

Operation and installation manual

KNX IP Interface 731

(Art. # 5242)

Compact bus powered Interface between LAN/Ethernet and KNX Bus



KNX IP Interface 731

Application

The KNX IP Interface 731 serves as a universal interface for PC or Laptop to the KNX bus. The KNX bus can be accessed from any point on the LAN. The KNX IP Interface 731 can be used as a programming interface for ETS® from ETS 3.0f. For access via KNXnet/IP Tunneling max. 5 simultaneous connections are possible.

The IP address can be obtained by a DHCP server or by manual configuration (ETS) respectively. Power is supplied via the KNX bus.

Installation and Connection

The KNX IP Interface 731 is designed for installation on a DIN rail with a width of 1 unit (18mm). It features the following controls and displays:



- 1 KNX Bus Connector
- 2 LED for Programming Mode (red)
- 3 Button for Programming Mode
- 4 LED KNX (multicolor)
- 5 LED Mode (multicolor)
- 6 LED IP (multicolor)
- 7 Button Connection up
- 8 Button Connection down
- 9 Ethernet/LAN Connector

The KNX IP Interface 731 is powered by the KNX bus. An external power supply is not necessary.



The device is not working without KNX bus power.

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.

Status display

The KNX LED 4 lights up green if the device is successfully powered by the KNX bus. The LED indicates telegrams on the KNX bus by flickering.

Communication failures (e.g. repetitions of telegram 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 shortly red	Communication failures 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 telegrams 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/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/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:

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 is active. The selected tunnel (1-5) is not used and free
LED flashes orange 1x...5x	Programming mode is not active. Manual operation 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 download.

Factory default settings

Factory default configuration:

Individual device address: **15.15.255**
Number of configured KNXnet/IP tunneling con.: **1**
Individual address of tunneling con.: **15.15.250**
IP address assignment: **DHCP**

Reset to factory device settings

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** of 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.

Interface settings within ETS

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 an ETS project. See the ETS database section for more information.

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).

After connecting the KNX IP Interface to the LAN and the KNX bus it should automatically appear in the ETS within the menu "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 be changed within your ETS project then.

Like all programmable KNX devices the KNX IP Interface 731 has an individual address which can be used to access the device. This is used, for example, of the ETS when downloading to the KNX IP Interface via the bus.

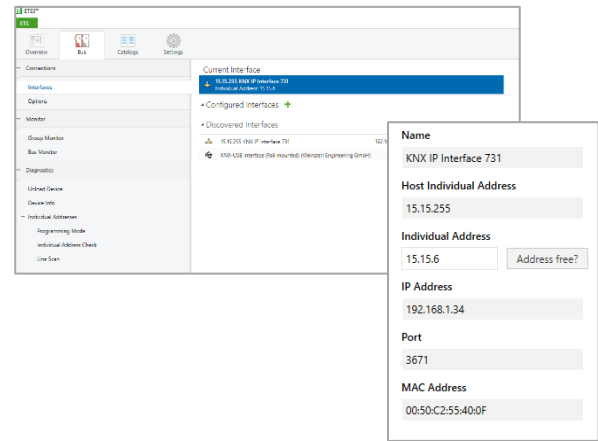
For the interface function the device contains additional individual addresses that can be set in the ETS (ETS 4.2 or higher). When a client (e.g. ETS) sends via the KNX IP Interface telegrams to the bus, they contain a sender address as one from the additional addresses. Each address is associated with a connection. Thus response telegrams can be clearly transmitted 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	1.1.250	(1. additional address)
Connection 2	1.1.251	(2. additional address)
Connection 3	1.1.252	(3. additional address)
Connection 4	1.1.253	(4. additional address)
Connection 5	1.1.254	(5. additional address)

Section "Individual Address" enables you to change the individual KNX address of the currently used KNXnet/IP Tunneling connection. To check if the address you want to assign is unique within your KNX installation you can click the button "Address free?"

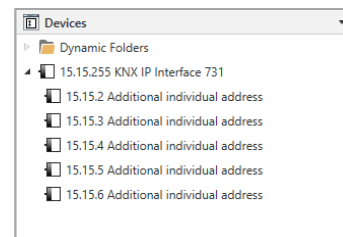


The individual KNX device address and the individual addresses for additional tunneling connections can be changed within the ETS project after the device has been added to the project.

ETS database

The ETS database (for ETS 4.2 ETS and 5) can be downloaded from the product website of the KNX IP Interface 731 (www.weinzierl.de). For existing installations a database for ETS 3 is also available.

When using the ETS® product database for ETS 4 / 5 some settings are displayed in addition to the parameter dialog of the Properties dialog (on the right side of the ETS window). So the IP settings can be done here. In the ETS 4 also the additional individual addresses will appear. In the ETS 5 those addresses appear in the topology view.

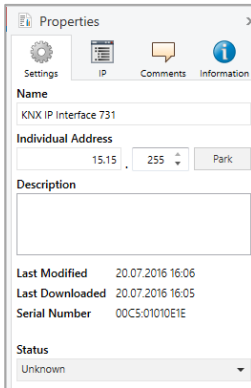


Each individual KNX address can be changed by clicking on the list entry and typing in the desired address into the "Individual Address" text-field. If the text-field frame switches to color red after entering the address, the address is already taken within your ETS project.

