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Read this manual carefully before starting to use the device. Keep the manual so you can refer to it at a later date should you need to.

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BC-RT-TRX-CyG, V2.0, 099019

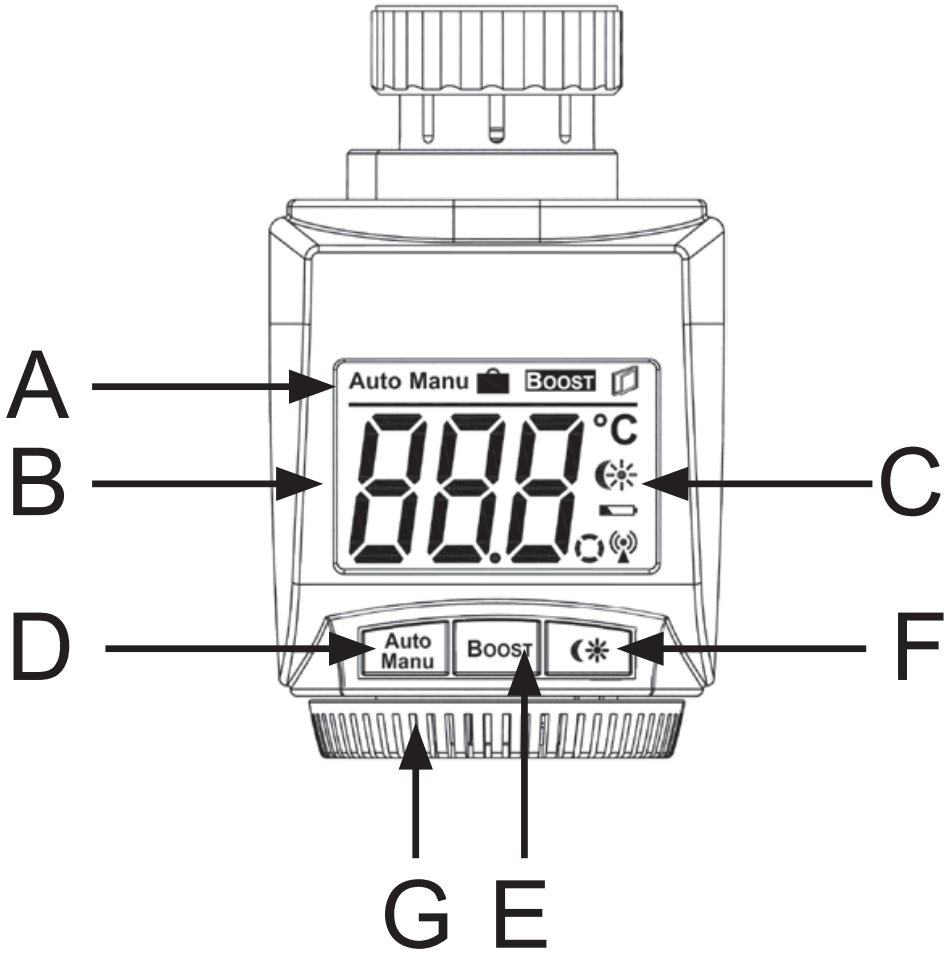
1. Intended use

The MAX! Radiator Thermostat is a component of the MAX! System. It is responsible for regulating your radiators. All configuration settings are made via the user-friendly MAX! Software. Different settings can be made for individual rooms. Communication between MAX! Components is bi-directional. This ensures that the information sent reaches the recipient.

The MAX! Radiator Thermostat is used to regulate a standard radiator valve. The device may only be operated indoors and must be protected from the effects of damp and dust, as well as solar or heat radiation.

Using this device for any purpose other than that described in this operating manual does not fall within the scope of intended use and shall invalidate any warranty or liability. This also applies to any conversion or modification work. This device is intended for private use only.

2. Operation and display



A Automatic mode (**Auto**), manual mode (**Manu**), holiday mode ( ), boost function (BOOST), open window function ( )
B Temperature display, current setpoint temperature
C Reduction/comfort temperature ( ), battery empty symbol ( ), radio synchronicity ( ), activity symbol ( )
D Auto/Manu button: Switch between automatic and manual operation, exit the holiday function
E Boost button: Activate the boost function, confirm, start teach-in procedure
F Switch between reduction and comfort temperature
G Handwheel: Make (temperature) settings

3. Safety instructions

This device is not a toy; do not allow children to play with it. Do not leave packaging material lying around, as it can be dangerous in the hands of a child. Do not open the device: it does not contain any components that need to be serviced by the user. In the event of an error, please return the device to our service department.

