Uponor Smatrix Move

EN QUICK GUIDE

03 | 2020

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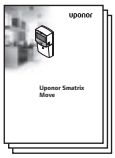
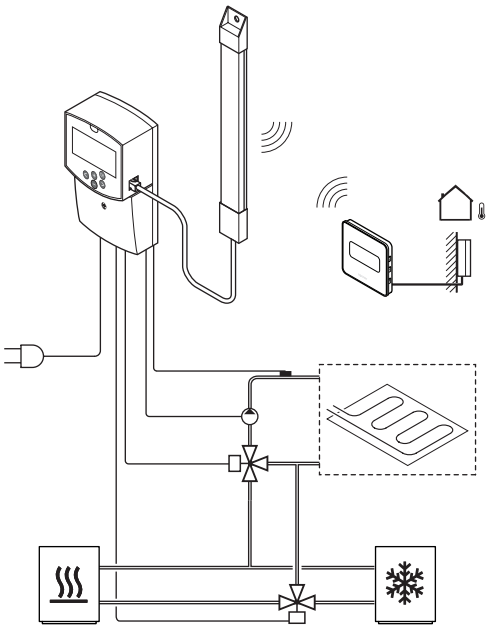
Contents



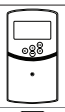
https://www.uponor.com/smatrix/downloads.aspx

System example (wireless)



Uponor Smatrix Move components

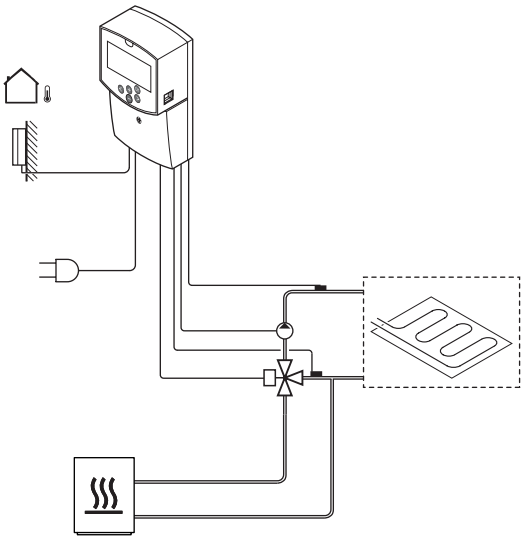
An Uponor Smatrix Move system may be a combination of the following components:

	Uponor Smatrix Move X-157 (controller)
	Uponor Smatrix S-1XX (outdoor sensor)
	Uponor Smatrix Move S-152 (supply/return sensor)
	Uponor Smatrix Move A-155 (antenna A-155)

Requires antenna A-155:

	Uponor Smatrix Wave T-169 (digital thermostat with RH T-169)
	Uponor Smatrix Wave T-168 (programmable thermostat with RH T-168)
	Uponor Smatrix Wave T-166 (digital thermostat T-166)
	Uponor Smatrix Wave T-163 (public thermostat T-163)

System example (wired)



NOTE!
If the outdoor sensor is placed to far away from the reference room, a separate thermostat can be used to register the outdoor sensor.

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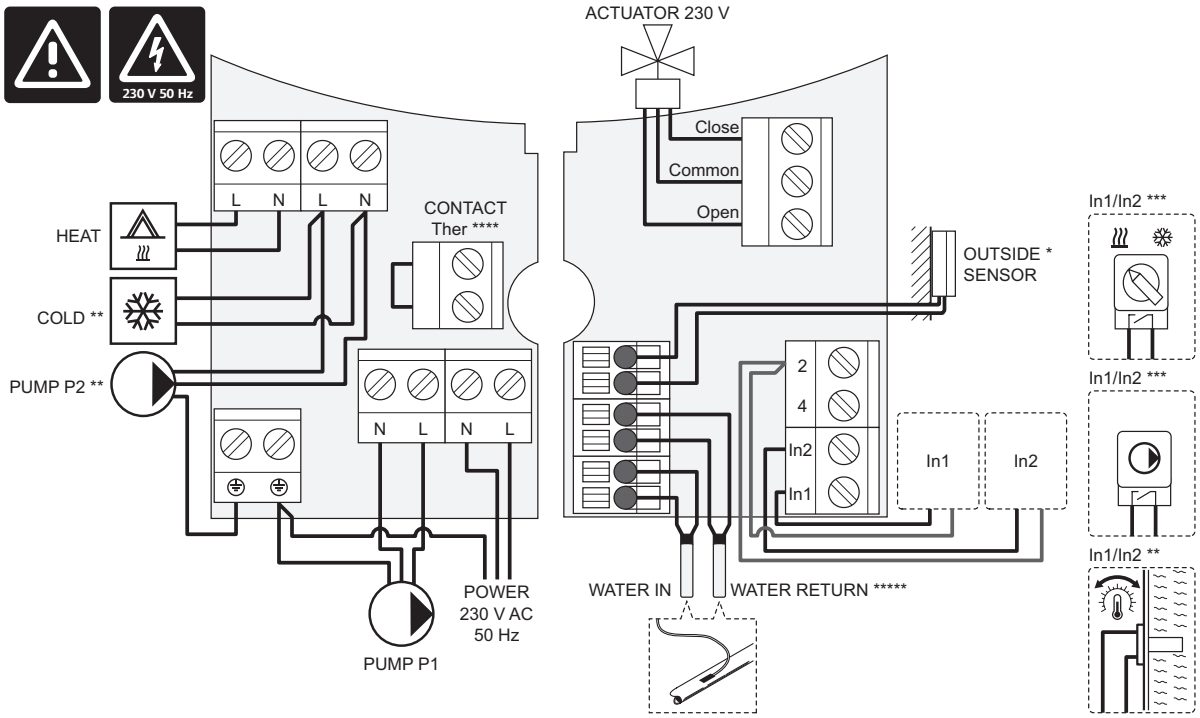
Quick Guide

