

Uponor Smatrix Wave Flow

EN System description

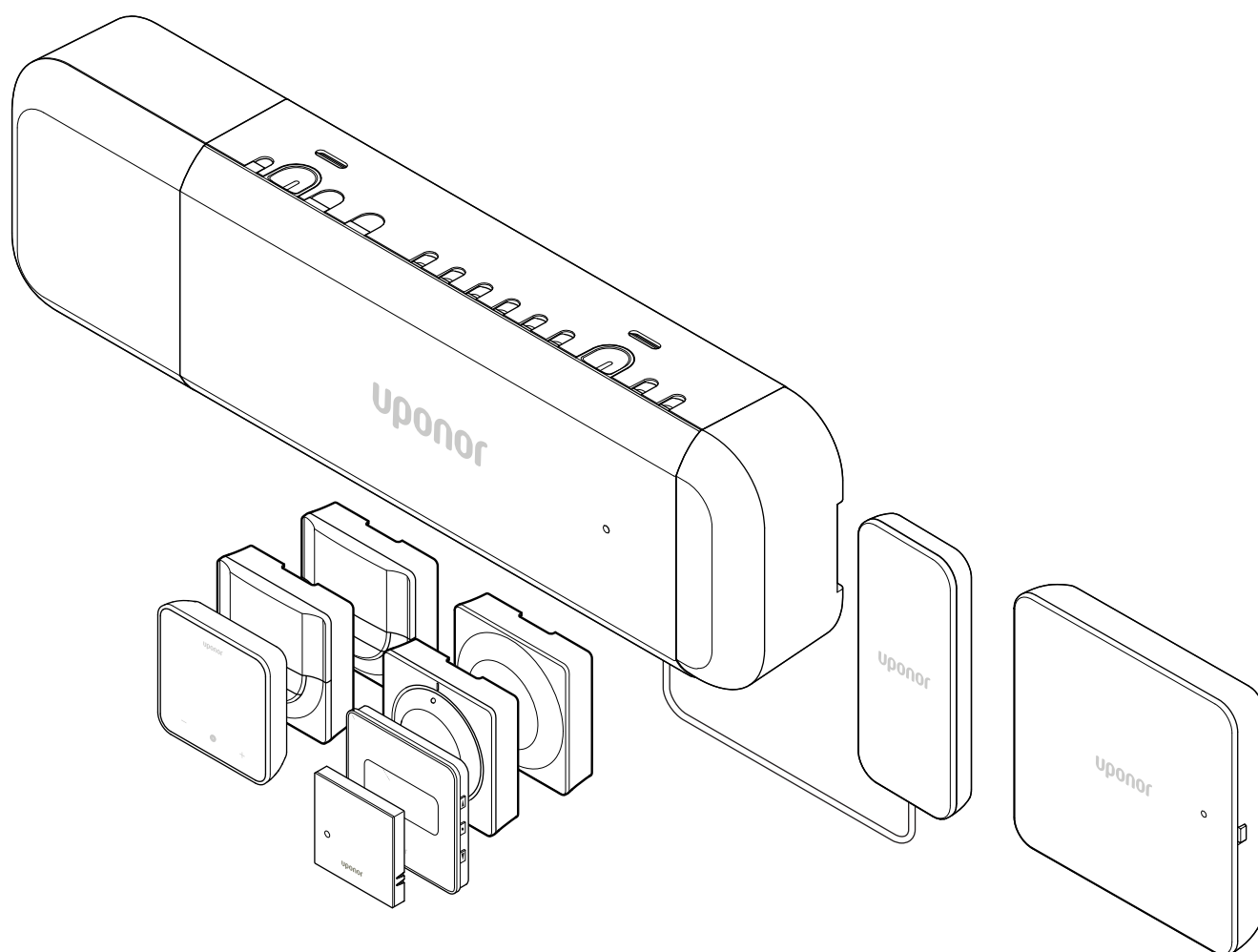


Table of contents

1	System description.....	3
1.1	System compatibility.....	3
1.2	Example of a system.....	3
1.3	Room controller.....	4
1.4	Communication module.....	5
1.5	Expansion module.....	6
1.6	Relay module.....	7
1.7	Thermostats and thermostatic heads.....	7
1.8	Accessories.....	7
1.9	Uponor actuators.....	7
1.10	Uponor Smatrix Flow app and cloud services.....	8
2	Installation type examples.....	10
2.1	Underfloor heating or underfloor heating/cooling with multiple room controllers.....	10
2.2	Underfloor heating or underfloor heating/cooling with a single room controller.....	13
2.3	Underfloor heating/cooling with two standalone room controllers.....	16
2.4	Underfloor heating and radiators with multiple room controllers.....	18
2.5	Underfloor heating or underfloor heating/cooling, and electrical underfloor heating with a single room controller....	20
2.6	Underfloor and ceiling heating/cooling with a single room controller.....	23
2.7	Underfloor heating with a loop in one more room.....	24
3	Technical data.....	26
3.1	Technical specifications.....	26
3.2	Cable specifications.....	28
3.3	Minimum distances.....	28
3.4	Dimensions.....	29

1 System description

Uponor Smatrix Wave Flow is a management system for underfloor heating and cooling installations. Comfort, user-friendliness, and temperature control for each room of a home can be put together through multiple components.

1.1 System compatibility

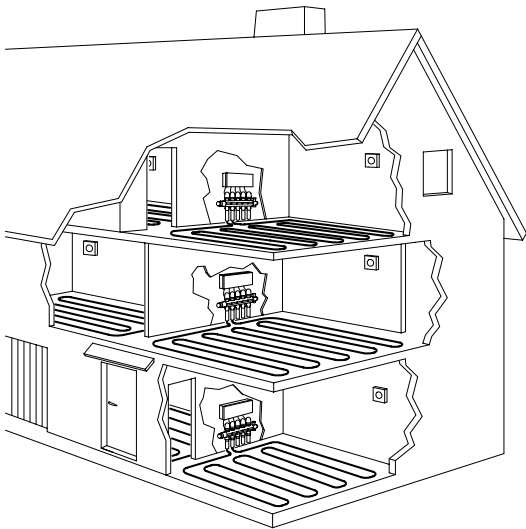
Uponor Smatrix Flow has a room controller, thermostats, actuators, an optional communication module and other accessories. The room controller manages the the actuators' operation when the thermostats sense a demand for heating or cooling.

The room controller also manages the room temperature in rooms with radiators and wireless thermostatic heads.

Uponor Smatrix Flow can operate with a mixture of different types of thermostats. Designed for maximum comfort, the thermostats communicate with the room controller through a radio link.

Uponor Smatrix Flow operates as a:

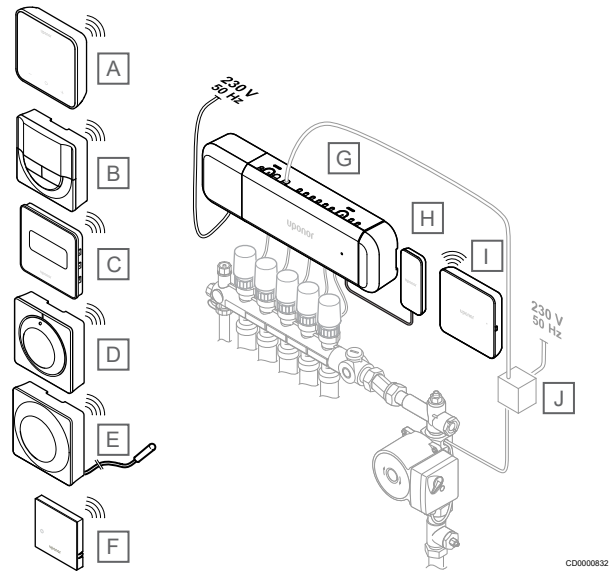
- Standalone (less functionality)
The room controller can operate without the communication module. It then becomes a standalone system with less functionality.
- System (connected or not connected to Uponor Cloud services)
The optional communication module (necessary to operate as a system) lets the Uponor Smatrix Flow app set up and optimise the system, and control the settings (for up to four room controllers).



SD0000010

1.2 Example of a system

The illustration shows Uponor Smatrix Wave Flow with different installation options and thermostats.



CD0000832

Note

To get a limit on the floor temperature, the floor sensor can be connected to all the thermostats, but not the T-165.

For example, a maximum limit can protect sensitive floor covers from exposure to too high temperatures during periods of high heating demand. The minimum limit can keep a tiled floor warm when there is no general heating demand.

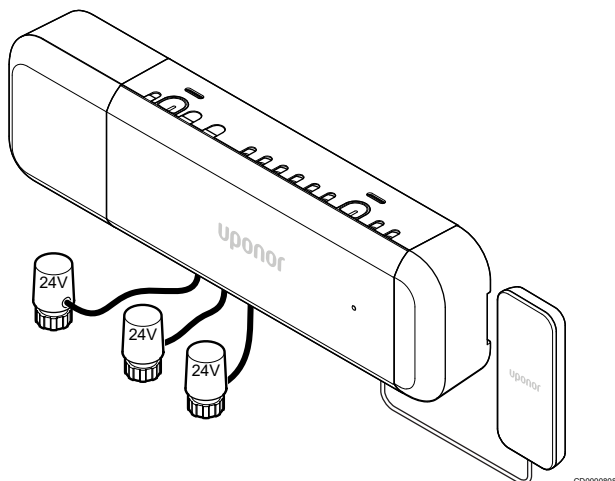
Item	Description
A	Uponor Smatrix Wave T-267 (Digital thermostat with RH)
B	Uponor Smatrix Wave T-168 (Digital thermostat)
C	Uponor Smatrix Wave T-169 (Digital thermostat with RH)
D	Uponor Smatrix Wave T-165 (Standard thermostat)
E	Uponor Smatrix Wave T-163 (Public thermostat with floor sensor)
F	Uponor Smatrix Wave T-161 (Room sensor thermostat)
G	Uponor Smatrix Wave Flow X-365 (Room controller)
H	Uponor Smatrix Wave Flow A-365 (Antenna)
I	Uponor Smatrix R-368 (Communication module)
J	External connection box for pumps (third-party product, a schematic example is shown in the illustration)

1.3 Room controller

	Caution!
	Only 24 V AC Uponor actuators are compatible with the room controller.

The room controller uses information from the thermostats (such as room temperature) and sets system parameters to operate the actuators. This has an effect on the flow of the supply water and changes the indoor temperature.

The room controller operates up to eight channels and ten actuators. The room controller is usually located near the hydraulic system manifolds.



Controller features

Primary characteristics:

- Energy-saving functions, for example:
 - Autobalancing (ON by default)
 - Comfort setting (Uponor Smatrix Flow app is necessary)
 - Supply temperature adjustment recommendations (Uponor Smatrix Flow app is necessary)

Uponor cloud services are also necessary in some situations.