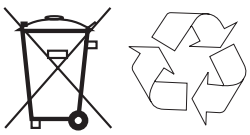
4. Instructions for Disposal

Do not dispose of the device with regular domestic waste!

Electronic equipment must be disposed of at local collection points for waste electronic equipment in compliance with the Waste Electrical and Electronic Equipment Directive.

CE

The CE Marking is simply an official symbol relating to the free movement of a product; it does not warrant a product's characteristics.



Used batteries should not be disposed of with regular domestic waste! Instead, take them to your local battery disposal point.

5. Inserting (replacing) batteries

- Pull off the battery compartment cover.
- Insert 2 LR6 (mignon/AA) batteries in the battery compartment, making sure they are the right way round.
- Replace the battery compartment cover and latch it into position.

The service life of new alkaline batteries is approximately two years. A battery symbol () indicates that the

batteries need to be replaced. After removing the batteries, wait approx. 1 minute before inserting the new ones. This device does not support battery operation.

Never recharge standard batteries. Doing so will present a risk of explosion. Do not throw the batteries into a fire. Do not short-circuit batteries.

Once the batteries have been inserted, the radiator thermostat starts an adapter run. You can confirm this with the Boost button. For more details, see the next section 7.

6. Mounting on a radiator

The radiator thermostat is easy to install, and can be done without draining heating water or intervening in the heating system. No special tools are required, nor does the heating have to be switched off.

The union nut attached to the radiator thermostat can be used universally and without accessories for all valves with a thread size of M30 x 1.5 from the most popular manufacturers such as

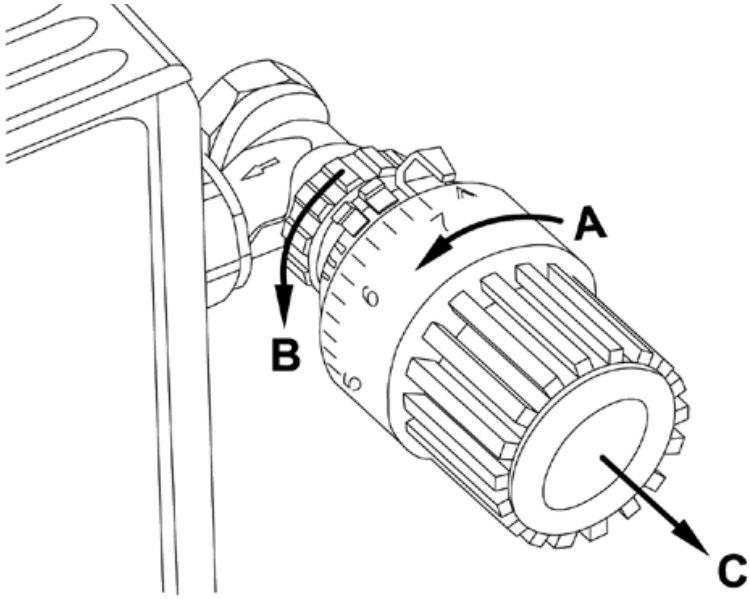
- Heimeier
- MNG
- Junkers
- Landis&Gyr (Duodyr)
- Honeywell-Braukmann
- Oventrop Typ A, Oventrop AV6
- Schlösser
- Comap D805
- Valf
- Sanayii

- Mertik Maxitrol
- Watts
- Wingenroth (Wiroflex) R.B.M
- Tiemme
- Jaga
- Siemens
- Idmar

The adapters and extension pins included in the scope of delivery allow radiator thermostats to be fitted to radiator valves Danfoss RA, Danfoss RAV and Danfoss RAVL.

Removing the old dial
Rotate the thermostat dial to the maximum value (**A**) (anti-clockwise). The thermostat dial then no longer presses against the valve spindle, making it easier to remove.

There are different ways of fixing the position of the thermostat dial:
- **Snap-on fastenings:** Thermostat dials that have been attached using this method can be easily released by giving the lock/union nut a slight turn in the anticlockwise direction (**B**). The thermostat dial can then be removed (**C**).
- **Compression fittings:** The thermostat dial is held in place by a mounting ring which is held together with a screw. Slacken this screw and remove the thermostat dial from the valve (**C**).
- **Screwed on with a grub screw:** Slacken the grub screw and remove the thermostat dial (**C**).



