CHORUS

GEWISS

KNX/IP Interface - from DIN rail

CE

KNX®

GW A9705

Technical Manual

Contents

1 Introduction

This manual explains the functions of the "**KNX/IP Interface**" device (GWA9705), and how they are set and configured using the ETS (Engineering Tool Software) configuration software.

2 Application

The KNX/IP Interface is enabled for use with the HAPPY HOME APP for smartphones and tablets (Android and iOS) for managing the KNX domotics system remotely via internet or locally via Wi-Fi. Detailed information about the methods for configuring the APP connection can be found in the user manual (www.gewiss.com).
The interface also makes it possible to connect a PC to the KNX network via the LAN network (IP), and supports up to 5 simultaneous KNXnet/IP tunnelling connections. The interface is powered via the KNX BUS line. The IP address can be obtained respectively from a DHCP server or be configured manually (ETS).

ATTENTION! Remote access via NAT, without additional security measures, poses significant dangers. Port forwarding provides universal access to your local IP network and to your KNX system. Any Internet user can discover the open port on your static public IP address and can, for example, access your KNX network via the ETS software.
Use NAT only temporarily for testing or diagnostic purposes. Afterwards, close the port again to avoid cyber attacks.
If remote access is realized through NAT, it is highly recommended that you do not specify the default port 3671 towards the Internet. Port 3671 is the official port for efcp - eFieldControl (EIBnet) registered by KNX Association. This port can easily be easily determined by unauthorized people. Please use a port in the non-reserved range between port 50000 and port 60000.
Permanent remote access should be established only when protected! Remote access via Virtual Private Network (VPN) is recommended. The VPN feature is already integrated into most DSL routers.
Setting a password for the ETS project can also help prevent malicious manipulation of devices.
To always guarantee the correct level of security in KNX installations, consult the KNX-Security-Checklist-en.pdf.

3 Installation and connection

Command and display elements:
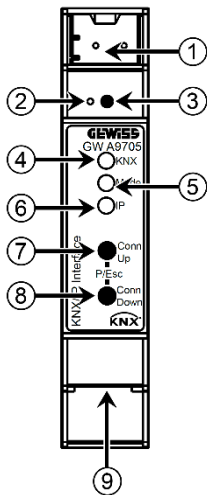
1. KNX BUS terminals
2. LED for programming physical address
3. Button key for programming physical address
4. KNX line status LED
5. Device operating mode status LED (Mode)
6. IP line status LED
7. Next connection push-button (Conn Up)
8. Previous connection push-button (Conn Down)
9. LAN RJ-45 socket-outlet for the Ethernet connection

The interface is powered via the KNX BUS line; no auxiliary power supply is needed.

ATTENTION: the device can't work in the event of a KNX BUS voltage failure.

3.1 How to programme the KNX physical address

The KNX physical address programming mode can be activated/deactivated by pressing the programming push-button, or by simultaneously pressing the **Conn Up** and **Conn Down** push-buttons.

3.2 Display elements

The **KNX** LED lights up with a green colour when the device is powered via the KNX BUS line, and flashes green while the KNX telegrams are being transmitted. In the event of a communication error (e.g. repetition of telegrams or collisions), the LED turns red for a short time.

The **IP** LED lights up when there is an active Ethernet connection; it turns green when the device has a correct IP configuration (IP address, Sub net and Gateway) and it turns red if the configuration is invalid or non-existent (e.g. when the device has not received the IP configuration from the DHCP server). The IP LED flashes green when there is data traffic on the IP line.

The **Mode** LED makes it possible to view the status of each KNXnet/IP Tunnelling connection. Use the **Conn Up** and **Conn Down** button keys to select the required connection: **Conn Up** selects the next connection, whereas **Conn Down** selects the previous one. The currently selected connection is indicated by the number of consecutive flashes of the **Mode** LED (from 1 to 5 flashes); the LED is green if the connection is free, whereas it turns orange if the connection is already used. The signalling is interrupted by pressing the **Conn Up** and **Conn Down** button keys at the same time (Esc).
The **Mode** LED can signal configuration errors when neither the programming mode nor the connection display function is active.
Summary of the various **Mode** LED indications:

Mode LED	Event
Fixed green	Device in operating mode
Fixed red	Programming mode active
Flashing green (1 .. 5 consecutive flashes)	Programming mode deactivated. Connection display function active. The selected connection (1 .. 5) is free.
Flashing orange	Programming mode deactivated.