- Electronic control of actuators
- Connection of up to ten actuators (24 V AC)

- 2-way communication with up to eight room thermostats
- Input (IN) to connect an external switch for:
 - Heating/cooling switch (Uponor Smatrix Flow app can also be used)
- Two independently operated relays (dry contacts) on the controller to activate a function:
 - Circulation pump (default, Relay 1)
 - Boiler (Uponor Smatrix Flow app is necessary)
 - Chiller (Uponor Smatrix Flow app is necessary)
 - Dehumidifier (Uponor Smatrix Flow app is necessary)
 - Heating/Cooling (default, Relay 2)
 - Comfort/ECO (Uponor Smatrix Flow app is necessary)

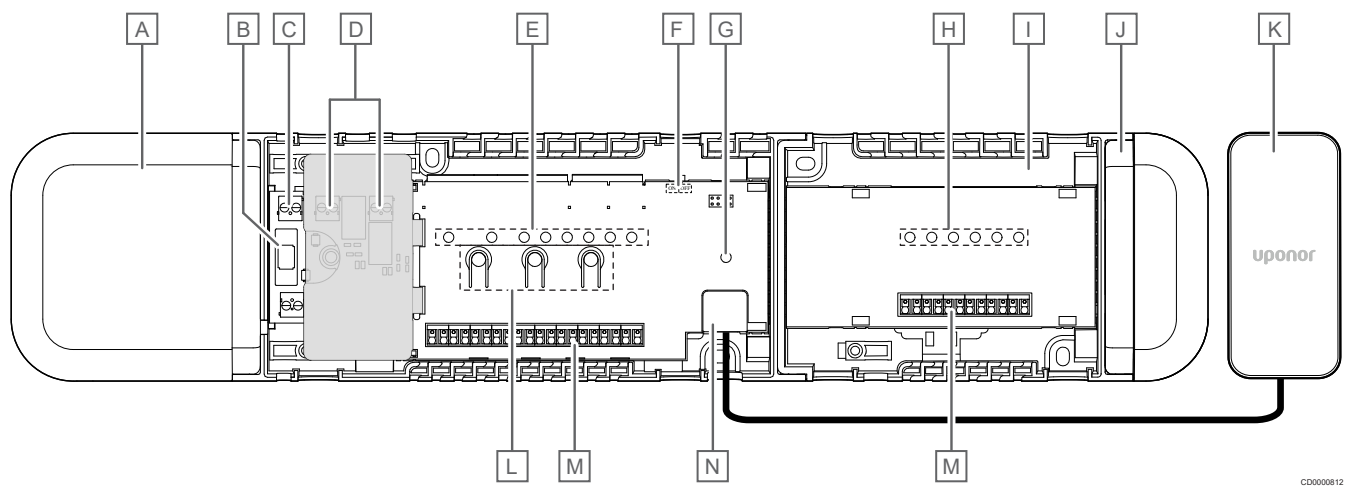
The Uponor Smatrix Flow app is necessary to access advanced functionality and settings.

- Room bypass (Uponor Smatrix Flow app is necessary)
- Valve and pump exercise
- Relative humidity control (Uponor Smatrix Flow app is necessary)
- Condensation control (Uponor condensation set is necessary)
- DIP switch on the controller to enable or disable Autobalancing
- Virtual thermostat (Uponor Smatrix Flow app is necessary):
 - Possibility to use the same thermostat with two controllers

Options:

- Local system access through the Uponor Smatrix Flow app (communication module is necessary)
- Remote system access through the Uponor Smatrix Flow app (communication module and cloud service are necessary)
- Possibility to expand the room controller with an expansion module (which adds six more thermostat channels and six more actuator outputs)
- Possibility to connect up to four room controllers to one system (Uponor Smatrix Flow app is necessary)
- Detachable transformer for modular placement
- Cabinet or wall-mounted (DIN rail or supplied screws)
- Free placement and orientation to install the room controller (antenna/communication module must be installed vertically)
 - The antenna can be hidden in the end cap. Horizontal installation of the room controller is necessary, but it must not be in a metal cabinet.

Room controller layout



Item	Description
A	Transformer, 230 V AC, 50 Hz power module
B	Fuse (T5 F3.15AL 250 V)
C	Input (IN)
D	Relay outputs (default: pump and heating/cooling management)
E	LEDs for channels 01–08
F	Autobalancing switch
G	Power LED
H	LEDs for channels 09–14
I	Uponor Smatrix Wave Expansion Module Flow M-362 6X (optional)
J	End cap
K	Antenna
L	Channel registration buttons
M	Quick connectors for actuators
N	Antenna connector

1.4 Communication module

Note

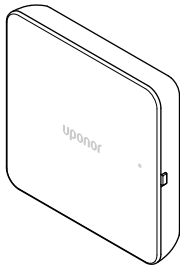
To set up a system with a communication module, you must have a mobile device (smartphone/tablet).

Note

Uponor recommends that you do not install the communication module in a metallic cabinet because it can have a negative effect on radio and Wi-Fi communication.

Note

The communication module must not be put nearer than 1 m from a room controller antenna.



With the communication module you have local and remote access to the room controller from a mobile device. For this access you need a connection to the Uponor cloud services and the Uponor Smatrix Flow app must be installed on your mobile device.

The communication module contains:

- An internal antenna for communication with a room controller
- Bluetooth Low Energy (BLE) module for local app access and initial setup
- Ethernet connector for internet connection
- Wi-Fi for internet connection

The app is the user interface for installers and end users. The app shows information and lets you do simplified programming of all related system settings. You can download the Uponor Smatrix Flow app from Google Play (Android) or the App Store (iOS). To use the app, you must create a user account. User confirmation is done through email.

You can operate the Uponor Smatrix Wave Flow system without the app and communication module, but with only basic functionality (with the use of the thermostats).

Communication module features

Primary characteristics:

- Uponor Smatrix Flow app connectivity
- Connection to router with Wi-Fi or Ethernet

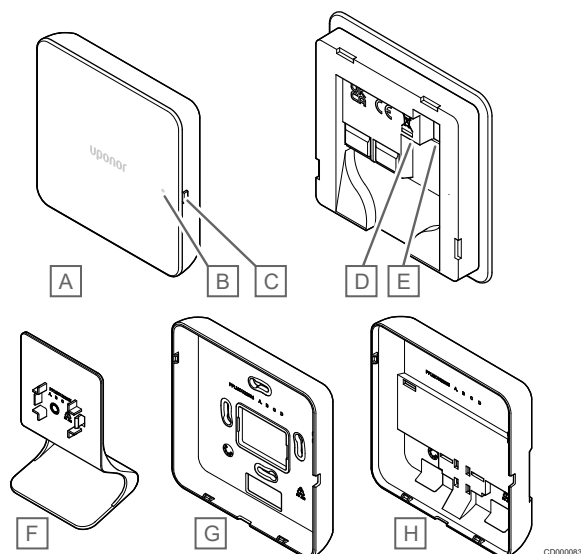
- Power supplied through USB-C
- Internal radio antenna for communication in the room controller (it continues to be necessary to have the regular antenna for the room controller to communicate with thermostats and system devices).
- Bluetooth Low Energy (BLE) module for local app access and initial setup
- More functionality (with Uponor Smatrix Flow app):
 - Analogue thermostat override (thermostat setpoint only set from app)
 - Heating/cooling settings
 - More relay functionality (chiller, dehumidifier, and so on)
 - Integrate up to four room controllers into one system.
 - Autobalancing is enabled/disabled in the app, not the DIP switch on the controller.
- More functionality (with Uponor Smatrix Flow app and Uponor Cloud Services):
 - Comfort/ECO schedules
 - Holiday mode (with all thermostats)
 - Guest users
 - Trends
 - Supply diagnostics
 - Weather information
 - Google/Alexa integration
 - Heat pump integration
 - Automatic Over-The-Air (OTA) software updates
 - Remote connection to the system

Options:

- Cabinet or wall-installed:
 - On DIN rail (not in cabinet)
 - With supplied screws
- Table stand

Communication module layout

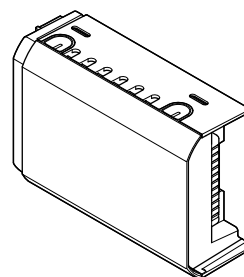
The illustration shows the parts of the communication module.



Item	Description
A	Communication module
B	Communication module LED
C	Communication module button
D	Power supply connector (USB-C)
E	RJ45 Ethernet connection (10/100BaseT)
F	Table mount
G	Wall mount
H	DIN-rail mount

1.5 Expansion module

The room controller can be extended with six more channels and actuator outputs with the use of an expansion module.



Expansion module features



Note

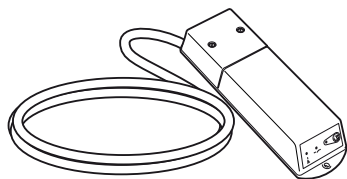
Only one expansion module is supported for each room controller.

Primary characteristics:

- Easy plug-in installation to a room controller
- Register up to six more thermostats to the room controller.
- Connect up to six more actuators (24 V).
- Electronic control of actuators
- Valve exercise

1.6 Relay module

The relay module adds two output relays to the system.



CD0000815

Relay module features

Primary characteristics:

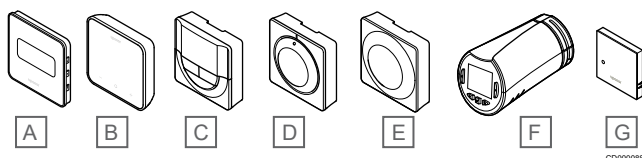
- Internal radio antenna for communication in the room controller
- Two potential-free contacts (230 V AC, 5 A)
- A room controller is necessary
- Pump control and boiler output function (default)
- Optional control functions (Uponor Smatrix Flow app is necessary):
 - Pump
 - Dehumidifier
 - Chiller
 - Heating/cooling
 - Comfort/ECO
- It can be put up to 30 m away from the room controller.

1.7 Thermostats and thermostatic heads

Note

The temperature of the surrounding surfaces and the ambient air temperature have an effect on the thermostat.

The thermostats and thermostatic heads communicate with the room controller through radio transmissions.

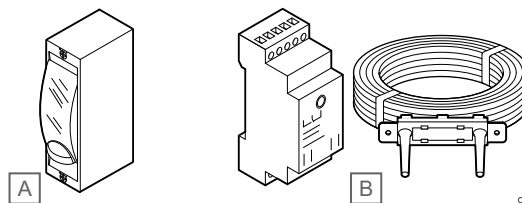


CD0000883

Item	Product name	Description
A	Uponor Smatrix Wave T-169	Digital thermostat with a relative humidity sensor and an operative sensor
B	Uponor Smatrix Wave T-267	Digital thermostat with a relative humidity sensor
C	Uponor Smatrix Wave T-168	Programmable digital thermostat with a relative humidity sensor
D	Uponor Smatrix Wave T-165	Standard thermostat with print on dial
E	Uponor Smatrix Wave T-163	Public thermostat
F	Uponor Smatrix Wave T-162	Thermostatic head
G	Uponor Smatrix Wave T-161	Room sensor thermostat with a relative humidity sensor and an operative sensor

1.8 Accessories

Uponor has accessories to use with the standard portfolio.

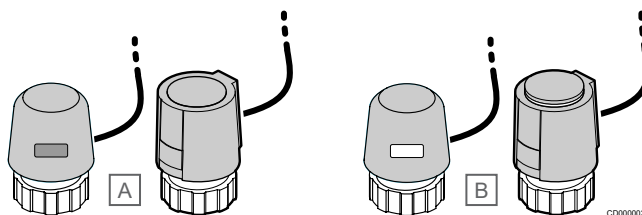


CD0000833

Item	Component	Description
A	Uponor heating/cooling relay	Relay to connect an external voltage signal from a heating/cooling source, such as a heat pump, to a room controller input
B	Uponor Base condensation set S-80 230 V	A condensation sensor to decrease the risk of condensation in standalone systems with cooling

1.9 Uponor actuators

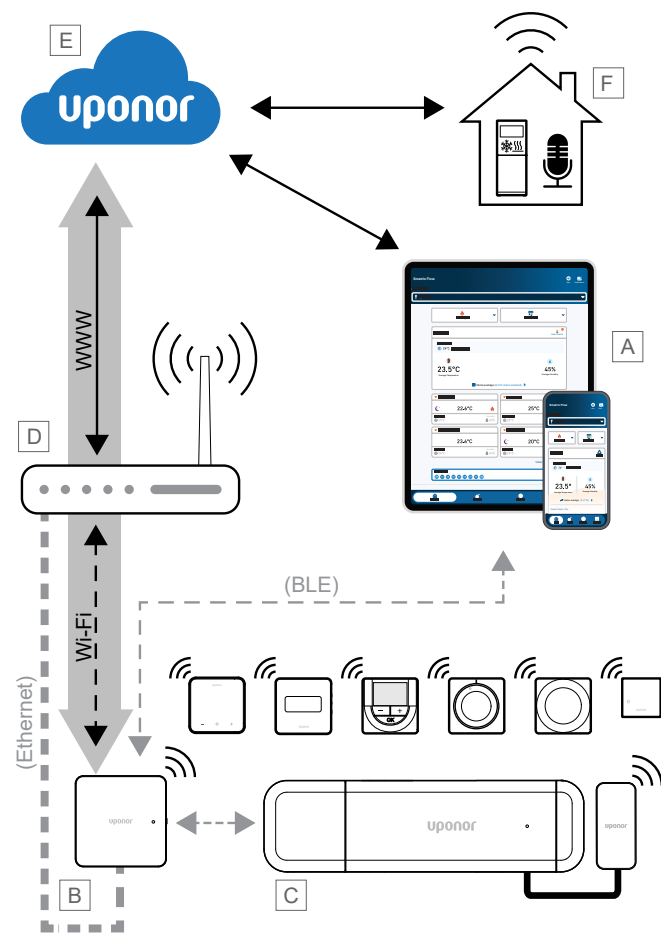
Uponor actuators are installed on top of the manifold valves and operated with Pulse-Width Modulation (PWM) signals or ON/OFF signals.