6.1 Adapter for Danfoss

One of the provided adapters is needed to attach to Danfoss valves. The assignment of the suitable adapter ring to the relevant valve can be found in the following illustrations.

Please ensure that you do not trap your fingers between the two halves of the adapter!

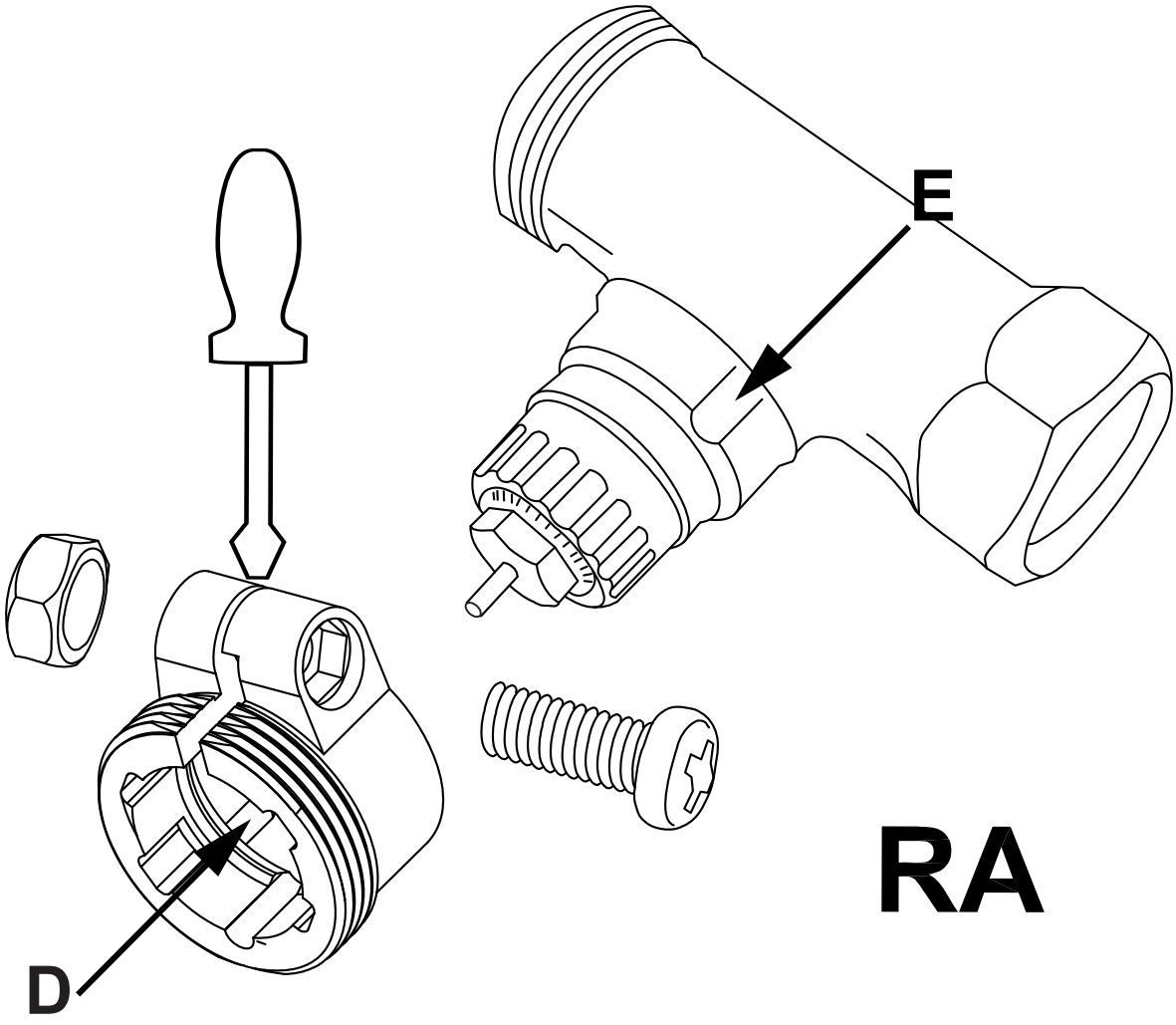
The Danfoss valve bodies have elongated notches (**E**) around their circumference (see arrow), which also ensure that the adaptor is properly seated when it snaps on.

During installation, please ensure that the pins inside the adapter (**D**) are lined up with the notches (**E**) on the valve.

