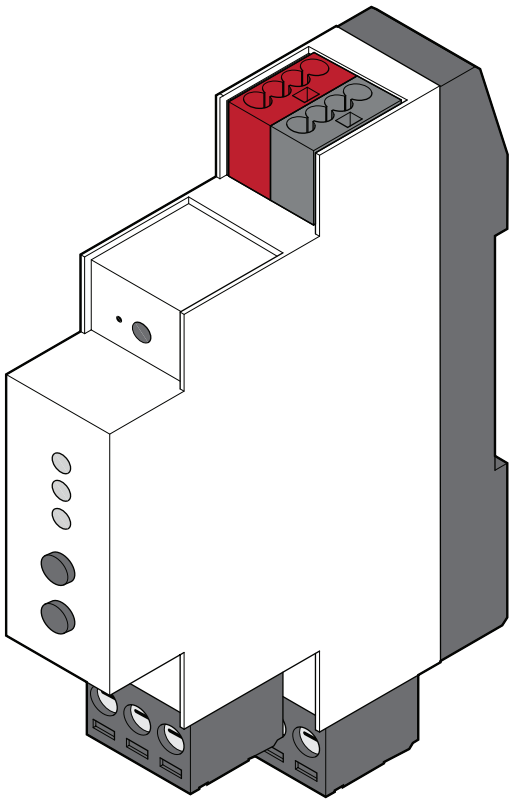
Uponor Smatrix Base PRO R-147 KNX

EN Installation and operation manual



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1 Safety instructions and disclaimer

1.1 Safety instructions

Safety messages used in this document

Warning!
Risk of injury and damage. Ignoring warnings can cause personal injury and/or damage to products and other property..

Caution!
Risk of malfunktions. Ignoring cautions can cause the product to not operate as intended.

Note
The connection terminal on the KNX gateway module is detachable. This makes installation easier.

Uponor uses safety messages in the document to indicate special precautions required for the installation and operation of any Uponor product.

Safety measures

Note
The connection terminal on the KNX gateway module is detachable. This makes installation easier.

The installer and operator agree to comply with following measures regarding Uponor products:

- Read and obey the instructions and processes in the document.
- The installation must be performed by a qualified installer in accordance with local regulations.
- Uponor is not liable for modifications not specified in this document.
- Switch off all connected power supplies before starting any wiring work.
- Do not expose the Uponor components to flammable vapours or gases.
- Do not use water to clean electrical Uponor products/ components.

Uponor is not liable for damage caused by ignoring the instructions in this document or the applicable building code.

Power

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

Technical constraints

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

1.2 Correct disposal of this product (Waste Electrical and Electronic Equipment)

Note
Applicable in the European Union and other European countries with waste separation systems.

This icon on the product, or in the related documents indicates that it should not be disposed with household waste. Please, recycle responsibly to support the sustainable use of resources and prevent possible harm to human health and/or the environment.

Household users should contact the retailer where they purchased this product, or their local government office, for details on where and how they can take it for recycling.

Business users should contact their supplier and check the terms and conditions of the purchase contract. Do not dispose this product with other commercial waste.

1.3 Copyright and disclaimer

This is a generic, European-wide document version. The documentmay show products that are not available in your location for technical, legal, commercial, or other reasons.

For any questions or queries, please visit the local Uponor website or speak to your Uponor representative.

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This disclaimer applies to, but is not limited to, the accuracy, reliability, or correctness of the document.

The presumption for the document is that the product related safety instructions are fully obeyed. The following requirements apply to the Uponor product (including any components) as covered by the document.

- The system (combination of products) is selected and designed by a competent planner. It is installed and put into operation by a licensed and/or competent installer in compliance with the instructions provided by Uponor. Locally applicable building and plumbing codes/regulations have been obeyed.
- Temperatures, pressure and/or voltage limits according to product and design information have not been exceeded.
- The product remains in its originally installed location and is not repaired, replaced, or interfered with, without prior written consent of Uponor.
- The product is connected to potable water supplies or compatible plumbing, heating and/or cooling systems approved or specified by Uponor.

- The product is not connected to or used with third-party products, parts, or components except for those approved or specified by Uponor.
- The product does not show evidence of tampering, mishandling, insufficient maintenance, improper storage, neglect, or accidental damage before installation and being put into operation.

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Always make sure that the system or product complies with current local standards and regulations. Uponor cannot guarantee the full compliance of the product portfolio and related documents with all local regulations, standards, or working methods.

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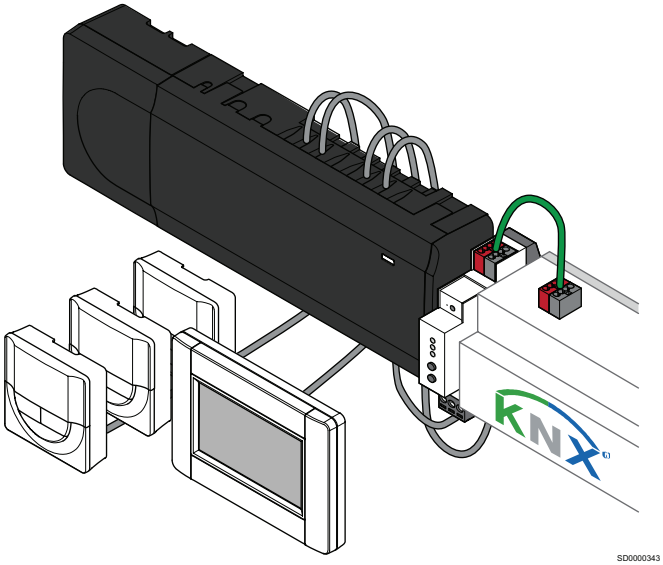
2 System description

2.1 System overview

The Uponor Smatrix Base PRO Gateway module R-147 KNX (KNX gateway module)connects the Uponor Smatrix Base PRO system to a standard KNX bus.



Main characteristics:

- Enables usage of either Uponor or KNX thermostats in the system.
- Access to setpoints for every room.
- Access to readout of room and floor temperatures.
- Access to alarm monitoring.
- Access to heat curve in Uponor Smatrix Move PRO controller (if connected to a Smatrix Base PRO system bus).
- Enables usage of standard KNX system for Comfort/ECO and heating/cooling switch.

2.2 Required devices and softwares

For a full connection of the Uponor Smatrix Base PRO system to a KNX bus following devices and softwares are required:

- Uponor Smatrix Base PRO Gateway Module R-147 KNX.
- Up to 16 Uponor Smatrix Base PRO controllers (Base PRO controller) and an Uponor Smatrix Base PRO Interface I-147 (interface I-147).
- KNX PSU and PC interface.
- Data point lists for the Base PRO controllers (refer to the chapter "Data point lists").
- ETS® tool (version 5 or higher, software provided by the KNX organisation) installed on a computer connected to the KNX bus.
- ETS® product data file for Uponor Smatrix Base PRO.

2.3 Installation procedure

Note

You must have basic knowledge and training on the ETS® tool and KNX systems to install the KNX gateway module.

For more information on installation and operation, refer to the Uponor Smatrix Base/Base PRO installation and operation manual.

