SIEMENS

Connected Home Essentials

Range overview, limitations, and topology examples

Connected Home: An ecosystem designed by Siemens

- Wireless communication based on Zigbee 3.0
- Fast installation and easy pairing
- Connects up to 40 devices on one hub (with repeaters)
- Energy savings of up to 30%
- Boiler and domestic hot water optimization
- Controls up to 40 rooms independently
- Intuitive mobile application "Connected Home" (downloadable from Google Play™ or Apple App Store®)

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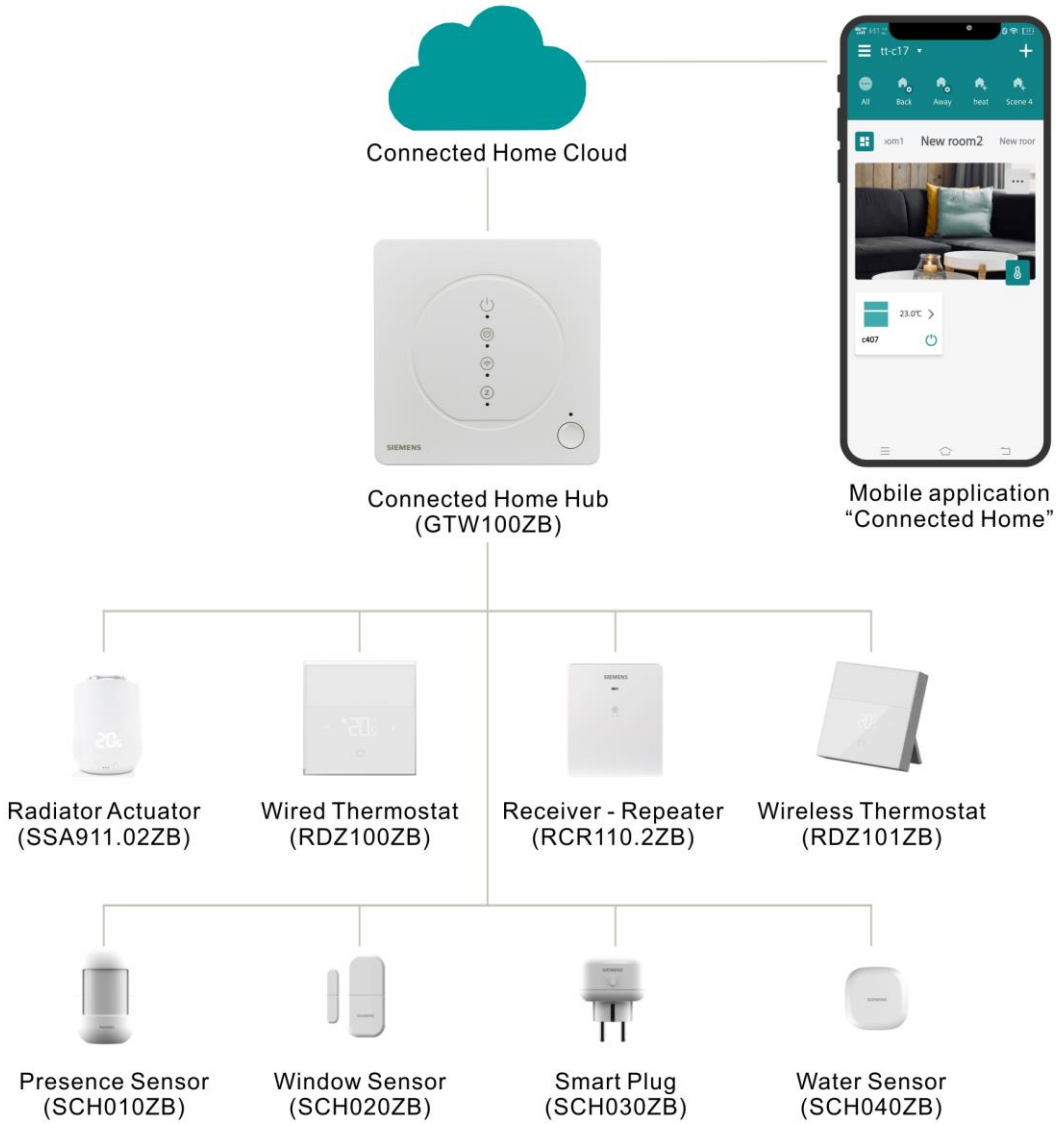
Siemens AG
Smart Infrastructure

Range overview

Siemens Connected Home ecosystem allows you to monitor and control heating applications. Its numerous end devices cover a big variety of heating applications.