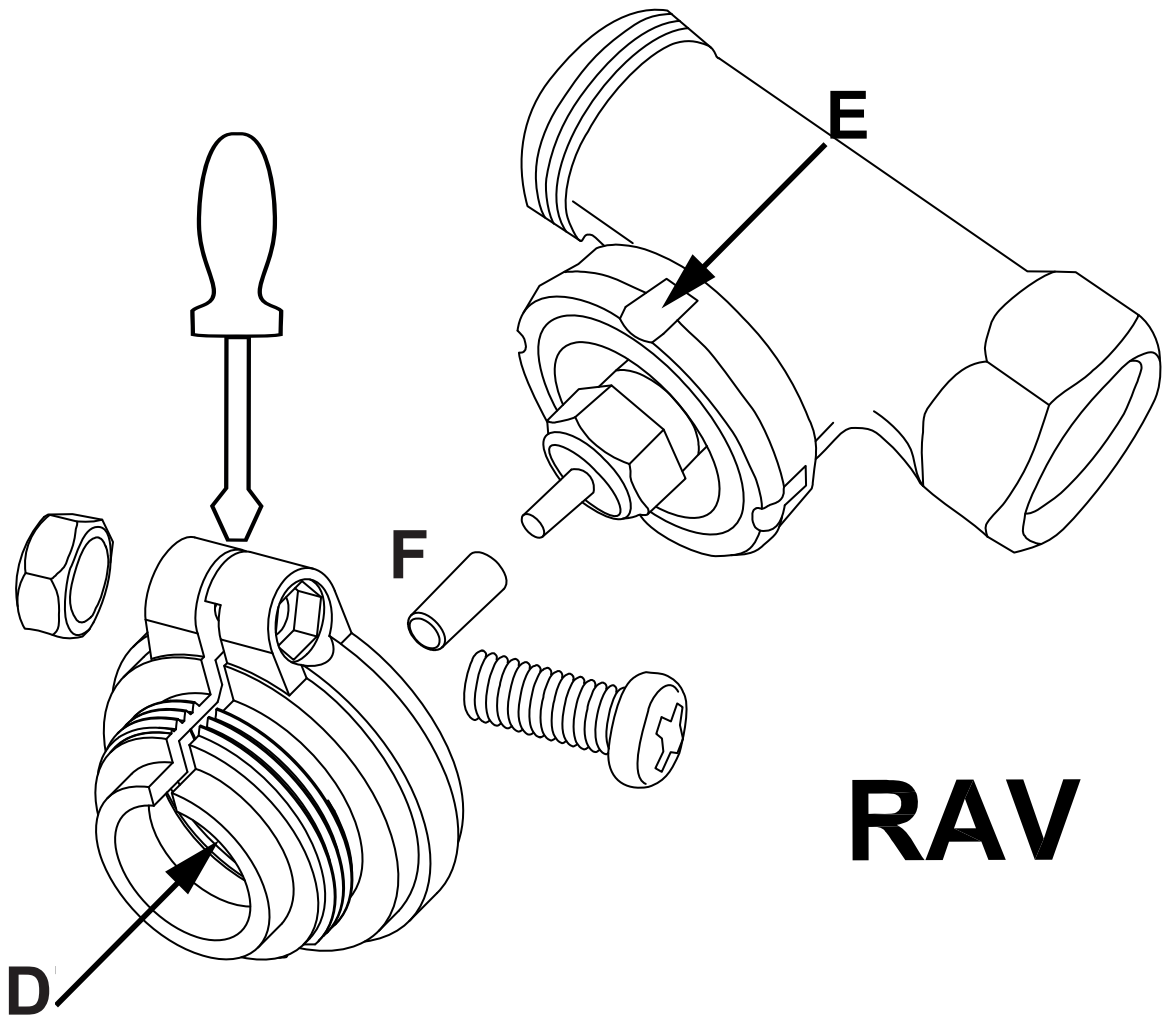
Ensure that a suitable adapter for the valve is properly clipped on.