NOTE!
This is a quick start guide to serve as a reminder for experienced installers. We strongly recommend reading the full installation and operation manual before installing the control system.

WARNING!
Electrical installation and service behind secured 230 V AC covers must be carried out under the supervision of a qualified electrician.



*) *The outdoor temperature sensor can be connected to either the controller or to a thermostat (requires antenna A-155).*

**) *Connect either COLD or PUMP P2 (secondary heating/cooling circuit) to the connection terminal.*

***) *Select one of the inputs (heating/cooling switch, pump control signal, or immersion thermostat) and set parameter 11 – Wired Input 1 selection, or parameter 12 – Wired Input 2 Selection, accordingly. The heating/cooling option can only be used in systems without a registered wireless thermostat.*

****) *Optional temperature limiter connection, fitted with a cable bridgre from the factory. Remove the bridge if a temperature limiter is to be used together with PUMP P1.*

*****) *Optional return sensor. Can only be used, for boost function, in systems without a registered wireless thermostat.*

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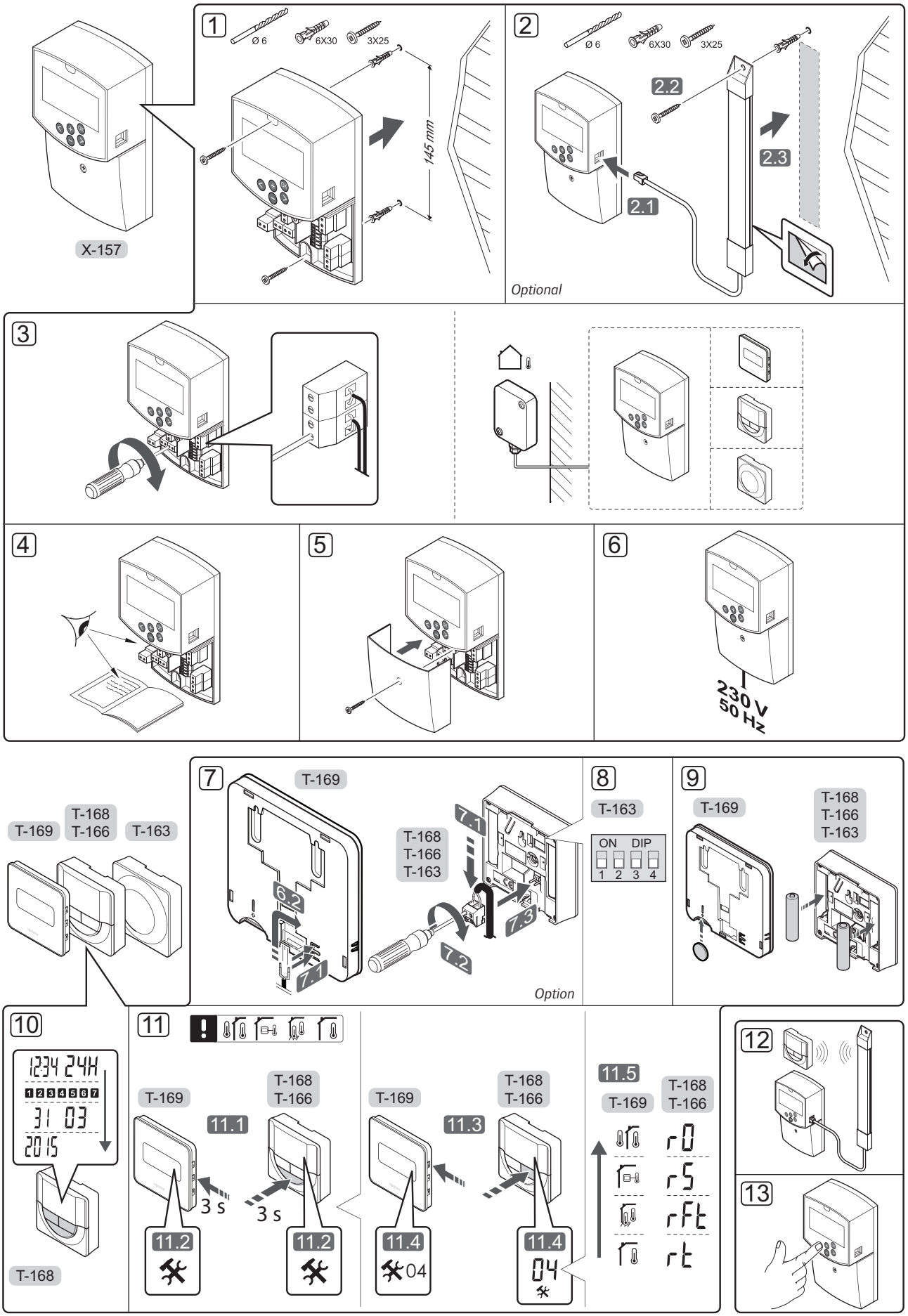
1
Ø 6
6X30
3X25
145 mm
X-157
2
Ø 6
6X30
3X25
2.2
2.3
2.1
Optional
3
4
5
6
230 V
50 Hz
7
T-169
T-168
T-166
T-163
7.1
6.2
7.3
7.2
7.1
Option
8
T-163
ON DIP
1 2 3 4
9
T-169
T-168
T-166
T-163
10
1234 24H
1 2 3 4 5 6 7
31 03
2015
T-168
11
T-169
T-168
T-166
11.1
3 s
3 s
11.2
11.2
T-169
T-168
T-166
11.3
11.4
11.4
04
11.5
T-169
T-168
T-166
r0
r5
rFt
rt
12
13

Installation

Warning!
The Uponor system uses 230 V AC, 50 Hz power. In case of emergency, immediately disconnect the power.

Caution!
To avoid interference, keep installation/data cables away from power cables of more than 50 V.