It is composed of hardware, cloud and mobile applications as shown in the schema below:

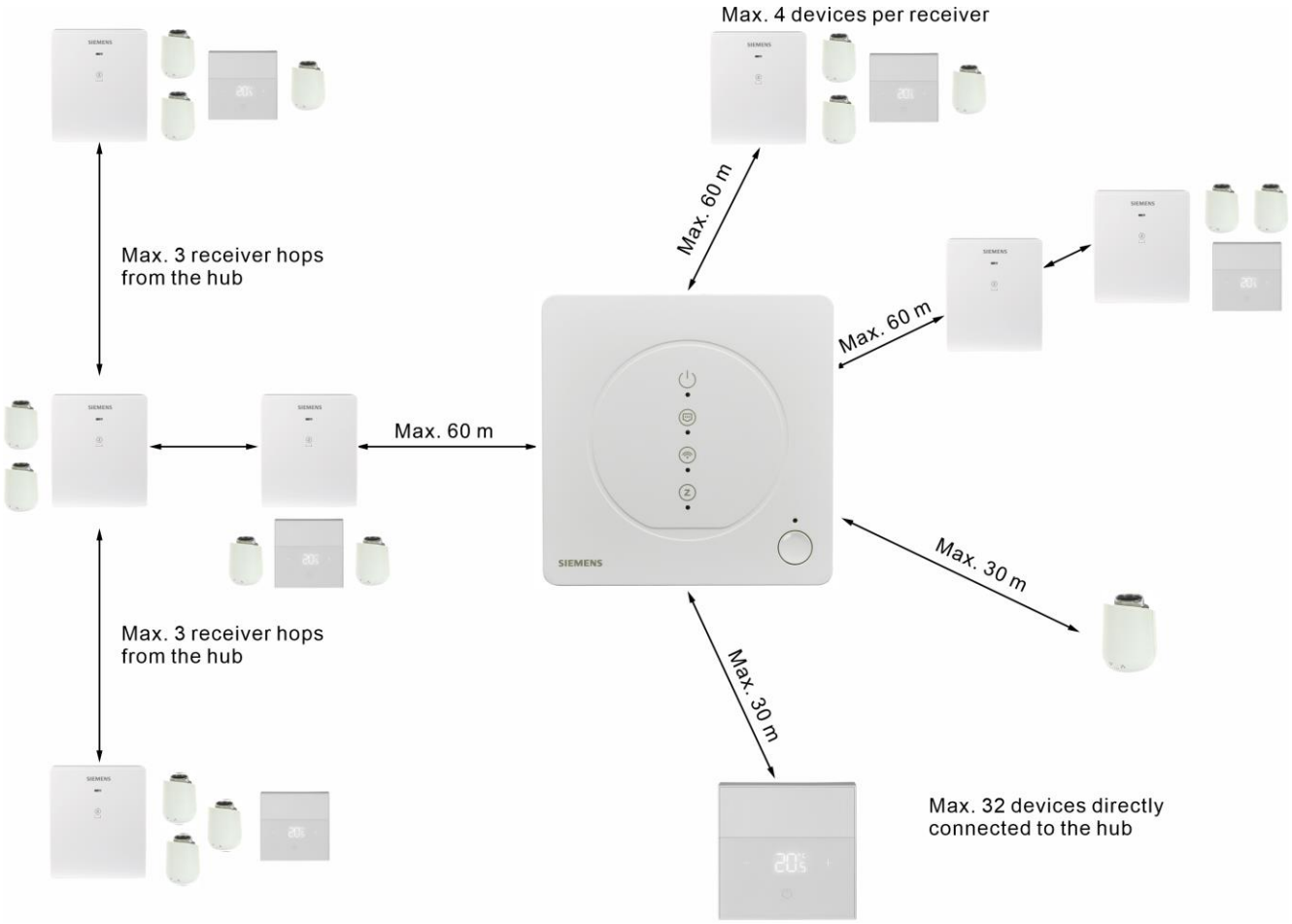


Ecosystem capabilities and limitations

Feature description	Comments
Battery lifetime	At least 1 year for all battery-powered devices (radiator actuators + thermostats). **Note:** If battery-powered devices are left turned on in status “unpaired” or “error”, it will lead to unwanted fast battery discharge in 1 week.
Battery replacement	Batteries are included in the packages. When batteries are replaced, the devices resume to the ZigBee network automatically within max. 20 minutes.
Number of devices per hub	Max. 40 devices, including radiator actuators, receivers, and thermostats. **Notes:** 1. The hub supports max. 32 radiator actuators and/or thermostats without receivers acting as repeaters. 2. If the distance to the hub becomes too large, it is advised to add receivers acting as repeaters for better network stability.
Number of devices per receiver	Max. 4 (see illustration on the next page) **Note:** 1. Max. 3 receiver hops from the hub are allowed.
Number of rooms per home	Max. 40
Number of members per home	Max. 50
Number of homes per account	Max. 50
Number of devices per room	Max. 40
Number of pairing devices in parallel	It is recommended to pair devices one at a time. Concurrent pairing may result in pairing failure.
ZigBee signal transmission range	● For repeaters: Max. 60 m from the closest ZigBee node in indoor open space. ● For thermostats and radiator actuators: Max. 30 m from the closest ZigBee node in indoor open space **Notes:** 1. A ZigBee node is a hub or a receiver. 