

B.E.G.

LUXOMAT® net

KNX IP interface with KNX security



LAN-IF/KNXs REG

Operating Manual

90404

All device data can also be found here:



<https://beg-luxomat.com/qr.php?prtno=90404>

© 2020

B.E.G. Brück Electronic GmbH
Gerberstraße 33
51789 Lindlar
GERMANY

Phone: +49 (0) 2266 90121-0
Fax: +49 (0) 2266 90121-50
E-mail: info@beg.de
Internet: www.beg-luxomat.com

| | | |
|----------|--|----------|
| 1 | About this document | 3 |
| 1.1 | Other applicable documents | 3 |
| 1.2 | Used symbols and signal words | 3 |
| 2 | Safety | 3 |
| 2.1 | Intended use | 3 |
| 2.2 | Foreseeable misuse | 4 |
| 2.3 | Qualified persons / electricians | 4 |
| 2.3.1 | Certified electricians | 4 |
| 2.4 | Disclaimer | 5 |
| 3 | Device description | 5 |
| 3.1 | Device overview | 5 |
| 3.2 | Function | 6 |
| 3.2.1 | KNX Security | 6 |
| 3.2.2 | KNX IP Security for the interface function | 6 |
| 3.2.3 | KNX Data Security for the device | 6 |
| 4 | Mounting | 7 |
| 5 | Electrical connection | 8 |
| 6 | Commissioning | 9 |
| 6.1 | Factory default settings | 9 |
| 6.1.1 | Reset to factory default settings (Master-Reset) | 9 |
| 6.2 | KNX programming mode | 9 |
| 6.3 | Manual operation and status display | 10 |
| 6.4 | Commissioning via ETS | 12 |
| 6.4.1 | Programming with the ETS | 12 |
| 6.4.1.1 | Via the KNX bus | 12 |
| 6.4.1.2 | Via KNXnet/IP Tunneling | 12 |
| 6.4.1.3 | Via direct IP connection | 12 |
| 6.4.2 | Interface settings within ETS | 13 |
| 6.4.3 | ETS product database | 15 |
| 6.4.4 | Project password | 16 |
| 6.4.5 | Device certificate | 17 |
| 6.4.6 | Device properties | 18 |
| | KNX addresses | 18 |
| | Device properties – Settings | 19 |
| | Device properties – IP | 21 |
| 6.4.7 | Setting parameters with the ETS | 23 |
| | General settings | 23 |




| | | |
|-----------|--|-----------|
| 7 | Care, maintenance and disposal | 24 |
| 7.1 | Cleaning | 24 |
| 7.2 | Maintenance | 24 |
| 7.3 | Disposing | 24 |
| 8 | Diagnostics and troubleshooting | 24 |
| 9 | Service and support | 25 |
| 9.1 | Manufacturer's warranty | 25 |
| 9.1.1 | Product code | 25 |
| 9.2 | Contact details | 25 |
| 10 | Technical Data | 26 |
| 10.1 | General data | 26 |
| 10.2 | Dimensioned drawings LAN-IF/KNXs REG | 27 |
| 11 | EU declaration of conformity | 27 |
| 12 | Annex – Open Source Licenses | 28 |

1 About this document

1.1 Other applicable documents

Short operating manual 90404M1_Short_MAN_LAN-IF_KNXs_REG_de_en_fr_nl_V1 (supplied with the device).

1.2 Used symbols and signal words



| | |
|---|---|
|  | Symbol indicating possible dangers to persons |
|  | Symbol indicating possible property damage |
|  | Symbol for useful information and tips |
| NOTICE | Signal word for possible property damage |
| CAUTION | Signal word for possible minor injuries |
| WARNING | Signal word for possible serious injuries |
| DANGER | Signal word for possible fatal injuries |

2 Safety

The KNX IP interface LAN-IF/KNXs REG was developed, manufactured and tested in accordance with the applicable safety standards. It corresponds to the state of the art.

2.1 Intended use

The device is a KNX IP interface with KNX security for indoor installation in the sub-distribution cabinet.

| | |
|--|---|
|  CAUTION | |
|  | <p>Observe intended use!</p> <p>The protection of personnel and the device cannot be guaranteed if the device is operated in a manner not complying with its intended use.</p> <ul style="list-style-type: none"> → Only operate the device in accordance with its intended use. → B.E.G. Brück Electronic GmbH is not liable for damages caused by improper use. → Read these operating instructions before commissioning the device. Knowledge of the operating instructions is an element of proper use. |

NOTICE**Comply with conditions and regulations!**

→ Observe the locally applicable legal regulations and the rules of the employer's liability insurance association.

2.2 Foreseeable misuse

Any use other than that defined under "Intended use" or which goes beyond that use is considered improper use.

In particular, use of the device is not permitted in the following cases:

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

NOTICE**Do not modify or otherwise interfere with the device!**

→ Do not carry out modifications or otherwise interfere with the device. The device must not be tampered with and must not be changed in any way.

→ The device must not be opened. There are no user-serviceable parts inside.

→ Repairs must only be performed by B.E.G. Brück Electronic GmbH.

2.3 Qualified persons / electricians

Connection, mounting, commissioning and adjustment of the device must only be carried out by competent persons.

Prerequisites for competent persons:

- They have a suitable technical education.
- They are familiar with the rules and regulations for occupational safety and safety at work.
- They are familiar with the operating instructions for the device.
- They have been instructed by the responsible person on the mounting and operation of the device.

2.3.1 Certified electricians

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

Due to their technical training, knowledge and experience as well as their familiarity with relevant standards and regulations, certified electricians are able to perform work on electrical systems and independently detect possible dangers.

In Germany, certified electricians must fulfill the requirements of accident-prevention regulations DGUV (German Social Accident Insurance) provision 3 (e.g. electrician foreman). In other countries, there are respective regulations that must be observed.