1. Attach the controller to the wall by using wall screws and plugs.

   If the controller is installed inside a metal cabinet, and an antenna is to be used, then locate the antenna outside the cabinet.

2. Connect the antenna (optional, required when using thermostats) to the controller (2.1), and attach it to the wall using a wall screw and plug (2.2) or the adhesive strip (2.3).

3. Connect additional equipment, such as actuator(s), circulation pump(s), temperature sensors etc, and secure them with cable clamps.

   The outdoor temperature sensor can be connected to either the controller or a thermostat (requires antenna A-155).

4. Check that all wiring is complete and correct:

   - Actuator(s)
   - Heating/cooling switch
   - Circulation pump(s)
   - Temperature sensor(s)

5. Ensure that the 230 V AC compartment of the controller is closed and the fixing screw is tightened.

6. Connect the power cable to a 230 V AC wall socket, or if required by local regulations, to a junction box.

Thermostat registration (requires antenna A-155)

Caution!
If communication difficulties exist, Uponor recommends relocating the antenna to a more optimal position, and not installing Uponor radio sources to close to each other **(at least 40 cm apart)**, for solving exceptional problems.

Caution!
The DIP switches in public thermostat T-163 must be set before the thermostat is registered.

Caution!
The DIP switch in the public thermostat T-163 must be set to one of the available functions, otherwise it cannot be registered.

Caution!
Do not attempt to connect Uponor Smatrix Base thermostats to the controller. They are not suited for each other, and they may get damaged.

NOTE!
If the outdoor sensor is placed to far away from the reference room, a separate thermostat can be used to register the outdoor sensor.