2. Adding receivers can improve system stability. The best practice is to install them evenly within the building space (every 15 m and/or at least one per floor). 3. Transmission range can be significantly reduced by walls, slabs, metal structures, other electromagnetic emissions, etc. 4. Checking the transmission range and reconsidering device layout are highly recommended if disconnection is observed from the mobile application even when the device shows successful connection.
System powered off	It is recommended to keep the hub and receivers always powered. If the hub and/or receivers are powered off, it might lead to battery-powered devices turning offline instantly. When the power supply is resumed, the system resumes automatically but it is not guaranteed that the best practice network creation is kept.

Feature description	Comments
System internet offline mode	The system (hub + receivers + radiator actuators + thermostats) can operate with no hub internet connection. Automation and system logics (i.e. boiler control) are stored locally on the hub's memory. Nevertheless, to use the mobile application, an internet connection is required.
Add third-party ZigBee devices	Today it is not possible to add third-party ZigBee devices.
Remote temperature sensing of radiator actuator	Today, it is not possible that the radiator actuator can receive the temperature from another device (i.e., from a thermostat or temperature sensor).

Example of a system design

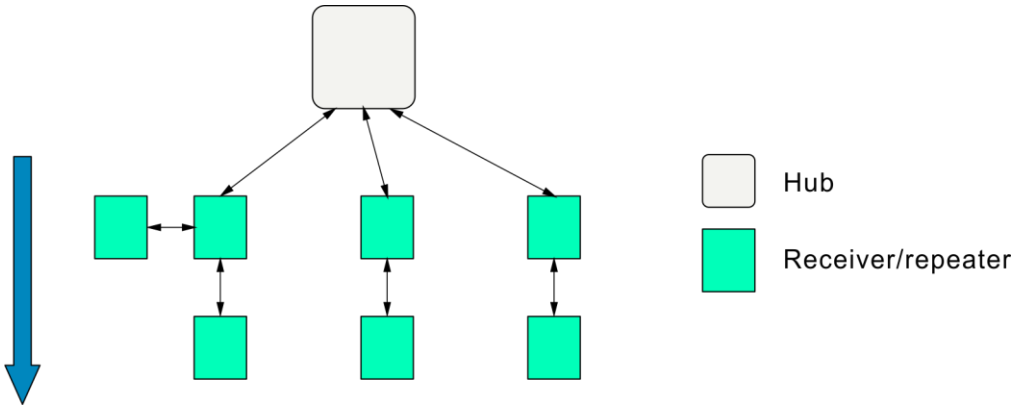


NOTICE	
!	The max. transmission distance is measured in indoor open space.

