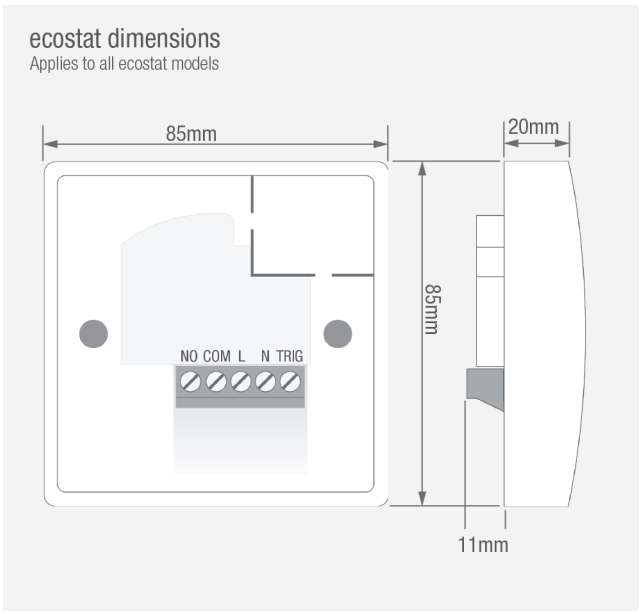
PRE5203ec ecostat Touch PIR Adjust Auto-on

3 Stage Infra-red Settable Intelligent PIR Thermostat With User Adjust And Auto-on Feature



Specification:

SIZE: Standard single gang plate size. Requires a 30mm or larger surface pattress or 25mm or greater sunken box. When mounting into a sunken wall box or metal clad box remove the top and bottom mounting lugs of the box.

SUPPLY VOLTAGE: 220-240V AC at 50hZ.

LOAD: 16A Resistive, not suitable for use with quartz heaters.

ELECTRICAL CONNECTIONS: Live in (L), Neutral (N), Common (C), Normally Open (NO), 230V AC 50hZ Boost Trigger (TRIG).

TERMINAL CAPACITY: 4mm² Maximum

INDICATORS: Heating active, Frost, Setback, Boost Min, Boost mid, Boost Max.

ADJUSTMENT: Program selection with temperature adjustment, button selected.

PROGRAMS: Boost, Setback, Frost.

CLOCK EVENTS: Two auto-on events in 24 hours

CLOCK RANGE: 23 hours, 59 minutes

CLOCK CELL: CR2477 3V

CLOCK CELL LIFE EXPECTANCY: Based upon 2 months per year the unit is powered down, 5 Years.

PIR MODES: Absence & Presence selectable (handset required not supplied).

PIR DETECTION RANGE: 5m

TIMING RANGE: Boost 5-999 minutes, Setback 5 minutes to 999 hours, PIR time-out 0-999 minutes (optional).

TEMPERATURE RANGE: Boost, Setback and Frost 1-30°C.

PROGRAMMING METHOD: AUTO LOCK SYSTEM © Secure Infra-red programming via the PRE5901.

