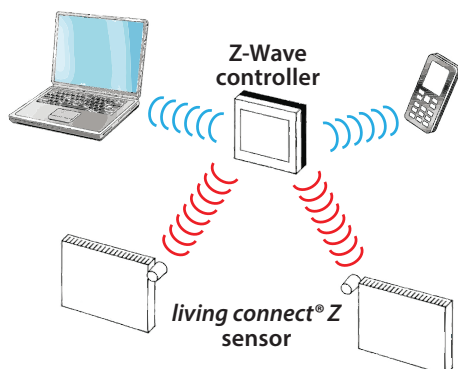


Quick Guide

living connect® Z, Electronic Radiator Thermostat

Preparation

living connect® Z is an electronic radiator thermostat, intended for use with water based room radiators. It can be controlled by a Z-Wave certified controller, which supports the appropriate command classes.

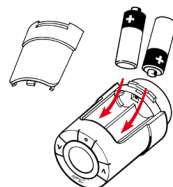


living connect® Z is supplied with adapters for Danfoss RA valves and valves with M30 x 1.5 (K) connections, two alkaline AA batteries and a 2 mm Allen key.

Inserting the batteries

Remove the battery cover and insert two AA batteries. Make sure the batteries are correctly oriented.

Rechargeable batteries must not be used. When replacing batteries the programme settings will be preserved, but after two minutes the settings for time and date are reset.

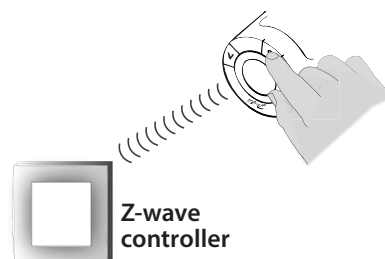


Installing living connect® Z

⌘ must be flashing on the display prior to installing.

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

Including the device to a network



- Ensure living connect® Z is factory reset.
- Activate "Inclusion" on the Z-Wave controller.
- Quickly press and release ⏏ on living connect® Z.
- Observe both controller and living connect® Z for status of the process.

Testing the connection

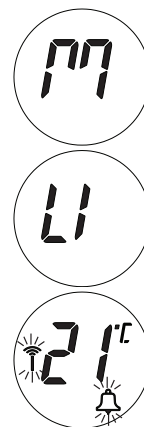
Press ⏏ for at least 3 seconds until ⌘ is displayed.

Press ⏏ until Li is displayed.

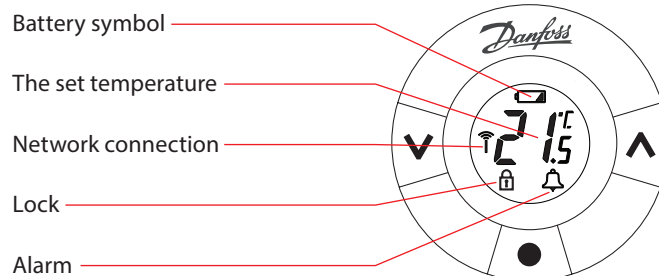
Press ⏏ to test the connection.

Li disappears when the connection is made.

If no connection can be made, the alarm symbol ⚠ and the antenna symbol 📶 flashes.



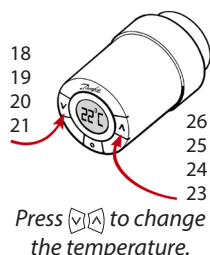
Display and buttons



Use ⏏ to navigate the display and the menus and to set the temperature, and use ⏏ to select and confirm.

Temperature control and adjustment

The temperature is usually controlled via the controller, but may be changed at any time using the thermostat's buttons. If this is done, the thermostat sends a message to the controller, which then synchronises other thermostats in the same room.



Excluding the device from the network

- Activate "Exclusion" on the Z-Wave controller.
- Quickly press and release [button 21] on *living connect® Z*.
- Observe both controller and *living connect® Z* for status of the process.

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 installation mode:

- Press [button 21] until 'M' is displayed.
 - Press [button 21] to withdraw the spindle. 'M' flashes.
 - Reinstall the thermostat on the valve.
 - Press [button 21] 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 [button 21] for approx. 5 seconds, while re-inserting the battery. *living connect® Z* is now factory reset and in mounting mode.

Wake up

A controller can only communicate with *living connect® Z*, when the device is awake. The intervals when the thermostat is awake can be set using the "wake up command class". Press [button 21] to manually wake up the device. It will stay awake for 10 seconds and send out a node info.

