



## SEC\_STP328

### Timer Controlled Wall Thermostat

Firmware Version : 1.3

#### Quick Start

**A** This is a wireless Actor. For Inclusion and Exclusion press and hold both white buttons on the device until the LED starts flashing. (green -> Inclusion, red -> Exclusion)

Please refer to the chapters below for detailed information about all aspects of the products usage.

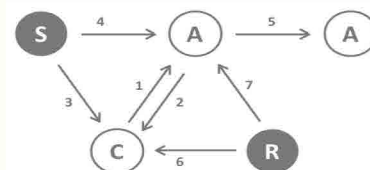


#### What is Z-Wave?

This device is equipped with wireless communication complying to the Z-Wave standard. Z-Wave is the **international standard for wireless communication** in smart homes and buildings. It is using the **frequency of 868.42 MHz** to realize a very stable and secure communication. Each message is reconfirmed (**two-way communication**) and every mains powered node can act as a repeater for other nodes (**meshed network**) in case the receiver is not in direct wireless range of the transmitter.

Z-Wave differentiates between Controllers and Slaves. Slaves are either sensors (**S**) transmitting metered or measured data or actuators (**A**) capable to execute an action. Controllers are either static mains powered controllers (**C**) also referred to as gateways or mobile battery operated remote controls (**R**). This results in a number of possible communication patterns within a Z-Wave network that are partly or completely supported by a specific device.

1. Controllers control actuators
2. Actuators report change of status back to controller
3. Sensors report change of status of measured values to controller
4. Sensors directly control actuators
5. Actuators control other actuators
6. Remote controls send signals to static controllers to trigger scenes or other actions
7. Remote controls control other actuators.



There are two different role a controller can have. There is always one single primary controller that is managing the network and including/excluding devices. The controller may have other functions - like control buttons - as well. All other controllers don't manage the network itself but can control other devices. They are called secondary controllers. The image also shows that its not possible to operate a sensor just from a remote control. Sensors only communicate with static controllers.

#### Product description

The STP328 is a battery operated wall controller capable controlling a boiler actuator via a Z-Wave wireless connection. The device can act both as primary controller or as secondary controller. The controlling and switching behavior however can not be set wirelessly but with local control buttons only. The device has multiple timers and is therefore able to execute even complex heating scenarios.

The STP328 is supplied in two parts. The actuator (SEC\_SSR302) which is hard wired to the combi or conventional system boiler and the thermostat which can be used in any normal domestic environment within a typical 30 metre range without the need for any costly or disruptive wiring.

#### Batteries

The unit is operated by batteries. Use only batteries of correct type. Never mix old and new batteries in the same device. Used batteries contain hazardous substances and should not be disposed of with household waste!

Battery Type: 1 \* CR2

#### Installation Guidelines

##### Thermostat

The backplate of the device is to be used as a mounting plate for wall mounting. Open the backplate by undoing the screws located on the underside and swing open the control panel. Use the backplate as pattern and mark the drill holes, drill the holes and mount the backplate. The slots in the backplate will compensate for any misalignment of the fixings. Reassemble the control panel with the backplate and swing close it into closed position.

##### Boiler Actuator

**Installation and connection of the receiver should only be carried out by a suitably qualified person.**

To remove the backplate from the receiver, undo the two retaining screws located on the underside; the backplate should now be easily removed. Once the backplate has been removed from the packaging, ensure the receiver is re-sealed to prevent damage from dust, debris etc. The backplate should

be fitted with the wiring terminals at the top and in a position which allows a total clearance of at least 50mm around the receiver.

### Direct Wall Mounting

The receiver should ideally be located near an existing power supply within an easy wiring location to the items being switched. Offer the plate to the wall in the position where the receiver is to be mounted, remembering that the backplate fits to the left hand side of the receiver. Mark the fixing positions through the slots in the backplate, drill and plug the wall, then secure the plate in position. The slots in the backplate will compensate for any misalignment of the fixings.

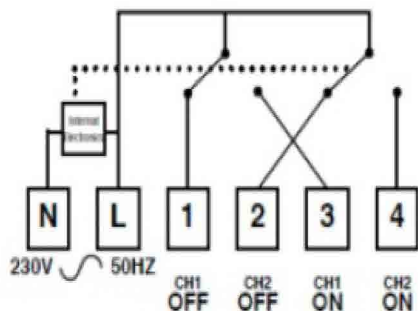
### Wiring Box Mounting

The receiver backplate may be fitted directly onto a single gang steel flush wiring box complying to BS4662 using two M3.5 screws. The receiver is suitable for mounting on a flat surface only. It must not be positioned on an unearthed metal surface.