CONFORMANCE: EMC-2004/108/EC LVD-2006/95/EC

ERP CLASS: ErP 1

ERP SEASONAL HEATING EFFICIENCY: 1%

CASING MATERIAL: ABS

TEMPERATURE ACCURACY: +/- 0.5°C

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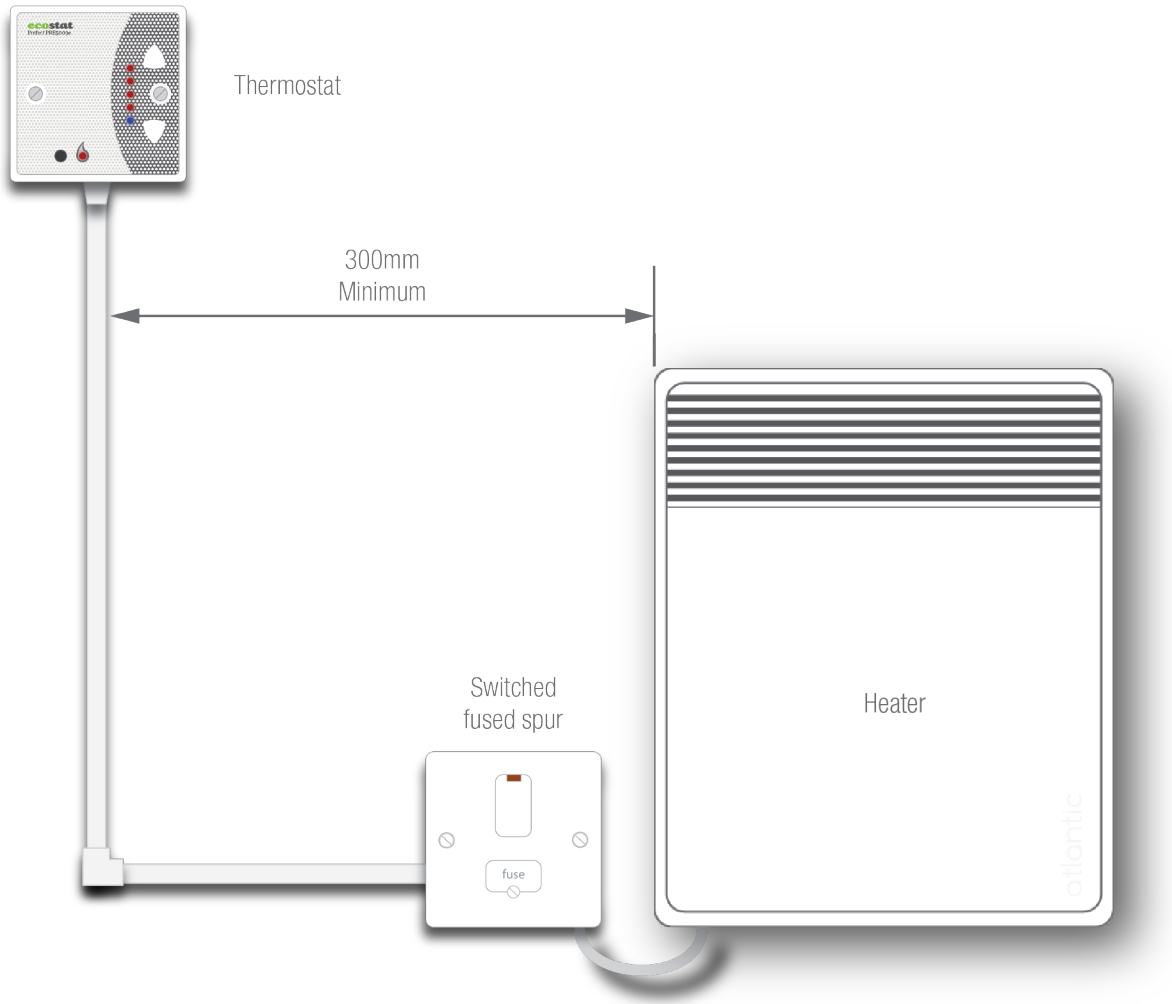
Installation:

- All installation and wiring works must be completed by a competent person and conform relevant regulations in-force at time of installation
- Locate the thermostat at least 300mm away from the nearest edge of the heater. Ensure the thermostat is placed where it cannot be affected by extraneous heat sources, for example: televisions, desktop computers, fridges. If fitted too close to an extraneous heat source the thermostat will not function correctly. Mount the thermostat at the centre point of the room if possible. Do not mount the thermostat behind curtains or room dividers.
- Ensure the thermostat has a local means of safe isolation. A double pole isolator must be used.
- Mount the thermostat at 1.2m from finished floor level.
- The thermostat can be mounted in both surface and sunken boxes. When mounting into a metal clad pattress or sunken box the upper and lower lugs must be removed.
- Ensure the thermostat is not mounted within 1m of forced heating or ventilation systems.

Typical layout:



Wiring:

