated and needs no extra programming.

## What is Optimum Start?

The Optimum Start adjusts the starting time for home heating according to the temperature measured within the building. Instead of setting an arbitrary time for the heating to come on, the homeowner programmes the time that the home should be at the desired temperature. Up to 10% of domestic energy costs can be saved, as the warm up time is automatically reduced according to the ambient temperature. Many homeowners set their heating to start a couple of hours before getting up to avoid waking up to a cold house. With the Optimum Start function you don't need to do this. The actual start time is automatically delayed or advanced to ensure your home reaches the set temperature by the programmed time.

## What is Optimum Stop?

Optimum Stop saves energy by switching the boiler off a little earlier than the programmed OFF time. If the house is up to temperature, you should not notice the effect on the temperature but you should see a difference in your energy bill.

## What is Landlord Service ?

The optional Landlord Service safety feature offers protection for tenants and landlords against illegal boiler negligence (in compliance with Gas Safety Regulation 36). 30 days before the boiler is due to be serviced, the LCD will display SER. If the annual maintenance is not carried out before the 30 days, the system will only run for a pre-determined number of minutes per hour before turning off.

## Quick Operating Guide

① Home (takes you back to home screen)

② Next (moves you to next option within a function)

③ Temporary Override/Settings Adjustment

④ Accepts/Confirms selection in functions

⑤ Copy **(COPY)**

⑥ Holiday Mode

⑦ Sets Time and Date

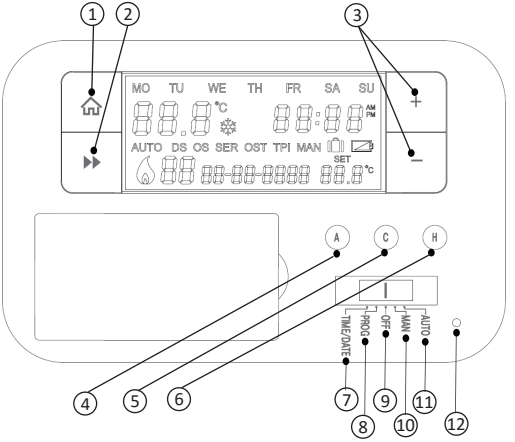
⑧ Selects and adjusts Programme **(PROG)**

⑨ Places Thermostat into Frost Protection Mode **(OFF)**

⑩ Places Thermostat into Manual Mode **(MAN)**

⑪ Runs Programme **(AUTO)**

⑫ Reset



⑬ Day Display

⑭ Room Temperature

⑮ Frost Protection Mode

⑯ Time Display **(12 hour AM/PM or 24 hour)**

⑰ Holiday Mode Display

⑱ Flame symbol when system calling for heat

⑲ Operation Mode **(AUTO/ALL DAY/OFF/ON)**

⑳ Programme Events Display

㉑ Delayed Start **(DS)**/Optimum Start **(OS)** is active

㉒ Date (DD-MM-YYYY)

㉓ Annual Service is due **(SERV)**

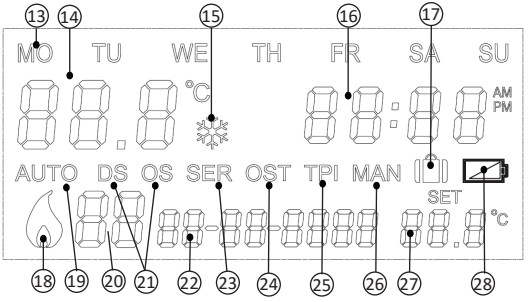
㉔ Optimum Stop **(OST)** is active

㉕ TPI is active

㉖ Manual Mode Display Symbols

㉗ User Set Temperature

㉘ Low Battery Warning



## Factory Pre-Set Programme

This Programmable Room Thermostat has been designed to be a simple to use thermostat, requiring minimal user intervention with a pre-programmed heating profile.