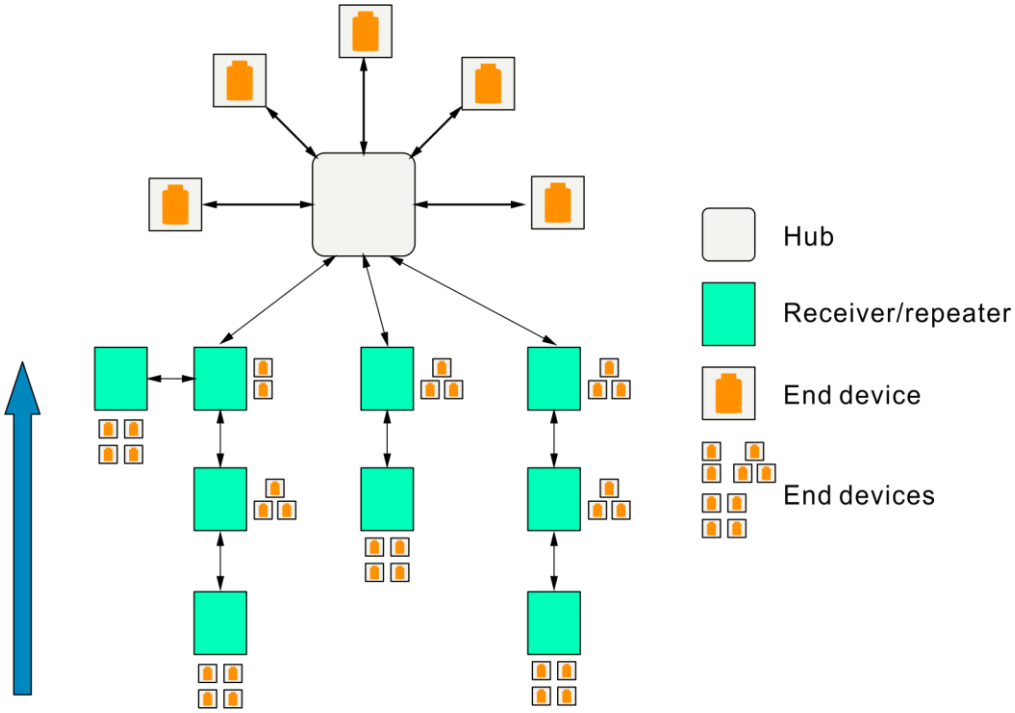
Best practice to design a large ZigBee network system

When installing your system and creating your ZigBee network, these are the recommended steps to ensure stability in the mesh network:

1. Install the devices in the building:
   - Mount the receivers to the walls: approximately one every 15 m, and/or min. one per floor.
   - Mount the radiator actuators on radiator valves.
2. Start pairing your devices:
   - Power up and pair the receivers, from the closest to the hub, to the furthest from the hub.



   - Power up and pair the radiator actuators and thermostats, from the furthest from the hub to the closest to the hub.

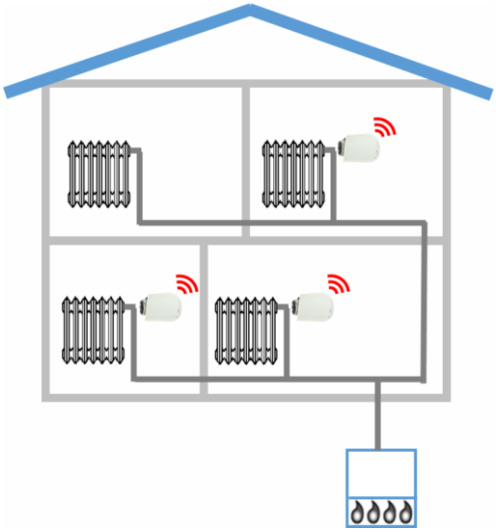


If an end device is not pairing to the hub in the mobile application, it may be necessary to add another receiver between the device and hub to act as a network repeater.

