

Uponor Smatrix Wave

UK QUICK GUIDE

12 | 2017

UK

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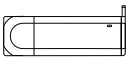
NOTE!
This is a quick start guide to serve as a reminder for experienced installers. We strongly recommend reading the full manual before installing the control system. *See QR-code for download link.*



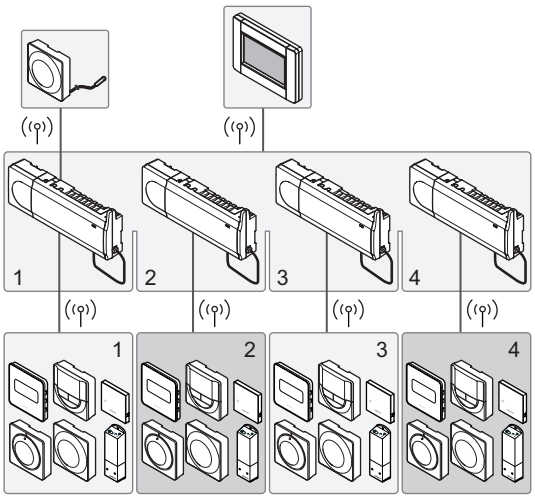
https://www.uponor.co.uk/smatrix/downloads.aspx

Uponor Smatrix Wave components

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

	Uponor Smatrix Wave X-165 (controller)
	Uponor Smatrix A-1XX (transformer A-1XX)
	Uponor Smatrix Wave A-165 (antenna A-165)
	Uponor Smatrix Wave I-167 (interface)
	Uponor Smatrix Wave T-169 (digital thermostat T-169)
	Uponor Smatrix Wave T-168 (digital thermostat T-168)
	Uponor Smatrix Wave T-166 (digital thermostat T-166)
	Uponor Smatrix Wave T-165 (standard thermostat T-165)
	Uponor Smatrix Wave T-163 (public thermostat T-163)
	Uponor Smatrix Wave T-162 (thermostatic head T-162)
	Uponor Smatrix Wave T-161 (sensor thermostat T-161)
	Uponor Smatrix Wave M-161 (relay module M-161)
	Uponor Smatrix Wave M-160 (slave module M-160)

System example



Safety instructions

This quick start guide to serves as a reminder for experienced installers. We strongly recommend reading the full manual before installing the control system.

Controller



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



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



Warning!
The transformer module is heavy and might detach if the controller is held upside down without the cover on.



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



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!
Ensure that each actuator is connected to the correct channel so that the thermostats are controlling the correct loops.



NOTE!
Wires between transformer and controller card needs to be disconnected prior to detaching.



NOTE!
Connect only one actuator for each channel. Channels 01 and 02 have double outputs (a and b) for two actuators.

Thermostat/System device



NOTE!
Registration of at least one thermostat must be done before registering a system device.



NOTE!
Up to four controllers can be registered to an interface.



Caution!
If more than one controller is available in the system, register the thermostat as a system device to the master controller.



Caution!
The switches in public the thermostat must be set before the thermostat is registered.



Caution!
The switches, in the public thermostat, must be set to one of the available functions, otherwise it cannot be registered.

Thermostatic Head



NOTE!
The thermostat in control of the thermal heads should not also control under floor heating. Make notes to make sure



NOTE!
If two thermostatic heads already have been registered to a channel, register the third to the next channel in line. If more thermostat channels are needed they can be added in thermostat registration mode.