(1 .. 5 consecutive flashes)	Connection display function active. The selected connection (1 .. 5) is already used.
Flashing red	Programming mode deactivated. Connection display function deactivated. KNX/IP Interface configuration error (e.g. download of ETS application interrupted).

3.3 Factory settings

The factory settings of the KNX/IP Interface are:

Device physical address:	**15.15.255**
KNXnet/IP tunnelling connections active:	**1**
KNXnet/IP tunnelling physical address connection:	**15.15.250**
IP address assignment:	**DHCP**

3.3.1 Restoring the factory settings

To restore the factory settings, you must:
1. Remove the KNX terminal from the device
2. Press the KNX physical address programming push-button, and keep it pressed
3. Reconnect the KNX terminal
4. Keep the KNX physical address programming push-button pressed for at least 6 seconds
5. The brief flashing of all the LEDs indicates that the factory parameters have been restored

4 Interface settings via ETS

In ETS, the KNX interfaces can be selected and set directly from the menu
- *Bus → Interfaces* in ETS5
- *Settings → Communication* in ETS4

ETS can communicate with the KNX/IP Interfaces even if the relative ETS database hasn't been imported; if the KNX/IP Interface settings aren't compatible with the configuration of the KNX system, the device must be configured within the KNX project (see ETS Database).
The IP address is automatically assigned via DHCP in the factory, and no further settings are required. In order to work properly, there must be a DHCP server installed on the LAN network (many DSL routers have a built-in DHCP server).
Once the device has been connected to the KNX BUS and the LAN network, it should automatically be visualised in ETS5, in the *Bus → Interfaces* menu (or *Settings → Communication* in ETS4), under the **Discovered Interfaces** item, (or **Discovered connections** in ETS4).
Click on the interface to select it and use it as the current one. The right-hand part of the ETS window shows information about the interface and the connection.
The name of the KNX/IP Interface and its physical address (**Host Individual Address**) can be modified within the ETS project.
To act as an interface, the device has additional physical addresses that can be set via ETS (version 4.2 or higher). The KNX telegrams that a client (e.g. ETS) sends via the KNX/IP Interface use one of the additional interface addresses as their sender's address. A connection is associated with each address; in this way, any reply telegrams can be transmitted to the relative clients.
The additional physical addresses must not be already in use by other KNX devices, and they must belong to the same KNX line on which the device is installed.

Example:
Physical address of the device **1.1.10** (address in the ETS project)
Connection 1   **1.1.250** (1st individual address)
Connection 2   **1.1.251** (2nd individual address)
Connection 3   **1.1.252** (3rd individual address)
Connection 4   **1.1.253** (4th individual address)
Connection 5   **1.1.254** (5th individual address)

The Individual Address field of ETS5 is used to modify the KNX physical address of the KNXnet/IP connection currently being used. To check whether the physical address that you want to set is being used by another device in the KNX system, press the **Address free?** push-button.
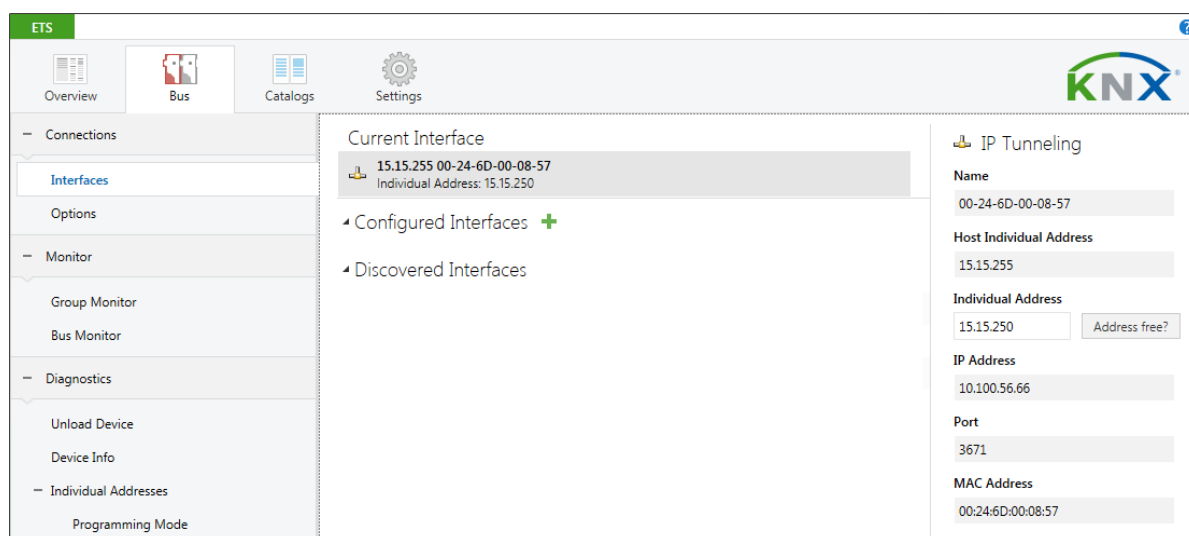

