KNX USB Interface

USB-C-IF/KNX REG

Operating instructions / Application description

90408

Subject to technical changes

All device data can also be found here:

https://beg-luxomat.com/qr.php?prtno=90408

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Content

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1 About this document

1.1 Applicable documents

Brief operating instructions (enclosed with the device).

1.2 Means of presentation used

	Symbol for danger to life due to electric shock
	Symbol for possible danger to persons
	Symbol for possible material damage
	Symbol for useful information and tips
NOTE	Signal word for possible material damage
CAUTION	Signal word for possible minor injuries
WARNING	Signal word for possible serious injuries
DANGER	Signal word for possible fatal injuries

1.3 Prerequisites for understanding

	NOTE
	**KNX knowledge** A KNX commissioning or project planning course is required to understand this application description.

2 Security

The USB-C-IF/KNX REG has been developed, manufactured and tested in compliance with the applicable safety standards. It corresponds to the state of the art.

2.1 Intended use

The USB-C-IF/KNX REG serves as a data interface between a PC or laptop and the KNX installation bus.

CAUTION

Observe the intended use!

The protection of operating personnel and the appliance is not guaranteed if the appliance is not used in accordance with its intended use.

➜ Only use the device in accordance with its intended use.

➜ B.E.G. Brück Electronic GmbH is not liable for damage caused by improper use.

➜ Read these operating instructions before commissioning the appliance. Knowledge of the operating instructions is part of the intended use.

NOTE

Comply with regulations and provisions!

➜ Observe the locally applicable statutory regulations and the regulations of the employers' liability insurance associations.

WARNING

Work on electrical systems may only be carried out by qualified electricians or by instructed persons under the direction and supervision of a qualified electrician in accordance with the electrotechnical regulations.

Danger of electric shock.
Device is not suitable for unlocking.

Danger of electric shock.

➜ Before working on the appliance or replacing lamps, disconnect the mains voltage and switch off the circuit breaker.

2.2 Foreseeable misuse

Any use other than that specified under "Intended use" or any use beyond this is considered improper use.
Use of the device is not permitted in the following cases in particular:

- in rooms with explosive atmospheres
- in safety-relevant circuits
- for medical purposes

NOTE

Do not tamper with or modify the device!

➜ Do not tamper with or modify the appliance. Interventions and modifications to the device are not permitted.

➜ The appliance must not be opened. It does not contain any parts to be adjusted or maintained by the user.

➜ Repairs may only be carried out by B.E.G. Brück Electronic GmbH.

2.3 Qualified persons / qualified electricians

Connection, installation, commissioning and adjustment of the appliance may only be carried out by authorised persons.
Requirements for authorised persons:

- You have suitable technical training.
- They know the rules and regulations on occupational health and safety.
- You are familiar with the operating instructions for the device.
- They were instructed in the installation and operation of the appliance by the person responsible.

2.3.1 Qualified electricians

Work on electrical systems may only be carried out by qualified electricians or by instructed persons under the direction and supervision of a qualified electrician in accordance with the electrotechnical regulations.
Due to their specialist training, knowledge and experience as well as knowledge of the relevant standards and regulations, qualified electricians are able to carry out work on electrical systems and recognise potential hazards independently.
In Germany, qualified electricians must fulfil the provisions of accident prevention regulation DGUV regulation 3 (e.g. master electrician). Corresponding regulations apply in other countries and must be observed.

2.4 Disclaimer

B.E.G. Brück Electronic GmbH is not liable in the following cases:

- The appliance is not being used as intended.
- Reasonably foreseeable misapplications are not taken into account.
- Installation and electrical connection are not carried out professionally.
- Changes (e.g. structural) are made to the device.

3 General information

3.1 Basics of the KNX BUS

A KNX commissioning or project planning course is required to understand these instructions.
Before you can work with the B.E.G. application, it must first be imported into the ETS.

3.2 Symbolism

Various symbols are used in the following application description to provide a better overview. These symbols are briefly explained here.