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

i *If the physical KNX addresses of the tunneling connections have been assigned via the ETS project, a manual address setting on the device is not allowed.*

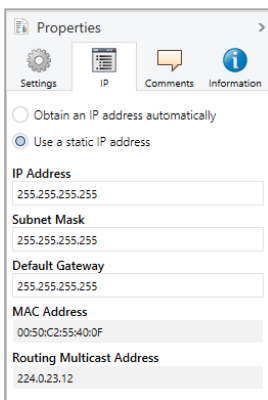
By clicking on the KNX IP Interface 731 device entry within your ETS projects topology view, an information column 'Properties' will appear on the right side of the ETS window. Within the 'Settings' overview, you can change the name of the device.



Within the "IP" overview the IP network specific options of the KNX IP Interface 731 can be changed.

By changing "obtain an IP address automatically (via DHCP)" to "Use a static IP address" (static IP address) the IP address, subnet mask, and default gateway can be set freely.

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



IP address

Here the IP address of the KNX IP Interface 731 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 of assigning IP addresses:

A PC is used to access the KNX IP Interface 731:

IP address of the PC: 192.168.1.30

Subnet of the PC: 255.255.255.0

The KNX IP Interface 731 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

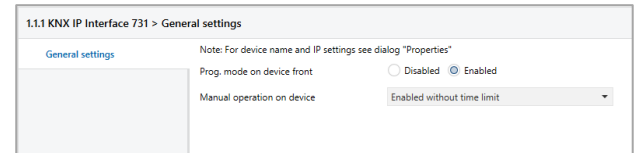
Remote access

Remote access via the Internet is possible via the KNX IP Interface 731. More details can be found in the document "Remote access with the ETS" at www.weinzierl.de

ETS parameter dialogue

The following parameters can be set using the ETS.

General settings



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 KNX IP Interface 731 only contains the status display. This parameter sets the duration of the manual mode. Upon completion the normal display mode is restored.

Programming

The KNX IP Interface 731 can be programmed in different ways via the ETS:

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.

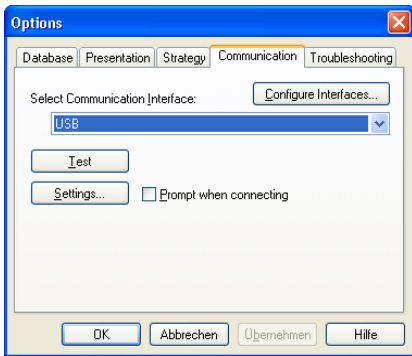
Via KNXnet/IP Tunneling

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.

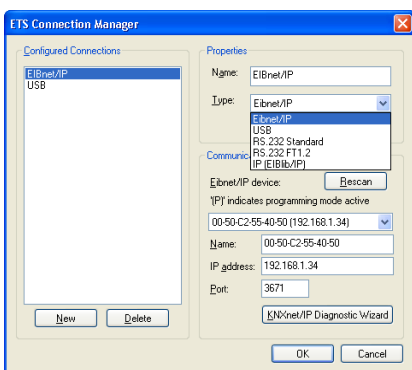
Setting with ETS 3

When using the ETS 3 (Version 3.0f) the setting of the device's name and the setting of the IP configuration is done via the ETS parameter dialogue.

The KNX IP Interface 731 can be selected in the Connection Manager as a programming interface. Select "Communication" within the menu item "Tools - Options":

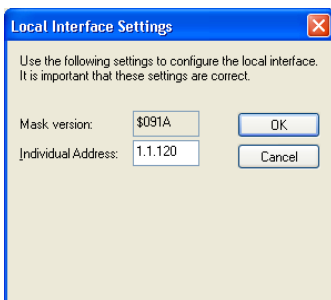


After clicking the button "Configure Interfaces" the ETS Connection Manager opens. You have to create a new connection type EIBnet/IP. The ETS begins with the automatic search of all KNXnet/IP devices. All found devices are displayed. Select the required device.



The KNX IP Interface 731 supports up to 5 simultaneous connections. For each connection a separate individual address is used.

The first additional individual address is assigned by the ETS. By clicking on the 'Settings' at the selected connection "Local Settings" this dialogue box with a corresponding input field appears:



The further additional addresses can be assigned directly on the device. This is done by pressing the programming button ③ at least one second. Then, the programming LED flashes ② and the addresses are assigned as follows:

Connection 2 gets the next higher address than connection 1, connection 3 gets the next higher address than connection 2, etc.

Example:

Device address	1.1.255	(address within ETS topology)
Connection 1	1.1.250	(address within local settings)
Connection 2	1.1.251	(assigned by programming button)
Connection 3	1.1.252	(assigned by programming button)

Connection 4	1.1.253	(assigned by programming button)
Connection 5	1.1.254	(assigned by programming button)

The additional individual addresses have to be valid within the sub line of the KNX IP Interface and not be used by another device. By factory default only the additional individual address of the first connection is active (which is preassigned to 15.15.250). To use more connections simultaneously, additional address assignment must be performed as described above.



WARNING

- The device must be mounted and commissioned by an authorized electrician.
- The prevailing safety rules must be heeded.
- The device must not be opened.
- For planning and construction of electric installations, the relevant guidelines, regulations and standards of the respective country are to be considered.