

## IP Control



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## 1 Product definition

### 1.1 Product catalogue

Product name:	IP Control
Application:	Visualisation, IP Gateway
Design:	REG (series installation)
Order no.:	7571 00 04

### 1.2 Purpose

IP Control forms the interface between an Ethernet IP LAN (LAN = **L**ocal **A**rea **N**etwork) and the *instabus* KNX system. Via the Ethernet connection, users with a local PC connected in a LAN or with another suitable LAN device, such as a Tablet PC, can access their *instabus* KNX system.

IP Control operates as a server and is used as a central control, messaging and control unit. Configuration and operation are performed via the web browser of a PC with JAVA Runtime Engine version 1.5 or higher.

Access is also possible via the Internet. The connection to the Internet can be established via DSL, LAN (RJ45 port) with a router and a directory server.

## 2 Assembly, electrical connection and operation

### 2.1 Safety instructions

Electrical equipment must only be installed and assembled by qualified electrical engineers. Always follow the relevant accident prevention regulations.

Knowledge of the relevant network technology is required for installation.

The reduced bus voltage must not be used as a 10-30 V DC operating voltage.

The PIN of the device can be found on a sticker in these instructions and on the back of the device. Keep the PIN in a safe place. If you lose the PIN you will no longer be able to access the configuration tool. In this case the device will need to be sent in and reset.

If the device is used to establish a connection to the Internet then corresponding safety measures must be implemented to protect the network against unauthorised access.

Failure to comply with these instructions may result in damage to the device, fire or other hazards.

### 2.2 Design and layout of the device

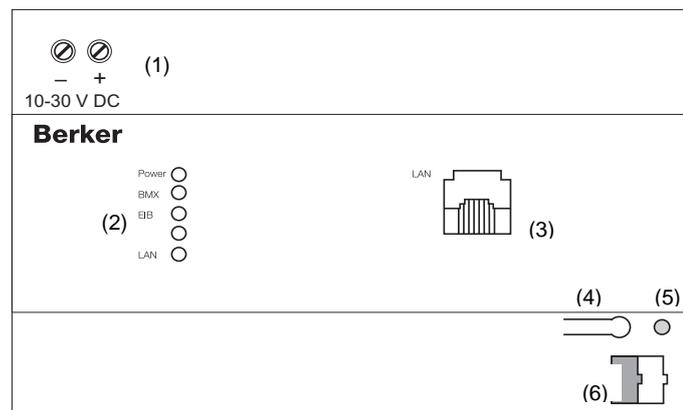


Fig. 1: Overview of the device

- (1) Voltage supply 10-30 V DC
- (2) Signal LED (operation)
- (3) RJ 45 jack for Ethernet LAN
- (4) Programming button KNX
- (5) Programming LED KNX
- (6) Bus connection terminal KNX

## 2.3 Assembly and electrical connection

**CAUTION!**

Risk of destruction of the device.

**Fault voltages can occur when working under live voltages.**

**Before making the electrical connections, de-energise the installation environment.**

---

### Assembly of the device

- Snap the device onto a top hat rail according to DIN EN 60715.
- i** The device will heat up during operation. Observe the maximum operating temperature. Ensure that adequate heat dissipation is provided.

### Connecting the device (Figure 1)

- Connect the bus line to the bus connection terminal (Figure 1, 6).
- Connect the voltage supply according to the markings on the screw terminals (Figure 1, 1).
- i** The non-reduced output of a KNX voltage supply can be used as the voltage supply.
- Connect the network line (LAN) to the RJ 45 jack (Figure 1, 3).
- i** When using a direct connection to a PC, use a crossover network cable.

## 2.4 Installation

### Getting the system ready for operation

- Switch on the bus voltage.
- i** IP Control requires no ETS application. It is not necessary to program the bus coupling unit.
- Switch on the supply voltage.

During the booting phase, the POWER LED will light up orange for about 30 seconds. At the end of the booting phase all of the LEDs are tested. Once the booting phase has been completed the LED lights up/flashes green. The device is ready for operation.

### Performing the basic configuration

The following steps need to be carried out in order to perform the complete basic configuration.

- Establishing PC access to the IP Control via the network
- Launching the configuration tool
- Selecting the basic settings
- Adapting Java settings

### Establishing PC access to the IP Control via the network

The device is ready for operation. A PC is connected.

- Find out and make a note of the current network configuration of the PC.
- Set up the network address of the PC in the range 192.168.1.x., e.g. 192.168.1.25. The standard Subnet Mask for 192.168.x.x is 255.255.255.0.
- i** IP Control has been pre-programmed at the factory with the LAN IP address 192.168.1.10. If another network device/user needs to use this IP address then it should be separated in order to avoid network conflicts.  
If you are not sure whether this IP address is already being used, a direct connection between PC and IP Control via a crossover cable will avoid potential network conflicts.
- Launch the browser of your PC.
- In the address bar, enter the IP address of the IP Control (192.168.1.10).

The home page of the IP Control will open. PC access to the IP Control has been established.

### Launching the configuration tool

PC access to the IP Control has been established. The home page of the IP Control has been opened.

- Click on the menu item **System**.  
The input window for the device PIN opens.
- Enter the device PIN.  
An encrypted connection is set up. The IP Control login window opens up.
- i** The PIN of the device can be found on a sticker in the instructions enclosed with the device and on the back of the device. It is used to identify the IP Control and is unique. It cannot be changed and is requested every time the configuration tool is accessed.
- Enter your user name and password in the login window.  
The following access data have been set at the factory:  
User name: admin  
Password: berker

The configuration tool opens up. The interface for the **Configuration** tab can be seen on the screen (Figure2).



Fig. 2: Configuration tool

- i** The access data for the administrator should be changed in the user administration after establishing the basic configuration in order to prevent unauthorized access.

### Selecting the basic settings

The configuration tool is open. The **Configuration** view is in the foreground.

- Click on the menu option **General** in the left-hand pane.  
The current settings are displayed (Figure 3).

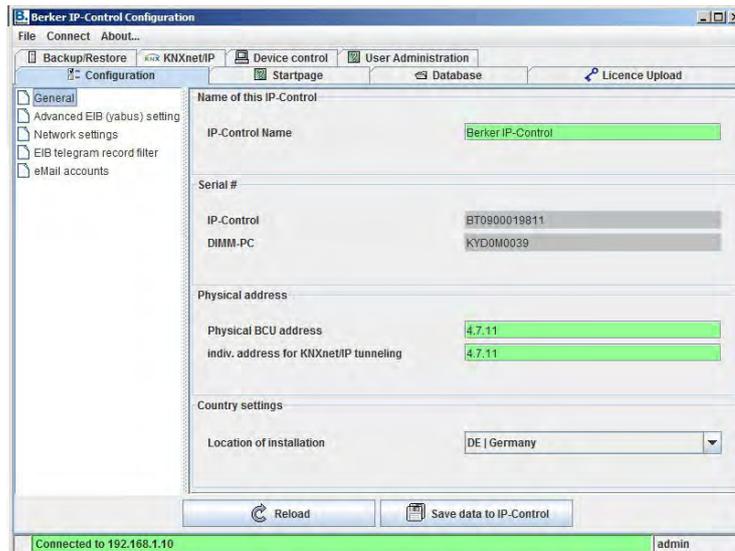


Fig. 3: General information window

- Assign a name in the **IP Control Name** field.
- i** With the aid of this name the device can be identified via a Discovery Tool if there are several IP Controls in the network.
- Enter the physical address of the BCU for the KNX.
- i** Observe the conventions for assigning physical addresses in KNX.
- Click on the menu item **Network Settings**.

A window showing the current settings is displayed (Figure 4).

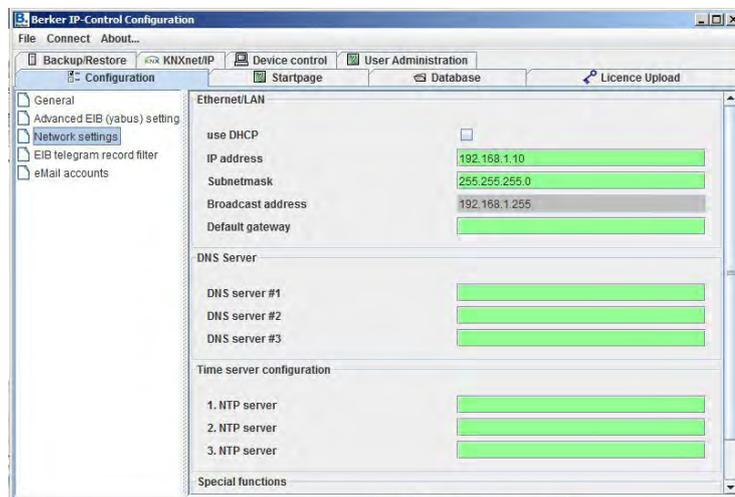


Fig. 4: Network settings window

- Assign an **IP address**.

The device can be reached under this IP address in the network.

- ❗ Use an IP address from the network area in which your PC was previously embedded if you wish to continue using this network area.

- ❗ Check first that the address is not being used by a different subscriber,

- Enter the subnet mask.

- ❗ A standard subnet mask for local networks is 255.255.255.0.

- Enter the IP address of the **Standard Gateway**.

- ❗ Here you should enter the external IP address of the router located in the network.

- Enter at least one **DNS Server**.

If DNS servers are used to resolve names then the corresponding IP addresses should be entered here. The addresses can be obtained from your Internet provider. Otherwise, on many router models it is possible to enter the internal router IP address (DNS routing) as the **DNS server no. 1**.

- Click on **Save data** to save the new configuration and close the browser.

Die Änderungen werden übernommen. Dazu führt das Gerät einen Neustart durch. A corresponding message confirms that the changes have been accepted. Die Grundeinstellungen sind abgeschlossen.

- If necessary, adapt the network settings of your PC. Its IP address must be located in the IP address range of the IP Control in order to reach the device.

- ❗ When the IP Control is next called up you will need to enter the new IP address in the address bar of the browser.

### Adapting the reserved Java memory

Java Runtime Engine version 1.5 or higher is required.

To adapt the reserved memory, a parameter in the Java VM software needs to be changed or added. Proceed as follows:

- In Windows, click on **Start → Settings → Control Panel**
- Double-click on the Java symbol.
- Click on the **Java** tab.
- Click on **Displays** in the **Java Applet Runtime Settings** (Figure 5).



Fig. 5: Java Control Panel - Java

- In order to get more working memory for JAVA under Windows, enter the following parameter: -Xmx128M (Figure 6).

128 MB of working memory is reserved for Java.

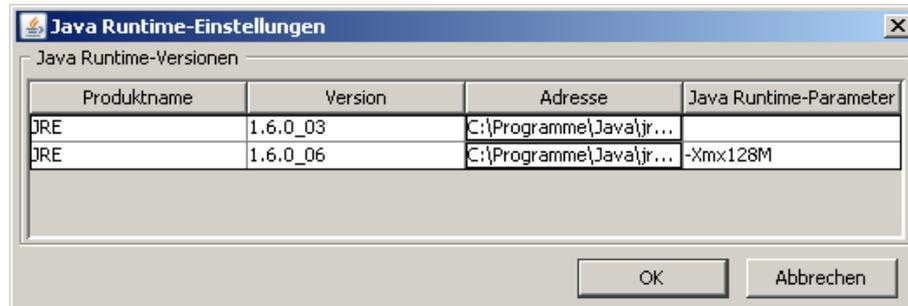


Fig. 6: Java runtime settings

### Adapting the settings for temporary Internet files under Java

Program files and data which are obtained by Java via a network connection are normally stored in a temporary memory location. Java accesses this stored content again if identical program parts and/or identical contents are required in order to shorten loading times and spare network capacities. However, this process gets in the way during installation, parameter setting and modification of the visualisation tool with IP Control. Any changes which have just been made would not be executed immediately because Java uses saved, out-of-date data.