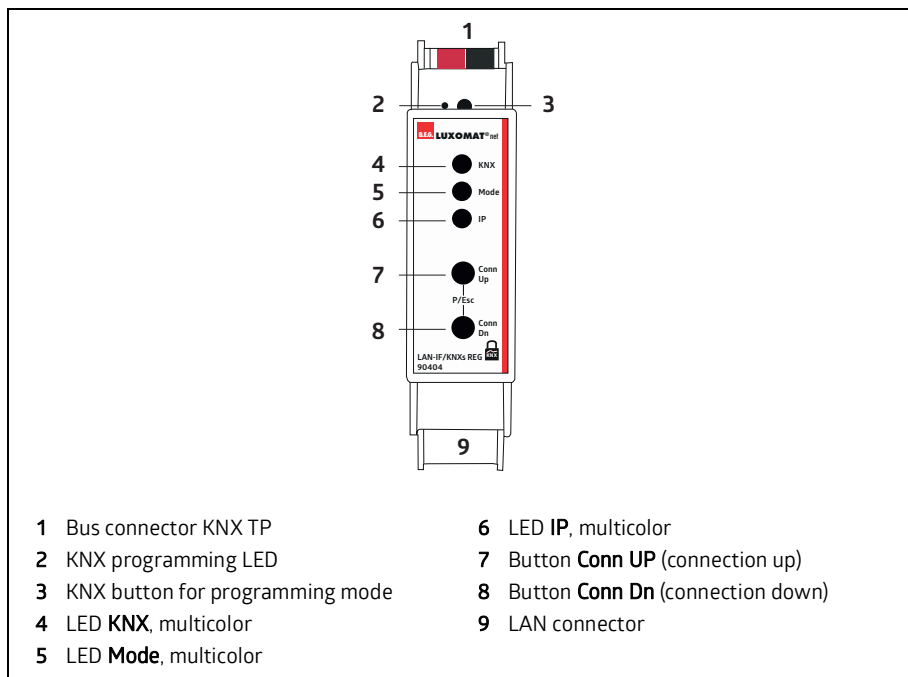
2.4 Disclaimer

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

- The device is not being used properly.
- Reasonably foreseeable misuse is not taken into account.
- Mounting and electrical connection are not properly performed.
- Changes (e.g., constructional) are made to the device.

3 Device description

3.1 Device overview



The Device LAN-IF/KNXs REG serves as an universal interface for PC or Laptop to the KNX bus. The KNX bus can be accessed from any point on the LAN. The LAN-IF/KNXs REG can be used as a programming interface for ETS[®]. For access via KNXnet/IP Tunneling max. 8 simultaneous connections are possible.

The device supports KNX Security. The option can be activated in the ETS. As a secure interface, the device prevents unauthorised access to the system.

The IP address can be assigned via DHCP or via the ETS configuration. The device operates according to the KNXnet/IP specification using core, device management and tunneling.

Power is supplied via the KNX bus.

3.2 Function

3.2.1 KNX Security

The KNX standard was extended by **KNX Security** to protect KNX installations from unauthorized access. KNX Security reliably prevents the monitoring of communication as well as the manipulation of the system.

The specification for KNX Security distinguishes between **KNX IP Security** and **KNX Data Security**. KNX IP Security protects the communication over IP while on KNX TP the communication remains unencrypted. Thus KNX IP Security can also be used in existing KNX systems and with non-secure KNX TP devices.

KNX Data Security describes the encryption at telegram level. This means that the telegrams on the twisted pair bus are also encrypted.

3.2.2 KNX IP Security for the interface function

When using a KNX IP interface to the bus, access to the installation is possible without security for all devices that have access to the IP network. With KNX Security a password is required. A secure connection is already established for the transfer of the password. All communication via IP is encrypted and secured.

In both modes, the interface forwards both encrypted and unencrypted KNX telegrams. The security properties are checked by the respective receiver or tool.

3.2.3 KNX Data Security for the device

The LAN-IF/KNXs REG also supports KNX Data Security to protect the device from unauthorised access from the KNX bus. If the KNX IP interface is programmed via the KNX bus, this is done with encrypted telegrams.

INFO

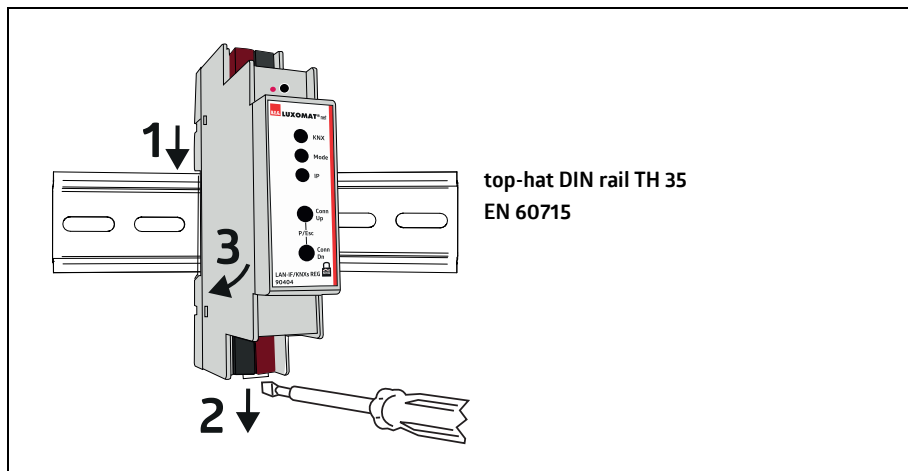
Encrypted telegrams!



Encrypted telegrams are longer than the previously used unencrypted ones. For secure programming via the bus, it is therefore necessary that the interface used (e. g. USB) and any intermediate line couplers support the so-called KNX long frames.

4 Mounting

The LAN-IF/KNXs REG is fixed to a top-hat DIN rail in the sub-distributor and requires 1 division unit (18 mm) of space.



CAUTION



Observe KNX installation regulations!

This device complies with the KNX guidelines. Detailed knowledge of the KNX system is required for commissioning.

5 Electrical connection

⚠ CAUTION



Observe KNX installation regulations!

This device complies with the KNX guidelines. Detailed knowledge of the KNX system is required for commissioning.