### Electrical Connections

All necessary electrical connections should now be made. Flush wiring can enter from the rear through the aperture in the backplate. Surface wiring can only enter from beneath the receiver and must be securely clamped. The mains supply terminals are intended to be connected to the supply by means of fixed wiring. The receiver is mains powered and requires a 3 amp fused spur. The recommended cable sizes are 1.0mm<sup>2</sup> or 1.5mm<sup>2</sup>.

The receiver is double insulated and does not require an earth connection although an earth connection block is provided on the back plate for terminating any cable earth conductors. Earth continuity must be maintained and all bare earth conductors must be sleeved. Ensure that no conductors are left protruding outside the central space enclosed by the backplate.



### Internal Wiring Diagram

The SSR302 has an integral connection which makes it suitable for mains voltage applications only. No additional linking is required between terminals.

### Fitting the Receiver

If surface wiring has been used, remove the knockout/insert from the bottom thermostat to accommodate it. Fit the receiver to the backplate, ensure the lugs on the backplate engage with the slots on the receiver. Swing the bottom of the receiver into position ensuring that the connection pins on the back of the unit locate into the terminal slots in the backplate.

**Warning:** ISOLATE MAINS SUPPLY BEFORE COMMENCING INSTALLATION!

### Behavior within the Z-Wave network

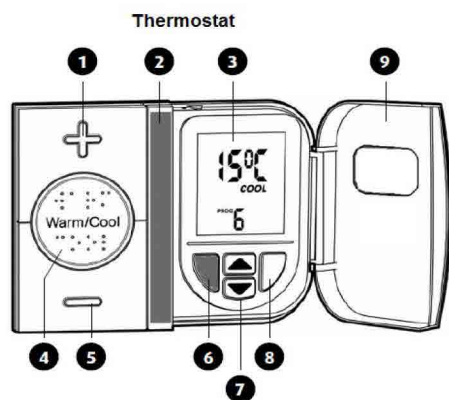
**I** On factory default the device does not belong to any Z-Wave network. The device needs to join an existing wireless network to communicate with the devices of this network. This process is called **Inclusion**. Devices can also leave a network. This process is called **Exclusion**. Both processes are initiated by the primary controller of the Z-Wave network. This controller will be turned into exclusion respective inclusion mode. Please refer to your primary controllers manual on how to turn your controller into inclusion or exclusion mode. Only if the primary controller is in inclusion or exclusion mode, this device can join or leave the network. Leaving the network - i.e. being excluded - sets the device back to factory default.

If the device already belongs to a network, follow the exclusion process before including it in your network. Otherwise inclusion of this device will fail. If the controller being included was a primary controller, it has to be reset first.

For Inclusion and Exclusion press and hold both white buttons on the device until the LED starts flashing. (green -> Inclusion, red -> Exclusion)

### Operating the device





- |                          |                               |
|--------------------------|-------------------------------|
| 1 - Plus '+' Button      | 6 - Standby Time/Set Button   |
| 2 - LED Indicator lights | 7 - Increase/Decrease Buttons |
| 3 - Installer Display    | 8 - Prog/Exit Button          |
| 4 - 'Warm/Cool' Button   | 9 - Front flap shown open     |
| 5 - Minus '-' Button     |                               |

## Thermostat

### Part 1 - Day to Day operation

The Thermostat has been designed to be a simple to use thermostat, requiring minimal user intervention with a pre-programmed heating profile. Simple temperature adjustments can be easily carried out by using the '+' and '-' buttons. The indicator lights react to any temporary user adjustments, with the LED indicators working in the following way; 'Warm' is shown by two red lights and 'Cool' is shown by a single blue light. The centre button marked 'Warm/Cool' allows you to toggle between the warm and cool settings.

#### Power Down Mode

During normal operation the Thermostat will go into Power Down Mode, this is to maximise the life of the 3 x AA batteries fitted. Normal operation will continue during this mode, and the heating will be unaffected. The result of the Power Down Mode will mean that the LED indicators will not be displayed and LCD will not be illuminated, although the 'Warm' or 'Cool' temperature will be displayed. To 'wake up' the AS2-RF press the 'Warm/Cool' button for 5 seconds, this will then illuminate both the LED and LCD displays for a period. Any adjustment can then be made, the Power Down Mode will commence again approximately 8 seconds after the last button press.

