Uponor Smatrix Base PRO

Quick guide

CD0000416

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1 Safety instructions

Note

This quick start guide serves as a reminder for experienced installers.

We strongly recommend reading the full manual before installing the control system.

See QR code for download link.

Note

The general handling of thermostats in this manual is also valid for Uponor Smatrix Base Pro X-148 Modbus RTU.

1.1 Controller

STOP **Warning!**

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

STOP **Warning!**

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

STOP **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!

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

Note

Wires between transformer and room controller card needs to be disconnected prior to detaching the transformer.

Note

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

1.2 Thermostat/system device

Caution!

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

Caution!

The switches in the public 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.

Note

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

Note

Up to 16 controllers can be registered to an interface.

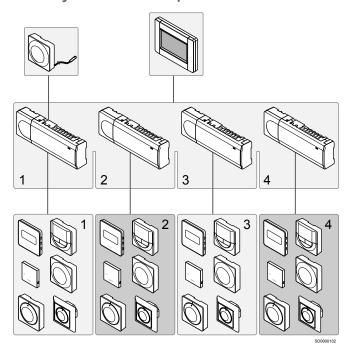# 2 Uponor Smatrix Base PRO system description

2.1 Components

> **Note**
>
> The general handling of thermostats in this manual is also valid for Uponor Smatrix Base Pro X-148 Modbus RTU.

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

- Uponor Smatrix Base PRO Controller X-147 (controller)
- Uponor Smatrix Base PRO Interface I-147 (interface)
- Uponor Smatrix Base Thermostat D+RH T-149 (digital thermostat T-149)
- Uponor Smatrix Base Thermostat Prog.+RH T-148 (digital thermostat T-148)
- Uponor Smatrix Base Thermostat Dig T-146 (digital thermostat T-146)
- Uponor Smatrix Base Thermostat Standard T-145 (standard thermostat T-145)
- Uponor Smatrix Base Thermostat Flush T-144 (flush thermostat T-144)
- Uponor Smatrix Base Thermostat Public T 143 (public thermostat T-143)
- Uponor Smatrix Base PRO Room Sensor+RH T 141 (sensor thermostat T-141)
- Uponor Smatrix Base Slave Module M-140 (slave module M-140)
- Uponor Smatrix Base Star Module M-141 (star module M-141)
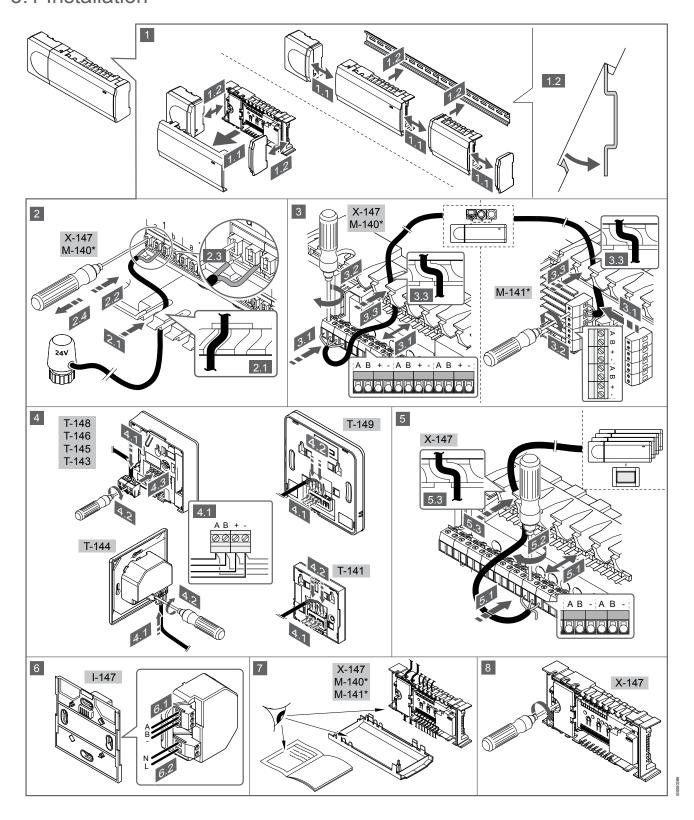- Uponor Smatrix Transformer A-1XX (transformer A-1XX)
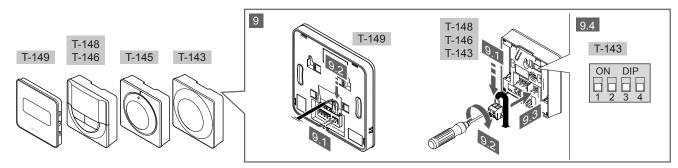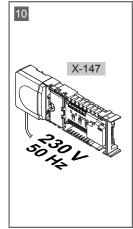
2.2 System example

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Uponor Smatrix Base PRO

www.uponor.com/services/download-centre
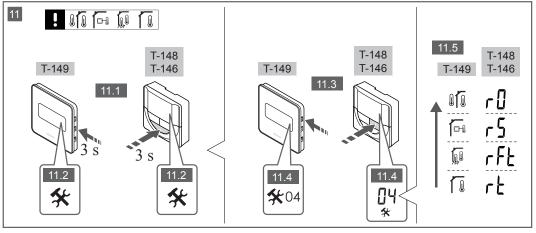
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3 Quick guide

3.1 Installation

Note

The general handling of thermostats in this manual is also valid for Uponor Smatrix Base Pro X-148 Modbus RTU.