CD0000035

Item	Description
A	The actuator closed the valve – empty indicator
B	The actuator opened the valve – white indicator

1.10 Uponor Smatrix Flow app and cloud services



Note

To set up a system with a communication module, you must have a mobile device (smartphone/tablet).

The system (room controller with a communication module and thermostats) (C) can be set up and controlled with a mobile device (A) with the Uponor Smatrix Flow app, with the use of these connection methods:

- Direct connection through Bluetooth (local app connection only)
- Connection through the internet (app and cloud services are necessary – communication always goes through the cloud services)

An external system (F), for example, a heat pump or a voice control assistant, can use this connection method:

- Third-party connection (app and cloud services are necessary)

Local connection (Bluetooth)

Note

Bluetooth Low Energy (BLE) must be activated (button on the communication module) each time local connection is to be used.

This method is used during system installation and setup. It is also used during normal operation when no internet is available.

The communication between the Uponor Smatrix Flow app and the communication module can be done locally through Bluetooth Low Energy (BLE) if the internet is not available.

The communication is done as follows:

- The mobile device (A) connects directly to the communication module (B) through Bluetooth.
- The system (C) connects to the communication module (B) through radio communication.

Connection through Uponor cloud services (internet)

This method is used during normal operation.

Requirements:

- The communication module must be connected to the internet through Wi-Fi or Ethernet.
- The user must set up an Uponor cloud services account to connect through the cloud.

Communication with remote connection:

- The mobile device (A) connects to Uponor cloud services (E) through the internet (through local network or mobile network).
- Uponor cloud services (E) connect to the communication module (B) through an internet-connected Wi-Fi router (D).
- The communication module (B) connects to the router (D) through Wi-Fi or Ethernet.
- The room controller (C) connects to the communication module (B) through radio communication.

Third-party connection

This method is used when external systems (F), for example, heat pumps, smart home systems or voice control assistants, communicate with the Uponor Smatrix Flow system.

Requirement:

- The user must set up an Uponor cloud services account to use third-party connections (heat pump, Google Assistant, Alexa, and so on).

Communication with third-party connections:

- The external system (F) connects to Uponor cloud services (E).
- Uponor cloud services (E) connect to the communication module (B) through the local internet-connected Wi-Fi router (D).
- The communication module (B) connects to the router (D) through Wi-Fi or Ethernet.
- The room controller (C) connects to the communication module (B) through radio communication.

More functions with the Uponor Smatrix Flow app

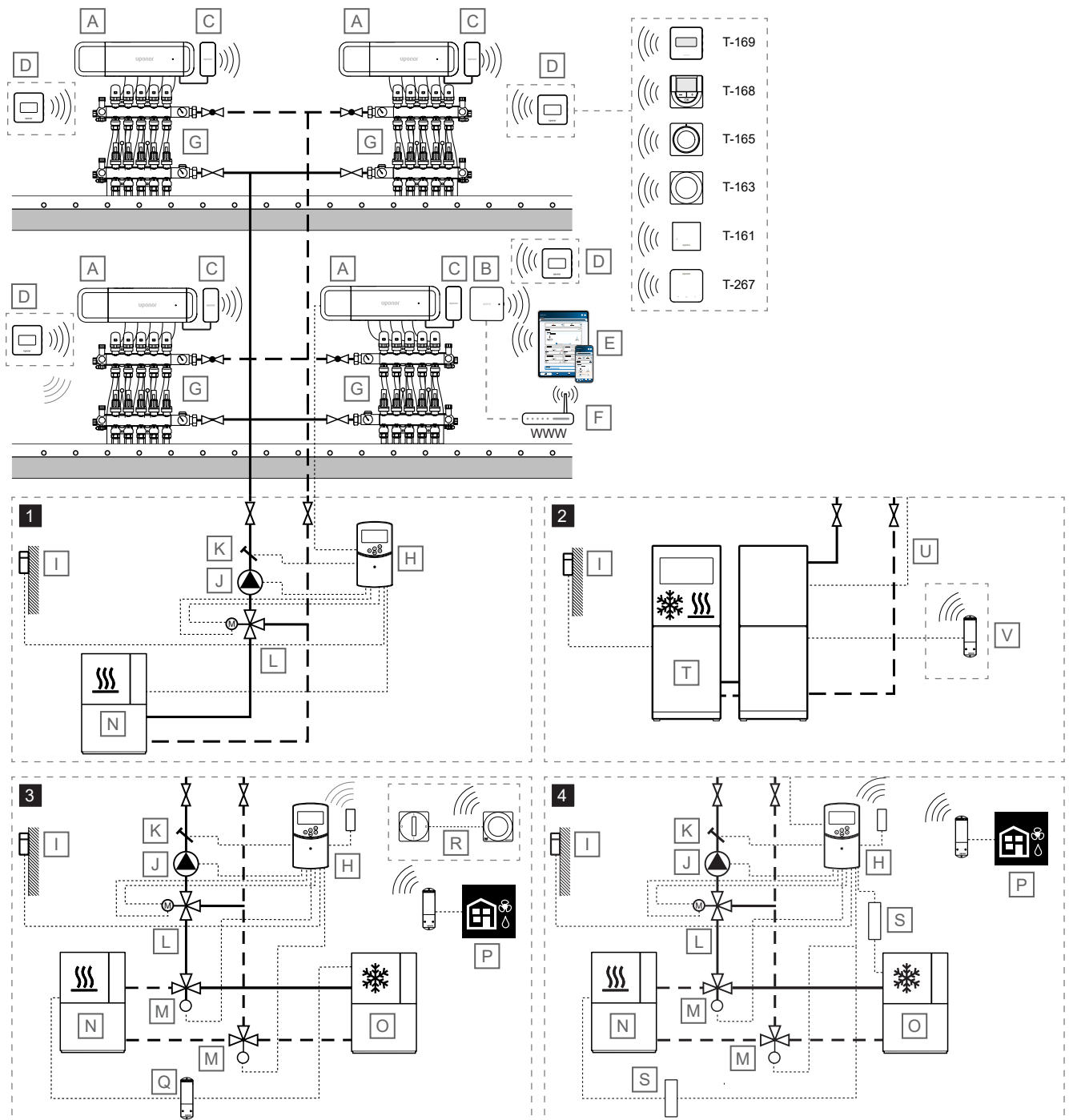
The Uponor Smatrix Flow app gives access to more functions for the room controller.

Functions	Local Bluetooth connection	Cloud connection
Analogue thermostat override (thermostat setpoint only set from app)	X	X
Heating/cooling settings	X	X

Functions	Local Bluetooth connection	Cloud connection
		
More relay functionality (chiller, dehumidifier, and so on)	X	X
Integration of up to four room controllers into one system	X	X
Autobalancing enabled/disabled, not the DIP switch on the controller	X	X
Smatrix AI		X
Comfort/ECO schedules		X
Guest users		X
Trends		X
Supply diagnostics		X
Weather information		X
Google/Alexa integration		X
Heat pump integration		X
Automatic Over-The-Air (OTA) software updates		X
Remote connection to the system		X

2 Installation type examples

2.1 Underfloor heating or underfloor heating/cooling with multiple room controllers



SD0000417

 Note	
These are outline diagrams. Real systems must comply with applicable norms and regulations.	
Item	Description
A	Uponor Smatrix Wave Flow X-365 Room controller
B	Uponor Smatrix R-368 Communication module
C	Uponor Smatrix Wave Flow A-365 Antenna
D	Room thermostat - Uponor Smatrix Wave T-161 Room sensor thermostat with a relative humidity sensor and an operative sensor - Uponor Smatrix Wave T-163 Public thermostat - Uponor Smatrix Wave T-165 Standard thermostat with print on dial - Uponor Smatrix Wave T-267 Digital thermostat with a relative humidity sensor - Uponor Smatrix Wave T-168 Programmable digital thermostat with a relative humidity sensor - Uponor Smatrix Wave T-169 Digital thermostat with a relative humidity sensor and an operative sensor
E	Mobile device (smartphone, tablet, and so on)
F	Wi-Fi router
G	Manifold with actuator
H	Uponor Smatrix Move X-157 the temperature controller with an optional antenna (necessary with a room thermostat)
I	Outdoor temperature sensor
J	Circulation pump
K	Supply temperature sensor
L	3-way mixing valve with 230 V 3-point actuator
M	Heating/cooling switchover valve with 230 V actuator
N	Heat source
O	Chiller
P	<i>Optional</i> Dehumidifier activation from the room controller (one dehumidifier for each room controller) through Uponor Smatrix Wave M-161 (relay module)
Q	<i>Optional</i> Boiler/chiller activation from the room controller through Uponor Smatrix Wave M-161 (relay module)
R	<i>Optional</i> External heating/cooling switch connected to a Uponor Smatrix Wave T-163 (registered as a system device)
S	Heating/cooling relay, 230 V
T	Heat pump (which optionally can supply heating/cooling)
U	Wire for heating/cooling switchover Connected between a room controller (relay 2, configured to heating/cooling output) and the heat pump (contact sensing input, configured for heating/cooling switch)
V	<i>Optional</i> Uponor Smatrix Wave M-161 (relay module), registered to the room controller and connected to a contact sensing input, configured for a heating/cooling switch, in the heat pump

Room temperature control

This application example shows underfloor heating, or underfloor heating/cooling, with multiple room controllers.

The four Uponor Smatrix Wave Flow room controllers and thermostats (merged into one large system) control the room temperature (heating and/or cooling). When the room temperature changes from the setpoint, the room controllers open/close the actuators on the manifold (adjusts the flow) to increase/decrease the room temperature.

Use one of these alternatives to do the heating/cooling switchover:

- Uponor Smatrix Flow app
- An automatic function that uses the indoor/outdoor temperature to do the switchover
- The room controller input (IN)
- Manually on a T-267 thermostat (standalone systems only)

Supply temperature control

The application example shows different methods to control the supply temperature.

1 - Heating with Uponor Smatrix Move supply controller

The supply temperature controller (Uponor Smatrix Move) with an outdoor temperature sensor and heating curve controls the supply temperature.

The supply temperature controller is connected to these:

- Room controller
- Heat source
- Circulation pump
- Supply temperature sensor
- 3-way mixing valve

The room controller that has a relay configured as *Circulation pump* connects that relay to one of the supply temperature controller ROOMSTAT input (setup as **C_b**). When the relay in the room controller closes, the supply temperature controller starts the circulation pump.

2 - Heating/cooling with a heat pump

 Note	A heat pump, which can supply heating and cooling, is necessary for this supply temperature control option.
--	---

The heat pump controls the supply temperature (for heating and cooling if the heat pump can supply heating and cooling).

The room controller connects the circulation pump relay to the heat pump (to an input for heat demand). When the relay in the room controller closes, the heat pump starts the circulation pump.

The room controller also connects the other relay (set up as a heating/cooling switch) to the heat pump (to an input for heating/cooling switch). When the relay in the room controller closes, the heat pump changes to cooling.