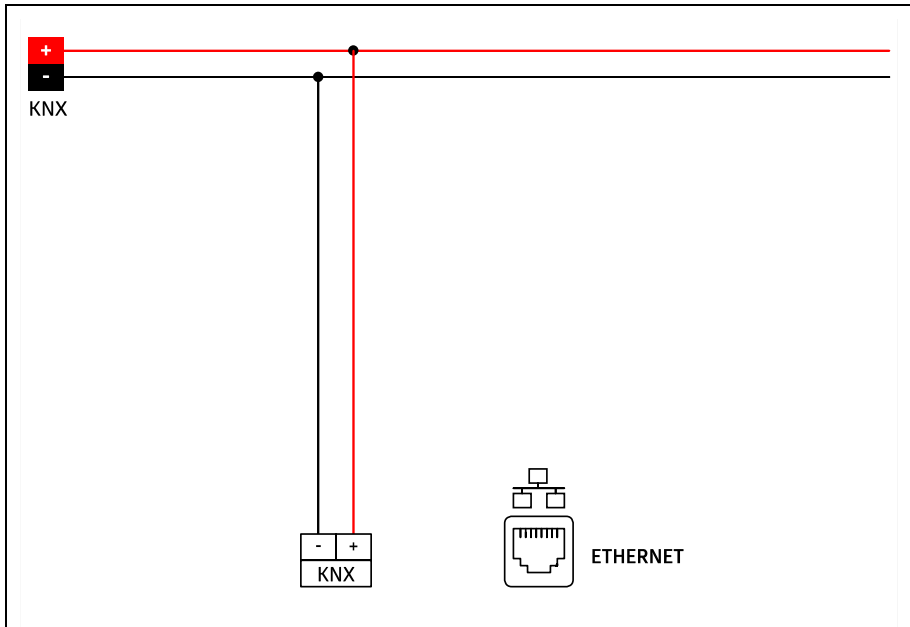
The device is powered via the KNX bus. It is not necessary to connect an external supply voltage.

NOTICE



Missing bus voltage!

If there is no bus voltage, the device has no function.





6 Commissioning

6.1 Factory default settings

The following configuration is set by factory default:

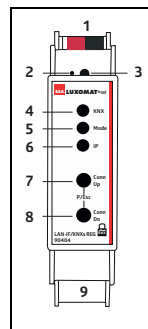
| | |
|---|------------|
| Individual device address: | 15.15.255 |
| Number of configured KNXnet/IP tunneling connections: | 1 |
| Individual address of tunneling connection: | 15.15.240 |
| IP address assignment: | DHCP |
| Initial key (FDSK): | active |
| Security mode: | not active |

6.1.1 Reset to factory default settings (Master-Reset)

| | |
|--|--|
|  CAUTION | |
|  | Factory default settings! The individually made settings are lost. |

It is possible to reset the device to its factory settings:

- Separate the KNX bus connector (1) from device
- Press the KNX programming button (3) and keep it pressed down
- Reconnect the KNX bus connector (1) to the device
- Keep the KNX programming button (3) pressed for at least another 6 seconds
- A short flashing of all LEDs (2, 4, 5, 6) visualizes the successful reset of the device to factory default settings.



6.2 KNX programming mode

The KNX programming mode is activated/deactivated either by pressing the flushed KNX programming button (3) or by simultaneously pressing the buttons (7) and (8).

6.3 Manual operation and status display

The **KNX LED (4)** lights up green if the device is successfully powered by the KNX bus. If the LED is flickering, telegram traffic takes place on the KNX bus.

Errors in the communication (e.g. repetitions of telegrams or telegram fragments) are indicated by a short change of the LED color to red.

Overview of the different indications of the KNX LED (4):

| LED Status | Meaning |
|-------------------------|-------------------------------------|
| LED lights green | KNX bus voltage available. |
| LED flickers green | Telegram traffic on the KNX bus. |
| LED flashes red shortly | Communication error on the KNX bus. |

The **IP LED (6)** lights up when an Ethernet link is active. This LED is green if the device has valid IP settings (IP address, Sub net and Gateway). With invalid or nonexistent IP settings the LED is red. This is also the case if e.g. the device has not yet received the IP settings by a DHCP server. The LED indicates IP telegram traffic by flickering.

Overview of the different indications of the IP LED (6):

| LED Status | Meaning |
|--------------------|--|
| LED lights green | The device has an active Ethernet link and valid IP settings. |
| LED lights red | The device has an active Ethernet link and invalid IP settings or not yet received the IP settings by a DHCP server. |
| LED flickers green | IP telegram traffic. |

The **Mode LED (5)** can visualize the status of each KNXnet/IP tunneling connection.

With the buttons **Conn Up/Conn Dn (7, 8)** you can chose each single connection. **Conn Up (7)** counts the connection numbers up and **Conn Dn (8)** down. The actually selected connection number is indicated by flashing (1x ... 5x) of the **Mode LED (5)**. An available KNXnet/IP Tunneling connection is indicated by a green LED and a used tunneling connection is indicated by an orange LED.

Via the Escape function (**Esc**) this indication can be ended by simultaneously pressing the buttons **Conn Up/Conn Dn (7, 8)**.

If neither programming mode nor manual operation are active the **Mode LED (5)** can visualize configuration errors.