3 Installation

3.1 Prepare for installation

Before you install the system, do the following:

- Read the wiring diagram. It is at the end of this manual or in the quick guide.
- Read the installation examples in the chapter "Installation examples".
- Make sure that the Base PRO system is set up correctly and set the power to OFF.
  For more information, refer to the Uponor Smatrix Base/Base PRO installation and operation manual.
- Make sure that you install the KNX system correctly (not yet set up in ETS®) and set the power to OFF.
  For more information, refer to the KNX supplier documentation. This documentation is not provided by Uponor.
  Follow these guidelines to install the Uponor Smatrix Base components in the correct position:
- Install the KNX gateway module near to the Base PRO bus.
- Install the KNX gateway module near the KNX bus.
- Install the KNX gateway module on a DIN rail.
- Protect the KNX gateway module from water. Do not install it where water can drip or run on it.
- Make sure that the connectors and the switches of KNX gateway module are easy to access.

3.2 Uponor Smatrix Base PRO system

Before you install the KNX gateway module, make sure that you read the Uponor Smatrix Base/Base PRO installation and operation manual.

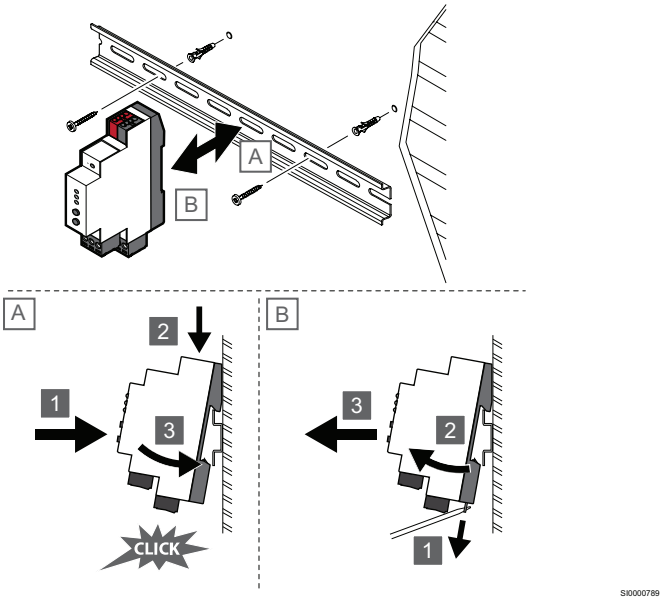
3.3 Installation on DIN rail (recommended)

There are two methods to install the KNX gateway module:

- In a cabinet (recommended)
- On a wall

In both methods, Uponor recommends that you use a DIN rail.

The illustration below shows the installation of the the KNX gateway module using a DIN rail:



3.4 Installation example

Caution!

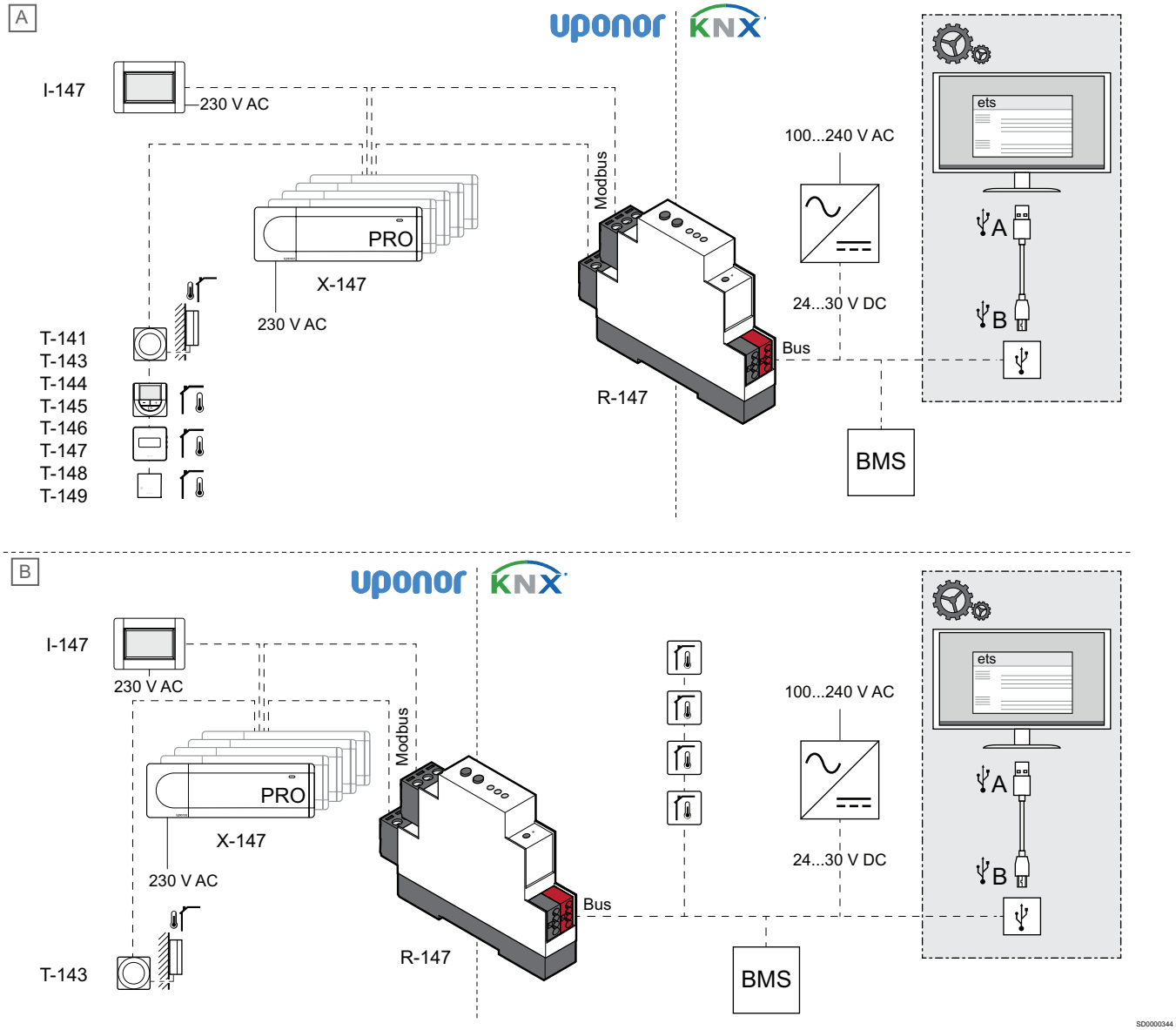
The Uponor Smatrix Base PRO Interface I-147 is required to connect the KNX Gateway module.

Caution!

A separate power supply is required for the KNX bus.

Note

The KNX gateway module sends the values of a Base PRO data points to the KNX bus only when the value changes.



Item	Description
A	System with Uponor thermostats
B	System with KNX thermostats

A. System with Uponor thermostats

The illustration above shows a connection example of an Uponor Smatrix Base PRO system connected to the KNX bus using the KNX gateway module.

- The system is setup to use Uponor room thermostats.
- An outdoor sensor is connected to a public thermostat T-143 and registered to the Base PRO system as a system device.
- A building management system (BMS) is connected to the KNX bus.
- Use the ETS® configuration tool to setup the KNX system.