#### Warm and Cool Temperature Adjustment

The Warm and Cool target temperature settings on the Thermostat are fully adjustable. To change a target temperature it is first necessary to press the centre button to bring up the 'Warm' or 'Cool' setting (indicated by the red or blue LED indicators). By using the up/down keys under the flap the Warm/Cool temperature can be increased or decreased to the desired temperature setting. PLEASE NOTE - it is not possible to set the warm setting to below that of the cool setting or vice versa. Once a new temperature has been set in either the Warm or Cool setting the Thermostat will continue to use this setting until the next manual adjustment.

#### Frost Protection

The blue button situated under the flap will initiate the frost protection mode, when pressed the word 'STANDBY' will appear on the display, the thermostat has been preprogrammed with a frost protection temperature level of 7°C, this can be adjusted by using the up and down arrow buttons. Minimum setting 5°C. It is not possible to set a frost protection temperature above the cool setting.

### Part 2 - Programming Mode

The Thermostat has been designed for minimal user intervention, however should any changes to the existing programmes be required please press button 6 and 8 simultaneously to enter the programming mode, this will allow you to:

- Check the current time/date/year
- Check the current profile
- Set a new pre-set profile or
- Set a user defined profile

PLEASE NOTE: Upon completion of any of the adjustments above, please ensure that you exit the programming mode by pressing buttons 6 and 8 simultaneously.

#### Time and Date Check

The Thermostat has a built in automatic clock adjusting for BST and GMT time changes and has been preset with the current time and date during manufacture. No alteration should be required to the time and date, however if any modification is required please refer to the steps below.

- Open Cover
- Enter programming mode by pressing buttons 6 and 8
- Press TIME
- Press SET
- MINUTE flashes. Adjust using UP/DOWN buttons. Press SET
- HOUR flashes. Adjust using UP/DOWN buttons. Press SET

- DATE flashes. Adjust using UP/DOWN buttons. Press SET
- MONTH flashes. Adjust using UP/DOWN buttons. Press SET
- YEAR flashes. Adjust using UP/DOWN buttons. Press SET
- Press EXIT
- Exit programming mode by pressing buttons 6 and 8

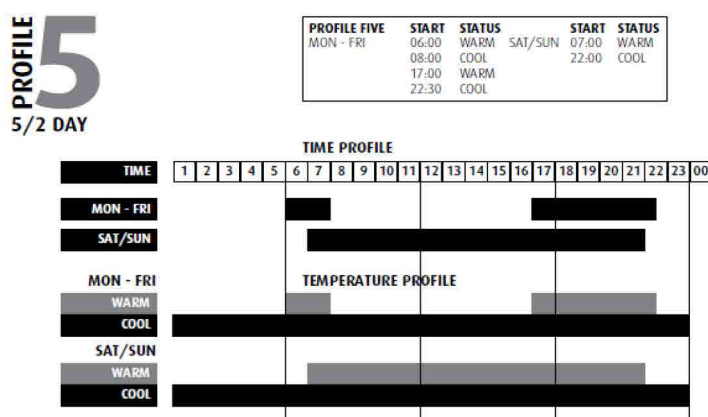
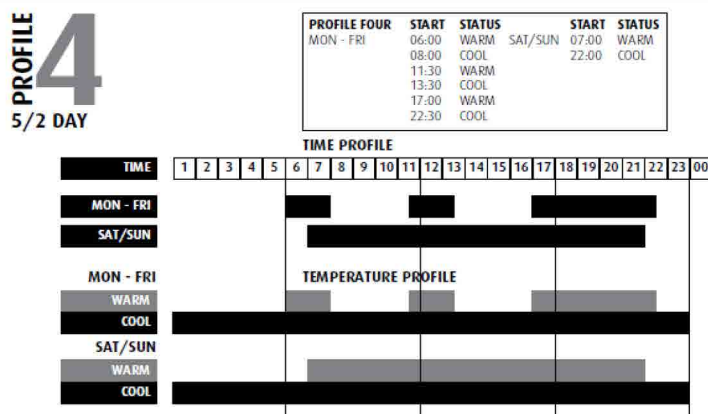
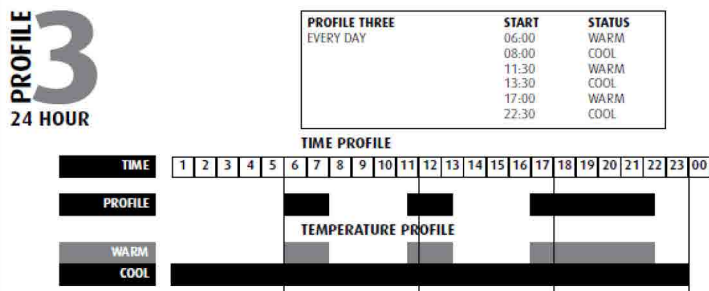
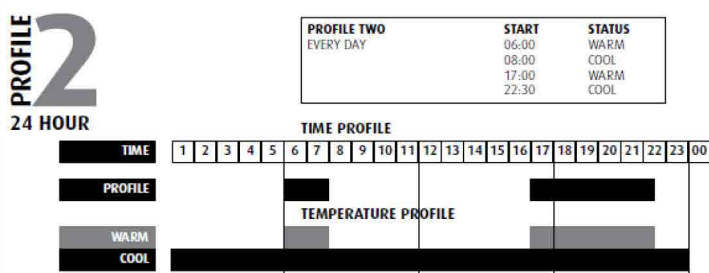
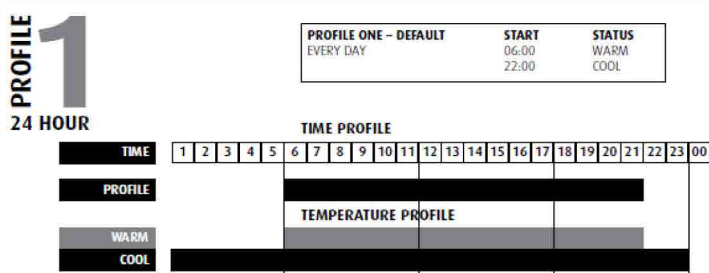
## Setting Heating Profiles

