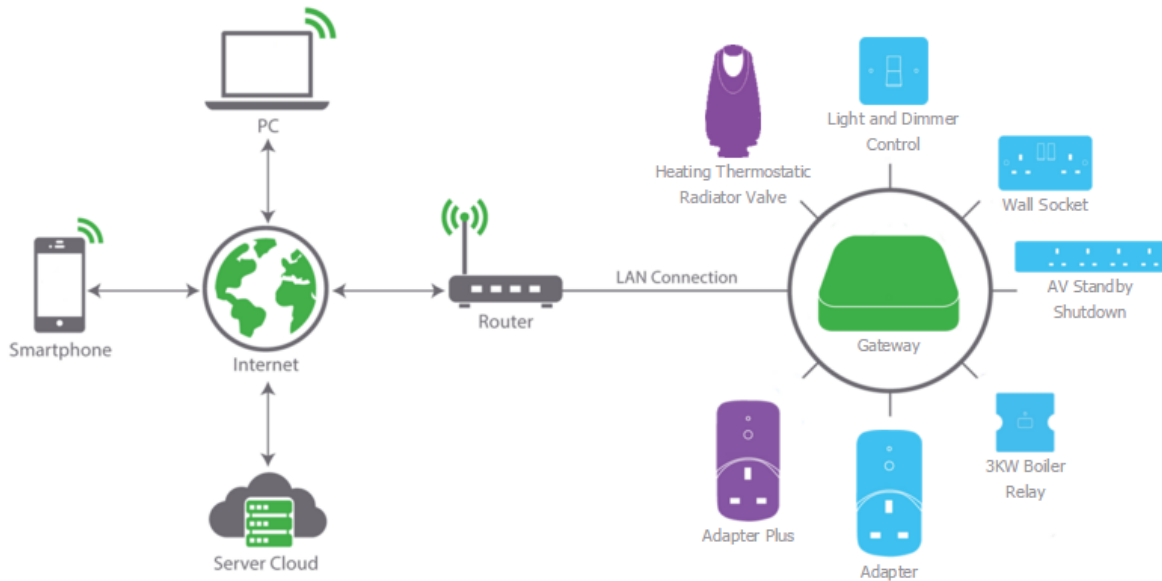


Home Heating Product Instructions



User Manual

The ECO-1 & 2 can only be fitted to a radiator that already has a thermostatic radiator valve, as shown below. It has been designed to fit most standard radiators. In this case, the ECO-1 & 2 are easy to fit and there is no plumbing work involved.



If you have a manual radiator valve, as shown below, you will need to have a normal **thermostatic radiator valve body** fitted first. You may need professional help from a heating engineer or registered plumber.



What is a thermostatic radiator valve (TRV)

TRVs sense the temperature of the air around them and regulate the flow of water through the radiator accordingly. They do not control the boiler.

TRVs should be set at a level that gives you the room temperature you want. These settings may have to be different in each room, and you should set the TRVs to suit each room and then leave them to do their job.

Turning a TRV to a higher setting will not make the room heat up any faster. How quickly the room heats up depends on the boiler and the size and type of radiator. Turning a TRV to a lower setting will result in the room being controlled at a lower temperature, and saves energy.