B. System with KNX thermostats

The illustration above shows an example of how to connect an Uponor Base PRO system to the KNX bus using the KNX gateway module.

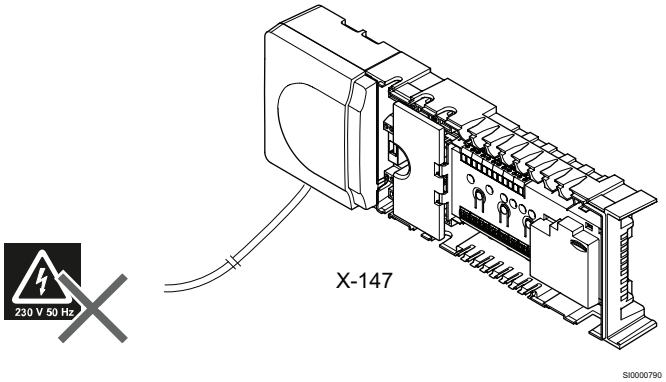
- The system is setup to use KNX room thermostats.
- An outdoor sensor is connected to a public thermostat T-143 and registered to the Base PRO system as a system device.
- A building management system (BMS) is connected to the KNX bus.
- Use the ETS® configuration tool to setup the KNX system.

3.5 Disconnect the Base PRO system and the KNX bus from the power supply

Warning!

A qualified electrician must supervise all electrical installation and service behind covers with 230 V AC

Disconnect the Base PRO system from AC power before you install it.



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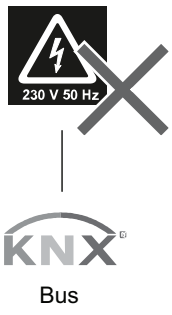
Warning!

The KNX bus carries 24 – 30 V DC when it is poered by the mains.

Disconnect the KNX bus from DC power before you install it.



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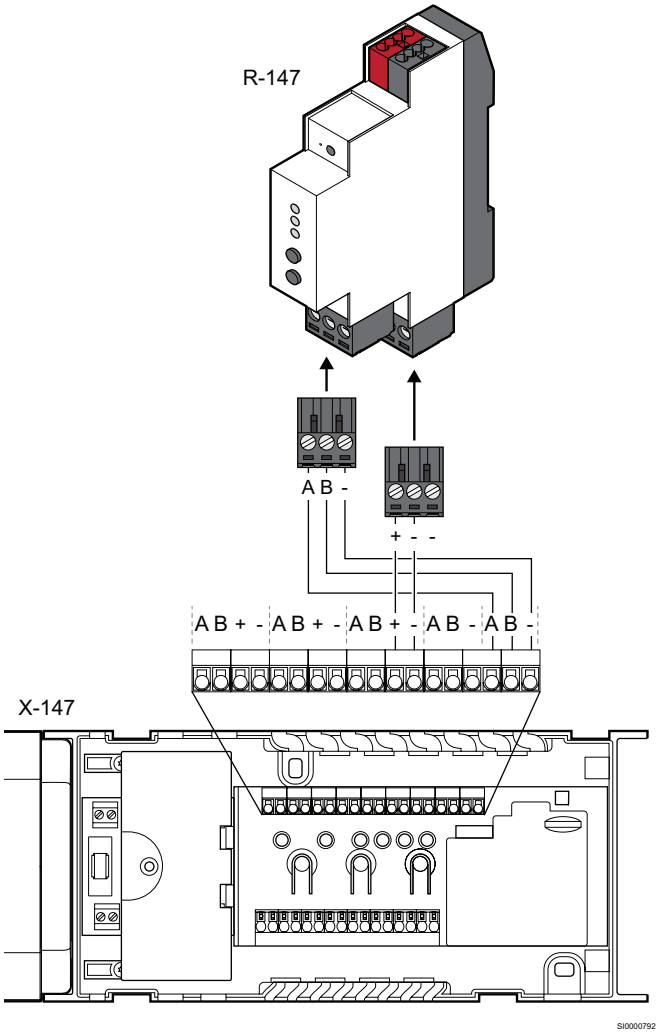
3.6 Connect the KNX gateway-module to the Smatrix Base Pro bus

Note

You can remove the connection terminals on the Smatrix Base PRO controller and the KNX gateway module to make installation easier.

The illustration below shows the KNX gateway module connected to the Base PRO controller.



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To connect the KNX gateway module to the Base PRO controller:

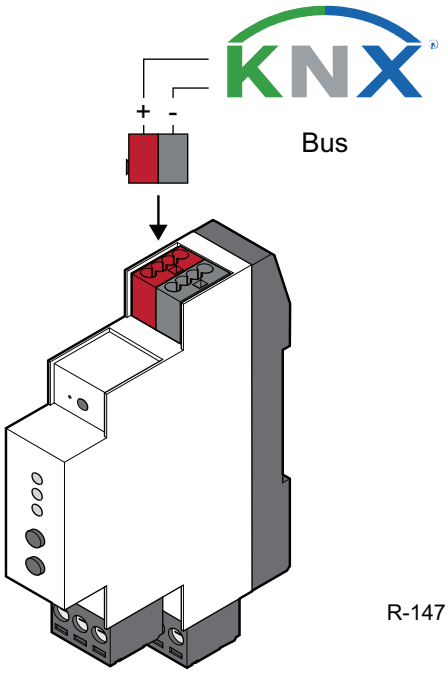
1. Read the wiring diagram to find the position of the connection terminals.
2. Disconnect power from the Base PRO controller.
3. Remove the cover from the Base PRO controller.
   For more information, refer to the Uponor Smatrix Base/Base PRO installation and operation manual.
4. Connect the wires from the thermostat bus on the Base PRO controller to the lower connector on the KNX gateway module.
   - **+** terminal on the controller to the **+** terminal on the KNX gateway module.
   - **-** terminal on the controller to the **-** terminal on the KNX gateway module.
5. Connect the wires from the system bus on the Base PRO controller to the upper connector on the KNX gateway module.
   - **A** connector on the controller to the **A** connector on the KNX gateway module.
   - **B** connector on the controller to the **B** connector on the KNX gateway module.
   - - connector on the controller to the - connector on the KNX gateway module.
6. Tighten the screws.

3.7 Connect the KNX gateway-module to the KNX bus

Warning!
The KNX bus carries 24 – 30 V DC when connected to the mains.

Note
The connection terminal on the KNX gateway module is detachable. This makes installation easier.

The illustration below shows the KNX gateway module connected to the KNX bus.

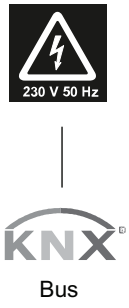


To connect the KNX gateway module to the Base PRO controller:

1. Read the wiring diagram to find the connection terminal.
2. Disconnect power from the KNX bus.
3. Connect the wires from the KNX bus to the KNX connector on the KNX gateway module:
   - **+** terminal on the controller to the **+** terminal (red) on the KNX gateway module.
   - **-** terminal on the controller to the **-** terminal (grey) on the KNX gateway module.