The Thermostat contains a selection of five preset and one user definable profile options, one of these will have been set by the Installer. Care should be taken to ensure a profile is selected that suits your lifestyle the best. If none of the preset profiles meet your requirements it is possible to set a user defined profile.

- Open Cover
- Enter programming mode by pressing buttons 6 and 8
- Press PROG
- Press SET
- Select the required profile by using the UP/DOWN buttons
- Press SET. To review preset profiles 1 to 5 press UP button (7) repeatedly
- Press EXIT
- Exit programming mode by pressing buttons 6 and 8

## Heating Profiles

The Thermostat has six heating profiles, five are fixed and one is adjustable. Profile 'ONE' has been set as the default and is detailed below. During installation a heating profile should have been set to best match your requirements:



Profiles one to five have fixed periods, no alteration to the Warm/Cool times can be made, if it is necessary to make any alterations then profile six must be used. Profile six will allow you to set up a profile to your exact requirements.

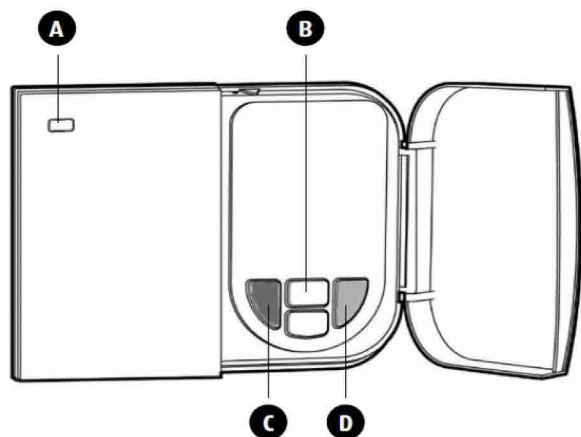
## User Definable - 7 Day Programming

PROFILE SIX	START	STATUS
DEFAULT	06:00	WARM
EVERYDAY	08:00	COOL
	11:30	WARM
	13:30	COOL
	17:00	WARM
	22:30	COOL

Profile 6 will allow you to set up a profile to your exact requirements. By using the flow chart below you can adjust the Warm/Cool timing periods as required. If only one or two Warm/Cool periods are required on any day set the times accordingly and set the remaining Warm and Cool start times to be exactly the same as each other. This will cancel the 2nd or 3rd Warm/Cool periods altogether for the day concerned. Unused periods will be shown by a series of dashes on the settings screen. Press SET and the next day and SET appears in the display. Press SET to adjust the next days settings or EXIT to return to the main menu. To do this press SET until the next day and SET appears in the display. Unused periods will be shown by a series of dashes on the setting screen. If one or two periods have been set and you wish to return to three periods in 24 hours then pressing the up arrow when the dashes appear after the last Cool setting will bring back the hidden Warm/Cool settings.

