

## KNX ENO 610/612 (32-channel)

### Gateway between EnOcean and the KNX bus

Installation and operating manual



Fig. 1: KNX ENO 610



Fig. 2: KNX ENO 612

#### Application

KNX ENO 610 and 612 serve as gateways between EnOcean radio sensors and the KNX bus. A device has 32 channels, each of which can be configured with one of the following functions:

- Switch module touch sensor
  - Switching (on/off/toggling/sending value)
  - Switching and dimming
  - Blind up/down
- Temperature sensor with the following selectable options
  - Presence key and switch
  - Set point control
  - Multiple contact switch
  - Humidity sensor
- Window contact
- Binary input
- Light sensor
- Motion detector

#### Installation and connection

KNX ENO 610/612 is shipped in a on-wall mounted housing, for operating the KNX has to be connected. The KNX ENO 610 and 612 devices differ only in the housing; their functions are identical. KNX ENO 610 has a particularly compact design. KNX ENO 612 is suitable for mounting on a recessed wall box or on material with poor radio penetration properties (e.g. metal or concrete).

Select an installation location that lies within the range of the EnOcean sensors that will be used with the device. Avoid shielding objects (e.g. metal cabinets) and sources of interference (e.g. computers, electronic transformers, ballasts) near the gateway.



Fig. 3: KNX ENO 610



Fig. 4: KNX ENO 612

Detailed information on coverage planning and RF penetration can be found in the sensor data sheets.

The device is connected to the KNX bus through a bus terminal. Ensure that the polarity of the terminal is as shown on the device. The device is powered through the bus.

#### Initial state

A new gateway has the physical address of 15.15.255. There are no preset group addresses and connections to EnOcean devices.

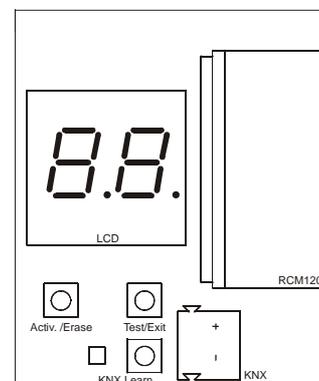


Fig. 5: Device with top open

To program the physical address (KNX) on the ETS, press the programming key ("Learn Key KNX"). This causes the red LED to light up ("Learn LED KNX"). It goes out after the device has received the physical address. The group address and parameter settings can then be programmed.

## Linking EnOcean devices

Before linking the gateway to the EnOcean devices, the functions of the individual channels must be programmed on the ETS. Up to four links can be learned per channel for touch sensors and window contacts. For temperature sensors, light sensors, motion detectors and binary inputs, only one EnOcean device can be learned per channel.

### Learn mode

EnOcean devices are learned on the two keys below the display:

- Left, brief pressure: "Enter Learn": Start learn mode
- Left, extended pressure: "Erase": Delete channel
- Right, brief pressure: "Test": Send test telegram(s)
- Right, extended pressure: "Exit Learn": Quit learn mode

"Extended pressure" means pressing the key for at least 2 seconds.

When the device is in normal mode, brief pressure on the left key ("Enter Learn") switches it into learn mode.

Briefly pressing the left key again switches to the next channel. The display alternates between the current channel number and the number of connected EnOcean devices. A dot in the center of the display indicates that the number of EnOcean devices is being displayed. To the right of the dot is the number of connected devices. If a further connection to this channel is not possible, the display shows an "F". To the left of the dot is the function set for that particular channel in the parameter settings:

- A: Switching
- B: Dimming with stop telegram (b)
- C: Blind
- D: Temperature sensor (d)
- E: Window contact
- F: Other sensor

In this mode, a transmitting EnOcean device can be connected to a cable if the device type matches the function defined in the parameter settings.

A connection is created by pressing the learn key (temperature sensor, window contact, light sensor, motion detector, binary input) or the key (switch module) on the EnOcean device.

If "Switching", "Dimming" or "Blind" is selected in the channel parameter settings, the channel can be linked with up to four different rockers or keys (with one-key control).

For the rocker functions, two opposite keys on a switch module are grouped to one rocker, so that up to four different rockers can be connected per channel.

By briefly activating the right key ("Test"), the communications objects connected to this channel are sent on the

bus if the communications objects are assigned group addresses.

The learn mode is terminated with extended pressure on the right key ("Exit Learn") or automatically if not operated for over 5 minutes.

### Deleting assignments

Links to EnOcean devices are deleted by:

- Long press of left button ("Erase") in learning mode (current channel)
- programming the application program via the ETS (all channels)

To maintain the EnOcean IDs during programming with ETS, the respective partial download (parameter / group addresses) must be selected. When choosing common partial download without sub-selection, however, ETS loads typically the complete data, so the EnOcean sensors will be erased.