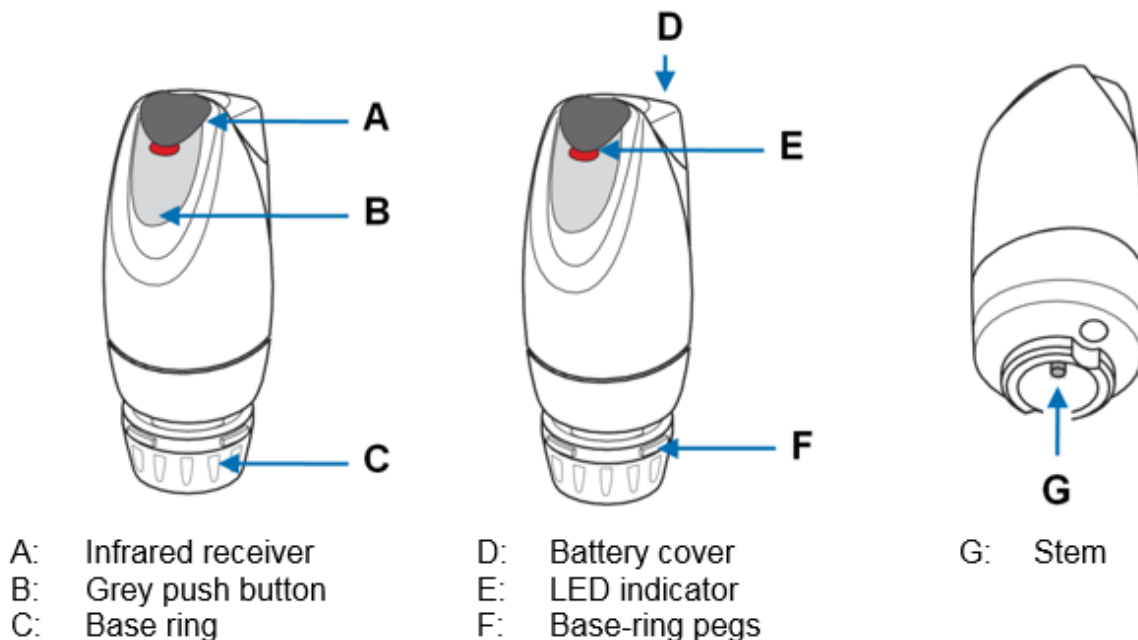
TRVs need a free flow of air to sense the temperature, so they must not be covered by curtains or blocked by furniture.

TRVs cannot turn off the boiler when the whole house is warm. To do that, your boiler will need to be controlled by a thermostat in a room. The radiator which is in the room that the boiler thermostat is in should not normally have a TRV. If it does, keep the TRV on the maximum setting and adjust the boiler's thermostat as explained in the instructions for your boiler.

This manual explains how to install, use and maintain the TRV. Please keep this manual in a safe place so you can refer to it in the future if you need to.

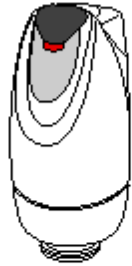







Using Your TRV

Each TRV controls a radiator valve to regulate the heating in the room. This is based on timed programmes and set temperatures under control of the MiHome network. Using the TRV improves your comfort and saves energy.



Contents

The box should contain the following items and accessories.

eTRV parts	
 eTRV	 Three base-ring pegs (3)
	 28mm base ring
 Two AA (LR6) batteries	 30mm base ring
 Instructions	 2mm-thick spacer
	 3.5mm-thick spacer

You will need:

- a Phillips screwdriver

You may need:

- an adjustable spanner (to remove the existing TRV)

The TRV is compatible with valves made by:

- Barlo
 - Myson
 - Braukmann
 - Pegler
 - Drayton
 - Regis (B&Q)
 - Honeywell
 - Siemens
 - Landis & Gyr DuoGyr
- and many others.

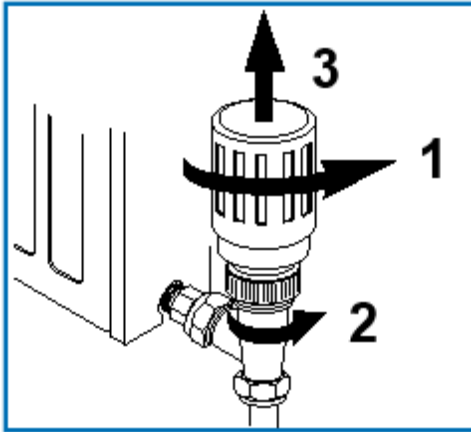
Installation

The first step is to remove your existing TRV head.

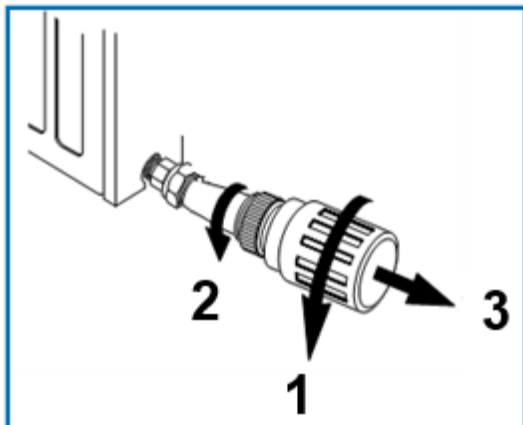
Step 1 - Turn the TRV thermostat anticlockwise as far as it will go.

Step 2 - Release the base by turning it anticlockwise, by hand or with a spanner.

