SmartX Controller

RP-C-EXT-KNX

Reference Guide

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August 2020

Life Is On Schneider Electric

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Contents

Introduction

Reference

Introduction

The Introduction part contains information on the purpose of this guide, how this guide is organized, where to find more information, and information on safety.

1 About This Guide

Topics

1.1 Purpose of This Guide

This guide provides information about the KNX Modbus gateway RP-C-EXT-KNX. This information is intended to help you understand how to use the hardware, how to configure the device using the Engineering Tool Software (ETS) database, and how to import the configuration to EcoStruxure Building Operation WorkStation.

1.2 How This Guide is Organized

This EcoStruxure Building Guide is divided into the following parts:

Introduction

The Introduction part contains information on the purpose of this guide, how this guide is organized, where to find more information, and information on safety.

Reference

The Reference part contains conceptual information, procedures, user interface descriptions and troubleshooting information. If you want more information, see WebHelp or the other EcoStruxure Building guides.

1.3 Safety Information

Read this information carefully and look at the equipment to become familiar with the device before trying to install, operate, service or maintain it.

1.3.1 Important Information

The following special messages may appear throughout this bulletin or on the equipment to warn of potential hazards or to call attention to information that clarifies or simplifies a procedure.

The addition of either symbol to a “Danger” or “Warning” safety label indicates that an electrical hazard exists which will result in personal injury if the instructions are not followed.

This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

⚠ DANGER

DANGER indicates a hazardous situation which, if not avoided, **will result in** death or serious injury.

⚠ WARNING

WARNING indicates a hazardous situation which, if not avoided, **could result in** death or serious injury.

⚠ CAUTION

CAUTION indicates a hazardous situation which, if not avoided, **could result in** minor or moderate injury.

NOTICE

NOTICE is used to address practices not related to physical injury.

Please Note

Electrical equipment should be installed, operated, serviced, and maintained only by qualified personnel. No responsibility is assumed by Schneider Electric for any consequences arising out of the use of this material.

A qualified person is one who has skills and knowledge related to the construction, installation, and operation of electrical equipment and has received safety training to recognize and avoid the hazards involved.

1.3.2 Cybersecurity Safety Notice

NOTICE

POTENTIAL COMPROMISE OF SYSTEM AVAILABILITY, INTEGRITY, AND CONFIDENTIALITY

- Change default passwords at first use to help prevent unauthorized access to device settings, controls, and information.
- Disable unused ports/services and default accounts to help minimize pathways for malicious attackers.
- Use cybersecurity best practices (for example, least privilege, separation of duties) to help prevent unauthorized exposure, loss, modification of data and logs, or interruption of services.

Failure to follow these instructions can result in loss of data or equipment damage.

2 Additional Information

Topics

Where to Find Additional Information

2.1 Where to Find Additional Information

All the technical EcoStruxure BMS information is available online, on WebHelp.

WebHelp is a web-based help system for the EcoStruxure Building Operation software and SmartX devices, the software and hardware that powers the EcoStruxure BMS.

By pressing F1 or clicking a Help button in the EcoStruxure Building Operation software your web browser opens WebHelp with the latest, up-to-date, technical documentation.

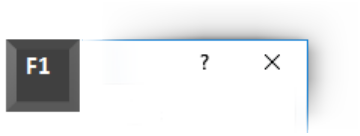


Figure: Help in EcoStruxure Building Operation software

Some EcoStruxure Building Operation software products give you context-sensitive help by opening a WebHelp page that explains the view or dialog box you have in focus. Some programs open up an overview page. From these pages, you can follow the links to get more detailed information.

WebHelp contains all the technical information that is in the guides, specification sheets, and installation sheets.

The WebHelp site

One of the advantages with WebHelp is that you can reach Help without having the EcoStruxure Building Operation software installed on your computer. By entering the URL address help.sbo.schneider-electric.com you can access WebHelp from any computer, smartphone, or tablet connected to the internet.

Finding information

The easiest way to find information on WebHelp is to search for it.

Figure: Home page search

All technical information is gathered in one place, so you do not need to know which guide, specification sheet, or installation sheet the information is in.

Filtering the information

To narrow down the search results, you can use these filters:

- Product
- Functionality
- Information type

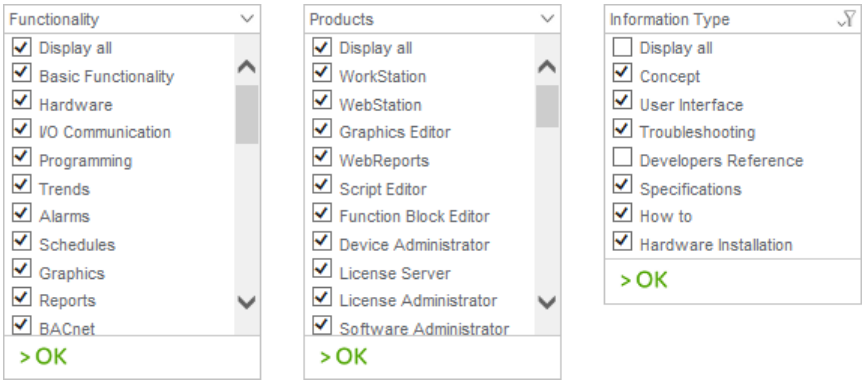


Figure: Search filters

Reference

The Reference part contains conceptual information, procedures, user interface descriptions and troubleshooting information. If you want more information, see WebHelp or the other EcoStruxure Building guides.

3 RP-C-EXT-KNX Hardware

Topics

3.1 KNX Modbus Gateway RP-C-EXT-KNX

The KNX Modbus gateway RP-C-EXT-KNX connects to the RP-C room controllers and provides an interface between the controller and KNX devices such as push-buttons, sensors, and control units for lights, blinds, and room temperature.

The KNX Modbus gateway allows bi-directional control and monitoring of all parameters and functions of the connected KNX devices. Up to 250 KNX data points (10 KNX devices) can be connected to the KNX Modbus gateway.

The KNX Modbus gateway is a Modbus to KNX interface that connects to one of the RP-C controller's configurable RS-485 ports. The Modbus RTU protocol is used for the communication between the RP-C controller and the KNX Modbus gateway. The RP-C controller acts the Modbus master and the KNX Modbus gateway as a slave. The RP-C controller also provides 24 VDC power supply to the KNX Modbus gateway through the RS-485 interface. Maximum one KNX Modbus gateway can be connected to each RP-C controller.

The KNX Modbus gateway provides a galvanic isolation between the RP-C Modbus network and the KNX bus. The KNX Modbus gateway can be used with a standard Schneider Electric KNX power supply to power the KNX devices on the KNX bus.

The KNX Modbus gateway can be programmed through ETS© for installation, configuration, and commissioning of KNX devices. The assignment between KNX objects and Modbus registers is configured in ETS. The completed configuration in ETS is exported to a JSON file, which is then imported into the EcoStruxure Building Operation software to create the Modbus input and output points for the Modbus device proxy object (representation of the KNX Modbus gateway). For more information, see section 5.1 “ETS and the KNX Modbus Gateway” on page 79.

The KNX Modbus gateway is designed for installation on a DIN rail.

The KNX Modbus gateway has two push-buttons and three LEDs on the front to enable local operation of the device and status indication.

Figure: KNX Modbus gateway RP-C-EXT-KNX

3.1.1 RP-C Modbus

The RP-C Modbus network allows standard Modbus devices and the KNX Modbus gateway (RP-C-EXT-KNX) to be connected to the controller.

For more information, see section 3.2 “RP-C Modbus” on page 30.

3.1.2 KNX Modbus Gateway Screw Terminals and Connector

The KNX Modbus gateway (RP-C-EXT-KNX) is equipped with two 3-position pluggable screw terminal blocks for connection to the RP-C Modbus (RS-485) network and a 2-pole PCB connector for connection to the KNX bus.

For more information, see section 3.3 “KNX Modbus Gateway Screw Terminals and Connector” on page 33.

3.1.3 KNX Modbus Gateway LEDs

There are three LEDs on the front of the KNX Modbus gateway (RP-C-EXT-KNX) and one LED above the front. The LEDs indicate different types of status and modes.

For more information, see section 3.4 “KNX Modbus Gateway LEDs” on page 35.

3.1.4 KNX Modbus Gateway Buttons

There are two push-buttons on the front of the KNX Modbus gateway (RP-C-EXT-KNX) and one button above the front. The buttons are used to activate or deactivate various modes.

For more information, see section 3.5 “KNX Modbus Gateway Buttons” on page 38.

3.1.5 KNX Modbus Gateway Programming Mode

When the KNX Modbus gateway (RP-C-EXT-KNX) is in programming mode, you can assign an individual address to the device on the KNX bus.

For more information, see section 3.6 “KNX Modbus Gateway Programming Mode” on page 41.

3.1.6 KNX Modbus Gateway Manual Operation Mode

The manual operation mode enables you to perform two types of operations:

- KNX object synchronization
- KNX read operation

For more information, see section 3.7 “KNX Modbus Gateway Manual Operation Mode” on page 42.

3.1.7 KNX Modbus Gateway Device Installation

The KNX Modbus gateway (RP-C-EXT-KNX) is designed for installation on a DIN rail. The width of the device is 1 unit (18 mm or 0.7 inch).

For more information, see section 3.8 “KNX Modbus Gateway Device Installation” on page 43.

3.1.8 Wiring

The wiring recommendations provide guidance regarding wiring of the I/O modules, SmartX servers, SmartX IP Controller devices, and RP Series expansion modules and multi-sensors.

For more information, see the *Wiring* topic on WebHelp.

3.1.9 KNX Modbus Gateway Regulatory Compliance and Approvals

This section provides information on regulatory compliance and approvals for the KNX Modbus gateway (RP-C-EXT-KNX).

For more information, see section 3.11 “KNX Modbus Gateway Regulatory Compliance and Approvals” on page 47.

3.1.10 Specifications

Electrical

DC input supply voltage ..... 24 VDC
..... Powered by the RP-C

Maximum power consumption ..... <0.24 W from the KNX bus
..... <0.24 W from the RP-C

Environment

Ambient temperature, operating ..... -5 °C to +45 °C (23 °F to +113 °F)

Ambient temperature, storage ..... -25 to +70 °C (-13 to +158 °F)

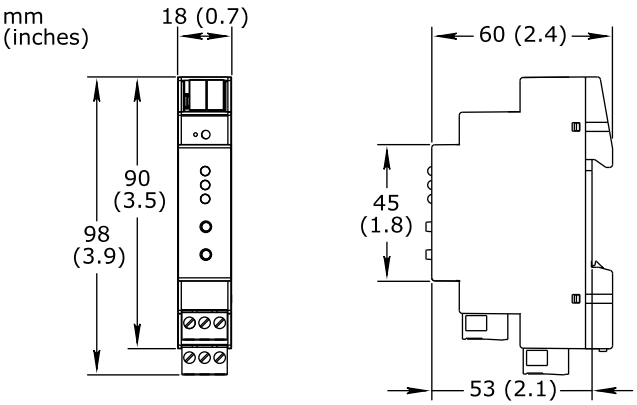
Humidity ..... 5 to 93 % RH non-condensing

Material

Ingress protection rating ..... IP 20

Mechanical

Dimensions ..... 18 W x 90 H x 60 D mm (0.7 W x 3.5 H x 2.4 D in.)