1—11 Connect the components

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

2. Connect the actuators.

3. Connect a thermostat communication cable to the controller, slave module, and/or the optional star module. Note: Daisy chain bus topology is recommended.

   See section *Communications protocol, Page 9* for more information.

4. Connect a thermostat communication cable to the thermostat/timer.

5. Connect a system bus communication cable in between controllers and route one cable to the interface. Note: Daisy chain bus topology is recommended.

   See section *Communications protocol, Page 9* for more information.

6. Connect a system bus communication cable (6.1) and a power cable (6.2) to the interface.

7. Check that all wiring is complete and correct:

   • Actuators

   • Heating/cooling switch

   • Circulation pump

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

9. Connect optional external sensor (compatible thermostats only) and set the DIP switch (public thermostat T-143 only).

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	

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

** Closed = ECO

10. Connect the power cable to a 230 V AC wall socket, or if required by local regulations, to a junction box.
11. Select thermostat control mode (settings menu 04, in digital thermostats only).

Default: RT (standard room thermostat).

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

3.2 Register thermostat and/or system device to a controller

12 Enter registration mode

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.

13—15 Register a thermostat

13. Select a thermostat channel

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

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

3. Repeat steps 13.1 and 13.2 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.

14. Select a thermostat.

THERMOSTAT T-143 AS A THERMOSTAT, WITH VARIOUS FUNCTIONS

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-144

1. Using a pointed instrument, gently press and hold the registration button on the thermostat, release when the LED above the dial starts flashing.

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

THERMOSTAT T-141 AND T-145

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-146, T-148 AND T-149

1. Press and hold both **—** and **+** buttons (T-149 = ▾ 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.

15. Repeat steps 13 and 14

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

16—18 Register a system device

> **Note**
>
> Registration of at least one thermostat must be done before registering a system device.

16. Registration mode

Make sure to be in registration mode (step 12).

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

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.

3. Select a system channel, see list below.
   1 = Touch screen interface

2 = Not used

3 = Public thermostat with outdoor sensor

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

5 = Public thermostat with Comfort/ECO switch

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

17. Select a system device

Select a system device matching the system channel.

INTERFACE I-147

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

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

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

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

THERMOSTAT T-143 AS A SYSTEM DEVICE, WITH VARIOUS FUNCTIONS

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.

18. Repeat steps 16 and 17

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

19 Exit registration mode

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.

3.3 Register multiple controllers

> **Note**
>
> At least one thermostat must be registered to the additional controller before registering to the interface.

Up to 16 controllers can be registered to an interface.

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

See steps 16 and 17 in the section "
Register thermostat and/or system device to a controller, Page 7
" for more information.

3.4 Unregister one channel or system device

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

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.

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 (timer 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 for about 5 seconds
     until the LED for the selected channel starts flashing red.

3.5 Unregister all channels

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

When one or more channels are inaccurately registered, it is possible
to remove all registrations at the same time.

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 for about 10 seconds
     until the LEDs for all channels except one turn off. The one
     remaining flashes red.

3.6 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.

3.7 Communications protocol

The system is based on a bus communications protocol (requires the
thermostats unique ID to be registered to the controller), utilising
daisy chain, direct or star topology connections. This allows serial
and parallel connections, makes wiring and connection of
thermostats and system devices much easier than connecting one
thermostat per connection terminal.

The wide array of connection possibilities presented with this
communications protocol can be combined in any way best suited for
the current system.

3.8 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, KNX module,
Room check, and Supply check etc.

4 Technical data

General	Value
IP	IP20, class III (IP: degree of inaccessibility to active parts of the product and degree of water)
Max. ambient RH (relative humidity)	85% at 20 °C

Thermostat	Value
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
Power supply	From room controller
Voltage	4.5 V to 5.5 V
Operating temperature	0 °C to +45 °C
Storage temperature	-10 °C to +70 °C
Connection terminals (T-143, T-144, T-145, T-146, and T-148)	0.5 mm² to 2.5 mm²
Connection terminals (T-141 and T-149)	0.25 mm² to 0.75 mm² solid, or 0.34 mm² to 0.5 mm² flexible with ferrules

Interface	Value
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

Controller/interface SD card	Value
Type	micro SDHC, UHS or Standard
Capacity	4...32 GB, FAT 32
Speed	Class 4...10 +

Controller X-147, X-148	Value
CE marking	
ERP	VIII
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 or 60 Hz
Internal fuse	T5 F3.15AL 250 V, 5x20 3.15A quick acting
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, 0.2 A average, 0.4 A peak
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 bus communication	0.5 mm² to 2.5 mm²
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
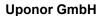
Usable in all Europe	C€

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.

ΕΗΓ

uponor

Uponor GmbH

Industriestraße 56,
D-97437 Hassfurt, Germany

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to the specification of incorporated components in line with its policy of
continuous improvement and development.

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