The pre-set heating times and temperatures will suit most people (see table below). To accept the factory pre-set programme, move the slider to AUTO which will revert the thermostat to Run Mode (the colon (:) in the LCD display will begin to flash).

### Pre-Set Temperatures: 5/2 Day:

Mon-Fri pre-set time and temperature settings

| 6 Events | Time | Temp °C |
|---|---|---|
| 1 | 6.30 | 20 |
| 2 | 8.30 | 16 |
| 3 | 12.00 | 16 |
| 4 | 14.00 | 16 |
| 5 | 16.30 | 21 |
| 6 | 22.30 | 7 |

| 4 Events | Time | Temp °C |
|---|---|---|
| 1 | 6.30 | 20 |
| 2 | 12.00 | 16 |
| 3 | 14.00 | 16 |
| 4 | 16.30 | 21 |
| | | |
| | | |

Sat & Sun pre-set time and temperature settings

| 6 Events | Time | Temp °C |
|---|---|---|
| 1 | 7.30 | 20 |
| 2 | 09.30 | 20 |
| 3 | 11.30 | 20 |
| 4 | 13.30 | 20 |
| 5 | 16.30 | 20 |
| 6 | 22.30 | 15 |

| 4 Events | Time | Temp °C |
|---|---|---|
| 1 | 6.30 | 20 |
| 2 | 12.00 | 16 |
| 3 | 14.00 | 16 |
| 4 | 16.30 | 21 |
| | | |
| | | |

**7 Day:**

In 7 day setting, the pre-set settings are the same as the 5/2 Day programme.

**24 Hr:**

In 24hr setting, the pre-set settings are the same as Mon-Fri of the 5/2 Day programme.

## Setting the Operation Mode (5/2 day, 7 day, 24hr)

1. Switch the slider to PROG.

2. Press **+/–** buttons to move between 7 day, 5/2 day or 24hr operation.

**5/2 Day operation** is shown by MO, TU, WE, TH, FR flashing (5 Day) and then SA, SU flashing (2 Day)

**7 Day operation** is shown by just one day flashing at a time

**24 hr operation** is shown by MO, TU, WE, TH, FR, SA, SU flashing at the same time.

3. Wait 15 seconds to automatically confirm and return to Run mode or press **Next** ⏩ to move to 'Setting the Programme'

## Setting the Programme

1. Choose between 5/2 day, 7 day or 24 hr operation (see above steps 1-2).

2. Press the **Next** ⏩ button. The time will flash and P1 will be displayed (the 1st temperature event).

3. Press **+/-** to set the time (10 minutes increments). Press the **Next** ⏩ button and the temperature will flash.

4. Press **+/-** to set the temperature (increments of 0.5°c). Press the **Next** ⏩ button to go to the next time temperature event (e.g P2).

5. Repeat steps 3 - 4 for all temperature events.

6. Press **A** to accept/confirm temperature events and move to the next day/block of days.

7. Repeat steps 3-6 until all days have been set. Then wait 15 seconds to automatically confirm and return to run mode or press the **Home** button.

## All Day Setting

1. Switch the slider to AUTO.

2. Press the **A** button under the facia. The display will now show AL (All Day).

3. Press the **+/-** button to set the temperature (increments of 0.5°c).

4. The mode will quit by 00.00 that day. Press the **Home** button to cancel and return to Auto Mode.

## Permanent Manual Overrides

1. Switch the slider to MAN. MAN will appear in the display.

2. Press **+/–** to adjust the temperature to the desired setting. This will set a constant temperature 24hrs a day.

3. Switch the slider to AUTO to revert back to Auto mode.

## Temporary Manual Overrides

1. To temporarily override the Programmable Room Thermostat status or temperature press the **+/-** buttons. The Programme Events Display (e.g P1) will no longer be shown.

2. Press the **+** button to increase the set temperature in increments of 0.5°c and/or press the **-** button to decrease the set temperature in increments of 0.5°c.