7. Connect optional external sensor.

8. Set the DIP switch on public thermostat T-163.

Function	Switch
Room thermostat	
Room thermostat with outdoor temperature sensor	
Remote sensor	

9. Insert batteries into the thermostats.

10. Set time and date on thermostats (digital thermostat T-168 only).

11. Select thermostat control mode (settings menu **04**, in digital thermostats only). Default: **RT** (standard room thermostat).
    RT = Room temperature
    RFT = Room temperature with external floor sensor (limitations does not affect the operation of the Move controller, when not integrated to a Wave controller)
    RS = Remote sensor
    RO = Room temperature with remote outdoor sensor

12. Register the thermostat and outdoor sensor (*see next page*).

13. Setup the system (*see page 8*).

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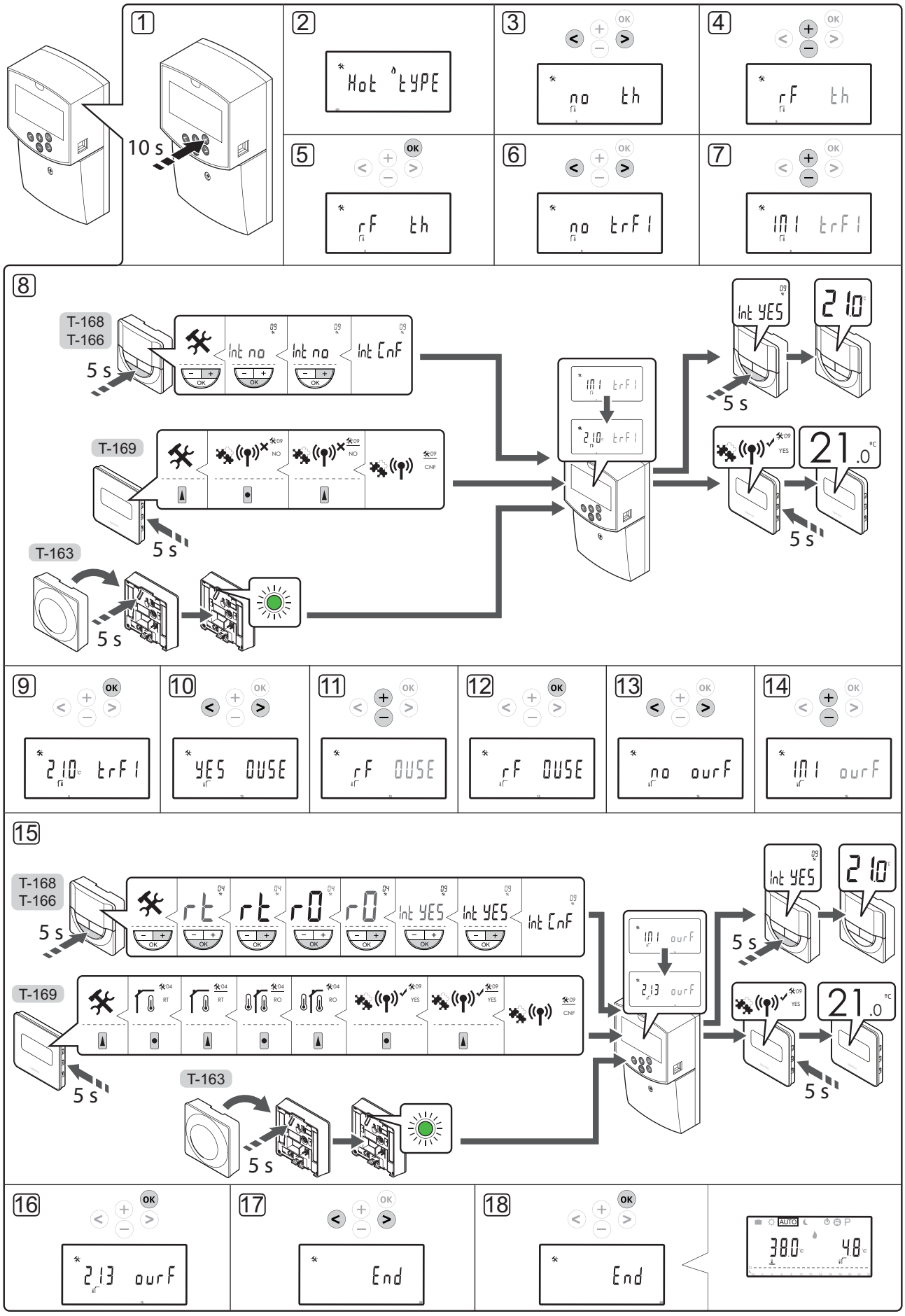
1
10 s
2
Hot tYPE
3
no th
4
rF th
5
rF th
6
no trF1
7
IN1 trF1
8
T-168
T-166
5 s
Int no
Int no
Int CnF
T-169
5 s
T-163
5 s
IN1 trF1
210 trF1
Int YES
210
5 s
21.0
5 s
9
210 trF1
10
YES OUSE
11
rF OUSE
12
rF OUSE
13
no ourF
14
IN1 ourF
15
T-168
T-166
5 s
rt
rt
r0
r0
Int YES
Int YES
Int CnF
T-169
5 s
T-163
5 s
IN1 ourF
213 ourF
Int YES
210
5 s
21.0
5 s
16
213 ourF
17
End
18
End
AUTO
38.0
48