Step 3 - Pull the existing TRV thermostat off the valve.



Removing the existing vertical TRV



Removing the existing vertical TRV horizontal

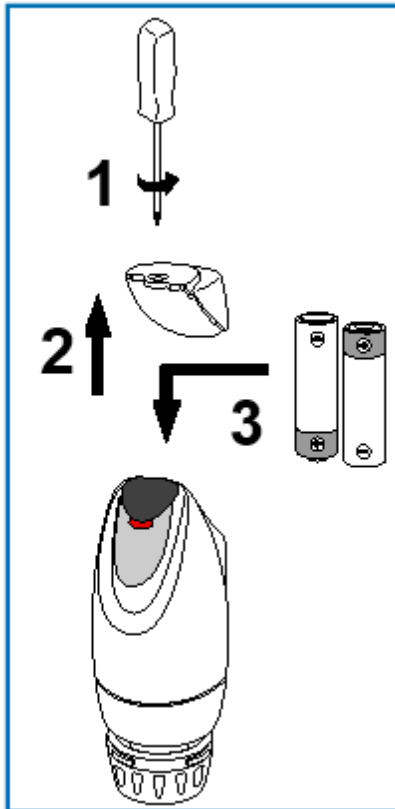
Inserting the Batteries

Step 1 - Using a Phillips screwdriver (one with a cross tip), unscrew the screw at the top of the battery-compartment, but do not remove the screw.

Step 2 - Remove the battery compartment cover, with the screw still in it.

Step 3 - Insert the two AA (LR6) batteries that came with the TRV into the battery compartment as shown.

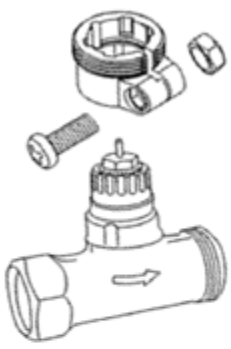
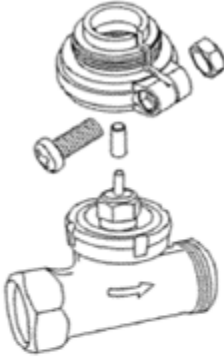
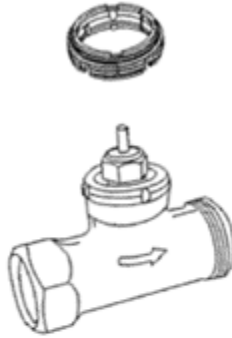
Make sure you put the batteries the right way round. Inside the battery cover there is a diagram showing which way to fit the batteries when looking from the front of the TRV.



Step 4 - Put the battery compartment cover back on. Hold it in place while you gently tighten the screw. Overtightening may crack the screw seating.

After 5 seconds the motor will start up to exercise the valve stem. You may need to wait several minutes for this process to complete. You will see the LED lamp on the unit flashing red as this motor is driven. You will then see the green led flash 3 times when the stem is finally full retracted. The LED lamp should then flash orange slowly indicating it is ready to install on the radiator.

Important - The batteries provided with the TRV will last for up to 1½ years, depending on how often the motor runs. When you need to replace the batteries, insert new high-quality AA alkaline batteries. Do not use rechargeable batteries.

		
<u>Danfoss RA</u>	<u>Danfoss RAV</u>	<u>Danfoss RAVL</u>
<p>If you have an RA or RAV valve, you must fit the adaptor with the nut and bolt that comes with the adaptor.</p> <p>In the case of the RAV adaptor, the extension provided with the adaptor must be attached to the valve tappet</p>		<p>The adaptor must be placed on the valve and tightened.</p>

Choosing and fitting a base ring

The base-rings and spacers allow your TRV to fit to either 28mm or 30mm radiator valves, whichever is already on your radiator. The 28mm ring has notches inside it. It is important that you use the correct size base ring for your valve. To check which one to use, remove the existing TRV as shown earlier.

To identify which base ring to use, take one and screw it onto the radiator valve, before attaching to the TRV, to see if it fits.

When you have found the correct base-ring, unscrew it so you can attach it to the TRV.