During the initial installation period, it is therefore necessary to prevent the system from saving temporary files so that IP Control always accesses the current status. In principle, you can continue working with these settings, but the saving of temporary files should be reactivated for the visualisation tool during normal operation so that WebStart can be used for accelerated startup of the visualisation.

- In Windows, click on **Start → Settings → Control Panel**
- Double-click on the Java symbol.



Fig. 7: Java Control Panel – general information

- Click on the **General** tab.
- Click on the field **Temporary Internet Files** and **Settings** (Figure 7).

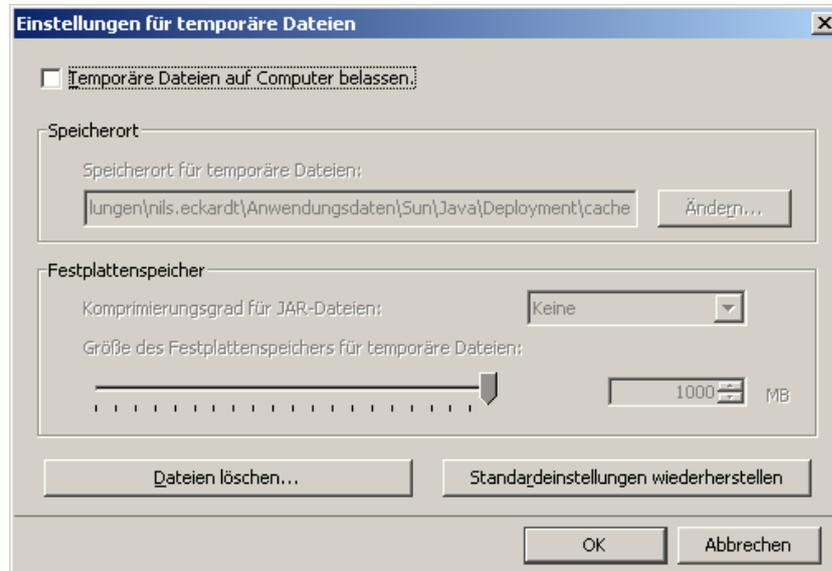


Fig. 8: Temporary file settings

- Uncheck the box marked "Leave temporary files on computer".
- Click on "Delete files...".
- Click on **OK** to confirm.  
You will then return to the Java Control Panel.
- Click on **OK** to exit the Java Control Panel.
- i** You will then need to restart your browser in order to enable the settings.
- i** In order to be able to use the function WebStart after installation to accelerate the visualisation startup procedure, you will need to undo this setting and reactivate the checkbox again.

### Setting up Java Web Start

The goal of this function is to allow more convenient and quicker work with IP Control.

- i** Before you use Web Start, the device should already be configured.

Web Start is a technology that is made available by Java. It makes it possible to start a Java application directly without using a browser. The required program parts are administered on the local PC. Updating is only performed when it is determined that new packages are available from the IP Control.

The setting **Leave temporary files on the computer** is activated (see section **Adapt settings for temporary Internet files under Java**).

- Open the browser and call up the home page of the IP Control.
- Click Web Start at the bottom of the navigation menu.

The Web Start configuration page opens. The IP address and port number have already been entered.

**i** If you wish to use the IP Control with Web Start via an Internet connection, then please enter the DynDNS address of the router here, and the http port number under which the IP Control can be reached via the Internet.

- Click on "Install".

The dialog for downloading Web Start opens.

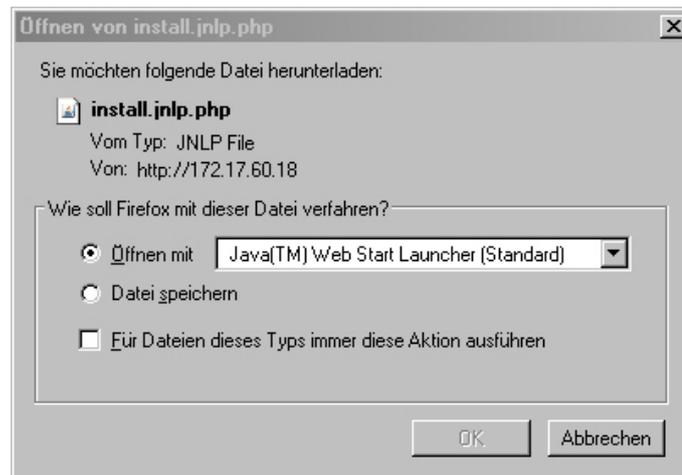


Fig. 9: Download dialogue for Web Start

- Select **Open with** and click on **OK**.

The file that is generated is then executed with the Java Web Start Launcher; a new window opens with the configured start page. The menu items "Visualisation" and "Editor" are visible.

- i** Later you can start Web Start directly by
- Via a shortcut (symbol) on your desktop. This is placed on the desktop during the Web Start installation (Fig. 10).
  - Via Start > Programs > Berker Apps > Berker IP Control Application.



Fig. 10: Desktop link for Web Start

### 3 Application

No special software is required for the configuration of IP Control. For example, if you establish a connection via a PC with IP Control then IP Control will make all the necessary components required to assign the application data available to a standard Internet browser (Java Runtime Engine version 1.5 or higher). You can configure the following internal functions for services.

#### Internal services

- Visualisation
- Clocks
- Calling up network cameras
- Logic
- WAP communications
- EIBlib/IP and KNXnet/IP
- Data collector
- Light scenes
- Fault message via e-mail

#### Applications

for automation

- Clocks
- Logic
- Light scenes

for monitoring

- Visualisation
- Communications
- Data collector
- Netcam
- Mobile phone visualisation with status feedback
- Integrated Bus Monitor

for remote switching

- Visualisation via the Internet
- Visualisation on a mobile phone

for maintenance

- Communications
- Data collector
- EIBlib/IP and KNXnet/IP

## 4 First steps

IP Control is equipped with a Web Server and incorporates a number of Java Applets. You can edit their services when they are called up via the browser and save them permanently in the IP control.

- Call up an Internet browser on e.g. your PC platform.
- ❏ The following browsers can be used:
  - Internet Explorer version 5 or higher
  - Netscape version 4.77 or higher
  - Konquerer from KDE 3.0
  - Mozilla Firefox
- ❏ Java Runtime Engine version 1.5 or higher must be installed and capable of running on all browsers.
- After installing the IP Control, write the following URL in the address bar:  
<http://192.168.1.10> (default setting).  
Alternatively, you can choose the IP address of the IP Control which you have changed.

The start window with the main menu appears. From here you can access the Visualisation tool, the Editor and the Configuration Tool (system) of the IP Control.



Fig. 11: Start window



### **WARNING!**

**Suitable additional measures must be put in place if there are special requirements or a risk of injury or material damage which must be avoided (functional safety).**

**These measures must have the required level of independence from the operation of the IP Control and must always be available.**

Risk reduction measures can be found e.g. in the tables entitled "Functional Safety" in the "Building Services Engineering Systems Handbook – Fundamentals" from ZVEH/ZVEI.

## 4.1 Passwords

Access to the Visualisation Editor and the **System** is protected with user names and passwords. The passwords can be edited via **System**. The following default passwords are active on delivery:

Area	User name	Password:
Visualisation Editor	admin	berker
System	admin	berker

- i** When you wish to change a password you will be prompted to enter the new password twice. This prompt does not appear when no password is entered.

## 5 Visualisation

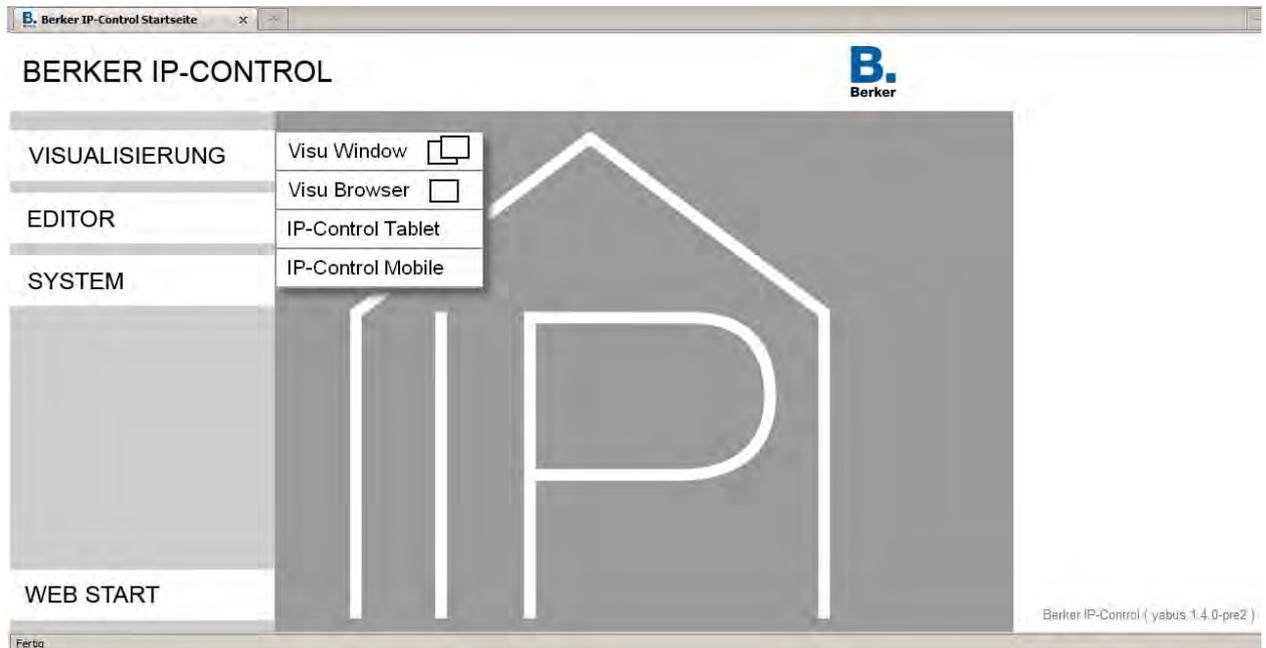


Fig. 12: Visualisation homepage

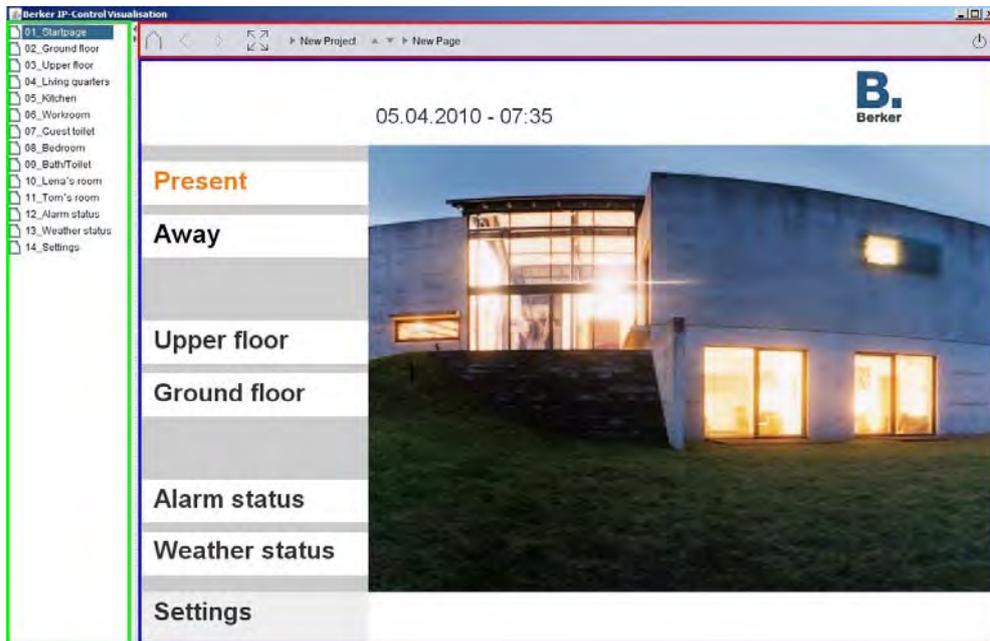
The **Visualisation** button is used to access the selection of available visualisation interfaces. The following are available: the two visualisation interfaces (external window and embedded) as well as the IP Control Tablet Visualisation and the IP Control Mobile visualisation. Every visualisation interface can be protected via the User Administration. This function is not activated on delivery.