The RA and RAV adapters have been manufactured with pre-tension in order to provided a better seat. Use a screwdriver during installation if necessary, and bend

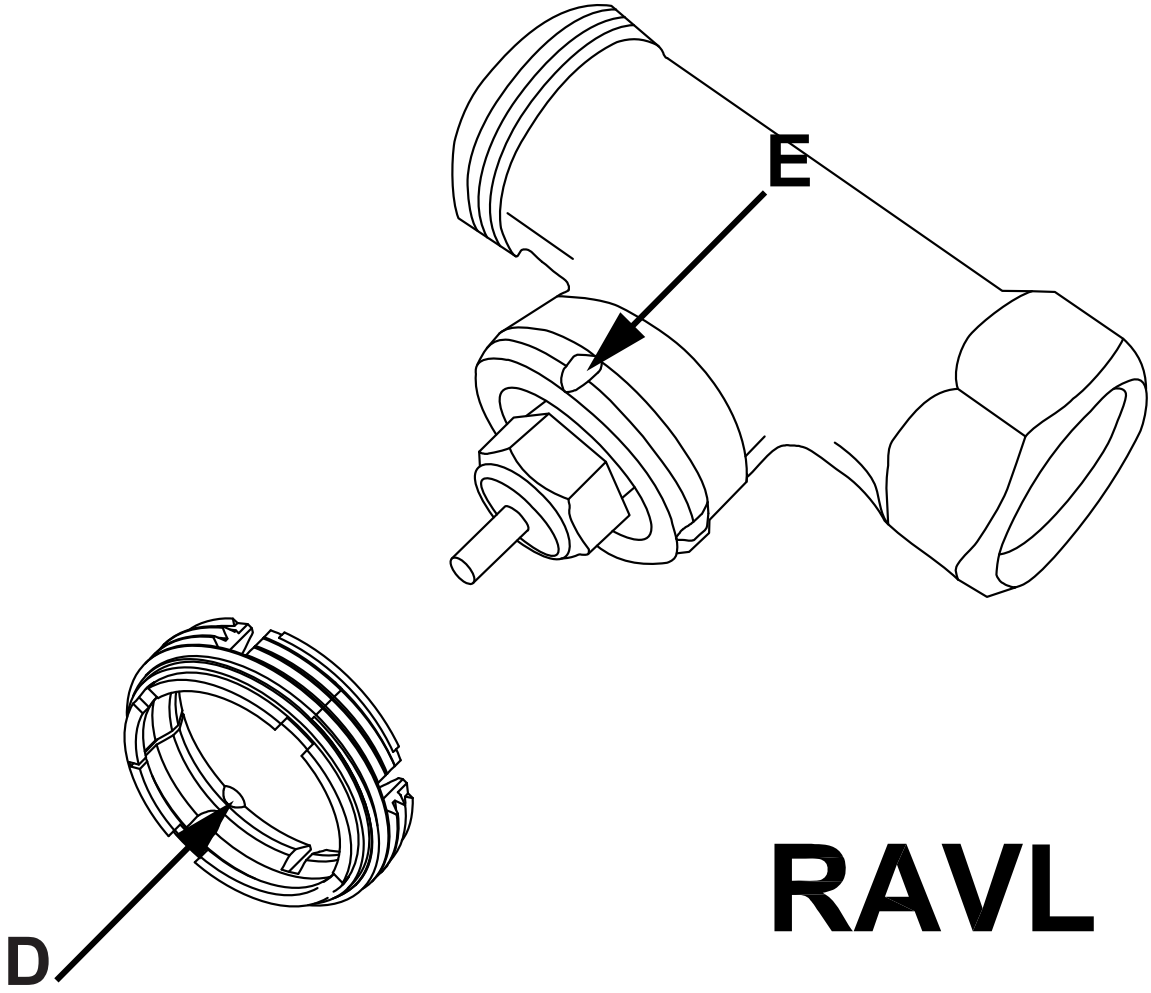
it open slightly in the vicinity of the screw. After clipping onto the valve body, please attach the adapter using the provided screw and nut.



The lifter extension (**F**) must be fitted to the valve pin of RAV valves prior to installation