The physical address of the device, and the additional physical addresses, can be modified within the ETS project once the device has been inserted in the project.
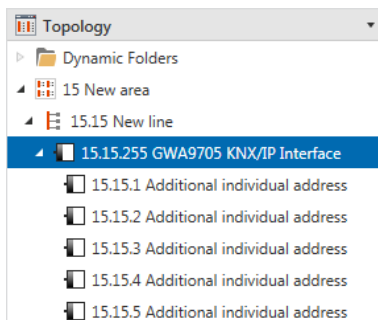
5 ETS Database

In the ETS4/5 database, certain parameters are displayed in the **Properties** window (in the right-hand part of the ETS window); the settings relating to the IP address can be found in this window.
In ETS4, the additional physical addresses are located in the **Properties** window as well.
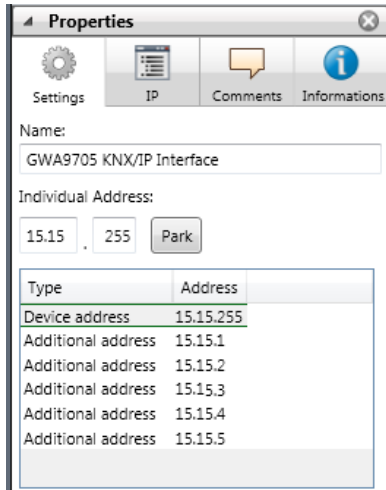
In ETS5, the individual addresses are displayed in the "Topology" view.

Each address can be modified by entering the required value in the **Individual Address** field of the **Properties** window; if the field frame turns red, this means the address is already being used in the ETS project.

ATTENTION: make sure none of the additional addresses are already used in the KNX system.

From the topological view of the ETS project, click on the KNX/IP Interface - the **Properties** window will appear on the right; you can modify the device name in the **Settings** card.
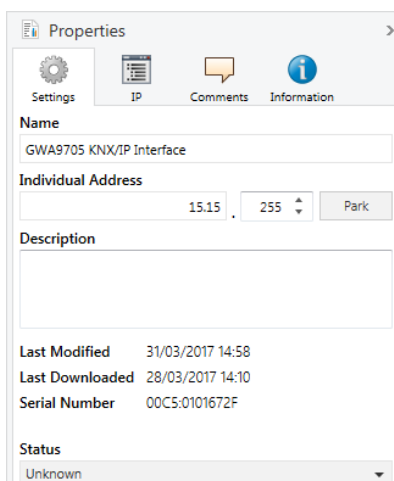
The **IP** card shows the network settings of the device. Changing from "Obtain an IP address automatically" to "Use a static IP address" activates the fields for setting the IP address, the network sub-mask and the predefined gateway.