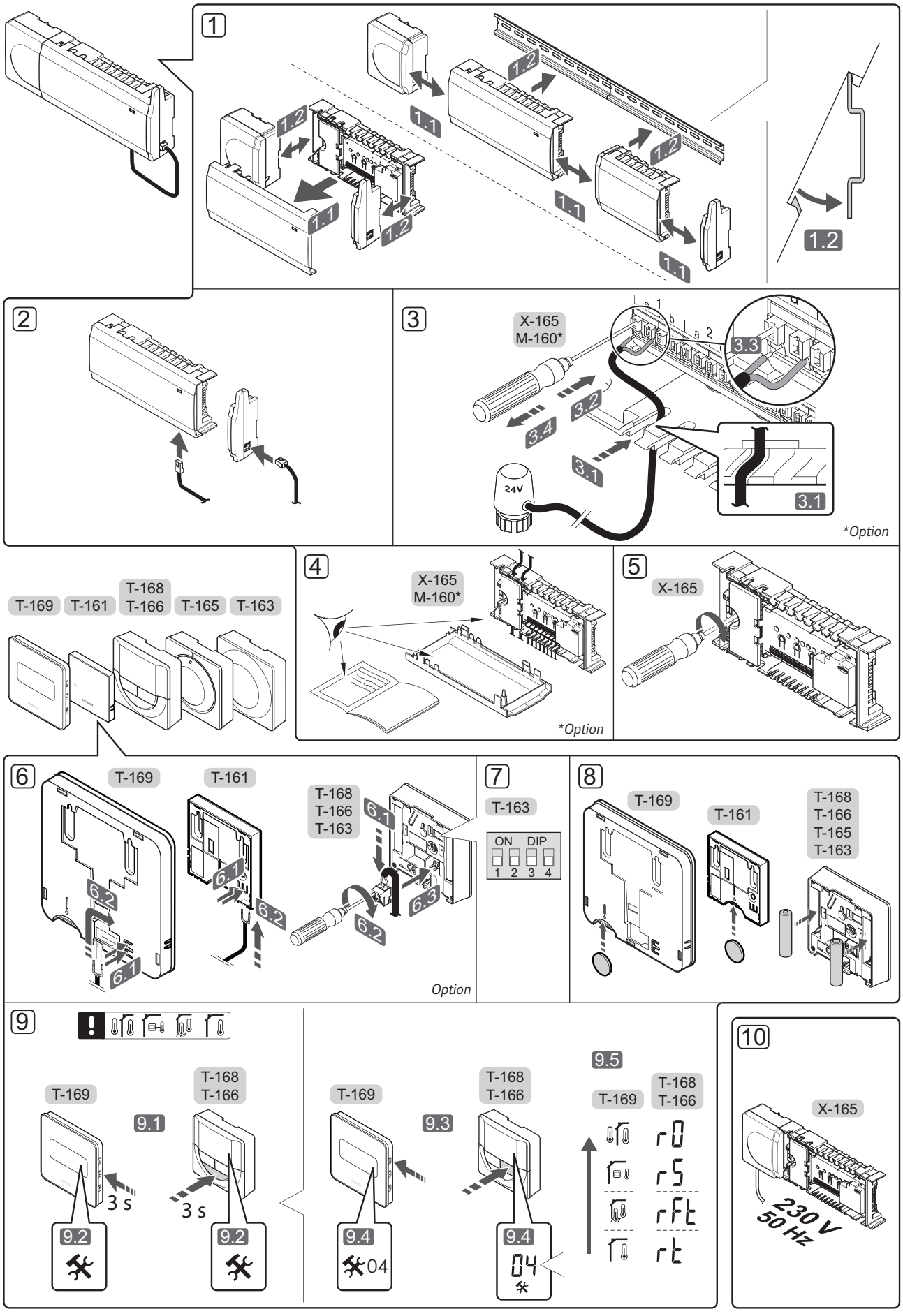


NOTE!
There is no indication showing if a thermostatic head already is registered to a channel.



Caution!
The thermostatic head must be installed on a radiator before registering it to a controller. Because the thermostatic head will perform a valve stroke calibration, when registered, to accurately operate the valve on the radiator.

