

Data Sheet

living connect[®], Z-Wave Certified Electronic Radiator Thermostat

Application



This documents provides information about the Z-Wave commands supported by *living connect*[®] and guidelines on the implementation of Z-Wave controllers as well as general description of the *living connect*[®] and how to mount it on a radiator.

living connect[®] is a electronic radiator thermostat. It can be controlled by either a Danfoss LinkTM CC (Central Controller) or a Z-Wave certified controller.

(For control by Danfos Link $^{\rm TM}$ CC see separate data sheet)

living connect[®] uses Z-Wave wireless communication technology, is easy to install and is supplied with adapters for all thermostatic valves manufactured by Danfoss and most other radiator valve manufacturers. *living connect*[®] is battery powered, compact and very easy to operate with only three buttons on the front.

The temperature can be changed at any time using the buttons on *living connect*[®]. The change is transmitted directly to the controller, which can synchronize the other electronic radiator thermostats in the same room. *living connect*[®] features an open-window function, which closes the valve if the temperature in the room is falling dramatically. Main features in a system with the controller:

- Energy saving
- Easy to install
- Easy to operate only three buttons
- Provides high comfort
- Open window function
- Valve exercise function
- PID control
- Weekly programs with variable set points for each day
- Battery lifetime 2 years, if properly supported by the Z-Wave controller
- Child lock
- Frost protection
- Backlit display

System example





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Code numbers

Code no.	Adapter (included)	Language instructions
014G0001	Danfoss RA	UK/DE/DK/NL
		FR/PL/SE/FI
014G0002	Danfoss RA and M30 x 1.5 (K)	UK/DE/DK/NL
		FR/PL/SE/FI

Accessories

Туре	Code no.
RAV & RAVL adaptor	014G0250
RA adaptor	014G0251
M30 x 1.5 (K) adaptor	014G0252
RTD adaptor	014G0253

Specification

Control system/input	Standard Z-Wave control units	
Transmission frequency	Wireless Z-Wave/868.42 MHz	
Transmission range	Up to 30 meters	
Synchronizing	Configurable (5 min. recommended)	
Screen/display	Grey digital with backlit	
Actuator type	Electromechanical	
Software classification	A	
Control	PID	
Power supply	2x1.5V AA alkaline, class III (SELV)	
Battery life	2 years	
Low battery signal	Battery icon and alarm bell will flash in display. If the battery level is critical, the whole display will flash.	
Ambient temperature	0 to 40°C	
Transportation temperature range	-20 to 65⁰C	
Temperature setting range	4 to 28°C	
Recommended use	Residential	
Open-window function	Yes	
Size	RA: L: 91 mm Ø:51 mm/K: L78 mm Ø: 51 mm	
Noise level	< 30 dBA	
Weight incl. battery	177 g	
Safety classification	Туре 1	
Mechanical strength	70 N (max. force from valve)	
Maximum water temperature	90°C	
Movement type	Linear	
Spindle movement	2-3 mm on valve	
Maximum extension	4.5 mm	
Temperature sampling	Measures temperature every minute	
Speed of adjustment	1 mm/s	
Power consumption	3 mW in standby, 1.2 W when active	
Ball pressure test	75℃	
IP class*	20	

* This thermostat should not be used in hazardous installations or in places where it will be exposed to water.





Data Sheet	<i>living connect</i> ®, Z-Wave Certified Electronic Radiator Thermostat		
Connecting <i>living connect</i> ® to a Z-Wave controller	In Z-Wave connecting a device is called "Inclusion" or "Learn mode".		
	To connect <i>living connect</i> [®] to a Z-Wave controller then:		
	 Ensure <i>living connect</i>[®] is factory reset as explained in the user manual. Activate "Inclusion" on the Z-Wave controller. Quickly press and release the select button on <i>living connect</i>[®]. Observe both controller and <i>living connect</i>[®] for status of the process. 		
	Technical requirements:		
	 After a succesful "Inclusion" the controller must send a WAKE_UP_INTERVAL_SET command to <i>living connect</i>® in order to specify where and when <i>living connect</i>® should communicate wirelessly. After sending the WAKE_UP_INTERVAL_SET command, the controller must assign return routes, so <i>living connect</i>® can reach its destination i.e. the nodeID set in the WAKE_UP_INTERVAL_SET command. <i>living connect</i>® will not commence its periodic communications if it is in "Installation mode". "Installation mode" is for physical installation and should not be confused with "Inclusion". Please consult the user manual of <i>living connect</i>® for instructions on how to leave "Installation mode". A Z-Wave controller will have access to all <i>living connect</i>® features, which are exposed using standard Z-Wave command classes. 		
Disconnecting <i>living con- nect®</i> from a Z-Wave con- troller	In Z-Wave disconnecting a device is called "Exclusion". To disconnect <i>living connect</i> ® from a Z-Wave controller then:		
	To disconnect inving connect from a 2-wave controller then.		
	 Activate "Exclusion" on the Z-Wave controller. Quickly press and release the select button on <i>living connect</i>[®]. Observe both controller and <i>living connect</i>[®] for status of the process. 		
Activate special awake mode on <i>living connect®</i>	<i>living connect</i> [®] will turn on radio communication for short periods of time at specific intervals in or- der to communicate with its controller, unless such a controller has yet to be configured. When radio communication is not needed by <i>living connect</i> [®] it will turn the radio off to conserve battery life.		
	If a user needs to configure a controller for <i>living connect</i> [®] or send more information to <i>living con- nect</i> [®] then the user can activate a special 5 seconds awake mode by pressing the select button on <i>living connect</i> [®] .		



Implemented Z-Wave de-	Z-Wave Device Classes	Device Class Implemented
vice classes	Generic Device	GENERIC_TYPE_THERMOSTAT
	Specific Device	SPECIFIC_TYPE_SETPOINT_THERMOSTAT

Supported and controlled	Z-Wave Command Classes Supported	Description
Z-Wave command classes	COMMAND_CLASS_BATTERY	Get current battery status of <i>living connect</i> ®.
	COMMAND_CLASS_CLIMATE_CONTROL_SCHEDULE	Control a temperature offset to the ther- mostat setpoint of <i>living connect</i> [®] . The tem- perature offset is defined by schedules and schedule overrides.
	COMMAND_CLASS_CLOCK	Set or get the current <i>living connect</i> [®] clock.
	COMMAND_CLASS_MANUFACTURER_PROPRIETARY	Special command used for communication with a Danfoss Link system.
	COMMAND_CLASS_MANUFACTURER_SPECIFIC	Get manufacturer ID of system.
	COMMAND_CLASS_MULTI_CMD	A special Z-Wave command used by <i>living</i> <i>connect</i> [®] to encapsulate multiple com- mands in one command and thereby con- serve 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</i> <i>connect</i> [®] to synchronize communication with its controller.

Danfoss



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