Gateway KNX-GW-IP-2TE	**Product Group 1**

KNX-GW-IP-2TE	**Article**	**Article Description**	**Article-No.**
KNX		Document: 7030_ex_KNX-GW-IP-2TE.pdf	
	KNX-GW-IP -2TE	IP gateway to link the ETS (PC software tool) to the KNX bus. Operating Voltage: 9 .. 30 VDC / 1,5W Operating temperature: -25 .. +55°C DIN Rail mounted housing 2 units width (35 mm) IP20	40400002

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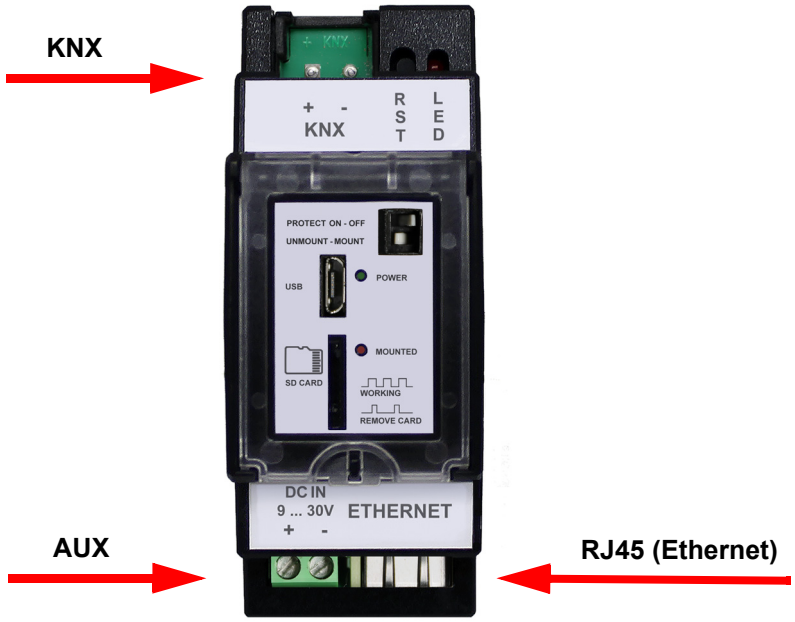
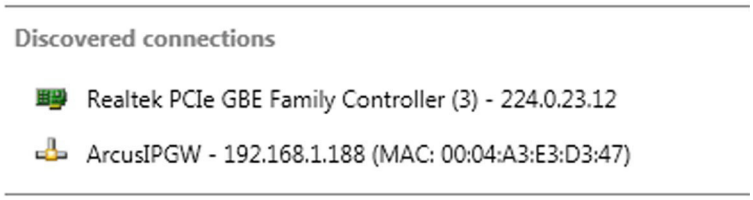
1 First Steps

To use the gateway all 3 connectors must be connected.



As soon as all connections are established and your router or server is working as a DHCP-Server
(Dynamic Host Configuration Protocol) the IP-Gateway of your ETS can be selected as a possible connection.



The default name at transmission is **ArcusIPGW**. Additionally, a label showing the distinct MAC address can be found on the device itself. This allows assignment via the MAC address in instances where different KNX-IP-Gateways have already been set up.

In this example, the IP-Gateway has been assigned the IP-address 192.168.1.188

Additional settings can be accessed via the web-interface of the device. To access these, open your default browser and enter the IP-address into the address bar. In the case of a functioning nameserver, access to the gateway is also possible via ÍP-Gateway-Name´.yourdomainname.

(e.g. ArcusIPGW.fritz.box with a fritzbox as nameserver).

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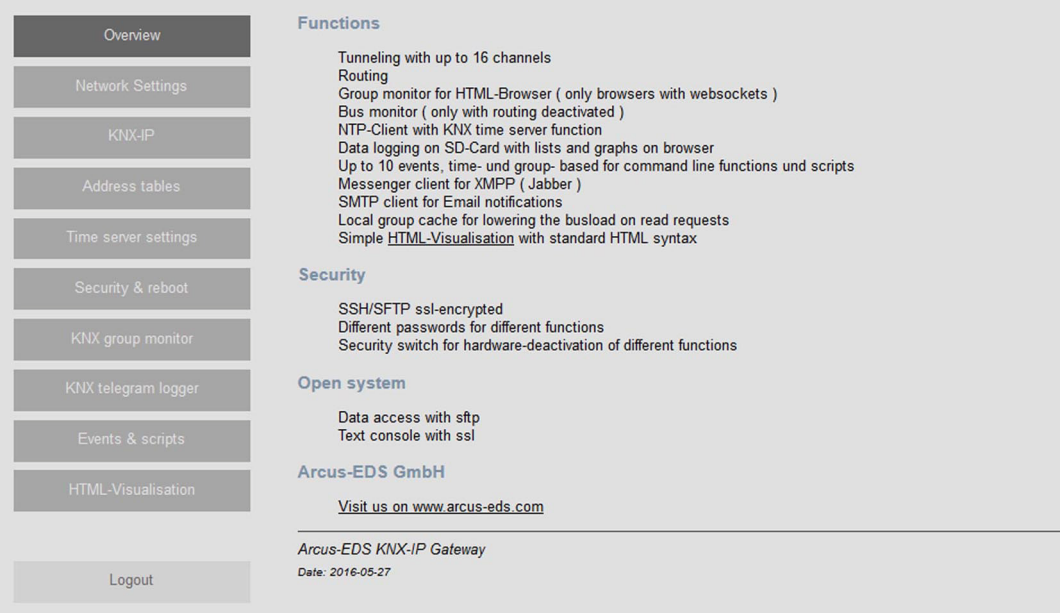
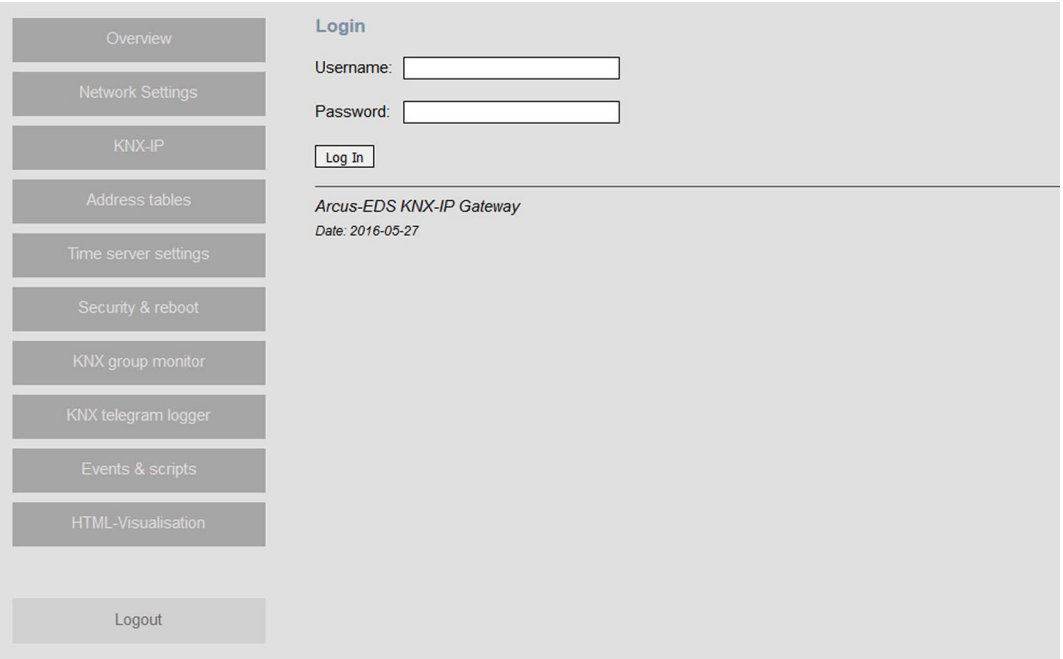
2 Overview

Having successfully entered your IP address into the address bar, you will be taken to the overview.