UK


1
1.1
1.2
2
3
X-165
M-160*
3.1
3.2
3.3
3.4
24V
*Option
4
X-165
M-160*
*Option
5
X-165
T-169
T-161
T-168
T-166
T-165
T-163
6
T-169
T-161
T-168
T-166
T-163
6.1
6.2
6.3
Option
7
T-163
ON DIP
1 2 3 4
8
T-169
T-161
T-168
T-166
T-165
T-163
9
9.1
9.2
9.3
9.4
9.5
3 s
T-169
T-168
T-166
04
rO
r5
rFt
rt
10
X-165
230 V
50 Hz

Quick Guide

Installation

1. Attach the full assembly, or parts of it, to the wall either with a DIN rail or by using wall screws and plugs.

   If the controller is installed inside a metal cabinet, then locate the antenna outside the cabinet.

2. Connect the antenna to the controller using the supplied antenna cable (0.5 – 5m, CAT5e/CAT6).
3. Connect the actuators.
4. Check that all wiring is complete and correct:
   - Actuators
   - Heating/cooling switch
   - Circulation pump
5. Ensure that the 230 V AC compartment of the controller is closed and the fixing screw is tightened.
6. Connect optional external sensor (compatible thermostats only).
7. Set DIP switch on public thermostat T-163.

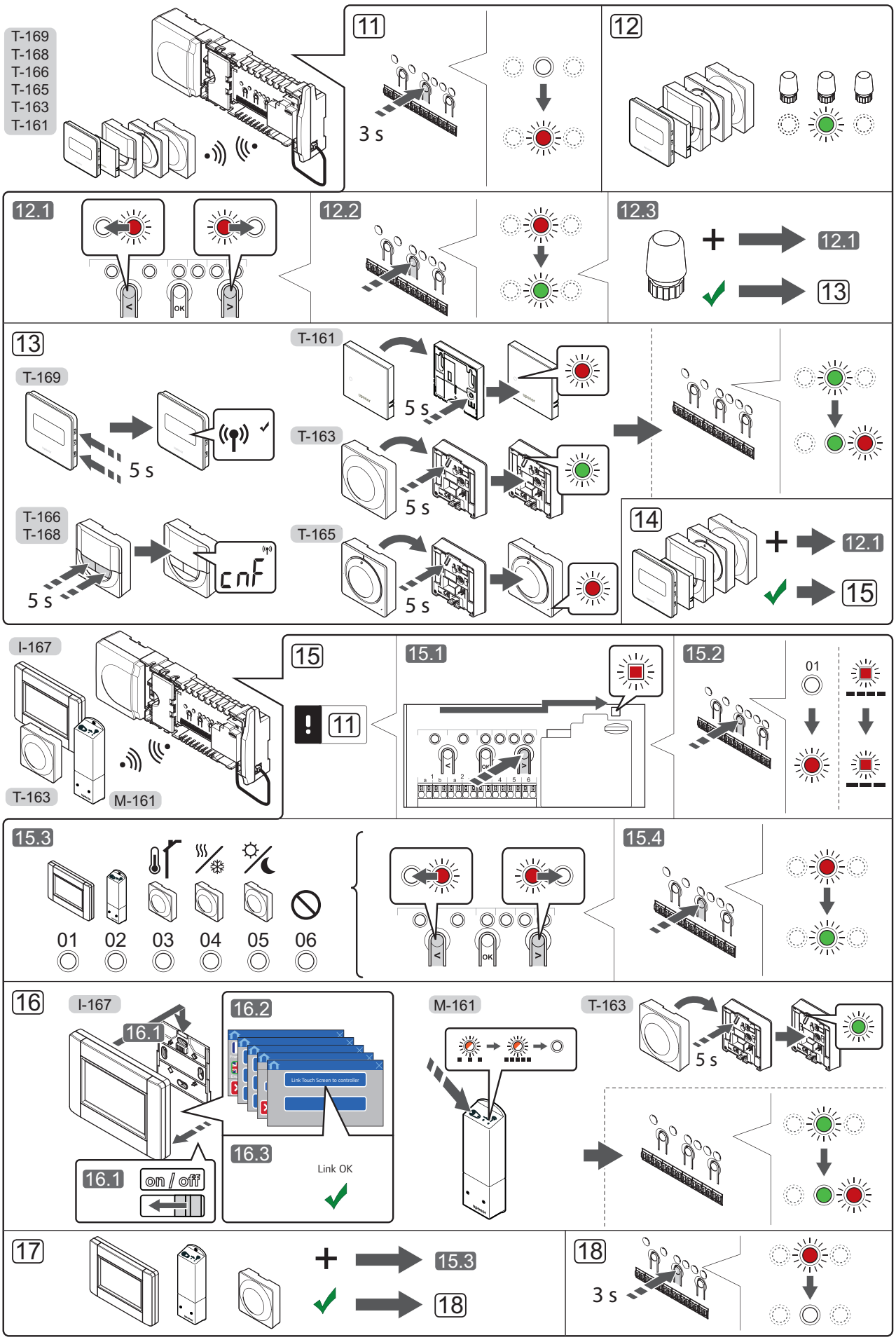
Function*	Switch
Standard room thermostat	
Standard room thermostat together with a floor temperature sensor	
Standard room thermostat, or system device, together with an outdoor temperature sensor	
System device together with a supply temperature sensor for heating/cooling switch over function	
System device where the sensor input is used for Comfort/ECO switch over function	
Remote sensor	
System device where the sensor input is used for heating/cooling switch-over function	