Register wireless thermostat and outdoor sensor to the controller (requires antenna A-155)

Caution!
The DIP switches in public thermostat T-163 must be set before the thermostat is registered.

Caution!
Antenna A-155 must be installed to register a wireless thermostat.

NOTE!
If the outdoor sensor is placed to far away from the reference room, a separate thermostat can be used to register the outdoor sensor.

NOTE!
If more than 4 hours have lapsed since start up of the controller, a locked system parameter symbol is displayed when entering the system parameters menu. Restart the controller to unlock all system parameters.

NOTE!
When registering a thermostat to the controller, run mode changes parameter **0 (type)** to **rEv**, regardless of previous setting. Heating/cooling is then controlled by the thermostat, or the integrated system.

To register a thermostat to the controller:

1. Press and hold the **OK** button on the controller for about 10 seconds to enter the system parameters menu.
2. The settings icon is displayed in the top left hand corner of the display, and the text **Hot type**, **Cld type**, or **rEv type** (depending of current operating mode) is displayed.

Register a thermostat

3. Use buttons **<** or **>** to locate parameter **5 (th)** – Type of thermostat.
4. Use buttons **-** or **+** to change parameter settings to **rf**.
5. Press the **OK** button on the controller to confirm the change and return to the system parameter settings.
6. Use buttons **<** or **>** to locate parameter **8 (trF1)** – Wireless thermostat 1 configuration.
7. Use buttons **-** or **+** to change parameter settings to **INI**.
8. Select a thermostat.

   THERMOSTATS T-166, T-168 AND T-169

   8.1 Press and hold the **OK** button on the thermostat for about 5 seconds to enter the settings menu. The settings icon and menu numbers are displayed in the top right corner of the display.

   8.2 Use buttons **-** or **+** (T-169 = ▼ or ▲) to change the numbers to **09** and press **OK**. The text **Int no** is displayed.

   8.3. Use buttons **-** or **+** (T-169 = ▼ or ▲) to change **Int no** to **Int CNF**.

   8.4. The connection indicator starts flashing in the thermostat display to show that the registration process begins.

   8.5 The current reference room temperature is shown in the controller display, and the text **Int YES** is shown in the thermostat display when the registration is complete.

   8.6 Press and hold the **OK** button on the thermostat for about 5 seconds to exit the settings menu, or wait about 70 seconds for the software to exit itself.

   THERMOSTAT T-163

   8.1 Gently press and hold the registration button on the thermostat, release when the LED starts flashing green (located in the hole above the registration button).

   8.2 The current reference room temperature is shown in the controller display when the registration is complete. It might take some time for the thermostat to send the current temperature data to the controller. 00.0 is displayed in the meantime.

9. Press the **OK** button on the controller to confirm the change and return to the system parameter settings.

Wireless outdoor sensor registration

NOTE!
Skip to step 17, End registration, if the outdoor sensor is wired to the controller.

10. Use buttons **<** or **>** to locate parameter **13 (OUSE)** – Outdoor sensor selection.
11. Use buttons **-** or **+** to change parameter settings to **rf**.
12. Press the **OK** button on the controller to confirm the change and return to the system parameter settings.
13. Use buttons **<** or **>** to locate parameter **15 (ourF)** – Wireless outdoor sensor configuration.

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14. Use buttons **-** or **+** to change parameter settings to **INI**.

15. Select a thermostat.

THERMOSTATS T-166, T-168 AND T-169

15.1 Press and hold the **OK** button on the thermostat for about 5 seconds to enter the settings menu. The settings icon and menu numbers are displayed in the top right corner of the display.

15.2 Use buttons **-** or **+** (T-169 = ▼ or ▲) to change the numbers to **04** and press **OK**. Current control mode is displayed (RT, RFT, RS or RO).