Topologies and use cases

NOTICE	
!	A Connected Home Hub is necessary for all the use cases. Receivers acting as repeaters might be needed in some use cases to ensure network stability.

Connected radiator actuator with no control of the boiler



Heat supply:

- Communal or central boiler in the building
- District heating

Heating system:

- Hydronic radiators

Installed Connected Home equipment:

- Radiator actuator

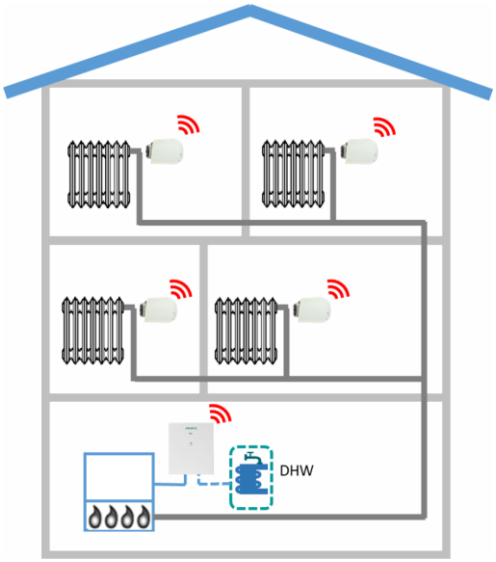
Temperature and boiler control:

- All rooms are controlled individually.

Variants:

- One room can have multiple connected radiator actuators.
- Adding a receiver can turn on/off domestic hot water based on programmed schedules in the mobile application.

Connected radiator actuators with control of the boiler (or zone valve or heat pump)



Heat supply:

- Individual boiler

Heating system:

- Hydronic radiators

Installed Connected Home equipment:

- Radiator actuator
- Receiver

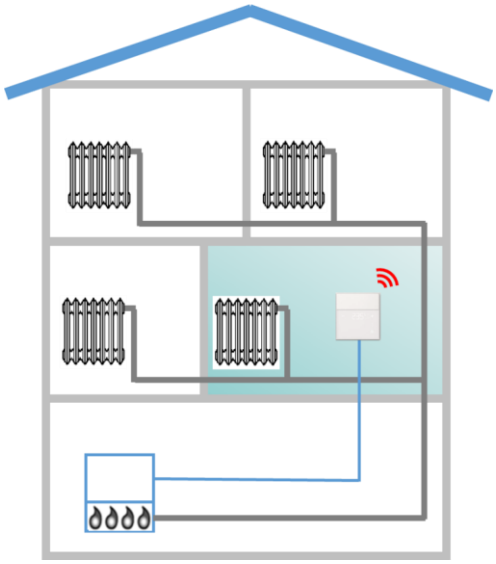
Temperature and boiler control:

- Radiator actuators send heat demand to the receiver that controls the boiler.
- All rooms are controlled individually.

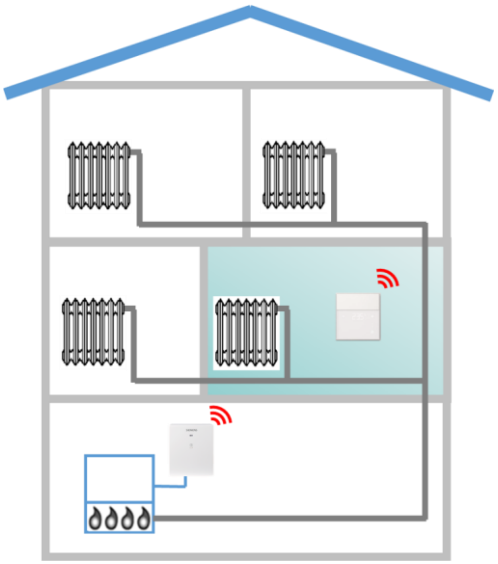
Variants:

- One room can have multiple connected radiator actuators.
- The receiver can turn on/off domestic hot water based on programmed schedules in the mobile application.