Here you will be shown a summary of the general functions and capabilities of the system.

You can navigate through the configuration options via the menu on the left hand side of your screen.
Selecting the first option opens the following dialog box.



No initial username and password are given, so to continue press enter or click Log In.
If no additional settings are visible, it might be because the safety switch is deactivated.
Activate it for unrestricted access.

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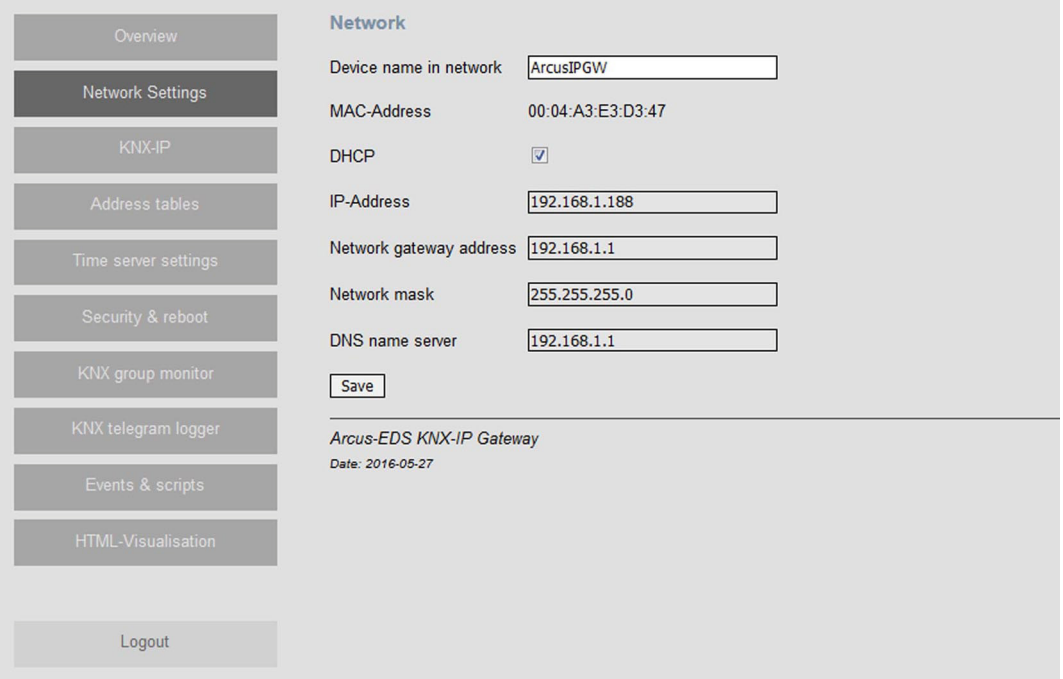
3 Network Settings



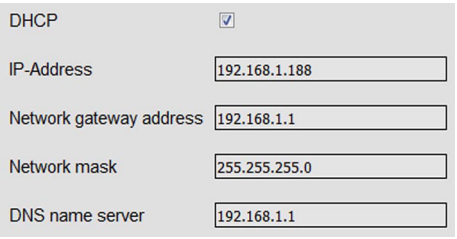
Device network name *(**Standard: ArcusIPGW**)* can be changed as desired and serves to identify the device within the network.

MAC-adress: This cannot be changed, and is printed on the device's box.

DHCP: Active/ Inactive

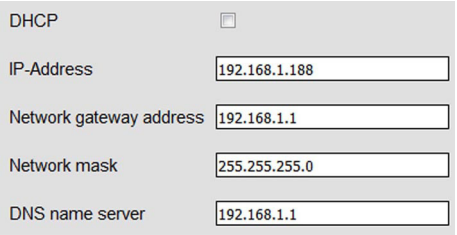
DHCP activ:

No manual set up required. The following boxes are there only to display the current configuration. The values are not provided by the DHCP-server.



DHCP inactiv:

Manual set up required. IP address, network mask and DNS nameserver need to be configured manually. Please consult with your system administrator to find out the necessary information regarding settings.



After having filled out the infomation appropriately, confirm your entries by pressing „save“.

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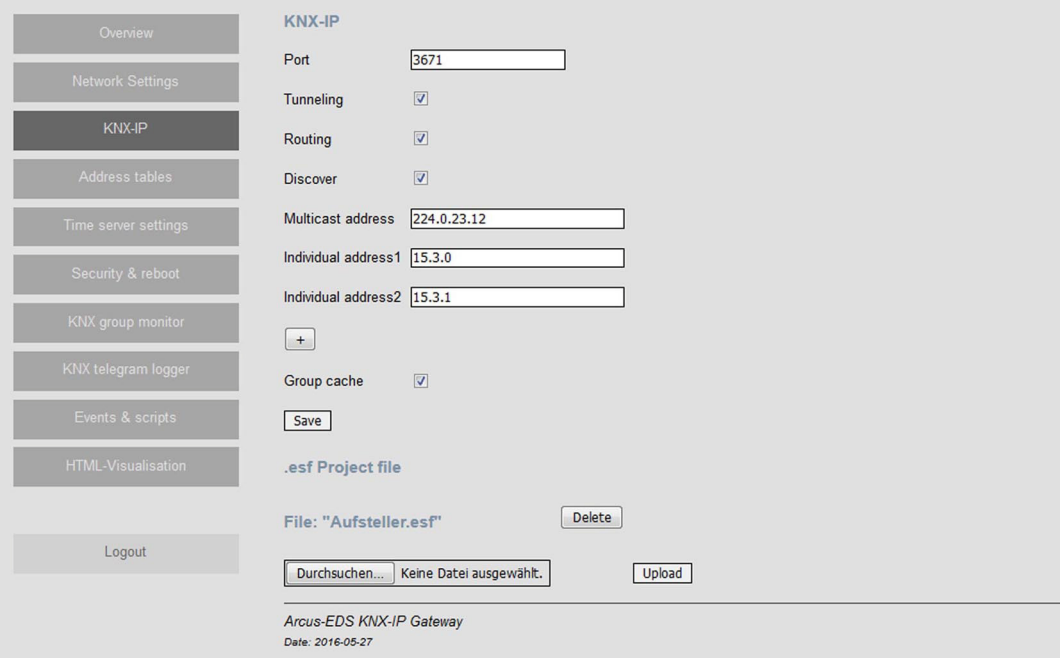
4 KNX-IP



The ***Defaultport*** for KNX/IP is ***3671***. Changing the port will disable the automated detection by the ETS. You may however customize the port and set up an individual KNX/IP-Network via the ETS communication settings.