Optionally, the heat pump can change between heating and cooling with a wireless relay module, registered to a room controller (configured as a heating/cooling switch).

3 - Heating/cooling (switched from room controller) with Uponor Smatrix Move supply temperature controller

The supply temperature controller (Uponor Smatrix Move) with outdoor temperature sensor (through thermostat), and heating/cooling curves, controls the supply temperature.

The supply temperature controller is connected to these:

- Circulation pump
- Supply temperature sensor
- 3-way mixing valve
- Heating/cooling switchover valve

The relay module (registered to a room controller) controls the heat source and chiller.

With a registered wireless thermostat (antenna A-155 is necessary), the Uponor Smatrix Move controller integrates with an Uponor Smatrix Wave Flow system to enhance the capabilities of a full climate system. At the same time, the integration removes the necessity of a separate thermostat and outdoor sensor (if connected to the Wave Flow system) for the Move system.

Information about the system state and reference room temperature is forwarded to the supply temperature controller, which then adjusts the supply temperature.

System states and temperatures that can be forwarded:

- Comfort/ECO mode*
- Heating/cooling mode
- Holiday mode*
- Reference room temperature and setpoint
- Outdoor temperature (if installed in the thermostat)
- Remote sensor (if installed in the thermostat)
- Indication if the relative humidity is more than the set limits (the digital thermostat T-168 or T-169, and the communication module are necessary)

*) Through the change of setpoint, with the ECO setback value from the integrated system. The Move controller shows no indication or change of mode.

Optionally, one dehumidifier (through relay module Uponor Smatrix Wave M-161) for each room controller can be connected. An external heating/cooling switch through Uponor Smatrix Wave T-163 (as system device) can be registered to one of the room controllers. Do not use a dehumidifier together with fancoils.

4 - Heating/cooling with Uponor Smatrix Move supply temperature controller

The supply temperature controller (Uponor Smatrix Move) with an outdoor temperature sensor (through thermostat), and heating/cooling curves, controls the supply temperature.

The supply temperature controller is connected to these:

- Heat source (through a heating/cooling relay)
- Chiller (through a heating/cooling relay)
- Circulation pump
- Supply temperature sensor
- 3-way mixing valve
- Heating/cooling switchover valve

With a registered wireless thermostat (antenna A-155 is necessary), the Uponor Smatrix Move controller integrates with an Uponor Smatrix Wave Flow system to enhance the capabilities of a full climate system. At the same time, the integration removes the necessity of a separate thermostat and outdoor sensor (if connected to the Wave Flow system) for the Move system.

Information about the system state and reference room temperature is forwarded to the supply temperature controller, which then adjusts the supply temperature.

System states and temperatures that can be forwarded:

- Comfort/ECO mode*
- Heating/cooling mode
- Holiday mode*
- Reference room temperature and setpoint
- Outdoor temperature (if installed in the thermostat)
- Remote sensor (if installed in the thermostat)
- Indication if the relative humidity is more than the set limits (the digital thermostat T-168 or T-169, and the communication module are necessary)

*) Through the change of setpoint, with the ECO setback value from the integrated system. The Move controller shows no indication or change of mode.

Optionally, one dehumidifier (through relay module Uponor Smatrix Wave M-161) for each room controller can be connected. Do not use a dehumidifier together with fancoils.

5 - Heat pump (HP) integration with Uponor Smatrix Flow

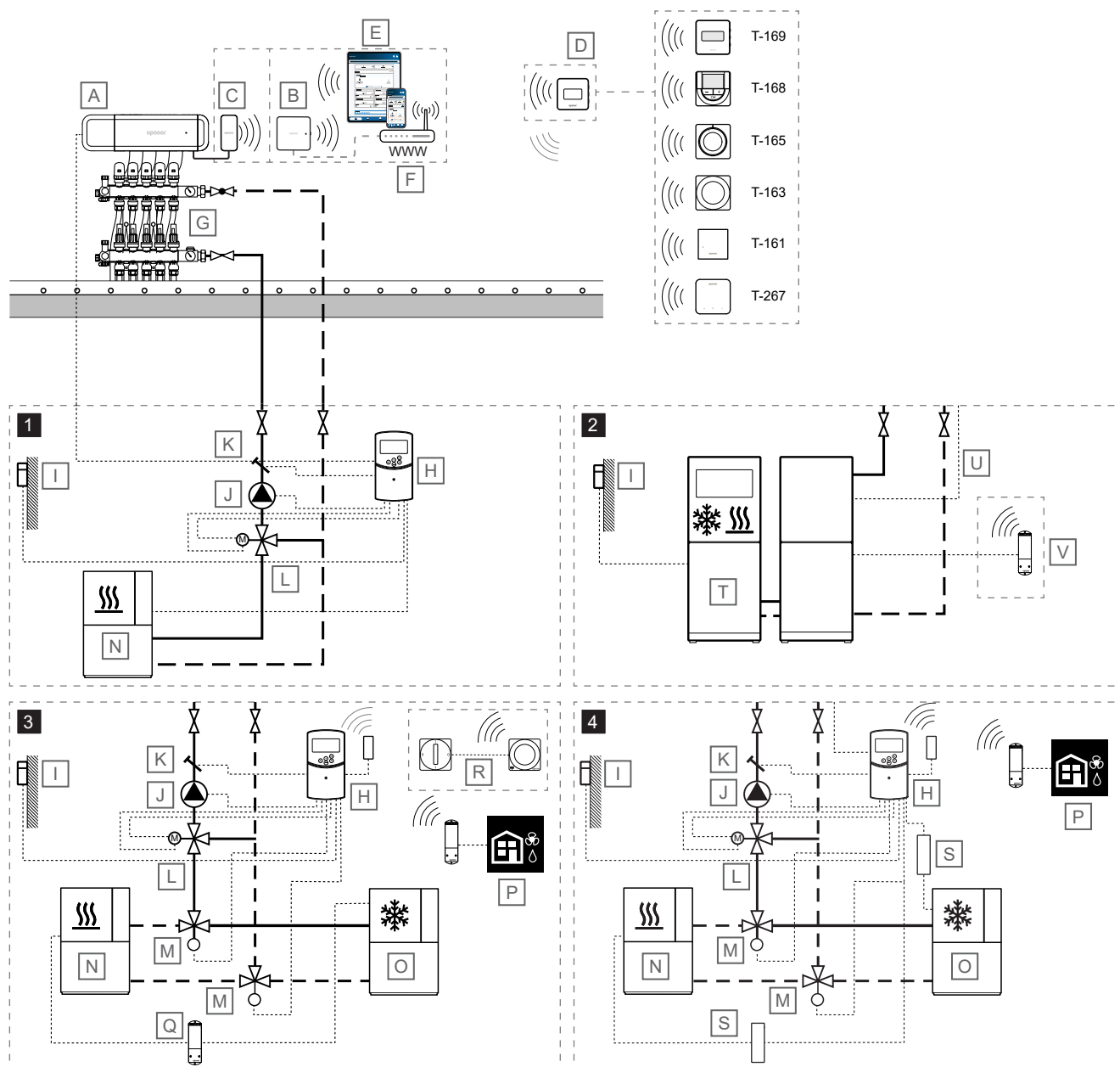
	Note Contact the manufacturer for information about which type of heat pump supports this integration with the software version of the room controller.
	Note An account for Uponor Smatrix Flow is necessary to create the integration. Contact the heat pump manufacturer for information about what is necessary to connect the heat pump.

The Uponor Smatrix Flow controller can connect to compatible heat pumps through the cloud.

The integration makes sure that the heat curve setting (which changes the supply temperature setpoint) in the heat pump is automatically optimised to real system requirements.

The function is activated in the Uponor Smatrix Flow app (a communication module is necessary).

2.2 Underfloor heating or underfloor heating/cooling with a single room controller



SD0000428

Note	
These are outline diagrams. Real systems must comply with applicable norms and regulations.	
Item	Description
A	Uponor Smatrix Wave Flow X-365 Room controller
B	Uponor Smatrix R-368 Communication module
C	Uponor Smatrix Wave Flow A-365 Antenna
D	Room thermostat Uponor Smatrix Wave T-161

Item	Description
	Room sensor thermostat with a relative humidity sensor and an operative sensor
	Uponor Smatrix Wave T-163
	Public thermostat
	Uponor Smatrix Wave T-165
	Standard thermostat with print on dial
	Uponor Smatrix Wave T-267
	Digital thermostat with a relative humidity sensor
	Uponor Smatrix Wave T-168
	Programmable digital thermostat with a relative humidity sensor
	Uponor Smatrix Wave T-168
	Digital thermostat with a relative humidity sensor and an operative sensor

Item	Description
E	Mobile device (smartphone, tablet, and so on)
F	Wi-Fi router
G	Manifold with actuator
H	Uponor Smatrix Move X-157 Supply temperature controller, with optional antenna (necessary with a room thermostat)
I	Outdoor temperature sensor
J	Circulation pump
K	Supply temperature sensor
L	3-way mixing valve with 230 V 3-point actuator
M	Heating/cooling switchover valve with 230 V actuator
N	Heat source
O	Chiller
P	<i>Optional</i> Dehumidifier activation from the room controller (one dehumidifier for each room controller) through Uponor Smatrix Wave M-161 (relay module)
Q	<i>Optional</i> Boiler/chiller activation from the room controller through Uponor Smatrix Wave M-161 (relay module)
R	<i>Optional</i> External heating/cooling switch connected to a Uponor Smatrix Wave T-163 (registered as a system device)
S	Heating/cooling relay, 230 V
T	Heat pump (which optionally can supply heating/cooling)
U	Wire for heating/cooling switchover Connected between a room controller (relay 2, configured to heating/cooling output) and the heat pump (contact sensing input, configured for heating/cooling switch)
V	<i>Optional</i> Uponor Smatrix Wave M-161 (relay module), registered to the room controller and connected to a contact sensing input, configured for a heating/cooling switch, in the heat pump

Room temperature control

	Caution! The communication module is necessary for use with Supply temperature control 2 - 4 .
	Note The system can be operated without a communication module, with only an antenna attached to the room controller. But this decreases the system's functionality.

This application example shows underfloor heating, or underfloor heating/cooling, with a single room controller.

The Uponor Smatrix Wave Flow room controller and thermostats control the room temperature (heating and/or cooling). When the room temperature changes from the setpoint, the room controllers open/close the actuators on the manifold (adjusts the flow) to increase/decrease the room temperature.

Use one of these alternatives to do the heating/cooling switchover:

- Uponor Smatrix Flow app
- An automatic function that uses the indoor/outdoor temperature to do the switchover
- The room controller input (IN)

- Manually on a T-267 thermostat (standalone systems only)

Supply temperature control

The application example shows different methods to control the supply temperature.

1 - Heating with Uponor Smatrix Move supply controller

The supply temperature controller (Uponor Smatrix Move) with an outdoor temperature sensor and heating curve controls the supply temperature.

The supply temperature controller is connected to these:

- Room controller
- Heat source
- Circulation pump
- Supply temperature sensor
- 3-way mixing valve

The room controller that has a relay configured as *Circulation pump* connects that relay to one of the supply temperature controller ROOMSTAT input (setup as **C_b**). When the relay in the room controller closes, the supply temperature controller starts the circulation pump.

2 - Heating/cooling with a heat pump

	Note A heat pump, which can supply heating and cooling, is necessary for this supply temperature control option.
---	--

The heat pump controls the supply temperature (for heating and cooling if the heat pump can supply heating and cooling).

The room controller connects the circulation pump relay to the heat pump (to an input for heat demand). When the relay in the room controller closes, the heat pump starts the circulation pump.

The room controller also connects the other relay (set up as a heating/cooling switch) to the heat pump (to an input for heating/cooling switch). When the relay in the room controller closes, the heat pump changes to cooling.

Optionally, the heat pump can change between heating and cooling with a wireless relay module, registered to a room controller (configured as a heating/cooling switch).

