

FAZAN



RESI-KNX-GW RESI-KNXGW-ETH



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3 IMPORTANT SECURITY NOTES



Danger to life through electrical current!

Only skilled personal trained in electro-engineering should perform the described steps in the following chapters. Please observe the country specific rules and standards. Do not perform any electrical work while the device is connected to power.

Pay attention to the following rules:

1. Disconnect the system from power
2. Secure the system against automatic power on
3. Check that the system is de-energized
4. Cover other energized parts of the system

IMPORTANT HINT: Before you start with the installation and the initial setup of the device, you have to read this document and the attached installation guide and the actual manual for the device very carefully. You have to follow all the herein given information very accurate!

- Only authorized and qualified personnel are allowed to install and setup the device!
- The connection of the device must be done in de-energized state!
- Do not perform any electrical work while the device is connected to power!
- Disable and secure the system against any automatic restart or power on procedure!
- The device must be operated with the defined voltage level!
- Supply voltage jitters must not exceed the technical specifications and tolerances given in the technical manuals for the product. If you do not obey this issue, the proper performance of the device cannot be guaranteed. This can lead to fail functions of the device and in worst case to a complete breakdown of the device!
- You have to obey the current EMC regulations for wiring!
- All signal, control and supply voltage cables must be wired in a way, that no inductive or capacitive interference or any other severe electrical noise disturbance may interfere with the device. Wrong wiring can lead to a malfunction of the device!
- For signal or sensor cables you have to use shielded cables, to avoid damages through induction!
- You have to obey and to apply the current safety regulations given by the ÖVE, VDE, the countries, their control authorities, the TÜV or the local energy supply company!
- Obey country-specific laws and standards!
- The device must be used for the intended purpose of the manufacturer!
- No warranties or liabilities will be accepted for defects and damages resulting from improper or incorrect usage of the device!
- Subsequent damages, which results from faults of this device, are excluded from warranty and liability!
- Only the technical data, wiring diagrams and operation instructions, which are part to the product shipment are valid!
- The information on our homepage, in our datasheets, in our manuals, in our catalogues or published by our partners can deviate from the product documentation and is not necessarily always actual, due to constant improvement of our products for technical progress!
- In case of modification of our devices made by the user, all warranty and liability claims are lost!
- The installation has to fulfill the technical conditions and specifications (e.g. operating temperatures, power supply, ...) given in the devices documentation!
- Operating our device close to equipment, which do not comply with EMC directives, can influence the functionality of our device, leading to malfunction or in worst case to a breakdown of our device!

- Our devices must not be used for monitoring applications, which solely serve the purpose of protecting persons against hazards or injury, or as an emergency stop switch for systems or machinery, or for any other similar safety-relevant purposes!
- Dimensions of the enclosures or enclosures accessories may show slight tolerances on the specifications provided in these instructions!
- Modifications of this documentation is not allowed!
- In case of a complaint, only complete devices returned in original packing will be accepted!

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4 General Information

With the RESI-KNX-GW or RESI-KNXGW-ETH gateways, a KNX bus system can be integrated in almost every system with a RS232/RS485 or Ethernet interface. The gateway is a serial interface for connection to the KNX with an integrated 2 wire KNX bus-coupler. The time-critical KNX communication is done from the gateway itself, and all telegrams will be transferred in plain ASCII text commands to the connected host system either via serial line or via Ethernet socket.

- Easy integration of the KNX in any system
- Commands and messages as plain text in the ASCII standard
- KNX and host interface are galvanically isolated
- Supports all 65535 group addresses
- Supports all DPT types
- Remanent group address range filter
- Integrated KNX bus-coupler
- RESI-KNX-GW: Host interface: RS232 or RS485, 9600 to 57600 bps, 8 data bits, no or even parity, 1 stop bit
- RESI-KNXGW-ETH: Host interface: Ethernet 10/100MBit/s, ASCII text socket
- Power supply with 12 to 48Vdc
- Power consumption RESI-KNX-GW <0.5W
- Power consumption RESI-KNXGW-ETH <1.1W
- Mountable onto a EN50022 DIN rail

Type	Description	Voltage	Power	Weight
RESI-KNX-GW	KNX to ASCII gateway with RS232 or RS485 interface for all 65535 group addresses	12...48 V=	<0.5W	55 g
RESI-KNXGW-ETH	KNX to ASCII gateway with Ethernet interface for all 65535 group addresses	12...48 V=	<1.1W	90 g

5 Technical data for RESI-KNX-GW

Technical data			
Power supply			
Supply voltage	12...48 V= +/-10%	Storage temperature	-20...85 °C
Power LED indicator	Yes	Operation temperature	0...60°C
Power consumption	<0.5W	Humidity	25...90 % rH not condensing
		Protection class	IP20 (EN 60529)
		Dimensions LxWxH	17.5mm x 90mm x 58mm
		Weight	55g
		Mounting	on DIN EN50022 rail
ASCII text interface		Factory settings	
Protocol	ASCII plain text	ASCII address	255
Type	RS232 or RS485	ASCII baud rate	9600
Baud rate	9600 to 57600/8/N or E/1	ASCII interface	RS232
Cable connection	Via clamps		
LED indicator	Yes		
Galvanic insulation to the KNX interface	Yes		
KNX bus interface			
Protocol	KNX		
Baud rate	9600Bits/s		
Cable connection	Via clamps		
Galvanic insulation to serial interface	Yes		
LED indicator	Yes		
Clamps			
Clamp wire cross section	Max. 1,5 mm ²	CE conformity	Yes
Tightening torque	Max. 0.5Nm		

IT Accessories

hterm	Use the free terminal software hterm from the internet to communicate with our gateway
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6 Technical data for RESI-KNXGW-ETH

Technical data			
Power supply			
Supply voltage	12...48 V= +/-10%	Storage temperature	-20...85 °C
Power LED indicator	Yes	Operation temperature	0...60°C
Power consumption	<1.1W	Humidity	25...90 % rH not condensing
		Protection class	IP20 (EN 60529)
		Dimensions LxWxH	35.8mm x 90mm x 58mm
		Weight	90g
		Mounting	on DIN EN50022 rail
ASCII text interface		Factory settings	
Protocol	ASCII plain text	ASCII address	255
Type	Ethernet	ASCII baud rate	9600
Speed	10/100MBit/s	ASCII interface	RS232
Cable connection	Via RJ45		
LED indicator	Yes		
Galvanic insulation to the KNX interface	Yes		
KNX bus interface			
Protocol	KNX		
Baud rate	9600Bits/s		
Cable connection	Via clamps		
Galvanic insulation to Ethernet interface	Yes		
LED indicator	Yes		
Clamps			
Clamp wire cross section	Max. 1,5 mm ²	CE conformity	Yes
Tightening torque	Max. 0.5Nm		

IT Accessories

putty Use the free terminal software putty from the internet to communicate with our gateway

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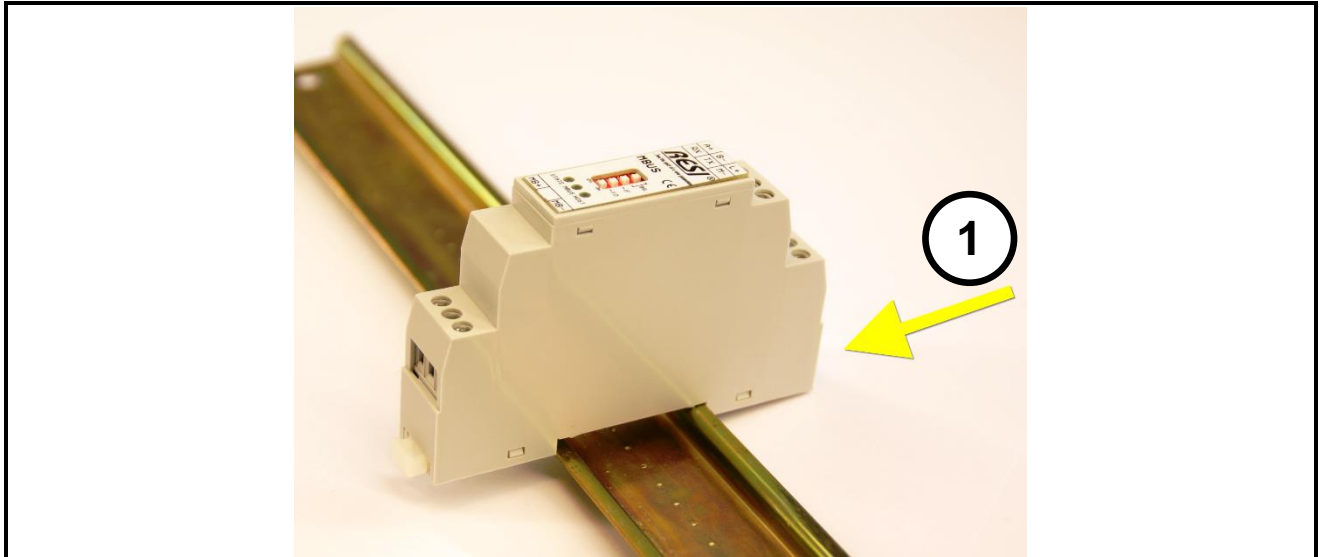
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7 Mounting and Connections

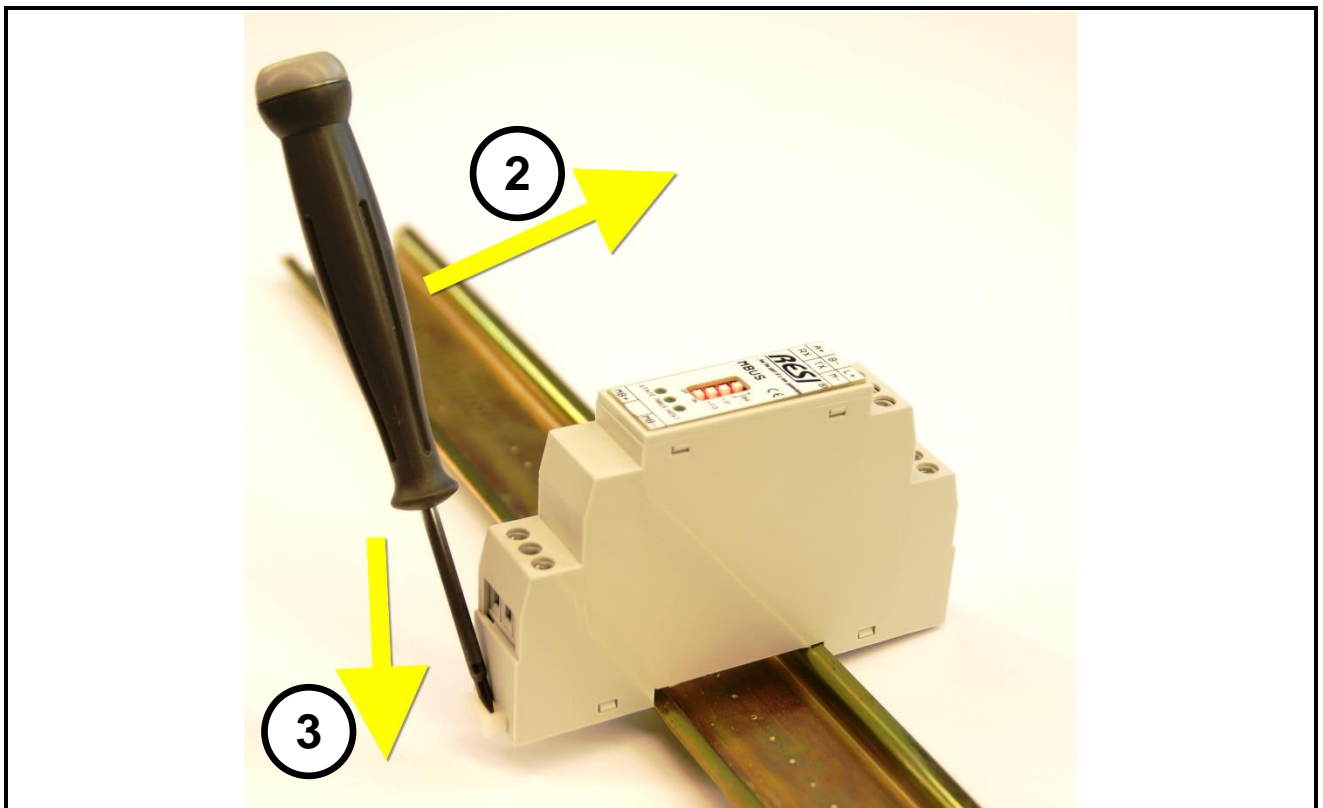
7.1 Assembling

Our RESI-KNX-GW or RESI-KNXGW-ETH gateways are designed for mounting on a 35mm DIN-EN50022 rail. Please note, that there are symbol photos used in the mounting pictures below.