This ***Standard Multicast Address (224.0.23.12)*** is reserved. Changing the address will disable the standard-routing.
If multiple devices with another address are already in place you can set up an individual KNX/IP-routing network.

The ***Physical Adresses*** preconfigurations are ***15.0.0*** and ***15.0.1*** .
These need to be customized according to your KNX-topology. You can use up to 16 individual addresses which will be available for simultaneous tunnels.

Tunneling can be deactivated. In such cases connecting via tunneling is not possible.

Routing can be activated. The presetting is ´deactivated´ in order to avoid any resulting problems in the case of multiple devices operating without correct routing tables.

Discovery is ´activated´to enable localizing of the device within the network by the ETS. In the event that automated detection is not possible, the connection has to be configured manually in the ETS.

If group-cache is active when there is a read request with lower priority, the telegrams will be answered directly by the gateway, provided that data is already available. In the ETS you can find telegram responses within the group monitor. No responses are displayed within the html-group monitor, which is responsible for displaying telegrams on the bus.

After having filled out the required fields , save your changes by pressing „save“.

To select group addresses in several input boxes by name, a .esf-File can be installed on the device.

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5 Address Tables

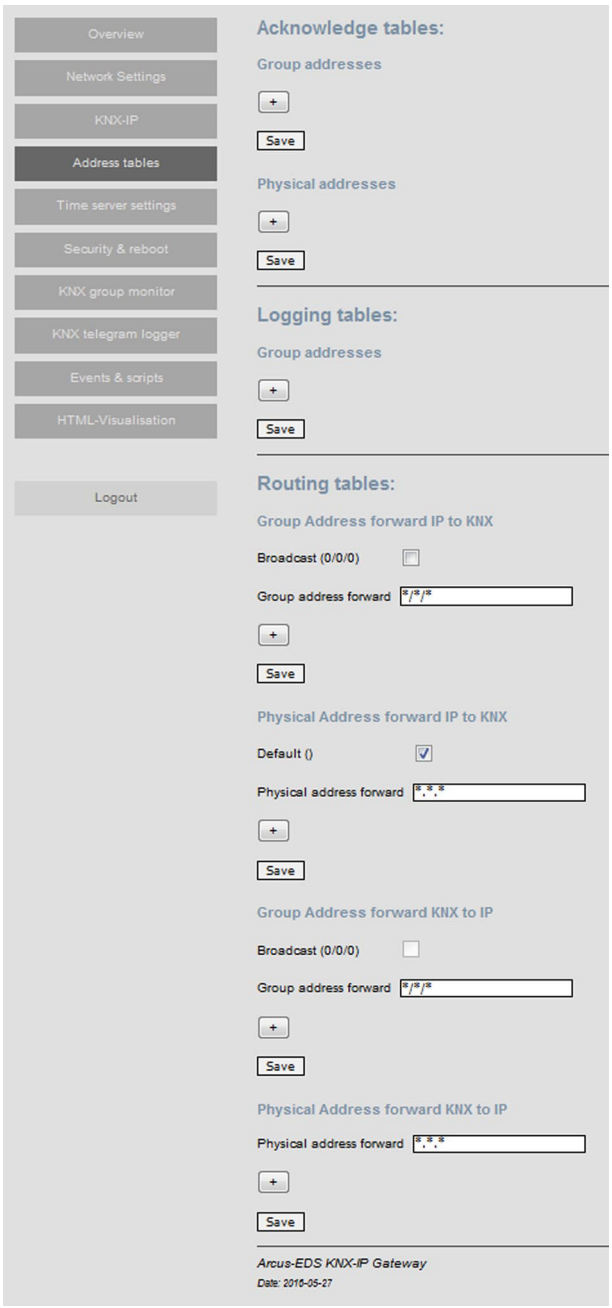
In this menu all configurations relating to Acknowledge, logging and routing tables can be adjusted.

Acknowledge Tables are helpful in reducing traffic on the KNX-bus. Whenever a telegram in the KNX-bus is not being confirmed it will be resent up to 5 times. This unecessary bus utilization can disturb the process and may even result in data packets getting lost.

Logging Tables determine which adresses are acquired and stored in the KNX-Bus. Data is saved using a µSD-card of up to 32 GB in size, which is inserted into the front of the device. All the traffic is saved by default.
(µSD-card is not included in delivery)

Routing Tables are required whenever KNX-values are to be delivered to IP or from IP to KNX. This filtering regulates the traffic so that only specifically selected objects are beeing tranferred. Any other communication is disabled.

The parameterization for Acknowledge and Routing tables can be carried out via group address and/or physical adsress.



Filtering example:

//*	All telegrams
1/1/0	Filtering of the group address 1/1/0
1/1/0 1/5/0	Filtering of the group addresses 1/1/0 und 1/5/0
1/1/*	Filtering of the subgroup 1/1/xxx
1/1,3,22/*	Filtering of the subgroups 1/1/xxx , 1/3/xxx und 1/22/xxx
1/1-6/4,5,30	Filtering of the group addresses 1/1/4 , 1/1/5 , 1/1/30 1/2/4 , 1/2/5 , 1/2/30 1/3/4 , 1/3/5 , 1/3/30 1/4/4 , 1/4/5 , 1/4/30 1/5/4 , 1/5/5 , 1/5/30 1/6/4 , 1/6/5 , 1/6/30

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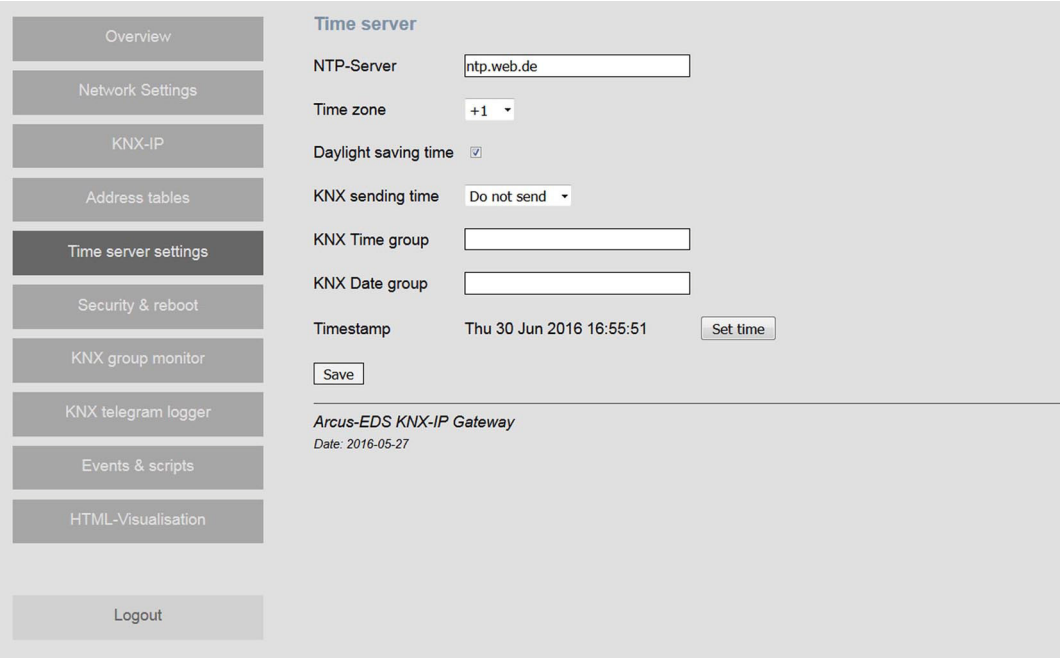
6 Time Server Settings



Temporal information is aquired by The KNX-IP gateway via. a NTP- time server (Network Time Protocoll) providing an NTP-time server is available.