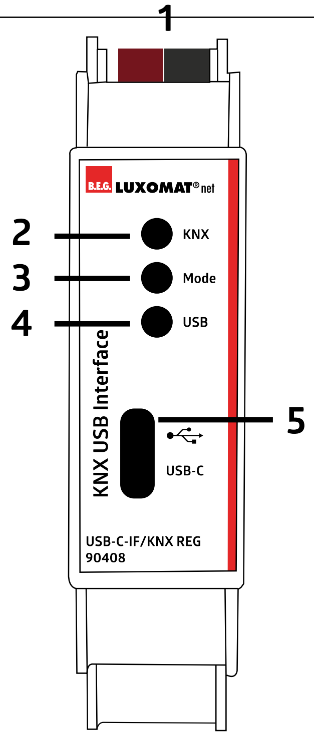
	This symbol indicates text passages that must be read in order to avoid errors during project planning and commissioning.
	This symbol indicates parameter settings which experience has shown to lead to optimum utilisation of the appliance.

4 Functional description

4.1 Application

The device can be used as a programming interface for the ETS® software and supports KNX long frames. Long telegrams enable a faster download to devices that support these telegrams and are required for KNX Security.
The LEDs in the device indicate the operating status and communication errors on the bus. The USB connection (USB C) is electrically isolated from the KNX bus.
The USB-C-IF/KNX REG is mounted on a top-hat rail and requires 1 TE (18 mm) of space. It has the following operating elements and displays:

4.2 Device structure



1	KNX BUS connection
2	LED **KNX**, multicoloured
3	LED **mode**, multicoloured
4	LED **USB**, multicoloured
5	**USB-C** connection

5 Installation and electrical connection

	WARNING
⚠	Work on electrical systems may only be carried out by qualified electricians or by instructed persons under the direction and supervision of a qualified electrician in accordance with the electrotechnical regulations. De-energise the cable before installation! This device is not suitable for unlocking. Observe KNX installation guidelines!

	DANGER
⚠	**Danger to life due to electric shock!** **Electric shock can lead to death.** **Switch off and cover live parts in the vicinity before working on the appliance!**