**i** To close the selection window, click on Visualisation again.

### 5.1 Visualisation

The visualisation can be called up in two different modes:

- External window: the visualisation is opened in a separate window.
- Embedded: the visualisation is opened in the browser window which is currently open.



**LEGENDE:**

Red area:  
Visu ToolBar

Green area:  
Page index

Blue area:  
Visualisierungs-  
oberfläche

Fig. 13: Visualisation in an external window

Depending on the settings, the Visualisation ToolBar and the page index open together with the visualisation. (See Fig. 14).

**Key:**

The project pages are shown in the left-hand pane of the window. On the division between the page index and the visualisation there are small arrow symbols with the aid of which the respective view can be displayed or hidden. If the page index is deactivated in the project settings of the editor then it is not displayed in the visualisation.

**Visualisation ToolBar**

The Visualisation ToolBar is positioned above the visualisation. It simplifies navigation in the visualisation. The ToolBar and its functions are configured in the project parameters in the Visualisation Editor.

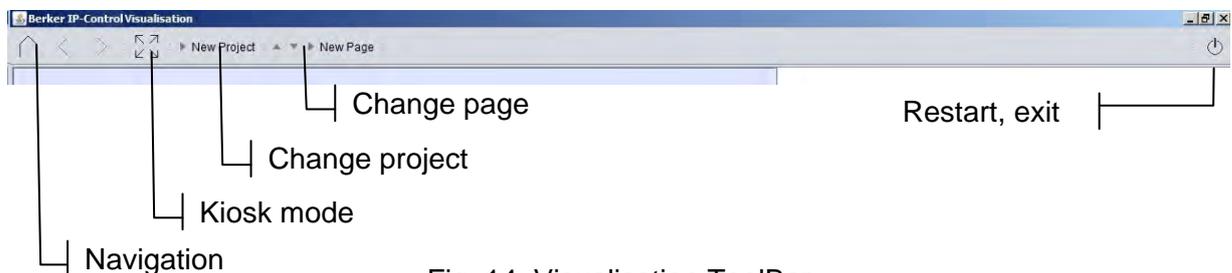


Fig. 14: Visualisation ToolBar

**i** The Visualisation ToolBar is not displayed in the IP Control Tablet Visualisation. It is only intended for the Java Visualisation.

**Navigation**

The navigation enables the user to scroll through the project pages, while the house symbol can be used to jump back to the homepage of the project at any time.

**Kiosk mode**

With the aid of this button, the kiosk mode can also be activated while the visualisation is active. The ToolBar settings and page index settings are retained.

**Change project**

If multiple projects have been created then this function can be used to switch between them.

**Change page**

All of the pages of the project are displayed. The change can be performed either via the arrows or via the page overview. The latter appears when the page name is clicked.

**Change user**

If the User Administration is activated for the visualisation then it is possible to switch between individual users without restarting the visualisation. All user names are displayed if you click on the user who is currently logged in.

**Restart/exit**

This button exits or restarts the visualisation. After a restart the user will be asked to log in again.

## 5.2 Important information

**BMX protocol**

The port for the BMX protocol is required for the visualisation. In the event that it is not enabled (port routing), for example during access via the Internet, operation or feedback information via the visualisation will not be available. The BMX port has the default number 1735. However, this can be changed in the Configuration Tool (System > Configuration > Expanded EIB (yabus) Settings).

**Java cache**

If the Java cache is activated while the visualisation or other parts of the IP Control are being configured then it can happen that the visualisation stops being displayed correctly after a certain amount of time. The Java cache accesses temporary files which are no longer current. Delete the cache and open the browser again. (See "Adjusting Java Settings" > "Temporary Internet File Settings").

**Time stamp**

If the time of the IP Control is no longer correct then the current telegrams and statuses are saved with an incorrect time stamp in the State Table. As a result, the visualisation will have incorrect reference times for evaluating the telegrams. This will lead to incorrect status displays. Delete the State Table and restart the IP Control. (Refer to the "File" section under "IP Control Editor").

## 5.3 IP Control Tablet Visualisation

IP Control Tablet Visualisation offers a visualisation option for devices which do not support Java. IP Control Tablet Visualisation is platform-independent and can therefore be used for Web Pads (e.g. iPad), mobile phones or even standard PCs. The IP Control Tablet Visualisation is generated from the same data as the Java Visualisation. However, not all of the elements and functions from the Java Visualisation are supported.

## Requirements

In order for the IP Control Tablet Visualisation to be displayed on a Client, it will need to support Java Script. The necessary data in IP Control are generated when the visualisation project is saved. For this purpose, the user is asked for which project the IP Control Tablet Visualisation is to be generated. The IP Control Tablet Visualisation and the Java Visualisation use the same user logon.

## Important information

### Support for the individual functions and elements

A clear overview of the supported functions and elements of the IP Control Tablet Visualisation is presented in a table in the section entitled "Editor".

### Setting up a connection/simultaneous connection

The IP control tablet visualisation is a server-related application. In contrast to Java, the visualisation client queries the current status on the server regularly. We say that the client is "polling". This polling particularly limits the performance of the server, thus the number of the simultaneous connection is limited according to the utilization level of the other resources.

The establishment of the connection can be optimised by browsers that support so-called "Websockets". For this purpose, there is the possibility to call up the visualisation in the IP control (see chapter "Configuration Tool" > "Configuration" > "Extended yabus (EIB) settings").

### Use HARDware acceleration / css 3 Animations

The Browser Mobile Safari on Apple devices such as the iPad and iPhone does not use any hardware acceleration for simple animations. For this reason, a jerky presentation might occur with the slide effects. To avoid this, the IP control tablet visualisation supports CSS 3 transformations. As a result, animations are presented more smoothly because the hardware acceleration is reverted to in this case. The activation takes place automatically once the IP control tablet visualisation detects a corresponding browser. The application of CSS 3 can, however, adversely affect the operation in the case of some terminals or browsers. To deactivate CSS 3 in this case, a context menu that is displayed during the first 10 seconds is provided in the bottom right corner in the visualisation. The logout from the visualisation can also be initiated in this menu.

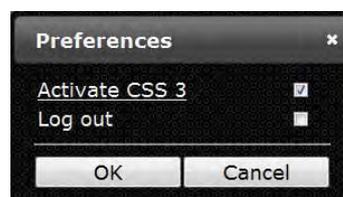


Figure 15: IP Control Table visualisation – context menu

## 5.4 IP Control Mobile

IP Control Mobile is another visualisation which works without Java support. Its design is deliberately simple and clearly laid out in order to make allowance for the small size of the displays on mobile devices.



Fig. 16:IP Control Mobile on the iPhone

## Calling

The IP Control Mobile can also be called directly from a browser. The URL is:

<http://<IP of the IP Control>/ipcm>

## Authentication

The user authentication for the IP Control Mobile is set in the Configuration Tool ("System" > "User Administration"). Further information can be found in the section entitled "IP Control Mobile".

## Simultaneous connections

The number of simultaneous connections depends on the design of the system and the other tasks of the IP Control.

## 6 Editors



Fig. 17: IP Control - Homepage – Editor

The Editor is used to program the IP Control and generate the visualisation. It is divided into 4 different Editors:

### Visualisation Editor

This Editor is used to create the visualisation for Java and IP Control Tablet. It consists of at least one project and one page and can be protected via the User Administration. During saving, the data for both the Java Visualisation and for the IP Control Tablet Visualisation are generated (optional).

### Job Editor

In the Job Editor you can configure the services which are to be executed by the IP Control. An overview of the individual job types can be found in the corresponding section.

### WAP Editor

The WAP pages are created and parameterised in the WAP Editor. With the aid of WAP it is possible to send EIS 1 telegrams and have the status of EIS 1 objects displayed.

### IP Control Mobile

Here the pages for the Visualisation IP Control Mobile are configured. IP Control Mobile works with all standard mobile phone models, PDAs with Mobile Java (J2ME) or PCs with Microsoft Windows Multimedia Center Edition (MCE). In contrast to WAP, different EIS types and camera images can be embedded.

## 6.1 Things you need to know before starting

### Group addresses - virtual and real

The IP Control offers a virtual address space. It ranges from 16/0/0 to 31/7/255. These addresses are not sent to the bus. They ensure that jobs are linked to each other or that visualisation elements are linked to jobs and vice versa. In this way, real address space is saved, but the behaviour of the IP Control also changes: if real group addresses are used for a job even though no real KNX subscriber exists for them, this can result in significant delays in the program flow.

The KNX bus system is designed to expect "ACK" as an acknowledgement for every telegram. If this does not happen then the corresponding telegrams are repeatedly repeated. In the case of a very "telegram intensive" job like the "SB Control", this can lead to significant delays in the processing of the telegrams. This can be reduced wherever no real bus subscribers exist by using virtual group addresses.

## Communication objects

The IP Control replicates the structure of the communication objects of the KNX. This means that up to 5 group addresses can be assigned to each object. In this way, the allocation of a group address of e.g. an actuator channel can be directly replicated. This keeps IP Control informed at all times about the actual status of the actuator (not the group address), thus negating the need for complex working with return messages. This approach simplifies the task of creating logical links, as up to 5 group addresses can be assigned to each input object of the gates. In this case, all five group addresses can be allocated in the ESF dialogue. In the process, they are automatically entered with the correct syntax in the selected object field. However, in the case of outputs it is only possible to enter one address.

## General Syntax

After the first group address, the remaining addresses should be placed in parentheses and separated with commas.

Example: 2/12(2/13,2/14,2/15,2/16)

The Editor window is loaded during the initial start-up with the Visualisation Editor. The change between the Editors takes place within this window. Basic settings are implemented in the menu bar of the Editor window.