3. Once the desired temperature is reached (and after approx. 6 seconds) the time display will be replaced by a display indicating the time left to the next programme (the length of time the temporary override will run, if left

unhindered) and the display then alternates between the time left and the current time. When the next ON/comfort programme is arrived at, the temporary override will end and Auto mode is reactivated.

4. Press the **Home** button to cancel this function and reactivate Run mode.

## Holiday Mode

Holiday Mode saves energy by letting you reduce the temperature for 1 to 99 days while you are away from home, resuming normal operation on your return.

**To set the Holiday Mode:**

1. Make sure the Programmable Room Thermostat is in Auto mode. Press the H button, underneath the facia and the suitcase symbol will appear on the display and the number of days will flash.

2. Press **+/–** to set the number of days you will be away.

3. Press the **Next** ⏩ button and the temperature will flash. Press **+/-** to set the desired temperature.

4. Press the **Next** ⏩ or **Home** button, or wait 15 seconds to automatically confirm.

5. The number of days chosen will alternate with time symbol on display and the number of days will count down.

6. Once the countdown has finished the thermostat will return to normal operation. It may be advisable to set the Holiday Mode 1 day less so the house is back up to temperature for your return.

7. To cancel the Holiday Mode setting or to exit the function at any time, press the **Home** button to revert back to Run mode.

## Frost Protection

This function is provided as an option if it is desirable to turn the heating off permanently. It is usually used in summer.

**To set the Frost Protection Mode:**

1. Switch the slider to OFF to enter the Frost Protection Mode. The display will show the frost protection snowflake symbol and the set temperature will be 5°C.

2. Switch the slider to AUTO to exit Frost Protection Mode and revert to AUTO mode.

## Setting the Time and Date

The time and date are factory set so it will not normally be necessary to do this on site. Changes between summer and winter time are handled automatically by the unit.

1. Switch the slider to Time/Date. The hour symbols will flash, use **+** or **–** to adjust.

2. Press the **Next** ⏩ button and the minute symbols will flash, use **+** or **–** to adjust.

3. Press the **Next** ⏩ button and the day date will flash, use **+** or **–** to adjust the day.

4. Press the **Next** ⏩ button and the month date will flash, use **+** or **–** to adjust the month.

5. Press the **Next** ⏩ button and the year date will flash, use **+** or **–** to adjust the year.

6. Press the **Next** ⏩ button and choose between 12hour or 24hour clock by using the **+** or **–** buttons.

7. Press the **Next** ⏩ or **Home** button, or wait for 15 seconds to automatically confirm and return to Run mode.

## Using the Copy Function

The unit is provided with a copy function which allows an adjusted programme to be copied to another day or set of days. This avoids the necessity of re-entering a desired programme for another day or sets of days. **N.B.** This function **only** works in 7 Day setting.

**To operate the copy function**

1. Switch the slider to PROG and press the **Home** Button.

2. Press the **C** button to enter the COPY mode.

3. The **A** button chooses the day you want to copy **from** and the **+/-** buttons choose the day you want to copy **to**.

4. Press the **C** button to confirm. The screen will show SEr (to show the Copy function is set).

## Battery Replacement

When the low battery symbol flashes in the LCD display, the batteries need to be replaced as soon as possible. The battery compartment is located on the front of the thermostat, under the facia cover. Remove the old batteries and insert new ones. All settings including time are maintained. **N.B!** If the display ever goes blank during normal operation, the batteries need to be replaced with high quality alkaline cells. The date, time and factory pre-set heating times will be retained (assuming the back up battery has not failed).

## Resetting the Unit

To reset the programmer, hold reset for approx. 3 seconds. The system and programme will restore to the factory default settings. Hold the Next button and press the reset button to restore to factory default settings.