- Open Cover
- Enter programming mode by pressing buttons 6 and 8
- Press PROG
- Press SET
- Select PROFILE SIX by using the UP/DOWN buttons and press SET
- Adjust the WARM start time by using the UP/DOWN buttons and confirming with the SET button
- Adjust the COOL start time by using the UP/DOWN buttons and confirming with the SET button
- Repeat for Periods 2 and 3 (or if not needed equalise the remaining Warm and Cool times to cancel and press SET - see above)
- SET is displayed on the screen 1. To continue programming to the next day press SET and go to 'A' 2. To copy the altered settings to the next day press the DOWN button and go to 'C' 3. To finish programming go to 'D'
- Press COPY and repeat for each day to be copied
- When finished press the DOWN button and go to 'B'
- Press EXIT twice and exit programming mode by pressing buttons 6 and 8

#### Boiler Actuator



- A** – Status Indicator LED
- B** – AS2-RF Add/Remove Buttons
- C** – Boiler 'Off' Override (Red)
- D** – Boiler 'On' Override (Green)

The unit supports two static end points for the two channels.

Pressing the Top White button for 1 second will issue an 'end point capability report' for channel 1. Pressing the Bottom White button for 1 second will issue an 'end point capability report' for channel 2. Additionally the device enters learn mode for 1 second. This is useful when to associate / disassociate the device with a control group or just to determine the device and command classes supported. This can be done at any time but will not provide any indication to the operator

Broadcasting in this manner has been implemented to support association of a channel with a 3rd party controller that supports Multi-Channel Command Class.

#### Node Information Frame

**NI** The Node Information Frame is the business card of a Z-Wave device. It contains information about the device type and the technical capabilities. The inclusion and exclusion of the device is confirmed by sending out a Node Information Frame. Beside this it may be needed for certain network operations to send out a Node Information Frame.

Pressing and holding the two white buttons for 1 second will trigger the device to issue a Node Information Frame.

#### Associations

**A** Z-Wave devices control other Z-Wave devices. The relationship between one device controlling another device is called *association*. In order to control a different device, the controlling device needs to maintain a list of devices that will receive controlling commands. These lists are called **association groups** and they are always related to certain events (e.g. button pressed, sensor triggers, ...). In case the event happens all devices



stored in the respective association group will receive a common wireless command.

Association Groups:

1	Devices controlled by open/close events (max. nodes in group: 5)
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Set and unset associations to actuators

Associations can be assigned and remove either via Z-Wave commands or using the device itself.

SA

For association press and hold one of the two white buttons on the device for 1 second.

Command Classes

Supported Command Classes

- Basic (version 1)
- Battery (version 1)
- Wake Up (version 1)
- Association (version 1)
- Version (version 1)
- Binary Sensor (version 1)
- Alarm (version 1)
- Manufacturer Specific (version 1)

Controlled Command Classes

- Basic (version 1)
- Alarm (version 1)

Technical Data

Battery Type	1 * CR2
Explorer Frame Support	No
SDK	5.02 pl2
Device Type	Slave with routing capabilities
Generic Device Class	Binary Sensor
Specific Device Class	Routing Binary Sensor
Routing	No
FLiRS	No
Firmware Version	1.3

Explanation of Z-Wave specific terms

- **Controller** — is a Z-Wave device with capabilities to manage the network. Controllers are typically Gateways, Remote Controls or battery operated wall controllers.
- **Slave** — is a Z-Wave device without capabilities to manage the network. Slaves can be sensors, actuators and even remote controls.
- **Primary Controller** — is the central organizer of the network. It must be a controller. There can be only one primary controller in a Z-Wave network.
- **Inclusion** — is the process of bringing new Z-Wave devices into a network.
- **Exclusion** — is the process of removing Z-Wave devices from the network.
- **Association** — is a control relationship between a controlling device and a controlled device.
- **Wakeup Notification** — is a special wireless message issued by a Z-Wave device to announces that is is able to communicate.
- **Node Information Frame** — is a special wireless message issued by a Z\_Wave device to announce its capabilities and functions.

Disposal Guidelines

The product contains batteries. Please remove the batteries when the device is not used.

Do not dispose of electrical appliances as unsorted municipal waste, use separate collection facilities. Contact your local government for information regarding the collection systems available. If electrical appliances are disposed of in landfills or dumps, hazardous substances can leak into the groundwater and get into the food chain, damaging your health and well-being.

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