

## Radiator Thermostat Manual



### Quick Start

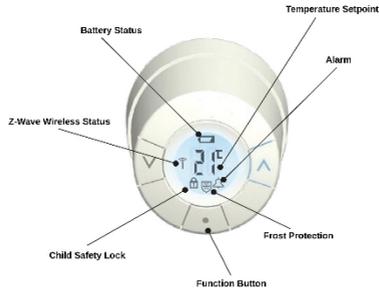
This device is a Z-Wave sensor and a Z-Wave actuator which can integrate a water based room radiator into a Z-Wave network. Click on the  function button will confirm inclusion or exclusion and wakeup the device for wireless communication. A long push for 3 seconds on the function button enters and leaves the management mode indicated by a 'M' on the LCD display. Please refer to the chapters below for detailed information about all aspects of the products usage.

## Product Description

This device is a Z-Wave controlled electronic radiator thermostat. It is mounted on wall heating valves and controls them by a motor. The device accepts a setpoint that is either set manually using buttons on the device or wirelessly using Z-Wave. Afterwards, the device will regulate the warm water supply to the wall radiator and compare the detected temperature to ensure, that the temperature in the room is kept at the desired level. A small LCD panel on the device displays the setpoint temperature on request.

The device has an internal scheduler, that allows to define up to 9 setpoints for up to 7 week days. Once programmed, these setpoints will be activated without any further manual or wireless interaction. Beside setting a desired temperature the device will support special heating schemes, such as energy saving and frost protection and intelligent functions like a valve training function to ensure that valves are still operational after longer periods.

The Popp radiator thermostat can be mounted to valves with standard M30x1.5 connector or RA2000.



Opposite to the Danfoss TRV this device will report the room temperature as detected and calculated by the device's temperature sensor.

## Installation Guidelines

 must be flashing on the display prior to installing (Press the function button for 3 seconds).

<p>1. Start by mounting the appropriate adapter.</p>	<p><b>RA</b>      <b>K</b></p> 
<p>2. Tighten RA adapter using the Allen key, hand-tighten the K adapter (max. 5 Nm).</p>	
<p>3. Screw the thermostat onto the adapter and tighten by hand (max. 5 Nm).</p>	
<p>4. A large  flashes, press  (function button) to fix the thermostat.</p>	

## Behavior within the Z-Wave Network

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 controller's 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.

**Quickly press and release the function button for Inclusion/Exclusion.** Observe both controller and Popp radiator thermostat for status of the process.

## Operating the Device

The radiator thermostat is operated by wireless commands from a Z-Wave controller. It is operated in two different modes:

- Direct setting of Temperature Set Point by controller. (Attention: There may be a delay in execution of a set point command due to the wakeup interval of the device. If the set point is to be changed at e.g. 4pm and the wakeup interval is 15 minutes, make sure to send the command latest at 3.45pm)
- Downloading of a whole weekly schedule into the device that will then regulate the heat independent of the controller. The device is capable holding a complete schedule with up to 9 different setpoints for each individual week day. The device will calculate the best time to start heating up or heating down.

The actual temperature set point is shown in the LCD display and can be overwritten by using the arrow keys  $\swarrow/\searrow$  on the device. If this is done, the thermostat sends a message to the controller, which then synchronizes other thermostats in the same room.

The device will also recognize an open window (sudden temperature drop within short period of time) and turn down the heat for 30 minutes to save energy.

### Link Test

Press  for at least 3 seconds until  is displayed.

Press  $\swarrow$  until  is displayed.

Press  to test the connection.

 disappears when the connection is made.

If no connection can be made, the "Alarm" symbol and the "Z-Wave Wireless Status" symbol flashes.

### Re-Installation Mode

If the thermostat has been removed from the radiator and needs to be reinstalled (after being used), it is necessary to activate installation mode to prevent damage to the thermostat.

To enter the installation mode:

Press  until  is displayed.

Press  to withdraw the spindle.  flashes.

Reinstall the thermostat on the valve.

Press  for approx. 3 seconds to fix the thermostat.

If the thermostat is moved to another room, make sure to make the necessary changes in the controller.

### Factory Reset

Remove the battery cover and take out one battery. Press and hold the function button for approx. 5 seconds, while re-inserting the battery. The Popp radiator thermostat is now factory reset and in mounting mode.

## 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. A simple click on the function button sends a NIF.

## Associations

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	Target for Wake Up and Override Notifications (max. nodes in group: 1)
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## Technical Data

Battery Type	2*AA
Frequency	868.4 MHz...869.3 MHz
Wireless Range	On average up to 40 m inside buildings
Explorer Frame Support	Yes
SDK	4.55
Device Type	Slave
Generic Device Class	Thermostat
Specific Device Class	Setpoint Thermostat
Routing	No
Firmware Version	1.0

## 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.
- **Wake up Notification** is a special wireless message issued by a Z-Wave device to announce 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.

## Disposal Guidelines

The product contains batteries. Use only batteries of correct type. Never mix old and new batteries in the same device. Used batteries contain hazardous substances. 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 health and well-being.

## Support

Should you encounter any problem, please give us an opportunity to address it before returning this product. Most questions regarding Z-Wave wireless communication standard can be answered through the international community at [www.z-wave.info](http://www.z-wave.info).

If your question can't be answered there, please use [www.popp.eu/support](http://www.popp.eu/support) or contact us by email: [info@popp.eu](mailto:info@popp.eu)

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