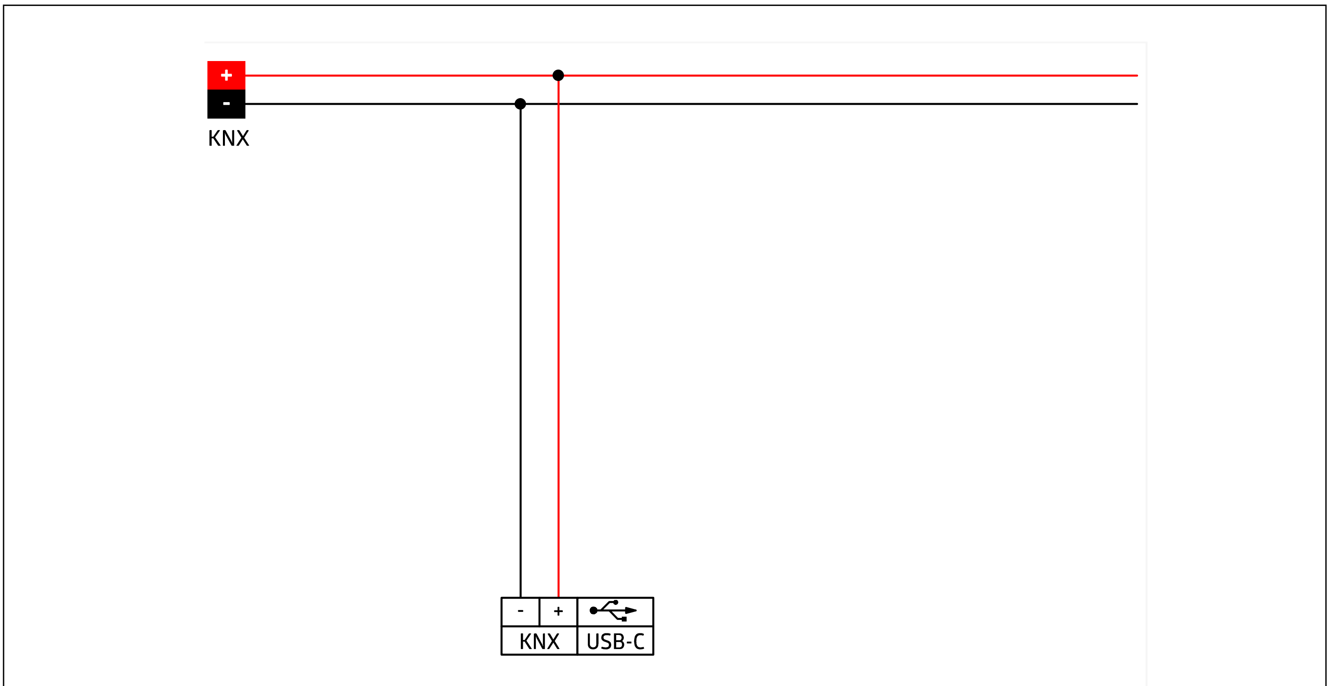
5.1 Installing the device

The appliance may only be used indoors be used indoors.
The KNX connection is marked on the Housing is marked with +/- for the of the bus.

5.2 Connect device

	DANGER
⚠	**Electric shock when touching live parts.** **Electric shock can lead to death.** **Switch off and cover live parts in the vicinity before working on the appliance!**

Connect the KNX bus connection and the power supply as shown in the following connection diagram.



5.3 KNX connection

	CAUTION
⚠	**Observe KNX installation regulations!** This device complies with the KNX guidelines. Detailed knowledge of the KNX system is required for commissioning.

6 Commissioning

Once the device has been installed and the bus line has been connected, the device can be put into operation. It will the following procedure is generally recommended.

6.1 KNX programming mode

The physical address of the interface is set locally via the ETS. For this reason, there is no programming button or programming LED on the device.
If programming mode is activated via the BAOS protocol, this is indicatedby the Mode **3** LED lighting up red .

6.2 Status display

The KNX **2** LED lights up green when KNX bus voltage is present. When this LED flickers, telegram traffic is taking place on the KNX bus.
Errors in KNX communication (e.g. telegram repetitions or telegram fragments) are indicated by a brief colour change to red.
Summary of the states of the KNX **2** LED :

LED behaviour	Meaning
LED lights up green	KNX bus voltage present
LED flashes green	Telegrams on the KNX bus
LED lights up red briefly	Communication error on the KNX bus

The Mode **3** LED lights up green when the device is connected to USB. If the interface is set to bus monitor mode, this LED lights up orange.
Summary of the states of the LED Mode **3**:

LED behaviour	Meaning
LED lights up green	USB active
LED lights up red	Programming mode was activated via BAOS protocol
LED lights up orange	Interface is set to bus monitor mode

The USB **4** LED lights up green when the device is connected to USB. If this LED flickers, USB detects telegram traffic.
Errors in USB communication are indicated by a brief colour change to red.
Summary of the states of the USB **4** LED :

6.3 USB Suspend

When the PC or laptop switches to sleep mode, connected USB devices are also switched to sleep mode to save energy. Computers with MS Windows® 8.1 or higher can also set unused peripheral devices to standby mode during normal operation. In standby mode, both LEDs of the KNX USB interface are switched off.

6.4 Factory settings

The following configuration is preset at the factory:
Physical address of the device: **15.15.255**

7 ETS database

The ETS5 database (for ETS 5.7 or newer) can be downloaded from the product website (www.beg-luxomat.com) .
The ETS entry is not required to use the KNX USB interface as a programming interface. It is only a placeholder to show all installed devices in the topology.