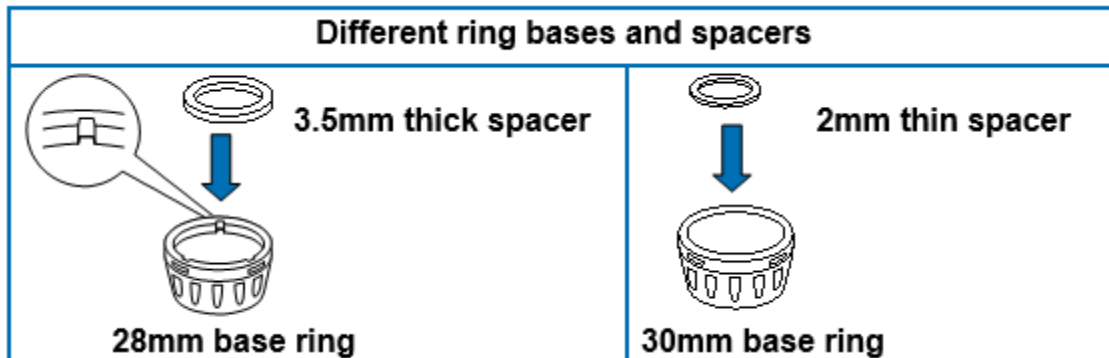
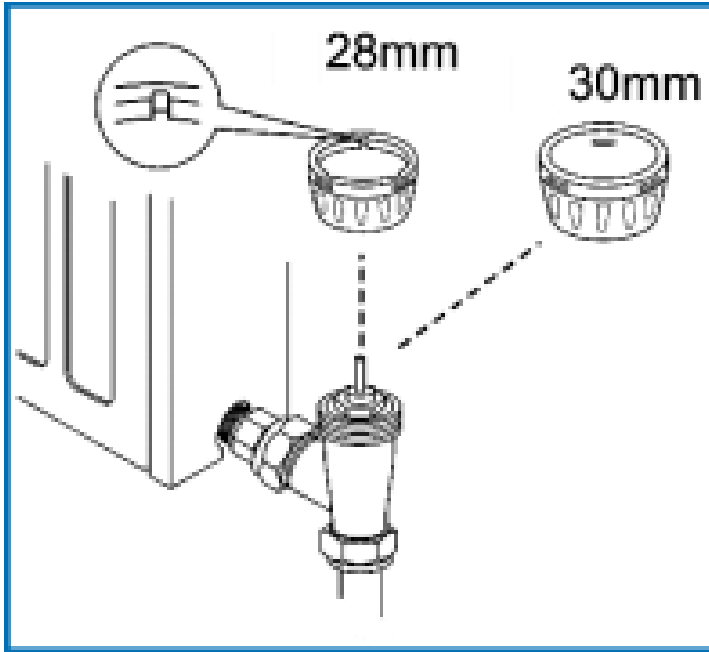
Important - Test which base ring fits each radiator valve before attaching it to the TRV.

[FOR ADDITIONAL INFORMATION CLICK HERE!](#)

Choosing and fitting a spacer

In most cases (where the valve pin is taller than 14mm), you will need to fit a spacer inside the base ring. The spacer comes in two thicknesses, 2mm and 3.5mm. It is important that you use the correct size spacer.