3 - Heating/cooling (switched from room controller) with Uponor Smatrix Move supply temperature controller

The supply temperature controller (Uponor Smatrix Move) with outdoor temperature sensor (through thermostat), and heating/cooling curves, controls the supply temperature.

The supply temperature controller is connected to these:

- Circulation pump
- Supply temperature sensor
- 3-way mixing valve
- Heating/cooling switchover valve

The relay module (registered to a room controller) controls the heat source and chiller.

With a registered wireless thermostat (antenna A-155 is necessary), the Uponor Smatrix Move controller integrates with an Uponor Smatrix Wave Flow system to enhance the capabilities of a full climate system. At the same time, the integration removes the necessity of a separate thermostat and outdoor sensor (if connected to the Wave Flow system) for the Move system.

Information about the system state and reference room temperature is forwarded to the supply temperature controller, which then adjusts the supply temperature.

System states and temperatures that can be forwarded:

- Comfort/ECO mode*
- Heating/cooling mode
- Holiday mode*
- Reference room temperature and setpoint
- Outdoor temperature (if installed in the thermostat)
- Remote sensor (if installed in the thermostat)
- Indication if the relative humidity is more than the set limits (the digital thermostat T-168 or T-169, and the communication module are necessary)

*) Through the change of setpoint, with the ECO setback value from the integrated system. The Move controller shows no indication or change of mode.

Optionally, one dehumidifier (through relay module Uponor Smatrix Wave M-161) for each room controller can be connected. An external heating/cooling switch through Uponor Smatrix Wave T-163 (as system device) can be registered to one of the room controllers. Do not use a dehumidifier together with fancoils.

4 - Heating/cooling with Uponor Smatrix Move supply temperature controller

The supply temperature controller (Uponor Smatrix Move) with an outdoor temperature sensor (through thermostat), and heating/cooling curves, controls the supply temperature.

The supply temperature controller is connected to these:

- Heat source (through a heating/cooling relay)
- Chiller (through a heating/cooling relay)
- Circulation pump
- Supply temperature sensor
- 3-way mixing valve
- Heating/cooling switchover valve

With a registered wireless thermostat (antenna A-155 is necessary), the Uponor Smatrix Move controller integrates with an Uponor Smatrix Wave Flow system to enhance the capabilities of a full climate system. At the same time, the integration removes the necessity of a separate thermostat and outdoor sensor (if connected to the Wave Flow system) for the Move system.

Information about the system state and reference room temperature is forwarded to the supply temperature controller, which then adjusts the supply temperature.

System states and temperatures that can be forwarded:

- Comfort/ECO mode*
- Heating/cooling mode
- Holiday mode*
- Reference room temperature and setpoint
- Outdoor temperature (if installed in the thermostat)
- Remote sensor (if installed in the thermostat)
- Indication if the relative humidity is more than the set limits (the digital thermostat T-168 or T-169, and the communication module are necessary)

*) Through the change of setpoint, with the ECO setback value from the integrated system. The Move controller shows no indication or change of mode.

Optionally, one dehumidifier (through relay module Uponor Smatrix Wave M-161) for each room controller can be connected. Do not use a dehumidifier together with fancoils.

5 - Heat pump (HP) integration with Uponor Smatrix Flow

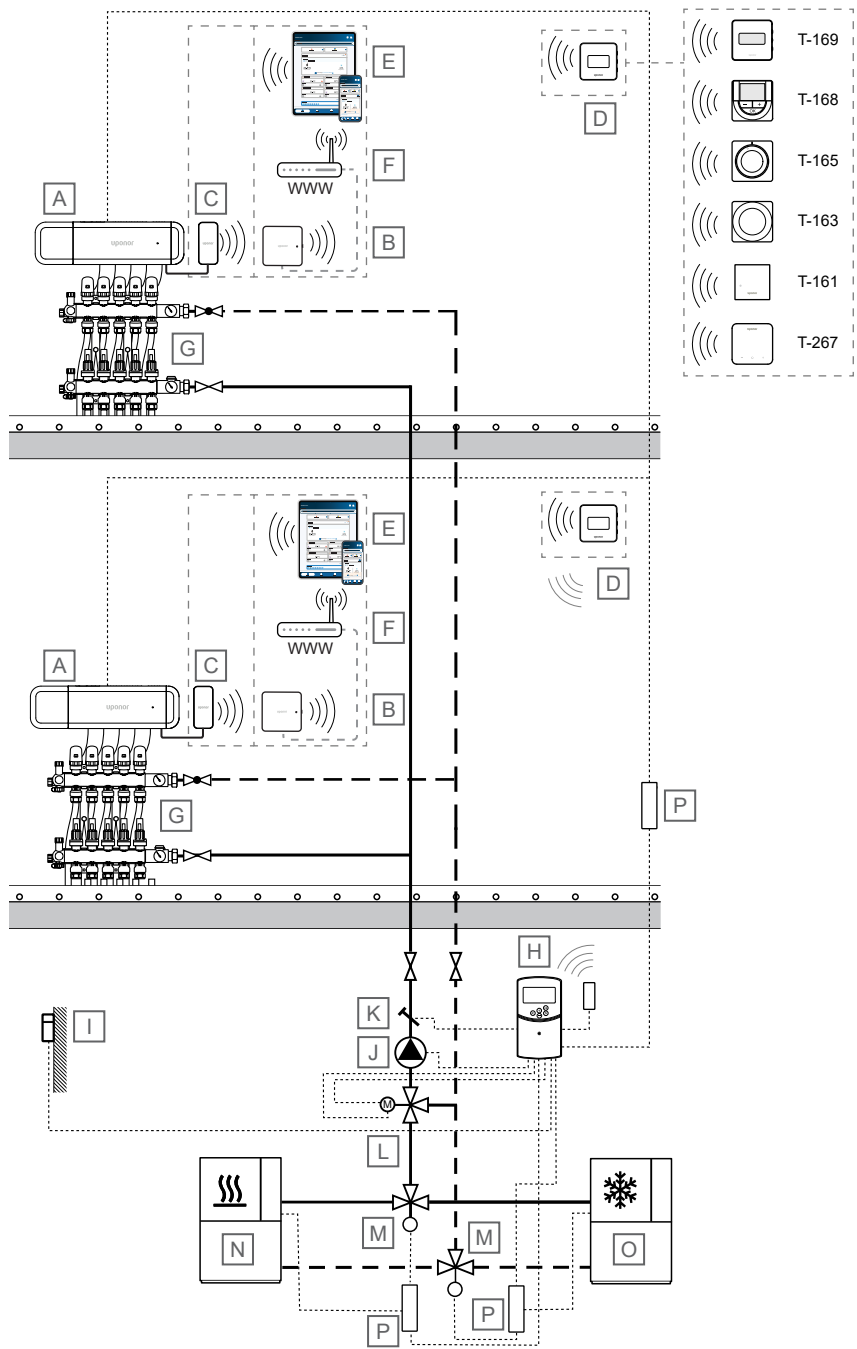
!	Note Contact the manufacturer for information about which type of heat pump supports this integration with the software version of the room controller.
!	Note An account for Uponor Smatrix Flow is necessary to create the integration. Contact the heat pump manufacturer for information about what is necessary to connect the heat pump.

The Uponor Smatrix Flow controller can connect to compatible heat pumps through the cloud.

The integration makes sure that the heat curve setting (which changes the supply temperature setpoint) in the heat pump is automatically optimised to real system requirements.

The function is activated in the Uponor Smatrix Flow app (a communication module is necessary).

2.3 Underfloor heating/cooling with two standalone room controllers



Note	
These are outline diagrams. Real systems must comply with applicable norms and regulations.	
Item	Description
A	Uponor Smatrix Wave Flow X-365 Room controller
B	Uponor Smatrix R-368 Communication module
C	Uponor Smatrix Wave Flow A-365 Antenna

Item	Description
D	Room thermostat - Uponor Smatrix Wave T-161 Room sensor thermostat with a relative humidity sensor and an operative sensor - Uponor Smatrix Wave T-163 Public thermostat - Uponor Smatrix Wave T-165 Standard thermostat with print on dial - Uponor Smatrix Wave T-267 Digital thermostat with a relative humidity sensor - Uponor Smatrix Wave T-168

Item	Description
	Programmable digital thermostat with a relative humidity sensor
	• Uponor Smatrix Wave T-169
	Digital thermostat with a relative humidity sensor and an operative sensor
E	Mobile device (smartphone, tablet, and so on)
F	Wi-Fi router
G	Manifold with actuator
H	Uponor Smatrix Move X-157
	Supply temperature controller, with optional antenna (necessary with a room thermostat)
I	Outdoor temperature sensor
J	Circulation pump
K	Supply temperature sensor
L	3-way mixing valve with 230 V 3-point actuator
M	Heating/cooling switchover valve with 230 V actuator
N	Heat source
O	Chiller
P	Heating/cooling relay, 230 V

Room temperature control

	Note The system can be operated without a communication module, with only an antenna attached to the room controller. But this decreases the system's functionality.
---	--

This application example shows underfloor heating/cooling with two stand alone room controllers.

The room temperature (heating and/or cooling) in each system is controlled by one Uponor Smatrix Wave Flow room controller with thermostats. When the room temperature changes from the setpoint, the room controllers open/close the actuators on the manifold (adjusts the flow) to increase/decrease the room temperature.

Use one of these alternatives to do the heating/cooling switchover:

- Uponor Smatrix Flow app
- An automatic function that uses the indoor/outdoor temperature to do the switchover
- The room controller input (IN)

- Manually on a T-267 thermostat (standalone systems only)

Supply temperature control

The supply temperature controller (Uponor Smatrix Move) with an outdoor temperature sensor (through thermostat), and heating/cooling curves, controls the supply temperature.

The supply temperature controller is connected to these:

- Heat source (through a heating/cooling relay)
- Chiller (through a heating/cooling relay)
- Circulation pump
- Supply temperature sensor
- 3-way mixing valve
- Heating/cooling switchover valve

With a registered wireless thermostat (antenna A-155 is necessary), the Uponor Smatrix Move controller integrates with an Uponor Smatrix Wave Flow system to enhance the capabilities of a full climate system. At the same time, the integration removes the necessity of a separate thermostat and outdoor sensor (if connected to the Wave Flow system) for the Move system.

Information about the system state and reference room temperature is forwarded to the supply temperature controller, which then adjusts the supply temperature.