7.1 Interface settings in the ETS

7.1.1 ETS 5

In ETS 5, interfaces can be selected and configured via the ETS menu "Bus - Interfaces". All available connections are listed under "Found interfaces". After clicking on the desired connection, connection-specific information and options appear on the right-hand side of the ETS window. the "Select" button can be used to select the chosen connection as the "Current interface".

7.1.2 ETS 6

In ETS 6, interfaces can be selected and configured in the ETS project using the "Interface" button. All available connections are listed here.

Click on a connection to select it as the desired interface.
Click on the cogwheel next to the desired connection to display the connection-specific information and options.

8 Bus monitor mode

The KNX USB interface supports bus monitor mode, which can also be used with the ETS. In bus monitor mode, all traffic on the KNX bus is displayed with ACK, NACK and BUSY characters.
Interfaces in bus monitor mode behave completely passively on the bus and therefore cannot be used simultaneously for other operations such as downloading. The group monitor can be used to monitor an ETS download within the same ETS. The group monitor uses the KNX USB interface in normal mode (data link layer) and can be used in parallel with other bus operations. It is also possible to send telegrams in the group monitor.

	NOTE
!	In group monitor mode, physically addressed telegrams that do not address the KNX USB interface are not received.

8.1 KNX Long Frames

Standard KNX telegrams are limited to an APDU length of 15. The APDU length is the number of bytes of user data. A group telegram with a 14-byte string (KNX data point type 16) results in an APDU length of 15.
An extended format has been defined to increase the efficiency of KNX communication, especially for downloads. It can be used to send longer telegrams on the bus. To be able to use this function, it must be supported by

- the software (ETS)
- the bus interface (USB)
- all couplers in between
- the addressed device

ETS version 5 and higher can automatically detect whether long frames can be used and optimises the download accordingly.
The maximum APDU length of the KNX USB interface used by the ETS is 55. This length was specified as a requirement for new KNX system devices. An APDU length of 55 results in the total length of a KNX telegram on twisted pair of 64 bytes and occupies the bus for approx. 90 ms.

	NOTE
!	The download is significantly faster if the USB interface is installed in the same line as the target device. The download time increases with each line coupler in between.

9 Care, maintenance and disposal

9.1 Cleaning

Normally, cleaning is not required. However, if cleaning is necessary, please observe the following instructions.

	DANGER
	Electric shock when touching live parts. **Electric shock can lead to death.** **Switch off and cover live parts in the vicinity before working on the appliance!**

If necessary, clean the surface of the appliance with a soft, lint-free cloth.

	NOTE
	Do not use aggressive cleaning agents! ➜ Do not use aggressive cleaning agents such as thinner or acetone to clean the device. ➜ Only use a fibre-free cloth for cleaning. ➜ Pointed and hard objects can destroy the device.

9.2 Maintain

The appliance does not normally require any maintenance by the operator. Repairs to the appliances may only be carried out by the manufacturer.
For repairs, please contact your local B.E.G. Brück Electronic branch or B.E.G. Brück Electronic GmbH, Germany directly.

9.3 Disposal

Observe the applicable national regulations for electrical components when disposing of them.

10 Diagnosis / troubleshooting

	NOTE
!	**Diagnosis / troubleshooting via the ETS!** → Use the corresponding functions of the ETS for diagnostics / troubleshooting, e.g. ■ Group monitor ■ Bus monitor ■ Line scan

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11 Service / Support

11.1 Manufacturer's warranty

The company B.E.G. Brück Electronic GmbH grants a warranty in accordance with the warranty conditions, which you can download from the website at https://www.B.E.G.-luxomat.com/service/downloads/.

11.2 Contact details

Service hotline:
+49 (0)2266 90121-0
Monday to Thursday 8.00 to 16.00 (UTC+1)
Friday 8.00 to 15.00 (UTC+1)

E-mail:
support@beg.de

Return address for repairs:
Contact your B.E.G. branch or agency.
You can find the contact details at https://www.beg-luxomat.com/en-in/service/service-points/.

Or contact directly
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