Weight ..... 50 g (1.76 oz)

Installation ..... DIN rail

RP-C Modbus communications

Communication protocol (configurable) ..... Modbus RTU

Electrical interface RS-485
..... Maximum total length of the RP-C Modbus (RS-485) network: 72 m (236 ft)

KNX bus communications

Transmission media ..... Twisted pair (TP)

Maximum APDU length 55
Device model ..... System B

Hardware

CPU type ..... ARM Cortex-M0+ single-core
Frequency ..... 14.7456 MHz
SRAM (embedded) ..... 32 KB
Flash memory (embedded) ..... 256 KB
Status indicator ..... LED (green and red) that shows the KNX communication status
..... LED (green and red) that shows the Modbus RTU communication status
..... LED (green and red) that shows the device mode (operating or programming mode)
..... One LED (red) for programming mode
Buttons ..... One push-button for synchronization of KNX objects (writing all KNX group objects)
..... One push-button for reading all KNX group objects
..... One button for programming mode
Connectors ..... 4-conductor KNX connectors with PUSH WIRE® connection, 2-pole, dark gray/red
Terminal blocks ..... 3-position pluggable screw terminal block for power supply from the RP-C
..... 3-position pluggable screw terminal block for Modbus communication with the RP-C
..... Wire cross-sectional area: 0.34 to 2.5 mm^2 (22 to 14 AWG)

3.2 RP-C Modbus

The RP-C Modbus network allows standard Modbus devices and the KNX Modbus gateway (RP-C-EXT-KNX) to be connected to the controller.

For the KNX Modbus gateway, the RP-C controller provides both 24 VDC power supply and communications through the Modbus network connection.

For standard Modbus devices, a separate power supply unit (PSU) is needed to power the Modbus devices on the network.

The Modbus RTU protocol is used for the communication. The RP-C controller acts the Modbus master and the connected devices act as slaves.

The Modbus communication parameters can be freely configured regardless of which RS-485 port on the RP-C controller that is used for the Modbus network. For more information, see the *RP-C Communication Ports* topic on WebHelp.

The maximum total length of the Modbus (RS-485) network is 72 m (236 ft). The Modbus network uses a Cat 5 (or higher) unshielded, straight-through wired cable with eight conductors (four twisted pairs) and RJ45 connectors. The wire size (cross-sectional area) should be 22 to 26 AWG (0.34 to 0.14 mm²). When the RP-C controller is installed in a space that handles conditioned air or return air, the Modbus network cables and IP network cables frequently must be plenum-rated to meet applicable building codes. For more information, see the *Wiring* topic on WebHelp.

NOTICE
LOSS OF COMMUNICATION • Ensure that the total length of the RP-C Modbus network does not exceed 72 m (236 ft). • Use a Cat 5 or higher unshielded twisted pair cable with eight conductors (four twisted pairs), a cross-sectional area of 22 to 26 AWG (0.34 to 0.14 mm^2), and a rating that meets the requirements of the target environment. **Failure to follow these instructions can result in loss of communication.**

You need to configure which RS-485 (RJ45) port on the RP-C controller to use for the Modbus network. You can configure to use either the Sensor Bus port (RS-485 Com A) or Room Bus port (RS-485 Com B). For more information, see the *RP-C Communication Ports* topic on WebHelp.

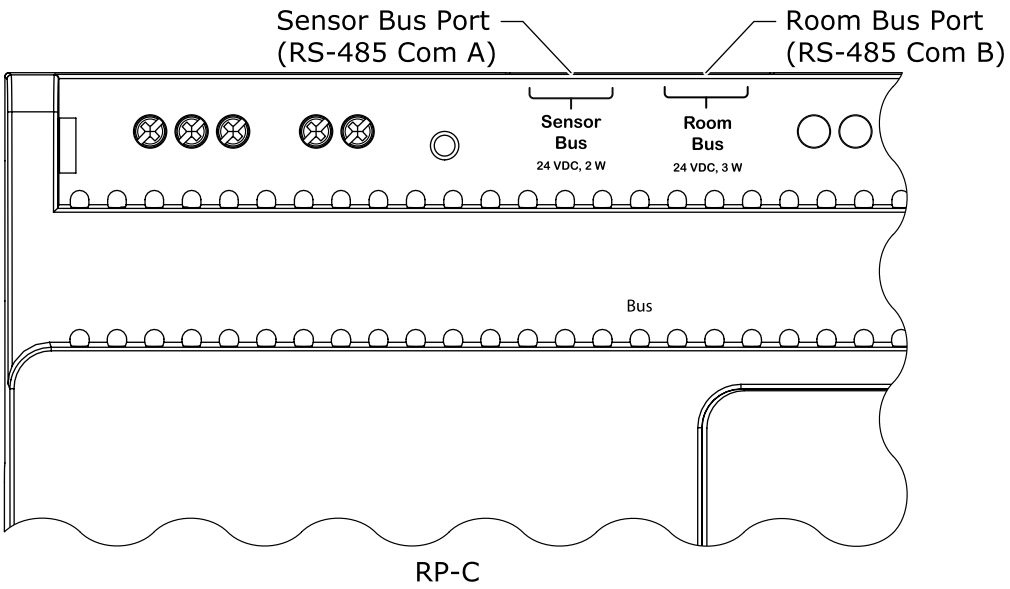


Figure: Location of the Sensor Bus port (RS-485 Com A) and Room Bus port (RS-485 Com B) on the RP-C controllers

The maximum number of Modbus devices that can be connected to an RP-C controller depends on the type of Modbus device and the number of Modbus registers.

The maximum number of Modbus registers that can be connected to and managed by an RP-C controller depends on the communication capacity of the controller's Modbus network.

The RP-C Modbus network supports up to 10 connected Modbus devices with the following restrictions:

- Maximum of one KNX Modbus gateway (RP-C-EXT-KNX)
- Maximum of 250 Modbus registers

  NOTE: The RP-C Modbus network does not support 64-bit Modbus registers.

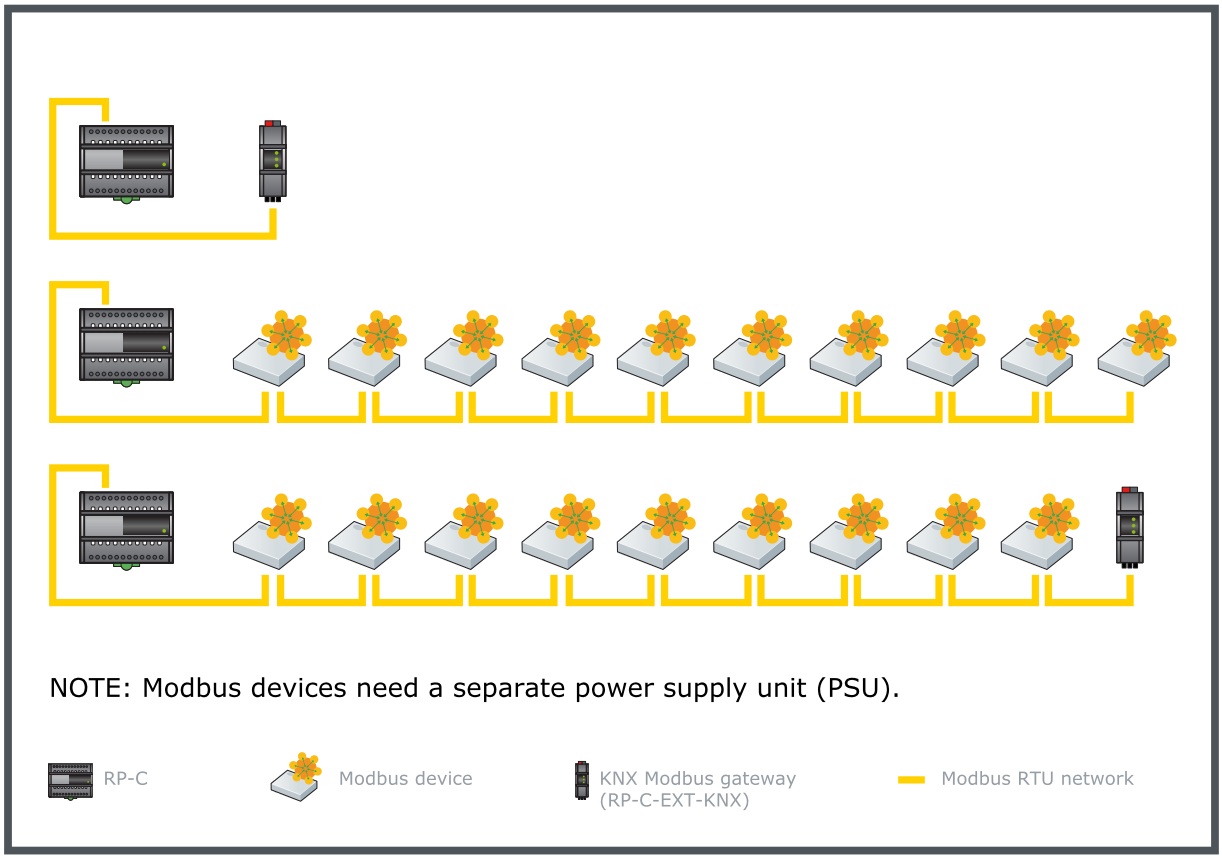


Figure: Examples with one KNX Modbus gateway and several standard Modbus devices connected to an RP-C controller in a daisy-chain configuration

The KNX Modbus gateway has the default Modbus address 1. The address can be configured through the ETS. For more information, see section 5.7 “Configuring the Modbus Device Settings in the KNX Modbus Gateway ” on page 87.

3.3 KNX Modbus Gateway Screw Terminals and Connector

The KNX Modbus gateway (RP-C-EXT-KNX) is equipped with two 3-position pluggable screw terminal blocks for connection to the RP-C Modbus (RS-485) network and a 2-pole PCB connector for connection to the KNX bus.

You need to configure which RS-485 port (RJ45) on the RP-C controller to use for the Modbus network. You can configure to use either the Sensor Bus port or Room Bus port. For more information, see the *RP-C Communication Ports* topic on WebHelp.

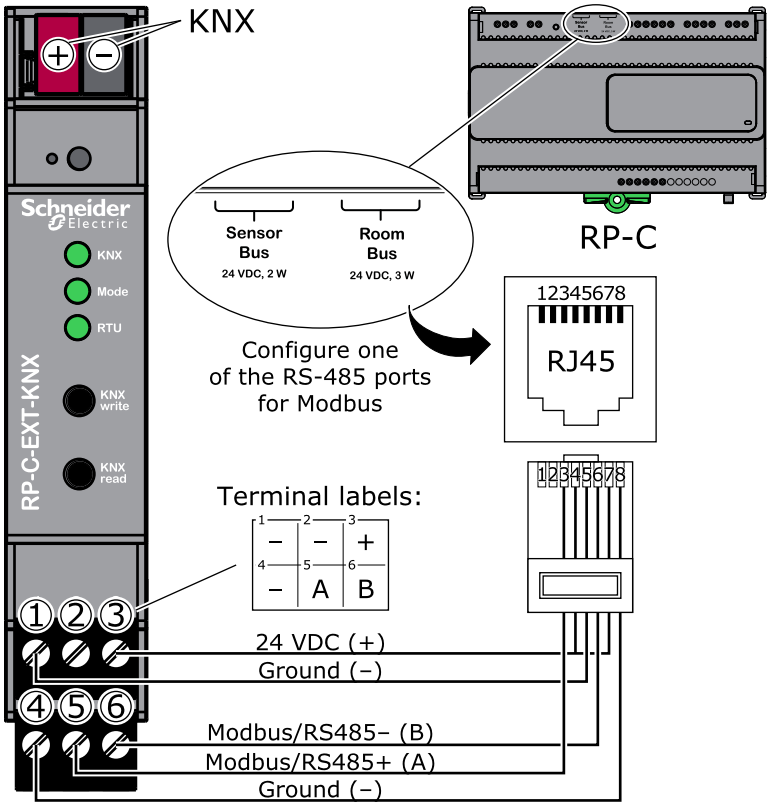


Figure: Screw terminals and connector, KNX Modbus gateway

Screw terminals

The upper and lower screw terminal blocks are used as follows:

- Upper: Power input from the RP-C through the controller's RS-485 port
- Lower: Communication with the RP-C over the controller's Modbus network

Table: Screw Terminals, KNX Modbus Gateway

Terminal number	Designation	Usage	RP-C RS-485 Port RJ45 Pin
Power input			

Continued

Terminal number	Designation	Usage	RP-C RS-485 Port RJ45 Pin
1	–	Ground connection for supply voltage from the RP-C.	5[a]
2	–	Ground connection for supply voltage. Not connected to the RP-C.	-
3	+	Positive connection for supply voltage (24 VDC) from the RP-C.	4, 7
Modbus			
4	–	Ground connection for Modbus communication with the RP-C.	8[a]
5	A	Data line A (RS485+) for Modbus communication with the RP-C.	3
6	B	Data line B (RS485–) for Modbus communication with the RP-C.	6

a) RJ45 pins 5 and 8 are internally connected.