Overview of the different indications of the Mode LED (5):

| LED Status | Meaning |
|------------------------------|--|
| LED lights green | Device is working in standard operation mode. |
| LED lights red | Programming mode is active. |
| LED flashes green 1x ... 5x | Programming mode is not active. Manual operation (status indication) is active: The selected tunnel (1 ... 5) is not used and free |
| LED flashes orange 1x ... 5x | Programming mode is not active. Manual operation (status indication) is active: The selected tunnel (1 ... 5) is used. |
| LED flashes red | Programming mode is not active. Manual operation is not active: The device is not properly loaded e.g. after an interrupted down-load. |

6.4 Commissioning via ETS

6.4.1 Programming with the ETS

The LAN-IF/KNXs REG can be programmed in different ways via the ETS:

6.4.1.1 Via the KNX bus

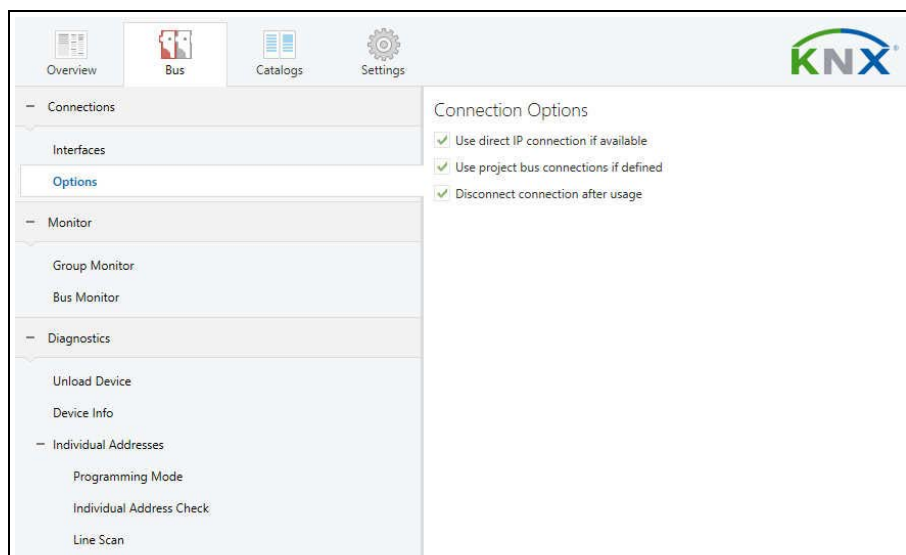
The device only needs to be connected to the KNX bus. The ETS requires an additional interface (for example, USB) to have access to the bus. Via this way both the individual address and the entire application including IP configuration can be programmed. Programming via the bus is recommended if no IP connection can be established.

6.4.1.2 Via KNXnet/IP Tunneling

No additional interface is required. Programming via KNXnet/IP Tunneling is possible if the device already has a valid IP configuration (e.g. via DHCP). In this case the device is displayed in the interface configuration of the ETS and must be selected. The download is executed via the ETS project as with many other devices.

6.4.1.3 Via direct IP connection

While KNXnet/IP tunneling is limited to the speed of KNX TP, the device can be loaded at high speed via a direct IP connection. The direct IP connection is possible if the device already has a valid IP configuration as well as a physical address. To do this, select "**Use direct IP connection if possible**" in the ETS menu under "**Bus -> Connections -> Options**". The download then takes place directly into the device and is not visible in the ETS group monitor.



INFO

Due to the significantly shorter transmission times, it is recommended to perform downloads via IP.

6.4.2 Interface settings within ETS

The LAN-IF/KNXs REG serves as a programming interface. The ETS can use this function to establish a connection via IP to the respective TP line.

Within the ETS, KNX interfaces can be selected and set up via the ETS menu "**Bus --> Interfaces**".

The ETS can access configured KNX IP Interfaces even without a database entry. If the setup of the KNX IP Interface does not comply with the conditions of the KNX installation it must be configured via the ETS project. See section "ETS product database" on page 15 for more information.

If security mode is activated in the KNX IP Interface, a password is required to establish a connection.

As factory default the assignment of the IP address is set to "automatically via DHCP" and thus no further settings are necessary. To use this feature a DHCP server on the LAN must exist (e.g. many DSL routers have an integrated DHCP server).

If the KNX IP interface has been connected to the LAN and has a valid IP address, it should appear automatically in the menu item "**Bus**" under "**Discovered interfaces**".

By clicking on the discovered interface it is selected as the current interface. On the right side of the ETS window all specific information and options of the connection appear.

The indicated device name and the "**Host Individual Address**" (individual address of the device) can only be changed within your ETS project then.

Like all programmable KNX devices the LAN-IF/KNXs REG has an individual address which can be used to access the device. This is used, for example, by the ETS when downloading to the KNX IP Interface via the bus.

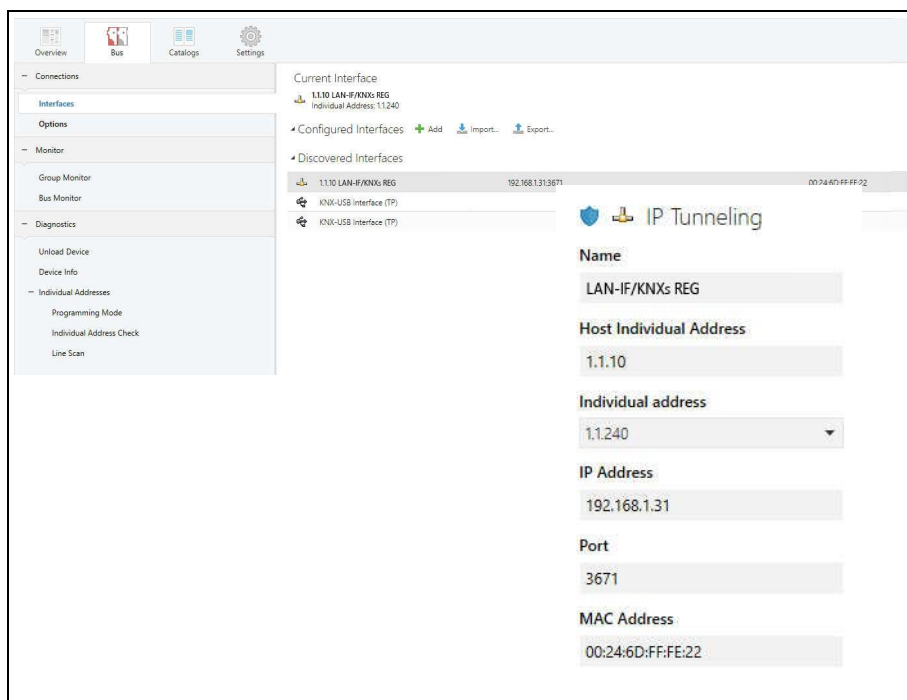
For the interface function the device contains additional individual addresses that can be set in the ETS. When a client (e.g. ETS) sends telegrams to the bus via the KNX IP Interface, these contain one of the additional addresses as the sender address. Each address is assigned to a connection. This means that response telegrams can be uniquely forwarded to the respective client.