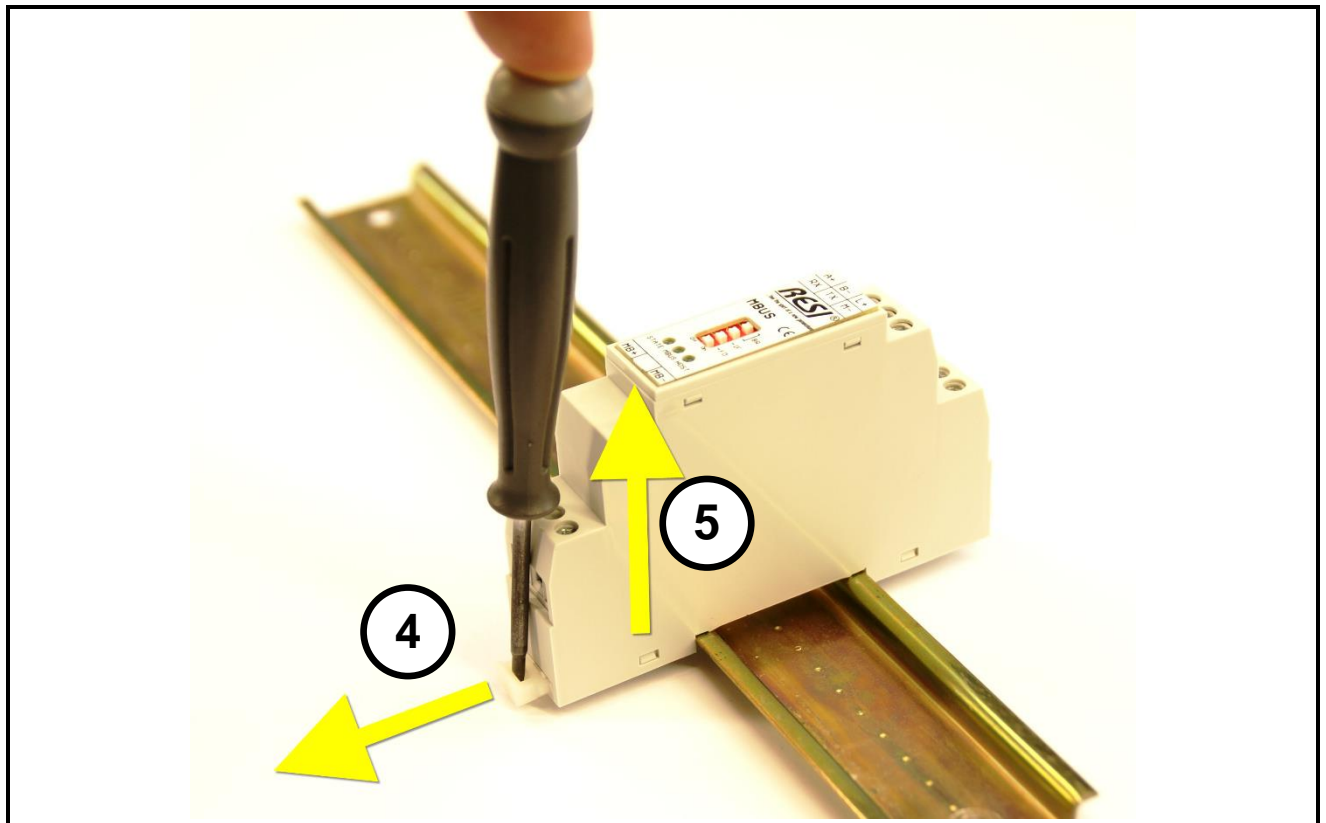
At first, put the gateway with the top side on the DIN rail (1).



Then open the clamp lever on the bottom side with a screw driver (2) and press the device on the DIN rail (3). Release the clamp lever. The module is now placed correctly on the DIN rail.



To dismount the module from the DIN rail first open the clamp lever with a screwdriver on the bottom side (4). Hold the clamp lever opened while you lift the module from the DIN rail (5). Then remove the gateway from the bar with while pulling it on the top side.



7.2 Clamps and LEDs for RESI-KNX-GW

	RESI-KNX-GW
L+	Power supply
M-	L+: 12...48 V= M-: Ground
A	RS485 Modbus/RTU slave interface
B	A: DATA+ B: DATA-
RX	RS232 Modbus/RTU slave interface
TX	RX: serial receive
M-	TX: serial transmit M-: Ground for RS232
K+	Interface to KNX bus system
K-	K+: KNX+ bus wire (red) K-: KNX- bus wire (black)
STATE	State-LED, flashes slowly, when gateway is ok and the KNX is connected. Flashes fast, if the gateway or the KNX connection has an error
KNX	KNX activity LED, this LED is on while the gateway send or receives KNX telegrams
HOST	HOST-LED, flashes, when host sends/receive ASCII telegrams

Table: Description of connectors and LEDs of the RESI-KNX-GW gateway

7.3 DIP switch settings for RESI-KNX-GW

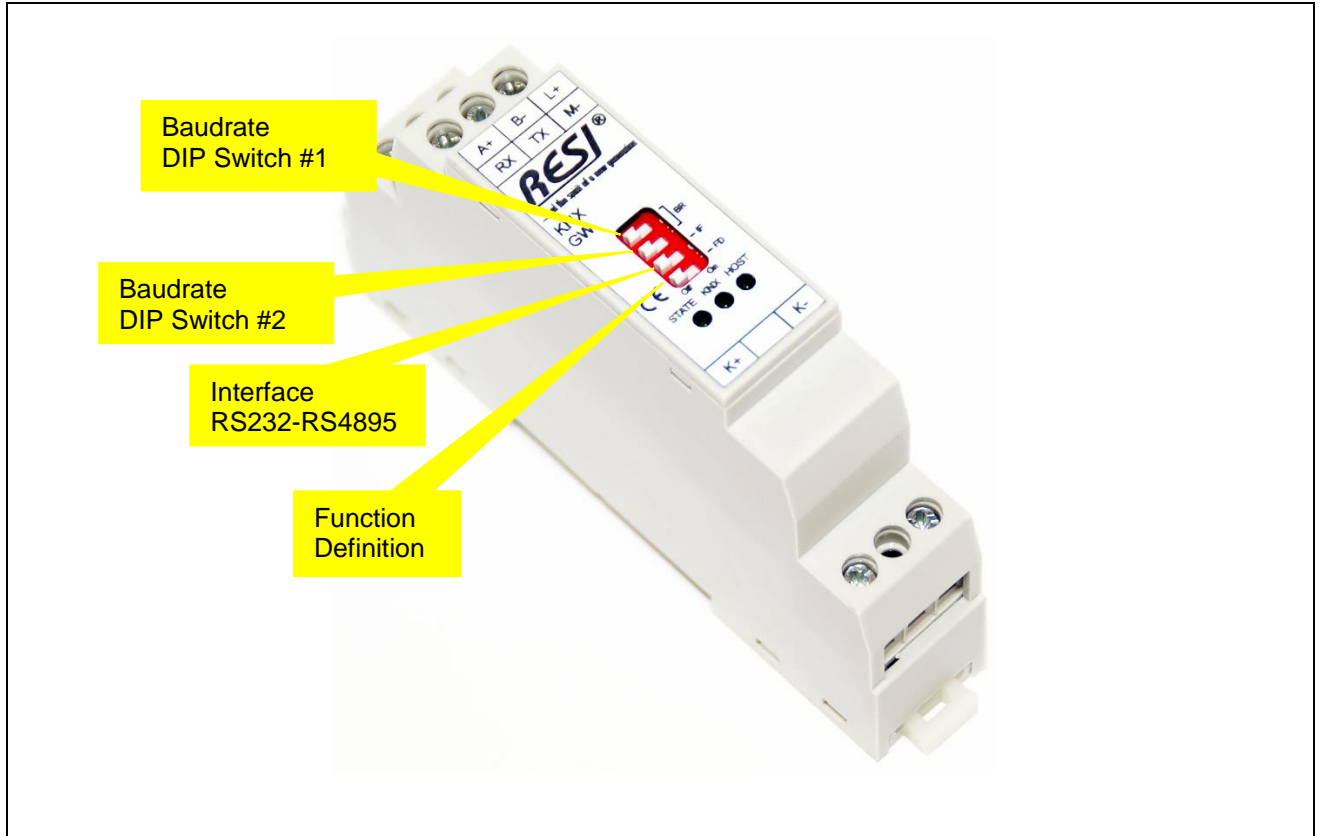


Illustration: Description of the DIP switch settings and LED status displays

DIP Switch	RESI-KNX-GW
Baudrate BR	Use DIP Switches 1+2 to select baud rate: OFF OFF: 9600Bd ON OFF: 19200Bd OFF ON: 38400Bd ON ON: 57600Bd HINT: The correct parity (NONE, EVEN or ODD) is configured with the PC software, not via DIP switches!
Interface IF	Select serial interface for ASCII host OFF=RS232 ON=RS485
Function Definition FD	Selects a special function: OFF=The gateway uses a compatibility format (>) ON=The gateway uses the RESI format (#)

Table: Description of DIP switch functions

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7.4 Clamps and LEDs for RESI-KNXGW-ETH

	RESI-KNXGW-ETH
L+ M-	Power supply L+: 12...48 V= M-: Ground
ETHERNET	Ethernet connection for transparent mode or MODBUS/TCP or internet access. 10M/100Mbit adaptive, support AUTO-MDIX
K+ K-	Interface to KNX bus system K+: KNX+ bus wire (red) K-: KNX- bus wire (black)
STATE	State-LED, flashes slowly, when gateway is ok and the KNX is connected. Flashes fast, if the gateway or the KNX connection has an error
KNX	KNX activity LED, this LED is on while the gateway send or receives KNX telegrams
HOST	HOST-LED, flashes, when host sends/receive telegrams
CFG	Factory config LED: In normal mode this LED flashes in the same way like the STATE LED. If CFG switch=ON while rebooting, the STATE LED is always ON and this LED flashes slowly. When this process is finished, both LED blink very fast.
LINK	This LED is on if Ethernet port is connected correctly to network
DATA	The LED shows the data flow on the Ethernet port

