SECURE

Secure

Wall Thermostat with LCD display

SKU: SEC_SRT321

Quickstart

This is a **Alarm Sensor** for **Europe**. To run this device please insert fresh **2 * AAA** batteries. Please make sure the internal battery is fully charged.

For Inclusion of Z-Wave devices into the thermostats network do the following steps: Set DIL switch 1 on the back of the unit to "ON" position, scroll through the function menu by rotating the dial, select "I" to include nodes into the network or "E" to exclude a node from network. For including the SRT321 as a secondary controller into an existing the Z-Wave network do the following steps: Set DIL switch 1 on the back of the unit to "ON" position, scroll through the function menu by rotating the dial, select "L".

What is Z-Wave?

Z-Wave is the international wireless protocol for communication in the Smart Home. This device is suited for use in the region mentioned in the Quickstart section. (For more information about frequency regulations please refer to the frequency coverage overview at Sigma Designs Website).

Z-Wave ensures a reliable communication by reconfirming every message (**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.

This device and every other certified Z-Wave device can be **used together with any other certified Z-Wave device regardless of brand and origin** as long as both are suited for the same frequency range.

If a device supports **secure communication** it will communicate with other devices secure as long as this device provides the same or a higher level of security. Otherwise it will automatically turn into a lower level of security to maintain backward compatibility.

For more information about Z-Wave technology, devices, white papers etc. please refer to www.z-wave.info.

Product Description

The SRT321 is a battery operated wall thermostat. Using a big wheel on the device the user can preset the desired target temperature in the room. By verifying the target temperature with the measured real temperature closed to the device the unit decides how to operate a wirelessly attached power switch that is attached to the heater. In parallel a central gateway of Z-Wave control software can set the target temperature using Z-Wave. This enables to realize a time scheduled zone heating. The thermostat itself does not have any internal timers but executes the wireless settings (COMMAND CLASS THERMOSTAT_SETPOINT) and the local setup.

Prepare for Installation / Reset

Please read the user manual before installing the product.

In order to include (add) a Z-Wave device to a network it **must be in factory default state.** Please make sure to reset the device into factory default. You can do this by performing an Exclusion operation as described below in the manual. Every Z-Wave controller is able to perform this operation however it is recommended to use the primary controller of the previous network to make sure the very device is excluded properly from this network.

Reset to factory default
This device also allows to be reset without any involvement of a Z-Wave controller. This procedure should only be used when the primary controller is inoperable.

For reseting the device do the following steps: Set DIL switch 1 on the back of the unit to "ON" position, scroll through the function menu by rotating the dial, select "P". Confirm the procedure by double tapping the dial. Now your device is reset to factory defaults.

Safety Warning for Batteries
The product contains batteries. Please remove the batteries when the device is not used. Do not mix batteries of different charging level or different brands.

Installation
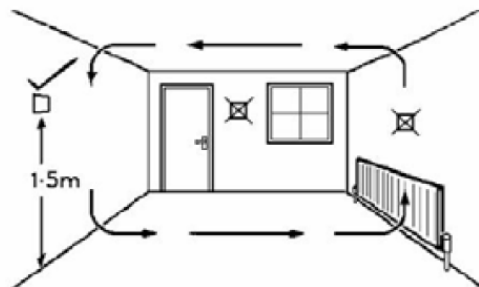
Choose a suitable mounting position in your room for installing the device. The SRT321 should be mounted on an internal wall approximately 1.5 metres from floor level using the wall plate provided and should be in a position away from draughts, direct heat and sunlight. Ensure that there will be enough space to allow easy access to the two retaining screws located at the base of the wall plate. Avoid installing the thermostat against or behind any large metal surfaces which could interfere with the radio signals.
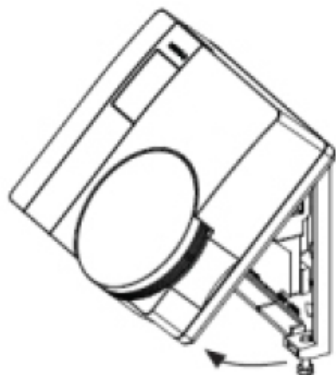
Offer the plate to the wall in the position where the SRT321 is to be mounted and mark the fixing positions through the slots in the wall plate. Drill and plug the wall, then secure the plate into position. The slots in the wall plate will compensate for any misalignment of the fixings. Undo the screws of the base of the thermostat and swing it away from the wallplate. Place the 2 x AAA batteries correctly into the battery compartment. Complete the installation by swinging the room thermostat into position by engaging with the lugs at the top of the wall plate before pushing it carefully into its plug-in terminal block. Tighten the 2 captive screws on the underside of the unit.

Inclusion/Exclusion

On factory default the device does not belong to any Z-Wave network. The device needs to be **added to an existing wireless network** to communicate with the devices of this network. This process is called **Inclusion**.

