

# KNX/EIB Gateway

CTB-KNX/IP (IP)  
CTB-EIB/NX (RS232)  
(Top Hat Rail Mounting)

## User Manual

Version v0.9



CTB-KNX/IP



CTB-EIB/NX

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## 1. Introduction

This driver allows RTI integrators and programmers to hook up with the KNX/EIB infrastructure without having deeper knowledge about KNX/EIB or certification. For proper driver configuration a list from the ETS Configuration (KNX/EIB Infrastructure) specifying the group addresses and the data format is sufficient. These parameters have to be transferred to the driver for the Integration Designer (ID) to create the GUI (Graphical User Interface) with the respective data. Every gateway can address up to 250 groups, and each group can be configured for every function. For projects with more than 250 groups further entities of gateways and drivers can be used. Theoretically there are no limits, except physical limits (ports and memory of the RTI XP controller), but it is advisable to monitor load/performance to add further RTI XP controllers, if necessary.

### **Driver Configuration:**

Connection: Enter IP address and port (default 10002) of gateway. In addition enter the physical KNX gateway address (example: 1.1.254 = area line element). This has not to be considered mandatorily in the ETS configuration but must be unique in the KNX/EIB system. Additionally the correct area and the respective line are to be selected.

KNX group 0-249: Enter group description, which is transmitted as system variable to ID, KNX/EIB device group address and/or its properties, gateway data format matching the data format of the KNX/EIB properties and the alternative to analyze feedback or not.

KNX event 0-9: Enter event description, which is transmitted as system variable to ID, KNX/EIB device group address and/or its properties relating to the event, select the direction of the threshold, and enter the integer value, which triggers the event multiplied by 1000. Note: For Boolean analysis the value 1000 is expected.

### **System Variables:**

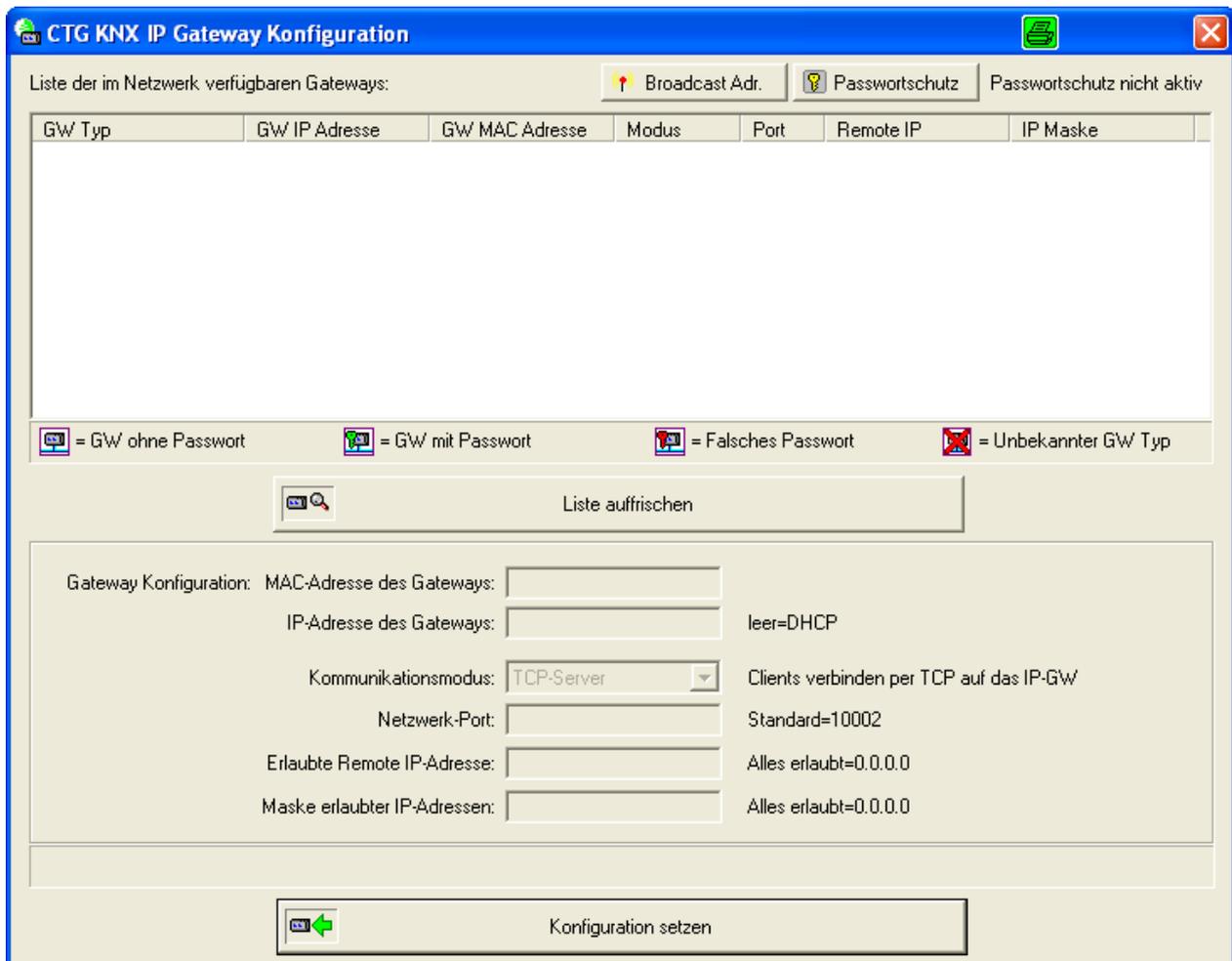
For debugging on integrator level the variable -Last Received Data- can be used. This also shows the result when accessing the function -Check Connection-. In case a group address receives a feedback value all associated variables are updated.