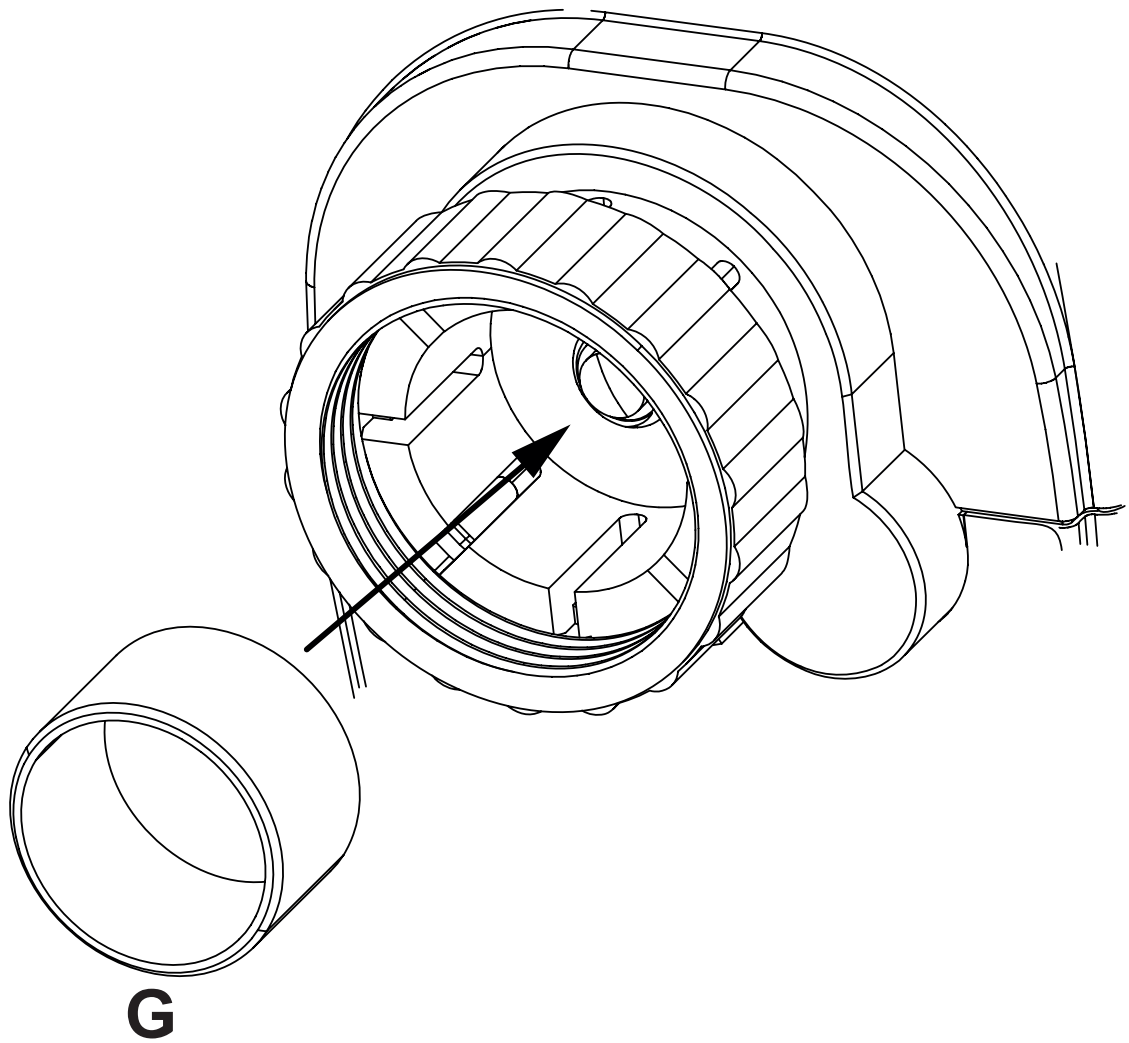


The RAVL adapter does not have to be screwed in place.



Support ring

The valves from different manufacturers may have tolerance fluctuations that make the radiator thermostat more loosely seated on the valve. The stability and seating of the valve can be improved using the provided support ring. Place the support ring (**G**) into the flange or onto the valve connection on the radiator and screw on the thermostat valve. If the support ring cannot be fitted, there is adequate stability and it is not needed for installation.



7. Adapter run

Once the batteries have been inserted, the motor reverses; meanwhile, “InS” and the activity symbol () are displayed. As soon as “InS” is displayed without the activity symbol (), the electronic radiator thermostat can be mounted. This is followed by an adapter run (“AdA”) to adapt the thermostat to the valve.

- Attach the radiator thermostat to the valve.
- Tighten the union nut.
- Press the boost button when “InS” is displayed.

The actuator performs an adapter run. “AdA” and the activity symbol () are displayed; during this time, operation is not possible.

If the adapter run has been initiated prior to mounting or if an error message (F1, F2, F3) is displayed, press the Boost button; the motor reverses to the “InS” position.

If the Radiator Thermostat has not been taught-in on the Cube, the device automatically switches to manual operation (**Manu**).

Teach-in mode can be activated even whilst “InS” is still displayed.
Teach-in mode can be activated when “InS” is displayed

8. Teaching-in on MAX! Components

In order to enable communication between MAX! Components, the devices have to be taught-in to one another.