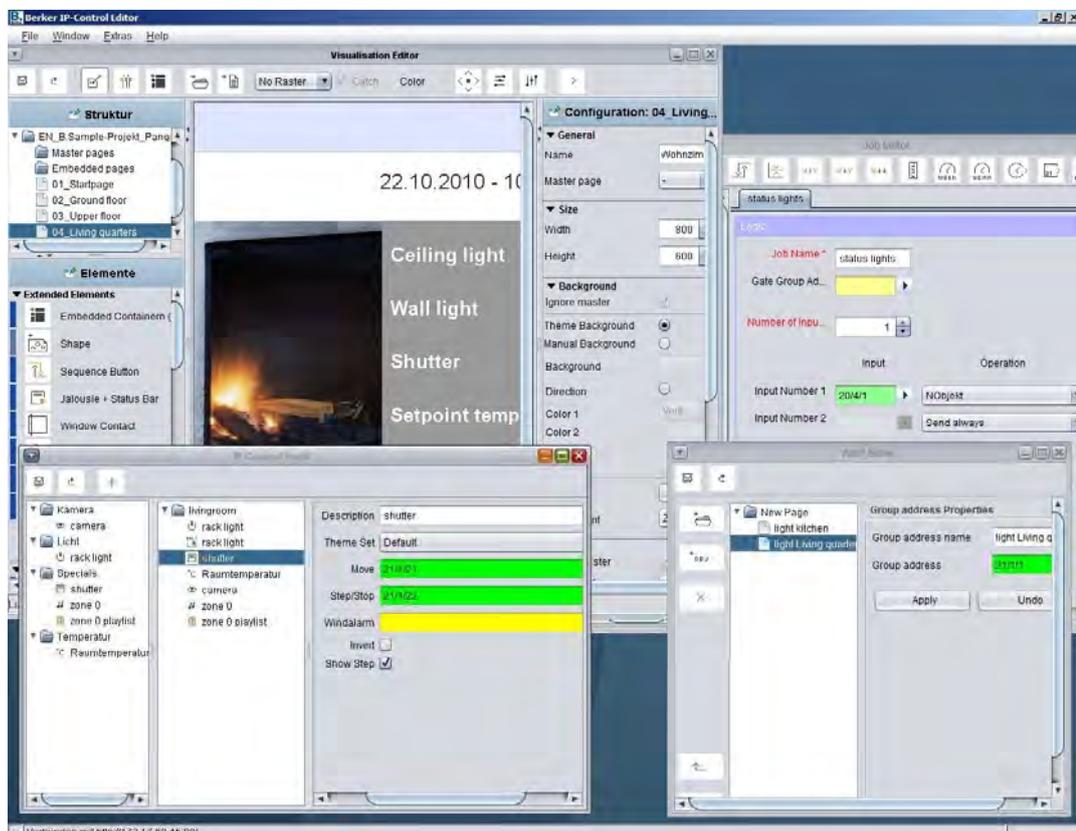


Fig. 18: Editor window - all Editors

## ETS 4 Compatibility



### Attention:

Limited compatibility to ETS4! In the ETS4, please only use the group address structure in the normal three-stage or two-stage ETS2/3. An application with the extended group address area or free group address structure is not possible.

## 6.2 Menu bar of the Editor window

The Editor window has a menu bar for the basic settings. This can also be used to change between the editors and load data to the IP Control. All editors can be opened at the same time. Minimised windows are shown at the bottom left edge of the Editor window. The address via which the connection to the IP Control is established is shown in the lower bar on the window.



Fig. 19: Editor window - menu bar

### File

The File menu is used for general settings, opening the Save dialogue or closing the Editor.

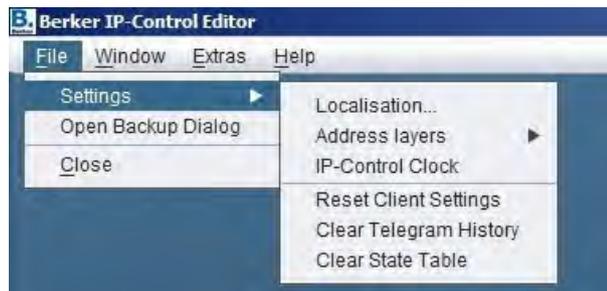


Fig. 20: Editor - menu bar - File

### Localisation

The term 'localisation' is used to describe the process of adapting software to the relevant language environment. Language files are available in English and German. The language files can be "downloaded" onto the user's PC.

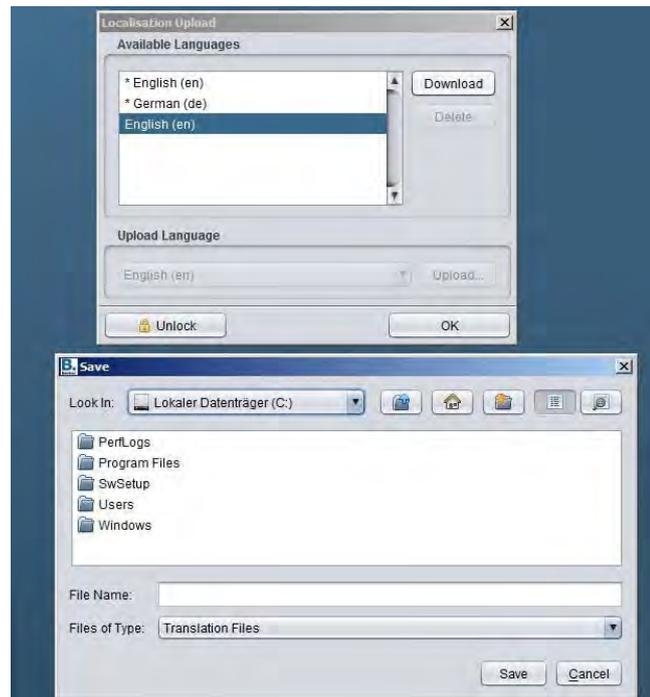


Fig. 21: Editor - localisation dialogue

The same dialogue can be used to import language files into the IP Control. In the "Upload" dialogue the file is linked to the corresponding language code. The language setting needs to be changed accordingly in the Java control panel so that Java uses the correct language file. The localisation dialogue needs to be enabled with the character string of the IP Control.

- i** The localisation file must be saved in the character code UTF-8.
- i** The enabling via character string always applies per Editor session and also applies to all other dialogues which need to be enabled via character string.

**Address levels**

- i** The group addresses are displayed in the editors either with two or three digits. In the Visualisation Editor, previously existing group addresses are converted if required.. This does not happen in the Job Editor.

The Editor must be restarted for the changes to take effect.

**Clock time of the IP Control**

The internal time and date of the IP Control are queried under "Adjust Time". The first row shows the current date and the time of the IP Control. In the row underneath you can adjust the date and time. This is done either directly via the keyboard or via the button "Set to PC Time". The latter transfers the current time from the user's PC to the IP Control.



Fig. 22: Editor - Setting the time

**Resetting the Client Settings**

- This function is used to reset the following user-defined settings to the default values:
- the position of the Editor windows and their sizes;
- the start-up settings of the windows;
- whether or not the Save dialogue is displayed when the Editor window is closed;

the directory in which the backups are saved.

This function does not affect any other settings.

**Deleting a telegram record**

The IP Control has a ring buffer which can be used to record up to 500000 telegrams. These telegrams are read out for the visualisation graph. This function deletes the record immediately. The IP Control does not need to be restarted.

**Deleting the State Table**

The last status of all assigned group addresses is saved in this table. These data define the behaviour of the visualization and the jobs which are created in the IP Control. The last status is determined on the basis of a time stamp of the telegram. The State Table can be deleted without needing to restart the IP Control.

## Window

The **Window** menu is used to call up an editor or switch between editors. In addition, there is a link to the configuration interface of the IP Control (**Configuration Tool**).

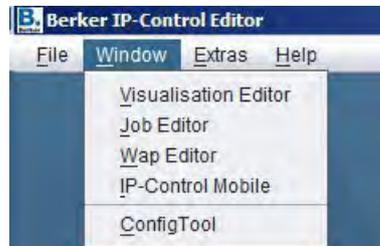


Fig. 23: Editor – Window menu

### Visualisation Editor

The Editor window for designing the visualisation interface is opened.

### Job Editor

This editor window is used to configure and parameterise the Jobs (services) of the IP Control.

### WAP Editor

The functions which are to be controlled via WAP are defined in this editor window. Only EIS 1 can be used here.

### IP Control Mobile

Mobile phone visualisation is best realised using IP Control Mobile. The interface is set up with this editor.

### Configuration Tool

The Configuration Tool can normally be accessed via the IP Control homepage under "System". The configuration of the IP Control is set up here. This link is used in order to be able to configure directly from the editor. The IP Control character string is requested for access to the Configuration Tool.

## Tools

The **Tools** menu is used to load important files (ESF, pictures, freely definable switches) into the IP Control or to delete them. In addition, the State Table and History (i.e. telegram records) can be displayed.



Fig. 24: Editor – Tools menu

### ESF upload & data management

All of the group addresses, their EIS types and identifiers are saved in the ESF file. This file is generated in ETS 3.0 via File > Data Exchange > Export to OPC Server. The data of the ESF

file correspond to the project which was created in the ETS. If the file is loaded to the IP Control then the assignment and overview of the group addresses is simplified.

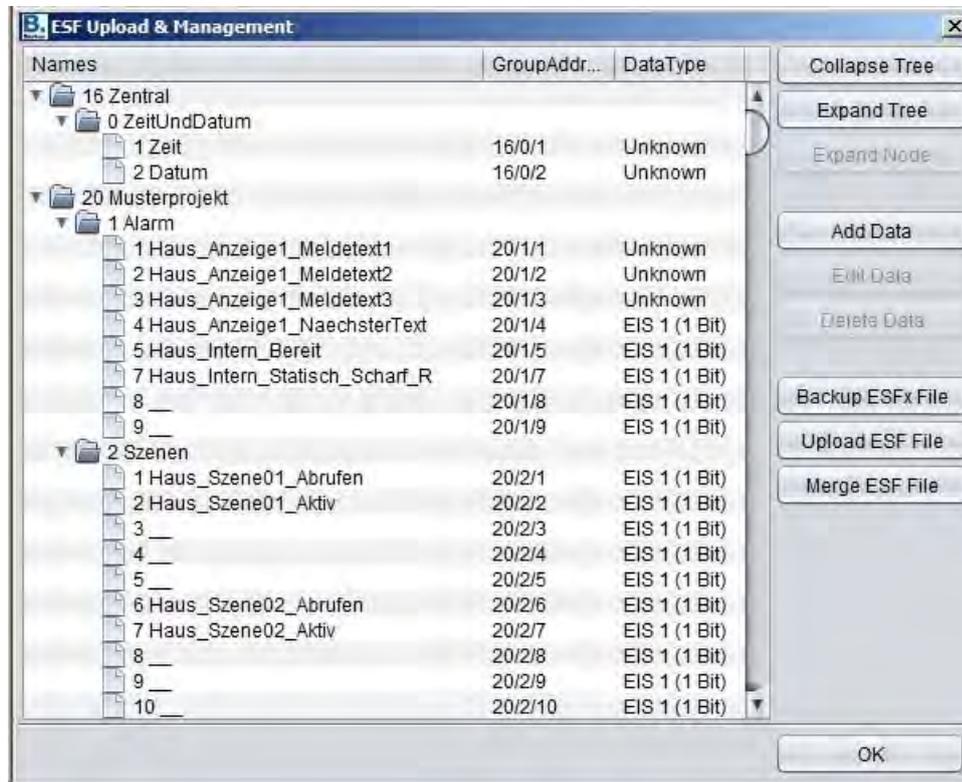


Fig. 25: Editor – ESF upload & data management

The address data also need to be managed in the dialogue for the virtual group addresses or for changes to the existing master address file. It is also possible to enter new addresses and identifiers during the project planning.