### **Functions:**

There are the possibilities to set the respective group addresses either with the string / integer / Boolean value and furthermore the group address can be recalled with the Get command. This is necessary if the automatic device feedback or its properties are not configured in the KNX/EIB configuration. The integrator himself must program a polling interval.

## 2. Configuration of the IP Address

In order to use the IP gateway it must first receive a correct network configuration. This can be set with the IP configuration program.



The IP gateway must be connected to the same network as the configuration PC. At program start a search for all available gateways on the network is performed via network broadcast, and detected devices are displayed in a list.

By pressing the button “Liste auffrischen” the search is started again and the list is updated. Check the network wiring and / or PC configuration (firewall) if no gateways are displayed. Additionally, in some network environments broadcast telegrams to 255.255.255.255 are suppressed. In this case adjust the local broadcast address above the “Broadcast Adr.” button, e.g. to 172.16.255.255.

Gateway list and current password (if active) can be saved as reference with the “Export Liste” button to a text file.

Select the gateway that has to be changed from the list. Now it is possible to carry out the desired settings (IP address, communication mode, etc.) in the fields below. Confirm with “Konfiguration setzen” to transmit the details via the network to the selected device. Afterwards the gateway list is automatically refreshed und displays the current device settings.

### **Communication Modes:**

#### TCP Server

In TCP server mode the gateway waits for incoming TCP connections on the set network port. The TCP connection is only accepted if the IP address of the TCP client matches the setting for permitted IP addresses / masks.

The TCP connection is maintained until the client terminates the connection. Afterwards a new TCP connection (even with other clients) can be established.

#### Password Protection

Activate password protection to prevent unknown users from changing the configuration of the gateways with the configuration program.

With activated security only unprotected gateways or the correct password can change the gateway. The password is automatically transmitted to the gateway with “Konfiguration setzen”.

To change or deactivate the password of a protected gateway, you first have to activate the password protection with the current password within the program, and then the list has to be refreshed. All protected gateways are marked in the list with a green key icon. Afterwards the password can be changed or deactivated in the setting window, and the new settings are transmitted to the gateway with “Konfiguration setzen”.

#### Permitted IP Addresses

Fill out the fields “Erlaubte IP-Adressen” and “Maske erlaubter IP-Adressen” to permit access to the gateway only for certain IP addresses. If the address 0.0.0.0 is entered in both fields anyone can connect to the gateway. Otherwise only those network participants whose IP addresses and masks match the set values.