# Installation Instructions

## Technical Data

| Programmable Room Thermostat | |
|---|---|
| Programming | 7 Day, 5/2 Day & 24Hr |
| Power Supply | 2 x 1.5V Lithium Batteries (type: AA size) |
| Temperature Sensor Type | +/- 1ºC at 20ºC |
| Temperature Adjustment Range | 5ºC to 35ºC |
| Total Switch Rating | 6(2)A 230VAC |
| Contact Type | SPDT (Volt Free changeover contacts) |
| Plastic | Thermoplastic, flame retardant |
| Protection Rating | IP30 |
| Dimensions | 127mm(L) x 81mm(W) x 28mm(D) |
| Number of Events per Day | 4 - 6 |
| BST/GMT Time Change | Automatic |
| Factory Pre-Set Programme | Yes |
| Complies with: | EN60730-1 EN 60730-2.7, EMC Directive 2014/30/EU, LVD Directive 2014/35/EU |

## Installation Safety Instructions

The unit must be installed by a suitably qualified person in accordance with the latest IEE Wiring Regulations.

Isolate mains supply before commencing installation. Please read all instructions before proceeding.

Ensure that the fixed wiring connections to the mains supply is via a fuse rated at not more than 6 amps and class 'A' switch having a contact separation of a minimum of 3mm in all poles. The recommended cable sizes are 1.0mm sqr or 1.5mm sqr. No earth connection is required as the product is double insulated but ensure continuity of earth throughout the system.

## General Safety Instructions

When fitting batteries, do not mix old and new batteries together. Do not use rechargable batteries.

This product complies with the essential requirements of the following EC Directives:

- Electro-Magnetic Compatibility Directive 2014/30/EU
- Low Voltage Directive 2014/35/EU
- EC Marking Directive 93/68/EEC

Please leave the user instructions with the end user where they should be kept in a safe place for future reference.

## Maintenance

Always isolate the mains supply before commencing any work, servicing or maintenance on the system. And please read all instructions before proceeding.

Arrange for an annual maintenance and inspection schedule to be carried out by a qualified person on every part of the heating and hot water system.

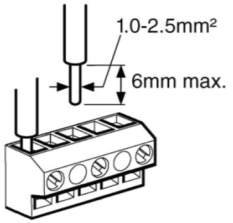
## Safety Notice

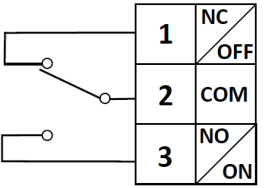
**WARNING!**

**ALWAYS ISOLATE THE AC MAINS SUPPLY BEFORE INSTALLING.**

**THIS PRODUCT MUST BE FITTED BY A COMPETENT PERSON, AND INSTALLATION MUST COMPLY WITH THE GUIDANCE PROVIDED IN THE CURRENT EDITIONS OF BS767 (IEE WIRING REGULATIONS) AND PART "P" OF THE BUILDING REGULATIONS.**

## Wiring Diagram

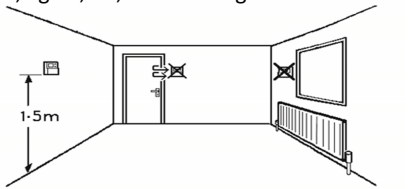



## Fitting the Programmable Room Thermostat

### Product Positioning

The ideal position to locate the Programmable Room Thermostat is about 1.5m above floor level, in a location where the thermostat is accessible, reasonably lit and free from extremes of temperature and draughts. Do not position the thermostat near sources of heat, such as radiators, lights, TV, direct sunlight or on an outside wall.




### Installation

1. Remove the front cover using a flat screwdriver in the two holes at the top of the programmer and separate from back plate.

2. Fix the back plate directly on the wall using suitable wall plugs and screws.

3. Unscrew the cover that is protecting the live terminals. Lift the cover to expose the wiring block, taking care to retain the screw.

4. Complete the connections in accordance with the wiring diagram (page 16).

5. Replace the thermostat onto the back plate, securing the bottom of the thermostat first and clicking the thermostat into place.

6. Insert the 2 x AA batteries provided in the battery compartment on the front of the thermostat, underneath the facia.

The Programmable Room Thermostat is now installed and will automatically start to control the room temperature according to the factory pre-set programme as shown in the User Instructions. The display shows the correct time and date which is automatically set together with the actual room temperature.