** The thermostat can only be registered as a system device to a Wave system with multiple controllers, if it is registered to the master controller.*

8. Insert batteries into the thermostats.
9. Select thermostat control mode (settings menu **04**, in digital thermostats only). Default: **RT** (standard room thermostat).
10. Connect the power cable to a 230 V AC wall socket, or if required by local regulations, to a junction box.

Register thermostats, the interface and other system devices, in that order (next page).

UK


T-169
T-168
T-166
T-165
T-163
T-161
11
3 s
12
12.1
OK
12.2
12.3
12.1
13
13
T-169
5 s
T-161
5 s
T-163
5 s
T-166
T-168
5 s
cnF
T-165
5 s
14
12.1
15
I-167
T-163
M-161
15
11
15.1
15.2
01
15.3
01
02
03
04
05
06
15.4
16
I-167
16.1
16.2
Link Touch Screen to controller
16.3
Link OK
16.1
on / off
M-161
T-163
5 s
17
15.3
18
18
3 s

Register thermostat and/or system device to a controller

To register room thermostats and system devices (interface etc.) to the controller:

Enter registration mode

11. Press and hold the **OK** button on the controller, for about 3 seconds, until the LED for channel 1 (or the first unregistered channel) flashes red.

Register a thermostat

12. Select a thermostat channel.

    12.1 Use buttons **<** or **>** to move the pointer (LED flashes red) to a preferred channel.

    12.2 Press the **OK** button to select the channel for registration. The LED for the selected channel starts flashing green.

    12.3 Repeat steps 12.1 and 12.2 until all channels to be registered with the thermostat are selected (LEDs flashing green).

    Note! It is recommended to register all channels to the thermostat at the same time.

13. Select a thermostat.

    THERMOSTAT T-163 AS A THERMOSTAT, WITH VARIOUS FUNCTIONS

    13.1 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).
    The selected channel LED in the controller turns fixed green and the registration is complete.

    THERMOSTAT T-161 AND T-165

    13.1 Gently press and hold the registration button on the thermostat, release when the LED on the front of the thermostat starts flashing.
    The selected channel LED in the controller turns fixed green and the registration is complete.

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

    13.1 Press and hold both **-** and **+** buttons (T-169 = ▼ and ▲) on the thermostat until the text **CnF** (configure) and a communication icon is displayed.
    The selected channel LED in the controller turns fixed green and the registration is complete.