- Start by switching the MAX! Cube to teach-in mode via the software.
- To activate teach-in mode on the radiator thermostat, press and hold down the Boost button for at least 3 seconds. The antenna symbol () is displayed, along with the teach-in time remaining in seconds. The teach-in time is 30 seconds.

As soon as the MAX! Radiator Thermostat has been taught in to the MAX! Cube, all data such as date, time or weekly program are transmitted to it via the radio connection.

Without a MAX! Cube, the MAX! Radiator Thermostat can only be used in manual mode; it cannot be switched to automatic operation.

The MAX! Radiator Thermostat can only be taught-in on one MAX! Cube.
If the MAX! Radiator Thermostat has already been configured with a wall thermostat, a factory reset must be performed prior to teaching-in for the first time to a MAX! Cube (see section 9).

9. Teach-out/Reset

The MAX! Radiator Thermostat can be reset to the initial state manually. Restoring the initial state deletes all settings and information about taught-in devices.

- First remove the batteries from the actuator.
- Wait 60 seconds.
- Press and hold down the three buttons (Auto/Manu, Boost, ()) afterwards.
- Re-insert the batteries.

- Once the factory settings have been restored successfully, “rES” is displayed.

10. Operating modes (Auto/Manu/Holiday)

To switch between operating modes, press and immediately release the Auto/Manu button (the operating modes only become available for selection once installation is complete).

- **Manu**: Manual operation - the temperature set manually using the handwheel is maintained permanently.
- **Auto**: Weekly program - automatic temperature regulation in accordance with the time profile saved (heat/reduce).
- **Holiday ( ):** In holiday mode, the set temperature is maintained up to an end time, at which point the device switches to automatic mode. Can only be deactivated on the radiator thermostat; activation is via a gateway (e.g. MAX! Cube).

If the operating mode is changed on one device in a room, this change is applied on all radiator thermostats assigned to that room.

11. Boost function

The boost function makes use of human sensations of heat. When the function is activated, the heating valve opens immediately for 5 minutes at 80% (factory setting).
You can feel the heat from the radiator immediately and at the end of the 5 minutes, the room continues to heat up. If you arrive home earlier than usual and want to heat the room up quickly, or you need some extra heat in the morning after a shower, then the boost function will help you with this.

- Press the Boost button to activate the boost function.
- The remaining time for the function is counted down in seconds (“300” to “000”). Whilst the function is active, BOOST is displayed.
- The activity symbol () is displayed as long as the adjusting pin opens/closes the valve.
- Once the set time has elapsed, the radiator thermostat switches back to the mode that was active previously (automatic/manual), with the temperature that was set previously.
- The function can be deactivated prematurely at any time by pressing the Boost button again.

The function will not have an immediate effect if the radiator is covered or concealed (e.g. by a sofa).

If the duration of the boost function (e.g. via the MAX! Cube) is set so that the display exceeds 999 seconds, the display value switches from seconds to minutes.

12. Open window function

The actuator reduces the temperature in the room automatically during ventilation, in order to save on heating costs. During ventilation, the window open symbol () is displayed.

Without MAX! Window Sensor:
A MAX! Radiator Thermostat is able to automatically detect a sharp fall in temperature caused by ventilation (temperature fall detection). The temperature is then reduced to 12°C or the value as configured in the software for 15 minutes (default factory setting).

With MAX! Window Sensor:
When a MAX! Window Sensor is used, the opening and closing of a window is detected at the precise time it occurs. Whilst the window is open, the temperature is reduced to the factory setting of 12°C. When the MAX! Window Sensor detects the closing of the window, all MAX! Radiator Thermostats installed in the room are immediately reset to their original mode.

The open-window temperature and time can be set via the MAX! Software. Temperature fall detection without a MAX! Window Sensor can also be deactivated (by setting the duration to 0 minutes) via the software.

When a MAX! Window Sensor is taught in, the MAX! Radiator Thermostat does not react to a temperature fall.

13. Information displayed during normal operation

The current temperature is displayed during normal operation, along with the mode. In the example on the right, the MAX! Radiator Thermostat is in automatic mode (**Auto**) and the comfort temperature (☼) of 21.0°C is set. The antenna symbol (📡) indicates that the connection to the taught-in component has been established.

In case you use the MAX! Radiator Thermostat in combination with a MAX! Wall Thermostat, the room temperature will be measured by the MAX! Wall Thermostat.
Thus, it can be colder or warmer somewhere else in the

room.
To adapt the difference, a temperature offset of ±3.5°C can be set on the MAX! Wall Thermostat or in the software.
If for example 18°C instead of the previously set 20°C are measured, you can set an offset value of -2.0°C.