Table: Description of connectors and LEDs of the RESI-KNXGW-ETH gateway

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7.5 DIP switch settings for RESI-KNXGW-ETH

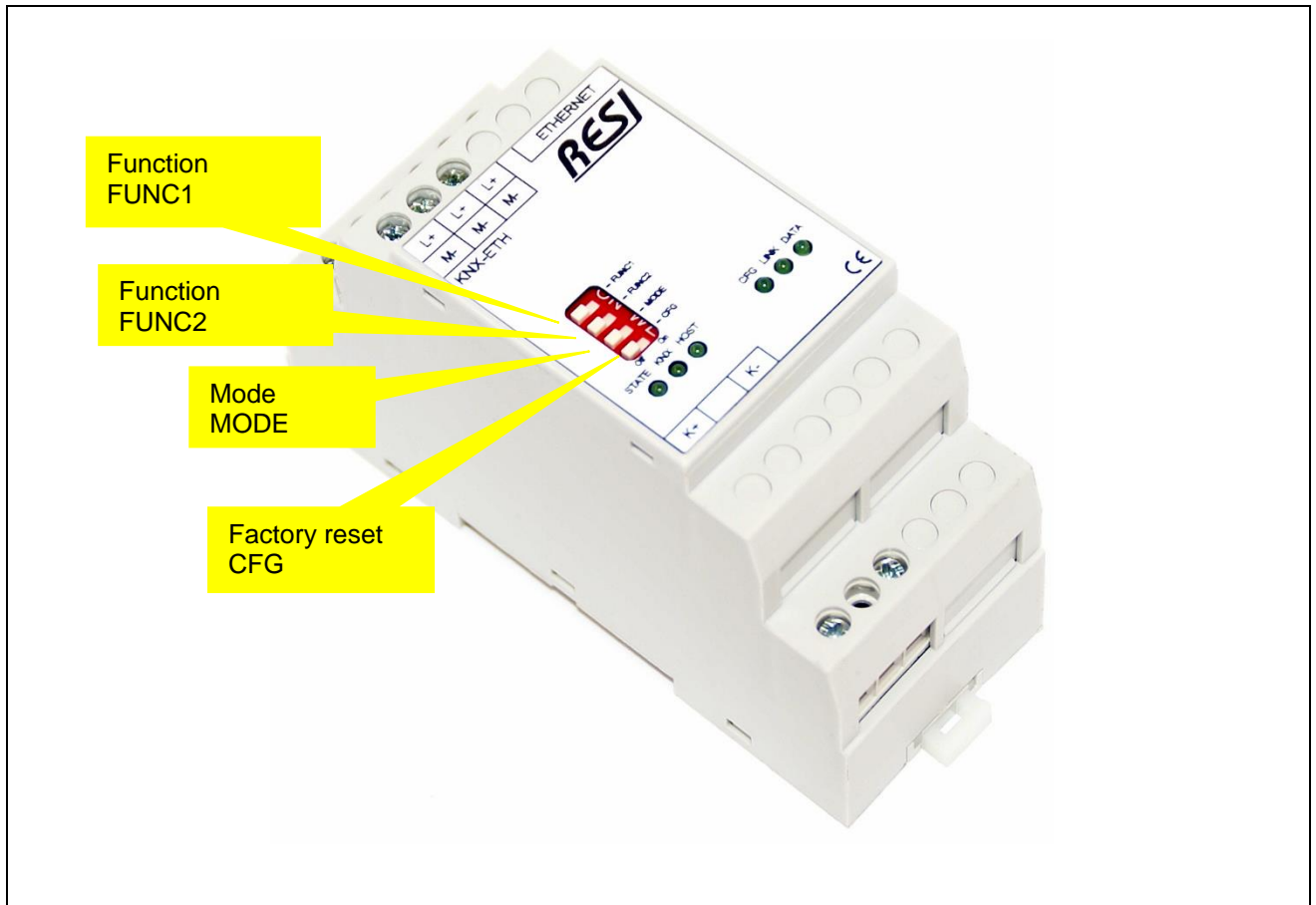


Illustration: Description of the DIP switch settings and LED status displays

DIP Switch	RESI-KNXGW-ETH
Function FUNC1	ON: while restarting the module, the module switches to static IP configuration with the standard IP settings: IP address: 192.168.0.221 IP mask: 255.255.255.0 Gateway: 192.168.0.1 OFF: the current configured IP settings are used
Function FUNC2	ON: while restarting the module, the module switches to DHCP IP configuration. OFF: the current configured IP settings are used
Mode MODE	Selects a special function: OFF=The gateway uses a compatibility format (>) ON=The gateway uses the RESI format (#)
Factory config CFG	ON: while restarting the module, the module restores the factory defaults for the system. Wait for approx. 30 seconds until the STATE+CFG LED flash very fast. Then reset the DIP switch. The module will restart automatically and is ready for operation. OFF: Normal start of module
HINT	After changing the DIP switches the converter reboots immediately, so no power off or on is necessary. After reboot all the LEDs are on for half a second to signal the power on sequence.

Table: Description of DIP switch functions

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7.6 Wiring diagram for RESI-KNX-GW

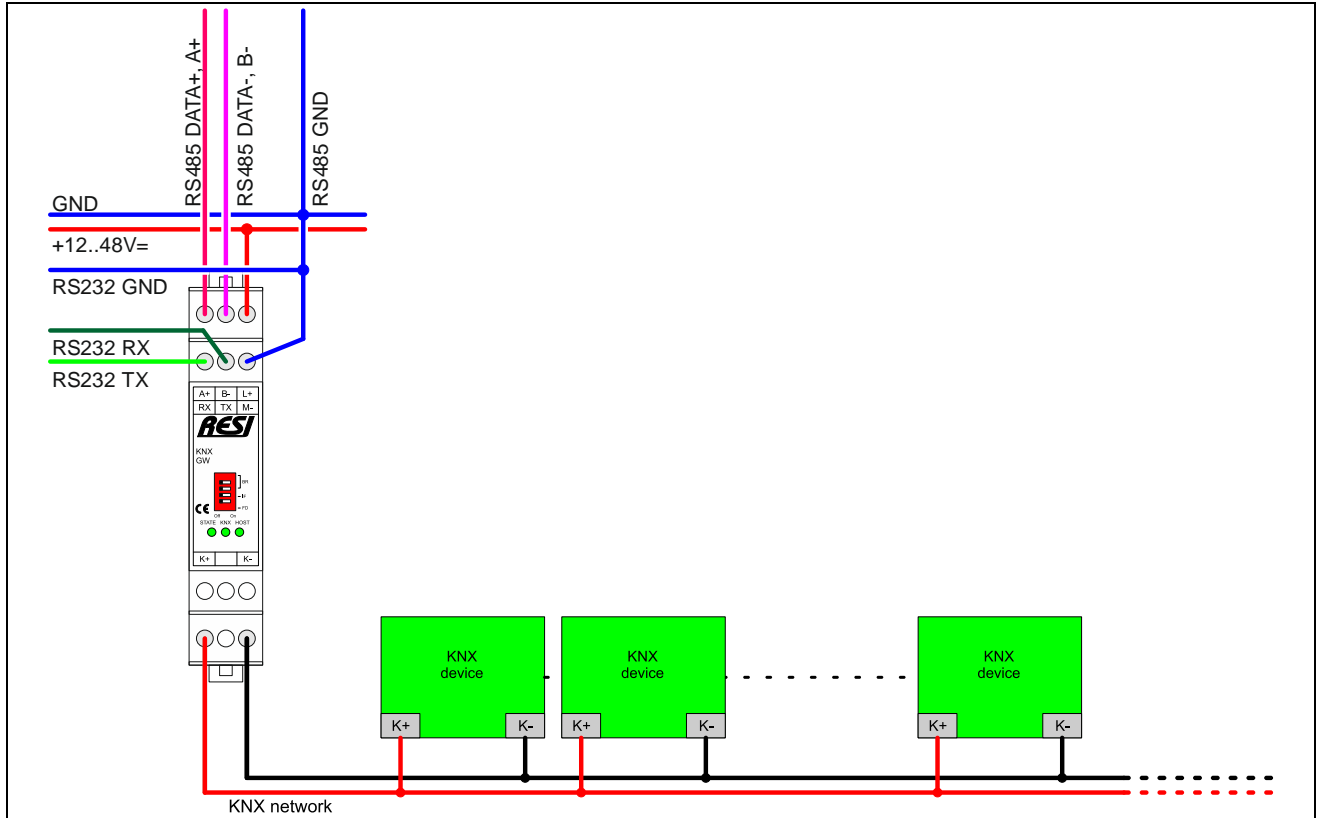


Illustration: wiring diagram of gateway

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7.7 Wiring diagram for RESI-KNXGW-ETH

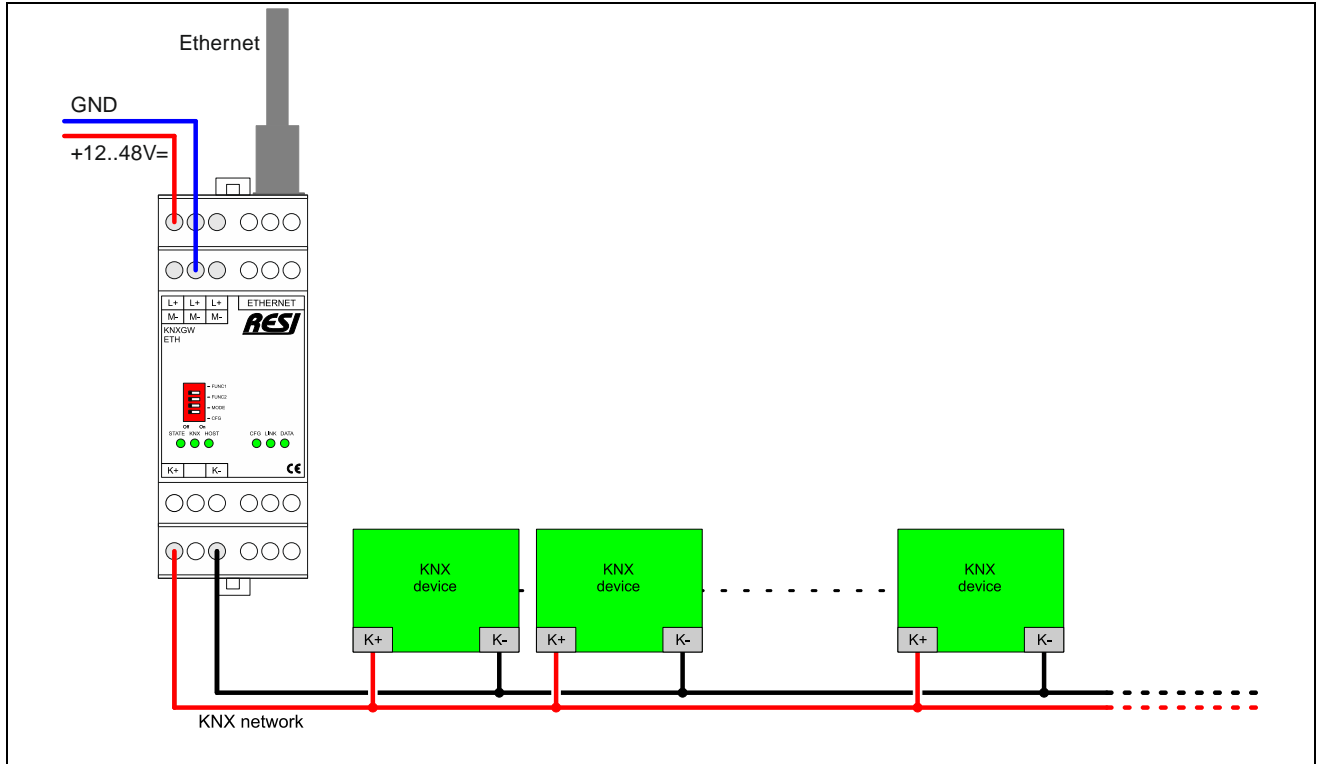


Illustration: wiring diagram of gateway

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8 Functional Description

The RESI-KNX-GW and RESI-KNXGW-ETH gateways communicate with the host by a protocol, which is based on simple text strings in ASCII character set. The host interface handles no control character below the space character (Code: 20_H) with the exception of the "carriage return" character (Code: 0D_H), which will be constitute as <cr>. Each command, a message, or a line must use the character <cr> as end of line indication.