3.8 Connect the KNX bus to DC power

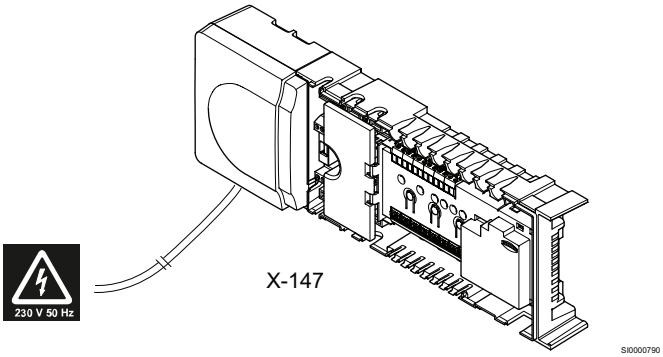
Warning!
The KNX bus carries 24 – 30 V DC when connected to the mains.



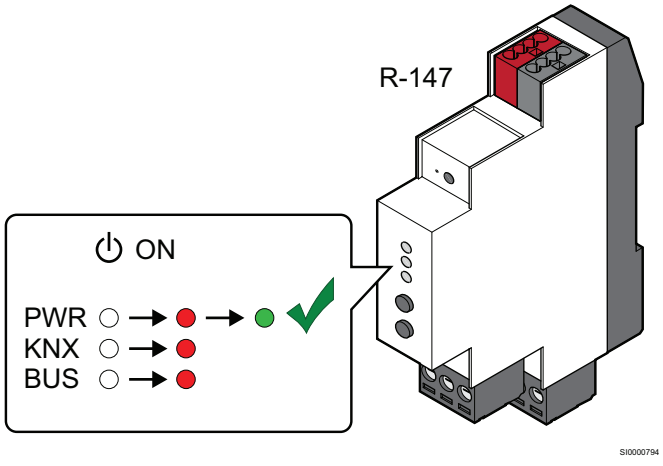
1. Make sure all wiring is complete and correct:
   - Uponor Smatrix Base PRO bus
   - KNX bus
2. Connect power to the KNX bus.

3.9 Connect the Smatrix Base PRO system to AC power

Note
A flashing LED shows that the KNX gateway module receives data from Modbus, KNX, or both.



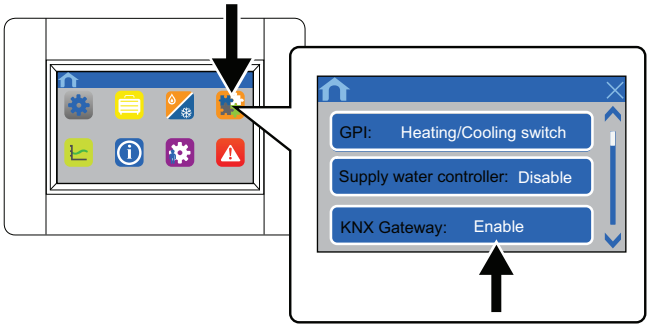
1. Make sure all wiring is complete and correct:
   - Uponor Smatrix Base PRO bus
   - KNX bus
   - Power wiring to the KNX bus
2. Connect power to the Base PRO Controller.
3. The three main LEDs on the KNX gateway module (PWR, KNX, and BUS) changes to red. The PWR LED (power) will become green after a few seconds.



3.10 Enable the KNX gateway module in the interface I-147

Note

When you enable the KNX gateway module in interface I-147, set all ECO setback values and cooling offset values in the entire Smatrix Base PRO system to 0 °C.



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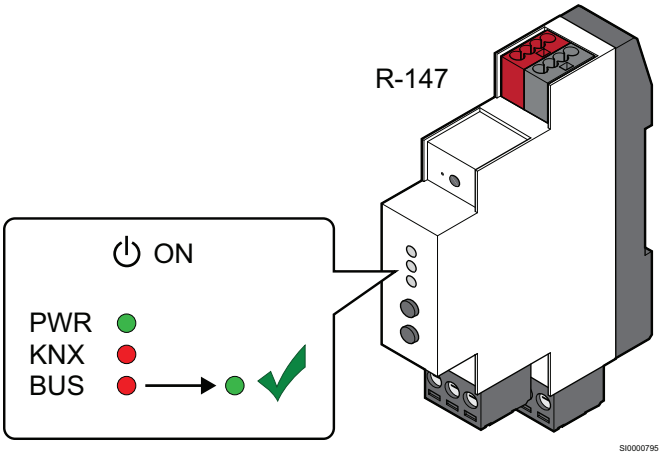
1. Go to the **Integration menu (Main menu > Integration)**.
2. Select **KNX Gateway: Disable.**
3. Push **Enable** to start communication between the interface and the KNX gateway module.

   The **Modbus LED** on the KNX gateway module will become green .



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4 System setup

4.1 Prepare for system setup

Note

You must have basic knowledge and training on the ETS® tool and KNX systems to install the KNX gateway module.

- Make sure that you install KNX gateway module correctly.
  For more information, refer to the chapter "Install KNX gateway module".
- Make sure that the Base PRO system is set up correctly and set the power to ON.
  For more information, refer to the Uponor Smatrix Base/Base PRO installation and operation manual.
- Make sure that you install the KNX system correctly (not yet set up in ETS®) and set the power to ON.
  For more information, refer to the KNX supplier documentation. This documentation is not provided by Uponor.
- Make sure that the PWR (power) and BUS (Modbus) LED is green on the KNX gateway module.
- Record where all Uponor Smatrix Base PRO devices are installed and how they are connected to each other.
- Download and install the ETS® tool (version 5 or higher) on a computer connected to the KNX organisation. This software is provided by the KNX organisation.
- Download the ETS® product data file for Uponor Smatrix Base PRO Gateway Module R-147 KNX from the Uponor website.
  For more information, refer to the chapter "ETS® product data file".
- Find the data point lists for the Base PRO controllers.

4.2 ETS® product data file

To configure the KNX gateway module and the connected Uponor Smatrix Base PRO devices, you must have a product data file.

1. Download the product data file from the Uponor website: (http://www.uponor.com/smatrix/knx).
2. Load the product data file into the ETS® tool.

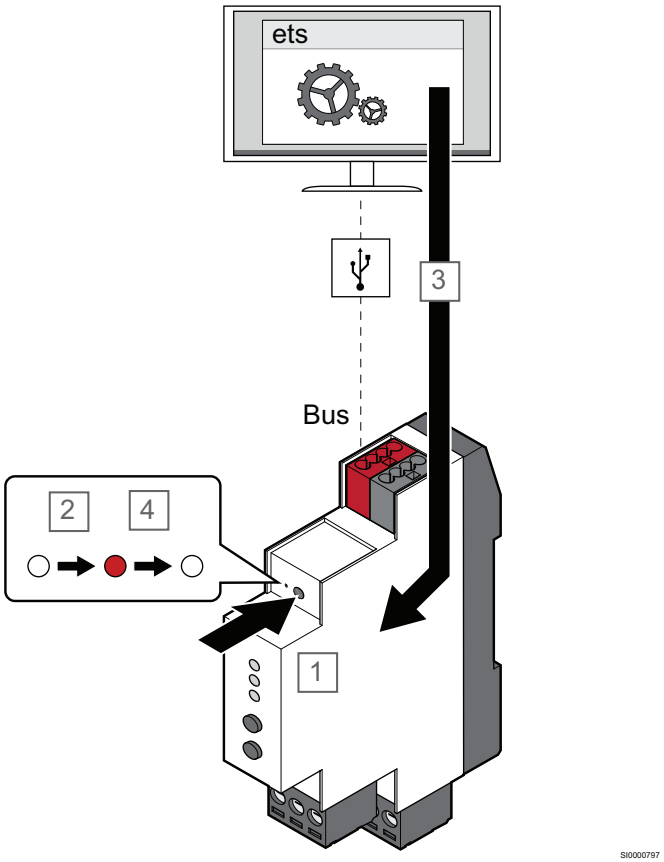
4.3 Assign ETS® address to KNX gateway module

Caution!