Heating controlled by a thermostat placed in a reference room



Use of RDZ100ZB



Use of RDZ101ZB

Heat supply:

- Individual boiler

Heating system:

- Hydronic radiators

Installed Connected Home equipment:

- Wired or wireless thermostat (RDZ100ZB or RDZ101ZB)
- Receiver (if RDZ101ZB is installed)

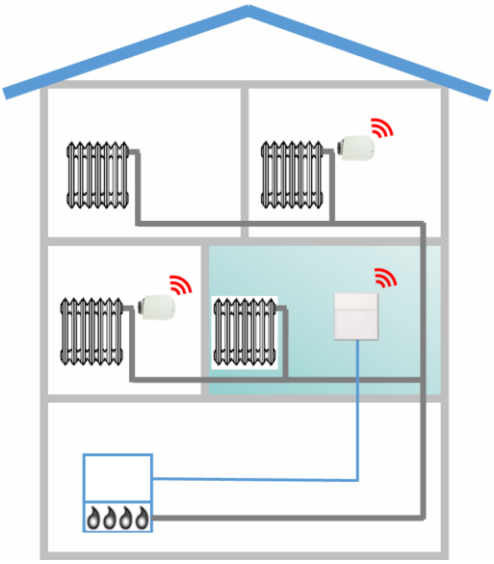
Temperature and boiler control:

- All the rooms are heated according to the reference room’s temperature.

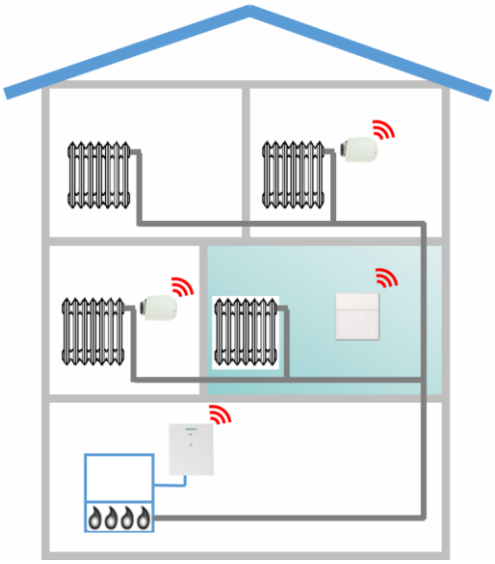
Variants:

- The thermostat is either connected directly to the boiler or controlling the boiler through a wireless thermostat relay.
- Adding a receiver can turn on/off domestic hot water based on programmed schedules in the mobile application.

Mix use of connected thermostat and radiator actuators



Use of RDZ100ZB



Use of RDZ101ZB

Heat supply:

- Individual boiler

Heating system:

- Hydronic radiators

Installed Connected Home equipment:

- Wired or wireless thermostat (RDZ100ZB or RDZ101ZB)
- Radiator actuators
- Receiver (if RDZ101ZB is installed)

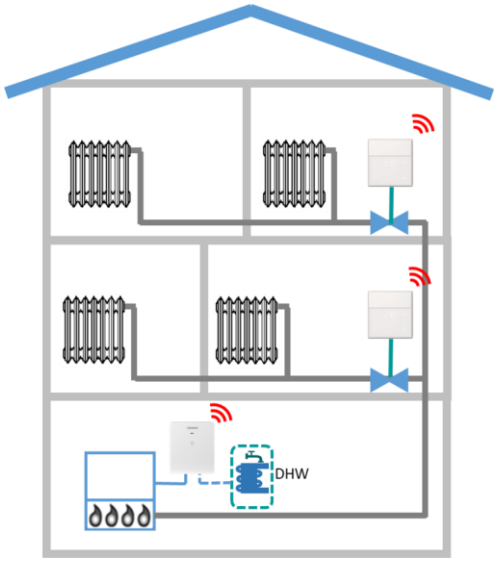
Temperature and boiler control:

- All or some radiators are equipped with a connected radiator actuator, except for the ones in the reference room.