Connector

The KNX Modbus gateway uses a 4-conductor, 2-pole KNX connector for connection to the KNX bus.

Table: Connector, KNX Modbus Gateway

Connector color	Designation	Usage
Red	+	Positive connection to KNX bus
Dark gray	–	Ground connection to KNX bus

3.4 KNX Modbus Gateway LEDs

There are three LEDs on the front of the KNX Modbus gateway (RP-C-EXT-KNX) and one LED above the front. The LEDs indicate different types of status and modes.

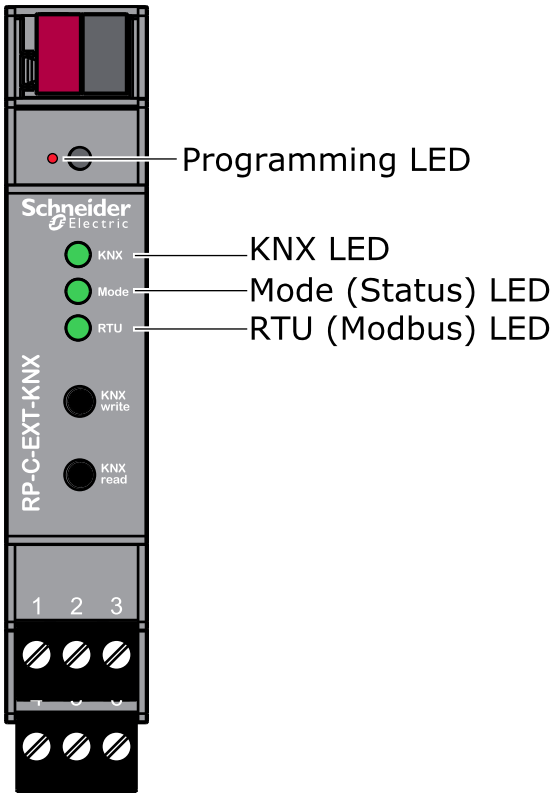


Figure: KNX Modbus gateway LEDs

Table: KNX Modbus Gateway LEDs

Function	Color
Programming	Red
KNX	Green/Red[a]
Mode (Status)	Green/Red[a]
RTU (Modbus)	Green/Red[a]

a) The indicator comprises two LEDs, green and red, in one structure. When both LEDs are switched on at the same time, the colors blend and the result is amber (orange) light.

The LEDs indicate the status of the device, the programming mode, and the status of the KNX and Modbus RTU communication on the KNX bus and RP-C Modbus (RS-485) network respectively.

3.4.1 Programming LED

The Programming LED indicates whether the programming mode is active for the device.

Table: Programming LED Patterns

LED Patterns	Condition	Recommended Action
Red, constant	Programming mode is active	No action required.
No light	Programming mode is not active	No action required.

3.4.2 KNX LED

The KNX LED indicates the status of the data communication on the KNX bus.

Table: KNX LED Patterns

LED Patterns	Condition	Recommended Action
Green, flashing	Transmitting and receiving data (telegrams)	No action required.
No light	No data communication	No action required.

3.4.3 Mode LED

The Mode LED indicates the status of the device.

Table: Mode LED Patterns

LED Patterns	Condition	Recommended Action
Green, constant	Normal operation, status OK.	No action required.
Green, flashing	Configuration parameters and application are currently being downloaded from ETS to the device. When the download is completed, the LED returns to constant green light.	No action required.
Amber, constant	Manual operation mode is active.[a]	No action required.
Red, constant	Programming mode is active.	No action required.

Continued

LED Patterns	Condition	Recommended Action
Red, flashing	Device is not loaded correctly (for example, because an ETS download was interrupted).[b]	Download application from ETS again.
No light	No power supply from the KNX bus connection.	Check the KNX bus connection.

a) Programming mode is not active.
b) Programming mode is not active. Manual operation mode is not active.

3.4.4 RTU LED

The RTU LED indicates the status of the Modbus RTU data communication over the RP-C Modbus (RS-485) network.

Table: RTU LED Patterns

LED Patterns	Condition	Recommended Action
Green, flashing	Transmitting and receiving data	No action required.
No light	No data communication	No action required.

3.5 KNX Modbus Gateway Buttons

There are two push-buttons on the front of the KNX Modbus gateway (RP-C-EXT-KNX) and one button above the front. The buttons are used to activate or deactivate various modes.

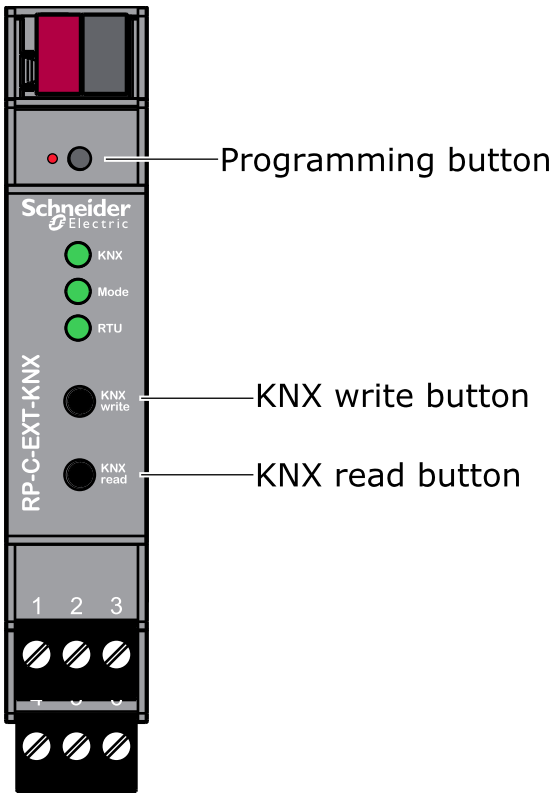


Figure: KNX Modbus gateway buttons

Table: KNX Modbus Gateway Modes

Mode	Description
Programming	Press the Programming button to activate or deactivate the programming mode. For more information, see section 3.6 “KNX Modbus Gateway Programming Mode” on page 41. When the device is in programming mode, the Programming LED and Mode LED are lit red. For more information, see section 3.4 “KNX Modbus Gateway LEDs” on page 35. The programming mode can also be activated or deactivated, without opening the switchboard/enclosure cover, by pressing the KNX write and KNX read buttons at the same time. This use of the KNX write and KNX read buttons to put the device in programming mode can be enabled and disabled in ETS through the **Prog. mode on device front** parameter. For more information, see section 4.1 “ETS Database for the KNX Modbus Gateway” on page 51.
KNX object synchronization (KNX write operation)	Press and hold the KNX write button for more than 2 seconds to synchronize (write) all KNX group objects. For more information, see section 3.7 “KNX Modbus Gateway Manual Operation Mode” on page 42. When the device is in manual operation mode, the Mode LED is lit orange. For more information, see section 3.4 “KNX Modbus Gateway LEDs” on page 35. The synchronization can be cancelled by pressing the KNX write and KNX read buttons at the same time. The use of the KNX write button for synchronization can be enabled and disabled in ETS through the **Manual operation (sync) on device** parameter. For more information, see section 4.1 “ETS Database for the KNX Modbus Gateway” on page 51.

Continued

Mode	Description
KNX read operation	Press and hold the KNX read button for more than 2 seconds to read all KNX group objects. For more information, see section 3.7 “KNX Modbus Gateway Manual Operation Mode” on page 42. When the device is in manual operation mode, the Mode LED is lit orange. For more information, see section 3.4 “KNX Modbus Gateway LEDs” on page 35. The KNX read operation can be cancelled by pressing the KNX write and KNX read buttons at the same time. The use of the KNX read button can be enabled and disabled in ETS through the **Manual operation (sync) on device** parameter. For more information, see section 4.1 “ETS Database for the KNX Modbus Gateway” on page 51.

3.6 KNX Modbus Gateway Programming Mode

When the KNX Modbus gateway (RP-C-EXT-KNX) is in programming mode, you can assign an individual address to the device on the KNX bus.

You put the KNX Modbus gateway in programming mode by either pressing the Programming button or pressing the KNX write and KNX read buttons at the same time. For more information, see section 3.5 “KNX Modbus Gateway Buttons” on page 38.

When the device is in programming mode, the Programming LED and Mode LED are lit red. For more information, see section 3.4 “KNX Modbus Gateway LEDs” on page 35.

If required, the KNX Modbus gateway can be reset to factory default settings. For more information, see section 3.10 “Performing a Factory Reset of the KNX Modbus Gateway ” on page 46.

3.7 KNX Modbus Gateway Manual Operation Mode

The manual operation mode enables you to perform two types of operations:

- KNX object synchronization
- KNX read operation

The manual operation can be used, for example, during the commissioning and configuration process to check that the device configuration is correct.

> **NOTE:** The manual operation can be enabled and disabled in ETS through the **Manual operation (sync) on device** parameter. For more information, see section 4.1 “ETS Database for the KNX Modbus Gateway” on page 51.

KNX object synchronization (KNX write)

The KNX object synchronization affects all channels in the direction to KNX.

The synchronization is performed by a KNX write operation, which means that all channels configured in ETS as Modbus to KNX send their current datapoint values on the KNX bus.

You start the synchronization by pressing and holding the KNX write button for more than 2 seconds. For more information, see section 3.5 “KNX Modbus Gateway Buttons” on page 38.

When the device is in manual operation mode, the Mode LED is lit orange. For more information, see section 3.4 “KNX Modbus Gateway LEDs” on page 35.

The synchronization can be cancelled by pressing the KNX write and KNX read buttons at the same time. For more information, see section 3.5 “KNX Modbus Gateway Buttons” on page 38.

KNX read operation

The KNX read operation affects all channels in the direction to Modbus (RP-C controller).

KNX read means that all datapoints of the channels configured as KNX to Modbus receive the current value from the KNX bus. The Modbus KNX gateway stores the received values and sends them to the RP-C controller (Modbus master) only upon request.

> **NOTE:** For KNX read, ensure that the following **Flags** are configured in the ETS **Settings** for the group objects:
> - For all channels configured as **KNX to Modbus** (inputs): **Communication (C)**, **Write (W)**, **Transmit (T)**, and **Update (U)**.
> - For the KNX devices that shall respond to the read requests: **Communication (C)**, **Read (R)**, and **Transmit (T)**.

You start the read operation by pressing and holding the KNX read button for more than 2 seconds. For more information, see section 3.5 “KNX Modbus Gateway Buttons” on page 38.

When the device is in manual operation mode, the Mode LED is lit orange. For more information, see section 3.4 “KNX Modbus Gateway LEDs” on page 35.

The read operation can be cancelled by pressing the KNX write and KNX read at the same time. For more information, see section 3.5 “KNX Modbus Gateway Buttons” on page 38.

3.8 KNX Modbus Gateway Device Installation

The KNX Modbus gateway (RP-C-EXT-KNX) is designed for installation on a DIN rail. The width of the device is 1 unit (18 mm or 0.7 inch).