- i** If changes have already been made to the ESF file in IP Control and a newly generated one is uploaded from the ETS then the changes will be overwritten by the new file!

**Buttons**

- Close Tree/Open Tree: a 'tree' is the complete address space of the ESF. If the tree is closed then only the main groups are shown; if it is open then all of the groups and their addresses are displayed. The views can also be opened or closed by clicking with the mouse on the corresponding arrow symbol (on the left at the edge of the window).
- Open Node: a 'node' is the address space of just one main group. For a clearer overview, this can be used to open just part of the otherwise closed tree.
- Add Data: this function is used to enter addresses which do not exist yet into the ESF file. The address and the identifier can be entered.
- Change Data: the identifier can be changed for the highlighted address - but not the address itself.
- Delete Data: the selected group address is deleted from the ESF file.
- Save ESFx File: this saves the ESF file from the IP Control as an ESFx (xml type) into an arbitrary directory.
- Upload ESF File: this opens a file browser so that the user can select the required ESF file. When the user clicks on "Upload" the file is immediately loaded without further confirmation.

## Transfer Pictures

In this dialogue the pictures which are required for the visualisation are loaded to the IP Control and managed. The pictures can be sorted in different categories or deleted again.

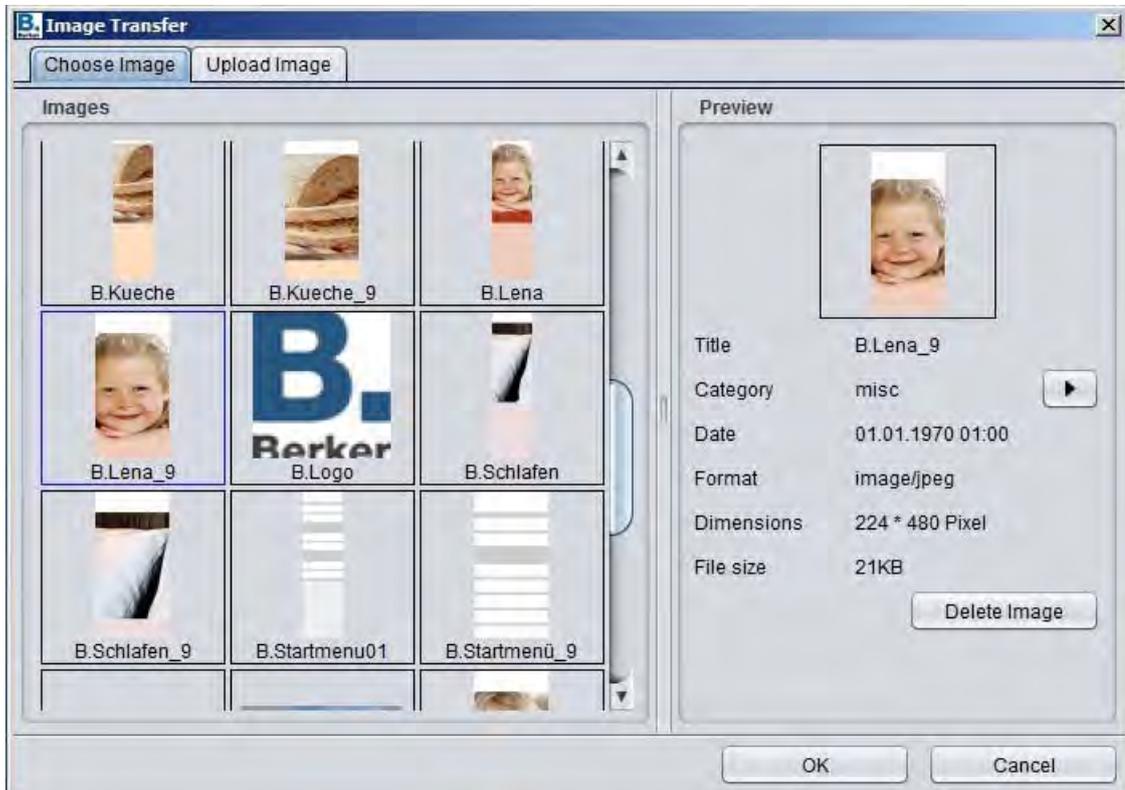


Fig. 26: Editor - Transfer Pictures

### **Select picture:**

The uploaded pictures are managed in this tab. If a picture is selected then the information for the picture is displayed in the "Preview" pane on the right-hand side. The picture can be assigned to an existing or new category via "Category". The categories and the associated pictures are displayed in the "Pictures" pane on the left-hand side. The selected picture can be deleted by pressing the "Delete picture" button.

### **Upload picture:**

This tab can be used to upload pictures. To do this, select a file in the right-hand part of the window and give it a title. The picture is assigned to an existing category via "Category". The picture information is displayed immediately after the picture is selected.

**i** The "Statistics" field shows the maximum permitted file size and the current memory used for the pictures. The selected file is directly uploaded via "Upload".

### **Freely definable switches**

This dialogue is used to load the switches which were created with the Component Builder into the IP Control. Own switches and pictures are given the required functions in the Component Builder.

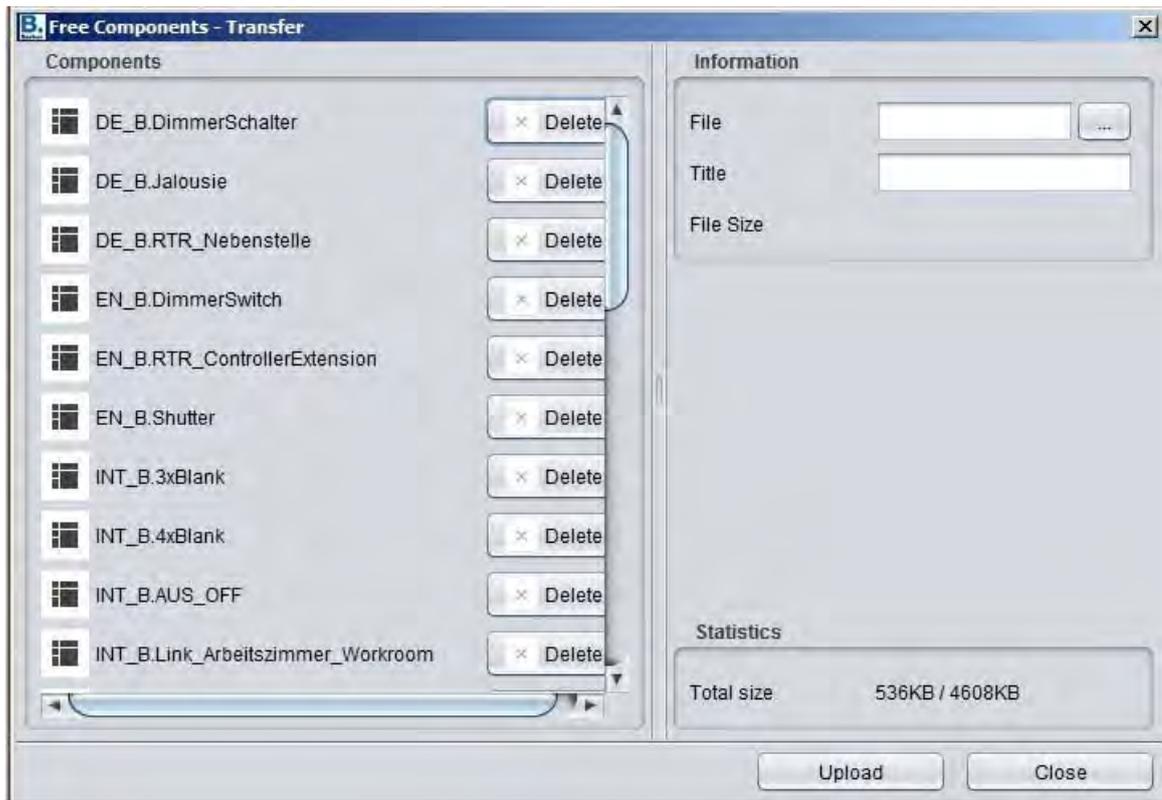


Fig. 27: Editor - Component Upload

**Information:**

To upload a switch it is highlighted via the file browser logo behind "File" in the corresponding directory or dragged and dropped to the visualisation interface (Drag & Drop). A clear name should be assigned to the file so that it can be clearly identified at any time. If the file size is bigger than 100kb then a warning message is displayed to warn the user that a large file may result in longer visualisation loading times.

**Freely definable switches:**

All files which have already been uploaded are shown in this window. The window shows the name given to the switch during uploading and a "Delete" button which can be used to delete the switch again.

**Statistics:**

The Statistics field shows how much memory has been used, as well as the overall memory space which is available for freely definable switches and how much of it has been used.

**History & State Table**

The IP Control records the last 20,000 telegrams (ring buffer) in a table. The State Table shows the current states of all group addresses.. If an address has not been used yet then no status is assigned. The current status is determined for the time at which the telegram was received. The State Table and the History (i.e. records table) are also saved during a backup.

Date	Group Address	Value	Datatype	Data	DataWidth	Maingroup	Middlegroup	Subgroup	Function
21.11.10 16:32:07	16/0/1			f0 20 06	3 byte	Zentral	ZeitUndDatum	Zeit	intern Ext_Schalt
21.11.10 16:33:07	16/0/2			15 0b 0a	3 byte	Zentral	ZeitUndDatum	Datum	intern Ext_Schalt
21.11.10 16:33:07	16/0/1			f0 21 06	3 byte	Zentral	ZeitUndDatum	Zeit	intern Ext_Schalt
21.11.10 16:34:07	16/0/2			15 0b 0a	3 byte	Zentral	ZeitUndDatum	Datum	intern Ext_Schalt
21.11.10 16:34:07	16/0/1			f0 22 06	3 byte	Zentral	ZeitUndDatum	Zeit	intern Ext_Schalt
21.11.10 16:35:07	16/0/2			15 0b 0a	3 byte	Zentral	ZeitUndDatum	Datum	intern Ext_Schalt
21.11.10 16:35:07	16/0/1			f0 23 06	3 byte	Zentral	ZeitUndDatum	Zeit	intern Ext_Schalt
21.11.10 16:36:07	16/0/2			15 0b 0a	3 byte	Zentral	ZeitUndDatum	Datum	intern Ext_Schalt
21.11.10 16:36:07	16/0/1			f0 24 06	3 byte	Zentral	ZeitUndDatum	Zeit	intern Ext_Schalt
21.11.10 16:37:07	16/0/2			15 0b 0a	3 byte	Zentral	ZeitUndDatum	Datum	intern Ext_Schalt
21.11.10 16:37:07	16/0/1			f0 25 06	3 byte	Zentral	ZeitUndDatum	Zeit	intern Ext_Schalt
21.11.10 16:38:07	16/0/2			15 0b 0a	3 byte	Zentral	ZeitUndDatum	Datum	intern Ext_Schalt
21.11.10 16:38:07	16/0/1			f0 26 06	3 byte	Zentral	ZeitUndDatum	Zeit	intern Ext_Schalt
21.11.10 16:39:07	16/0/2			15 0b 0a	3 byte	Zentral	ZeitUndDatum	Datum	intern Ext_Schalt
21.11.10 16:39:07	16/0/1			f0 27 06	3 byte	Zentral	ZeitUndDatum	Zeit	intern Ext_Schalt
21.11.10 16:40:07	16/0/2			15 0b 0a	3 byte	Zentral	ZeitUndDatum	Datum	intern Ext_Schalt
21.11.10 16:40:07	16/0/1			f0 28 06	3 byte	Zentral	ZeitUndDatum	Zeit	intern Ext_Schalt
21.11.10 16:41:07	16/0/2			15 0b 0a	3 byte	Zentral	ZeitUndDatum	Datum	intern Ext_Schalt
21.11.10 16:41:07	16/0/1			f0 29 06	3 byte	Zentral	ZeitUndDatum	Zeit	intern Ext_Schalt

Fig. 28: Editor - State Table

**Refresh:**

Next to this button you can choose between History (i.e. the records table) and the State Table. The "State Table" is the table which shows the states, while "History" is the table with the records. Pressing the "Refresh" button initially loads the current data into the tables, and the information is then displayed.