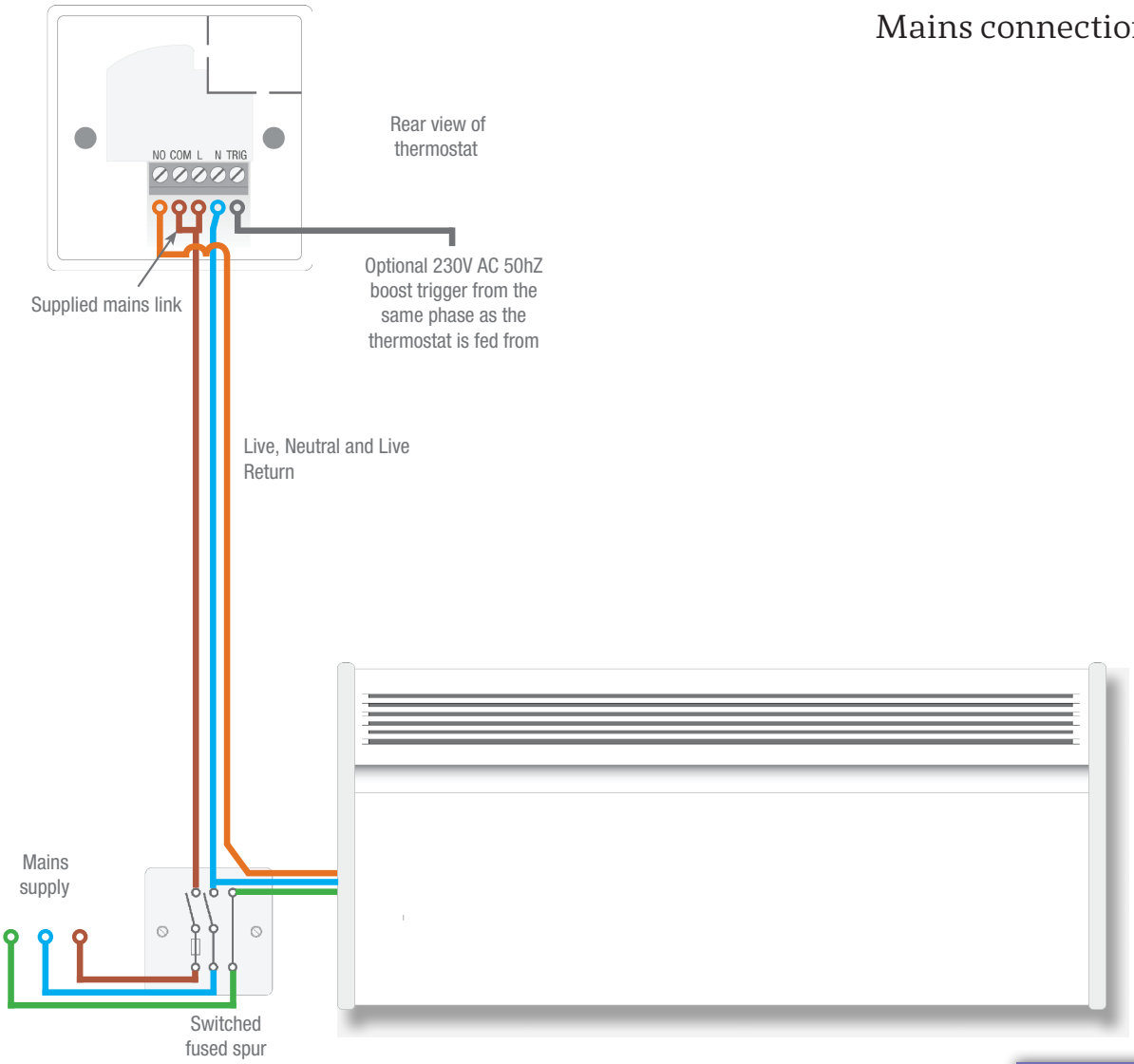
Mains output

1. Isolate the appropriate circuit that the thermostat is to be supplied from. Perform safe isolation procedure to ensure the circuit is completely isolated. Ensure the supply has been locked in the off position. Always ensure safe working practices.
2. Make any circuit adjustments required in accordance with current regulations.
3. If the trigger terminal is to be used ensure the trigger supply is fed from the same circuit as the thermostat supply to conform with current regulations.
4. Connect the live and neutral supply to the thermostat, note that the load neutral must be fitted with the supply neutral. Ensure the supplied mains link is fitted between L and COM terminals, terminate the loads live supply to the normally open (NO) terminal. Ensure the link is securely fastened in both the L and COM terminals.
5. Recheck all terminal including any factory fitted connections and fit unit to back box ensuring cables are not in a position to be damaged.
6. Re-energise the circuit. Press the up button twice to enable a 2 minute test cycle.