Received characters from the host will not be send back to the host (no echo).

Differences between full duplex and half duplex mode:

In RS232/Ethernet mode the RESI-KNX-GW gateway sends a received KNX telegram immediately as an ASCII string to the host, due to the fact, that this communication is bidirectional (full duplex).

In RS485 mode the RESI-KNX-GW gateway puffers a received KNX telegram internally, until the host polls the internal memory with the command #GET<cr>. The gateway can buffer up to 32 KNX telegrams internally in its queue. This is the tradeoff for half duplex communication. This mode can also be used on the Ethernet gateway.

This mode can be controlled with the option **COM** in the **#SETUP** command.
 Setting COM to ON enable full duplex communication mode.
 Setting COM to OFF enables half-duplex communication mode with #GET command.

8.1 Protocol description

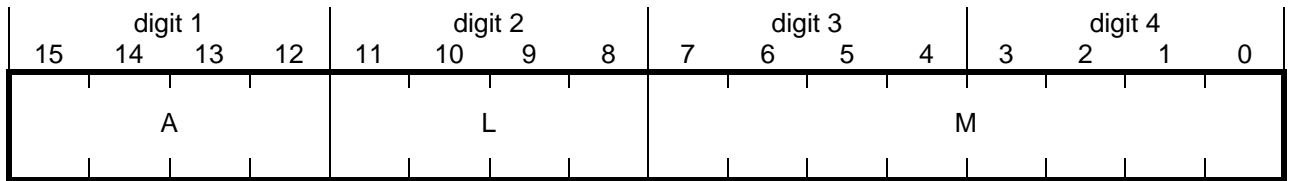
Following all commands and messages of the gateway will be described. Each command has to be terminated with the <cr> character. All feedback messages of the gateway also end with a <cr> character. The case sensitivity is to keep in mind (Use upper case letters) !
 Numbers and group addresses can be optionally send to the gateway in decimal or hexadecimal form. To send a number in hexadecimal form, the number must be precede a "x". By output of a number in hexadecimal form(option **HEX** activated), there no "x" precede the numbers!

8.1.1 KNX physical address

Physical addresses can be defined (A = area / L = line / M = member) as character string

AA.LL.MMM or
 AA/LL/MMM or
 xALMM

or as hexadecimal digit



Examples:
 0.0.0 → x0000
 3/1/15 → x310F
 15.15.255 → xFFFF

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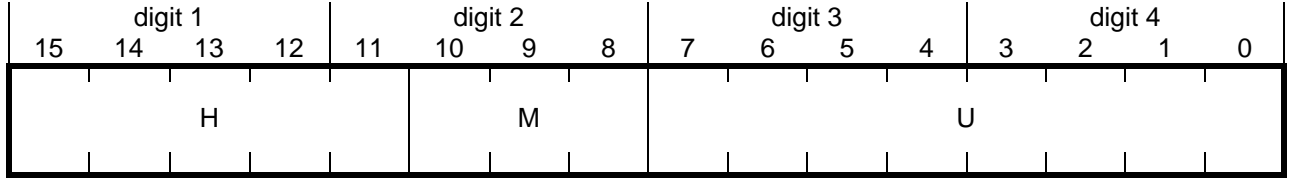
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8.1.2 KNX group addresses

Group addresses can be defined (H = main group / M = middle group / U = sub group) as character string

HH.M.UUU or
HH/MM/UUU

or as hexadecimal digit



Examples:

- 0.0.0 → x0000
- 3/1/15 → x190F
- 15/0/255 → x78FF
- 15/7/255 → x7FFF
- 31.7.255 → xFFFF

8.1.3 Request help

Command: ?H
Description: Return a short summary of all commands for the gateway
Answer: Summary of the commands and messages
Example: ----

8.1.4 Request gateway version

Command: ?V
Description: Returns the product description and the version
Answer: RESI-KNX-GW Vn.n.n
n.n.n.....software version

Example:

<pre>?V RESI-KNX-GW V3.0.0</pre>

8.1.5 Request copyright

Command: ?C
Description: Returns the copyright.
Answer: Show the copyright
Example: ----

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8.1.6 Request device setting

Command: **?SETUP**
Description: Returns the device setting.
Answer: **PHY=pa**
SRC=src
HEX=hex
COM=com
 pa.....physical address of the gateway at the KNX
 src.....display of the source address when receiving a KNX telegram
 (**ON** = activate / **OFF** = deactivate)
 hex.....display the KNX address in hexadecimal form
 (**ON** = activate / **OFF** = deactivate)
 com.....define the communication mode
 (**ON** = full duplex / **OFF** = half duplex)

Example:

```
?SETUP
PHY=1.1.156
SRC=ON
HEX=OFF
COM=OFF
```

or

```
?SETUP
PHY=119C
SRC=ON
HEX=ON
COM=OFF
```

8.1.7 Set device setting

Command: **#SETUP=pa;src;hex;com**
Description: Set the device setting .
 pa.....physical address of the gateway at the KNX
 src.....Defines, if the source address of a received KNX telegram is
 shown or not
 (**ON** = activate / **OFF** = deactivate)
 hex.....Defines, if the KNX address is shown in hexadecimal form
 (**ON** = activate / **OFF** = deactivate)
 com.....Defines the communication mode
 (**ON** = full duplex / **OFF** = half duplex)

Answer: **Ok** The settings are changed successfully

Example: Set the physical address of the gateway to 1.1.156, enable output of KNX source address, disable output of KNX address in hexadecimal form and disable full duplex mode (Use #GET<cr> for polling).

```
#SETUP=1.1.156;ON;OFF;OFF
Ok
```

same settings but with address as hexadecimal number

```
#SETUP=x119C;ON;OFF;OFF
Ok
```

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8.1.8 Perform software reset

Command: `#RESET`
Description: Performs a software RESET
Answer: none
Example: ----

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8.1.9 Activate direct mode

Command: **#ADM**
Description: Activates the direct mode of the gateway. In this mode, all incoming protocols are passed without any conversion to the host in a binary protocol form.
Answer: **Ok**
Example: Sample for receiving and sending KNX groups in direct mode

```
// Activate direct mode
#ADM
Ok
// Receive KNX group 1.0.0 as BIT with value 1
#RDM:09:BCFFFE0800E100812A
// Sending KNX group 1.0.0 as BIT with value 0
#WDM:09:BCFFFE0800E100802B

// Receiving KNX group 31.7.255 as VALUE with 23.44
#RDM:0B:BCFFFEFFFFE300800C94B9
// Sending KNX group 31.7.0 as VALUE with 3.14
#WDM:0B:BCFFFEFF00E30080013AE5
// Deactivate direct mode
#DDM
Ok
```

8.1.10 Receive protocol in direct mode

Command: **#RDM:<len>:<byte1><byte2>...<byteN>**
Description: Whenever the gateway receives a KNX protocol, this protocol is send to the host. No interpretation is done within the gateway.
lenLength of KNX protocol in bytes
byte1..n.....Bytes of KNX protocol as two character hex values
Answer: ---
Example: Receiving KNX group 1.0.0 as BIT data type with bit value 1
Receiving KNX group 31.7.255 as 2-byte FLOAT16 data type with float value 23.44

```
// Receive KNX group 1.0.0 as BIT with value 1
#RDM:09:BCFFFE0800E100812A
// Receiving KNX group 31.7.255 as VALUE with 23.44
#RDM:0B:BCFFFEFFFFE300800C94B9
```

8.1.11 Write protocol in direct mode

Command: **#WDM:<len>:<byte1><byte2>...<byteN>**
Description: The host can send a KNX protocol to the KNX bus with this command. No interpretation is done within the gateway.
lenLength of KNX protocol in bytes
byte1..n.....Bytes of KNX protocol as two character hex values
Answer: ---
Example: Sending KNX group 1.0.0 as BIT data type with bit value 0 to the KNX bus
Sending KNX group 31.7.0 as 2-byte FLOAT16 data type with float value 3.14

```
// Sending KNX group 1.0.0 as BIT with value 0
#WDM:09:BCFFFE0800E100802B
// Sending KNX group 31.7.0 as VALUE with 3.14
#WDM:0B:BCFFFEFF00E30080013AE5
```

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8.1.12 Deactivate direct mode

Command: **#DDM**
Description: Deactivates the direct mode of the gateway. After this command, the gateway works in normal mode again.
Answer: **Ok**
Example: Sample for receiving and sending KNX groups in direct mode

```
// Activate direct mode
#ADM
Ok
// Receive KNX group 1.0.0 as BIT with value 1
#RDM:09:BCFFFE0800E100812A
// Sending KNX group 1.0.0 as BIT with value 0
#WDM:09:BCFFFE0800E100802B

// Receiving KNX group 31.7.255 as VALUE with 23.44
#RDM:0B:BCFFFEFFFE300800C94B9
// Sending KNX group 31.7.0 as VALUE with 3.14
#WDM:0B:BCFFFEFF00E30080013AE5
// Deactivate direct mode
#DDM
Ok
```

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8.1.13 Request KNX group address settings

Command: *?DGga1[-ga2]*
Description: Returns the settings for the group address **ga1**, or if specified, the settings of the range of **ga1** up to **ga2**

The gateway processes only the KNX groups, which have valid defined group addresses. All other incoming or outgoing KNX groups are ignored by the gateway.

Answer: *ga1[-ga2] = dt;f*
 dt..... data type
 f..... telegram filter for this group address or group address range
 (**R** = Only the receiving of KNX telegrams is activated /
W = Only the transmit of KNX telegrams is activated /
RW = Transmit and receiving of KNX telegrams is activated)

Example: Request the settings of group addresses 2.1.0 up to 2.1.10. The answer shows that addresses 2.1.0, 2.1.9 and 2.1.10 are not configured. Addresses 2.1.1 up to 2.1.8 using bit data format and receiving and transmitting of telegrams is enabled.

```
?DG2.1.0-2.1.10
2.1.0 = EMPTY
2.1.1-2.1.8 = BIT;RW
2.1.9-2.1.10 = EMPTY
```

The same request, only with addresses hexadecimal number

```
?DGx1100-x110A
2.1.0 = EMPTY
2.1.1-2.1.8 = BIT;RW
2.1.9-2.1.10 = EMPTY
```

8.1.14 Define KNX group addresses

Command: *#DGga1[-ga2]=dt;f*
Description: Define the KNX group address **ga1**, respectively the range of **ga1** up to **ga2** to the assigned KNX datatype and KNX direction.

dt.....KNX data type
 f.....telegram-filter
 (**R** = Activated only the receiving of KNX telegrams /
W = Activated only the transmit of KNX telegrams /
RW = Activated transmit and receive of KNX telegrams)

The gateway processes only the KNX groups, which have valid defined group addresses. All other incoming or outgoing KNX groups are ignored by the gateway.