**i** Display: The data are shown sorted by date. On the right-hand side you can select or deselect the checkboxes to choose which data fields you would like to be displayed. At the border between the table pane and the data field selection there are some arrows with which either of the views can be minimised.

**Themes**

All of the elements and icons of the IP Control software can be swapped using so-called themes. You can either develop your own themes or use existing ones. The "Theme Editor" tool is available for editing themes and for loading them from the IP Control. The theme files can then be loaded via "Themes" to the IP Control. The changes will become effective the next time the editor is restarted.

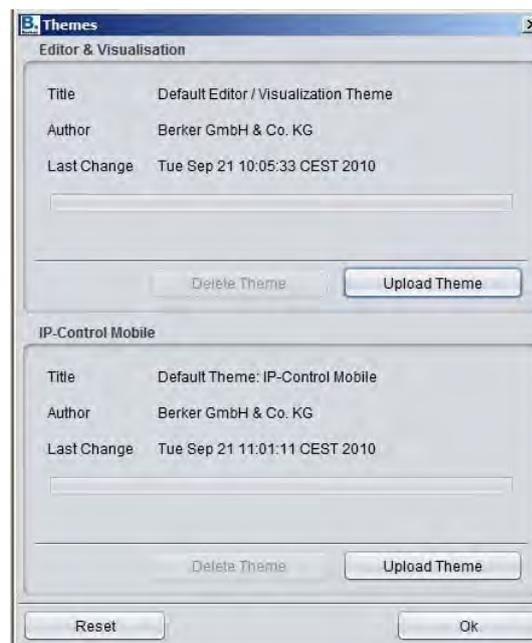


Fig. 29: Loading themes

**Loading themes:**

The required themes file is selected from the hard disk in the file browser (file extension: \*.thm).

**Deleting a theme:**

If the loaded theme is no longer required it can be removed again via the "Delete" function. The system then uses the default theme.

- i** Further information about the Themes Editor, e.g. about the graphics sets, can be found on the CD which was provided with the IP Control.

**Help**

The Help menu only contains this one item:

**Info**

This dialogue shows the most important information about the IP Control. In the event of any problems, a quick overview of the key data and settings is displayed here.

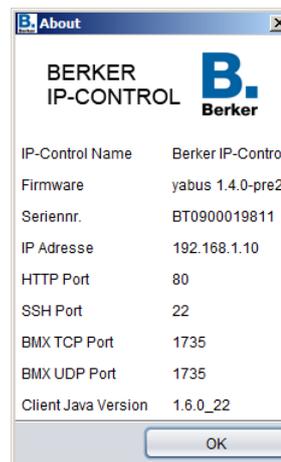


Fig. 30: Editor – Help > Info

The following are displayed:

- IP Control Name: this is assigned in the Configuration Tool.
- Firmware: the Firmware version is displayed - this can also be seen in the Java Console.
- Serial no.: the serial number of the device - this is also displayed in the Configuration Tool.
- IP Address: this can be changed in the Configuration Tool under Configuration > Network Settings.
- Ports: these can be changed in the Configuration Tool under Configuration > Extended EIB (yabus) Settings.
- Client Java Version: this displays the Java version of the Client PC.

## 6.3 Visualisation Editor

The view and functions of the visualisation are configured with this editor. In the process, a visualisation is generated via pages in projects. Multiple projects are possible. The visualisation function can be simulated within the editor via the "Visu-Live Mode".

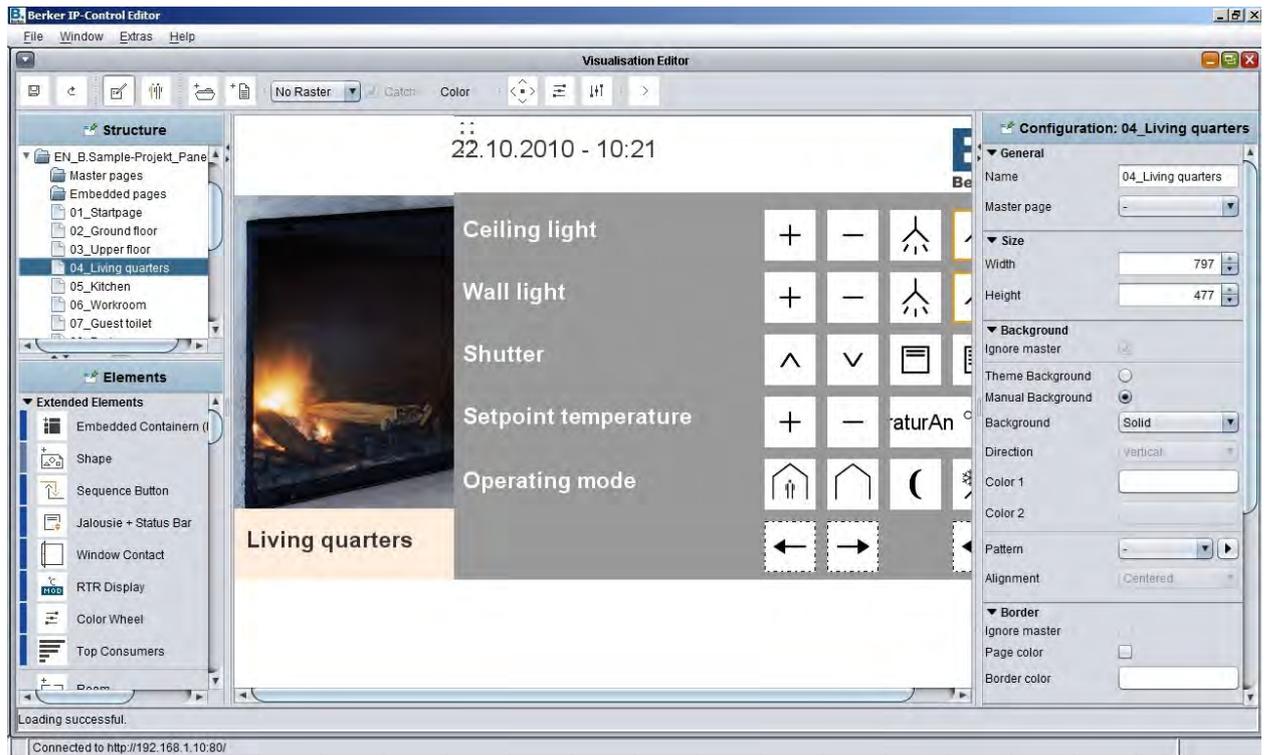


Fig. 31: Editor – Visualisation Editor

- i** Every button in the visualisation is given a so-called tooltip. If you hover over a field with the mouse pointer then the corresponding Help text is displayed.

### Menu bar of the Visualisation Editor

The central control elements for creating the visualisation are positioned in the menu bar of the Visualisation Editor.



Fig. 32: Editor – Visualisation Editor menu bar

### Save/Reload

Whenever any changes are made the visualisation should be saved by clicking on the diskette symbol. To call up the current memory status again use the blue arrow ("Reload"), as the Client PC only provides an image. The changes are saved in the IP Control.

- i** If more than one person attempts to make changes at the same time then the user who saves last will define the status. This means that a user who has made no changes but saves last will overwrite all previously saved changes with his old status.

### Visualisation/Security Settings/Allocation Plan Module

These three buttons are used to change the view. By default the Visualisation Editor is set to the view "Visualisation". Under "Security Settings" you can create users and define their rights. The "Allocation Plan" button is used to open the editor area for the Allocation Plan module.

### New Project/New Page

A new project or a new page is created. A visualisation comprises at least one project and one page.

### Grid/capture/colour

A grid can be overlaid onto the editing area of the visualisation so that it is easier to position the elements. The grid is not displayed on the actual visualisation. The grid size is given in pixels. In addition, it is also possible to define the colour of the grid. The "Capture" option is used to automatically align the visualisation objects to the grid.

### Distribute Objects/Align Horizontally/Align Vertically

With the aid of these functions, objects which have already been selected are arranged at equal distances on the visualisation. Each button has a context menu with the aid of which the selected object group can be positioned in different places.

### Visu-Live Mode

If the Live Mode is activated the Editor simulates the visualisation. The jobs which are linked to the visualisation elements are also executed so that all states can be correctly displayed in the visualisation.

- i** In the Visu-Live Mode, telegrams are also sent to the bus. Consequently, actions in this mode can also result in switching operations. By contrast, changing pages due to a fault message or camera event does not work.

### Window layout

The Visualisation Editor is the most complex of all windows in the editor. The window is divided into the four panes Structure, Elements, Working Area and Parameters.

## Structure

The "Structure" window contains an outline view of your visualisation. A visualisation comprises at least one project with at least one page. In addition, a project can also contain Master Pages and Flip/Dialogue Pages. The Structure window is located in the top left-hand area of the user interface.

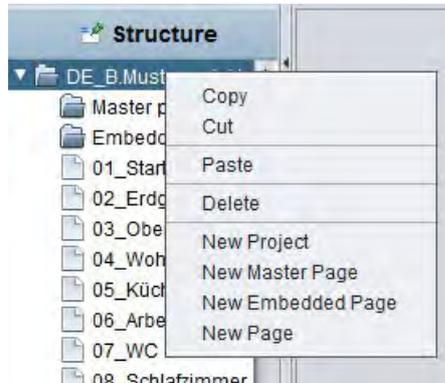


Fig. 33: Visualisation Editor - "Structure" context menu

## Operation

The context menu which is accessed via the right-hand mouse button is used to create New Projects, Master Pages, Flip Pages and Pages. Projects and pages can also be created using the two buttons in the menu bar. Once they have been created, the view can be used in the same way as the directory tree in a file browser. The arrows in front of the folders can be used to close or expand them.

## Parameters

Once a structure has been created, the parameters of the projects/pages can be set in the Parameters pane on the right-hand side. The parameters vary depending on the selection in the structure.