If the function of a channel has been changed, also the partial programming of the parameters with ETS erases the links of this channel, because the stored sensors no longer correspond with the function of the channel.

### Normal mode

If the telegram of an EnOcean device is received in normal mode, every channel checks whether this device is assigned to it. If so, the number assigned to the respective channel is displayed briefly on the LCD and one or more telegrams relating to the function are sent on the bus. The frequency with which telegrams are sent is determined by the EnOcean device. The gateway only sends telegrams on the bus if a corresponding EnOcean telegram was received. If a received EnOcean telegram is not assigned to a channel, a zero appears in the display.

### Gateway functions

One of the following functions can be selected for each of the 32 channels. The selection is made in the Parameters menu of the ETS.

#### Switching

The following switching functions can be selected in the parameter settings:

##### - Toggling (Key)

Brief or extended pressure on the key causes the last ON or OFF telegram sent on the bus to be inverted and sent. If the write flag of the corresponding communications object is set on the ETS, the current value can also be set by the bus. In this way, the changeover function (toggle) can also be synchronized with other keys on the bus.

### - Off (Key)

Brief or extended pressure on the key causes an OFF telegram to be sent.

### - On (Key)

Brief or extended pressure on the key causes an ON telegram to be sent.

### - Value (Key)

Brief or extended pressure on the key causes the value defined in the parameter settings to be sent (e.g. dimming value of 50%).

### - Off/On (Rocker top/bottom)

Brief or extended pressure on the top key causes an OFF telegram to be sent. Pressure on the bottom key causes an ON telegram to be sent.

### - On/Off (Rocker top/bottom)

Same as above, but the functions of the top and bottom keys are reversed.

Communications objects except for "Value (key)"

| Comm. object        | KNX type      | Size  |
|---------------------|---------------|-------|
| Channel ...: Switch | 1.001 (EIS 1) | 1 bit |

Communications objects for "Value (key)"

| Comm. object       | KNX type      | Size   |
|--------------------|---------------|--------|
| Channel ...: Value | 5.001 (EIS 6) | 1 byte |

## Dimming with stop telegram

The following functions can be selected to control a dimming actuator:

### - On/Off – Brighter/darker (One-key control)

Brief pressure on the key switches the dimmer on or off. Extended pressure on the key changes dimming to a brighter or darker setting. The sent telegram depends on the latest telegram sent by the gateway:

If the last command was "brighter" or "switch dimming on", dimming is switched off or darkened.

If the last command was "darker" or "switch dimming off", dimming is switched on or brightened.

Dimming stops changing when the key is released.

### - On/Off – Brighter/darker (Rocker top/bottom)

Brief pressure on the top key switches the dimmer on. Brief pressure on the bottom key switches the dimmer off. Extended pressure on the top key causes dimming to brighten. Extended pressure on the bottom key causes dimming to darken.

Dimming stops changing when the key is released.

### - Off/On – Darker/brighter (Rocker top/bottom)

Same as above, but the functions of the top and bottom keys are reversed.

| Comm. object           | KNX type      | Size   |
|------------------------|---------------|--------|
| Channel ...: Switching | 1.001 (EIS 1) | 1 bit  |
| Channel ...: Dimming   | 3.007 (EIS 2) | 4 bits |

## Moving blind/slats

The following functions are available for controlling a blind actuator:

### - Slats – Blind up/down (One-key control)

Extended pressure on the key causes the move command for the blind to be sent. The direction of the move command changes every time the key is pressed.

Brief pressure on the key stops the blind. If the blind is already at a standstill, brief pressure rotates the slats. The direction of rotation sent by the command is opposite to the direction of the last move command sent by the gateway.

### - Slats – Blind up/down (Rocker top/bottom)

Extended pressure on the key causes the move command for the blind to be sent. Brief pressure on the key stops the blind, or rotates the slats if the blind is already at a standstill.

The command direction is up for the top key and down for the bottom key.

### - Slats – Blind down/up (Rocker top/bottom)

Same as above, but the functions for the top and bottom keys are reversed.

| Comm. object       | KNX type      | Size  |
|--------------------|---------------|-------|
| Channel ...: Slats | 1.009 (EIS 1) | 1 bit |
| Channel ...: Blind | 1.008 (EIS 1) | 1 bit |

## Temperature sensor

The following temperature sensors can be learned:

- Thermokon series SR04/SR07
- Thermokon series SR04 rH (with rel. humidity)
- Omnio series RTF10x
- Thermokon SR65VFG/SR65AKF
- Thermokon SR65/SR65TF

| Comm. object             | KNX type      | Size    |
|--------------------------|---------------|---------|
| Channel ...: Temperature | 9.001 (EIS 5) | 2 bytes |

The following sensors are supported in addition to the temperature sensor:

### - Slide switch / Presence key

Some Thermokon devices have either a presence key or a slide switch.