Do not disconnect the KNX gateway module from the power source when the KNX LED is flashing red. The flashing LED shows the module is receiving data. Disconnecting it can cause configuration problems with the controllers on the Modbus side.

Note

Before you do the following steps, make sure that no other KNX device is in programming mode.



1. Push the programming button on the KNX gateway module using a pointed object. This puts the module into programming mode.
2. The programming LED shows red.
3. Start the ETS® tool. Add the KNX gateway module to the topology, and assign an unique ETS® address to it.
4. When the ETS® address is assigned succesfully, the programming LED goes off.

4.4 Setting up a system

ETS® Tool

To let the Uponor Smatrix Base PRO system to communicate with the KNX bus, you must program the KNX gateway module using the ETS® tool.

The ETS® tool is a software provided by the KNX organisation. You must install and run it on a computer that is connected to the KNX bus.

ETS® configuration flags

Caution!

If you set an invalid configuration flag, the KNX gateway module can give an ETS® configuration alarm. An invalid configuration flag is a flag that the system does not support, or a flag that you cannot put together with other flags (for example, TRANSMIT and WRITE without READ ON INIT).

Do not change the configuration flags from default settings when you program the system with the ETS® tool, unless it is necessary.

For more information, refer to chapter "Data point lists" and chapter "Troubleshooting".

Changes to settings in touch screen interface

When you enable the KNX gateway module in the touch screen interface, the system changes the following settings by default:

- All ECO setback values are set to 0 °C.
- Cooling offset is set to 0 °C.

These changes limit the Forced ECO function and the setpoint offset when the system changes to cooling mode. The system changes these settings to prevent possible problems in the touch screen interface. A problem can occur if the KNX system sends a setpoint (for example, from a Building Management System (BMS)).

The system can still work in a different way. This depends on the type of thermostats you use and how you set the configuration flags in the ETS® tool.

Move PRO controller

Caution!

If you use a BMS to set the heating/cooling curve offset for a zone, set the BMS to send the setpoint data in a cycle, even if the value does not change. If the BMS does not send the value in a cycle, set the configuration to **Read ON INIT**. This helps the system to recover fast after startup.

Default ETS® configuration flag settings

The ETS® configuration flags for each available zone in the Move PRO controller are set to default as follows:

- The supply temperature data point is set to COMMUNICATION and TRANSMIT. This lets the thermostat to send the supply temperature to other devices in the KNX system.
- The heating and/ cooling curve offset data points are set to COMMUNICATION and WRITE. This lets the heating and/ cooling curve offset values to be overwritten by other devices in KNX system.

Uponor thermostats

Caution!

If you use a BMS to set the setpoints for Uponor thermostats, Uponor recommends that you change the data point flag to WRITE and change the setting to send setpoint data in a cycle.

Default ETS® configuration flag settings

Caution!

When you use analogue Uponor thermostats/sensors (T-141, T-143, T-144, and T-145), the BMS cannot change the thermostat setpoints. If the BMS tries to overwrite them, the setpoints will go to the initial analogue settings. Even if the override option in interface I-147 is active, the BMS cannot change the thermostat setpoints.

Do not use the Uponor T-141 sensor because its setpoint cannot be changed.

The ETS® configuration flags for an Uponor thermostat are set to default as follows:

- The setpoint is set to COMMUNICATION and TRANSMIT. This lets the thermostat to send the setpoint and other values to other devices in the KNX system.

Actuator (channel) settings in the ETS® tool

Make sure that each controller parameter in the ETS® tool is set to **“Use with actuator X”** (X = controller channel number) refers to an actuator that is set to **“Activated, Uponor thermostat”.**

If one Uponor thermostat controls more than one actuator, set only the actuator with the lowest index number to “Activated, Uponor thermostat”. The system will operate correctly. Set all other actuator zone settings in the controller to connect the thermostat to the correct actuator channels.

If the KNX gateway module cannot communication with an Uponor controller, all actuator (channel) data points in the KNX will show OFF. The physical status of the actuator (channel) does not not change.

KNX thermostats

Caution!

If you use KNX thermostats, use thermostats that can send the setpoint and room temperature at regular time intervals, even if the value do not change. If this is not possible, set the setpoint configuration flag to **Read ON INIT**. This helps the system to recover fast after startup.

Caution!

If you use a KNX sensor that cannot change the setpoint and the data point flag is set to READ, then you must set the setpoint on the Base PRO touch screen.

Default ETS® configuration flag settings

The ETS® configuration flags for a KNX thermostat are set to default as follows:

- The setpoint is set to COMMUNICATION and WRITE (except the actuator status which is set to COMMUNICATION and TRANSMIT). This lets the thermostat setpoint values to be overwritten by other devices in KNX system.

Actuator (channel) settings in the ETS® tool

Make sure that each controller parameter in the ETS® tool is set to **“Use with actuator X”** (X = controller channel number) refers to an actuator that is set to **“Activated, KNX thermostat”.**

Cooling offset and Forced ECO

Using only Uponor thermostats in a system (default flag settings)

In this setup, only Uponor thermostats are used. All ETS® configuration flags are set to thier default values. Setpoints are sent to the controller and touch screen interface. The touch screen interface then sends them to the KNX bus through the KNX gateway module.

Forced ECO and Cooling offset can be activated and used without limitations in the Uponor system. To activate these functions, make sure all ECO setback values and Cooling offset are set to default or other preferred values.

To enable Forced Cooling from the KNX bus, set the **Operating mode** parameter **(Main menu > Heating/Cooling > Operating mode)** and in the touch screen interface set to **H/C Master.**

Using only KNX thermostats in a system (default flag settings)

In this setup, only KNX thermostats are used. All ETS® configuration flags are set to thier default values. Setpoints are sent to the controller and touch screen interface. The touch screen interface then sends them to the KNX bus through the KNX gateway module.

Forced ECO and Cooling offset are not active in the Uponor system. The setpoint adjusted for Forced ECO or Cooling offset must come from the KNX bus (for example, from a BMS).

Using only KNX thermostats, or a mixture of Uponor and KNX thermostats, in a system with Cooling offset activated (requires changed flag settings)

In this setup, only KNX thermostats or a mixture of Uponor and KNX thermostats are used. Cooling offset is activated in the Uponor system. To keep setpoint correct, change the KNX thermostat ETS® configuration flags for setpoints from WRITE to TRANSMIT. Setpoints are sent from the controller and touch screen interface to the KNX bus through the KNX gateway module.

Cooling offset (not Forced ECO) can be active in the Uponor system without limits. To activate this function, make sure the settings are at default values or other preferred values.

Forced ECO and Cooling offset in a system is controlled by a BMS (requires changed flag settings)

Caution!