A DIN rail is a common and convenient technique for installing the KNX Modbus gateway, along with the RP-C controller and other associated control and monitoring devices. The most efficient ventilation is achieved with the wall-mounted DIN rail oriented horizontally and with adequate space provided between the KNX Modbus gateway's rail and adjacent rails or other devices.

The KNX Modbus gateway is typically installed horizontally (on a DIN rail going from left to right), with the device label text in the upright position reading left to right.

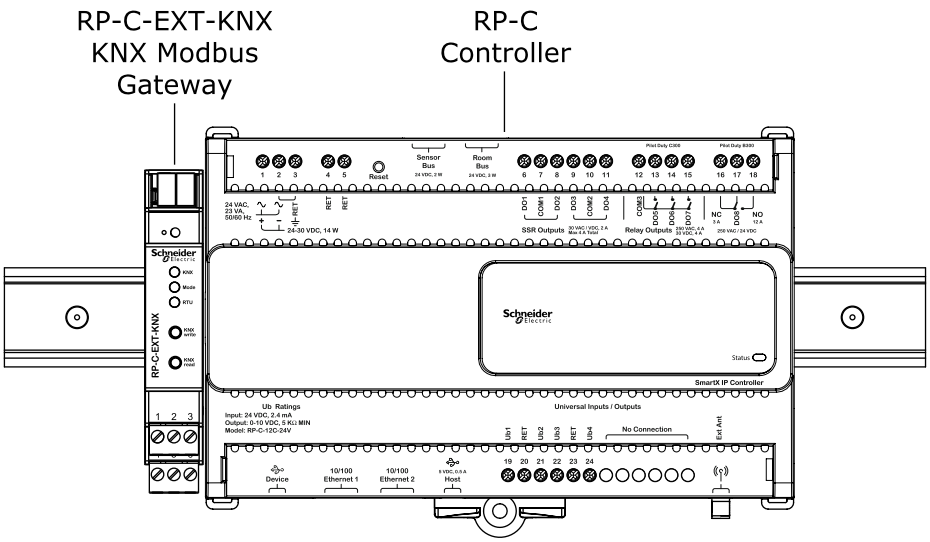


Figure: KNX Modbus gateway installed on a horizontal DIN rail next to RP-C

When installing the KNX Modbus gateway together with RP-C controllers in a cabinet, it is recommended to provide ample space between the DIN rails and the devices for sufficient ventilation. For more information, see the *RP-C Device Installation* topic on WebHelp.

To prevent the modules from sliding sideways on the DIN rail, fix an end clamp for DIN 35 (part number SXWDINEND10001) tightly against the rightmost device on the rail. The end clamp is easily removed if you bend the snap lock open with a screwdriver.

Figure: End clamp for DIN 35 fixed across the DIN rail

The screw terminal blocks are removable, which means that they can be wired before the KNX Modbus gateway is supplied. Replacing a KNX Modbus gateway is done in seconds because no terminal wiring is affected. The terminal blocks are delivered with the device. Use only terminal blocks delivered with the device (or equivalent terminal blocks).

Install only a wired terminal block that matches the labeling of the terminals on the device. If the labels on the wires do not indicate the intended terminals, consult the control panel documentation to determine the intended terminals.

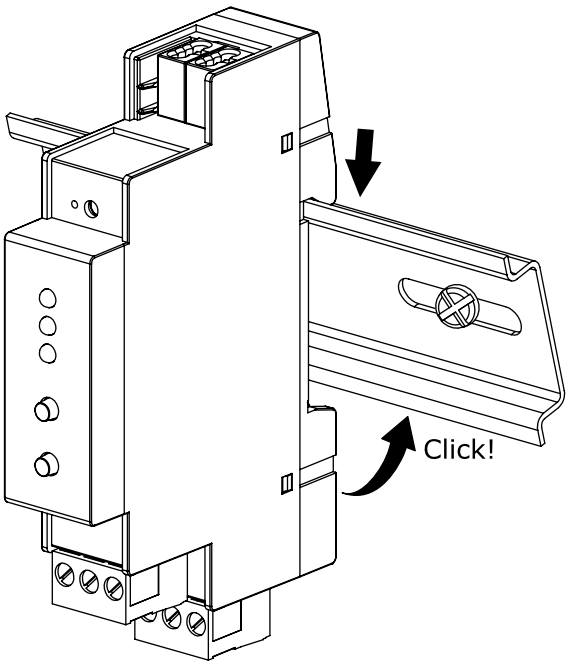
3.9 Installing a KNX Modbus Gateway on a DIN Rail

You install a KNX Modbus gateway (RP-C-EXT-KNX) on a DIN rail to properly fasten the device and to allow for sufficient ventilation.

For more information, see section 3.8 “KNX Modbus Gateway Device Installation” on page 43.

To install a KNX Modbus gateway on a DIN rail

1. Hook the device onto the top of the DIN rail.



2. Push the device fully onto the DIN rail until you hear a click sound, which indicates that the DIN rail clip is fully engaged with the DIN rail.

3.10 Performing a Factory Reset of the KNX Modbus Gateway

You perform a factory reset (recovery) of the KNX Modbus gateway (RP-C-EXT-KNX) to restore the device to factory default settings.

For more information, see section 3.1.10 “” on page 28.

To perform a factory reset of the KNX Modbus gateway

1. Disconnect the KNX bus connector from the device.
2. Press and hold the Programming button.

   For more information, see section 3.5 “KNX Modbus Gateway Buttons” on page 38.
3. Connect the KNX bus connector to the device.
4. Keep the Programming button pressed for at least another 6 seconds.

   NOTE: A short flashing of all LEDs indicates a successful reset of the device to factory default settings.

3.11 KNX Modbus Gateway Regulatory Compliance and Approvals

This section provides information on regulatory compliance and approvals for the KNX Modbus gateway (RP-C-EXT-KNX).

3.11.1 CE - European Union (EU)

The KNX Modbus gateway (RP-C-EXT-KNX) bears the CE mark and complies with the following EU directives:

- 2014/30/EU Electromagnetic Compatibility Directive (EMCD)
- 2011/65/EU Restriction of Hazardous Substances (RoHS) Directive
- 2015/863/EU amending Annex II to Directive 2011/65/EU

4 ETS Database for RP-C-EXT-KNX

Topics

4.1 ETS Database for the KNX Modbus Gateway

The ETS product database for the KNX Modbus gateway can be downloaded from the Schneider Electric website www.se.com or from the online KNX product catalog within ETS. The ETS database contains the parameters required for configuring the KNX Modbus gateway.

The following pages are available in the ETS database:

- Description
- General settings
- Modbus settings
- Datapoints X - Y

4.1.1 Description

The **Description** page shows general information about the device.

4.1.2 General Settings

The following parameters are available on the **General settings** page.

Device name

Type the name for the KNX Modbus gateway device. The name should be unique and meaningful, which makes it easier to work with the ETS project. For example, “Conference room 123”. A maximum of 30 characters can be used.

Send delay after bus power return

Select the amount of time for the send delay of telegrams after the return of the bus voltage. In this case, telegrams from the device are sent to the KNX bus in a delayed manner by the set time. This reduces the bus load when the bus voltage returns. Other functions such as receiving telegrams are not affected by this parameter.

Prog. mode on device front

Select **Enabled** to allow activation and deactivation of the programming mode by pressing both the **KNX write** and **KNX read** buttons at the same time. This feature allows you to activate and deactivate the programming mode on the device front without having to open the switchboard cover.

The programming button (the recessed button next to the programming LED) is always enabled and is not affected by this parameter.

For more information, see section 3.5 “KNX Modbus Gateway Buttons” on page 38.

Manual operation (sync) on device

Select **Enabled** to allow manual operation on the device.

Manual operation enables synchronization of all channels in the direction to KNX (button **KNX write**) and in the direction to Modbus (button **KNX read**).

- Direction KNX:
  KNX write means that all datapoints of the channels configured as **Modbus to KNX** send their current value on the KNX bus.
- Direction Modbus:
  KNX read means that all datapoints of the channels configured as **KNX to Modbus** receive the current value from the KNX bus.
  The Modbus KNX gateway stores the received values and sends them to the RP-C controller (Modbus master) only upon request.

  NOTE: For KNX read, ensure that the following **Flags** are configured in the ETS **Settings** for the group objects:
  - For all channels configured as **KNX to Modbus** (inputs): **Communication (C)**, **Write (W)**, **Transmit (T)**, and **Update (U)**.
  - For the KNX devices that shall respond to the read requests: **Communication (C)**, **Read (R)**, and **Transmit (T)**.

The manual operation is started by pressing and holding the respective button for more than 2 seconds. For more information, see section 3.5 “KNX Modbus Gateway Buttons” on page 38.

The KNX write and KNX read operations can be cancelled by pressing the **KNX write** and **KNX read** buttons at the same time.

For more information, see section 3.7 “KNX Modbus Gateway Manual Operation Mode” on page 42.

Heartbeat

Select **Enabled** to periodically send values to the KNX bus to indicate that the device is operational.

Table: Heartbeat

Group object	Type KNX	Size	Direction
GO 277 Heartbeat - Trigger	1.001	1 bit	To KNX

Cycle time

When the heartbeat feature is enabled, select the cycle time for the heartbeats.

Telegram rate limitation

Select **Enabled** to control the telegram rate.

Time telegram rate

When the telegram rate limitation is enabled, select the time between telegrams.

NOTE: The telegram rate limitation only occurs when the bus load is increased.

4.1.3 Modbus Settings

The following parameters are available on the **Modbus settings** page.

Slave address (common)

Enter the slave address (0 to 247) of the KNX Modbus gateway.

Baudrate

Select the Baud rate of the Modbus communication.

Parity

Select the parity and stop bit for the Modbus frame.

Byte order

Select the order for the transmission of the 2-byte values, **MSB first** (high byte is sent first) or **LSB first** (low byte is sent first).

Register address

Select whether the register address is **0 based** or **1 based**.

Diagnostic objects

Select **Enabled** to display diagnostics that provide information about the communication with the RP-C controller (Modbus master).

Table: Diagnostic objects

Group object	Type KNX	Size	Direction
GO 276 Diagnostic: Slave (common) - No communication	1.001	1 bit	To KNX

Request timeout

When the diagnostic feature is enabled, select the timeout for receiving requests.

If no request is received from the master within the time interval, “No communication - On” is sent to the KNX bus by the diagnostic object.

4.1.4 Datapoints X - Y

10 channels are combined per page.

The following parameters are available for each channel.

Datapoint type

This parameter activates and defines the KNX interface and the function of the channel.

Table: Datapoint type

Datapoint type options	Group object	Type KNX	Size	Direction
DPT 01 - binary - 1 bit	GO 1 Channel 1: Output - Switch - 1 bit	1.001	1 bit	To KNX
DPT 03 - dimming - 4 bits	GO 1 Channel 1: Output - Dimming - 4 bits	3.007	4 bits	To KNX
DPT 05 - percent - 1 byte	GO 1 Channel 1: Output - Percent - 1 byte	5.001	1 byte	To KNX
DPT 05 - configured - 1 byte	GO 1 Channel 1: Output - Configured - 1 byte	5.010	1 byte	To KNX
DPT 05 - unsigned - 1 byte	GO 1 Channel 1: Output - Unsigned - 1 byte	5.010	1 byte	To KNX
DPT 06 - signed - 1 byte	GO 1 Channel 1: Output - Signed - 1 byte	6.010	1 byte	To KNX
DPT 07 - configured - 2 bytes	GO 1 Channel 1: Output - Configured - 2 bytes	7.001	2 bytes	To KNX
DPT 07 - unsigned - 2 bytes	GO 1 Channel 1: Output - Unsigned - 2 bytes	7.001	2 bytes	To KNX
DPT 08 - signed - 2 bytes	GO 1 Channel 1: Output - Signed - 2 bytes	8.001	2 bytes	To KNX
DPT 09 - float - 2 bytes	GO 1 Channel 1: Output - Float - 2 bytes	9.001	2 bytes	To KNX
DPT 14 - float - 4 bytes	GO 1 Channel 1: Output - Float - 4 bytes	14.000	4 bytes	To KNX

Description

Type a description of the channel. A maximum of 30 characters can be used. The name should be unique and meaningful. This makes it easier to work with the associated group objects later, since the name assigned is displayed there as a description.