Answer: **Ok** Settings were successful

Example: Define the addresses 2.1.1 up to 2.1.8 as 1-6 Bit KNX data type and enable transmit and receive of KNX telegrams.

```
#DG2.1.1-2.1.8=BIT;RW
Ok
```

with the address in hexadecimal digit

```
#DGx1101-x1108=BIT;RW
Ok
```

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8.1.15 Request telegram forwarding settings

Command: *?DF*
Description: Returns the telegram forwarding settings. The gateway support the forwarding of telegrams.
 If a KNX group is received from the KNX bus, where a KNX telegram forwarding is defined, the gateway automatically sends the defined KNX groups to the KNX bus with the value of the previous received KNX group.

Answer: *ga -> ga1;ga2;ga3;...ag30*
ga..... Address of the group address which should be forwarded
ga1-ga30.... Telegram will be forwarded to group addresses 1- 30

Example:

```
?DF
2.1.1 -> 2.1.2;2.1.3;2.1.4;
```

Received KNX telegram of address 2.1.1 will be forwarded to 2.1.2, 2.1.3 and 2.1.4

8.1.16 Define KNX telegram forwarding

Command: *#DFga->ga1;[ga2;ga3;...ga30]*
Description: Defines the forwarding of a telegram to group address *ga* to a maximum of 30 KNX group addresses (*ga1* to *ga30*). A maximum of 56 forwarding settings can be configured.
 If a KNX group is received from the KNX bus, where a KNX telegram forwarding is defined, the gateway automatically sends the defined KNX groups to the KNX bus with the value of the previous received KNX group.

Answer: *Ok* Settings were successful
Example: Enable forward of telegram for address 2.1.1 to 2.1.2, 2.1.3 and 2.1.4

```
#DF2.1.1->2.1.2;2.1.3;2.1.4
Ok
```

with the address as hexadecimal number

```
#DFx1101->x1102;x1103;x1104
Ok
```

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8.1.17 Delete the entire group address settings

Command: #CG
Description: Clear all settings for all KNX group addresses
Answer: Ok All settings cleared
Example:

```
#CG  
Ok
```

8.1.18 Delete the entire forwarding settings

Command: #CF
Description: Delete all KNX forwarding settings
Answer: Ok All settings cleared
Example:

```
#CF  
Ok
```

8.1.19 Transmit/Send a KNX telegram

Command: If the DIP switch FD/MODE is OFF **#WGga=value** If the DIP switch FD/MODE is ON **Wga=value**

Description: Transmits a "Write Group" KNX telegram with the group address **ga** and with the data **value**. Value will be converted into the configured datatype of the KNX group address. Don't forget, the gateway sends this telegram to the KNX bus only if the KNX direction is **W** or **RW**.

Answer: No answer

Example: Transmit a „ON“ telegram to the group address 2.1.1, if the data type of the group address is BIT.

```
#WG2.1.1=1
```

or as hexadecimal digit

```
#WGx1101=x1
```

Transmit a temperature to the KNX group address 3.0.0 with the datatype VALUE:

```
#WG3.0.0=23.45
```

```
#WG3/0/0=23.45
```

8.1.20 Receive of a KNX telegram at the KNX

Message: If the DIP switch FD/MODE is OFF **#R[Spa]Gga=value** If the DIP switch FD/MODE is ON **[pa]>ga=value**

Description: By receiving a group telegram, the gateway checks, if the receiving of this KNX group address is enabled and if the KNX direction is **R** or **RW**. If this address is enabled, the data length of the telegram will be compared with the data length of the configured KNX data type of the associated KNX group. If the data length does not match, "value" will be assigned to a question mark. The output of the source address **pa** is controlled of the setting of **SRC**. If option **COM** is enabled all received telegrams are immediately transmitted to the host (full duplex). When disabled the received telegrams are queued internally by the gateway. The host has to poll this queue with command **#GET** cyclically.

Answer: ----

Example: Receiving a „ON“ telegram to the group address 2.1.1
DIP switch FD/MODE=OFF

```
#RG2.1.1=1      Comment: SRC=OFF / HEX=OFF
#RG1101=1       Comment: SRC=OFF / HEX=ON
#RS1.1.3G2.1.1=1 Comment: SRC=ON / HEX=OFF
#RS1103G1101=1  Comment: SRC=ON / HEX=ON
```

DIP switch FD/MODE=ON

```
>2.1.1=1      Comment: SRC=OFF / HEX=OFF
>1101=1       Comment: SRC=OFF / HEX=ON
1.1.3>2.1.1=1 Comment: SRC=ON / HEX=OFF
1103>1101=1   Comment: SRC=ON / HEX=ON
```

Receive of a temperature with the KNX group address 3.0.0

```
>3.0.0=23.45
```

Receive of an invalid data format with the KNX group address 3.0.1

```
>3.0.1=?
```

8.1.21 Query the status of a KNX telegram at the KNX

Command:	If the DIP switch FD/MODE is OFF #QGga	If the DIP switch FD/MODE is ON #QGga
Description:	This command generates a read command for the specified KNX telegram on the bus. If there is a KNX device, which can answer to this read command, you will receive a #RG answer with the actual value of the KNX group address	
Answer:	A receive KNX group telegram	
Example:	Query the status of group address	

```
#QG2.1.1
// If the KNX unit can answer to the request you will
// receive the current value ...
#RG2.1.1=1
```

Query the temperature of a KNX temperature sensor with KNX group address 3.0.0

```
#QG3.0.0
#RG3.0.0=23.45
```

8.1.22 Tell the status of a KNX telegram to the KNX

Command:	If the DIP switch FD/MODE is OFF #TGga	If the DIP switch FD/MODE is ON T>ga
Description:	If a KNX device sends a query group value telegram to the KNX bus, this ASCII message is send to the host. Normally the host should now answer with the corresponding write group telegram with the current value for the desired KNX group, if the requested KNX group affects the host.	
Answer:	A write group telegram generated from the host	
Example:	KNX device: Tell the current value of group address	

```
#TG2.1.1
// The host should now answer with the corresponding
// group and current value..
#WG2.1.1=1
```

8.1.23 Query received telegrams in half duplex mode

Command:	#GET
Description:	Reads all received telegrams since last execution of this command in half duplex mode. All received KNX telegrams of the internal receive queue of the gateway are transmitted to the host. The receive queue of the gateway can store up to 30 KNX telegrams.
Answer:	Received telegrams or nothing
Example:	

```
#GET
#RG2.1.1=1
#RG2.1.5=1
#RG2.1.8=1
#RG3.0.0=24.35
#RG3.0.1=18.56
```

8.2 Error messages

The following error messages can be returned by the gateway

<i>!Bad command format</i>	nonconforming command
<i>!Bad value</i>	error in value format (eg: out of range)
<i>!Bad group address</i>	A nonconforming group address has been transmitted (for example: wrong format)
<i>!Group address disabled</i>	A write instruction has been made with a group address, which is not enabled for write access.
<i>!KNX not connected</i>	The gateway is not connected to the KNX. If this error occurs, all telegrams will be deleted from the transmit queue.
<i>!KNX is connected</i>	The gateway is successfully connected to the KNX bus.
<i>!KNX busy</i>	The transmit queue of the gateway is full.

8.3 KNX data types

The following section describes the 17 possible KNX data types for a KNX group address.

8.3.1 Data type “EMPTY”

Data type: Not configured KNX group address
Range: ----
Description: For this KNX group address, there is no data type configured. All incoming KNX telegrams are purged internally in the gateway. All writing attempts to this address generated the error **!Group address disabled**

8.3.2 Data type “BIT”

Data type: 1 up to 6 bit binary digit
Range: 0...63 decimal / x00...x3F hexadecimal
DPT: 1.x / 2.x / 3.x
Note: On transmit: A decimal or a hexadecimal digit can be specified.
 On receive: The data will be issued in decimal form.

8.3.3 Data type “CHAR”

Data type: ASCII character
Range: 0...255 decimal / x00...xFF hexadecimal
DPT: 4.x
Note: This data type handles the ASCII code of the characters. The conversion in a letter must be handled by the host system.
 On transmit: A decimal or a hexadecimal digit can be specified.
 On receive: The data will be issued in decimal form.

8.3.4 Data type “UBYTE”

Data type: 1 Byte 8 bit value unsigned
Range: 0...255 decimal / x00...xFF hexadecimal
DPT: 5.004 / 5.010
Note: On transmit: A decimal or a hexadecimal digit can be specified.
 On receive: The data will be issued in decimal form.

8.3.5 Data type “PERCENT”

Data type: Percent – value
Range: 0...100 decimal / x00...x64 hexadecimal
DPT: 5.001
Note: On transmit: A decimal or a hexadecimal digit can be specified.
 On receive: The data will be issued with two decimal places.

8.3.6 Data type “ANGLE”

Data type: Angle – value
Range: 0...360 decimal / x00...x168 hexadecimal
DPT: 5.003
Note: On transmit: A decimal or a hexadecimal digit can be specified.
 On receive: The data will be issued with two decimal places.

8.3.7 Data type “BYTE”

Data type: 1 Byte 8 bit value signed
Range: -128...127 decimal / x00...xFF hexadecimal
DPT: 6.x
Note: On transmit: A decimal or a hexadecimal digit can be specified.
 On receive: The data will be issued in decimal form.

8.3.8 Data type “UWORD”

Data type: 2 Byte 16 bit value unsigned
Range: 0...65535 decimal 000...xFFFF hexadecimal
DPT: 7.x
Note: On transmit: A decimal or a hexadecimal digit can be specified.
 On receive: The data will be issued in decimal form.

8.3.9 Data type “WORD”

Data type: 2 Byte 16 bit value signed
Range: -32768...32767 decimal / x0000...xFFFF hexadecimal
DPT: 8.x
Note: On transmit: A decimal or a hexadecimal digit can be specified.
 On receive: The data will be issued in decimal form.

8.3.10 Data type “VALUE”

Data type: 2 Byte 16 bit value floating point - value signed
Range: -671 088,64...670 760,96 decimal / x0000...xFFFF hexadecimal
DPT: 9.x
Note: On transmit: A decimal or a hexadecimal digit can be specified. The hexadecimal digit must already be coded in floating point format.
 On receive: The data will be issued in decimal with two decimal places.

8.3.11 Data type “TIME”

Data type: 3 Byte time of day
Format: hh:mm:ss (hh = 0...23 / mm = 0...59 / ss = 0...59)
DPT: 10.x
Note: On transmit: The time format “hh:mm:ss” or a hexadecimal digit in xhhmmss format, can be specified.
 On receive: The data will be issued in time format “hh:mm:ss”.