The additional individual addresses must be selected from the address range of the bus line in which the interface is installed and may not be used by another device.

Example:

| | | |
|----------------|----------------|-------------------------------|
| Device address | 1.1.10 | (address within ETS topology) |
| Connection 1 | 1.1.240 | (1. additional address) |
| Connection 2 | 1.1.241 | (2. additional address) |
| Connection 3 | 1.1.242 | (3. additional address) |
| Connection 4 | 1.1.243 | (4. additional address) |
| Connection 5 | 1.1.244 | (5. additional address) |
| Connection 6 | 1.1.245 | (6. additional address) |
| Connection 7 | 1.1.246 | (7. additional address) |
| Connection 8 | 1.1.247 | (8. additional address) |

Section “**Individual Address**” enables you to select the individual KNX address of the currently used KNXnet/IP Tunneling connection.



The individual KNX device address and the individual addresses for additional tunneling connections can be changed within the ETS project after the device has been added to the project.

6.4.3 ETS product database

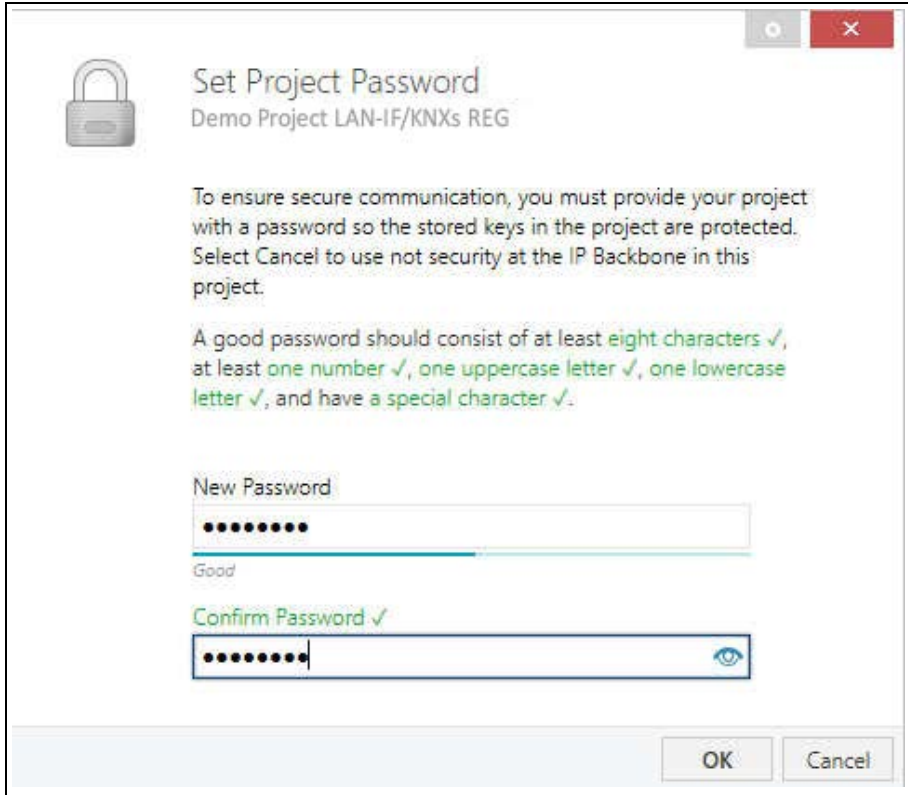
The ETS product database (ETS 5.7 or higher) can be downloaded from the product website of the LAN-IF/KNXs REG:



<https://beg-luxomat.com/qr.php?prtno=90404>

6.4.4 Project password

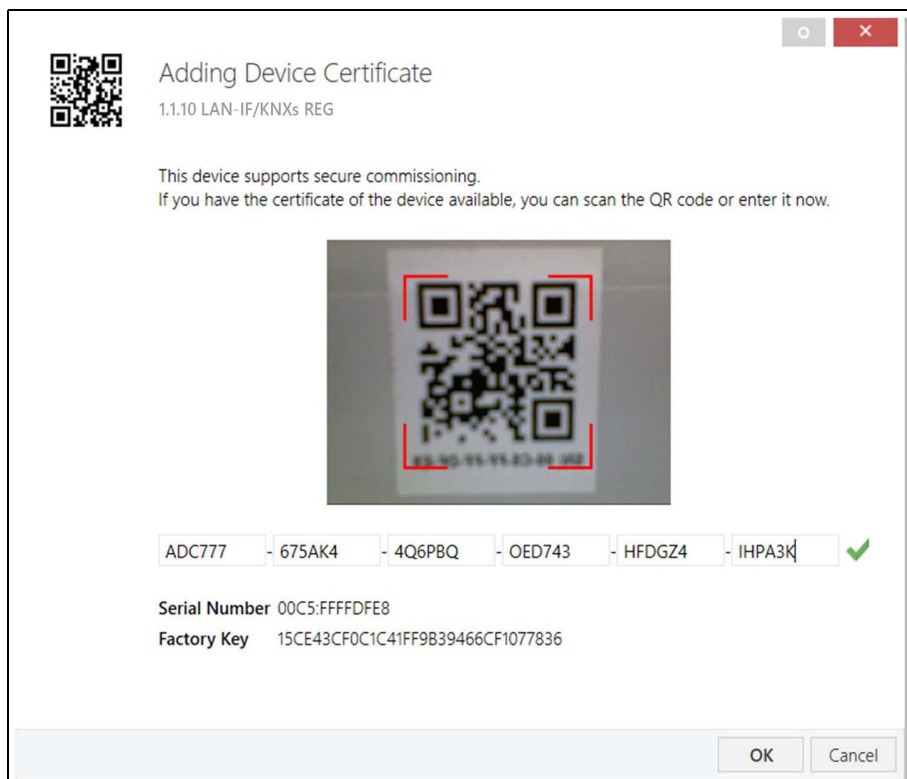
If the first product is inserted into a project with KNX Security, the ETS prompts you to enter a project password.