If no name is assigned, the group objects are designated as “Channel X: ...”.

Direction

Select the direction of the KNX specific communication.

Table: Direction

Direction options	I/O type	Group object	Type KNX	Size	Direction
KNX to Modbus	Group object is input	GO 1 Channel 1: Input - Switch - 1 bit	1.001	1 bit	From KNX
Modbus to KNX	Group object is output	GO 1 Channel 1: Output - Switch - 1 bit	1.001	1 bit	To KNX

Send condition

This parameter is available when the **Direction** parameter is set to **Modbus to KNX**.

Select when the object sends the value to the KNX bus:

- **Read only** – Object sends only on read requests
- **On change** – Object sends on value change
- **Cyclic** – Object sends after cycle time
- **Cyclic and on change** – Object sends after cycle time and on value change

Value change

This parameter is available for the **Datapoint type** options **DPT 09 - float - 2** bytes and **DPT 14 - float - 4 bytes** when the **Direction** parameter is set to **Modbus to KNX** and the **Send condition** parameter is set to **On change** or **Cyclic and on change**.

Select the minimum change of value that triggers the object to send the value.

Cycle time

This parameter is available when the **Direction** parameter is set to **Modbus to KNX** and the **Send condition** parameter is set to **Cyclic** or **Cyclic and on change**.

Select the cycle time for cyclic send conditions.

Type

This parameter defines the function of the channel as well as the size of the Modbus register used.

The options that are available for the parameter depend on which of the following **Datapoint type** parameters are selected:

- **DPT 01 - binary - 1 bit**.
  For more information, see section 4.2 “Type Options for DPT 01 - binary - 1 bit ” on page 58.
- **DPT 03 - dimming - 4 bits**.
  For more information, see section 4.3 “Type Options for DPT 03 - dimming - 4 bits ” on page 60.
- **DPT 05 - percent - 1 byte**.
  For more information, see section 4.4 “Type Options for DPT 05 - percent - 1 byte” on page 62.
- **DPT 05 - configured - 1 byte**.

For more information, see section 4.5 “Type Options for DPT 05 - configured - 1 byte” on page 63.

- **DPT 05 - unsigned - 1 byte**.
  For more information, see section 4.6 “Type Options for DPT 05 - unsigned - 1 byte” on page 66.
- **DPT 06 - signed - 1 byte**.
  For more information, see section 4.7 “Type Options for DPT 06 - signed - 1 byte” on page 67.
- **DPT 07 - configured - 2 bytes**.
  For more information, see section 4.8 “Type Options for DPT 07 - configured - 2 bytes” on page 68.
- **DPT 07 - unsigned - 2 bytes**.
  For more information, see section 4.9 “Type Options for DPT 07 - unsigned - 2 bytes” on page 71.
- **DPT 08 - signed - 2 bytes**.
  For more information, see section 4.10 “Type Options for DPT 08 - signed - 2 bytes” on page 72.
- **DPT 09 - float - 2 bytes**.
  For more information, see section 4.11 “Type Options for DPT 09 - float - 2 bytes” on page 73.
- **DPT 14 - float - 4 bytes**.
  For more information, see section 4.12 “Type Options for DPT 14 - float - 4 bytes” on page 74.

Function

Select/displays the Modbus function code for the channel.

Different function codes can be configured depending on **Direction** and **Type**.

Type – Word register:

- KNX to Modbus:
  - Read holding registers - 03
  - Read input registers - 04
- Modbus to KNX:
  - Write single/multi holding registers - 06, 16

Type – Bit register:

- KNX to Modbus:
  - Read coils - 01
  - Read discrete inputs - 02
- Modbus to KNX:
  - Write single/multi coils - 05, 15

Address

Select the address of the Modbus register.

NOTE: Double word registers use the Modbus register address you select with **Address** and this register address + 1.

IMPORTANT: Address 0 cannot be used if the **Register address** parameter is configured to **1 based**. This combination gives a static error which deactivates the channel function and is indicated by the RTU LED lighting up in red.

4.2 Type Options for DPT 01 - binary - 1 bit

The following **Type** options are available when the **Datapoint type** parameter is configured as **DPT 01 - binary - 1 bit**.

4.2.1 Bit register

1 bit (KNX) sets bit register (Modbus).

The following parameter is available when the **Type** parameter is configured as **Bit register**:

- **Value inverted**
  Select to have the inverted value of the group object correspond to the value of the bit register.

4.2.2 Bit in word register

1 bit (KNX) sets 1 bit in word register (Modbus).

The following parameters are available when the **Type** parameter is configured as **Bit in word register**:

- **Position (register)**
  Select the bit in the word register.
- **Value inverted**
  Select to have the inverted value of the group object correspond to the value of the bit in the word register.

4.2.3 Value in word register

1 bit (KNX) is mapped to value in word register (Modbus).

The following parameters are available when the **Type** parameter is configured as **Value in word register**:

- **Bit count**
  Select the size of the value in the word register (in bits).
- **Offset**
  Select the position of the value in the word register (offset from the right in bits).

  IMPORTANT: The channel does not work if it is incorrectly configured.
  - The sum of the **Bit count** and **Offset** cannot be greater than 16.
  - The value must match the **Bit count**. For example, if the **Bit count** is 8, the value must be in the range 0 to 255.

The following parameters are available when the **Type** parameter is configured as **Value in word register** and the **Direction** parameter is configured as **KNX to Modbus**:

- **Behaviour on receiving data 'ON'**
  Select **Set register value** to enter a value in the register when an ON telegram is received.

- **Value**
  Select the value to set in the register when an ON telegram is received.
- **Behaviour on receiving data 'OFF'**
  Select **Set register value** to enter a value in the register when an OFF telegram is received.
- **Value**
  Select the value to set in the register when an OFF telegram is received.

The following parameters are available when the **Type** parameter is configured as **Bit in word register** and the **Direction** parameter is configured as **Modbus to KNX**:

- **Value**
  Select the value for which the register is checked. Depends on the **Bit count** and **Offset**.
- **Behaviour on value higher**
  Select the behavior of the group object when the register value is greater than the **Value** you selected.
- **Behaviour on value match**
  Select the behavior of the group object when the register value equals the **Value** you selected.
- **Behaviour on value lower**
  Select the behavior of the group object when the register value is less than the **Value** you selected.

4.3 Type Options for DPT 03 - dimming - 4 bits

The following **Type** options are available when the **Datapoint type** parameter is configured as **DPT 03 - dimming - 4 bits**.

4.3.1 Bit register

4 bit dimming command (KNX) sets bit register (Modbus).

The following parameters are available when the **Type** parameter is configured as **Bit register** and the **Direction** parameter is configured as **KNX to Modbus**:

- **Behaviour on receiving data 'DIM UP'**
  Select the behavior of the bit register when a DIM UP telegram is received at the group object.
- **Behaviour on receiving data 'DIM DOWN'**
  Select the behavior of the bit register when a DIM DOWN telegram is received at the group object.
- **Behaviour on receiving data 'DIM STOP'**
  Select the behavior of the bit register when a DIM STOP telegram is received at the group object.

The following parameters are available when the **Type** parameter is configured as **Bit register** and the **Direction** parameter is configured as **Modbus to KNX**:

- **Behaviour on register '1'**
  Select the behavior of the group object when the register value equals 1.
- **Behaviour on register '0'**
  Select the behavior of the group object when the register value equals 0.

4.3.2 Value in word register

4 bit dimming command (KNX) is mapped to value in word register (Modbus).

The following parameters are available when the **Type** parameter is configured as **Value in word register**:

- **Bit count**
  Select the size of the value in the word register (in bits).
- **Offset**
  Select the position of the value in the word register (offset from the right in bits).

  IMPORTANT: The channel does not work if it is incorrectly configured.
  - The sum of the **Bit count** and **Offset** cannot be greater than 16.
  - The value must match the **Bit count**. For example, if the **Bit count** is 8, the value must be in the range 0 to 255.

The following parameters are available when the **Type** parameter is configured as **Value in word register** and the **Direction** parameter is configured as **KNX to Modbus**:

- **Behaviour on receiving data 'DIM UP'**

Select **Set register value** to enter a value in the register when a DIM UP telegram is received.

- **Value**
  Select the value to set in the register when a DIM UP telegram is received.
- **Behaviour on receiving data 'DIM DOWN'**
  Select **Set register value** to enter a value in the register when a DIM DOWN telegram is received.
- **Value**
  Select the value to set in the register when a DIM DOWN telegram is received.
- **Behaviour on receiving data 'DIM STOP'**
  Select **Set register value** to enter a value in the register when a DIM STOP telegram is received.
- **Value**
  Select the value to set in the register when a DIM STOP telegram is received.

The following parameters are available when the **Type** parameter is configured as **Value in word register** and the **Direction** parameter is configured as **Modbus to KNX**:

- **Value**
  Select the value for which the register is checked. Depends on the **Bit count** and **Offset**.
- **Behaviour on value higher**
  Select the behavior of the group object when the register value is greater than the **Value** you selected.
- **Behaviour on value match**
  Select the behavior of the group object when the register value equals the **Value** you selected.
- **Behaviour on value lower**
  Select the behavior of the group object when the register value is less than the **Value** you selected.

4.4 Type Options for DPT 05 - percent - 1 byte

The following **Type** option is available when the **Datapoint type** parameter is configured as **DPT 05 - percent - 1 byte**.

4.4.1 Word register

1 byte percent value (KNX) is mapped to value in word register (Modbus).

The following parameters are available when the **Type** parameter is configured as **Word register**:

- **Position (register)**
  Select the area of the word register that is mapped.
- **Value minimum (register)**
  Select the register value that corresponds to **Value minimum (KNX)**.
- **Value maximum (register)**
  Select the register value that corresponds to **Value maximum (KNX)**.
- **Value minimum (KNX)**
  Select the KNX value that corresponds to **Value minimum (register)**.
- **Value maximum (KNX)**
  Select the KNX value that corresponds to **Value maximum (register)**.

  NOTE: The conversion is always transferred to the entire register area. The **Value minimum (register)** and **Value maximum (register)** define no limits.

4.5 Type Options for DPT 05 - configured - 1 byte

The following **Type** options are available when the **Datapoint type** parameter is configured as **DPT 05 - configured - 1 byte**.

4.5.1 Bit register

1 byte configured value (KNX) sets bit register (Modbus).

The following parameters are available when the **Type** parameter is configured as **Bit register** and the **Direction** parameter is configured as **KNX to Modbus**:

- **Value (object)**
  Select the value for which the group object (KNX) is checked.
- **Behaviour on value higher**
  Select the behavior of the bit register when the received value (KNX) is greater than the **Value (object)** you selected.
- **Behaviour on value match**
  Select the behavior of the bit register when the received value (KNX) equals the **Value (object)** you selected.
- **Behaviour on value lower**
  Select the behavior of the bit register when the received value (KNX) is less than the **Value (object)** you selected.

The following parameters are available when the **Type** parameter is configured as **Bit register** and the **Direction** parameter is configured as **Modbus to KNX**:

- **Behaviour on register '1'**
  Select **Send value** to send a value when the register is set (1).
- **Value (object)**
  Select the value to send to KNX when the register is set (1).
- **Behaviour on register '0'**
  Select **Send value** to send a value when the register is not set (0).
- **Value (object)**
  Select the value to send to KNX when the register is not set (0).