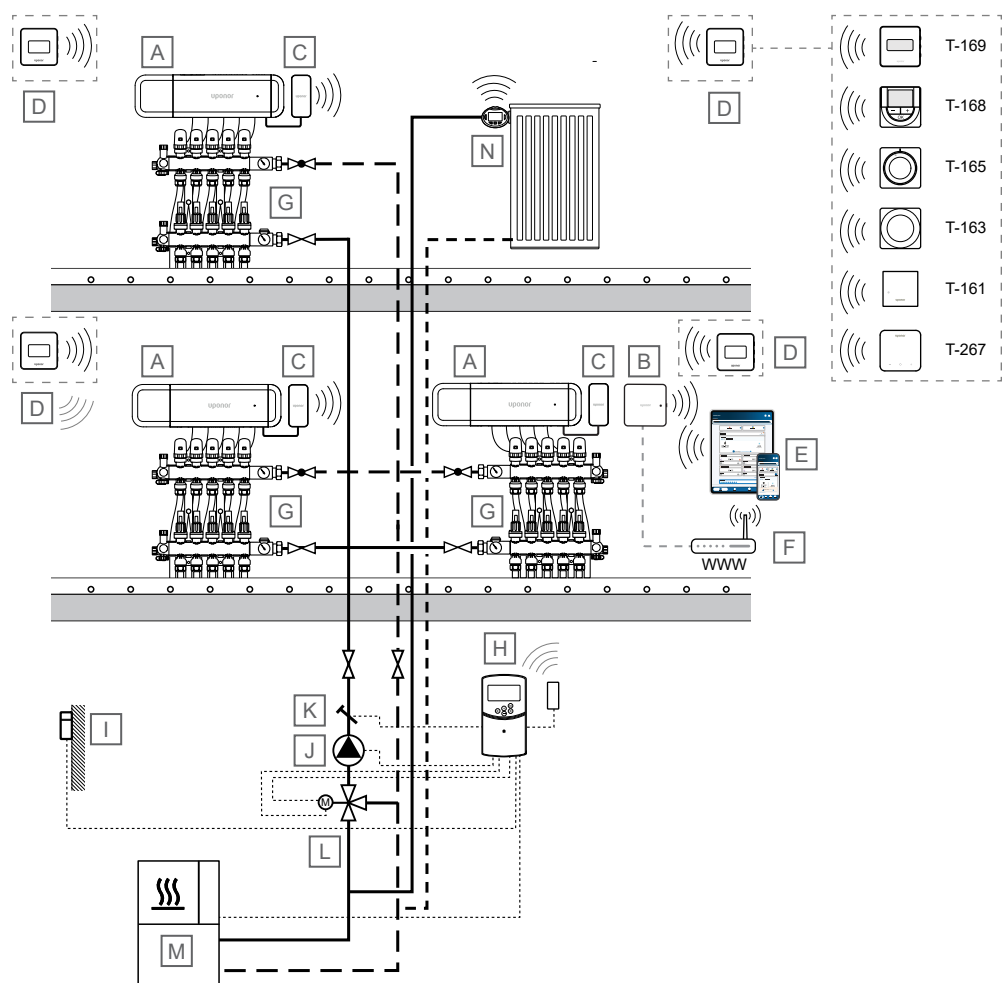
System states and temperatures that can be forwarded:

- Comfort/ECO mode*
- Heating/cooling mode
- Holiday mode*
- Reference room temperature and setpoint
- Outdoor temperature (if installed in the thermostat)
- Remote sensor (if installed in the thermostat)
- Indication if the relative humidity is more than the set limits (the digital thermostat T-168 or T-169, and the communication module are necessary)

*) Through the change of setpoint, with the ECO setback value from the integrated system. The Move controller shows no indication or change of mode.

Optionally, one dehumidifier (through relay module Uponor Smatrix Wave M-161) for each room controller can be connected. Do not use a dehumidifier together with fancoils.

2.4 Underfloor heating and radiators with multiple room controllers



SD0000426

Note	
These are outline diagrams. Real systems must comply with applicable norms and regulations.	
Item	Description
A	Uponor Smatrix Wave Flow X-365 Room controller
B	Uponor Smatrix R-368 Communication module
C	Uponor Smatrix Wave Flow A-365 Antenna
D	Room thermostat - Uponor Smatrix Wave T-161 Room sensor thermostat with a relative humidity sensor and an operative sensor - Uponor Smatrix Wave T-163 Public thermostat - Uponor Smatrix Wave T-165 Standard thermostat with print on dial - Uponor Smatrix Wave T-267 Digital thermostat with a relative humidity sensor - Uponor Smatrix Wave T-168 Programmable digital thermostat with a relative humidity sensor - Uponor Smatrix Wave T-169

Item	Description
	Digital thermostat with a relative humidity sensor and an operative sensor
E	Mobile device (smartphone, tablet, and so on)
F	Wi-Fi router
G	Manifold with actuator
H	Uponor Smatrix Move X-157 Supply temperature controller, with optional antenna (necessary with a room thermostat)
I	Outdoor temperature sensor
J	Circulation pump
K	Supply temperature sensor
L	3-way mixing valve with 230 V 3-point actuator
M	Heat source
N	Uponor Smatrix Wave T-162 Thermostatic head

Room temperature control



Note

Radiators and underfloor heating cannot be installed in the same room.

This application example shows underfloor heating and radiators with multiple room controllers.

The three Uponor Smatrix Wave Flow room controllers and thermostats (merged into one large system) control the room temperature. When the room temperature changes from the setpoint, the room controllers open/close the actuators on the manifold (adjusts the flow) or adjusts the radiator valves with a thermostatic head, to increase/decrease the room temperature.

Supply temperature control

The supply temperature controller (Uponor Smatrix Move) with an outdoor temperature sensor and heating curve controls the supply temperature.

The supply temperature controller is connected to these:

- Room controller
- Heat source
- Circulation pump
- Supply temperature sensor
- 3-way mixing valve

With a registered wireless thermostat (antenna A-155 is necessary), the Uponor Smatrix Move controller integrates with an Uponor Smatrix Wave Flow system to enhance the capabilities of a full climate system. At the same time, the integration removes the necessity of a separate thermostat and outdoor sensor (if connected to the Wave Flow system) for the Move system.

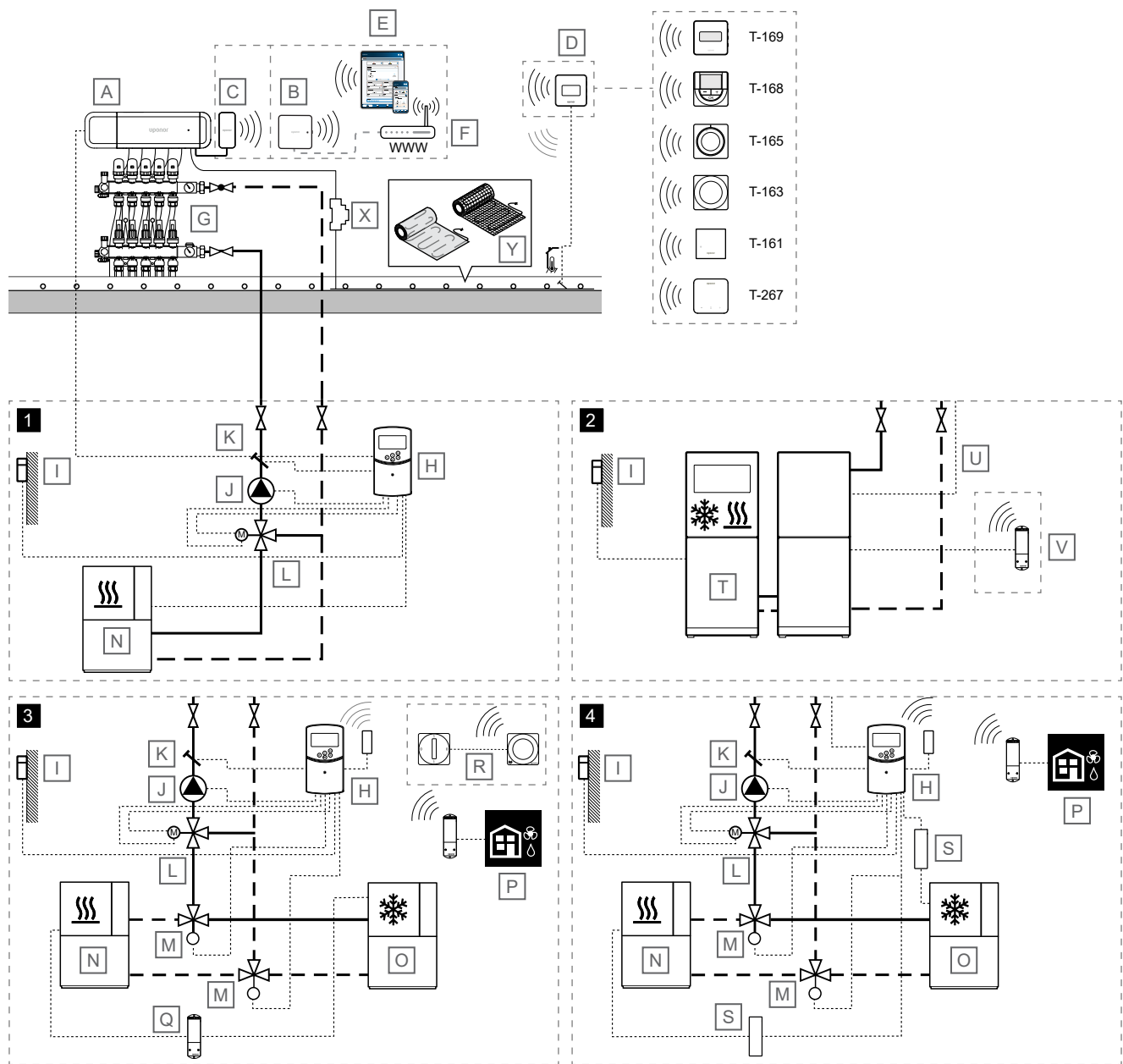
Information about the system state and reference room temperature is forwarded to the supply temperature controller, which then adjusts the supply temperature.

System states and temperatures that can be forwarded:

- Comfort/ECO mode*
- Heating/cooling mode
- Holiday mode*
- Reference room temperature and setpoint
- Outdoor temperature (if installed in the thermostat)
- Remote sensor (if installed in the thermostat)
- Indication if the relative humidity is more than the set limits (the digital thermostat T-168 or T-169, and the communication module are necessary)

*) Through the change of setpoint, with the ECO setback value from the integrated system. The Move controller shows no indication or change of mode.

2.5 Underfloor heating or underfloor heating/cooling, and electrical underfloor heating with a single room controller



SD0000425

Note	
These are outline diagrams. Real systems must comply with applicable norms and regulations.	
Item	Description
A	Uponor Smatrix Wave Flow X-365 Room controller
B	Uponor Smatrix R-368 Communication module
C	Uponor Smatrix Wave Flow A-365 Antenna
D	Room thermostat • Uponor Smatrix Wave T-161

Item	Description
	Room sensor thermostat with a relative humidity sensor and an operative sensor
	• Uponor Smatrix Wave T-163 Public thermostat
	• Uponor Smatrix Wave T-165 Standard thermostat with print on dial
	• Uponor Smatrix Wave T-267 Digital thermostat with a relative humidity sensor
	• Uponor Smatrix Wave T-168 Programmable digital thermostat with a relative humidity sensor
	• Uponor Smatrix Wave T-169 Digital thermostat with a relative humidity sensor and an operative sensor

Item	Description
E	Mobile device (smartphone, tablet, and so on)
F	Wi-Fi router
G	Manifold with actuator
H	Uponor Smatrix Move X-157 Supply temperature controller with optional antenna (necessary with a room thermostat)
I	Outdoor temperature sensor
J	Circulation pump
K	Supply temperature sensor
L	3-way mixing valve with 230 V 3-point actuator
M	Heating/cooling switchover valve with 230 V actuator
N	Heat source
O	Chiller
P	<i>Optional</i> Dehumidifier activation from the room controller (one dehumidifier for each room controller) through Uponor Smatrix Wave M-161 (relay module)
Q	<i>Optional</i> Boiler/chiller activation from the room controller through Uponor Smatrix Wave M-161 (relay module)
R	<i>Optional</i> External heating/cooling switch connected to a Uponor Smatrix Wave T-163 (registered as a system device)
S	Heating/cooling relay, 230 V
T	Heat pump (which optionally can supply heating/cooling)
U	Wire for heating/cooling switchover Connected between a room controller (relay 2, configured to heating/cooling output) and the heat pump (contact sensing input, configured for a heating/cooling switch)
V	<i>Optional</i> Uponor Smatrix Wave M-161 (relay module), registered to the room controller and connected to a contact sensing input, configured for heating/cooling switch, in the heat pump
X	24 V AC relay (dimensioned for the correct load)
Y	Uponor electrical heating cable mat

Room temperature control

	Caution! The communication module is necessary for this solution because the room with electrical underfloor heating must be set to "Cooling not allowed" in the Uponor Smatrix Flow app.
	Note Electrical underfloor heating and underfloor heating cannot be installed in the same room.

This application example shows underfloor heating or underfloor heating/cooling, and electrical underfloor heating with a single room controller.

The Uponor Smatrix Wave Flow room controller and thermostats control the room temperature (heating and/or cooling). When the room temperature changes from the setpoint, the room controllers open/close the actuators on the manifold (adjusts the flow) to increase/decrease the room temperature. It also controls the electrical underfloor heating mats (connected to the room controller actuator connections, through a 24 V AC relay, which is dimensioned for the correct load).