### 3. [Get Info] From 2-Way Driver

#### 2-way KNX driver for COMM-TEC CTG-KNX/IP and CTG-EIB/NX

This driver is used to control and monitor KNX installations with the COMM-TEC CTG-KNX/IP (IP) or CTG-EIB/NX (RS232) Gateway. The KNX installation is controlled by setting values for KNX configured groups or getting values from these groups. This driver does not use polling, the needed KNX values must be configured in ETS to be automatically sent by the KNX modules. The COMM-TEC gateway reads these values from the KNX bus, as they appear. To configure the driver you need to know the existing KNX groups and their functions / value types. Every KNX group you wish to control/monitor, must be configured in your driver. On startup of the XP-8, the COMM-TEC gateway is initialized and configured with the KNX physical address, the groups and data types you entered in the driver configuration.

You can use up to 250 KNX groups and up to 10 Events with one driver/COMM-TEC gateway!

#### **Driver configuration parameters:**

##### **Connection**

##### **Communication Interface**

CTG-KNX/IP gateway via IP or CTG-EIB/NX gateway via RS232

##### **IP address (CTG-KNX/IP)**

IP address of the COMM-TEC gateway (e.g. 192.168.1.1).

##### **IP Port (CTG-KNX/IP)**

IP port of the COMM-TEC gateway ( default: 10002 ).

##### **Serial port (CTG-EIB/NX)**

RS232 port of the XP controller

##### **KNX physical address of gateway**

Unique KNX address of the COMM-TEC gateway (e.g. 1.1.254), must match KNX area and line segment numbers.

| <b>Connection</b>               |                       |
|---------------------------------|-----------------------|
| Communication Interface         | TCP/IP for CTG-KNX/IP |
| IP address (CTG-KNX/IP)         | 192.168.1.216         |
| IP port (CTG-KNX/IP)            | 10002                 |
| Serial port (CTG-EIB/NX)        | [RS-232] Port 1       |
| KNX physical address of gateway | 1.1.254               |

## KNX group XX

### KNX group Description

Description of this KNX group.

### KNX group address

The KNX group address to be used by this driver.  
( 0-15/0-7/0-255 or 0-15/0-2047 )

### KNX group data format

The data format of this KNX group. This format depends on the data formats of the COMM-TEC CTG-KNX/IP gateway:

- 1-6 bit decimal
- 1 byte ASCII
- Percent 0-100%
- Angle 0-360 degrees
- 1 byte unsigned
- 1 byte signed
- 2 byte unsigned
- 2 byte signed
- EIB float value
- EIB time
- EIB date
- 4 byte unsigned
- 4 byte signed
- IEEE float
- Entrance access
- Textstring
- Textstring NUL terminated
- 1 to 14 byte decimal, separated with ;
- 1 to 14 byte hexadecimal, separated with ;
- 1 to 14 byte hexadecimal 2 hex digits per byte
- 1 to 6 bit hexadecimal

This value should match the corresponding KNX data format.

### KNX group enable / disable reception

Select enable or disable of data reception for this KNX group.

| Knx group0                         |                   |
|------------------------------------|-------------------|
| KNX group Description              | light 1 switching |
| KNX group address                  | 1/0/0             |
| KNX group data format              | 1-6 bit decimal   |
| KNX group enable/disable reception | Disable reception |

## Event X

### Event Description

Description of this Event.

### KNX group address

KNX group address to monitor for this event.

### negative / positive threshold

Fire event if KNX group value is negative or positive in relation to threshold value.

### threshold value

Threshold for this event. This value needs to match the KNX Data Value Integer \* 1000 value.

| Event 0                     |                    |
|-----------------------------|--------------------|
| Event description           | Temp lower 18°C    |
| KNX group address           | 3/2/0              |
| negative/positive threshold | negative threshold |
| Event threshold (int*1000)  | 18000              |

## Sysvars:

### Last Received Data

all data received by the gateway (50 byte fifo buffer for debug purposes).

### Knx Description Group XX

Description for the KNX group (from driver config).

### Knx Data Value String Group XX

Data value as String.

### Knx Data Value Integer Group XX

Data value as Integer (Fix value).

### Knx Data Value \* 1000 Integer Group XX

Data value multiplied with 1000 as Integer to use as fixed point value (divide it with 1000 to get the fixed point).