## Setting TPI, Delayed or Optimum Start

1. Switch the slider to OFF. Press and keep holding the **A** and **H** buttons together (under the facia), then press the **Next** ⏩ button to enter the technical settings. Release all buttons.

2. Press the **+/-** buttons to choose between:-

OFF: The programme will run according to settings

DS (dL StAr DS): When ON, the programmer will run in Delayed Start mode. The start of the next programme may be delayed up to 45 minutes depending on the room temperature

OS (OP StAr OS): When ON, the programmer will run in Optimum Start mode

3. Press the Next button and press the **+/-** buttons to turn OP STOP (Optimum Stop) ON/OFF.

4. Press the **Next** ⏩ button to enter the TPI settings. Press +/- to choose between:-

OFF: Working under normal swing value

3 Cycles: ON/OFF one cycle is 20 minutes. This is recommended for oil boilers

6 Cycles: ON/OFF one cycle is 10 minutes. This is recommended for gas boilers (default setting)

5. Press the **Next** ⏩ button to continue to the Sensitivity/Swing and Calibration settings below.

## Setting Sensitivity/Swing and Calibration

1. Switch the slider to OFF. Press and keep holding the **A** and **H** buttons together (under the facia), now press the **Next** ⏩ button and the technical settings menu will be displayed. Release all buttons.

2. Press the **Next** ⏩ button until you get to the SWING settings (5U1n9 is displayed at the bottom of the LCD next to a flashing 0.5). Press **+/-** to choose between 0.5 to 2.0

3. Press the **Next** ⏩ button to enter the ADJ settings. Press +/- to choose between -3 to 3 (this calibrates the temperature).

## Setting the Landlord Service & Time Events

1. Switch the slider to OFF. Press and keep holding the **A** and **H** buttons together (under the facia), now press the **Next** ⏩ button and the technical settings menu will be displayed. Release all buttons.

2. Press the **Next** ⏩ button until you get to SER (service interval) Settings. A numeric password will be required to

enter this section. The factory default password is 0000. **N.B.** The screen will display Err if the incorrect password is entered.

3. Press **+/-** to enter the first digit of the password. Press the **H** button to move to the next digit. Repeat this until all 4 digits have been entered.

4. Press the **Next** ⏩ button to enter the service interval settings.

5. Use the **+/-** buttons to choose between:-

OFF: Turns the service interval off

1: Reminds the user when the annual service is due by displaying SER in the screen 30 days before due date

2: Reminds the user when the annual service is due by displaying SER in the screen 30 days before due date and only allows the system to run for 45 minutes per hour after the due date has passed

3: Reminds the user when the annual service is due by displaying SER in the screen 30 days before due date and only allows the system to run for 30 minutes per hour after the due date has passed

4: Reminds the user when the annual service is due by displaying SER in the screen 30 days before due date and only allows the system to run for 15 minutes per hour after the due date has passed

6. Press the **Next** ⏩ button. Use **+/-** to set the due date (from 28 - 366 days).

7. The left of the LCD screen will display the recorded running time. Holding the C button for 2 seconds will zero to the time.

8. To change the code, go to the Due Date setting (in SER settings), press the **A** button for 2 seconds. NEU CODE will appear at the bottom of the LCD display. Press **+/-** to set the first digit, then press the **H** button. Repeat this for all four digits. Press the **A** button for 2 seconds again to set the new code. The screen will display SET to confirm the change.

9. The system will start timing after the thermostat is powered on (Running Time). When the running time reaches 30 days from the Due Date, the screen will display SER. When the running time is more than or equal to the Due Date, the screen will display SER constantly and the system ON time will be controlled by the SER SET. **N.B** When the system is running to the ON condition, but is limited by the SER SET (and therefore cannot be ON), the screen will flash the ON symbol.

10. Press **Next** ⏩ to enter the PROGRAMMES setting, press **+/-** to choose either 4 or 6 time temperature events per day.

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