Devices can also be removed from a network. This process is called **Exclusion**. Both processes are initiated by the primary controller of the Z-Wave network. This controller is turned into exclusion respective inclusion mode. Inclusion and Exclusion is then performed doing a special manual action right on the device.

Inclusion
For including the thermostat as a secondary controller into an existing the Z-Wave network do the following steps: Bring your primary controller into inclusion mode. Set DIL switch 1 on the back of the unit to "ON" position, scroll through the function menu by rotating the dial, select "L". Once the character starts flashing the installer has 60 sec to activate the 3rd party unit, once the 3rd party unit has been activated the process must be completed within 240 sec or the thermostat will timeout.

Exclusion
For excluding the thermostat as a secondary controller into an existing the Z-Wave network do the following steps: Bring your primary controller into inclusion mode. Set DIL switch 1 on the back of the unit to "ON" position, scroll through the function menu by rotating the dial, select "L". Once the character starts flashing the installer has 60 sec to activate the 3rd party unit, once the 3rd party unit has been activated the process must be completed within 240 sec or the thermostat will timeout.

Product Usage
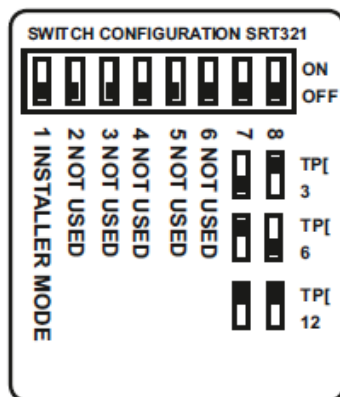
Switch positions for different TPI settings.

Thermostats using TPI (Time Proportional Integral) control algorithms will reduce the temperature swing that normally occurs when using traditional bellows or thermally operated thermostats. As a consequence, a TPI regulating thermostat will maintain the comfort level far more efficiently than any traditional thermostat.

When used with a condensing boiler, the TPI thermostat will help to save energy as the control algorithm allows the boiler to operate in condensing mode more consistently compared to older types of thermostat.

- DIL switch numbers 7 and 8 should be set as diagram opposite.

- For Gas boilers set the TPI setting to 6 cycles per hour. (Default setting)

- For Oil boilers set the TPI setting to 3 cycles per hour.

- For Electric heating set the TPI setting to 12 cycles per hour.

The **DIL switch 1** has to be set to position "ON" for **configuration mode**. To go bacj to normal mode switch the DIL switch 1 to the "OFF" position.

Turn the rotating dial on the front within configuration mode and select the desired function by pushing the dial once:

- **I** Include Node onto network

- **E** Exclude Node from network

- **N** Transmit Node Information Frame (NIF)

- **L** Learn Mode - use this command for Include or Exclude with another controller (does not support control group replication) Inclusion and reception of a primary role (Controller Shift)

- **Li** Receive Period Enabled (Listening). This function will keep the unit awake for 60sec, no Pass or Fail response will be provided

- **P** Protocol Reset - Press twice to activate Will restore all parameters back to factory default settings

- **A** Associate Control Unit

- **D** Disassociate Control Unit

- **C** (Primary Shift) This function allows the installer to manually relinquish the primary controller role of the SRT321 to become a secondary or inclusion controller

Node Information Frame

The Node Information Frame (NIF) 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. To issue a NIF execute the following action:

To send out a Node Information Frame do the following steps: Set DIL switch 1 on the back of the unit to

Communication to a Sleeping device (Wakeup)

This device is battery operated and turned into deep sleep state most of the time to save battery life time. Communication with the device is limited. In order to communicate with the device, a static controller **C** is needed in the network. This controller will maintain a mailbox for the battery operated devices and store commands that can not be received during deep sleep state. Without such a controller, communication may become impossible and/or the battery life time is significantly decreased.

This device will wakeup regularly and announce the wakeup state by sending out a so called Wakeup Notification. The controller can then empty the mailbox. Therefore, the device needs to be configured with the desired wakeup interval and the node ID of the controller. If the device was included by a static controller this controller will usually perform all necessary configurations. The wakeup interval is a tradeoff between maximal battery life time and the desired responses of the device. To wakeup the device please perform the following action:

To wake up the device do the following steps: Set DIL switch 1 on the back of the unit to "ON" position, and select one of the konfiguration functions by pushing the rotating dial once.

Quick trouble shooting

Here are a few hints for network installation if things dont work as expected.

1. Make sure a device is in factory reset state before including. In doubt exclude before include.
2. If inclusion still fails, check if both devices use the same frequency.
3. Remove all dead devices from associations. Otherwise you will see severe delays.
4. Never use sleeping battery devices without a central controller.
5. Dont poll FLIRS devices.
6. Make sure to have enough mains powered device to benefit from the meshing

Association - one device controls an other device

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 the same wireless command wireless command, typically a 'Basic Set' Command.