*ATTENTION: modifications made in the **Properties** window will only become effective after downloading the ETS application of the KNX/IP Interface.*
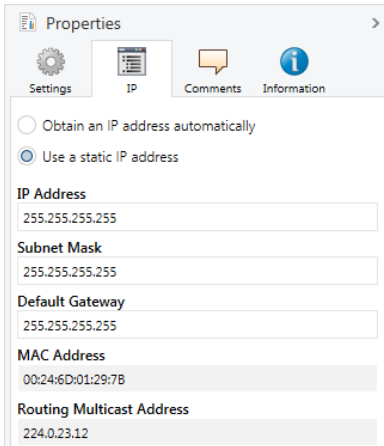
5.1 IP Address

Key in the IP address of the KNX/IP Interface. This is used to address the device in the IP (LAN) network. The assignment of the IP address should be managed by the network administrator.

5.2 Subnet Mask

Key in the network sub-mask. The device uses the mask to determine whether there is a communication partner in the local network. If there are no partners in the local network, the device sends the telegrams to the predefined gateway which then re-routes them to the other sub-networks.

5.3 Default Gateway

Key in the predefined gateway address (e.g. the address of the system DSL router).

5.4 Example of IP address assignment

A PC is used to connect to the KNX/IP Interface:
IP address of the PC: **192.168.1.30**
Sub-network mask of the PC: **255.255.255.0**
The KNX/IP Interface is in the same local LAN network as the PC; this means it has the same sub-network mask. The sub-network binds the IP addresses that can be assigned; in this example, the IP address of the KNX/IP Interface must be 192.168.1.xx, where "xx" is a value between 1 and 254 (excluding the value 30, which has already been assigned to the PC). It is important to make sure the same value is not assigned twice.
IP address of the KNX/IP Interface: **192.168.1.31**
Sub-network mask of the KNX/IP Interface: **255.255.255.0**

6 ETS database parameters

The following parameters can be set in ETS.

6.1 "General" menu

```
15.15.255 GWA9705 KNX/IP Interface > General

General          Note: to change Device Name and IP Settings see the Property window of ETS

                 Activatation/Deactivation of the
                 programming mode with frontal          ○ disabled  ⦿ enabled
                 pushbuttons

                 Connection display function            activatable without time limit      ▼
```

6.1.1 Activation/Deactivation of the programming mode with frontal pushbuttons

Used to enable the activation/deactivation of the programming mode by simultaneously pressing the **Conn Up** and **Conn Down** push-buttons. The programming push-button is always enabled, and is not affected by the configuration of the parameter in question.

6.1.2 Connection display function

Used to enable and set the duration of the connection status display function.

7 Programming

The KNX/IP Interface can be programmed via ETS in various ways:

7.1 Via the KNX BUS

The device must at least be connected to the KNX BUS. ETS requires an additional interface (e.g. USB) in order to access the BUS; in this way, both the physical address and the entire application (including the IP configuration) can be programmed.
This type of programming is recommended if it is not possible to establish an IP connection.

7.2 Via the KNXnet/IP Tunnelling connection

No additional interface required. Programming is only possible if the device has already a valid IP configuration (e.g. obtained from DHCP). In this case, the interface will be displayed in the interface configuration section of ETS and, after selecting it, you can download the configuration from the ETS project as for the other devices.

NOTE: During ETS application download, the device operating mode status LED (Mode) blinks green.

8 Multi-connection activation without ETS (for use with the Easy Controller)

In order to use the interface without the aid of ETS (e.g. with the Easy Controller), you can activate the multi-connection directly from the device; the additional addresses will be automatically assigned by the device itself. To activate the multi-connection, press the physical address programming push-button for at least 1 second; the programming LED will light up briefly, and the device will automatically assign the additional addresses.

With the factory configurations, the addresses assigned are:
Physical address   **15.15.255** (default)
Connection 1   **15.15.250** (default)
Connection 2   **15.15.251** (multi-connection assignment)
Connection 3   **15.15.252** (multi-connection assignment)
Connection 4   **15.15.253** (multi-connection assignment)
Connection 5   **15.15.254** (multi-connection assignment)

Remember that, with the factory setting, the IP address is automatically assigned via DHCP; in order to work properly when using Easy Controller, there must be a DHCP server installed on the LAN network (many DSL routers have a built-in DHCP server).

SAT

+39 035 946 111
8.30 - 12.30 / 14.00 - 18.00
lunedì ÷ venerdì - monday ÷ friday

+39 035 946 260
24h

sat@gewiss.com
www.gewiss.com