By choosing the correct time zone according to the automatic summer time, the local time is set relative to the UTC time (formerly GMT).

The gateway can be used as a KNX-time server. The date and time will be transmitted periodically in one of the following intervals :

- not sent at all
- every minute
- every hour
- 1x per day

If the time and date are transmitted every minute, both will be sent at the beginning of every minute. In case of the daily intervals the time and date information are sent at around 2 am. When the addresses for time and date are added in the correct format ***(x/x/xxx)*** the time server is activated.

The correct connection to the time server can be checked through the time stamp. If the time server is not available the time should be synchronized with the computer time via the button ´set time´.

If there is no permament network connection the internal clock will continue even in the case of power failure. A slightly lower precision is to be be expected though.

NOTE !

For correct data logging it is necessary either for the the time to be set or a NTP-server to be available !

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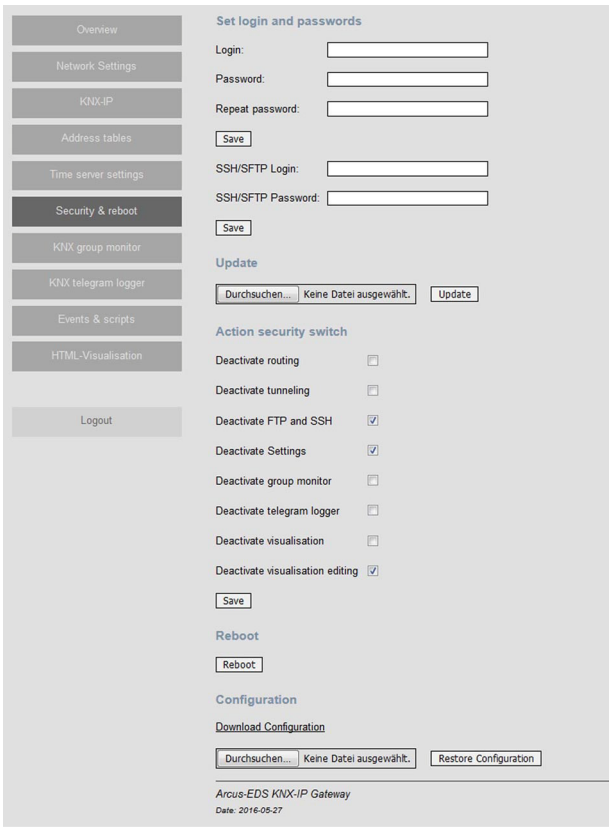
7 Security & Reboot

To set up your login and password

Your ***login*** and ***password*** are not set by default, you can however set them up yourself.

In order to use ***SSH/SFTP*** a set user and password are required. Only then is the device available via telnet or putty or even as a sftp-client.



Update

Updates will be provided via our website (***www.arcus-eds.de***) as soon as they are available.
Likewise, customised modifications will be delivered as packets via update

Action Security Switch

All selected functions will be shut down by activating the safety switch (refer to front view as seen below).

Reboot

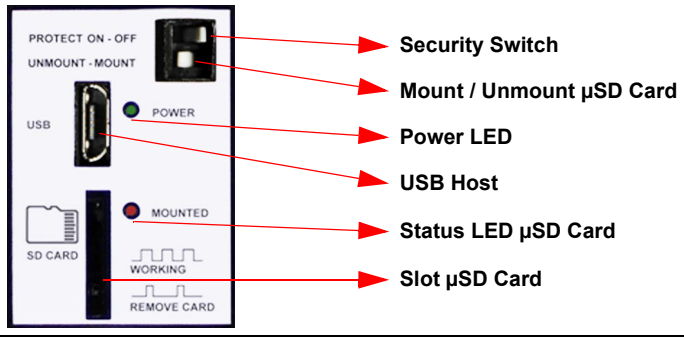
The entire system will be rebooted. The device will not be responsive for a few seconds.

Configuration

System configurations can be saved and restored.
Their settings consist of the following selections:

- Network configurations
- KNX-IP
- Address tables
- Time server settings
- Safety & restart
- Automation
- Visualization

Detailed front view:



The power-LED lights up as soon as AUX is plugged in. If the LED does not light up, please check the power supply terminal.

µSD-card is inserted and mounted via switch.

Status-LED µSD-card signals the operating status:

Off	*µSD not connected*
Short blinking	*µSD successfully disconnected and can be removed*
Periodic blinking	*µSD connecting*
On	*µSD connected*

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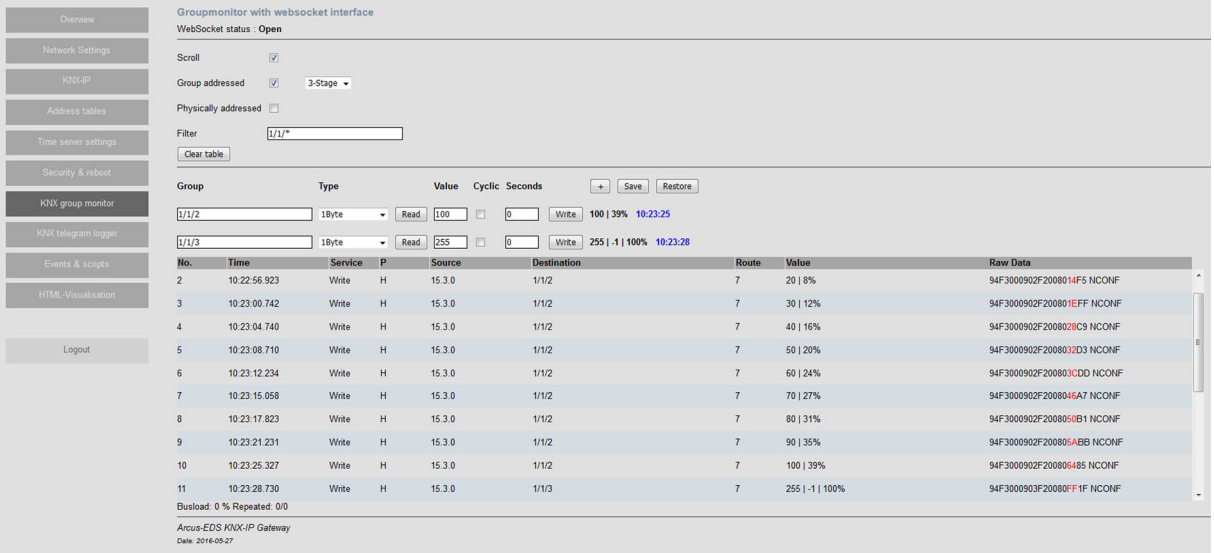
8 KNX Group Monitor



Using the KNX-group monitor allows for the monitoring and transfer of telegrams via the KNX-bus in real time. The site of the KNX-group monitor is subdivided into a configuration and a telegram section.