Tip – the 3.5mm-thick spacer is the same thickness as a £1 coin

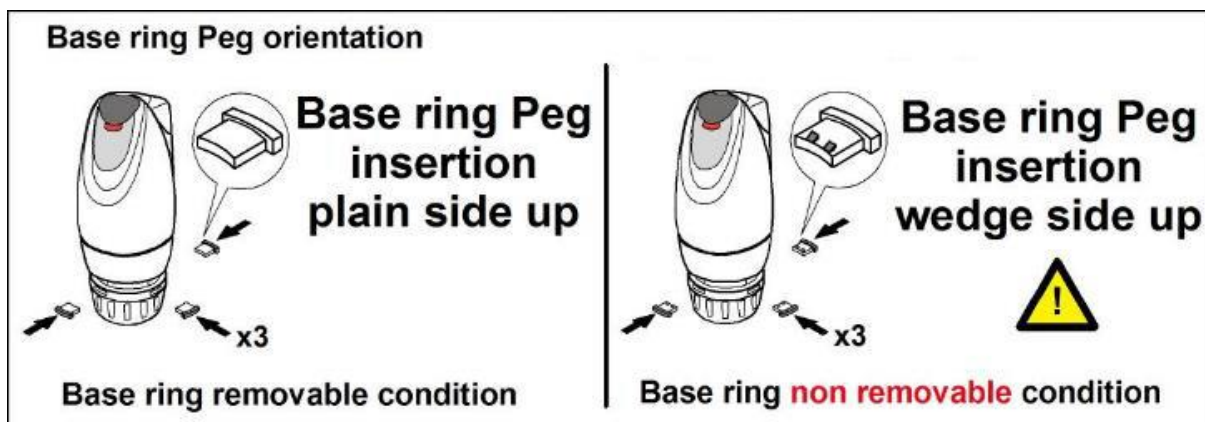
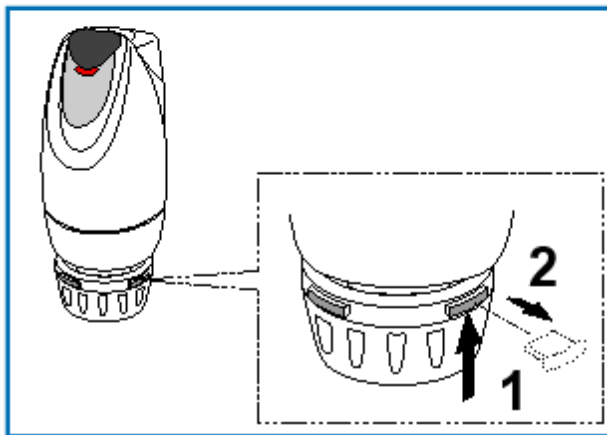
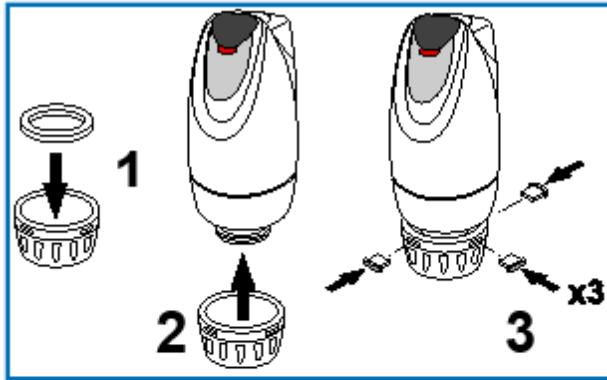


If you need to use a spacer, put it in place in the base ring before you attach the base-ring to the TRV. Once the spacer is in place, attach the base-ring to the TRV.

Step 1 - Put the correct spacer (if one is needed) in the base ring.

Step 2 - Fit the base ring onto the TRV.

Step 3 - Firmly push the three base-ring pegs into the slots on the base ring.

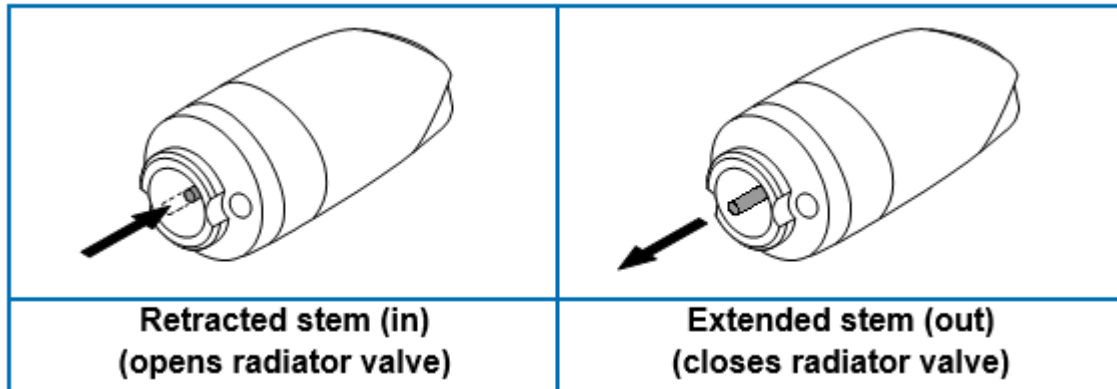


If you ever need to remove the base ring from the TRV you will need to pull out the pegs with pointed nose pliers or insert a 5mm, thin flat-head screwdriver under the peg and prise it out of the base-ring. Take care not to lose any of the pegs.

Fitting to the Radiator

You can fit the TRV vertically or horizontally, depending on the way the existing radiator valve is pointing.

Before you attach the TRV, it is important that the stem is fully retracted (in), not extended (out). LED lamp will be flashing orange when the unit is ready for installation.