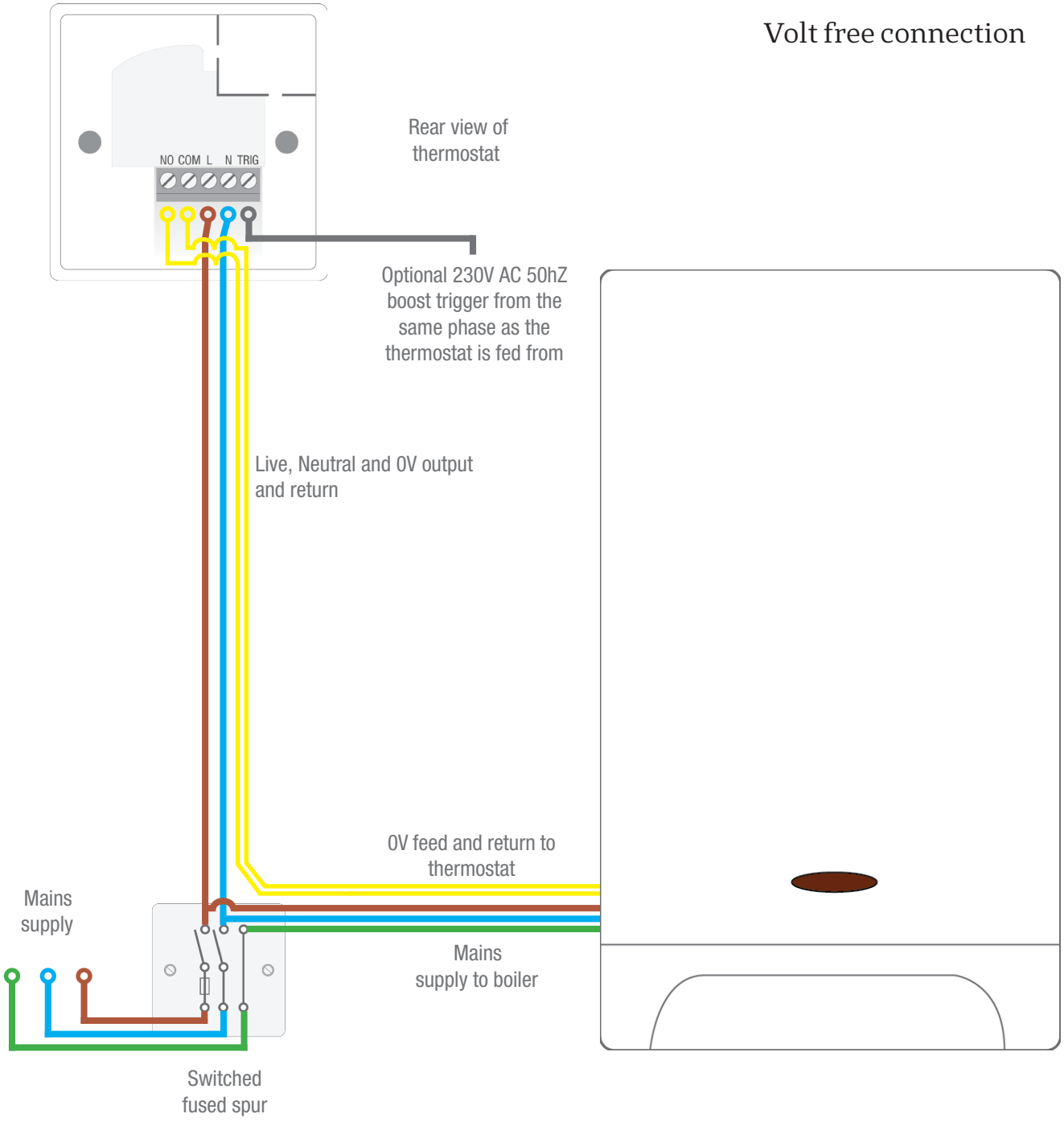
Volt free output

1. Isolate the appropriate circuit that the thermostat is to be supplied from. Perform safe isolation procedure to ensure the circuit is completely isolated. Ensure the supply has been locked in the off position. Always ensure safe working practices.
2. Make any circuit adjustments required in accordance with current regulations.
3. If the trigger terminal is to be used ensure the trigger supply is fed from the same circuit as the thermostat supply to conform with current regulations.
4. Terminate the live and neutral supply to the thermostat. Ensure the supplied mains link is removed.
5. Terminate the loads feed cable to the common (COM) terminal. Terminate the load return to normally open (NO) terminal.
6. Recheck all terminal connections and fit unit to back box ensuring cables are not in a position to be damaged.
7. Re-energise the circuit. Press the up button twice to enable a 2 minute test cycle.

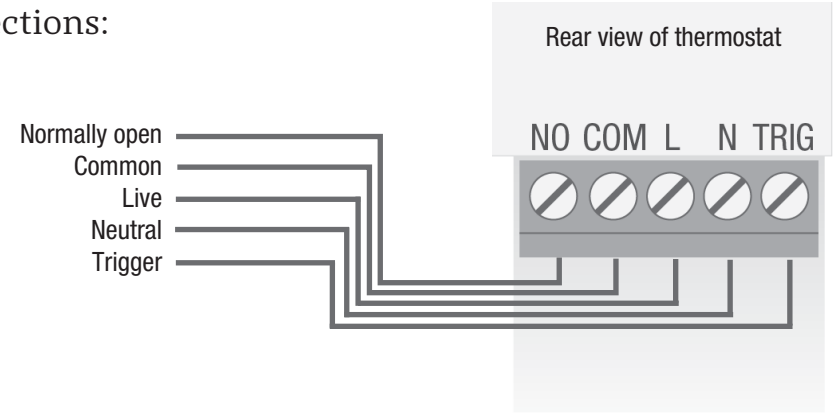
Mains connection



Volt free connection



Terminal connections:



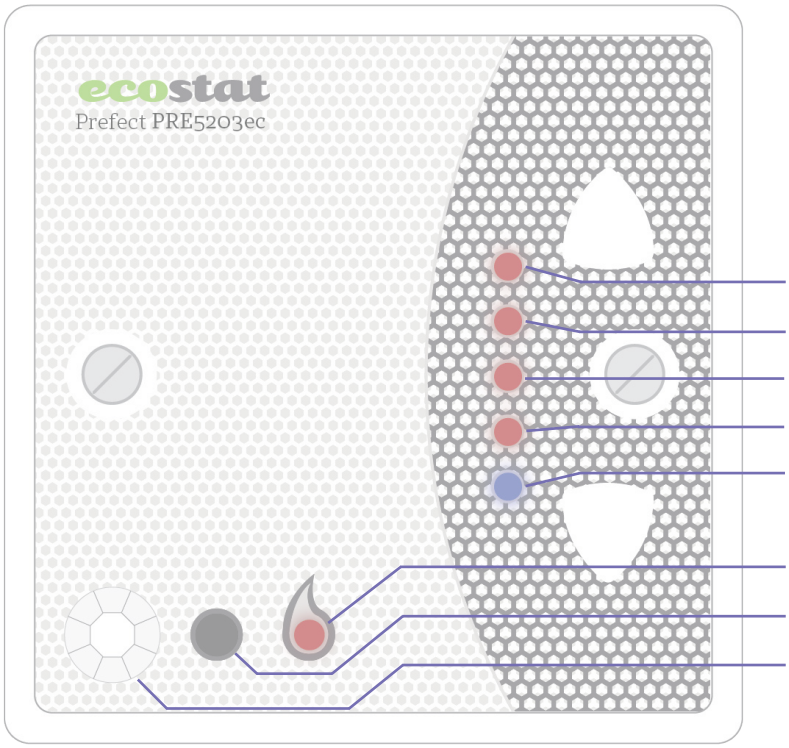
Troubleshooting:

Fault	Checks
No LEDS are lit	1. Check the unit is wired as per the wiring section starting on page 3 2. Check the mains supply voltage, ensure that 220-250V AC are present and stable
The load does not turn on	1. Ensure there is power to the load if not fed by the thermostat, for example a volt free boiler connection 2. Check the unit is wired as per the wiring section starting on page 3 3. Check that the  LED is lit. This LED will only light when the thermostat relay is closed. If the LED is off the relay is open. If the LED is lit the thermostat is calling for heat 4. Check that the current room temperature is not above that of the thermostat set-point. If the room temperature is above the top temperature set-point the thermostat will not close it's relay to heat until the room temperature falls below the set-point. 5. If wired in a mains output configuration ensure the mains link has been fitted 6. If the load is not turning on at a programmed auto-on event time, Check that the auto-on events have been correctly programmed into the thermostat. Programmed auto-on timings can be read using the PRE5901 handset. See PRE5901 instructions for details.
The load does not turn off	1. Check the unit is wired as per the wiring section starting on page 3 2. Check that the  LED is not lit. This LED will only light when the thermostat relay is closed. If the LED is off the relay is open. If the LED is lit the thermostat is calling for heat and therefore the load will not switch off until heating is complete 3. Check that the current room temperature is not below that of the thermostat set-point. If the room temperature is below the top temperature set-point the thermostat will not open it's relay to discontinue heating until the room temperature is raised above that of the set-point 4. If wired in a volt free contact configuration ensure the mains link has been removed. 5. Check that the clock auto-on function has not activated. Programmed auto-on timings can be read using the PRE5901 handset. See PRE5901 instructions for details
Only the blue LED is lit and the buttons do not function	This is normal after first power up. The thermostat stays dormant for 1 minute while the PIR stabilises. Once this time has elapsed the unit will function as normal
The load switches off after 2 minutes	The thermostat has a 2 minute test cycle/pre-warm, when the unit is boosted from setback or frost, or triggered via the PIR the thermostat will heat regardless of temperature for 2 minutes. Once this time run has elapsed the thermostat will resume temperature sensing. If the load is switching off after this time the temperature set-point is below that of the room temperature meaning there is no need for the load to be on
The thermostat is always in boost mode	1. Presence has been detected and boost mode activated. 2. A voltage is present at the trigger terminal holding the unit in boost mode 3. Foreign substance jamming up button 4. Auto-on is active. Programmed auto-on timings can be read using the PRE5901 handset. See PRE5901 instructions for details
The thermostat does not enter boost mode when I enter the room	1. The thermostat is in absence detection not presence detection 2. Your presence is out of range of the PIR 3. The thermostat has been sited in an obstructed area 4. The PIR has been covered 5. The unit is not powered
The thermostat does not stay at set level	1. The boost run time has elapsed and the thermostat has returned to setback mode 2. A foreign substance is jamming one of the buttons 3. Presence has been detected and the unit has entered boost mode 4. Absence has been detected and the unit has returned to setback mode 5. A voltage is present at the trigger terminal changing the program to boost mode, the thermostat will return to setback mode once the voltage is removed unless presence is detected in which case the unit will stay in boost mode 6. Auto-on has activated and the thermostat has triggered into boost mode. Programmed auto-on timings can be read using the PRE5901 handset. See PRE5901 instructions for details

Programming characteristics:

The time and temperature profiles of the unit are factory set to a default setting, however further adjustments can be made on site via the PRE5901 programming handset (Please note the PRE5900 and PRE5903 are not compatible with the ecostat range).