Within the configuration can a 2- or 3- stage adressing be selected and communication of the physical adresses be hidden.

For the display, automatic scrolling can be either enabled or disabled and an address filter can be set for monitoring specific addresses. In this way, a filter can be applied to a singular address, whole main- and sub groups, or address ranges.

Filtering example:

[blank]	All telegrams are displayed.
1/1/0	Only telegrams of the group address 1/1/0 are displayed.
1/1/0 1/5/0	All telegrams of the group adresses 1/1/0 und 1/5/0 are displayed.
1/1/*	All telegrams of the subgroup 1/1/ are displayed.
1/1,3,22/*	All telegrams of the subgroups 1/1/ , 1/3/ and 1/22/ displayed.
1/1-6/4,5,30	All telegrams of the group adresses 1/1/4 , 1/1/5 , 1/1/30 , 1/2/4 , 1/2/5 , 1/2/30 , 1/3/4 , 1/3/5 , 1/3/30 1/4/4 , 1/4/5 , 1/4/30 , 1/5/4 , 1/5/5 , 1/5/30 , 1/6/4 , 1/6/5 , 1/6/30 are displayed.

Within the group monitor itself, several lines *(max 100 lines)* can be displayed for one specific group adress.
Each line allows for one value to be written or read in the individual group address. The current value is then displayed at the end of the line with a time stamp. In addition to one-time sending, periodical sending is also possible. In the case of recurring tasks, the configuration can be saved *(locally on your PC)* then restored for future use.

The table below the lines shows all telegrams which fit the set parameters. The approximate bus utilization and the amount of repetitions is displayed below the table every second.

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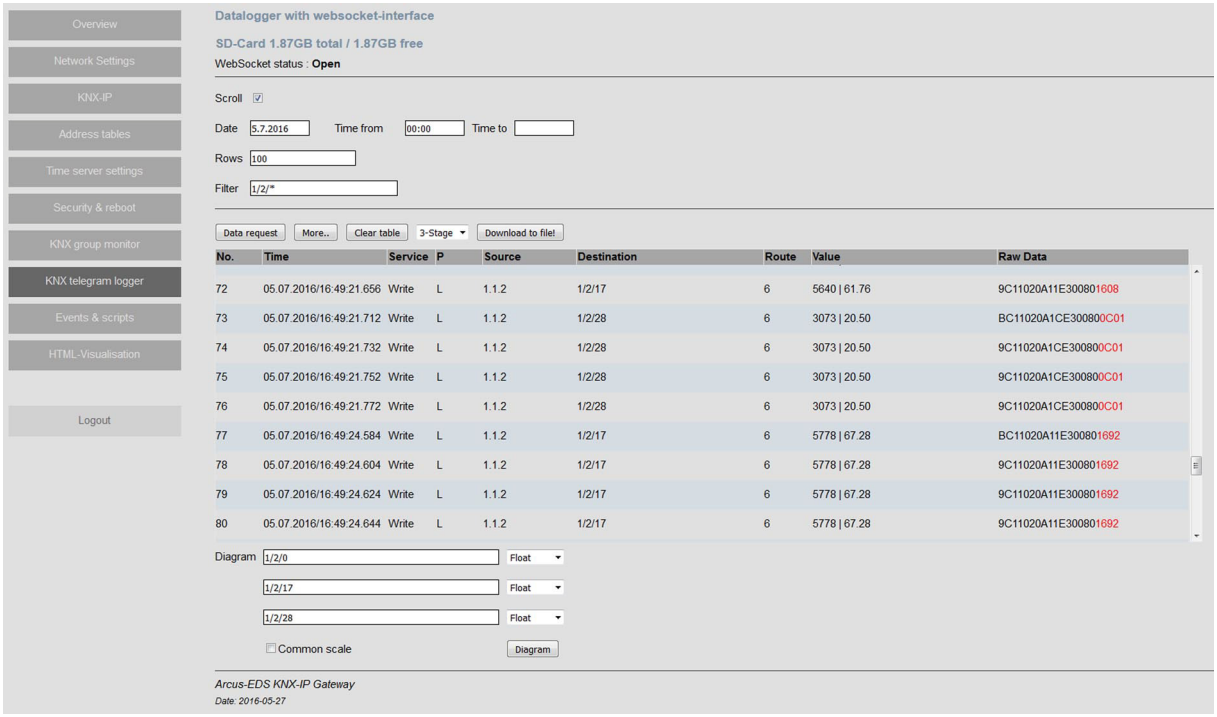
9 KNX-Telegramlogger

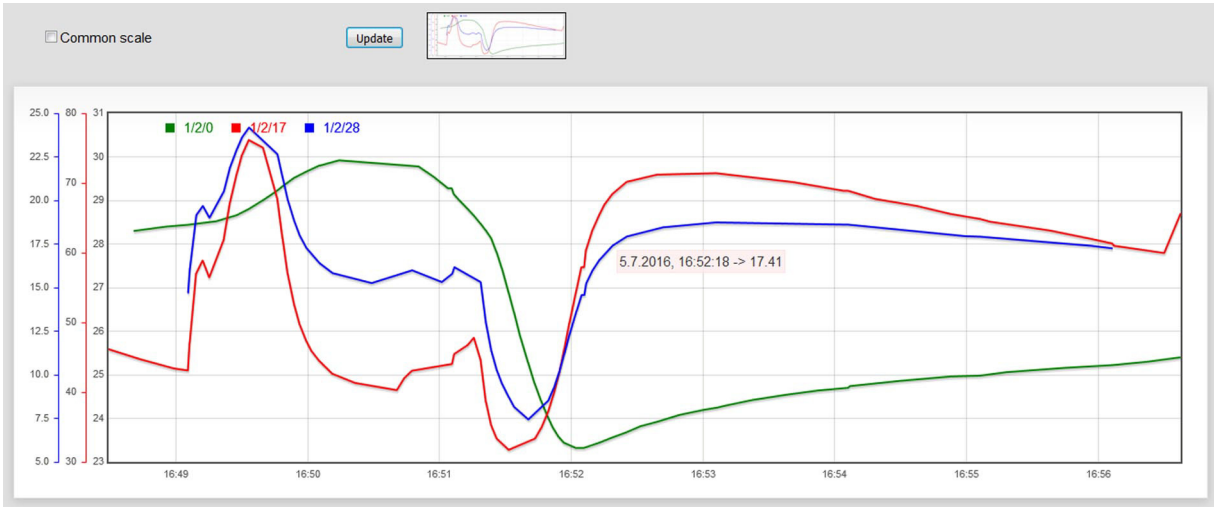
The KNX-IP-gateway is able to save telegrams. The KNX-telegram logger lists the saved telegrams. It is possible to set a timeframe as well as a group address filter.