This password protects the ETS project against unauthorized access. This password is not a key that is used for KNX communication. The entry of the password can be bypassed with "Cancel", but this is not recommended for security reasons.

6.4.5 Device certificate

ETS requires a device certificate for each device with KNX Security that is created in the ETS. This certificate contains the serial number of the device as well as an intangible key (**FDSK** = Factory Default Setup Key).



The certificate is printed as text on the device. It can also be conveniently scanned from the printed QR code via a webcam.

The list of all device certificates can be managed in the ETS **Overview** -> **Projects** -> **Security** window.

This initial key is required to safely put a device into operation from the start. Even if the ETS download is recorded by a third party, the third party has no access to the secured devices afterwards. During the first secure download, the initial key is replaced by the ETS with a new key that is generated individually for each device. This prevents persons or devices who may know the initial key from accessing the device. The initial key is only reactivated after a master reset.

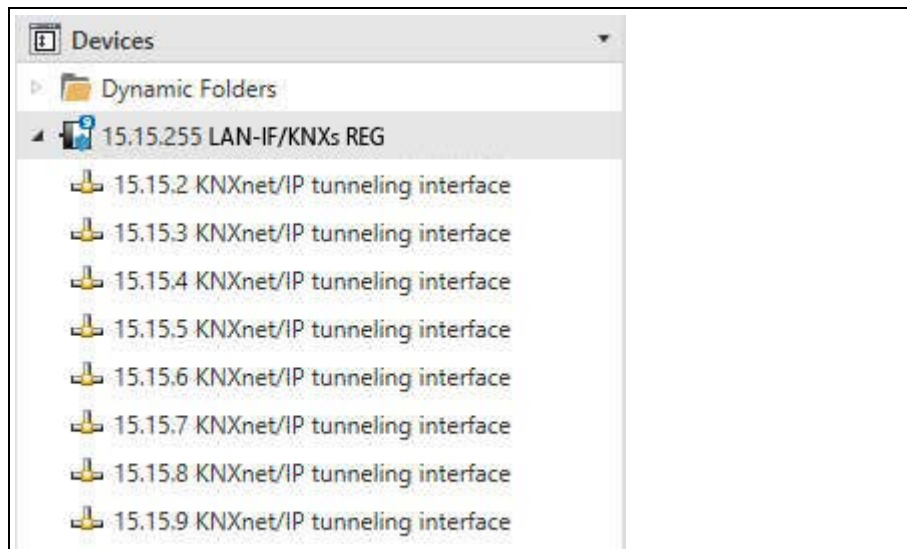
The serial number in the certificate enables the ETS to assign the correct key to a device during a download.

6.4.6 Device properties

In the ETS, some settings are displayed in addition to the parameter dialog in the properties dialog (at the edge of the screen). The IP settings can be made here.

KNX addresses

The additional addresses for the interface connections are displayed in the topology view.



Each individual KNX address can be changed by clicking on the list entry and typing in the desired address into the "Individual Address" text-field. If the text-field frame switches to color red after entering the address, the address is already taken within your ETS project.

NOTICE

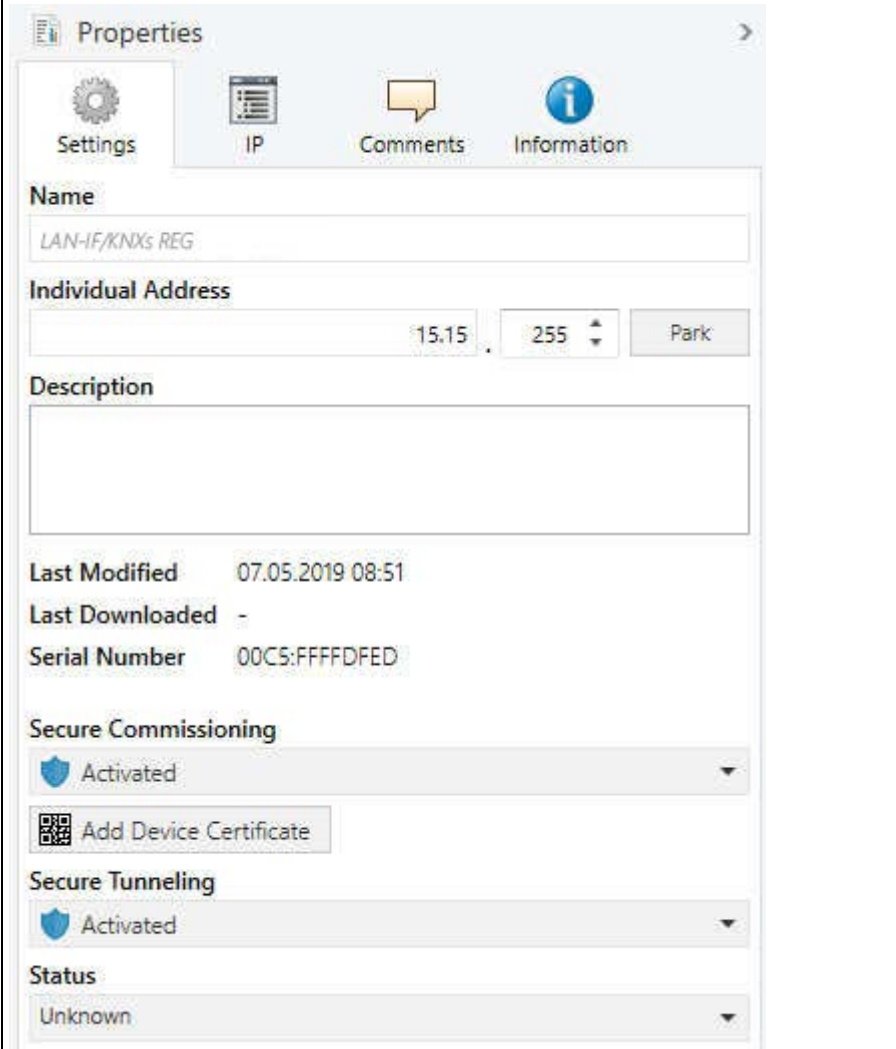


Addressing!