Do not use analogue Uponor thermostats (T-141, T-143, T-144, and T-145) in this setup.

A BMS cannot overwrite the setpoints of analogue thermostats. The thermostats will go to their initial analogue settings. This can cause errors in the Uponor controller and the system works incorrectly. If the override function is active in interface I-147, the BMS cannot change the thermostat setpoints.

In this setup, Forced ECO and Cooling offset are controlled by a BMS. If any Uponor thermostats are used, set the ETS® configuration flags for setpoints to WRITE. Do not change the ETS® configuration flags for any KNX thermostats. Setpoints come to the controller and touch screen interface from the KNX bus through the KNX gateway module.

Forced ECO and Cooling offset are not active in the Uponor system. The setpoint adjusted for Forced ECO or Cooling offset must come from the KNX bus (for example, from a BMS).

5 Data point lists

Uponor provides default configuration flags in the product data file. Usually, it is not necessary to change these settings.

X shows the default setting and white background shows a supported flag setting.

General parameters				Configuration flags, group objects					
Data point	**Description**	**ID**	**KNX data type**	**C**	**T**	**W**	**R**	**U**	**ROL**
Outdoor temperature	Measured outdoor temperature	1	DPT_Value_Temp	X	X				
Forced ECOData point	System setback control	2	DPT_HVACMode	X	1)	X1)			
Operating Mode (Auto/H/C)	Heating/Cooling control	3	DPTHVACContrMode	X	1)	X1)			
Controller pump/boiler status	Relay status: • 0 = Open • 1 = Closed	63, 112, 3), 749, 798	DPT_Switch	X	X				

General parameters				Configuration flags, group objects					
Data point	**Description**	**ID**	**KNX data type**	**C**	**T**	**W**	**R**	**U**	**ROL**
Circuit 1, supply temperature	Measured supply temperature	4	DPT_Value_Temp	X	X				
Circuit 1, heating curve offset	Heating curve offset	5	DPT_Value_Temp	X	1)	X1)			
Circuit 1, cooling curve offset	Cooling curve offset	6	DPT_Value_Temp	X	1)	X1)			
Circuit 2, supply temperature	Measured supply temperature	7	DPT_Value_Temp	X	X				
Circuit 2, heating curve offset	Heating curve offset	8	DPT_Value_Temp	X	1)	X1)			
Circuit 2, cooling curve offset	Cooling curve offset	9	DPT_Value_Temp	X	1)	X1)			
Circuit 3, supply temperature	Measured supply temperature	10	DPT_Value_Temp	X	X				
Circuit 3, heating curve offset	Heating curve offset	11	DPT_Value_Temp	X	1)	X1)			
Circuit 3, cooling curve offset	Cooling curve offset	12	DPT_Value_Temp	X	1)	X1)			
Circuit 4, supply temperature	Measured supply temperature	13	DPT_Value_Temp	X	1)				
Circuit 4, heating curve offset	Heating curve offset	14	DPT_Value_Temp	X	1)	X1)			

Room parameters (X = 1–16, Y = 1–12)				Configuration flags, group objects					
Data point	**Description**	**ID**	**KNX data type**	**C**	**T**	**W**	**R**	**U**	**ROL**
Uponor Room X.Y temperature	Measured room temperature		DPT_Value_Temp	X	X				
Uponor Room X.Y temperature	Room setpoint temperature		DPT_Value_Temp	X	X2)	2)			
Uponor Room X.Y actuator4)	Actuator status: • 0 = Open • 1 = Closed	15	DPT_BinaryValue	X	1)				
Uponor Room X.Y relative humidity	Measured relative humidity level (%)		DPT_Value_Humidity	X	X				
KNX Room X.Y temperature	Measured room temperature		DPT_Value_Temp	X		X			
KNX Room X.Y set point	Room setpoint temperature		DPT_Value_Temp	X	2)	X2)			
KNX Room X.Y actuator4)	Actuator status: • 0 = Open • 1 = Closed	15 - 797	DPT_BinaryValue	X	X				
KNX Room X.Y relative humidity	Measured relative humidity level (%)		DPT_Value_Humidity	X		X			

1) Do not use the TRANSMIT and WRITE flags together. This causes an error in the KNX gateway module unless the **READ ON INIT** flag is set.

2) Do not use the TRANSMIT and WRITE flags together unless the **READ ON INIT** flag is set.

3) The IDs for each controller, in order, are: 63, 112, 161, 210, 259, 308, 357, 406, 455, 504, 553, 602, 651, 700, 749, 798.

4) “Actuator” means the controller channel. Channel 1 and channel 2 control two actuators in parallel.

Available ETS® configuration flags

Caution!

Setting an invalid configuration flag causes an ETS® configuration alarm in the KNX gateway module. An invalid configuration flag is one that the system does not support or one that you cannot use with other flags (for example, TRANSMIT and WRITE without READ ON INIT).

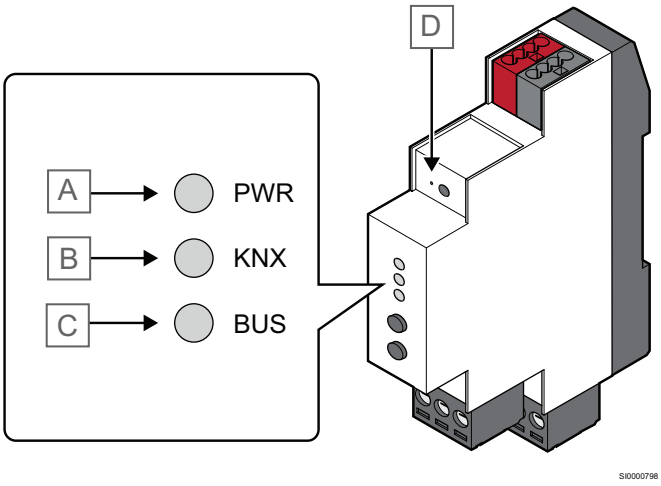
For more information, refer to the chapter "Troubleshooting".

Flag		Description
COMMUNICATION	C	Allows the KNX gateway module to communicate with the data point. Activate this function when the data point is in use.
TRANSMIT	T	Allows the KNX gateway module to send Base PRO data points to the KNX bus.
WRITE	W	Allows the KNX gateway module to write KNX data points to Base PRO system bus.
READ	R	Allows the KNX gateway module to read requests from other device data points.
UPDATE	U	Allows the KNX gateway module to overwritte a data point after sending a READ or READ ON INIT request to another data point.
READ ON INIT	ROI	Allow the KNX gateway module to send a READ ON INIT request for data points on the KNX bus.

6 Troubleshooting

6.1 KNX gateway module LEDs

Uponor recommends that you must check the LED status on the KNX gateway module regularly for the alarms.



Item	Description
A	Power LED
B	KNX LED
C	Modbus LED
D	Programming LED

The table below shows the LED status of the KNX gateway module.