With the control panel „Lines“ you can type in the amount of lines to be loaded and by activating ´scrolling´ the last loaded lines are displayed.

Loading of the telegrams is initialised with the command ´load data´ and the amount of x lines will be displayed. By clicking on ´More´ the susequent x lines will be loaded. Alternatively the data can be downloaded to a PC in CSV-format.



To visualize the data, up to three different group addresses can be displayed in one graph. Every address is given a seperate y-axis. To compare similar physical values it is possible to use a common scale. A visualization of the data is possible while the values are being loaded. Via ´Update´ the already loaded values can be displayed. The diagram can be locally saved, by right clicking the preview picture.



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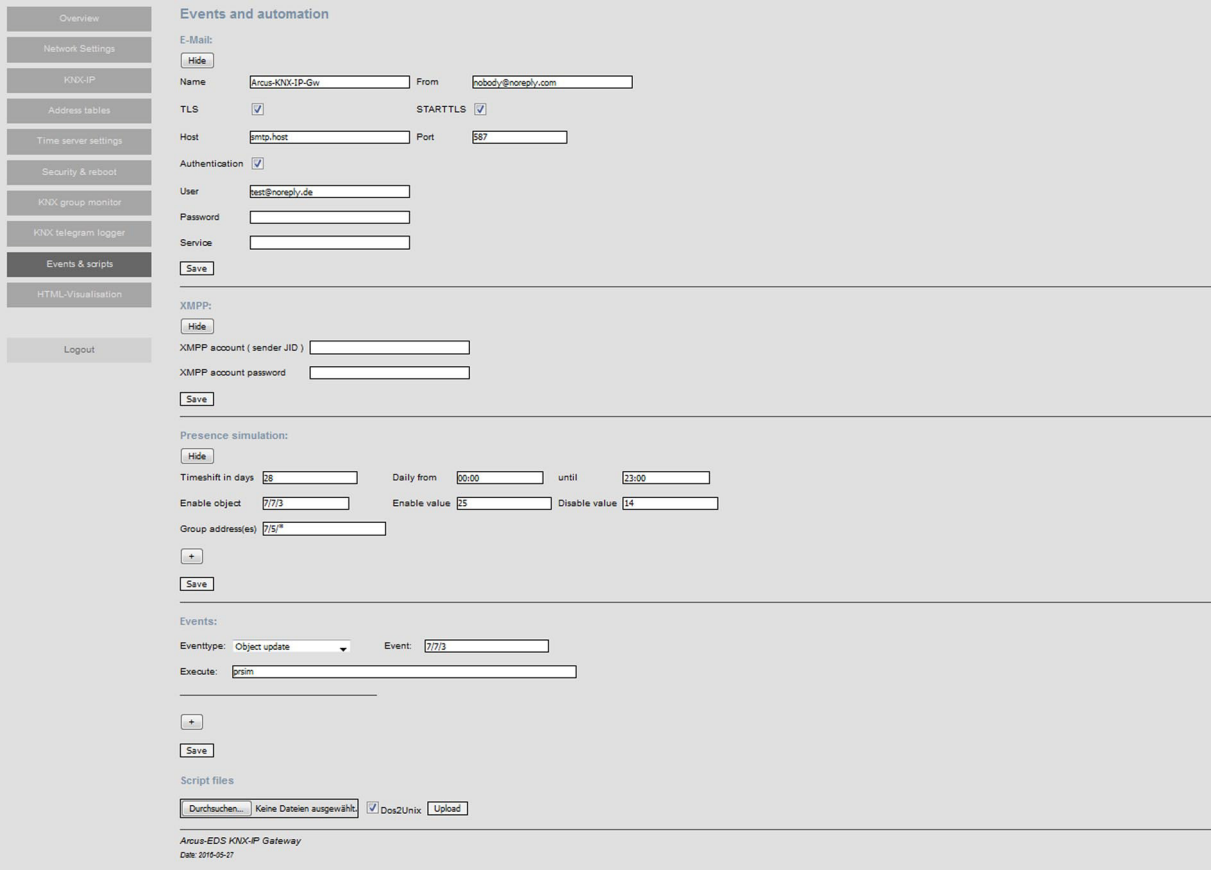
10 Events & Scripts



To receive notifications, an email and/or XMPP messenger client must be installed. it is recommended that you ask your systemadmin or provider for the correct settings of the SMTP-server. Should problems with the µSD-card arise, a service-email can be sent to a mail address, provided that a SMTP-connection has already been set up.

NOTE !

Email distribution and/or Instant Message is not possible in instances of incorrect configuration !

Presence simulation

Up to 11 group address fields of specific addresses or address sections can be played back during the simulation This goes back 28 days max, provided that data is available on the µSD-card. The simulation can be either activated or deactivated through a group address. Therefore the ***prsim*** function, a function of the enable-object, needs to be set as an event.

Events

A maximum of up to 11 event-based actions can be realized simultaneously. This is done by either typing the command to execute into the ´run´ line or selecting the corresponding script file. You can use either Linux Bash or Python to do this.

Events are: Timebased : either daily or hourly
Objectbased : in cases where an update or a modification has an object value equal to zero or unequal to zero
Once : during a system boot (after x minutes)

Script files

Here you chose from the available scripts. Please note that the box ´Dos2Unix´ must be checked to avoid errors occuring during the conversion between Windows and the OS of the IP-gateway. This would result in your transferred scripts being executed incorrectly. The script files can also be downloaded for modification purposes.

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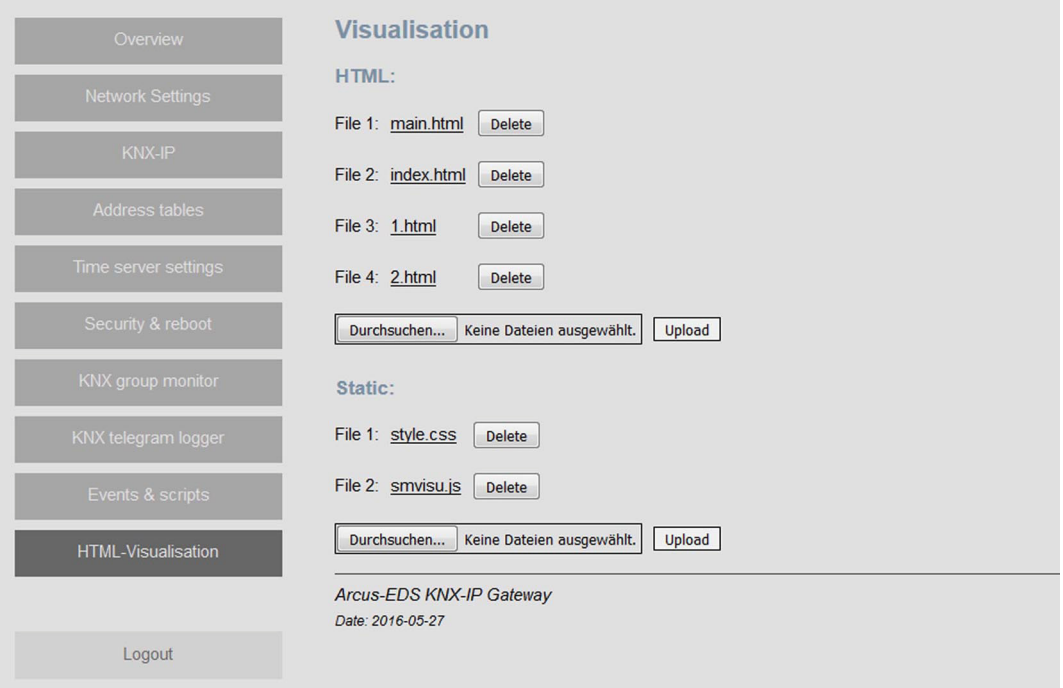
11 Visualisation