4.5.2 Bit in word register

1 byte configured value (KNX) sets 1 bit in word register (Modbus).

The following parameters are available when the **Type** parameter is configured as **Bit in word register** and the **Direction** parameter is configured as **KNX to Modbus**:

- **Value (object)**
  Select the value for which the group object (KNX) is checked.
- **Position (register)**
  Select the bit in the word register.
- **Behaviour on value higher**

Select the behavior of the bit in the word register when the received value (KNX) is greater than the **Value (object)** you selected.

- **Behaviour on value match**
  Select the behavior of the bit in the word register when the received value (KNX) equals the **Value (object)** you selected.
- **Behaviour on value lower**
  Select the behavior of the bit in the word register when the received value (KNX) is less than the **Value (object)** you selected.

The following parameters are available when the **Type** parameter is configured as **Bit in word register** and the **Direction** parameter is configured as **Modbus to KNX**:

- **Position (register)**
  Select the bit in the word register.
- **Behaviour on register '1'**
  Select **Send value** to send a value to KNX when the bit in the word register is set (1).
- **Value (object)**
  Select the value to send to KNX when the bit in the word register is set (1).
- **Behaviour on register '0'**
  Select **Send value** to send a value to KNX when the bit in the word register is not set (0).
- **Value (object)**
  Select the value to send to KNX when the bit in the word register is not set (0).

4.5.3 Value in word register

1 byte configured value (KNX) is mapped to value in word register (Modbus).

The following parameters are available when the **Type** parameter is configured as **Value in word register**:

- **Bit count**
  Select the size of the value in the word register (in bits).
- **Offset**
  Select the position of the value in the word register (offset from the right in bits).

  IMPORTANT: The channel does not work if it is incorrectly configured.
  - The sum of the **Bit count** and **Offset** cannot be greater than 16.
  - The value must match the **Bit count**. For example, if the **Bit count** is 8, the value must be in the range 0 to 255.

The following parameters are available when the **Type** parameter is configured as **Value in word register** and the **Direction** parameter is configured as **KNX to Modbus**:

- **Value (object)**
  Select the value for which the group object (KNX) is checked.
- **Behaviour on value higher**
  Select **Set register value** to enter a value in the word register when the received value (KNX) is greater than the **Value (object)** you selected.

- **Value (register)**
  Select the value to set in the word register.
- **Behaviour on value match**
  Select **Set register value** to enter a value in the word register when the received value (KNX) equals the **Value (object)** you selected.
- **Value (register)**
  Select the value to set in the word register.
- **Behaviour on value lower**
  Select **Set register value** to enter a value in the word register when the received value (KNX) is less than the **Value (object)** you selected.
- **Value (register)**
  Select the value to set in the word register.

The following parameters are available when the **Type** parameter is configured as **Value in word register** and the **Direction** parameter is configured as **Modbus to KNX**:

- **Value (register)**
  Select the value for which the word register is checked.
- **Behaviour on value higher**
  Select **Send value** to send a value by the group object (KNX) when the register value is greater than the **Value (register)** you selected.
- **Value (object)**
  Select the value to send by the group object (KNX).
- **Behaviour on value match**
  Select **Send value** to send a value by the group object (KNX) when the register value equals the **Value (register)** you selected.
- **Value (object)**
  Select the value to send by the group object (KNX).
- **Behaviour on value lower**
  Select **Send value** to send a value by the group object (KNX) when the register value is less than the **Value (register)** you selected.
- **Value (object)**
  Select the value to send by the group object (KNX).

4.6 Type Options for DPT 05 - unsigned - 1 byte

The following **Type** option is available when the **Datapoint type** parameter is configured as **DPT 05 - unsigned - 1 byte**.

4.6.1 Word register

1 byte value unsigned (KNX) is written/read to/from area in word register (Modbus).

The following parameters are available when the **Type** parameter is configured as **Word register**:

- **Position (register)**
  Select the area of the word register that is read/written.
- **Bit count**
  This parameter is available when the **Position (register)** parameter is configured as **Configured**.
  Select the size of the area in the word register (in bits).
- **Offset**
  This parameter is available when the **Position (register)** parameter is configured as **Configured**.
  Select the position of the area in the word register (offset from the right in bits).

  IMPORTANT: The channel does not work if it is incorrectly configured.
  - The sum of the **Bit count** and **Offset** cannot be greater than 16.
  - The value must match the **Bit count**. For example, if the **Bit count** is 8, the value must be in the range 0 to 255.

4.7 Type Options for DPT 06 - signed - 1 byte

The following **Type** option is available when the **Datapoint type** parameter is configured as **DPT 06 - signed - 1 byte**.

4.7.1 Word register

1 byte value signed (KNX) is written/read to/from area in word register (Modbus).

The following parameters are available when the **Type** parameter is configured as **Word register**:

- **Position (register)**
  Select the area of the word register that is read/written.
- **Offset**
  This parameter is available when the **Position (register)** parameter is configured as **Configured**.
  Select the position of the area in the word register (offset from the right in bits).

4.8 Type Options for DPT 07 - configured - 2 bytes

The following **Type** options are available when the **Datapoint type** parameter is configured as **DPT 07 - configured - 2 bytes**.

4.8.1 Bit register

2 byte value configured (KNX) sets bit register (Modbus).

The following parameters are available when the **Type** parameter is configured as **Bit register** and the **Direction** parameter is configured as **KNX to Modbus**:

- **Value (object)**
  Select the value for which the group object (KNX) is checked.
- **Behaviour on value higher**
  Select the behavior of the bit register when the received value (KNX) is greater than the **Value (object)** you selected.
- **Behaviour on value match**
  Select the behavior of the bit register when the received value (KNX) equals the **Value (object)** you selected.
- **Behaviour on value lower**
  Select the behavior of the bit register when the received value (KNX) is less than the **Value (object)** you selected.

The following parameters are available when the **Type** parameter is configured as **Bit register** and the **Direction** parameter is configured as **Modbus to KNX**:

- **Behaviour on register '1'**
  Select **Send value** to send a value to KNX when the register is set (1).
- **Value (object)**
  Select the value to send to KNX when the register is set (1).
- **Behaviour on register '0'**
  Select **Send value** to send a value to KNX when the register is not set (0).
- **Value (object)**
  Select the value to send to KNX when the register is not set (0).

4.8.2 Bit in word register

2 byte value configured (KNX) sets 1 bit in word register (Modbus).

The following parameters are available when the **Type** parameter is configured as **Bit in word register** and the **Direction** parameter is configured as **KNX to Modbus**:

- **Value (object)**
  Select the value for which the group object (KNX) is checked.
- **Position (register)**
  Select the bit in the word register.
- **Behaviour on value higher**

Select the behavior of the bit in the word register when the received value (KNX) is greater than the **Value (object)** you selected.

- **Behaviour on value match**
  Select the behavior of the bit in the word register when the received value (KNX) equals the **Value (object)** you selected.
- **Behaviour on value lower**
  Select the behavior of the bit in the word register when the received value (KNX) is less than the **Value (object)** you selected.

The following parameters are available when the **Type** parameter is configured as **Bit in word register** and the **Direction** parameter is configured as **Modbus to KNX**:

- **Position (register)**
  Select the bit in the word register.
- **Behaviour on register '1'**
  Select **Send value** to send a value to KNX when the bit in the word register is set (1).
- **Value (object)**
  Select the value to send to KNX when the bit in the word register is set (1).
- **Behaviour with register '0'**
  Select **Send value** to send a value to KNX when the bit in the word register is not set (0).
- **Value (object)**
  Select the value to send to KNX when the bit in the word register is not set (0).

4.8.3 Value in word register

2 byte value configured (KNX) is mapped to value in word register (Modbus).

The following parameters are available when the **Type** parameter is configured as **Value in word register**:

- **Bit count**
  Select the size of the value in the word register (in bits).
- **Offset**
  Select the position of the value in the word register (offset from the right in bits).

  IMPORTANT: The channel does not work if it is incorrectly configured.
  - The sum of the **Bit count** and **Offset** cannot be greater than 16.
  - The value must match the **Bit count**. For example, if the **Bit count** is 8, the value must be in the range 0 to 255.

The following parameters are available when the **Type** parameter is configured as **Value in word register** and the **Direction** parameter is configured as **KNX to Modbus**:

- **Value (object)**
  Select the value for which the group object (KNX) is checked.
- **Behaviour on value higher**
  Select **Set register value** to set a value in the word register when the received value (KNX) is greater than the **Value (object)** you entered.

- **Value (register)**
  Select the value to set in the word register.
- **Behaviour on value match**
  Select **Set register value** to set a value in the word register when the received value (KNX) equals the **Value (object)** you entered.
- **Value (register)**
  Select the value to set in the word register.
- **Behaviour on value lower**
  Select **Set register value** to set a value in the word register when the received value (KNX) is less than the **Value (object)** you entered.
- **Value (register)**
  Select the value to set in the word register.

The following parameters are available when the **Type** parameter is configured as **Value in word register** and the **Direction** parameter is configured as **Modbus to KNX**:

- **Value (register)**
  Select the value for which the word register is checked.
- **Behaviour on value higher**
  Select **Send value** to send a value by the group object (KNX) when the register value is greater than the **Value (register)** you entered.
- **Value (object)**
  Select the value to send by the group object (KNX).
- **Behaviour on value match**
  Select **Send value** to send a value by the group object (KNX) when the register value equals the **Value (register)** you entered.
- **Value (object)**
  Select the value to send by the group object (KNX).
- **Behaviour on value lower**
  Select **Send value** to send a value by the group object (KNX) when the register value is less than the **Value (register)** you entered.
- **Value (object)**
  Select the value to send by the group object (KNX).

4.9 Type Options for DPT 07 - unsigned - 2 bytes

The following **Type** options are available when the **Datapoint type** parameter is configured as **DPT 07 - unsigned - 2 bytes**.

4.9.1 Word register

2 byte value unsigned (KNX) is written/read to/from area in word register (Modbus).

The following parameters are available when the **Type** parameter is configured as **Word register**:

- **Position (register)**
  Select the area of the word register that is read/written.
- **Bit count**
  This parameter is available when the **Position (register)** parameter is configured as **Configured**.
  Select the size of the area in the word register (in bits).
- **Offset**
  This parameter is available when the **Position (register)** parameter is configured as **Configured**.
  Select the position of the area in the word register (offset from the right in bits).

  IMPORTANT: The channel does not work if it is incorrectly configured.
  - The sum of the **Bit count** and **Offset** cannot be greater than 16.
  - The value must match the **Bit count**. For example, if the **Bit count** is 8, the value must be in the range 0 to 255.

4.10 Type Options for DPT 08 - signed - 2 bytes

The following **Type** options are available when the **Datapoint type** parameter is configured as **DPT 08 - signed - 2 bytes**.

4.10.1 Word register

2 byte value signed (KNX) is written/read to/from area in word register (Modbus).

The following parameter is available when the **Type** parameter is configured as **Word register**:

- **Position (register)**
  Displays the area of the word register that is read/written. The **High/Low byte** area is configured.

4.11 Type Options for DPT 09 - float - 2 bytes

The following **Type** option is available when the **Datapoint type** parameter is configured as **DPT 09 - float - 2 bytes**.

4.11.1 Word register

2 byte float value (KNX) is mapped to area in word register (Modbus).

The following parameters are available when the **Type** parameter is configured as **Word register**:

- **Position (register)**
  Select the area of the word register that is mapped.
- **Value minimum (register)**
  Select the register value that corresponds to **Value minimum (KNX)**.
- **Value maximum (register)**
  Select the register value that corresponds to **Value maximum (KNX)**.
- **Value minimum (KNX)**
  Select the KNX value that corresponds to **Value minimum (register)**.
- **Value maximum (KNX)**
  Select the KNX value that corresponds to **Value maximum (register)**.