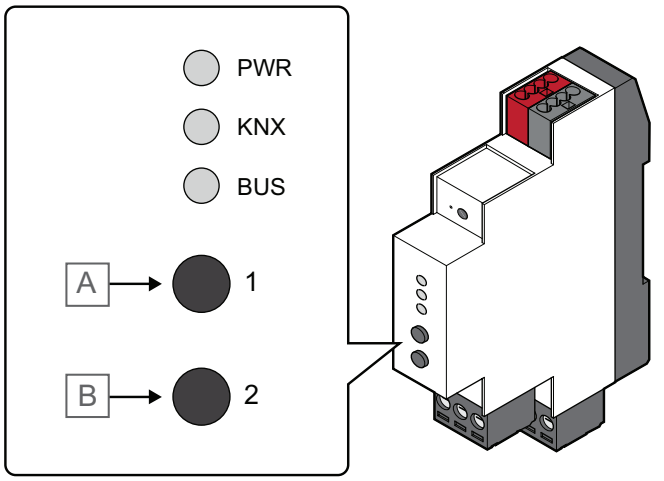
Item	LED	Status
Power	Red ON	The software starts after the power supply is ON
	Green ON	KNX gateway module is ready
KNX	Red ON	Error/software starts after the power supply is ON
	Green ON	KNX gateway module is connected and configured through KNX
	Red or Green flashing	The system gets data through KNX bus
Modbus	Red ON	Error/software starts after the power supply is ON
	Green ON	KNX gateway module is connected and enabled through Modbus
	Red or Green flashing	The system gets data through Modbus
Programming	Red ON	KNX gateway module is in programming mode
	OFF	KNX gateway module is not in programming mode

6.2 KNX gateway module error codes

If the KNX gateway module has an error during normal operation, the bus LED (KNX and/ Modbus) changes to red.

To get more information about the error, push the button then the LED flashes green. The number of flashes shows the error code. If the module has more than one error, the LED shows only the first error. You must correct each error one by one. The LED shows green again when all errors are corrected.

For more information refer to chapter "LED Error codes".



Item	Description
A	KNX
B	Modbus

6.3 Resetting the KNX gateway module

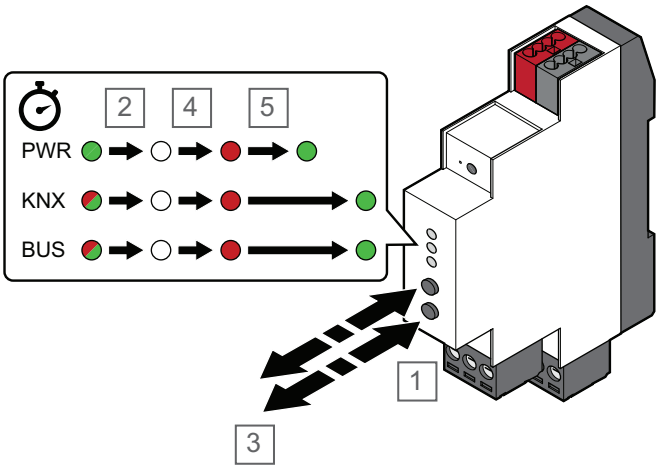
Note

A flashing LED shows the KNX gateway module gets data through Modbus and/ KNX.

If the KNX gateway module does not work as correctly or shows an error, reset the module.

When you reset the KNX gateway module, it gets the configuration from the KNX bus and sends it to the Base PRO controllers. This step removes any faults caused by incorrect configuration.

For more information, refer to the chapter "LED Error codes".



1. Push and hold buttons 1 and 2 for at least 10 seconds.
2. All LEDs goes off.
3. Release buttons 1 and 2.
4. All three LEDs becomes red and the KNX gateway module restarts.
5. The power LED changes from red to green after a few seconds.

6.4 LED error codes

KNX error codes

The table below shows error KNX error codes. A common cause of an error can be incorrect wiring.

Error code	Description	Cause	Solution
1	Get ETS® configuration	The KNX gateway module has not received configuration from the ETS® tool.	Make sure that the KNX gateway module is installed correctly and it has been programmed with the ETS® tool. If the error continues, do a hard reset of KNX gateway module. For more information, refer to ther chapter "Resetting the KNX gateway module".
2	Invalid ETS® flag	An invalid manual configuration flag has been set on KNX group objects in ETS®.	Make sure that all manual configuration flags on KNX group objects in ETS® are correct. Example: Activated data points which are only readable from KNX must have READ or TRANSMIT flags set. If multiple changes were made in ETS® before the error occured, Uponor recommends to remove all COMMUNICATION flags from the related group objects. Then, add them one by one until the error reappears. For more information, refer to the chapter "System setup".
3	Incorrect ETS® actuator configuration	A parameter setting for actuator control is incorrect in ETS®.	**When using KNX thermostats** Make sure that each controller parameter in the ETS® tool is set to **“Use with actuator X”** (X = controller channel number) refers to an actuator that is set to **“Activated, KNX thermostat”**. **When using Uponor thermostats** Make sure that each controller parameter in the ETS® tool is set to **“Use with actuator X”** (X = controller channel number) refers to an actuator that is set to **“Activated, Uponor thermostat”**. If one Uponor thermostat controls more than one actuator, set only the actuator with the lowest index number to "Activated, Uponor thermostat". The system will operate correctly. Set all other actuator zone settings in the controller to connect the thermostat to the actuator channels.
4	Occupied thermostat channel	A KNX thermostat is registered on the same channel as an Uponor thermostat.	Make sure that the Uponor thermostat is not registered to a channel used by a KNX thermostat. Unregister the Uponor thermostat from the controllers or reprogram the KNX thermostat to a new channel by using the ETS® tool. If the error continues, do a hard reset of the KNX gateway module. For more information, refer to the chapter "Resetting the KNX gateway module".
5	Slave channel not available	A KNX thermostat is registered to a channel on an slave module that is not available.	Make sure that the controller has a slave module installed. The controller has only 6 channels as standard. If no slave module is installed, register the KNX thermostat to different channel in the ETS®.
6	KNX Thermostat lost	The KNX thermostat has timed out—no data has been received by the KNX gateway module for over 6 hours.	Make sure that the KNX thermostats are connected to the KNX bus. Make sure that the parameter settings for the KNX thermostats in the ETS® are correct. Make sure that the thermostats are set to send room temperature at regular intervals, if supported. If not, decrease the temperature deviation at which a new value is transmitted on the KNX bus.

Modbus error codes

The table below shows Modbus error codes. A common cause of an error can be incorrect wiring.