Make sure that none of the addresses above is already in use within your KNX installation.

Device properties – Settings

By clicking on the LAN-IF/KNXs REG device entry within your ETS projects topology view, an information column "Properties" will appear on the right side of the ETS window. Within the "Settings" overview, you can change the device name of the LAN-IF/KNXs REG.



Properties

Settings IP Comments Information

Name
LAN-IF/KNXs REG

Individual Address
15.15 . 255

Description

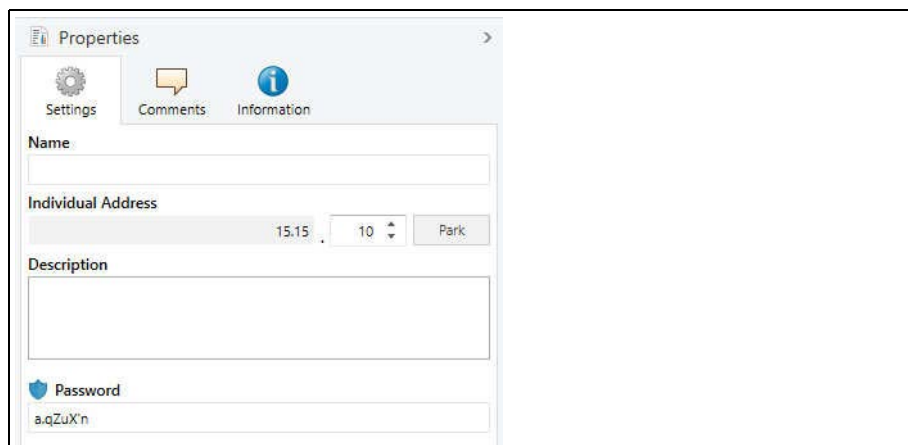
Last Modified 07.05.2019 08:51
Last Downloaded -
Serial Number 00C5:FFFFDFED

Secure Commissioning
Activated

Secure Tunneling
Activated

Status
Unknown

If secure tunneling is activated, a unique password will be created automatically for each tunnel. This password can be displayed under the "Settings" overview, when a tunnel is selected.



The image shows a software interface titled "Properties" with a right-pointing arrow. It features three tabs: "Settings" (gear icon), "Comments" (speech bubble icon), and "Information" (info icon). The "Settings" tab is active. Below the tabs, there are several fields:

- Name:** An empty text input field.
- Individual Address:** A field containing "15.15", a dropdown menu showing "10", and a "Park" button.
- Description:** A large empty text area.
- Password:** A field containing the text "a.qZuXn".

Device properties – IP

Within the “IP” overview the IP network specific options of the LAN-IF/KNXs REG can be changed.

By changing “**Obtain an IP address automatically**” (via DHCP) to “**Use a static IP address**” (fixed IP address) the IP address, subnet mask, and default gateway can be set freely.

Properties

Settings IP Comments Information

Obtain an IP address automatically

Use a static IP address

IP Address
192.168.1.31

Subnet Mask
255.255.255.0

Default Gateway
192.168.1.1

MAC Address
00:24:6D:FF:FE:22

Multicast Address
224.0.23.12

Commissioning Password
jWtIL (D)

Good

Authentication Code
T30!mG8#

Good

NOTICE



All changes in the properties menu become effective only after a successful application download.

IP address

Here the IP address of the LAN-IF/KNXs REG can be entered. This is used to address the device via the IP network (LAN). The IP addressing should be coordinated with the administrator of the network.

Subnet mask

Enter the subnet mask here. The device uses the values entered in this mask to determine whether there is a communication partner in the local network. If there is no partner in the local network, the device will not send the telegrams directly to the partner but to the gateway that routes the telegram.

Default gateway

Enter the IP address of the gateway here, e.g. the DSL router of the installation.

Example for the assignment of IP addresses:

A PC is used to access the LAN-IF/KNXs REG.

IP address of the PC: 192.168.1.30

Subnet of the PC: 255.255.255.0

The LAN-IF/KNXs REG is located in the same local LAN, i.e. it uses the same subnet. The subnet constrains the IP addresses that can be assigned. In this example, the IP address of the IP interface must be 192.168.1.xx, where xx can be a number from 1 to 254 (with the exception of 30, which is already in use). It must be ensured that no numbers are assigned twice.

IP address of the IP interface: 192.168.1.31

Subnet of the IP interface: 255.255.255.0

6.4.7 Setting parameters with the ETS

The following parameters can be set using the ETS.

General settings

| 15.15.255 LAN-IF/KNXs REG > General settings | | |
|--|----------------------------|---|
| Description | Prog. mode on device front | <input type="radio"/> Disabled <input checked="" type="radio"/> Enabled |
| General settings | Manual operation on device | 10 min |

Prog. mode on device front

In addition to the normal programming button (3) the device allows activating the programming mode on the device front without opening the switchboard cover. The programming mode can be activated and deactivated via pressing simultaneously both buttons (7) and (8).

This feature can be enabled and disabled via the parameter "**Prog. mode on device front**". The recessed programming button (3) next to the programming LED (2) is always enabled and not influenced by this parameter.

Manual operation on device

The manual operation of the LAN-IF/KNXs REG only contains the status display. This parameter sets the duration of the manual mode. Upon completion the normal display mode is restored.

7 Care, maintenance and disposal

7.1 Cleaning

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

NOTICE

Do not use aggressive cleaning agents!



→ Do not use aggressive cleaning agents such as thinner or acetone for cleaning the device.

→ To clean the device, use only a lint-free cloth.

Tips and hard objects can destroy the device.

7.2 Maintenance

Usually, the device does not require any maintenance by the operator. Repairs to the device must only be carried out by the manufacturer.

For repairs, contact your local B.E.G. Brück Electronic subsidiary or directly B.E.G. Brück Electronic GmbH, Germany.