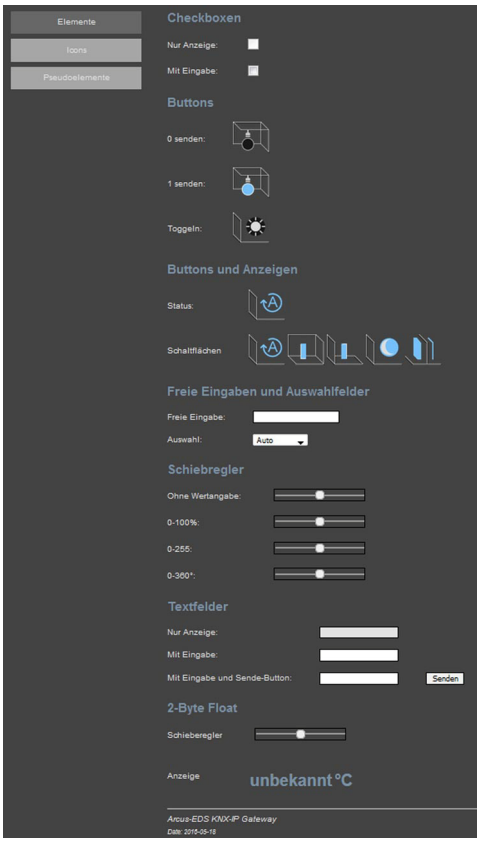
The gateway can link html-sites with KNX-files and visualize them in every browser, provided that websockets are supported.



The visualization is available at ***http://'gatewayname'/visu/*** resp. ***http://'gatewayname'/visu/index.html***
(Example: ***http://arcusipgw.fritz.box/visu/*** resp. ***http://arcusipgw.fritz.box/visu/index.html***)

One page, index.html, must be in place, and further pages can be added as desired.
The pages are precompiled and can integrate a general structure page (in this example main.html).
The visual appearence can be changed using the stylesheet `style.css´.
The KNX-elements are html-input-elements, which are filled out with data via a script (smvisu.js).
The default files can be downloaded and modified on your PC.
Several icons and icon series for standard-KNX-applications are available to you.
KNX-data can be edited and sent with Javascript via. “hidden” input-elements.

For a professional layout, any webdesigner with a knowledge of html can be consulted.



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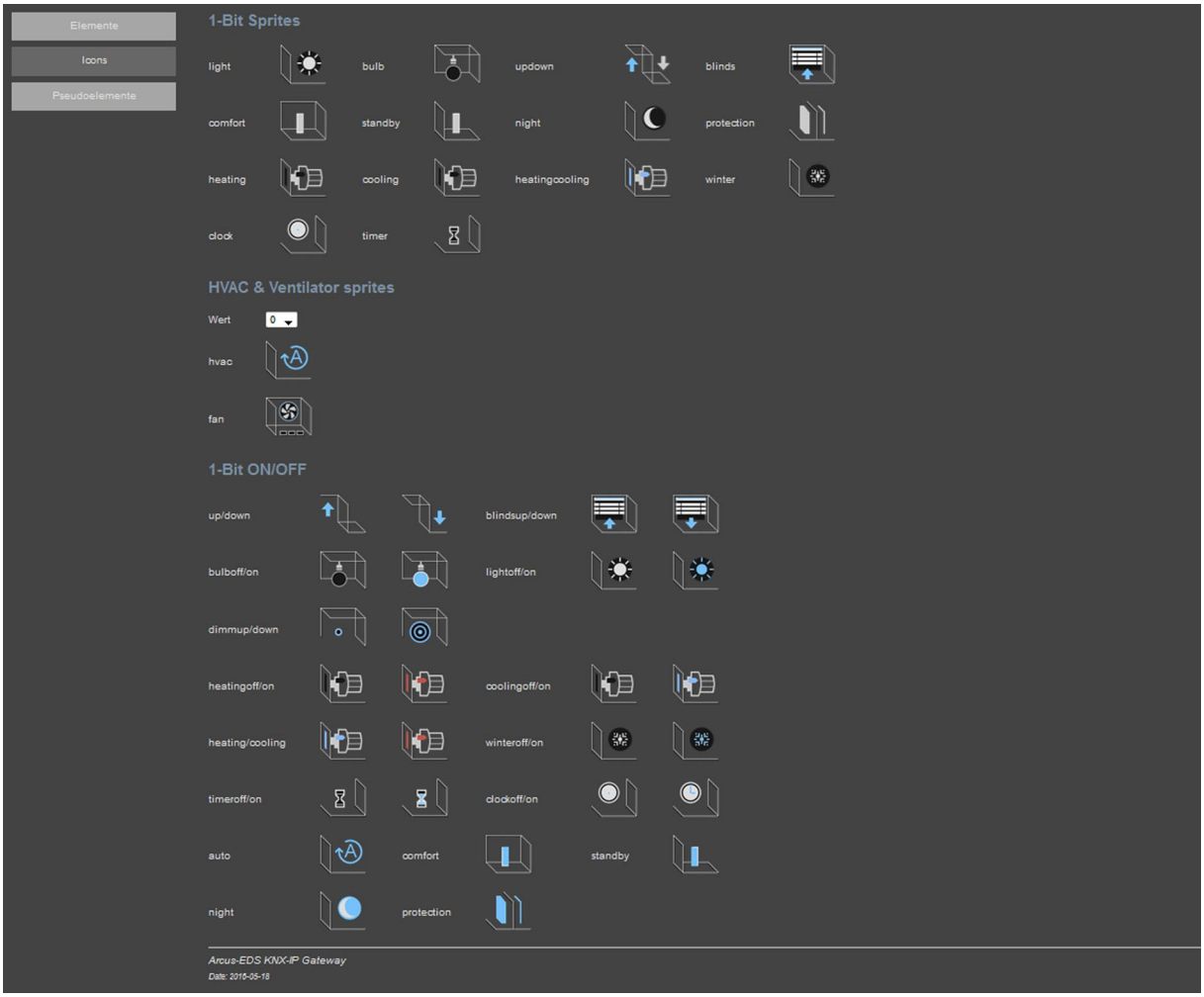