Use one of these alternatives to do the heating/cooling switchover:

- Uponor Smatrix Flow app

- An automatic function that uses the indoor/outdoor temperature to do the switchover
- The room controller input (IN)
- Manually on a T-267 thermostat (standalone systems only)

Supply temperature control

The application example shows different methods to control the supply temperature.

1 - Heating with Uponor Smatrix Move supply controller

The supply temperature controller (Uponor Smatrix Move) with an outdoor temperature sensor and heating curve controls the supply temperature.

The supply temperature controller is connected to these:

- Room controller
- Heat source
- Circulation pump
- Supply temperature sensor
- 3-way mixing valve

The room controller that has a relay configured as *Circulation pump* connects that relay to one of the supply temperature controller ROOMSTAT input (setup as **C_b**). When the relay in the room controller closes, the supply temperature controller starts the circulation pump.

2 - Heating/cooling with a heat pump

	Note A heat pump, which can supply heating and cooling, is necessary for this supply temperature control option.
---	--

The heat pump controls the supply temperature (for heating and cooling if the heat pump can supply heating and cooling).

The room controller connects the circulation pump relay to the heat pump (to an input for heat demand). When the relay in the room controller closes, the heat pump starts the circulation pump.

The room controller also connects the other relay (set up as a heating/cooling switch) to the heat pump (to an input for heating/cooling switch). When the relay in the room controller closes, the heat pump changes to cooling.

Optionally, the heat pump can change between heating and cooling with a wireless relay module, registered to a room controller (configured as a heating/cooling switch).

3 - Heating/cooling (switched from room controller) with Uponor Smatrix Move supply temperature controller

The supply temperature controller (Uponor Smatrix Move) with outdoor temperature sensor (through thermostat), and heating/cooling curves, controls the supply temperature.

The supply temperature controller is connected to these:

- Circulation pump
- Supply temperature sensor
- 3-way mixing valve
- Heating/cooling switchover valve

The relay module (registered to a room controller) controls the heat source and chiller.

With a registered wireless thermostat (antenna A-155 is necessary), the Uponor Smatrix Move controller integrates with an Uponor Smatrix Wave Flow system to enhance the capabilities of a full climate system. At the same time, the integration removes the necessity of a separate thermostat and outdoor sensor (if connected to the Wave Flow system) for the Move system.

Information about the system state and reference room temperature is forwarded to the supply temperature controller, which then adjusts the supply temperature.

System states and temperatures that can be forwarded:

- Comfort/ECO mode*
- Heating/cooling mode
- Holiday mode*
- Reference room temperature and setpoint
- Outdoor temperature (if installed in the thermostat)
- Remote sensor (if installed in the thermostat)
- Indication if the relative humidity is more than the set limits (the digital thermostat T-168 or T-169, and the communication module are necessary)

*) Through the change of setpoint, with the ECO setback value from the integrated system. The Move controller shows no indication or change of mode.

Optionally, one dehumidifier (through relay module Uponor Smatrix Wave M-161) for each room controller can be connected. An external heating/cooling switch through Uponor Smatrix Wave T-163 (as system device) can be registered to one of the room controllers. Do not use a dehumidifier together with fancoils.

4 - Heating/cooling with Uponor Smatrix Move supply temperature controller

The supply temperature controller (Uponor Smatrix Move) with an outdoor temperature sensor (through thermostat), and heating/cooling curves, controls the supply temperature.

The supply temperature controller is connected to these:

- Heat source (through a heating/cooling relay)
- Chiller (through a heating/cooling relay)
- Circulation pump
- Supply temperature sensor
- 3-way mixing valve
- Heating/cooling switchover valve

With a registered wireless thermostat (antenna A-155 is necessary), the Uponor Smatrix Move controller integrates with an Uponor Smatrix Wave Flow system to enhance the capabilities of a full climate system. At the same time, the integration removes the necessity of a separate thermostat and outdoor sensor (if connected to the Wave Flow system) for the Move system.

Information about the system state and reference room temperature is forwarded to the supply temperature controller, which then adjusts the supply temperature.

System states and temperatures that can be forwarded:

- Comfort/ECO mode*
- Heating/cooling mode
- Holiday mode*
- Reference room temperature and setpoint
- Outdoor temperature (if installed in the thermostat)
- Remote sensor (if installed in the thermostat)
- Indication if the relative humidity is more than the set limits (the digital thermostat T-168 or T-169, and the communication module are necessary)

*) Through the change of setpoint, with the ECO setback value from the integrated system. The Move controller shows no indication or change of mode.

Optionally, one dehumidifier (through relay module Uponor Smatrix Wave M-161) for each room controller can be connected. Do not use a dehumidifier together with fancoils.

5 - Heat pump (HP) integration with Uponor Smatrix Flow

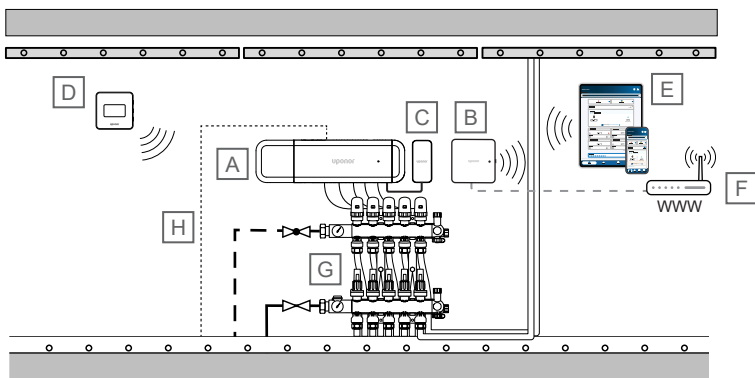
!	Note Contact the manufacturer for information about which type of heat pump supports this integration with the software version of the room controller.
!	Note An account for Uponor Smatrix Flow is necessary to create the integration. Contact the heat pump manufacturer for information about what is necessary to connect the heat pump.

The Uponor Smatrix Flow controller can connect to compatible heat pumps through the cloud.

The integration makes sure that the heat curve setting (which changes the supply temperature setpoint) in the heat pump is automatically optimised to real system requirements.

The function is activated in the Uponor Smatrix Flow app (a communication module is necessary).

2.6 Underfloor and ceiling heating/cooling with a single room controller



SD0000423

!	Note These are outline diagrams. Real systems must comply with applicable norms and regulations.
---	--

Item	Description
	Connected to room controller relay 2 (configured to heating/cooling)

Item	Description
A	Uponor Smatrix Wave Flow X-365 Room controller
B	Uponor Smatrix R-368 Communication module
C	Uponor Smatrix Wave Flow A-365 Antenna
D	Uponor Smatrix Wave T-169 Digital thermostat with a relative humidity sensor and an operative sensor
E	Mobile device (smartphone, tablet, and so on)
F	Wi-Fi router
G	Manifold with actuator
H	Wire for heating/cooling switchover

Room temperature control

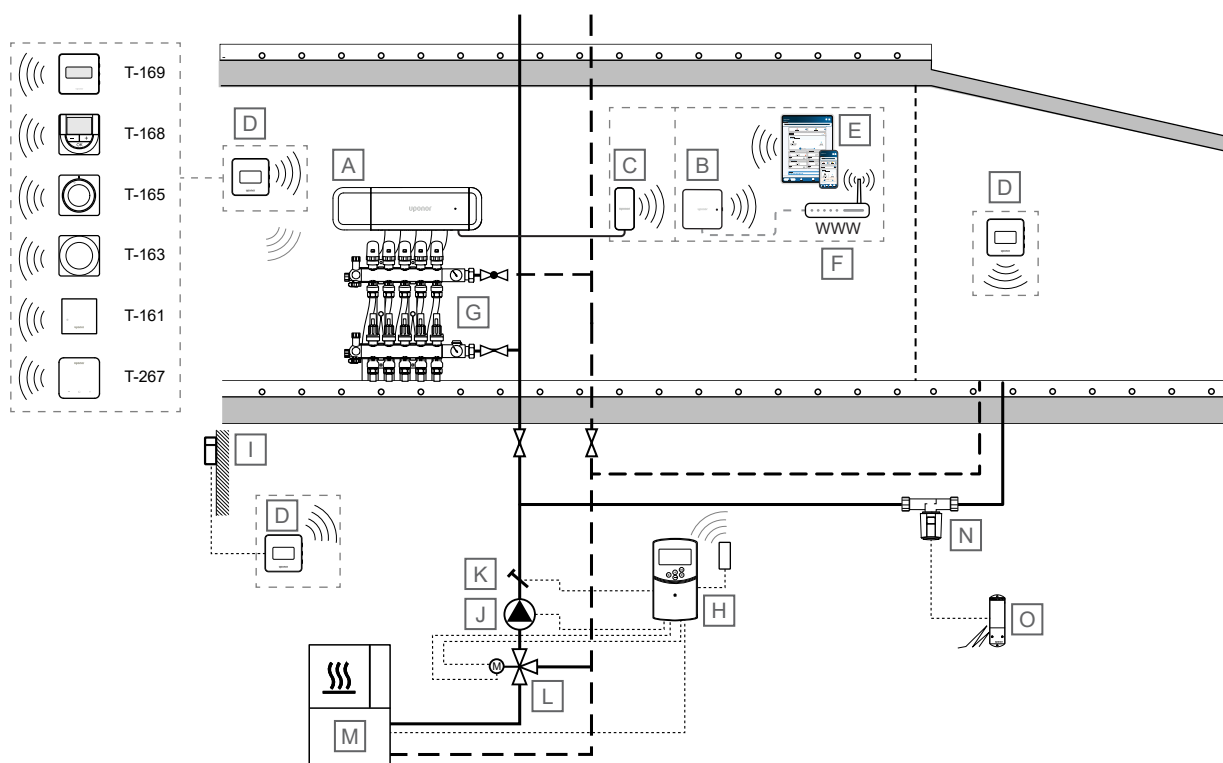
This application example shows underfloor and ceiling heating/cooling.

Room controller channels (underfloor and ceiling loops) are configured as necessary for:

- Heating
- Cooling
- Heating and cooling

The Uponor Smatrix Wave Flow room controller with one thermostat controls the room temperature. Some actuators control the ceiling cooling. When the room temperature changes from the setpoint, the room controllers open/close the actuators on the underfloor manifold (adjusts the flow) to increase/decrease the room temperature.

2.7 Underfloor heating with a loop in one more room



SD0000422

Item	Description
A	Uponor Smatrix Wave Flow X-365 Room controller
B	Uponor Smatrix R-368 Communication module
C	Uponor Smatrix Wave Flow A-365 Antenna
D	Room thermostat ^{1) 2)} - Uponor Smatrix Wave T-161 Room sensor thermostat with a relative humidity sensor and an operative sensor - Uponor Smatrix Wave T-163 Public thermostat - Uponor Smatrix Wave T-165 Standard thermostat with print on dial - Uponor Smatrix Wave T-267 Digital thermostat with a relative humidity sensor - Uponor Smatrix Wave T-168 Programmable digital thermostat with a relative humidity sensor - Uponor Smatrix Wave T-169 Digital thermostat with a relative humidity sensor and an operative sensor
E	Mobile device (smartphone, tablet, and so on)
F	Wi-Fi router
G	Manifold with actuator
H	Uponor Smatrix Move X-157

Item	Description
	Supply temperature controller with optional antenna (necessary with a room thermostat)
I	Outdoor temperature sensor
J	Circulation pump
K	Supply temperature sensor
L	3-way mixing valve with 230 V 3-point actuator
M	Heat source
N	Valve with 230 V actuator
O	Uponor Smatrix Wave M-161 Relay module

1) Only digital thermostats can be used when a relay module is registered through thermostat menu 9 (Climatic controller integration).

2) The outdoor temperature sensor can only be connected to the public and digital thermostats.