- Press and hold down the mode button for more than 3 seconds.
- Select „tOF“ with the + and – buttons in the menu.
- Confirm the selection with OK.
- Set the temperature with the + and – buttons.
- Confirm your selection with OK.

14. Child-proof lock/Operating block

Operation can be blocked on the device.

- To activate/deactivate the operating block, press and immediately release the **Auto/Manu** and (☼) buttons simultaneously.
- Once the block has been activated, “LOC” is displayed for 10 s. After this, the temperature is displayed again.
- To deactivate the block, press both buttons again.

15. Activating heat pause (to prolong battery life)

Battery life can be prolonged by switching the heating off in summer. To achieve this, the valve is opened fully and the calcification protection function continues to run. To activate this, proceed as follows:

- In manual mode (**Manu**), turn the handwheel clockwise until “On” is displayed.
- To end, exit manual mode (**Manu**) or turn the handwheel anticlockwise.

16. Activating frost protection operation (radiator switched off)

If the room does not need to be heated, the valve can be closed. The valve is only opened if there is a risk of frost. The calcification protection function continues to run. To activate this, proceed as follows:

- In manual mode (**Manu**), turn the handwheel anticlockwise until “OFF” is displayed.
- To end, exit manual mode (**Manu**) or turn the handwheel clockwise.

17. Routine descaling

The electronic MAX! Radiator Thermostat has the advantage over mechanical thermostat dials in that it can protect against the threat of valve calcification automatically. To do this, it carries out fully automatic routine descaling once a week. During this brief period, when the valve opens and closes once, operation is not possible. Routine descaling is factory-set to run on Saturdays at 11 in the morning. “CAL” is displayed during routine descaling; you can set the day of the week and the time of day via the MAX! Software.

18. Troubleshooting and maintenance

Error code on the display	Problem	Solution
Battery symbol ()	Battery voltage too low	Replace batteries
F1	Valve drive sluggish	Check the installation; check whether the pin on the heating valve is stuck
F2	Actuating range too wide	Check the fastening of the actuator
F3	Actuating range too narrow	Check the heating valve; check whether the valve pin is jammed
F4	A MAX! Cube has already been taught-in	Make sure that the device is not taught in to the Cube (in the software) and reset the device. You can repeat the teach-in procedure afterwards.
Symbol for radio synchronicity flashing slowly ()	Connection to taught-in MAX! Components lost	Check the power supply and batteries to taught-in MAX! Components
Symbol for radio synchronicity flashing fastly ( )	Duty cycle has been exceeded	The longest period to wait before sending again would be an hour
LOC	Operating block activated	Follow the instructions in the section 14 to deactivate the operating block
CAL	Routine descaling is active	Automatic function, see the section 17

19. Scope of delivery

Radiator Thermostat

Adapter Danfoss RA
Adapter Danfoss RAV
Lifter extension Danfoss RAV
Adapter Danfoss RAVL
Cylinder head screw M4 x 12, nut M4

Support ring

20. Information about radio operation

Radio transmission is performed on a non-exclusive transmission path, which means that there is a possibility of interference occurring. Interference can also be caused by switching operations, electrical motors or defective electrical devices.
The range of transmission within buildings can differ greatly from that available in the open air. Besides the transmitting power and the reception characteristics of the receiver, environmental factors such as humidity in the vicinity have an important role to play, as do on-site structural/screening conditions.
eQ-3 Entwicklung GmbH hereby declares that this device complies with the essential requirements and other relevant regulations of Directive 1999/5/EC. You can find the full declaration of conformity at www.eQ-3.de.

21. Technical characteristics

Supply voltage:	3 V
Max. current consumption:	100 mA
Batteries:	2x LR6 batteries (mignon/AA)
Battery life:	2 years approx.
Display:	LCD
Receiver frequency:	868.3 MHz
Typical open air range:	100 m
Receiver class:	SRD Class 2
Method of operation:	Type 1
Degree of protection:	IP20
Components that can be taught-in:	1 MAX! Cube LAN Gateway, 1 MAX! Wall Thermostat; via MAX! Cube 7 radiator thermostats and 8 window sensors)
Housing dimensions:	60 x 65 x 100 mm (W x H x D)
Connection:	M30 x 1.5
Ambient temperature:	+5 to +55°C
Linear travel:	4.2 mm
Spring force:	Max. 80 N

Subject to technical changes.

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