8.3.12 Data type “DATE”

Data type: 3 Byte date
Format: dd.mm.yy (dd = 1...31 / mm = 1...12 / yy = 0...99)
DPT: 11.x
Note: On transmit: The date format “dd.mm.yy” or a hexadecimal digit in xddmmyy format, can be specified.
 On receive: The data will be issued in date format “dd.mm.yy”

8.3.13 Data type “UDWORD”

Data type: 4 Byte 32 bit value unsigned
Range: 0... 4294967295 decimal / x00000000...FFFFFFFF hexadecimal
DPT: 12.x / 15.x
Note: On transmit: A decimal or a hexadecimal digit can be specified.
 On receive: The data will be issued in decimal format.

8.3.14 Data type “DWORD”

Data type: 4 Byte 32 bit value signed
Range: -2147483648...2147483647 decimal / x00000000...FFFFFFFF hexadecimal
DPT: 13.x
Note: On transmit: A decimal or a hexadecimal digit can be specified.
 On receive: The data will be issued in decimal format.

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8.3.15 Data type "FLOAT"

Data type: 4 Byte 32 bit value IEEE floating point - value signed
Range: -3,4E+38...3,4E+38 decimal / x00000000...xFFFFFFFF hexadecimal
DPT: 14.x
Note: On transmit: A decimal or a hexadecimal digit can be specified. The hexadecimal digit must already be coded in floating point format.
 On receive: The data will be issued in decimal with max. 6 decimal places.

8.3.16 Data type "STRING"

Data type: 14 Byte ASCII character string
Range: 1 to 14 bytes ASCII character
DPT: 16.x
Note: Unused characters will be internally filled up with 0. By declaration of more than 14 characters, the rest of the them will be ignored.

8.3.17 Data type "GENERIC"

Data type: 1 up to 14 Byte, with semicolon (;) separated
Range: each byte 0...255 decimal / x00...xFF hexadecimal
DPT: > 16.x
Note: On transmit: A decimal or a hexadecimal digit can be specified. Decimal values are represented as digits between 0 and 255. Hexadecimal values are represented as values between x00 and xFF.

On receive: The data will be issued in hexadecimal form, without a x preceding the value.

Example:

```
#WG1.1.1=1 // 1 Byte Data
#WG1.1.1=1;2;3;4;5;6 // 6 Byte Data
#WG1.1.1=255;254;253 // 3 Byte Data
#WG1.1.1=xFF;xFE;xFC;xAB // 4 Byte Data in hex
```

```
#RG1.1.1=01 // 1 Byte Data in hex
#RG1.1.1=01;02;03;04;05;06 // 6 Byte Data in hex
#RG1.1.1=FF;FE;FC // 3 Byte Data in hex
#WG1.1.1=FF;FE;FC;AB // 4 Byte Data in hex
```

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9 RESI-KNXGW-ETH operation modes

The gateway supports a text socket with ASCII text commands:

- **TEXT MODE:** Bidirectional transparent gateway between Ethernet socket data and serial line. All incoming data on the Ethernet socket is directly forwarded to the serial line. All received data from the serial line is directly forwarded to the Ethernet socket.

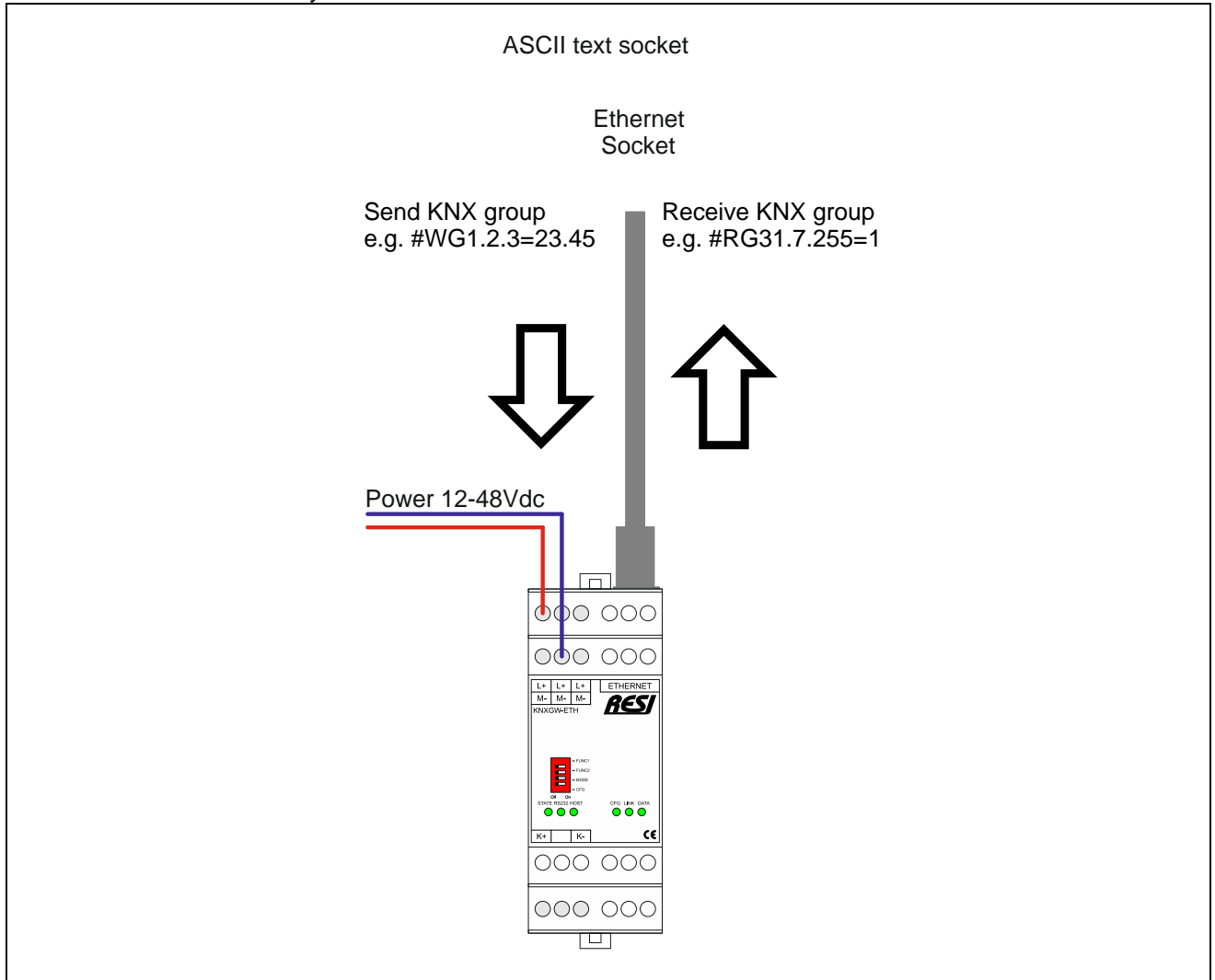


Illustration: TEXT MODE on RESI-KNXGW-ETH converters

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10 RESI-KNXGW-ETH web configuration

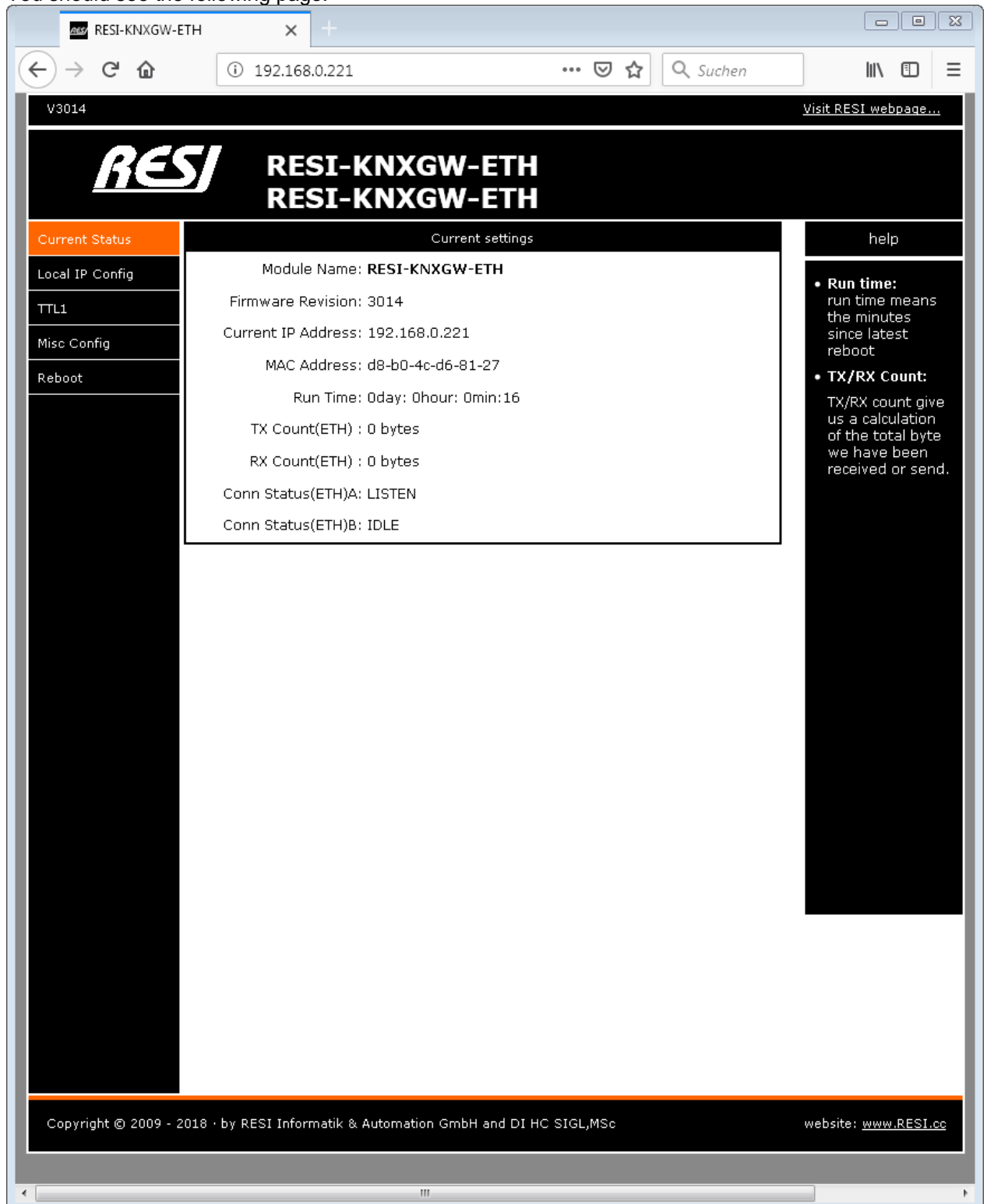
Our RESI-KNXGW-ETH gateway has a build in web server to configure basic access to the Ethernet interface. Therefore open an Internet explorer and type in the configured IP address of the selected gateway.

The standard configuration for STATIC IP (See DIP switch selection of RESI-KNXGW-ETH gateway) is:

- RESI-KNXGW-ETH: IP: 192.168.0.221 Mask: 255.255.255.0 Gateway: 192.168.0.1 Socket: 1024

The standard user name is RESI and the standard password is also RESI.