15.3. Use buttons **-** or **+** (T-169 = ▼ or ▲) to change control mode to **RO** and press **OK**.

15.4 Use buttons **-** or **+** (T-169 = ▼ or ▲) to change the numbers to **09** and press **OK**. The text **Int YES** is displayed, if the thermostat already is registered as a reference room thermostat.

15.5. Use buttons **-** or **+** (T-169 = ▼ or ▲) to change **Int YES** to **Int CNF**.

15.6. The connection indicator starts flashing in the thermostat display to show that the registration process begins.

15.7 The current outdoor temperature is shown in the controller display, and the text **Int YES** is shown in the thermostat display when the registration is complete.

15.8 Press and hold the **OK** button on the thermostat for about 5 seconds to exit the settings menu, or wait about 70 seconds for the software to exit itself.

THERMOSTAT T-163

15.1 Gently press and hold the registration button on the thermostat, release when the LED starts flashing green (located in the hole above the registration button).

15.2 The current outdoor temperature is shown in the controller display when the registration is complete. It might take some time for the thermostat to send the current temperature data to the controller. 00.0 is displayed in the meantime.

16. Press the **OK** button on the controller to confirm the change and return to the system parameter settings.

End registration

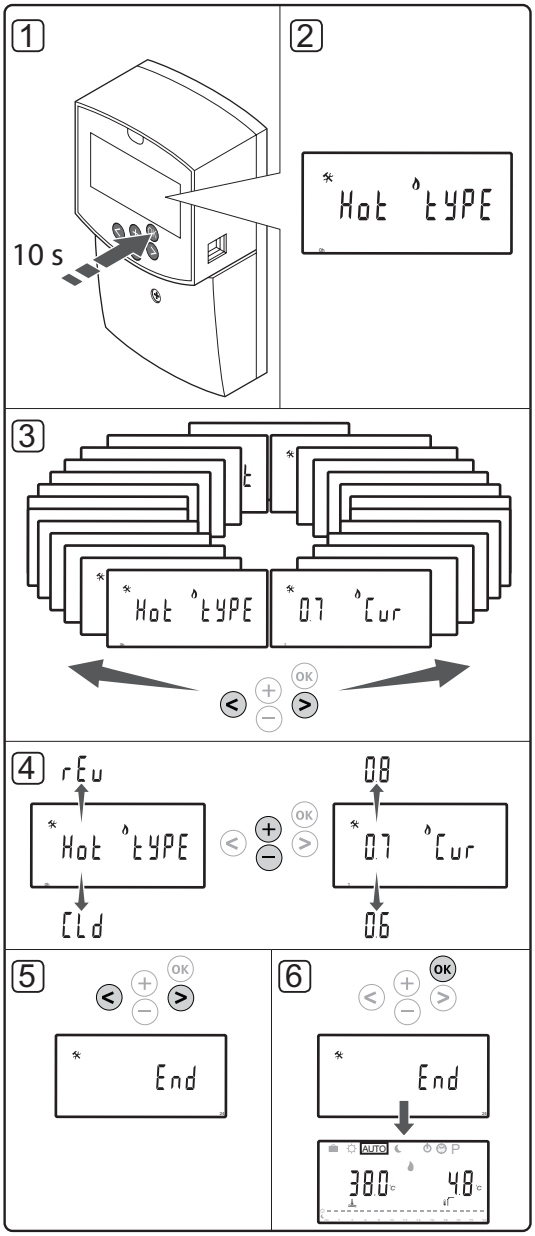
NOTE!
If system parameter settings are to be changed, go to section **Setup the system** > **Step 3**.

17. Use buttons **<** or **>** to locate parameter **24 (End)** – Exit system parameter settings.

18. Press the **OK** button to exit the system parameters menu.

Setup the system

Change the system parameter settings to setup the system.



NOTE!
Some system parameter settings are only accessible during the first 4 hours after power up. This is done to prevent mistakes after installation. If the locked system parameter symbol is displayed, the power to the controller has to be disconnected and reconnected again to modify these parameters. No settings are lost when disconnecting or after a power failure.

The settings available while in run mode is always accessible for change, and will not be locked.

To enter system parameter settings:

1. Press and hold the **OK** button for about 10 seconds.
2. The settings icon is displayed in the top left hand corner of the display, and the text **Hot type**, **Cld type**, or **rEv type** (depending of current operating mode) is displayed.
3. Use buttons **<** or **>** to locate a parameter (see list below) and press **OK**.

   Some of these parameters require other parameters to activate them.