7.3 Disposing

For disposal observe the applicable national regulations regarding electronic components.

8 Diagnostics and troubleshooting

NOTICE

Diagnosis / Troubleshooting via the ETS!



→ Use the corresponding ETS functions for diagnosis / troubleshooting, e.g.

- Group Monitor
- Bus Monitor
- Line Scan

9 Service and support

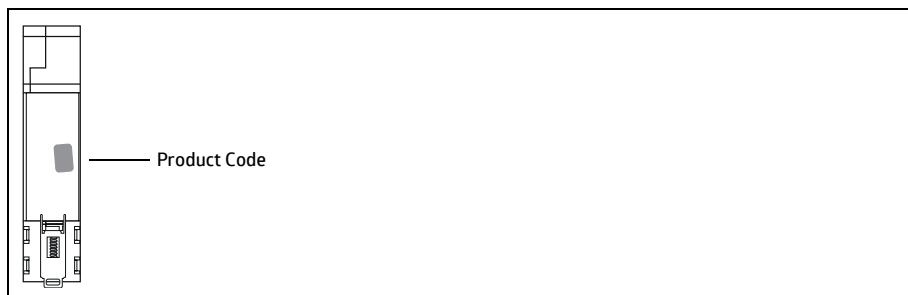
9.1 Manufacturer's warranty

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.beg-luxomat.com/service/downloads/>.

9.1.1 Product code

The product is provided with a product code that enables the product to be traced in the event of a warranty/complaint.

The product code of the LAN-IF/KNXs REG is labelled on the back of the housing.



9.2 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. subsidiary or representative.

The contact details can be found at <https://www.beg-luxomat.com/en-in/service/service-points/>.

Or contact us directly at

B.E.G. Brück Electronic GmbH

Gerberstrasse 33

51789 Lindlar

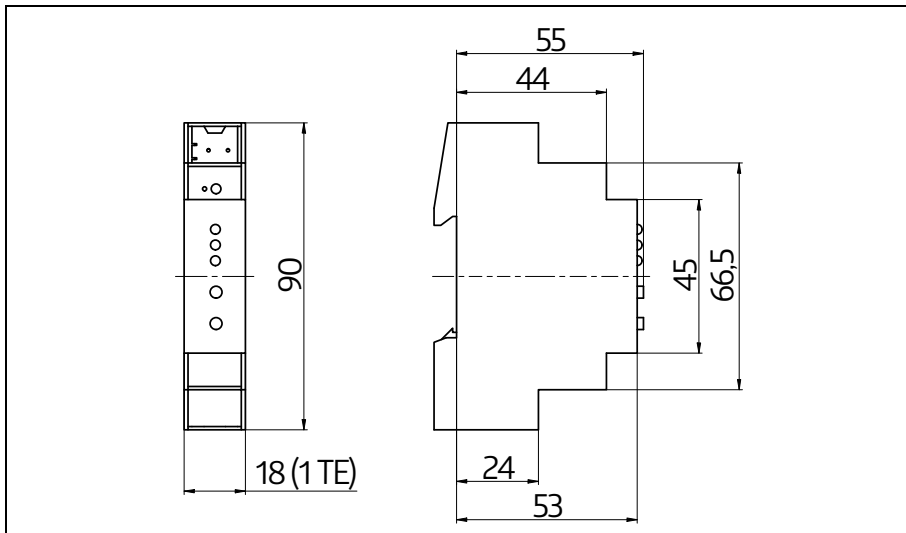
GERMANY

10 Technical Data

10.1 General data

| | |
|---|--|
| Voltage | via KNX Bus |
| Current consumption | approx. 20 mA |
| Connections | RJ45-socket for LAN (Ethernet), bus connector red/black for KNX-TP |
| Ethernet | 100BaseT (100MBit/s), internet protocols: ARP, ICMP, IGMP, UDP/IP, TCP/IP, DHCP and Auto IP |
| KNX | Medium: TP Interface protocol: cEMI Max. APDU length: 55 Device model: System B Up to 8 KNXnet/IP Tunneling connections simultaneously KNXnet/IP Security (AES-128) |
| Controls and indicators | 2 buttons, 3 multicolor LEDs, KNX programming button with LED (red) |
| Housing | DIN rail-mounted device, polycarbonate |
| Housing width | 18 mm (1 rail units) |
| Weight | approx. 40 g |
| Protection class / degree of protection | III / IP20 |
| Ambient temperature (operating/storage) | -5 °C – +45 °C / -25 °C – +70 °C |
| Rel. humidity | 5 – 93 % non-condensing |
| Conformity with standards | Low-voltage directive 2014/35/EU EMC Directive 2014/30/EU RoHS Directive 2011/65/EU EN 63044-3: 2018 EN 50491-5-1: 2010 EN 50491-5-2: 2010 EN 50491-5-3: 2010 EN 61000-6-2: 2005 EN 61000-6-3: 2007 + A1: 2011 EN 63000: 2018 |
| Nameplate | <p>B.E.G. LUXOMAT® net KNX LAN-IF/KNXs REG 90404 SN: MAC: Cert: TP S X IP20 CE</p> |

10.2 Dimensioned drawings LAN-IF/KNXs REG



11 EU declaration of conformity

The product complies with the following EU directives

1. Electromagnetic Compatibility (2014/30/EU)
2. Low voltage (2014/35/EU)
3. Restriction of the use of certain hazardous substances in electrical and electronic equipment (2011/65/EU)

NOTICE



EU declaration of conformity

A detailed EU declaration of Conformity can be found at www.beg-luxomat.com or can be requested from the manufacturer.

12 Annex – Open Source Licenses

This product contains open source software license:

curve25519-donna: Curve25519 elliptic curve, public key function

Source: <http://code.google.com/p/curve25519-donna/>

Copyright 2008, Google Inc. All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

Neither the name of Google Inc. nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.



Brück Electronic GmbH
Gerberstraße 33
51789 Lindlar
GERMANY

T +49 (0)2266-90121-0
F +49 (0)2266-90121-50

info@beg.de
beg-luxomat.com