You should see the following page:



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10.1 HOWTO setup IP address

Choose page "Local IP Config". Use the following mask to edit the IP settings:

The screenshot shows a web browser window with the URL 192.168.0.221. The page title is "RESI-KNXGW-ETH" and the page content includes a navigation menu on the left with "Local IP Config" selected. The main content area is titled "Current settings" and contains the following fields:

- IP Type:** Static IP (dropdown menu)
- Static IP:** 192 . 168 . 0 . 221 (with instructions: "for RESI-xxx-ETH select DHCP for automatic IP addressing or STATIC for manual configuration of the IP settings")
- Submask:** 255 . 255 . 255 . 0 (with instructions: "for RESI-xxx-ETH enter your desired module IP address here")
- Gateway:** 192 . 168 . 0 . 1 (with instructions: "for RESI-xxx-ETH enter your desired Subnet mask here")
- DNS Server:** 192 . 168 . 0 . 1 (with instructions: "for RESI-xxx-ETH enter your desired gateway IP address here")

At the bottom of the form are "Save" and "Cancel" buttons. A "help" sidebar on the right contains the following information:

- IP type:** StaticIP or DHCP
- StaticIP:** Module's static ip
- Submask:** usually 255.255.255.0
- Gateway:** Usually router's ip address

- **IP type:** Select between STATIC IP to use a own static IP or DHCP mode for automatic assignment of IP address
- **Static IP:** Select your desired IP address in IPv4 format
- **Submask:** Define you desired subnet mask in IPv4 format
- **Gateway:** Define your desired gateway IP address in IPv4 format
- **DNS Server:** Define your desired DNS Server IP address in IPv4 format

Click on save to store your data but don't forget to reboot the device, so that the new IP settings are effective. If you have problems, set the CFG DIP switch to ON and reboot the device. Wait for more than 30 seconds. The gateway will do a factory reset to the standard IP settings defined above. Don't forget to put the DIP switch to OFF position after successful factory reset.

10.2 HOWTO change socket number

Select the page TTL1 and you will see the below screen.

The screenshot shows the web interface for a RESI-KNXGW-ETH device. The browser address bar shows the IP 192.168.0.221. The page title is 'RESI-KNXGW-ETH'. The main content area is divided into a left sidebar with navigation options (Current Status, Local IP Config, TTL1, Misc Config, Reboot) and a main configuration area. The 'TTL1' section is active, showing 'Current settings' and 'Socket A Parameters'. The 'Current settings' section includes: Baud Rate (38400 bps), Data Size (8 bit), Parity (None), Stop Bits (1 bit), Flow Control (None), UART Packet Time (0 ms), and UART Packet Length (0 chars). The 'Socket A Parameters' section includes: Work Mode (TCP Server), Socket Number (1024), PRINT (OFF), ModbusTCP Poll (Poll Timeout: 200 ms), and Registry Type (None). The 'Socket B Parameters' section shows Work Mode (NONE). A 'help' sidebar on the right provides details for local port, remote port, and packet time/length. The footer contains copyright information and the website URL.

HINT: Don't change the TTL communication parameters (eg Baudrate,...). You can lose the connection to the gateway!

- **Text mode:** Here you have to select TCP Server/none for communication in text mode. All the incoming data on the socket is directly outputted to the serial line.
- **Socket number:** Here you can select your desired socket number, you want to use for the Ethernet connection. Default for our converters is 1024

Please let the rest of the parameters unchanged. They are for expert usage only!

10.3 HOWTO change user name and password

If you select the page Misc config you will see the current configured username and password. Also you will see the current module name.

The screenshot shows a web browser window with the URL 192.168.0.221. The page title is 'RESI-KNXGW-ETH'. The main content area is titled 'Additional settings' and contains the following fields:

- Module Name: RESI-KNXGW-ETH (for RESI-xxx-ETH enter your own module name)
- Websocket Port: 6432 (for RESI-xxx-ETH default is 6432)
- Webserver Port: 80 (for RESI-xxx-ETH default is 80)
- MAC Address: d8-b0-4c-d6-81-27
- Username: RESI (for RESI-xxx-ETH default is RESI)
- Password: RESI (for RESI-xxx-ETH default is RESI)
- Buffer Data Before Connected: (for RESI-xxx-ETH always OFF)
- Reset Timeout: 3600 (60~65535) s (for RESI-xxx-ETH default is 3600s)

At the bottom of the settings area are 'Save' and 'Cancel' buttons. On the right side, there is a 'help' sidebar with the following information:

- module name**: max length is 15 char
- Web port**: default: 80
- ID and ID type**: we could use it for D2D
- Mac address**: user could modify this MAC address
- Buffer data**: default: not checked, buffer data before tcp connection established
- reset timeout**: default: 0, 0-60 mean no timeout, >60 mean when there is no data received during this time, the device will restart

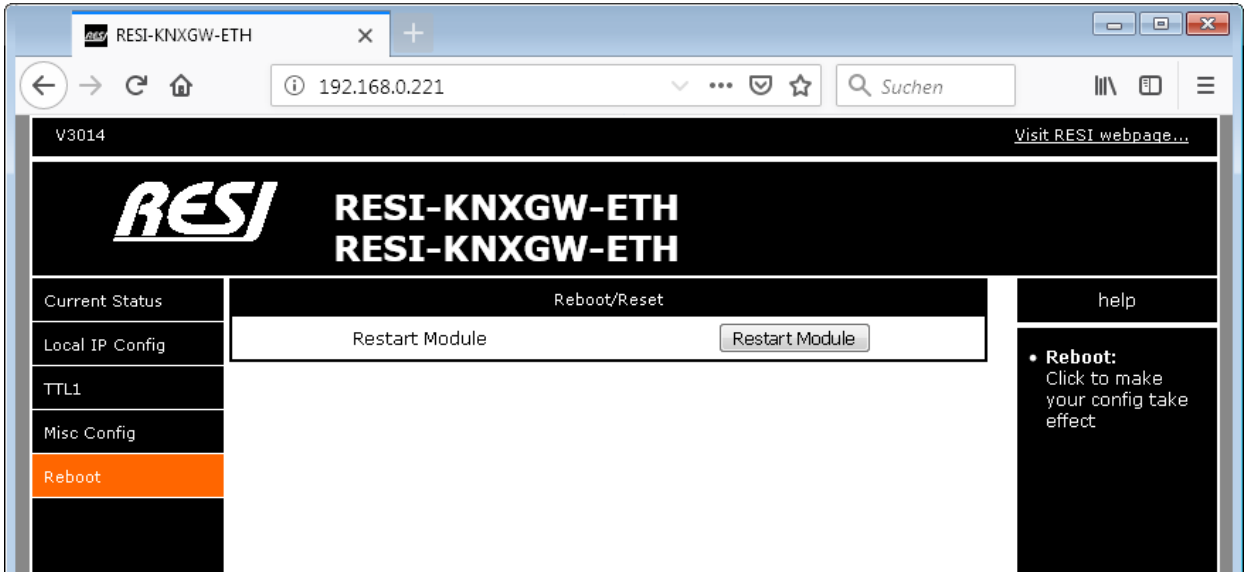
- **Module name:** Here you can enter a new module name. It's for better identification if you have more than one gateway in your network.
- **Username:** Here you can enter a new user name for accessing the web configuration.
- **Password:** here you can enter a new password for accessing the web configuration.

Don't forget to save the new settings with the button SAVE below!

Please let the rest of the parameters unchanged. They are for expert usage only!

10.4 HOWTO restart the module via Ethernet

First select page Reboot. Then select button Restart Module to perform a software reboot.



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11 Specifications

11.1 Dimensions of the modules RESI-KNX-GW

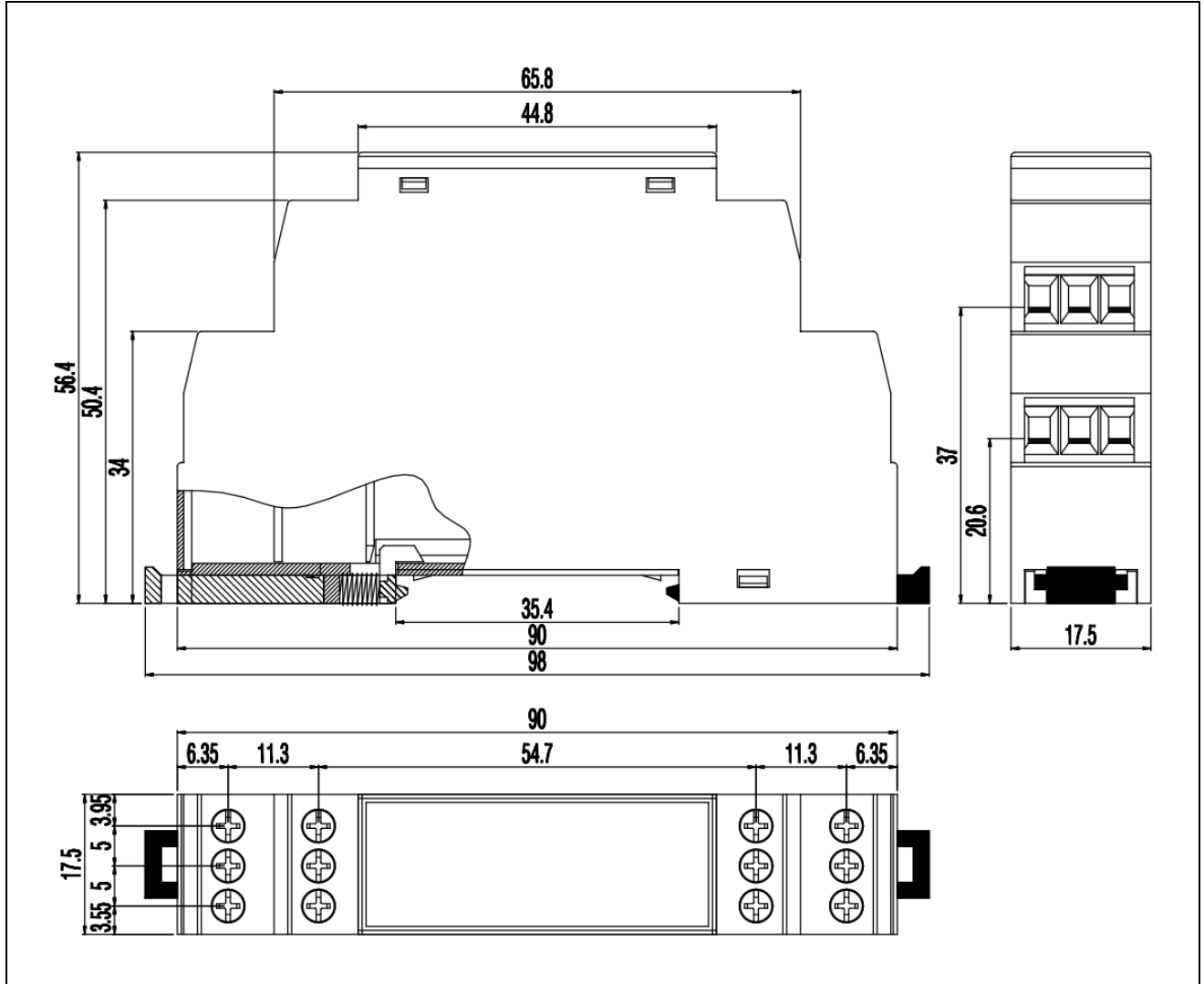


Illustration: dimension illustration in mm

Dimensions	
Enclosure dimensions L x W x H (mm)	17.5 x 90 x 58
Weight	55 g
Colour	Grey RAL7035
Material	PA - UL 94 V0
Protection class	IP20 based on DIN 40050/EN 60529

Table: Data of enclosure

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11.2 3D Drawing of the modules RESI-KNX-GW