## Copy/Cut/Paste/Delete

Every element in the structure can be copied/cut, deleted or pasted via the context menu. The "Copy" function can be used to speed up the process of configuring a visualisation process. It is important to note that a copied element is initially given the same title as the original element.

## Mouseover Help

A tooltip is available for more information about the elements.. This is a small window which opens if the mouse pointer is briefly held over the corresponding element. It contains a short and concise explanation of the function of the parameter.

## Elements

The Elements window is located underneath the Structure window. Both the standard elements and the free components (if uploaded) are listed in the elements. To place an element in the working area, simply click on it. It is automatically placed in the centre of the working area, and the specific Parameters window opens up on the right-hand side.

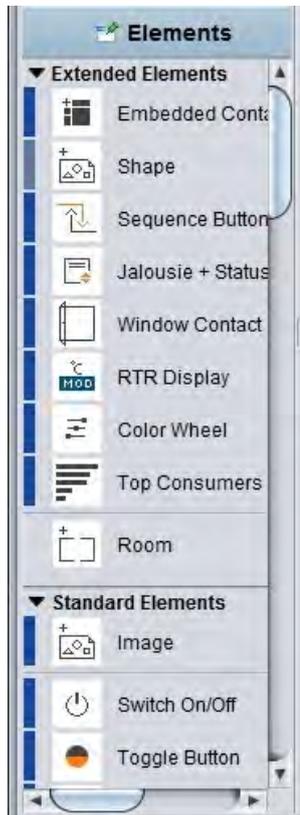


Fig. 34: Visualisation Editor - Elements

### IP Control Tablet support

A blue/light blue bar is sometimes shown to the right of the elements. This indicates to the user which of the elements are supported in the IP Control Tablet Visualisation and which are not supported or are only partially supported. The blue bar indicates full IP Control Tablet support, the light blue bar partial support. If there is no bar at all, this means that the element is not supported.

## Parameters window

In this window the user makes all of the settings which relate to the currently selected project, the page or the element.



Fig. 35: Visualisation Editor - Parameters

## Global and specific parameters

A distinction is made between global, generic and specific parameters. Global parameters apply across all projects and can be defined at a single position. Generic parameters constantly repeat on all elements. Specific parameters are to be applied to one specific element only.

## Working area

The actual visualisation interface is edited in the working area. As soon as a page has been created, a field appears which can be changed via the Parameters Window.

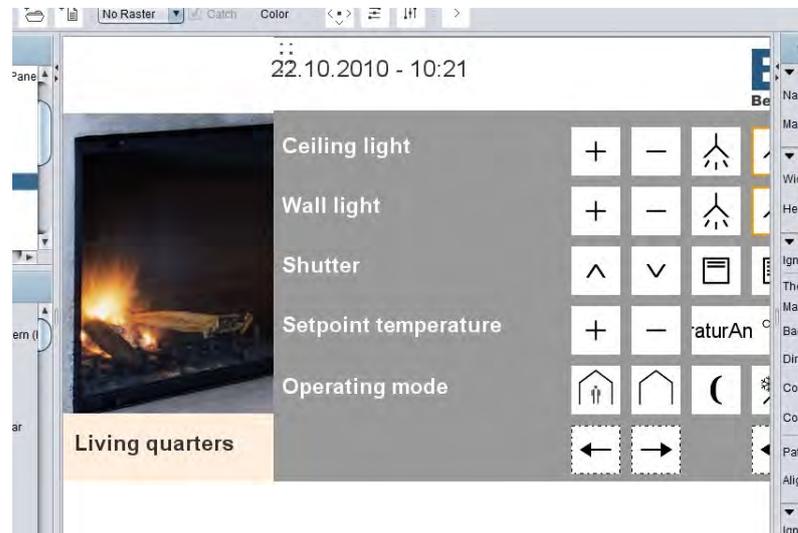


Fig. 36: Visualisation Editor - working area

## Operation

The usual keyboard commands can be used in the working area. For example, multiple elements can be selected by pressing Ctrl and clicking on them with the mouse, and they can then be copied by pressing Ctrl + C and pasted by pressing Ctrl + V. A context menu is also available via the right-hand mouse button.

### Visu-Live Mode

If the Visu-Live Mode is activated then the working area automatically serves as a visualisation interface, and all elements can be operated.

**i** Caution! Real switching operations will be performed in the process.

### Frames

The area outside the visualisation interface is the so-called frame. This is displayed if the screen resolution of the Client is greater than the resolution of the visualisation project. Consequently, the frame colour can be adapted to the background colour of the page. You can also define how the visualisation interface should be horizontally and vertically aligned (project parameters).

### Multiple projects

A visualisation always comprises at least one project and at least one page. However, it is also possible to create multiple projects, e.g. for different buildings. During the startup or during the visualisation itself, it is then possible to change between the projects. If a user login is active then only the projects to which the user has access rights are available..

### Detaching windows

The properties windows are positioned to the left and right of the working area (Elements Window and Parameters Window). Depending on the size of the visualisation area and the screen resolution of the editing computer, some users may find that these windows get in the way. If this is the case then these windows can be "detached" from the Visualisation Editor. The windows are detached by clicking on the grey header field. The window then becomes an independent window on the task bar of the operating system and can be freely positioned. The window can be permanently embedded again by clicking on the header field once more.

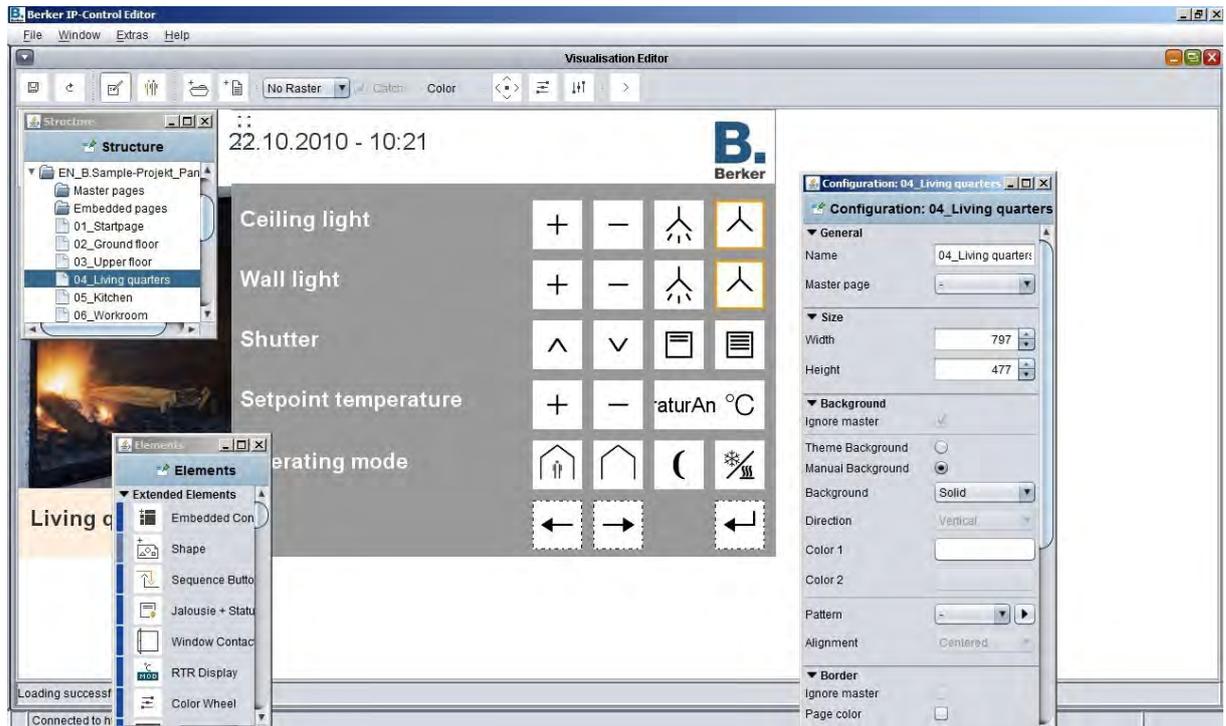


Fig. 37: Editor - Detaching windows

### Free resizing of elements

All elements in the visualisation are freely resizable. In order to resize an object it is either enlarged or made smaller via the corresponding marker points with the mouse. Alternatively, the size can be changed via the Parameters Window on the right-hand side (the object must be selected first). If the checkbox for "Retain Page Ratio" is ticked in the Parameters Window then it is no longer possible to resize the element one-sidedly with the mouse. The option "Distortion-free" determines whether or not the contents of the elements are resized with the background. The "Soft Draw" option causes the element to be shown in soft focus (i.e. blurred) during resizing. Otherwise the resizing process can cause it to look very "pixelly". The "Auto-resize" option can be enabled on elements which also contain text in addition to a symbol. If this is enabled, the font size is automatically adjusted to match the size of the element.

### Copy/Paste/Delete

Visualisation elements can be copied, pasted or deleted together with their parameters. Right-click on an element in the Visualisation Editor and select "Copy", "Paste" or "Delete". Alternatively, the keyboard shortcuts Ctrl+C (Copy) and Ctrl+V (Paste) are also available, along with the Delete key for deleting.

### Drag & Drop

In order to quickly place pictures or free components (switches from the Component Builder) in the visualisation, they can simply be dragged & dropped from another program window into the Editor Area. When you "let go" of the file the corresponding dialogue for uploading the file is automatically opened. All of the required information has already been entered. You then only need to press the "Upload" button. Once the file has been uploaded it is automatically placed on the corresponding visualisation page.

## Projects and Pages

The structure of a visualisation project is made up of so-called "Projects" and "Pages". There, the individual parameters which are defined by the projects and pages are described.

### Projects

The general project settings are defined in the Parameters Window of a project. This window opens when the desired project is selected from the project structure.

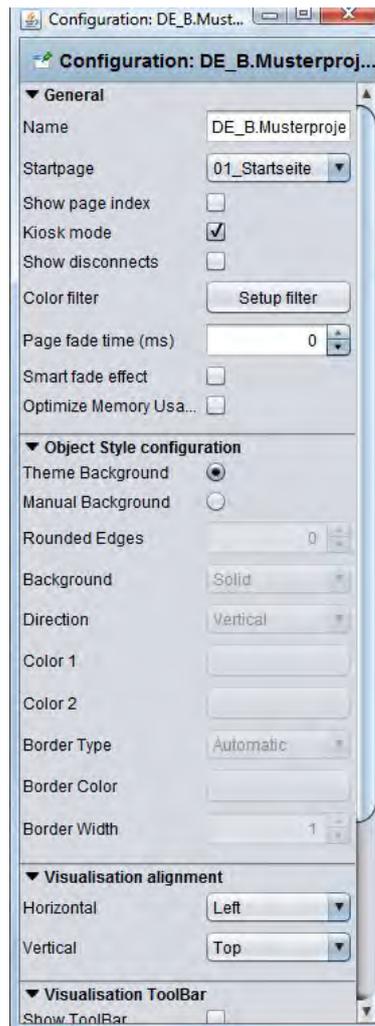


Fig. 38: Visualisation Editor - project parameters

- Name: Name of the project.
- Start Page: The selected page is displayed when the visualisation project is started.
- Display Page Index: If this option is enabled a page index is displayed at the side edge of the visualisation; this can then be used to directly call up the visualisation pages.
- Kiosk Mode: If this option is enabled the visualisation starts in full screen format. This mode is used particularly in cases where the visualisation must not be closed (public access).
- Display Connection Problems: If this option is enabled any connection problems between the Client computer and the IPC Control are indicated in the visualisation (red bar at the bottom edge of the Visualisation window).
- Colour Filter: The colour filter used to change the colour of the element graphics. The background of the element is not affected as a result. The preview shows what the graphic looks like when the object is actuated or not actuated. Three filter pre-settings are available.