Once the unit has been wired and fitted as per instructed in this manual, power up the unit. The unit will be dormant for 1 minute after initial power up to allow the PIR sensor to stabilise.



LED indicators

- Boost Maximum
- Boost Mid
- Boost Minimum
- Setback
- Frost

- Heating
- Infra-red window
- PIR detector

Program states:

BOOST

This mode is typically a relatively short run time, 30 minutes is recommended, with a comfortable room temperature used when the room is occupied. The boost mode is activated either by the PIR sensing presence, the up button being pressed or the thermostat receiving a boost trigger voltage from an external source or an auto-on event.

SETBACK

This mode typically uses a medium length run time 12 to 48hrs is recommended. A temperature of 30% less than the boost temperature is recommended, this setting is used for short periods of absence. Setback mode is enabled when the boost run time has elapsed. Setback mode can also be selected with the control buttons, either raising the temperature from frost or cancelling the boost cycle.

FROST

This mode is used for long periods of occupant absence. A temperature of 5°C is recommended to protect the fabric of the building.

USER ADJUSTMENT

The occupant can adjust the rooms temperature by using the up and down buttons. The occupant can only adjust the temperature level between the preset levels, the maximum setting is the boost temperature and the minimum is frost setting.

PIR DETECTION MODES:

In presence mode the thermostat will automatically boost when occupancy is detected. The thermostat will stay in boost mode until occupancy is no longer detected and a settable run time has elapsed. If after the timer run has elapsed and presence is detected the thermostat will re-enter boost mode.
In absence mode the thermostat will not trigger when occupancy is detected. An up button press or a trigger voltage is required to trigger the thermostat into boost mode. The thermostat will stay in boost mode until occupancy is no longer detected and the settable timer (PIR Time-out) run has elapsed, at which point the thermostat will enter setback mode. To re-enter boost mode an up button press or trigger voltage must be applied.

TEST MODE/PRE -HEAT

When the thermostat is boosted by either presence detection or an up button press the thermostat will enter boost mode. For the first 2 minutes of the boost cycle temperature sensing is omitted and the thermostat will heat regardless of temperature. After the 2 minutes has elapsed temperature sensing is re-enabled and the thermostat will continue the boost cycle. This cycle can take place only once during a boost cycle and once every hour unless the boost cycle is of more than an hour in which case the cycle can only take place once.

Program characteristics:

PRESENCE MODE

When presence is detected the thermostat automatically enters boost mode. When the unit is in boost mode the thermostats temperature can be altered between pre-set levels. The thermostat can also be manually returned to setback or frost mode. After the boost time run has elapsed the unit will enter setback mode. If presence is once again detected or if the thermostat receives a trigger voltage the unit will re-enter boost mode. If no presence or trigger voltage is present the thermostat will continue in setback mode until the settable run time has elapsed. Once the run time has elapsed the thermostat will enter frost mode. The thermostat will remain in frost mode indefinitely until presence or 230VAC is present at the trigger terminal at which point the thermostat will enter boost mode and restart the process.

Whenever presence is detected the boost run time is reset to 0, meaning; if presence is detected boost mode will start and the timer will begin, if the occupant leaves the room and returns, presence is detected again and the boost timer will be reset to 0 and begin counting again.

Note PIR time-out does not operate when the thermostat is in Presence mode.