Z-wave info

Device type	Slave
SDK	4.55
Software version	1.01
ProduktID	4
Explorer frames	YES

Implemented Z-Wave device classes

Z-Wave Device Classes	Device Class Implemented
Generic device	GENERIC_TYPE_THERMOSTAT
Specific device	SPECIFIC_TYPE_SETPOINT_THERMOSTAT

Supported and controlled Z-Wave command classes

Z-Wave Command Classes Supported	Description
COMMAND_CLASS_BATTERY	Get current battery status of <i>living connect®</i> .
COMMAND_CLASS_CLIMATE_CONTROL_SCHEDULE	Control a temperature offset to the thermostat setpoint of <i>living connect®</i> . The temperature offset is defined by schedules and schedule overrides.
COMMAND_CLASS_CLOCK	Set or get the current <i>living connect®</i> clock.
COMMAND_CLASS_MANUFACTURER_SPECIFIC	Get manufacturer ID of system.
COMMAND_CLASS_MULTI_CMD	A special Z-Wave command used by <i>living connect®</i> to encapsulate multiple commands in one command and thereby conserve battery life.
COMMAND_CLASS_PROTECTION	Set or get <i>living connect®</i> local protection mode. Possible local protection values are: 0 = no protection 2 = fully locked (tamperproof)
COMMAND_CLASS_THERMOSTAT_SETPOINT	Set or get current thermostat setpoint of <i>living connect®</i> . Heating setpoint is the only supported setpoint type.
COMMAND_CLASS_VERSION	Get version of product and command classes.
COMMAND_CLASS_WAKE_UP	A special Z-Wave command used by <i>living connect®</i> to synchronize communication with its controller.

Technical requirements and info

- After a succesful inclusion the controller must send a WAKE_UP_INTERVAL_SET command to *living connect® Z* in order to specify where and when *living connect® Z* should communicate wirelessly. If not, the thermostat cannot perform wake ups and the alarm 🔔 and antenna symbols 📶 will flash.
- The nodeID set in the WAKE_UP_INTERVAL_SET command must be for a permanently listening device which repends to the commands sent from *living connect® Z*. This means PC's with USB sticks will only work if the PC is never turned off.
- If *living connect® Z* does not get correct and timely replies (e.g. if the controller is turned of) it will automatically switch to 30 minutes wake up intervals. If at next wake up the controller replies as expected, *living connect® Z* will switch back to the original wake up interval.
- After sending the WAKE_UP_INTERVAL_SET command, the controller must assign return routes, so *living connect® Z* can reach its destination, i.e. the no-deID set in the WAKE_UP_INTERVAL_SET command.
- *living connect® Z* will not commence its periodic communications if it is in "Mounting mode". "Mounting mode" is for physical installation and should not be confused with "Inclusion". Please see section "Installing *living connect® Z*", item 4" for instructions on how to leave "Mounting mode".
- Although *living connect® Z* supports single commands, multi commands must always be used to ensure two years battery lifetime.
- If multiple thermostats are installed in the same room, it is important that the controller ensures they all have the same schedule and the same setpoint.

Troubleshooting

Error code	Action
E1, E2, E3, E4	Contact your local Service Technician.
E5	The thermostat is not receiving the expected replies from the control system. Check that you have a Z-wave certified controller running and it has the necessary functionality to control the thermostat (see "Technical requirements").

Technical specifications

Thermostat type	Programmable electronic radiator valve controller
Recommended use	Residential (pollution degree 2)
Actuator	Electro-mechanical
Display	Grey with back-light
Software classification	A
Control	PID
Transmission frequency	868.42 MHz
Transmission range	up to 30 m
Power supply	2 x 1.5V AA alkaline, class III
Power consumption	3 µW in standby, 1.2 W when active
Battery life	2 years
Low battery signal	Battery icon will flash in display. If battery level is critical, the display will flash.
Ambient temperature	0 to 40°C
Transportation temperature	-20 to 65°C
Max. water temperature	90°C
Temperature setting range	4 to 28°C
Measurement interval	Measures temperature every minute
Clock accuracy	+/- 10 min./year
Spindle movement	Linear, up to 4.5 mm, max. 2 mm on valve (1 mm/s)
Noise level	<30 dBA
Safety classification	Type 1
Weight	177 g incl. RA adapter
IP class*	20

Tested for safety and EMC requirements as specified in EN 60730-1, EN 60730-2-9 and EN 60730-2-14.

Safety precautions

The thermostat is not intended for children and must not be used as a toy.
Do not leave packaging materials where children may be tempted to play with them, as this is extremely dangerous.
Do not attempt to dismantle the thermostat as it contains no user-serviceable parts. If error code E1, E2 etc. is shown in the display or other defects appear, please return the thermostat to the distributor.