Menu	Display	Description
0	**type**	Type of installation (heating and/or cooling)
1	**Cur**	Heating curve *See page 10 for more information and a diagram*
2	**Hi**	Maximum supply temperature (heating mode)
3	**Lo**	Minimum supply temperature (heating mode)
1	**Cur**	Cooling curve *See page 10 for more information and a diagram*
2	**Hi**	Maximum supply temperature (cooling mode)
3	**Lo**	Minimum supply temperature (cooling mode)
4	**InSt**	Type of system (hydraulic installation)
5*	**th**	Thermostat selection (installed/wireless/etc, *see the registration instruction on pages 6 – 8*)
6	**tHty**	Not used by Move
7**	**BGAP**	Boost function if the difference between the supply and return temperature is too much
8*	**trF1**	Wireless thermostat 1 configuration (*see the registration instruction on pages 6 – 8*)
9*	**trF2**	Wireless thermostat 2 configuration (*see the registration instruction on pages 6 – 8*) This thermostat controls the operation of circulation pump 2
10*	**tr1o**	Supply temperature compensation when using a thermostat to speed up the system. Use with caution
11	**in1**	Wired input 1, select function
12	**in2**	Wired input 2, select function
13	**OUSE**	Outdoor sensor selection (installed/wireless*/wired/etc, *see the registration instruction on pages 6 – 8*)
14	**OUt**	Outdoor temperature, fixed value if outdoor sensor is not installed
15*	**ourF**	Wireless outdoor sensor configuration (*see the registration instruction on pages 6 – 8*)
16	**°C**	Display unit
17	**00:00**	Time unit (AM/PM/24H)
18	**GriP**	Valve and pump exercise
19	**PUMP**	Pump start delay after the mixer valve is closed
20	**ctrl**	Forced control of the actuator
21	**PrH**	Floor/screed preheating program DIN 1264-4
22	**dry**	Floor/screed drying program
23	**ALL**	Factory reset Press and hold the **OK** button for about 5 seconds
24	**End**	Exit system parameter settings

**) Requires antenna A-155*

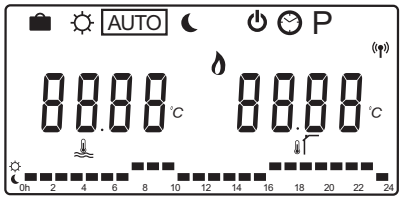
***) Requires a return sensor*

4. Use buttons **-** or **+** to change parameter settings.
5. Use buttons **<** or **>** to locate parameter **24 (End)** – Exit system parameter settings.
6. Press the **OK** button to exit the system parameter settings.

Operating mode

During normal operation, the controller is in run mode.

In run mode different operating modes can be selected, as well as setting current time and day, and selecting a scheduling program.



Use buttons **<** or **>** to change operating mode. A box shows which mode has been selected.

Available operating modes and settings in run mode are the following.

Icon	Operating mode
	Holiday mode
	Comfort mode
Auto	Automatic mode (default) Sets operating mode according to set scheduling program
	ECO mode
	Stop mode
	Time and day settings
P	Scheduled programs menu
	Heating/cooling mode (only available if cooling is activated) This mode requires system parameter 0 – Type of installation being set to **rEv**, but is hidden if a wireless thermostat is registered to the controller, or if system parameters 11 or 12 is set to **HC**.

Circulation pump

If a circulation pump is connected to the controller, it will run continuously (default setting) during normal operation.

To change this setting, go to system parameter **19 (PUMP)** – Pump start delay, in the controller.

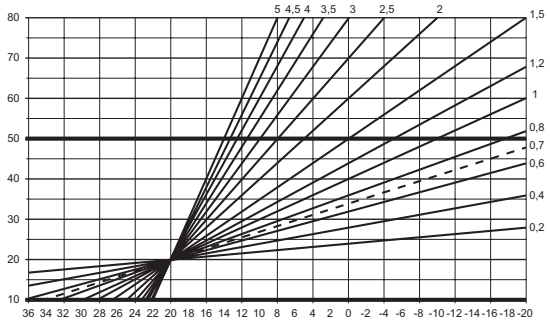
See section Setup the system for more information.

The Move controller can receive a pump demand signal to one of the wired inputs (input 1 or 2, parameter 11 or 12 set to C_b) from another controller in the system, turning on or off the circulation pump connected to P1.

Heating and cooling curve

The heating and cooling curves for the Uponor Smatrix Move controller is shown in the diagram below. The diagram shows the calculated supply temperature, for each curve, at different outdoor temperatures. The controller uses the selected curve to operate the mixer valve, which in turn adjusts the supply temperature to the system.