14. Repeat steps 12 and 13 until all available thermostats are registered.

Register a system device (I-167 etc)

NOTE!
At least one thermostat must be registered before registering a system device.

15. Make sure to be in registration mode (step 11).

    15.1 Use buttons **<** or **>** to move the pointer to the power LED (LED flashes red).

    15.2 Press the **OK** button to enter system channel registration mode. The power LED flashes according to the pattern long blink, short pause, long blink and channel 1 LED flashes red.

    15.3 Select a system channel, see list below.

    1 = Touch screen interface

    2 = Relay module

    3 = Public thermostat with outdoor sensor

    4 = Public thermostat with heating/cooling switch from contact or sensor input

    5 = Public thermostat with Comfort/ECO switch

    15.4 Press the **OK** button to select system device channel. The channel LED starts flashing green.

16. Select a system device matching the system channel.

    INTERFACE I-167

    16.1. Power up the interface and attach it to the charger.

    16.2. Follow the startup guide in the interface up until registration.

    16.3 Press **Link Touch Screen to controller** in the **Startup guide**, or **RF Link** menu (**Main menu > Preferences**), to initialize registration.

    16.4 The interface gets registered to the controller. The selected channel LED in the controller turns fixed green and the registration is complete.

    RELAY MODULE M-161

    16.1 Press and hold the register button on the relay module until the LEDs on the module start flashing slowly.
    The selected channel LED in the controller turns fixed green and the LEDS on the relay module start flashing fast again, to turn off a few seconds later.

    THERMOSTAT T-163 AS A SYSTEM DEVICE, WITH VARIOUS FUNCTIONS

    16.1 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).
    The selected channel LED in the controller turns fixed green and the registration is complete.

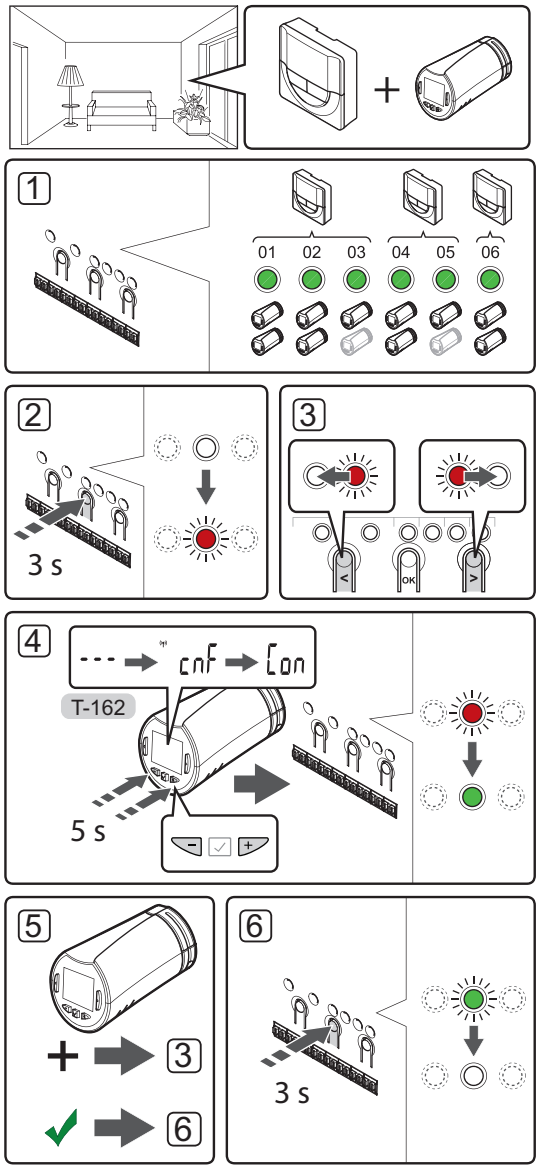
17. Repeat steps 15 and 16 until all available system devices are registered.