You can now attach the TRV to the radiator valve. Remember to position it with the LED indicator and button facing outwards.

Step 1 - Place the TRV on the valve.

Step 2 - Carefully screw the base ring clockwise by hand until it is firmly in place.

Step 3 - Now press the button on the unit for 4 seconds. The lamp should now change from orange to flashing slowly red and the motor should start driving the stem of the valve to set the initial default temperature to 16°C. It may take a minute or so. When this has happened the LED should stop flashing.

Please ensure the TRV is not blocked by furniture, curtains and so on to limit localised heating effects and ensure optimum communications to the Gateway controlling device.

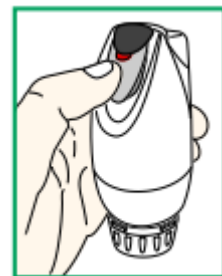
Installing on the Network

The TRV now needs to be installed to the network. This will allow remote control from a smart device such as a smartphone or tablet or from any browser connected directly to the server.

Pair with your Gateway

Once installed the device must be paired with your Gateway device which you should have already successfully installed.

You will need to select the TRV device to be paired in your smart device App or in the internet browser. Follow the instructions to install the TRV. This will involve pressing and holding the grey button on the top of the unit for 4 seconds to place it into its pairing mode. The LED will go briefly green then flash red indicating that pairing has started. Pairing is complete when the red LED lamp flashes more quickly and turns off.










Boost Control

Pressing the grey push button and holding it in for two seconds boosts the TRV to the comfort temperature setting (21°C) for one hour.

1. During normal operation press and hold for 2 seconds for 1 hour boost
2. During 1 hour boost press and hold for 2 seconds to restart boost
3. During normal operation press and hold for 4 seconds to initiate pairing to the Gateway
4. During 1 hour boost press and hold for 4 seconds to cancel 1 hour boost and initiate pairing

What the LED Light indicator means

The LED indicator flashes red, yellow or green to tell you what the TRV is doing and it's setting.

LED display	Meaning
 Red flashes once every five seconds	Dead battery needs replacing
 Red flashes twice every five seconds	Low battery needs replacing
 Red flashes continuously	Motor is running
 Three long red flashes	Valve fully closed – stem fully extended
 Three long green flashes	Valve fully open – stem fully retracted
 Green for 2 seconds	Boost selected
 Orange flashes continuously	Stem fully retracted – ready for installation to radiator

Remote Control



From your MiHome app or from a Browser connected to the server (www.mihome.co.uk). You will have the following controls for the TRV.

- Set a target temperature
- Exercise the valve – maintenance use
- Check the battery voltage level (nominally 3.1V)
- Set the valve to fully open or closed
- Control using timers to allow zoning for instance
- Control using an external temperature reading

Exercising the valve

Some radiator valves can stick after a long period without moving. To reduce the risk of this happening (for example, in the summer when the heating is off), the valve will exercise regularly under command from the server. The TRV will automatically extend and retract to exercise all parts.

Low battery

When the batteries are low, the red LED light will flash twice every five seconds. At this point you should replace the batteries. To change the batteries, see earlier instruction.

Dead battery

When the battery does not have enough charge to power the TRV motor, the red LED light will flash once every five seconds. At this point, the TRV's stem will automatically retract so heating will not be controlled.

External temperature sensing

The TRV will take its own temperature readings from its internal sensors and control the valve opening and closing to maintain radiator temperature. It can additionally be commanded to regulate the temperature from an external temperature source under remote command from the system if set up correctly.

Technical information

Radio remote control Protocol	FSK, 434.3MHz, 2 way OpenThings
Radio range	Approx. 25m in open air
Set temperature range	0°C to 30°C
Reported temperature range	-10°C to 30°C
Temperature range for storage	-20°C to +60°C
Temperature range working	+5°C to +40°C
Maximum circulation temp.	90°C
Comfort temperature (boost)	21°C
Application group	Central Generation
Zone type	Maintained or Intermittent
Batteries	Two 1.5V AA alkaline LR6
Battery life in use	Up to 1½ years
Size without base-ring (HxWxD)	103 x 45 x 45 mm
Size with base-ring (HxWxD)	120 x 45 x 45 mm
Weight with batteries	Ca. 230g
Protection class	IP20

This device meets the regulatory requirements for CE marking. It complies with the R&TTE Directive.