Supply temperature



Outdoor temperature

The choice of curve depends on a combination of different factors, such as how well insulated the house is, geographical location, type of heating/cooling system etc.

Example:

A poorly insulated house heated by a radiator system requires a higher curve value than an equivalent house with underfloor heating.

The curves in the diagram are also limited by maximum and minimum parameters set in the system (marked in the diagram with extra thick lines).

To change the heating and/or cooling curve:

1. Press and hold the **OK** button on the controller for about 10 seconds to enter the system parameters menu.
2. The settings icon is displayed in the top left hand corner of the display, and the text **Hot type**, **Cld type**, or **rEv type** (depending of current operating mode) is displayed.
3. Use buttons **<** or **>** to locate parameter **1 (Cur)** – Heating curve, or **1 (Cur)** – Cooling curve. They are identified using the heating or cooling symbol.

   Heating curve:
   Default: 0.7
   Setting range: 0.1 – 5, 0.1 increments

   Cooling curve:
   Default: 0.4
   Setting range: 0.1 – 5, 0.1 increments
4. Use buttons **-** or **+** to change parameter setting.
5. Press the **OK** button on the controller to confirm the change and return to the system parameter settings.
6. Repeat steps 3 through 5 to change the other curve settings, if needed.

Factory reset

To perform a factory reset, go to system parameter **23 (ALL)** – Factory reset, in the controller.

Press and hold the **OK** button for about 5 seconds until the controller restarts.

See section Setup the system for more information.

System integration with other systems (requires antenna A-155 and wireless thermostat)

The Uponor Smatrix Move controller can be integrated with another Uponor Smatrix Wave system to enhance the capabilities of the full climate system. At the same time, the integration removes the need of a separate thermostat, and outdoor sensor, for the Move system.

Shared information

Information regarding system state and reference room temperature is forwarded to the Move controller, which adjusts the supply temperature accordingly.

Different system states and temperatures which can be forwarded are:

- 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 exceeds set limits (requires the digital thermostat T-168 or T-169, and interface I-167)

**) Through change of setpoint, using the ECO setback value from the integrated system. No indication or change of mode is shown in the Move controller.*

The integration is activated when the thermostat is registered to both controllers (Move and Wave).

See the Uponor Smatrix Wave documentation on how to register the thermostat to a Wave system.

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Technical data

General	
IP	IP30 (IP: degree of inaccessibility to active parts of the product and degree of water)
Max. ambient RH (relative humidity)	85% at 20 °C

Thermostat (requires antenna A-155)	
CE marking	
ERP	IV
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
Power supply (T-163, T-166, and T-168)	Two 1.5 V AAA alkaline batteries
Power supply (T-169)	1 x CR2032 3V
Voltage (T-163, T-166, and T-168)	2.2 V to 3.6 V
Voltage (T-169)	2.4 V to 3.6 V
Operating temperature	0 °C to +45 °C
Storage temperature	-10 °C to +65 °C
Radio frequency	868.3 MHz
Transmitter duty cycle	<1%
Connection terminals (T-163, T-166, and T-168)	0.5 mm² to 2.5 mm²
Connection terminals (T-169)	0.25 mm² to 0.75 mm² solid, or 0.34 mm² to 0.5 mm² flexible with ferrules

Antenna	
Power supply	5 V DC ±10 % from controller
Maximum power consumption	1 W
Radio frequency	868.3 MHz
Transmitter duty cycle	1%
Receiver class	2

Controller	
CE marking	
ERP	VII (with thermostat) / III
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*
Power supply	230 V AC +10/-15%, 50 Hz
Operating temperature	0 °C to +50 °C
Storage temperature	-20 °C to +70 °C
Maximum consumption	75 W
Pump 1 output	230 V AC +10/-15%, 250 V AC 5 A maximum (L, N, PE)
Heating output	230 V AC +10/-15%, 250 V AC 5 A maximum (L, N, PE)
Cooling/pump 2 output	230 V AC +10/-15%, 250 V AC 5 A maximum (L, N, PE)
3-point control	2 TRIACS => 75 W max
Valve output	230 V AC ±10%,
Connection terminals	Up to 4.0 mm² solid, or 2.5 mm² flexible with ferrules

*) *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*

Usable in all Europe CE

Declaration of conformity:
We hereby declare under our own responsibility that products dealt with by these instructions satisfy all essential demands linked to the information stated in the Safety instruction booklet.

EAC (Move without antenna A-155 only)

1095074 v1_03_2020_EN Production: Uponor AB, MRY, Virsbo, Sweden

Uponor Corporation
www.uponor.com