If the "Presence key" function is selected on the ETS, pressing the key causes the gateway to send an ON telegram. An OFF telegram is not sent in this case.

If the slide switch is selected, the gateway evaluates the status of the switch every time a telegram is sent. If the status has changed, the corresponding telegram is sent.

| Comm. object          | KNX type      | Size  |
|-----------------------|---------------|-------|
| Channel ...: Presence | 1.001 (EIS 1) | 1 bit |

#### - Set point adjustment

For the set point adjustment, the temperatures that are to be sent when the switch is positioned all the way to the left and right can be set. These two limit values are used to calculate the values sent for the positions between these limits. The resolution is 0.5°C. If the right limit is lower than the left limit, the values are exchanged. The maximum adjustable range of the limit values is from -30 °C to +30 °C.

| Comm. object                          | KNX type      | Size    |
|---------------------------------------|---------------|---------|
| Channel ...: Set point<br>Temperature | 9.001 (EIS 5) | 2 bytes |

#### - Multiple contact switch

Depending on the device type, different functions are available for the multiple contact switch:

Omnio devices have 4 stages for the "Automatic", "Day", "Night" and "Frost" control modes. If the switch is set to one of these stages, an ON telegram is sent for that mode.

| Comm. object           | KNX type      | Size  |
|------------------------|---------------|-------|
| Channel ...: Automatic | 1.001 (EIS 1) | 1 bit |
| Channel ...: Day       | 1.001 (EIS 1) | 1 bit |
| Channel ...: Night     | 1.001 (EIS 1) | 1 bit |
| Channel ...: Frost     | 1.001 (EIS 1) | 1 bit |

Thermokon devices have 5 stages: "AUTO", "0", "I", "II" and "III". If the switch is set to stages "I", "II" or "III", the percentage set in the parameter settings is sent as a telegram.

If the switch is set to stage "0", a value of "0%" is sent. An OFF telegram is also sent, for example to close the valves. If the switch is changed from the "0" stage to another stage, an ON telegram is sent, for example to open the valves again.

If the switch is set to the "AUTO" stage, an ON telegram is sent from the corresponding communications object. If the switch is changed from the "AUTO" stage to another stage, an OFF telegram is sent.

| Comm. object           | KNX type      | Size   |
|------------------------|---------------|--------|
| Channel ...: Fan stage | 5.001 (EIS 6) | 1 byte |
| Channel ...: Automatic | 1.001 (EIS 1) | 1 bit  |
| Channel ...: Valves    | 1.001 (EIS 1) | 1 bit  |

#### - Humidity sensor

When this Thermokon series is selected, the relative humidity value delivered by the sensor is transmitted.

| Comm. object               | KNX type      | Size   |
|----------------------------|---------------|--------|
| Channel ...: Rel. humidity | 5.001 (EIS 6) | 1 byte |

### Window contact

Up to 4 EnOcean window contacts can be linked to one channel. Which telegram is sent when a window is opened or closed can be set in the parameter settings. When a

single open window is detected, the telegram for open windows is sent. The telegram for closed windows is not sent until the last window is closed.

| Comm. object        | KNX type      | Size  |
|---------------------|---------------|-------|
| Channel ...: Window | 1.001 (EIS 1) | 1 bit |

### Other sensors

#### - Thermokon SR65LI light sensor

If this option is selected, the lux value sent by the sensor is transmitted to the bus.

| Comm. object     | KNX type      | Size    |
|------------------|---------------|---------|
| Channel ...: Lux | 9.004 (EIS 5) | 2 bytes |

The light measurement range defined using jumpers on the sensor must be set correctly in the parameter settings.

#### - Thermokon SR65DI binary input

If the contact at the sensor input is closed, the gateway sends an ON telegram. If the contact is opened, it sends an OFF telegram. The sent value can be inverted by setting a parameter.

| Comm. object              | KNX type      | Size  |
|---------------------------|---------------|-------|
| Channel ...: Binary input | 1.001 (EIS 1) | 1 bit |

#### - Thermokon SR PIR 360° motion detector

If the sensor detects motion, the gateway sends an ON telegram. It sends an OFF telegram after a time period that can be set on the sensor. The sending of this telegram after expiration of the time period can be suppressed in the parameter settings. The telegram to be sent can be inverted by setting a parameter.

| Comm. object          | KNX type      | Size  |
|-----------------------|---------------|-------|
| Channel ...: Movement | 1.001 (EIS 1) | 1 bit |



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