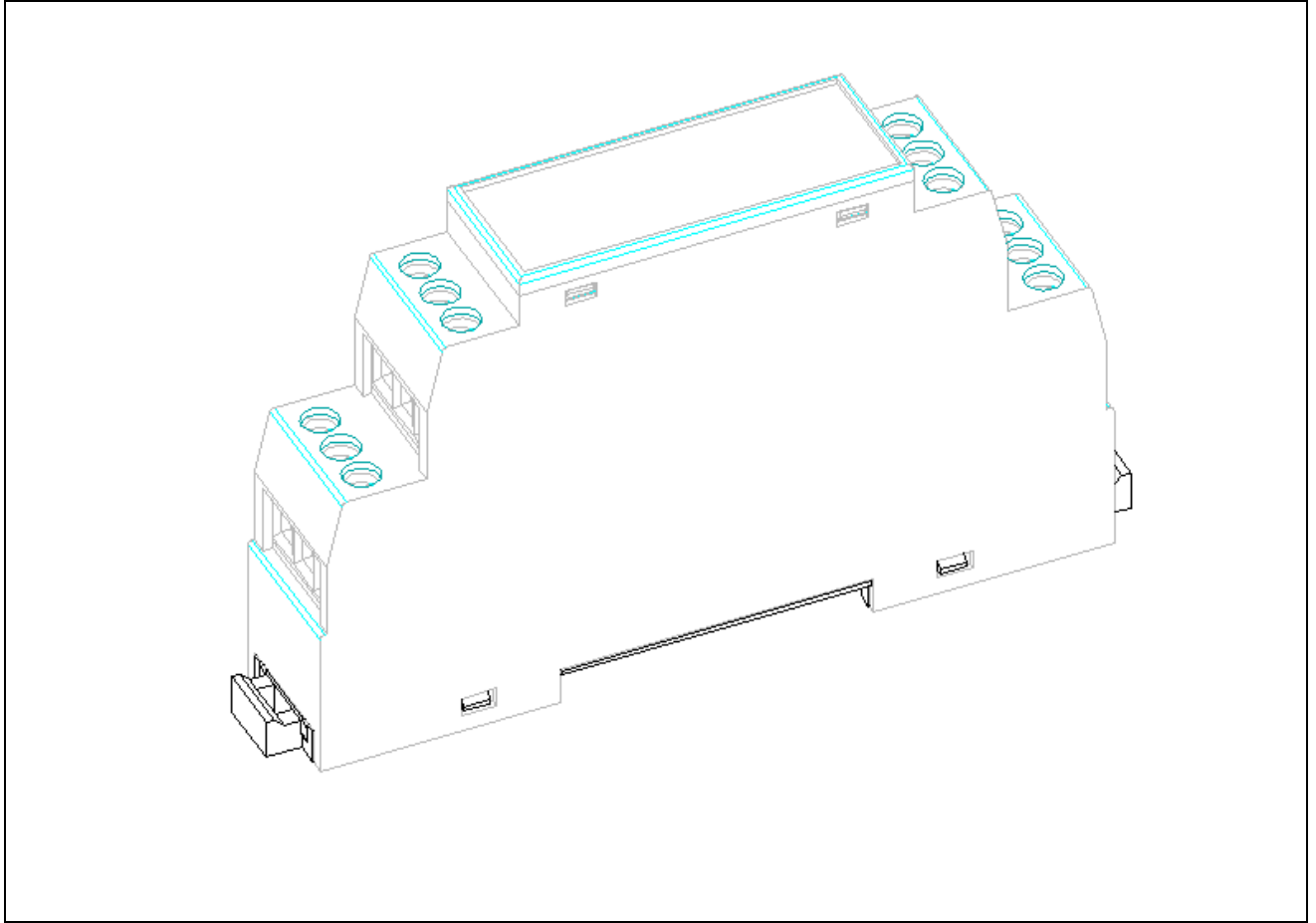


Illustration: Dimension illustration in 3D

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11.3 Dimensions of the module RESI-KNXGW-ETH

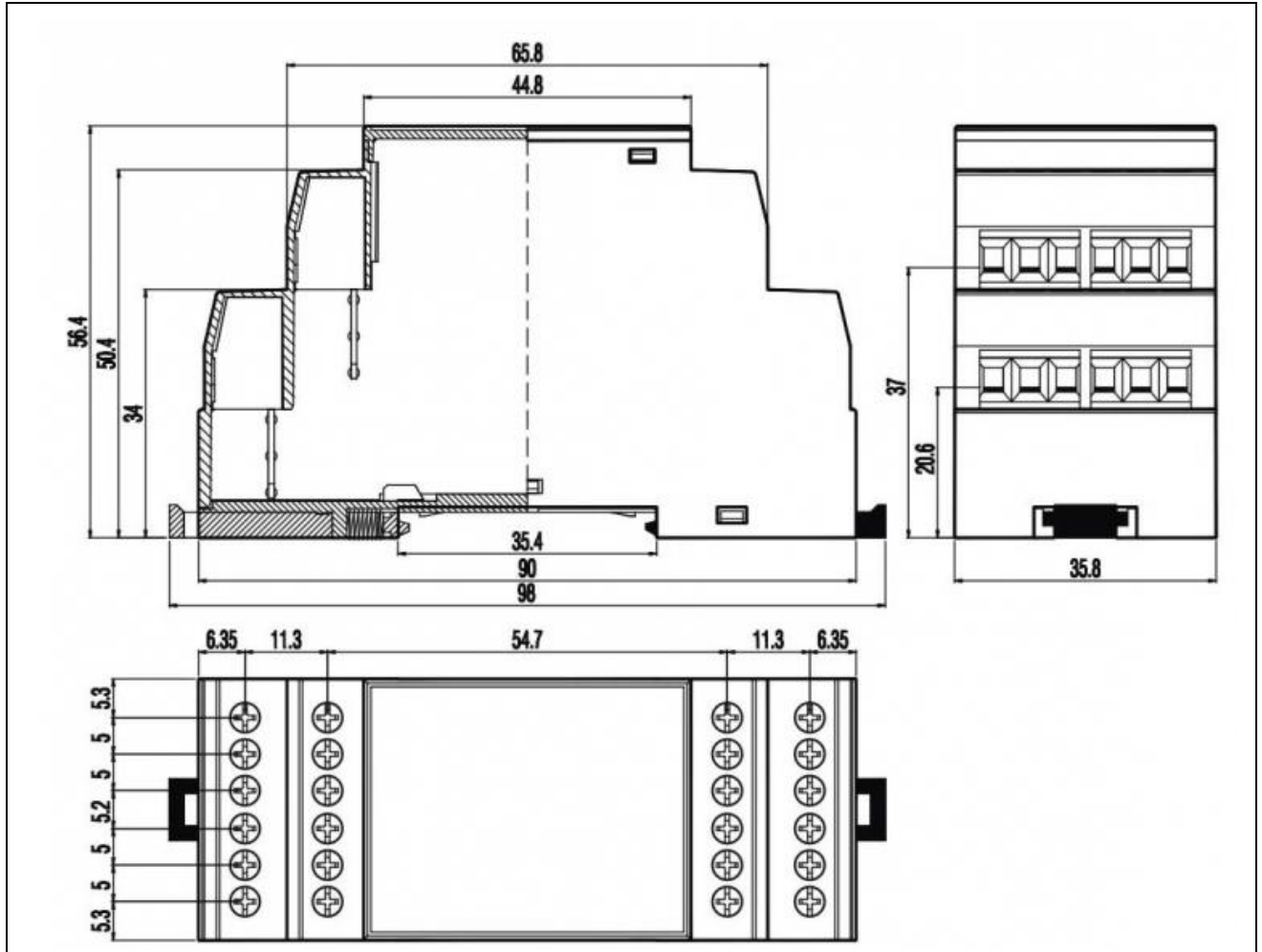


Illustration: dimension illustration in mm

Dimensions	
Enclosure dimensions L x W x H (mm)	35.8 x 90 x 58
Weight	90 g
Color	Grey RAL7035
Material	PA - UL 94 V0
Protection class	IP20 based on DIN 40050/EN 60529

Table: Data of enclosure

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11.4 3D Drawing of the module RESI-KNXGW-ETH

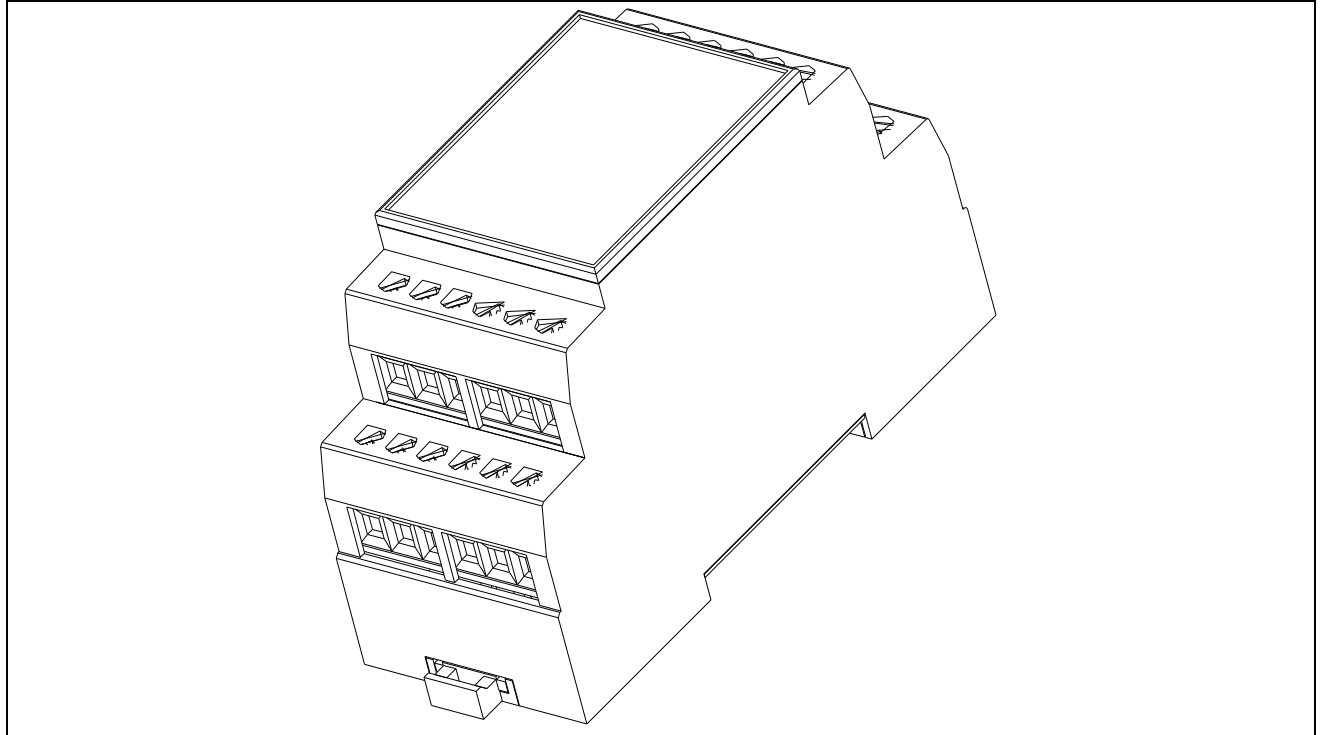


Illustration: 3D drawing of the enclosure

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