230VAC REMOTE TRIGGER

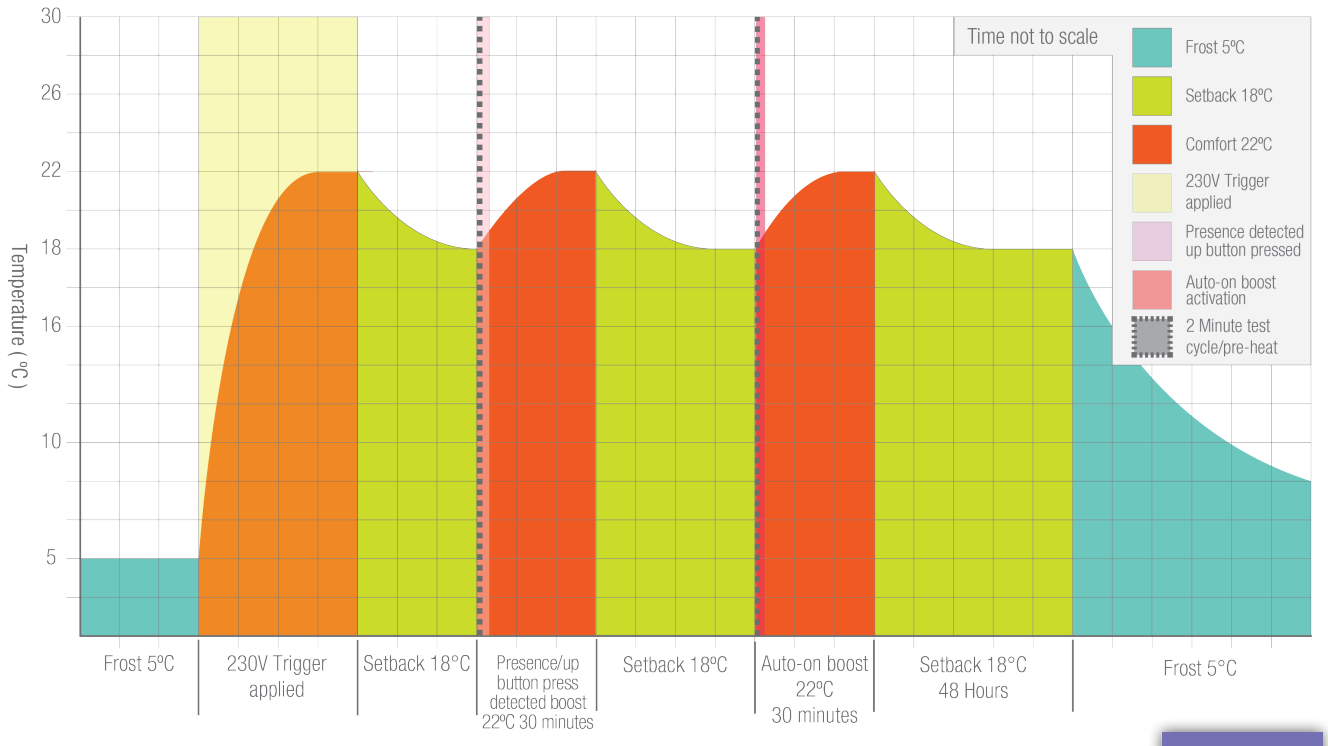
The thermostat can be remotely triggered into boost mode by applying a 230VAC voltage to the trigger terminal (TRIG) of the thermostat. When the voltage is applied for less than 30 seconds the thermostat will enter boost mode at the minimum level, the thermostat will complete the boost run time. When the voltage is applied for more than 30 seconds the thermostat will stay in boost mode until the trigger voltage is disconnected. Once the trigger has been disconnected the thermostat will immediately enter setback mode and resume the normal program cycle. When the trigger voltage is active the PIR is omitted.

ABSENCE

In Absence mode (ABS) the thermostat will remain dormant until the up button is pressed or a 230VAC trigger voltage is applied to the trigger terminal, once the up button is pressed and or a trigger applied, the thermostat will enter boost mode. If the room is continuously occupied the thermostat will remain in boost mode until the boost time has elapsed. Once the boost time has elapsed the thermostat will enter setback mode. If the thermostat is boosted and the room is left unoccupied the thermostat will start the PIR time-out. PIR time-out is the length of time the thermostat will stay in boost mode once the room is unoccupied. For example if the room is occupied for 15 minutes and the boost time is set to 30 minutes and the occupant leaves the room after 15 minutes, the PIR time-out time will start, once the PIR time-out time has elapsed the thermostat will enter setback mode. If the room is occupied for 1 hour, the boost cycle will be active for the selected 30 minutes then enter setback mode. Boost Time is how long the thermostat will stay in boost mode if the room is occupied. PIR time-out is how long the thermostat stays in boost mode when the room is unoccupied. If you wish to have the boost cycle complete regardless of absence set the PIR time-out to the same value as the boost time.

AUTO-ON

Auto-on will trigger the thermostat into boost mode at 1 or 2 points in a 24hr period. The auto-on feature is programmed using the PRE5901 handset. Please note that the clock must be set during first power up. Clock setup is programmed via the PRE5901 handset (see PRE5901 instructions). Once programmed the thermostat will boost automatically at the set time. The thermostats PIR is omitted during the auto-on cycle, meaning that the thermostat will heat whether presence is detected or not. Once the thermostats auto-on has triggered the thermostat will run the boost time. The 2 minute pre heat/test cycle does apply to the auto-on cycle.