Exit registration mode

18. Press and hold the **OK** button on the controller, for about 3 seconds, until the green LEDs turn off to end registration and return to run mode.

UK

Register thermostatic heads to controller in rooms with a thermostat



To register thermostatic heads in the controller:

1. A thermostat must be registered to a sufficient number of channels to be able to control all thermostatic heads in a room. A maximum of two thermostatic heads can be registered per channel.

   See section Uponor Smatrix Wave documentation for more information.

2. Press and hold the **OK** button on the controller until the LED for the first unregistered channel flashes red. If all channels are registered to thermostats, the LED flashes red and green.

3. Use buttons **<** or **>** to move the pointer (LED flashes red) to the intended thermostat channel (green LED). The LED flashed red and green.

   If the first channel is full, move the pointer to the next thermostat channel in line.

4. THERMOSTATIC HEAD T-162

   4.1 Press and hold both **-** and **+** buttons on the thermostatic head until the text **CnF** (configure) and a communication icon is displayed. The text **Con** is shown in the display, and the selected channel LED in the controller turns fixed green, when the registration is complete.

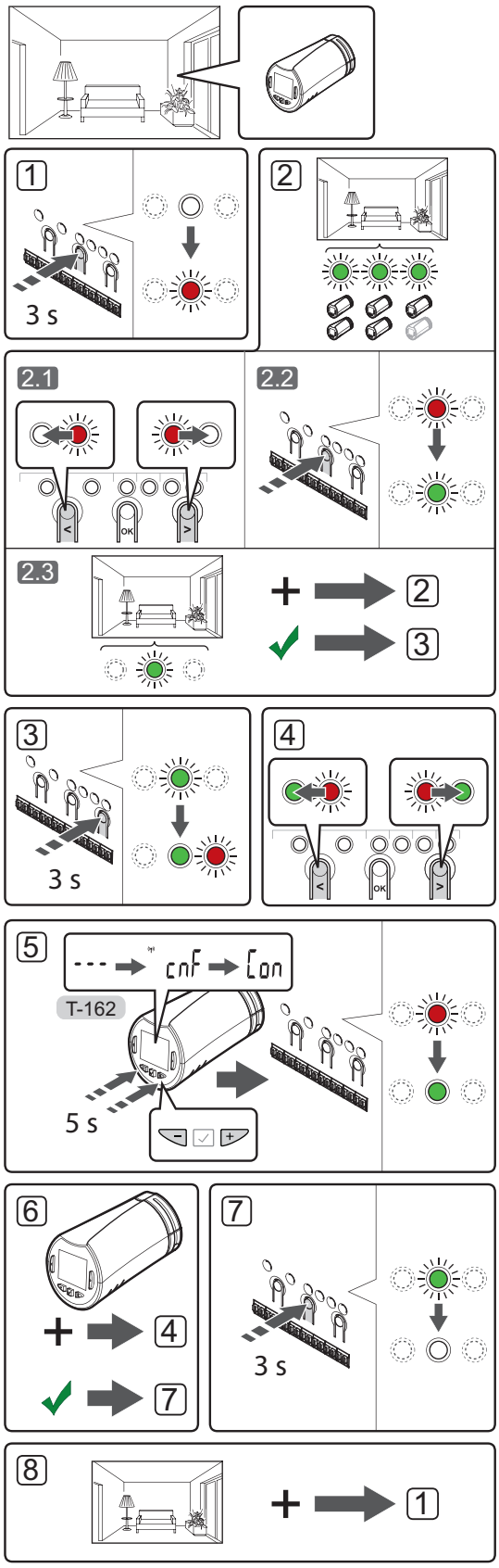
   Note! If the text **---** is shown in the thermostatic head display the registration failed. Repeat steps 2 through 3 and try the next channel in line, in case two other thermostatic heads already has been registered to the current one.