### Knx Data Value Integer 0-100 Group XX

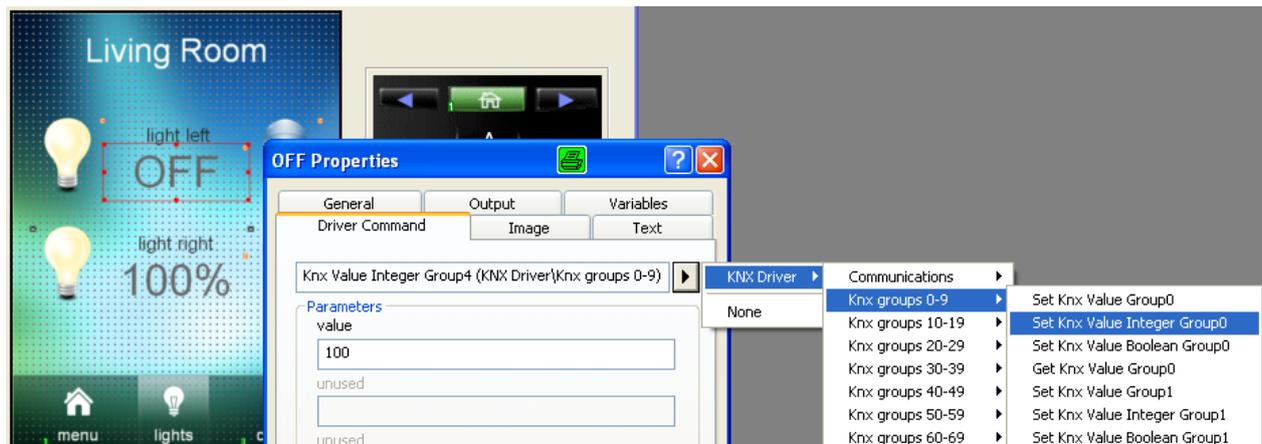
Data value as Integer with min=0 and max=100 for percentage display (higher values are cropped).

### Knx Data Value Integer 0-360 Group XX

Data value as Integer with min=0 and max=360 for degree display (higher values are cropped).

### Knx Data Value Boolean Group XX

Data value as boolean (True – False).



**Description Event X**

Description for the Event.