  NOTE: The conversion is always transferred to the entire register area. The **Value minimum (register)** and **Value maximum (register)** define no limits.

4.12 Type Options for DPT 14 - float - 4 bytes

The following **Type** options are available when the **Datapoint type** parameter is configured as **DPT 14 - float - 4 bytes**.

4.12.1 Word register

4 byte float value (KNX) is mapped to area in word register (Modbus).

The following parameters are available when the **Type** parameter is configured as **Word register**:

- **Position (register)**
  Select the area of the word register that is mapped.
- **Value minimum (register)**
  Select the register value that corresponds to **Value minimum (KNX)**.
- **Value maximum (register)**
  Select the register value that corresponds to **Value maximum (KNX)**.
- **Value minimum (KNX)**
  Select the KNX value that corresponds to **Value minimum (register)**.
- **Value maximum (KNX)**
  Select the KNX value that corresponds to **Value maximum (register)**.

  NOTE: The conversion is always transferred to the entire register area. The **Value minimum (register)** and **Value maximum (register)** define no limits.

4.12.2 Double word register

4 byte float value (KNX) is mapped to two word registers (Modbus).

NOTE: Double word registers use the Modbus register address you select with **Address** and this register address + 1.

The following parameters are available when the **Type** parameter is configured as **Double word register**:

- **Word order**
  Select the byte order in which the value of the group object (KNX) is distributed to the two word registers (Modbus).
- **Type register value**
  Select how the float value is mapped to Modbus.
- **Value minimum (register)**
  Select the register value that corresponds to **Value minimum (KNX)**.
- **Value maximum (register)**
  Select the register value that corresponds to **Value maximum (KNX)**.
- **Value minimum (KNX)**
  Select the KNX value that corresponds to **Value minimum (register)**.
- **Value maximum (KNX)**
  Select the KNX value that corresponds to **Value maximum (register)**.

NOTE: The conversion is always transferred to the entire register area. The **Value minimum (register)** and **Value maximum (register)** define no limits.

NOTE: The **Value minimum…** and **Value maximum…** parameters are available when the **Type register value** parameter is configured as **Modbus contains integer value - unsigned** or **Modbus contains integer value - 2th complement**.

4.13 General Information

4.13.1 Scaling

The scaling factor can be defined with the respective minimum and maximum values.

Example:

Value minimum (register) = 0

Value maximum (register) = 100

Value minimum (KNX) = 0

Value maximum (KNX) = 10

Thus you get a scaling x10 of the KNX value: Value KNX = 10.5 gives Value register = 105

> **NOTE:** The conversion is always transferred to the entire register area. The **Value minimum (register)** and **Value maximum (register)** define no limits.

4.13.2 2th complement

The two's complement is used in Modbus registers to represent negative values. For example, a range of -32768 to 32767 can be displayed on a word register through the two's complement.

5 RP-C-EXT-KNX Software

Topics

5.1 ETS and the KNX Modbus Gateway

The Engineering Tool Software (ETS) is a Windows-based, manufacturer-independent, software configuration tool that allows you to design intelligent home and building control KNX system installations. KNX is an open standard for commercial and domestic building automation. KNX manages lights, blinds and shutters, HVAC, security, energy management, and a variety of other devices.

You use the ETS to create, maintain, and deploy the KNX network and interact with the KNX Modbus Gateway. In the gateway, you then configure all of the necessary information including groups, channels, datapoints, and register types. For more information, see section 5.2 “Configuring the KNX Gateway” on page 80.

The ETS product database for the KNX Modbus gateway can be downloaded from the Schneider Electric website www.se.com or from the online KNX product catalog within ETS. The ETS database contains the parameters required for configuring the KNX Modbus gateway.

For more information, see section 4.1 “ETS Database for the KNX Modbus Gateway” on page 51.

Next, you create a JSON file which is consumed by the Import from KNX Gateway tool. In EcoStruxure BMS, the tool allows you to take advantage of the configuration tasks you have already performed in ETS. The import tool takes that exported JSON file from the ETS and creates BACnet Modbus input and output points. This saves you from having to create those points manually.

For more information, see the *Import from KNX Gateway Tool* topic on WebHelp.

5.2 Configuring the KNX Gateway

You use the ETS to create, maintain, and deploy the KNX network and interact with the KNX gateway. You then configure all of the necessary information including groups, channels, datapoints, and register types in order to configure the KNX Modbus Gateway.

> **NOTE:** The RP-C-EXT-KNX (KNX Modbus Gateway) connects to the RP-C room controllers and provides an interface between the controller and KNX devices such as push-buttons, sensors, and control units for lights, blinds, and room temperature. For more information, see section 3.1.10 “” on page 28.

For more information, see section 5.1 “ETS and the KNX Modbus Gateway” on page 79.

To configure the KNX gateway

1. After installing the ETS application, connect the ETS computer to the KNX network using IP or USB KNX interface device like the following:
   - Schneider Electric Part: KNX IP Interface (SpaceLogic KNX IP Interface DIN Rail, PN: MTN6502-0105)
   - Schneider Electric Part: KNX USB Interface (SpaceLogic KNX USB Interface DIN Rail, PN: MTN6502-0101)
2. Connect the KNX Gateway to the KNX network.
3. Connect the two 3-position pluggable screw terminals for Modbus communication (lower) and power input (upper) to either COM A or COM B of the RP-C RS-485 port.

   For more information, see section 3.3 “KNX Modbus Gateway Screw Terminals and Connector” on page 33.

5.3 Configure the KNX Modbus Gateway Workflow

Use this workflow to configure the KNX Modbus Gateway with registers that connect the KNX information to the RP Series controller, including these properties:

- Register type: integer, float, bit etc.
- Direction: Modbus to KNX or KNX to Modbus
- Function codes: reading and writing registers from EcoStruxure Building Operation

Related information caan be found in the sections that follow the flowchart.

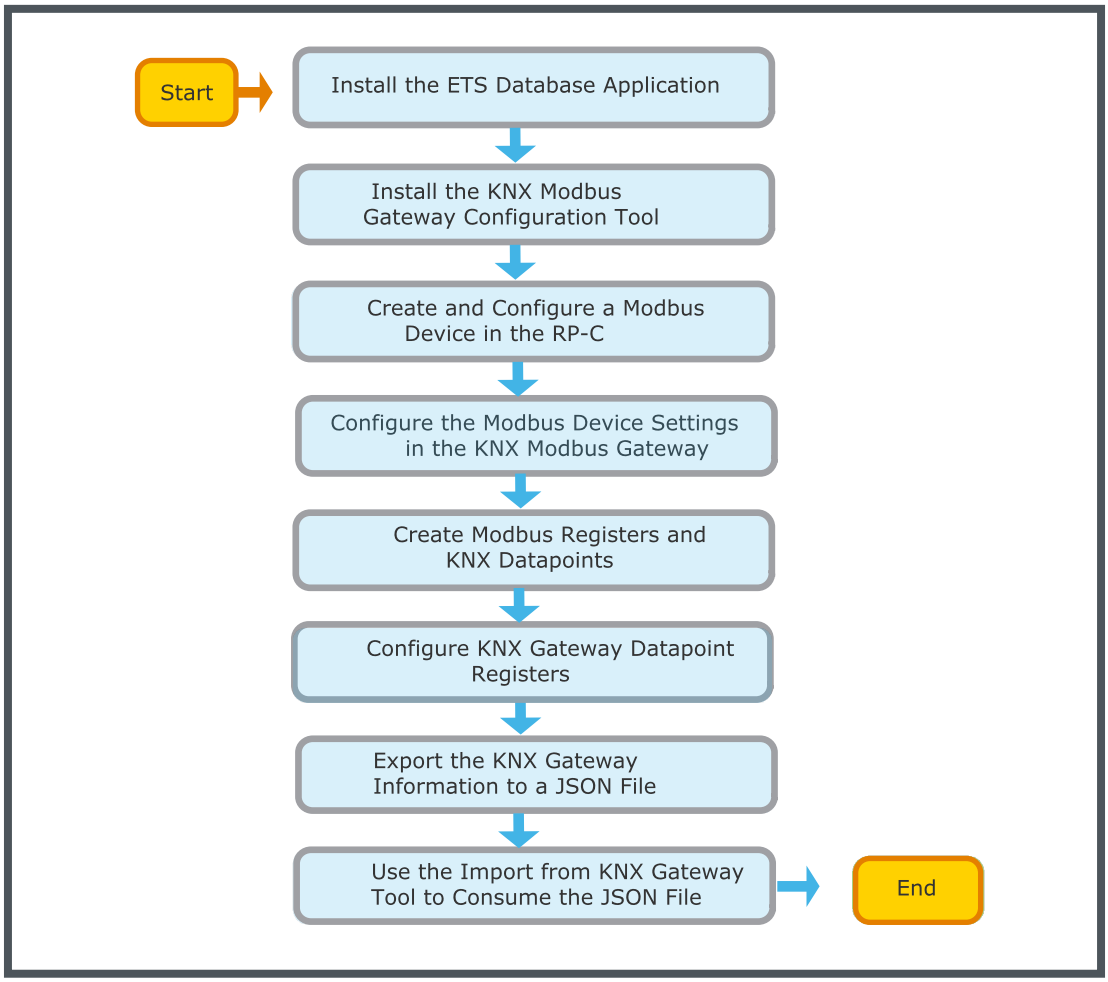


Figure: Configure KNX Modbus Gateway workflow

Install the ETS Database Application

From the KNX online catalog, install the ETS database application. For more information, see section 5.4 “Installing the ETS Database Application” on page 83.

Install the KNX Modbus Gateway Configuration Tool

In ETS, install the KNX Modbus Gateway Configuration Tool, DCA Application to support the export of JSON files from the KNX Gateway device.

For more information, see section 5.5 “Installing the KNX Modbus Gateway Configuration Tool” on page 84.

Create and Configure a Modbus Device in the RP-C

Under the RP Series controller, create and configure a Modbus device to support Modbus communications between the RP-C device and the KNX Modbus Gateway using Modbus points on the RP-C Modbus device.

For more information, see section 5.6 “Creating and Configuring a Modbus Device in the RP-C” on page 85.

Configure the Modbus Device Settings in the KNX Modbus Gateway

In the ETS Building Tree, configure the Modbus device settings in the KNX Modbus Gateway. For more information, see section 5.7 “Configuring the Modbus Device Settings in the KNX Modbus Gateway ” on page 87.

Create Modbus Registers and KNX Datapoints

In the KNX Modbus gateway, create Modbus registers and KNX datapoints to communicate with RP-C Modbus points using the KNX Modbus Gateway device hosted within the ETS project. For more information, see section 5.8 “Creating Modbus Registers and KNX Datapoints ” on page 88.

Configure KNX Gateway Datapoint Registers

In EcoStruxure Building Operation, you configure KNX Gateway datapoint registers so they can operate with HMI references on hosted RP-C Modbus output points. For more information, see section 5.9 “Configuring KNX Gateway Datapoint Registers ” on page 90.

Export the KNX Modbus Gateway Information to a JSON File

From ETS, export the KNX Modbus Gateway information to a JSON file. For more information, see section 5.10 “Exporting the KNX Modbus Gateway Information to a JSON File ” on page 91.

Use the Import from KNX Gateway Tool to Consume the JSON File

Use the Import from KNX Gateway tool to consume the JSON file and view and configure the properties of the Modbus points it is about to create. You can then import those points into the RP Series controller. For more information, see section 5.11 “Using the Import from KNX Gateway Tool to Consume the JSON File ” on page 92.

5.4 Installing the ETS Database Application

You install the ETS database application from the KNX online catalog- a service provided by the KNX Association to ETS Inside users free of charge. The catalog makes it possible to search online for available KNX products.