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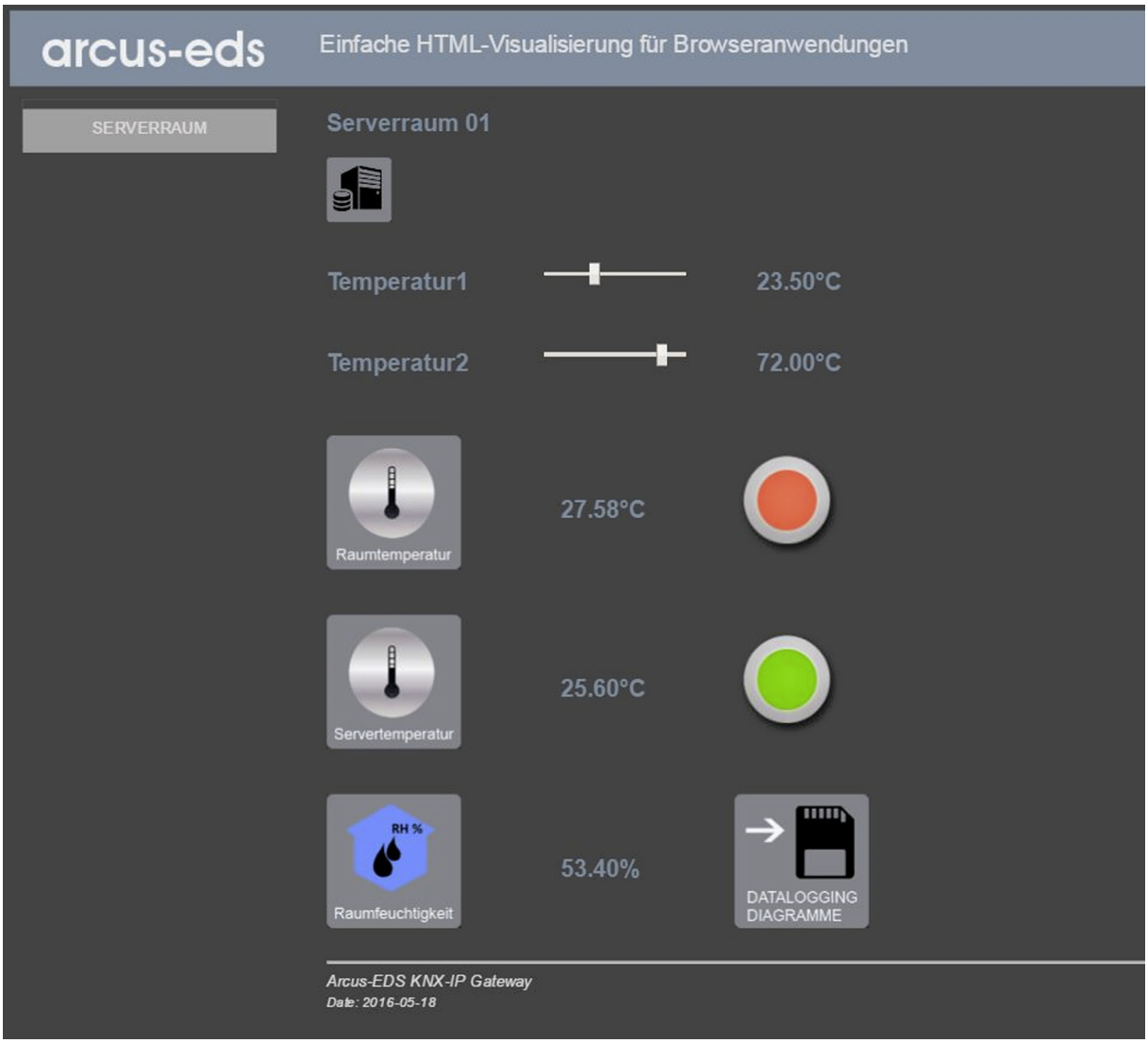
Example for a simple HTML visualization



General information

To use groupmonitoring and telegramlogging your browser must support websockets. If this is not the case, a notification will be displayed on the respective pages.

In certain instances, such as the device being shut down right after a change in configuration, a loss of configuration files may occur. In that case the red RESET-LED will blink periodically during rebooting. To reset the device hold down the RST-key during booting until the RESET-LED turns off and then back on again. Please note that it is recommended to wait 10 seconds after a change in configuration before shutting the device down. Save your configurations to restore them loss-free.

To mount a µSD-card insert the card with the mount-switch turned off. Then switch it on. If a µSD-card fails to mount, turn the switch to ´unmount´ again, remove the card, and repeat the steps.

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12 Product Page

The **KNX-GW-IP-2TE** is used for coupling the ETS (PC software tool) via Ethernet to the KNX bus for addressing and programming KNX components.

Using the KNX-group monitor allows for the monitoring and transfer of telegrams via the KNX-bus in real time. The site of the KNX-group monitor is subdivided into a configuration and a telegram section.

The KNX-IP-gateway is able to save telegrams. The KNX-telegram logger lists the saved telegrams. It is possible to set a timeframe as well as a group address filter.

To visualize the data, up to three different group addresses can be displayed in one graph.

The gateway can link html-sites with KNX-files and visualize them in every browser, provided that websockets are supported.

All selected functions are switched off by actuating of the safety switch.

Article No. 40400002

KNX-GW-IP-2TE

13 Technical Data

Technical Data - KNX-GW-IP-2TE

Operating voltage	9 .. 30VDC max. 1,5W 2-pin terminal with screws
Terminal bus voltage	KNX 2-pin terminal (red / black)
Power consumption (KNX)	approx. 120mW (at 24V DC)
Ambient temperature	storage -25 .. +85°C operation -25 .. +55°C
Ethernet	10/100 Mbit/s RJ45
USB	in preparation
Protection	IP20
Mounting	DIN rail mounting
Housing	plastics housing DIN rail / 2 Units (35 mm)
Article number	40400002

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Responsible for Content: Hjalmar Hevers, Reinhard Pegelow

Liability

The selection of devices and the determination of the suitability for a particular use are solely the responsibility of the buyer. For these no liability or guarantee. The information in the catalog and data sheets do not represent a guarantee of particular characteristics, but result from experience and measurements. Liability for damages caused by improper operation / projecting or malfunction of equipment is excluded. The operator / projector must ensure that improper operation, planning errors and malfunctions may cause further damage.

Safety regulations

Attention ! Installation and assembly of electrical equipment must be performed by a qualified electrician.
Compliance with the relevant safety guidelines of VDE, TÜV and the appropriate energy supply companies are ensured by the buyer / user of the system. For defects and damages caused by improper use or non-compliance of the operating instructions, no warranty is given.

Warranty

We accept the guarantee in accordance with statutory provisions.
Please contact us in case of malfunction and return us the unit with an error description to our below address.

Manufacturer

KNX arcus-eds electronic design services gmbh

Registered trademarks

CE The CE sign is a free trade sign addressed exclusively to the authorities and does not guarantee any properties.

KNX Registered trademark of the Konnex Association.

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