Programming:

All thermostat parameters are set via the PRE5901 programming handset. Please note that the other Prefect IR handsets are not compatible with the ecostat series. For instructions on how to program the ecostat range and other Prefect infra-red products please see the PRE5901 instructions, available upon request or visit: www.prefectcontrols.com/our-products/handsets/pre5901/

Scan for PRE5901 programming handset instructions

Programming parameters:

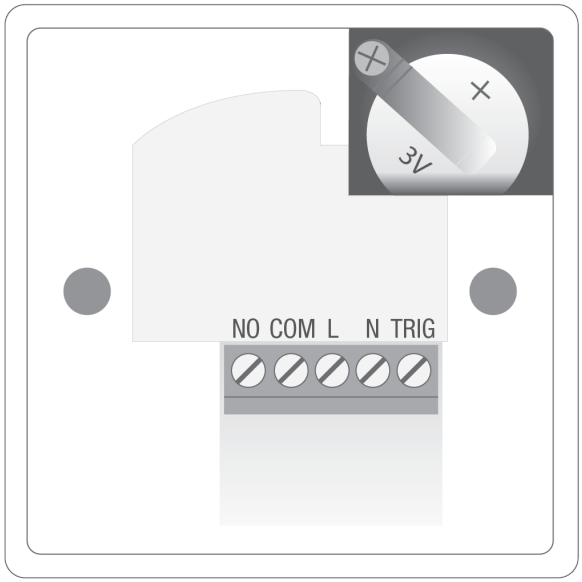
Parameter	Value	Description
Temperature		
Frost (°C)	1-30°C	Frost temperature.
Setback (°C)	1-30°C	Setback temperature.
Boost (°C)	1-30°C	Boost Temperature.
Setback (hrs)	1-999 Hours	Timer run between boost mode ending and frost mode starting.
Boost (mins)	1-999 Minutes	Boost run time. Does not apply when boosted by trigger.
Current T (°C)	°C	Current room temperature as read by the thermostat.
Setback (mins)	1-59 Minutes	For use when a setback time of less than 1 hour is required.
PIR		
Detection Mode	Presence or absence	Detection mode for the PIR
Time-out	0-999 Minutes	Time-out only applies to Absence mode. Time-out is the length of time the thermostat will maintain boost level after an occupant has left the room. For example if the room is occupied and in boost mode, when the occupant leaves the room the PIR time-out begins, when the PIR time-out time elapses the thermostat will enter setback mode.
Events		
Event 1 Hr	Hours	Event activation time 1, hour. Select the hour in the 24 hour period of when the thermostat is required to trigger.
Event 1 Min	Minutes	Event activation time 1, minutes. Select the minutes of the hour of the no. 1 activation time.
Event 2 Hr	Hours	Event activation time 2, hour. Select the hour in the 24 hour period of when the thermostat is required to trigger.
Event 2 Min	Minutes	Event activation time 2, minutes. Select the minutes of the hour of the no. 2 activation time.
Clock		
Current Time Hr	Hours	Input the current time hour, please note the handset does not keep time, the current time must be input into the handset at point of setting the thermostats time.
Current Time Min	Minutes	Input the current time minutes, please note the handset does not keep time, the current time must be input into the handset at point of setting the thermostats time.
Device Config		
Deep Sleep	Not used	Not used.
IR enabled	Yes or No	Disables the infra-red setup from further adjustment without first re-enabling the infra-red. For instance when the infra-red is disabled the thermostat will not accept any settings until infra red is re-enabled. This can also be used for when 2 thermostats are in close proximity and require different settings.
Soft Reset		Restarts the thermostat without altering any stored settings.
Factory Reset	PRE5203	Returns all parameters of the thermostat to default settings, the handset settings are not changed.

Battery cell replacement

The thermostats battery cell is required for operation of the auto-on feature. Once the battery cell has been depleted the auto-on feature will cease to function. However the thermostats other functions will not be affected and will continue to operate as normal. Please note that when the battery cell has been depleted only the current time is lost, all other settings are saved in the thermostats non-volatile memory.

Before undertaking any servicing work on the thermostat it is imperative that the mains supply to the thermostat and any trigger voltages have been safely isolated.

1. Perform safe isolation procedure.
2. Remove the thermostat from the fixing box.
3. Ensure there are no voltages present at any of the terminals.
4. Remove the battery retaining clip by removing the small self-tapping screw, be sure to keep the screw in a safe place.
5. Remove the battery cell and dispose in an appropriate manner.
6. Insert the new battery cell, ensure the battery cell is inserted with the negative pole facing the negative pad on the PCB and the positive pole facing outwards.
7. Insert the retaining clip and replace the self-tapping screw. Do not over tighten the fixing screw.
8. Ensure no conductors have been displaced during works.
9. Fit the thermostat back into it's fixing box.
10. Re-energise the supply circuit and any trigger circuits.
11. Check the thermostat is functioning correctly.
12. Using the PRE5901 programming handset, input the current time.



Rear of thermostat

Battery cell fitted

- Battery cell
- Retaining Clip
- Self-tapping screw

Battery cell removed

- Battery cell negative (-) pad
- Fixing screw mounting hole