For more information, see section 5.1 “ETS and the KNX Modbus Gateway” on page 79.

To install the ETS database application

1. Install the ETS database application from the KNX online catalog.
2. In **ETS Dynamic Folders**, create a project.
3. Open the **Catalogs** window.
4. Use the Search function to look for the KNX Modbus Gateway device.
5. When the resulting database entry displays, drag it to the **Room** icon in your ETS Project.

   The **Importing Data** window displays while the database (application) is being copied to your ETS Project.
6. In the **Project Tree**, select the newly installed KNX Modbus Gateway device and execute a **Full download**:
   - Click the device.
   - Right-click and then click **Download, Full download**.
   - Press the **Program** button on the device.
     This operation is required only once during initial device commissioning.

The KNX Modbus Gateway is now successfully online within the KNX network and a **Group Address** has been created for the device.

5.5 Installing the KNX Modbus Gateway Configuration Tool

You install the KNX Modbus Gateway configuration tool DCA application in ETS to allow the export of a JSON file. The JSON file represents all the Modbus registers and KNX datapoints as they are configured in the Gateway. The Import from KNX Gateway tool uses the JSON file to represent the Modbus points that will be created in the RP Series controller.

For more information, see section 5.3 “Configure the KNX Modbus Gateway Workflow” on page 81.

To install the KNX Modbus Gateway configuration tool

1. Obtain the no-cost KNX Modbus Gateway configuration tool from the KNX website at this address:

   `https://www.knx.org/knx-en/for-professionals/index.php`

2. Download the no-cost DCA application file:

   modbusconfigtool-vx-x-0.etsapp (where x-x is the specific version number).

3. Open the ETS Application.
4. In the main welcome window, click the **Apps** button on the lower right.
5. Click the Install App button (Green) at the top of the window.
6. Browse to and install the configuration tool file.
7. Follow the on-screen instructions to complete the installation.

5.6 Creating and Configuring a Modbus Device in the RP-C

You create and configure a Modbus device in the RP Series controller to enable Modbus communications between the EcoStruxure KNX Modbus Gateway device and the KNX Modbus Gateway device. EcoStruxure BMS then reads from KNX registers using Modbus inputs points and writes to KNX registers using Modbus output points.

For more information, see section 5.3 “Configure the KNX Modbus Gateway Workflow” on page 81.

To create and configuration a Modbus device in the RP-C

1. In WorkStation, in the **System Tree** pane, select the RP Series controller.
2. Click **IO Resources**.
3. Expand either the **Room Bus** or **Sensor Bus** objects.
4. From one of these objects, delete the Port reference property value (.../Ports/ RS485-COMA or .../Ports/ RS485-COMB).

   For example, delete the **Port** reference for the Sensor Bus and click **Save**. The Port reference property value is now configured as Null.

   > **NOTE:** The Modbus Interface requires one of these port references for its operation.

   The RP-C Sensor Bus port is now available to support a Modbus Interface.
5. In the System Tree pane, select **Modbus Interface**.
6. In the **Basic** tab, configure the Modbus configuration settings (for example, Baud Rate, Parity, and Stop Bits).
7. For the Port reference, browse to **IO Resources, Ports**, select either **RS485-COMA** or **RS485-COMB** and click **Save**.

   Only one of the COM ports is available. RS485-COMA is the default Sensor Bus port (referenced here), while RS485-COMB is the default Room Bus port.
8. Select the Modbus Interface.
9. On the **File** menu, point to **New** and click **Modbus Device**.
10. In the **Create Object** wizard, type a name and click **Create**.

    A Modbus device proxy object is created.
11. In the System pane, select the Modbus Device.
12. Click the **File** menu and then **Properties**.
13. In the **Device address** box, enter the address you want for this Modbus device.

    This same address is used later when creating the ETS KNX Modbus Gateway device.

14. Enter a Poll register address.

    The device poll address is used to verify the device is online in the event that there are no input register objects defined for this device.

15. Click **OK** to save.

The KNX Modbus Gateway device should be online. Once you have configured the ETS KNX Modbus Gateway, you can now create Modbus points to read available values from the KNX Modbus Gateway device registers or write values to device registers on the KNX Modbus Gateway device.

5.7 Configuring the Modbus Device Settings in the KNX Modbus Gateway

You configure the Modbus device settings in order to set its Modbus communication settings. Settings listed here match the default settings of the Modbus device object in the RP-C.

For more information, see section 5.3 “Configure the KNX Modbus Gateway Workflow” on page 81.

To configure the Modbus device settings in the KNX Modbus Gateway

1. In the ETS Building Tree, select the KNX Modbus Gateway device.
2. Click on the **Parameters** tab in the right pane.
3. Under **General settings**, optionally change the **Device name**.
4. Under **Modbus settings**, configure the Modbus properties to ensure that the KNX Gateway Modbus communications parameters (with asterisks*) match the default RP-C parameters:
   - Set the ***Slave address** value (range: 1-247)
   - Set *Baudrate: 1200 to 115200 bits/s
   - Set *Parity: None, Even, Odd.
   - Set *Byte order: MSB first or LSB first (Use MSB first)
   - Register address: 0 based or 1 based (KNX Modbus gateway default value is 1 based)
   - Leave Diagnostic objects set to Disabled
     For more information, see section 4.1 “ETS Database for the KNX Modbus Gateway” on page 51.
5. Perform a **Download Application** to save the values.
   - In the **Project Tree**, click the KNX Modbus Gateway device.
   - Right mouse-click and in the menu that displays, select **Download, Full download**.

5.8 Creating Modbus Registers and KNX Datapoints

You create Modbus registers and KNX datapoints to communicate with RP Series controller Modbus points using the KNX Modbus Gateway device hosted under the RP-C.

> **NOTE:** A single datapoint is a single Modbus register. The Modbus register you create is associated with a specific KNX object. Be sure to create registers in consecutive numbers when those registers are represented in the RP-C with input objects
>
> You then use datapoints to configure parameters that allow Modbus to KNX (Output) and KNX to Modbus (Input) communications via the gateway. The gateway supports 250 Modbus registers or datapoints.

For more information, see section 5.3 “Configure the KNX Modbus Gateway Workflow” on page 81.

To create Modbus registers and KNX datapoints

1. In ETS, create a KNX object which is controlled by another KNX object.

   The following steps use an example with two KNX objects that involve creating a sample actuator controlled by a push button switch.

   > **NOTE:** These two KNX objects are bound together using a common group address, such as Group 0/0/1 – Switching.

2. In the KNX Modbus Gateway device, click the **Parameters** tab.
3. Click **Datapoints 1 – 10**.
4. In the **Datapoint type** box, select the datatype that matches the KNX object datatype. For more information, see section 4.1 “ETS Database for the KNX Modbus Gateway” on page 51.
5. In the **Description** box, enter a logical name.

   This name translates to the RP Series controller Modbus input or output name after the Import from KNX Gateway tool is executed. For more information, see the *Import from KNX Gateway Tool* topic on WebHelp.
6. In the Direction box, select the direction of the KNX-specific communication:
   - **KNX to Modbus**: Sends a KNX value to EcoStruxure BMS Modbus devices as a Modbus input point.
   - **Modbus to KNX**: Sends an EcoStruxure BMS value to the KNX device as a Modbus output point

     > **TIP:** The **Function** is based on the Direction box. If the direction is Modbus to KNX, the Function is a Write. If it is KNX to Modbus, the Function is a Read. For more information, see the *Import from KNX Gateway – Create Points Window* topic on WebHelp.
7. In the **Type** box, select the type of Modbus register you want to create.
8. In the **Value inverted** box, click Yes to invert the value.

9. In the **Address** box, enter the address of the Modbus register you are creating.

   A new datapoint has now been created under the KNX Modbus Gateway device. You configure all Modbus parameters in the datapoints. The datapoint objects you create such as a switch provide the method to bind a KNX object to the gateway object using group addresses.

10. Bind the **Group Address**, such as Group 0/0/6 – Switching, to the newly created Datapoint or Modbus register.

11. From the Group Address window in ETS, drag and drop the address you want (for example, 0/0/6) to the newly created Datapoint.

    This causes the KNX object actuator already bound to KNX push button switch to be bound to the Datapoint also.

You have now created a Three-way Grouping or Binding. You have also created the KNX Register in the KNX Gateway device.

For more information, see section 5.11 “Using the Import from KNX Gateway Tool to Consume the JSON File ” on page 92.

5.9 Configuring KNX Gateway Datapoint Registers

In EcoStruxure Building Operation, you configure KNX Gateway datapoint registers so they can operate with HMI references on hosted RP-C Modbus output points.

For more information, see section 5.1 “ETS and the KNX Modbus Gateway” on page 79.

To configure KNX Gateway datapoint registers

1. In the ETS Building Tree, log in and select the KNX Modbus Gateway device.
2. In the **Results** window, click the **Parameters** button.

   All the Datapoint channels (1-250) are now displayed.
3. Select the first Datapoint channel (for example, channel 1).
4. Configure the desired **Datapoint type**.
5. In the **Direction** box, select **KNX to Modbus** to send a KNX value to EcoStruxure BMS Modbus devices and create a Modbus input point.
6. Enter a Modbus address (for example, 1).
7. Select the second Datapoint channel (for example, channel 2).
8. Configure the desired Datapoint type to match the one selected for Channel 1.
9. In the Direction box, select **Modbus to KNX** to send a Modbus value to a KNX device and create a Modbus output point.
10. Enter the same Modbus address as Channel 1 (for example, Address 1).
11. Perform a **Download Application** on the KNX Gateway object to update the changes to the device.

5.10 Exporting the KNX Modbus Gateway Information to a JSON File

The KNX Modbus Gateway information is exported utilizing the KNX Modbus Gateway Configuration Tool DCA application. This produces a JSON file that the Import from KNX Gateway tool can consume.

For more information, see the *Import from KNX Gateway Tool* topic on WebHelp.

For more information, see section 5.3 “Configure the KNX Modbus Gateway Workflow” on page 81.

To export the KNX Modbus Gateway information to a JSON file

1. In ETS, in your **Project Tree**, select the KNX Modbus RTU Gateway 866 Device.
2. Click the **DCA tab** in the lower portion of the screen.
3. Click the **Load Configuration** button to display a preview of the JSON export file.

   Load Configuration collects all the Modbus register information in the KNX Modbus Gateway and creates a file that you can export.
4. Click the **Export Configuration** button.
5. Enter a file name and click **Save**.

The exported JSON file has now been saved.

5.11 Using the Import from KNX Gateway Tool to Consume the JSON File

You use the Import from KNX Gateway tool to consume the JSON file and view and configure the properties of the Modbus points it is about to create. You can then import those points into the RP Series controller.

> **NOTE:** Before doing so, be sure to verify that the KNX Gateway RP-C proxy device is online. If it is online, you can create Modbus points to read available values from device registers or write values to device registers.

For more information, see the *Import from KNX Gateway Tool* topic on WebHelp.

To use the Import from KNX Gateway tool to consume the JSON file

1. Identify the JSON file that you want to import.
2. In WorkStation, in the RP-C **System Tree** pane, browse to the Modbus Gateway device hosted under the RP-C Modbus Interface.
3. Click **Modbus Device**.
4. In the **File** menu, click **Import from json** to create Modbus points.
5. In the **Import from json** dialog box, select the JSON file that you want.
6. If a point already exists, select whether or not you want to **Update properties**.
7. Click **OK**.

   The Import from KNX Gateway - Create Points window now lists the points to be created and allows you to change selected information. For more information, see the *Import from KNX Gateway – Create Points Window* topic on WebHelp.
8. Press **Create Points** to create the new points.

   The point names are derived from the **Description** property of the datapoint object in ETS.

Modbus points are now created under the Modbus device object.

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