Room temperature control



Note

The system can be operated without a communication module, with only an antenna attached to the room controller. But this decreases the system's functionality.

This application example shows underfloor heating when, for example, one more loop is necessary in an expansion to the house, and so on.

The Uponor Smatrix Wave Flow room controller and thermostats control the room temperature (heating and/or cooling). When the room temperature changes from the setpoint, the room controllers open/close the actuators on the underfloor manifold (adjusts the flow) to increase/decrease the room temperature. The flow to the new loop is controlled from the room controller through a relay module (valve connected to relay 2 on the relay module). The relay module is registered to a room thermostat (thermostat menu 9, Climatic controller integration), which is already registered to the room controller.

Supply temperature control

The supply temperature controller (Uponor Smatrix Move) with outdoor temperature sensor (through thermostat), and heating curve, controls the supply temperature.

The supply temperature controller is connected to a:

- Heat source
- Circulation pump
- Supply temperature sensor
- 3-way mixing valve

With a registered wireless thermostat (antenna A-155 is necessary), the Uponor Smatrix Move controller integrates with an Uponor Smatrix Wave Flow system to enhance the capabilities of a full climate system. At the same time, the integration removes the necessity of a separate thermostat and outdoor sensor (if connected to the Wave Flow system) for the Move system.

Information about the system state and reference room temperature is forwarded to the supply temperature controller, which then adjusts the supply temperature.

System states and temperatures that can be forwarded:

- Comfort/ECO mode*
- Heating/cooling mode
- Holiday mode*
- Reference room temperature and setpoint
- Outdoor temperature (if installed in the thermostat)
- Remote sensor (if installed in the thermostat)
- Indication if the relative humidity is more than the set limits (the digital thermostat T-168 or T-169, and the communication module are necessary)

*) Through the change of setpoint, with the ECO setback value from the integrated system. The Move controller shows no indication or change of mode.

3 Technical data

3.1 Technical specifications

Room controller X-365

Description	Value
IP	IP20
Protection class	Class II (IP: degree of inaccessibility to active parts of the product and degree of water)
Maximum ambient RH (relative humidity)	85% at 20 °C
Power supply	230 V AC +10/-15%, 50 Hz or 60 Hz
CE marking	Yes
Internal fuse	T5 F3.15AL 250 V: 5x20 3.15 A: quick acting
Maximum consumption	45 W, Average 40 VA at 45 degrees, 35 VA at 55 degrees
Pump and boiler relay outputs	230 V AC +10/-15 %, 250 V AC 8 A maximum Micro distance, Normally Open (NO)
Input (IN)	Only dry contact
Valve outputs	24 V AC: 0.2 A peak for max. 2 minutes (resistive load)
Connection terminals for power, pump, IN and boiler	Up to 4.0 mm ² solid or 2.5 mm ² flexible with ferrules
Connection terminals for valve outputs	0.2 mm ² to 1.5 mm ²
ERP (with the communication module and the Uponor Smatrix Flow app)	VIII
ERP (without the communication module and the Uponor Smatrix Flow app)	IV
Rated impulse voltage	2.5 kV, OVC II
Pollution degree	2
Software class	A
Operating temperature	0 °C to +45 °C
Storage temperature	-20 °C to +70 °C
Power connection	1 m flexible cord, with Europlug (not in the UK), connected to the controller
Type of EMC environment	Residential
Construction of control	Electronic independently mounted control
Method of connection and disconnection	Type Y (electric/wiring intervention only by an accredited service agent or the manufacturer)
Type of action	Type 1C (micro-interruption)
Temperature for ball pressure test	75 °C
Low-voltage tests	EN 60730-1* and EN 60730-2-9***
EMC (electromagnetic compatibility requirements) tests	EN 60730-1 and EN 301-489-3
ERM (electromagnetic compatibility and radio spectrum matters) tests	EN 300 220-3

Communication module R-368

Description	Value
IP	IP20
Protection class	Class III (IP: degree of inaccessibility to active parts of the product and degree of water)
Maximum ambient RH (relative humidity)	85% at 20 °C
Power supply	USB PD3.0 Input: AC 100-240V One USB-C PD output: DC 5 V 3 A / 9V 2.22 A / 12 V 1.67 A (20 W) PPS output: 3.3 V-5.9 V 3 A / 3.3 V-11 V 2A
Pollution degree	2
Software class	A
Operating temperature	0 °C to +45 °C
Storage temperature	-20 °C to +70 °C

Description	Value
Wi-Fi connectivity	802.11 b/g/n at 2.4 GHz
Wi-Fi security	WPA & WPA2
Radio frequency	868.3 MHz +/- 300 KHz – ERP < 25 mW
Maximum power transmitted	12 dBm
Transmitter duty cycle	< 1%
Receiver class	2
Connection terminals	RJ45 Ethernet connection (10/100BaseT)
Type of EMC environment	Residential
Construction of control	Electronic independently mounted control
Method of connection and disconnection	Type X (user can plug/unplug)
Temperature for ball pressure test	75 °C
Type of action	Type 1
Software class	Class A
CE marking	CE
Low-voltage tests	EN 60730-1* and EN 60730-2-9***
EMC (electromagnetic compatibility requirements) tests	EN 60730-1 and EN 301-489-3
ERM (electromagnetic compatibility and radio spectrum matters) tests	EN 300 220-3

Expansion module M-262

Description	Value
Protection class	Class II
Valve outputs	24 V AC: 0.2 A peak for max. 2 minutes (resistive load)
Connection terminals	0.2 mm² to 1.5 mm²
Type of EMC environment	Residential
Construction of control	Electronic integrated control
Method of connection and disconnection	Type Y (electric/wiring intervention only by an accredited service agent or the manufacturer)
Type of action	Type 1C (micro-interruption)
Temperature for ball pressure test	75 °C

Relay module M-161

Description	Value
IP	IP20
Protection class	Class II (IP: degree of inaccessibility to active parts of the product and degree of water)
Maximum ambient RH (relative humidity)	85% at 20 °C
Power supply	230 V AC +10/-15%, 50 Hz or 60 Hz
CE marking	Yes
ERP	IV
Pollution degree	2
Software class	A
Operating temperature	0 °C to +50 °C
Storage temperature	-20 °C to +70 °C
Maximum consumption	2 W
Radio frequency	868.3 MHz +/- 300 KHz – ERP < 25 mW
Maximum power transmitted	12 dBm
Transmitter duty cycle	< 1%
Relay outputs	230 V AC +10/-15%, 250 V AC, 2,5 A maximum Micro distance, Normally Open (NO)
Power connection	1 m flexible cord, with Europlug (not in the UK), which is connected to the relay module
Connection terminals	Up to 4.0 mm² solid or 2.5 mm² flexible with ferrules
Low-voltage tests	EN 60730-1* and EN 60730-2-1**
EMC (electromagnetic compatibility requirements) tests	EN 60730-1 and EN 301-489-3
ERM (electromagnetic compatibility and radio spectrum matters) tests	EN 300 220-3

Antenna A-365

Description	Value
IP	IP20
Protection class	Class III (IP: degree of inaccessibility to active parts of the product and degree of water)
Maximum ambient RH (relative humidity)	85% at 20 °C
Power supply	From controller
Receiver class	2
Radio frequency	868.3 MHz +/- 300 KHz – ERP < 25 mW
Transmitter duty cycle	< 1%
Type of EMC environment	Residential
Construction of control	Electronic integrated control
Method of connection and disconnection	Type X (user can plug/unplug)
Temperature for ball pressure test	75 °C
Type of action	Type 1
Software class	Class A
Operating temperature	0 °C to +45 °C

*) EN 60730-1 Automatic electrical controls for household and similar use -- Part 1: General requirements

**) EN 60730-2-1 Automatic electrical controls for household and similar use -- Part 2-1: Particular requirements for electrical controls for electrical household appliances

***) EN 60730-2-9 Automatic electrical controls for household and similar use -- Part 2-9: Particular requirements for temperature sensing controls

Regulatory conformance

Wireless Uponor Smatrix products comply with these directives.

- CE
- UKCA

EU/UK Declaration of conformity

Hereby, Uponor declares that the radio equipment type Uponor Smatrix complies with the applicable Community harmonisation legislation.¹⁾



The full text of the EU/UK declaration of conformity is available at this internet address:

<https://www.uponor.com/doc/1071660>

1) Refer to the related Uponor product for the specified certification and compliance marks.

More product information and instructions are delivered with the Uponor product. They are available on the website www.uponor.com/services/download-centre and on the national Uponor websites in the local language.



3.2 Cable specifications

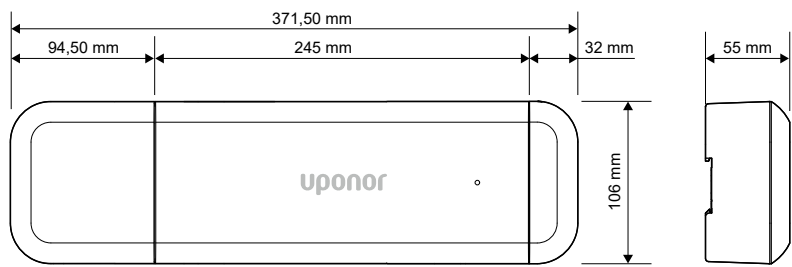
Cables	Standard cable length	Maximum cable length	Wire gauge
Cable from the room controller to the antenna	3 m	5 m	CAT.5e or CAT.6, RJ 45 connector
Cable from the room controller to the actuator	0.75 m	20 m	Room controller: 0.2 mm ² to 1.5 mm ²
External sensor cable to the thermostat	5 m	5 m	0.6 mm ²
Floor sensor cable to the thermostat	3 m	5 m	0.75 mm ²
Outdoor sensor cable to thermostat	–	5 m	Twisted pair
Cable from relay switch to room controller input (IN)	2 m	20 m	Room controller: Up to 4.0 mm ² solid or 1.5 mm ² flexible with ferrules Relay: 1.0 mm ² to 4.0 mm ²

3.3 Minimum distances

From antenna to	Value
Thermostats	40 cm
Communication module	100 cm

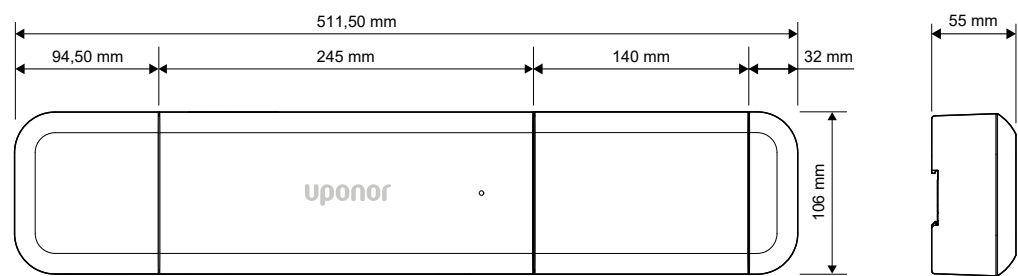
3.4 Dimensions

Room controller



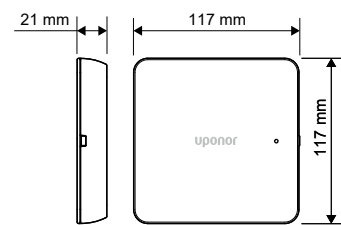
ZD0000121

Room controller with expansion module



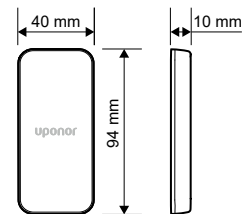
ZD0000124

Communication module



ZD0000123

Antenna



ZD0000122

Georg Fischer GmbH

Amsler-Laffon-Straße 9
8201 Schaffhausen, Switzerland

1184761 v1_09_2026
GF / SKA_CMB

Uponor reserves the right to change the product portfolio and the related documentation without prior notification, in line with its policy of continuous improvement and development.



www.uponor.com