**KNX group Event X**

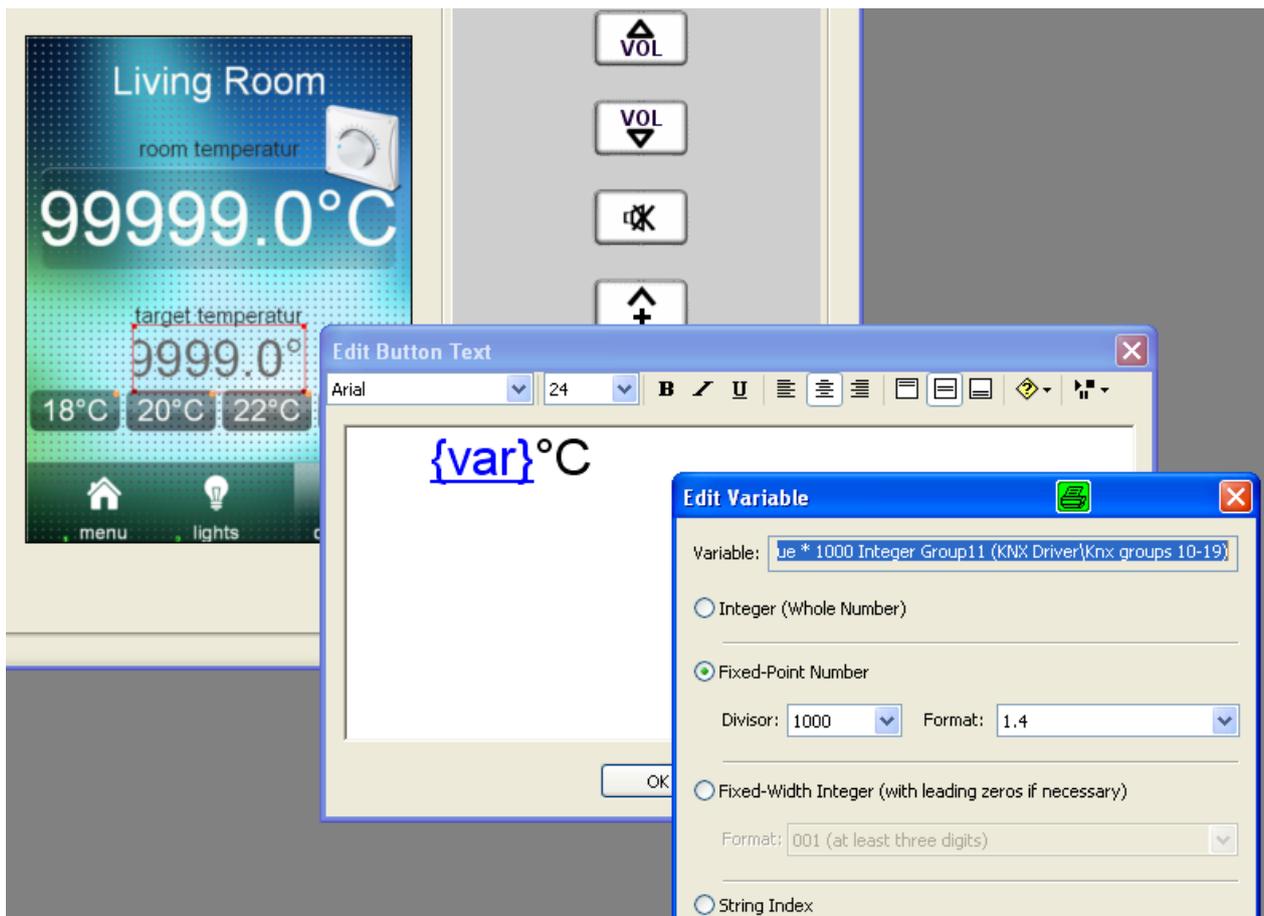
KNX group address to monitor for this Event.

**negative / positive threshold Event X**

Fire event if KNX group value is negative or positive in relation to threshold value.

**Threshold Event X**

Threshold for this event. This value needs to match the KNX Data Value Integer \*1000 value.



## **System Functions:**

### **Connection**

#### **CheckConnection**

sends "?" to the CTG-KNX/IP Gateway > Answer should be the current settings

### **KNX group XX**

#### **Set KNX value Group XX**

Set the KNX value as string.

#### **Set KNX value integer Group XX**

Set the KNX value as integer.

#### **Set KNX value boolean Group XX**

Set the KNX value as boolean.

#### **Get KNX value Group XX**

Get the current KNX value and convert it to all possible data formats.

#### 4. Technical Data CTG-KNX/IP and CTG-EIB/NX

| Technical Data  |  |
|---|--|
| <b>Power Supply</b>   | External AC 230V, 20mA (terminal clamp)  |
| EIB   | DC 24V – DC 30V  |
| Current Draw EIB/KNX  | < 12mA   |
| Power Consumption EIB/KNX                                   | Max. 360mW   |
| <b>Button and Display</b>                                   |  |
| Button  | EIB program button   |
| LEDs  | Operation, bus voltage, bus telegram, program mode<br>Signaling of TCP/IP connection and activity (CTB-KNX/IP only)            |
| <b>Connections</b>  |  |
| EIB   | 2 screw terminals (Phoenix MSTB 2.5/2-ST-5.08)<br>Cable diameter: strand: 0.3 – 0.5mm <sup>2</sup> ; solid: 0.8mm <sup>2</sup> |
| RS-232 Port   | 9-pin SubD female (CTB-EIB/NX only)  |
| Ethernet Port   | RJ45 jack (CTB-KNX/IP only)  |
| <b>General</b>  |  |
| Ambient Temperature   | 0°C – 50°C, not condensing   |
| Design  | Casing for top hat rail mounting   |
| Casing  | Plastic, gray  |
| Installation  | On 35mm top hat rail   |
| <b>Dimensions ( H x W x D )</b><br>(Height x Width x Depth) | 90 x 105 x 60mm  |
| Installation Width  | 6 TE   |
| Weight  | 350g   |
| Certification   | KNX-certified communication stack  |