Variants:

- The boiler is controlled directly by a wired thermostat (RDZ100ZB). In this case, the radiator actuators cannot request heat directly from the boiler. The boiler is only controlled according to the heat demand of the reference room.
- In case of a wireless thermostat (RDZ101ZB), the boiler is controlled by a receiver.
  - If the receiver is configured as a thermostat relay in the mobile application, the boiler is controlled according to the heat demand of the reference room.
  - In case of a wireless thermostat (RDZ101ZB) with no thermostat relay linked to it, individual room control of that room is not possible.
  - The receiver can control domestic hot water and release it based on programmed schedules in the mobile application.

Multiple thermostats controlling different zones



Heat supply:

- Individual boiler

Heating system:

- Hydronic radiators with zones controlled by zone valves

Installed Connected Home equipment:

- Wired thermostats (RDZ100ZB)
- Receiver

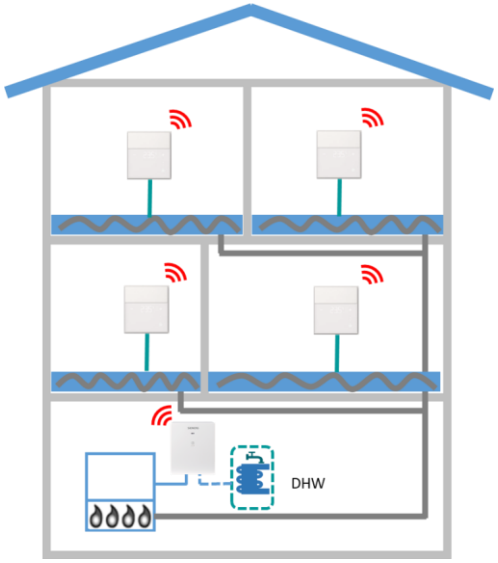
Temperature and boiler control:

- Each zone is individually controlled by a thermostat.
- The boiler turns on when receiver receives a heat demand from any thermostat.

Variants:

- The receiver can turn on/off domestic hot water based on programmed schedules in the mobile application.
- Wired thermostats could be replaced by wireless thermostats linked to receivers set as thermostat relay.

Underfloor heating system with zoning



Heat supply:

- Individual boiler

Heating system:

- Underfloor

Installed Connected Home equipment:

- Wired thermostats (RDZ100ZB)
- Receiver

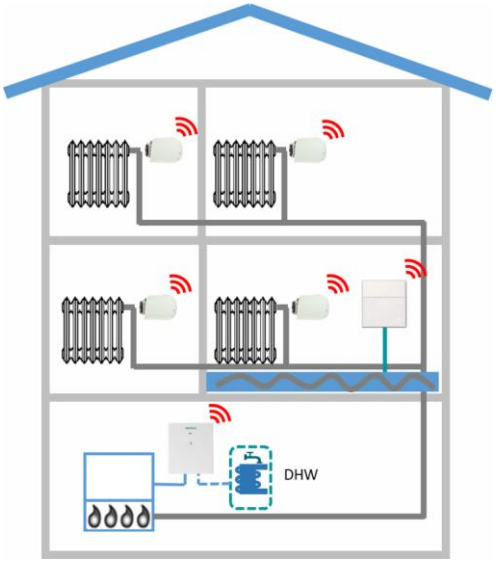
Temperature and boiler control:

- Each room is controlled by a thermostat that activates the zone valve of the underfloor heating loop.
- Each room can be controlled individually.
- The boiler turns on when the thermostat relay receives a heat demand from any thermostat.

Variants:

- The receiver can turn on/off domestic hot water based on programmed schedules in the mobile application.
- Wired thermostats could be replaced by wireless thermostats linked to receivers set as thermostat relay.