Error code	Description	Cause	Solution
1	KNX gateway module and Base PRO Master controller error	The KNX gateway module has not received signal from the master controller for a period of time.	Make sure that the master controller is connected to a power source.
			Make sure that a touch screen interface is registered to the master controller.
			Make sure that the Modbus connectors on the master controller and the KNX gateway module are connected and wired correctly.
2	Touch screen interface configuration error	The KNX gateway module has not received signal from the touch screen interface for a period of time.	Make sure that the KNX gateway module is in active in the touch screen interface. For more information, refer to the chapter "Enable the KNX gateway module in the interface I-147".
		The KNX bus sent a cooling request to the KNX gateway module, but cooling is not set correctly in the touch screen interface.	Make sure that the Operating mode parameter setting **(Main menu > Heating/Cooling > Operating mode)** is set to **H/C Master.**
3	Restarting controller	An Uponor controller restarted but has communicated with the KNX gateway module yet.	The alarm resets automatically when the KNX gateway module connects with the Uponor controller after it start again. The duration changes based on the number of Uponor controllers in the system. If the alarm stays: 1. Make sure that all Uponor controllers power is set to ON in the system. 2. Do a hard reset of KNX gateway module. For more information, refer to the chapter "Resetting the KNX gateway module". 3. Make sure that the number of Uponor controllers configured in the ETS® tool aligns the actual number of controllers installed in the system.
4	Base PRO touch screen interface and controller communication error	The Base PRO touch screen interface has not received signal from the controller for a period of time.	Make sure that all Uponor controllers power is set to ON in the system.
			Do a hard reset of KNX gateway module. For more information, refer to the chapter "Resetting the KNX gateway module".
			Make sure that the number of Uponor controllers configured in the ETS® tool aligns the actual number of controllers installed in the system.
5	Base PRO touch screen interface and Move PRO controller communication error	The Base PRO touch screen interface has not received signal from the Move PRO controller for a period of time.	Make sure that the Move PRO controller power is set to ON.
			Examine the Move PRO controller Modbus wiring.
6	KNX gateway module and Base PRO controller communication error	The KNX gateway module has not received signal from the controller for a period of time.	Make sure that all Uponor controllers power is set to ON in the system.
			Do a hard reset of KNX gateway module. For more information, refer to the chapter "Resetting the KNX gateway module".
7	KNX gateway module and Move PRO controller communication error	The KNX gateway module has not received signal from the Move PRO controller for a period of time.	Make sure that the Move PRO controller power is set to ON.
			Examine the Move PRO controller Modbus wiring.
8	KNX configuration of Uponor controller	The KNX gateway module has been programmed with the ETS® tool and all available Uponor controllers receive the updated KNX configuration. One or more available Uponor controllers have restarted. A restart causes the KNX configuration to be transmitted to all connected devices.	Make sure that all Uponor controllers power is set to ON in the system.
			Do a hard reset of KNX gateway module. For more information, refer to the chapter "Resetting the KNX gateway module".
			Examine the KNX bus for errors related to the Uponor controllers.

7 Technical data

7.1 Technical data

Item	Value
IP	IP20 (IP: degree of inaccessibility to active parts of the product and degree of water)
Operating temperature	-5 °C to +45 °C
Storage temperature	-25 °C to +70 °C
Relative humidity (non-condensing)	5 % to 93 %
Weight	55 g
CE marking	
EAC marking	
Tests according to	Low Voltage Directive 2014/35/EU
	EMV Directive 2014/30/EU
	RoHS Directive 2011/65/EU
	EN 50581: 2012
	EN 50491-5-1: 2010
	EN 50491-5-2: 2010
	EN 50491-5-3: 2010
	EN 61000-6-2: 2005
	EN 61000-6-3: 2007 + A1: 2011

KNX

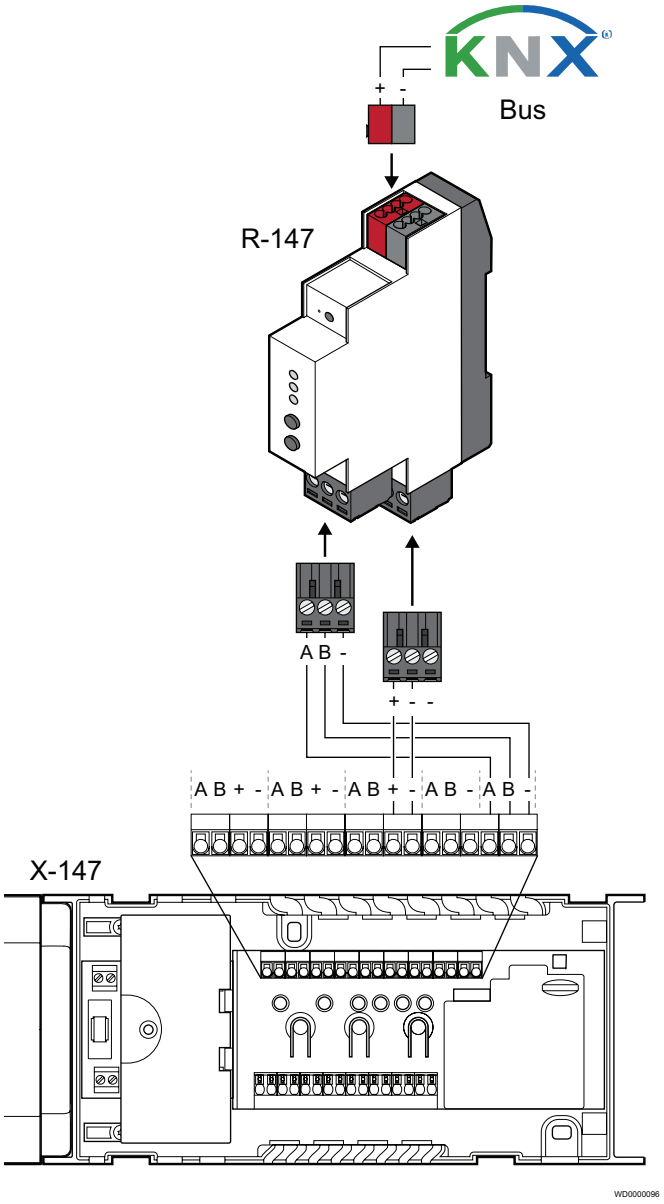
Item	Value
KNX connection	29 V DC
KNX bus current consumtion	10 mA
Compatible with ETS®	ETS® version 5 (or higher)

Modbus

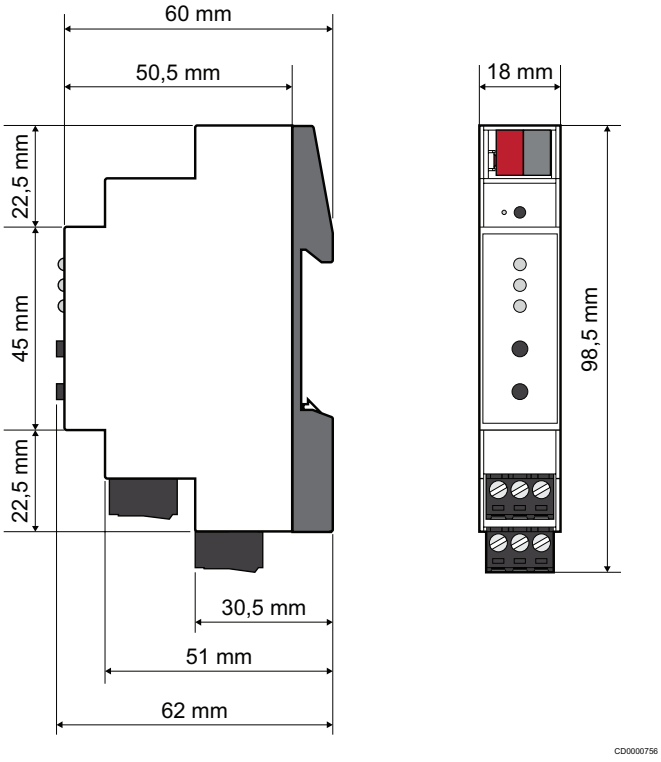
Item	Value
Power supply	5 V DC from controller thermostat bus
Modbus connection	A, B, – on controller system bus

http://www.uponor.com/ce-compliance

7.2 Wiring diagram



7.3 Dimensions



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