Association Groups:

Group Number	Maximum Nodes	Description
1	4	Nodes controlled by Thermostat Node Set command
2	1	Nodes controlled by Binary Switch SET command
3	1	Nodes to receive unsolicited Battery Level Reports
4	1	Nodes to receive Thermostat Set Point Reports
5	1	Nodes to receive unsolicited Sensor Multilevel Reports

Special Operations as Z-Wave Controller

As long as this device is not included into a Z-Wave network of a different controller it is able to manage its own Z-Wave network as primary controller. As a primary controller the device can include and exclude other devices in its own network, manage associations, and reorganize the network in case of problems. The following controller functions are supported:

Inclusion of other devices
Communication between two Z-Wave devices only works if both belong to the same wireless network. Joining a network is called inclusion and is initiated by a controller. The controller needs to be turned into the inclusion mode. Once in this inclusion mode the other device needs to confirm the inclusion - typically by pressing a button.

If current primary controller in your network is in special SIS mode this and any other secondary controller can also include and exclude devices.

To become primary a contoller have to be resetted and then include a device.

For Inclusion of Z-Wave devices into the thermostats network do the following steps: Set DIL switch 1 on the back of the unit to "ON" position, scroll through the function menu by rotating the dial, select "I". Press the dedicated button on the target device to include it. Once the character starts flashing the installer has 60 sec to activate the 3rd party unit, once the 3rd party unit has been activated the process must be completed within 240 sec or the thermostat will timeout.

Exclusion of other devices
The primary controller can exclude devices from the Z-Wave network. During exclusion the relationship between the device and the network of this controller is terminated. No communication between the device and other devices still in the network can happen after a successful exclusion. The controller needs to be turned into the exclusion mode. Once in this exclusion mode the other device needs to confirm the exclusion - typically by pressing a button.

Attention: Removing a device from the network means that it is turned back into factory default status. This process can also exclude devices from it's previous network.

For Exclusion of Z-Wave devices from the thermostats network do the following steps: Set DIL switch 1 on the back of the unit to "ON" position, scroll through the function menu by rotating the dial, select "E". Press the dedicated button on the target device to exclude it. Once the character starts flashing the installer has 60 sec to activate the 3rd party unit, once the 3rd party unit has been activated the process must be completed within 240 sec or the thermostat will timeout.

Shift of Primary Controller Role

The device can hand over its primary role to another controller and become secondary controller.

Set DIL switch 1 on the back of the unit to "ON" position, scroll through the function menu by rotating the dial, select "C". The thermostat will become the secondary controller.

Management of Association in the controller

To assign associations with devices you wish to control with the thermostat do the following steps: Set DIL switch 1 on the back of the unit to "ON" position, scroll through the function menu by rotating the dial, select "A". Press the dedicated button on the target device you wish to control.

To disassociate an association do the following steps: Set DIL switch 1 on the back of the unit to "ON" position, scroll through the function menu by rotating the dial, select "D". Press the dedicated button on the target device you wish to disassociate.

Configuration Parameters

Z-Wave products are supposed to work out of the box after inclusion, however certain configuration can adapt the function better to user needs or unlock further enhanced features.

IMPORTANT: Controllers may only allow configuring signed values. In order to set values in the range 128 ... 255 the value sent in the application shall be the desired value minus 256. For example: To set a parameter to 200 it may be needed to set a value of 200 minus 256 = minus 56. In case of a two byte value the same logic applies: Values greater than 32768 may needed to be given as negative values too.

Parameter 1: Enables Temperature Sensor
controls the use of the temperature sensor on the device
Size: 1 Byte, Default Value: 0

Setting	Description
0 - 127	Disable
128 - 255	Enabled

Parameter 2: Temperature Scale

Sensor will report temperature in this scale
Size: 1 Byte, Default Value: 0

Setting	Description
0 - 127	Celsius
128 - 255	Fahrenheit

Parameter 3: Delta T

Size: 1 Byte, Default Value: 10

Setting	Description
0 - 255	unknown

Technical Data

Dimensions	86x86x36,25 mm
Weight	137 gr
Hardware Platform	ZM3102
EAN	5015914250071
IP Class	IP 30
Battery Type	2 * AAA
Device Type	Notification Sensor
Network Operation	Listening Sleeping Slave
Firmware Version	02.00

Z-Wave Version	02.4e
Certification ID	ZC10-16015001
Z-Wave Product Id	0x0059.0x0001.0x0003

Supported Command Classes

- Basic
- Thermostat Mode
- Thermostat Setpoint
- Wake Up
- Switch Binary
- Version
- Battery
- Configuration
- Sensor Multilevel
- Manufacturer Specific
- Association

Controlled Command Classes

- Basic

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 adding 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 able to communicate.

- **Node Information Frame** — is a special wireless message issued by a Z-Wave device to announce its capabilities and functions.