Mix use of underfloor heating and radiators



Heat supply:

- Individual boiler

Heating system:

- Mix of hydronic radiators and underfloor heating

Installed Connected Home equipment:

- Radiator actuators
- Thermostat
- Receiver

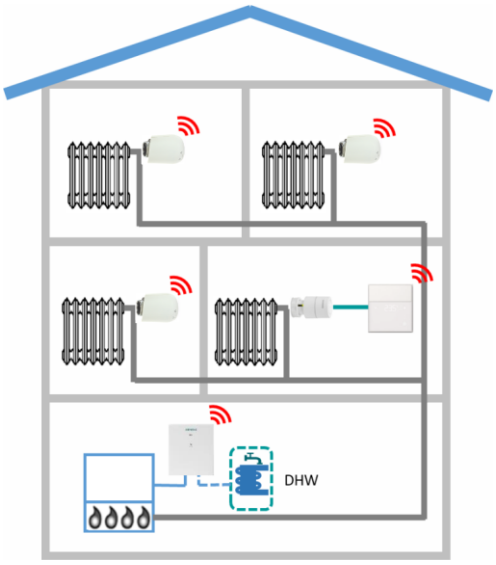
Temperature and boiler control:

- All the radiators are equipped with radiator actuators, and the underfloor heating zone valves are controlled by thermostats.
- The rooms are controlled individually.
- The boiler is controlled by a receiver that considers the heat demand of both the radiator actuators and thermostats.

Variants:

- The receiver can turn on/off domestic hot water based on programmed schedules in the mobile application.

System adaption for radiator covers



Heat supply:

- Individual boiler

Heating system:

- Hydronic radiators
- Hydronic radiators with radiator covers

Installed Connected Home equipment:

- Radiator actuators
- Wired thermostat (RDZ100ZB)
- Receiver

Temperature and boiler control:

- Temperature sensing in covered radiator is not accurate. It is advised to use a wired thermostat to control the wired valve actuator.
- The boiler is controlled by a receiver. It considers the heat demand of both the radiator actuators and thermostats.

Variants:

- The receiver can turn on/off domestic hot water based on programmed schedules in the mobile application.

Additional information on the Connected Home ecosystem

Tutorial YouTube playlist

Frequently Asked Questions (FAQ)

Product documentation

Device	Document type	Document ID[1)]
Connected Home Hub	Datasheet	A6V12640776
	Mounting instructions	A6V12694180
	Operating instructions	A6V12694177
	Environmental declaration	A5W00217286A
	CE declaration of conformity	A5W00218222A
	UK declaration of conformity	A5W00218223A
	Open Source Software (OSS)	A6V13038924
Connected Home Receiver	Datasheet	A6V12680327
	Mounting instructions	A6V12680334
	Operating instructions	A6V12680330
	Environmental declaration	A5W90009801
	CE declaration of conformity	A5W00218224A
	UK declaration of conformity	A5W00218226A
	Open Source Software (OSS)	A6V13038922 (only for product version A[2)]), A6V13959823
Connected Home Radiator Actuator	Datasheet	A6V13722083
	Mounting instructions	A5W00293080A
	Environmental declaration	A5W00285172A
	CE declaration of conformity	A5W00285172A
Connected Home Thermostat	Datasheet	A6V13360592
	Mounting instructions	A6V13360576
	Operating instructions	A6V13360586
	Environmental declaration	A5W00269582A
	CE declaration of conformity	A5W00270102A
	UK declaration of conformity	A5W00270107A
	Open Source Software (OSS)	A6V13562630
Connected Home Presence Sensor	Datasheet	A6V13959459
	Mounting instructions	A6V13959836

Device	Document type	Document ID[1)]
	Environmental declaration	A5W00670144A
	CE declaration of conformity	A5W00705027A
	UK declaration of conformity	A5W00705028A
Connected Home Window Sensor	Datasheet	A6V13959555
	Mounting instructions	A6V13959840
	Environmental declaration	A5W00670144A
	CE declaration of conformity	A5W00705027A
	UK declaration of conformity	A5W00705028A
Connected Home Smart Plug	Datasheet	A6V13959694
	Mounting instructions	A6V13959843
	Environmental declaration	A5W00670144A
	CE declaration of conformity	A5W00705027A
Connected Home Water Sensor	Datasheet	A6V13959737
	Mounting instructions	A6V13959847
	Environmental declaration	A5W00670144A
	CE declaration of conformity	A5W00705027A
	UK declaration of conformity	A5W00705028A
Mobile application "Connected Home"	Privacy Notice	A6V13406301

[1)] The documents are available at www.siemens.com/bt/download.

[2)] See the product version on the label (the number after "2PFS") on the back of the device.

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