5. Press one of the buttons on the controller and repeat steps 3 through 4 until all thermostatic heads are registered.

6. Press and hold the **OK** button on the controller until the green LEDs turn off to end registration and return to run mode.

UK

Register thermostatic heads to controller in rooms without a thermostat



To register thermostatic heads in the controller:

1. Press and hold the **OK** button on the controller until the LED for the first unregistered channel flashes red. If all channels are registered to thermostats, the LED flashes red and green.
2. Select a thermostat channel.
   2.1 Use buttons **<** or **>** to move the pointer (LED flashes red) to the first empty channel needed for the room (no LED). The LED flashed red.
   2.2 Press the **OK** button to select the channel for registration. The LED for the selected channel starts flashing green.

2.3 Repeat steps 2.1 and 2.2 until a sufficient number of channels for the room are created.

3. Press and hold the **>** button on the controller until the selected channels light up green and the next in line starts flashing red. A channel without a thermostat has been created.
4. Use buttons **<** or **>** to move the pointer (LED flashes red) to the first channel of the room (green LED). The LED flashed red and green.

   If the first channel is full, move the pointer to the next channel in line.

5. THERMOSTATIC HEAD T-162
   5.1 Press and hold both **-** and **+** buttons on the thermostatic head until the text **CnF** (configure) and a communication icon is displayed.
   The text **Con** is shown in the display, and the selected channel LED in the controller turns fixed green, when the registration is complete.

   Note! If the text **---** is shown in the thermostatic head display the registration failed. Repeat steps 2.1 through 2.2 and try the next channel in line, in case two other thermostatic heads already has been registered to the current one.

6. Press one of the buttons on the controller and repeat steps 4 through 5 until all thermostatic heads are registered.
7. Press and hold the **OK** button on the controller until the green LEDs turn off to end registration and return to run mode.
8. Repeat steps 1 through 7 until the thermostatic heads in all rooms are registered.

Register multiple controllers

Up to four controllers can be registered to an interface.

All additional controllers in the system must be registered to the interface.

NOTE!
At least one thermostat must be registered to the additional controller before registering to the interface.

See steps 15 and 16 in the "Register thermostat and/or system device to a controller" section for more information.

Unregister one channel or system device

When a channel or system device is inaccurately registered or if a thermostat registration needs to be redone, it is possible to remove the current registration from the controller.

NOTE!
The controller must be unregistered in the interface as well. Go to menu **Main menu > Preferences > RF Link** and unregister.

To unregister a channel:

1. Enter registration mode. Channel 1 LED flashes red/green, or the first unregistered channel flashes red.
2. If a system device (interface etc) is to be unregistered, enter system channel registration mode. The power LED flashes according to the pattern long blink, short pause, long blink and channel 1 LED flashes red/green.
3. Use buttons **<** or **>** to move the pointer (LED flashes red) to the selected channel (flashes green if registered) to unregister.
4. Press the **<** and **>** buttons simultaneously until the LED for the selected channel starts flashing red (about 5 seconds).

Unregister all channels

When one or more channels (thermostats and system devices) are inaccurately registered, it is possible to remove all registrations at the same time.

NOTE!
The controller must be unregistered in the interface as well. Go to menu **Main menu > Preferences > RF Link** and unregister.

To cancel all channel registrations:

1. Enter registration mode. Channel 1 LED flashes red/green, or the first unregistered channel flashes red.
2. Press the **<** and **>** buttons simultaneously until the LEDs for all channels except one turn off (about 10 seconds). The one remaining flashes red.

Room bypass

To reach the bypass settings, the controller must be registered to the interface.

1. In the interface, go to the **Room bypass** menu, **Main menu > System settings > Room bypass**.
2. Select a controller.
3. Select up to a maximum of two rooms.
4. Press the **Confirm** button to save and exit the menu.

Other functions

See full manual for more information about Autobalancing of actuators (eliminating the need of manual balancing,on by default), Heat pump integration, Cooling, Comfort/ECO settings, Smart Home Gateway, Room check, and Supply check etc.

Technical data

General	
IP	IP20 (IP: degree of inaccessibility to active parts of the product and degree of water)
Max. ambient RH (relative humidity)	85% at 20 °C
Interface	
CE marking	
Low voltage tests	EN 60730-1 and EN 60730-2-1
EMC (electromagnetic compatibility requirements) tests	EN 60730-1
Power supply	230 V AC +10/-15%, 50 Hz in wall box or mini USB connection
Operating temperature	0 °C to +45 °C
Storage temperature	-20 °C to +70 °C
Radio frequency	868.3 MHz
Transmitter duty cycle	<1%
Antenna	
Power supply	From controller
Radio frequency	868.3 MHz
Transmitter duty cycle	<1%
Receiver class	2
Thermostat	
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-165, T-166, and T-168)	Two 1.5 V AAA alkaline batteries
Power supply (T-161 and T-169)	1 x CR2032 3V
Voltage (T-163, T-165, T-166, and T-168)	2.2 V to 3.6 V
Voltage (T-161 and 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-165, T-166, and T-168)	0.5 mm² to 2.5 mm²
Connection terminals (T-161 and T-169)	0.25 mm² to 0.75 mm² solid, or 0.34 mm² to 0.5 mm² flexible with ferrules
Relay module	
CE marking	
ERP	IV
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 or 60 Hz
Operating temperature	0 °C to +50 °C
Storage temperature	-20 °C to +70 °C
Maximum consumption	2 W
Radio frequency	868.3 MHz
Transmitter duty cycle	<1%
Relay outputs	230 V AC +10/-15%, 250 V AC 2.5 A maximum
Power connection	1 m cable with europlug (except UK)
Connection terminals	Up to 4.0 mm² solid, or 2.5 mm² flexible with ferrules

Thermostatic head	T-162
IP	IP20 (IP: degree of inaccessibility to active parts of the product and degree of water)
Max. ambient RH (relative humidity)	85% at 20 °C
CE marking	
ERP (thermostat only)	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	Two 1.5 V AAA alkaline batteries
Voltage	2.2 V to 3.6 V
Maximum stroke	3.5 mm
Maximum strength	70 N
Differential pressure	1.5 bar
Operating temperature	0 °C to +40 °C
Storage temperature	-10 °C to +50 °C
Radio frequency	868.3 MHz
Transmitter duty cycle	<1%

Controller/interface SD card	
Type	micro SDHC, UHS or Standard
Capacity	4 GB to 32 GB, FAT 32 formatting
Speed	Class 4 to 10 (or higher)

Controller	
CE marking	
ERP	VIII
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 or 60 Hz
Internal fuse	T5 F3.15AL 250 V, 5x20 3.15A quick acting
Internal fuse, Heat pump output	TR5-T 8.5 mm Wickmann 100 mA Time lag
Operating temperature	0 °C to +45 °C
Storage temperature	-20 °C to +70 °C
Maximum consumption	45 W
Pump and boiler relay outputs	230 V AC +10/-15%, 250 V AC 8 A maximum
General purpose input (GPI)	Only dry contact
Heat pump input	12 – 24 V DC /5 – 20 mA
Heat pump output	5 – 24 V DC /0.5 – 10 mA, current sink ≤ 100 mW
Valve outputs	24 V AC, 4 A max.
Power connection	1 m cable with europlug (except UK)
Connection terminals for power, pump, GPI and boiler	Up to 4.0 mm² solid, or 2.5 mm² flexible with ferrules
Connection terminals for valve outputs	0.2 mm² to 1.5 mm²

*) *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.



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Uponor Ltd
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Uponor reserves the right to make changes, without prior notification, to the specification of incorporated components in line with its policy of continuous improvement and development.