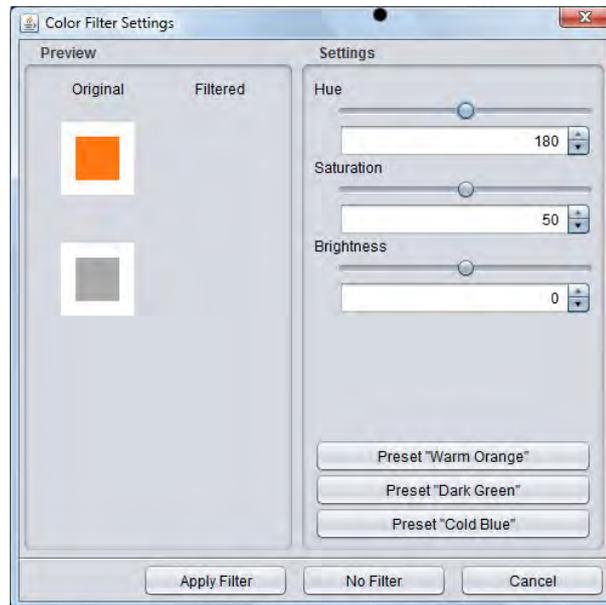


Fig. 39: Editor – project colour filter settings

- Fade Between Pages: The transition from page to another can be configured with a fader. This parameter defines the duration of the effect in milliseconds.
  - Soft Fade: This produces a soft fading effect and prevents potential flickering during fading. On a slower computer the fade seems even softer.
- i** During the fadeover no switching operations can be performed.
- Optimise Memory: Only the elements of the visualisation page which is currently called up are loaded. Less memory is required as a result, although the loading times for the pages are increased slightly.
    - Object Style Configuration: Universal settings for design of the elements across the entire project. An individual style can be assigned to every element via the Element Properties:
    - No Background: all elements are drawn without a background and/or are transparent.
    - Background Theme: The Background Theme is defined in the Theme Editor and can be defined globally for all elements via this option so that a standard 'look' or style is achieved across the entire project.
    - Background Colour: The colour selection field can be used to select a monochromatic background.
    - Colour Ramp: A two-tone colour ramp can be selected via the two fields.
    - Alignment: The colour ramp can be implemented "vertically" or "horizontally".
  - Colour: The colours can be selected via the corresponding fields behind the lettering.
    - These settings can be changed individually for each element (Element Parameters).
    - Visualisation Alignment: This can be used to align the user interface of the visualisation in the Visualisation Window.

Visualisation Toolbar: Ticking the relevant checkboxes defines which of the Visualisation ToolBar menus are displayed in the visualisation or whether the ToolBar is displayed at all.

## Master Pages

For most projects, the basic properties of a page are constantly repeated. To prevent the need for setting up these parameters again for every project page, so-called master pages can be created. However, it is also possible to ignore these pre-selected properties again in the Parameter Options of the pages.

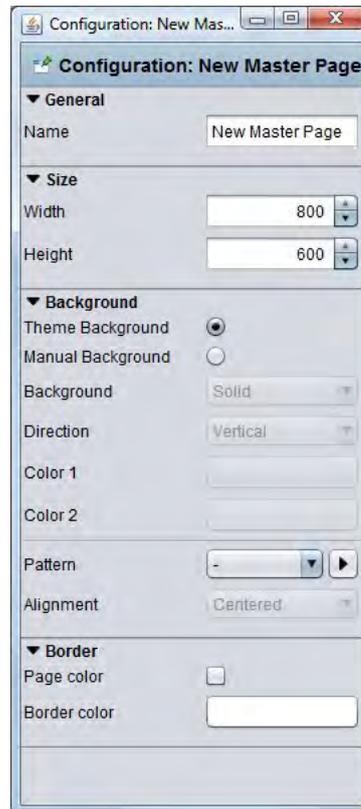


Fig. 40: Visualisation Editor - parameters of the Master Page

### Settings in the Master Page:

- Size: The Master Page defines the size of the pages. This setting cannot be ignored when configuring the pages. It always applies when a Master page is used as a template.
  - Background: the following are available for the design of the background:
    - Background Theme: If this option is selected then the background is set to the background colour selected in the 'Theme'. The opportunity of also adjusting the background in the 'Theme' means that icons and pages can be centrally coordinated with each other.
    - Background Colour: A monochromatic background is defined via the Colour field.
    - Colour Ramp: The background is given a two-tone colour ramp. Here, the ramp direction (vertical or horizontal) and the two colours need to be defined.
    - Template: Irrespective of this, it is also possible to define a standard background image. The Image Transfer dialogue is opened via the arrow symbol next to the selection menu.

Alignment: this defines the alignment of the background image.

- These settings can be ignored in the Page Parameters.
- *Frame*: The frame around the defined visualisation interface can be designed with different colours in order to standardise the representation for all screen resolutions. It can use the page colour or its own colour.

## Flip/Dialogue Pages

The Flip/Dialog Page is a special page element which can be used to define smaller pages which are then dragged by finger into an existing user interface or which can appear as a dialogue element in the foreground. In this way, user-friendly operation of the visualisation can be realised.

- The following settings are possible:
- Name: A clear and unique name must be assigned so that the page remains clearly and unambiguously identifiable at all times.
- Size: The width and height can be defined in pixels. If the page is to be used for flipping then a lower resolution is recommended. The higher the selected resolution, the more processing power needs to be made available by the Visualisation Client.
  - Background: The following settings are available for the background:
  - Background: The background is displayed according to the colour configured in the Theme Editor. The icons should already be designed with this in the Theme Editor.
  - Background Colour: A monochromatic background colour can be chosen.
  - Colour Ramp: A two-tone colour ramp can be chosen. The alignment can be switched between "vertical" and "horizontal". There is a colour selection field for each of the two colours.
  - Template: Instead of a colour you can also use an image file as the background image. The image file is selected from a drop-down menu. If the image is smaller than the visualisation interface then the position of the image can be defined or the image can be stretched. The transparency of the background image can be controlled with a slider or via a numerical input field.
  - Embedded Page/Dialogue: The number of elements in a page and the Start Page are defined here. The Start Page is particularly important for configuration as a "Flip Page". The system counts through from left to right.

Event Configuration: A particular page can be displayed in response to an event in the EIB. It is then used as a Dialogue Page in order for example to display a warning message on the screen. In addition to all standard data types, this element also supports various comparative operations. In addition, it is also possible to define whether the element reacts only to a change in value or whether it is a general response, and after what time interval the element should again respond to an input value.

### Usage of the Flip/Dialogue Page

In order to be able to integrate a flip element on a page, the page needs to consist of several elements. Otherwise it cannot be "flipped". If the element is only to be used as a Dialogue Page, e.g. for a fault message, then it is sufficient to define a page.

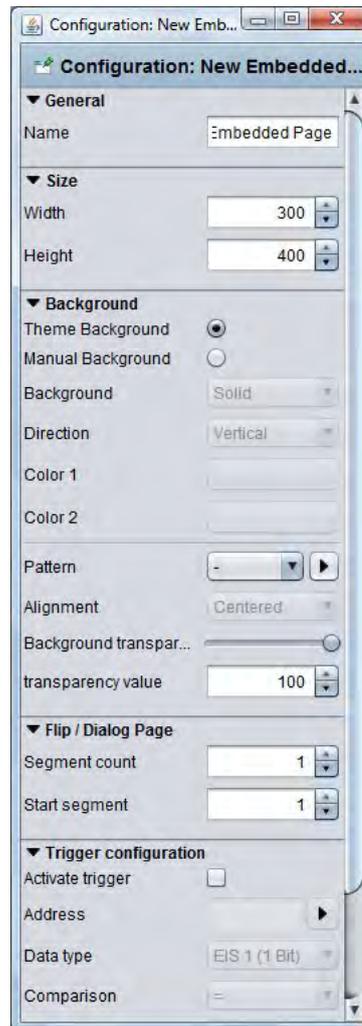


Fig. 41: Visualisation Editor - Flip/Dialogue Page parameters

- Flip Page: Enter more than one page under "Number of Pages" and select a Start Page. The pages are arranged side-by-side from left to right on the working area. A Flip/Dialogue Page can consist of several individual pages or individual elements. On the flip side, the required elements and background images can be positioned and configured similarly to any other page. The element "Embedded Page (Flip)" is used to position a flip element on a visualisation page. For more information about this please refer to the corresponding element description.

Dialogue Page: If the Event Configuration of the Flip/Dialogue Page is activated then this dialogue applies across the entire project, and the dialogue page is placed over every visualisation page in response to the set KNX event. The visualisation itself moves to the background and is "greyed out".

## Pages

Every project consists of one or more pages. If a page is selected in the project structure then the page parameters are displayed in the right-hand window.

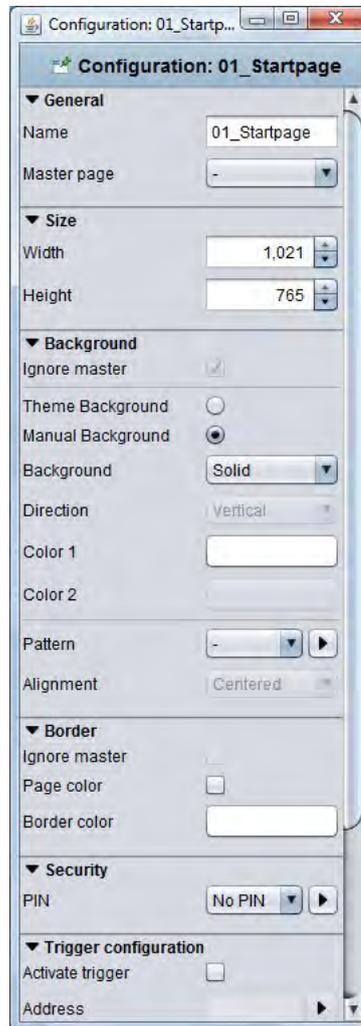


Fig. 42: Visualisation Editor - page parameters

- General
- Name: A unique and unambiguous name must be assigned to every page.
- Master Page: With the aid of this drop-down menu, previously created Master Pages can be used as a template for the selected page. The size, background and frame settings for the site currently being edited are defined via the definitions of the Master Page. For the background and frame, the settings of the Master Page can be ignored by checking the relevant boxes and then changed.
- Width: side width in pixels
- Height: side height in pixels

- i** Tip: When calculating the size details, bear in mind that a task bar and a frame for the visualisation may need to be added later on.
- Background: Several variants can be chosen for the background. These are:
    - Ignore Master: The background setting of the Master Page is not used for the page.
    - Background Theme: Via the process of creating a 'Theme' in the Theme Editor it is possible to coordinate the background colour with the design of the icons across the entire project. The Theme Editor is an additional program - a description is provided in a separate document.
    - Background Colour: A background colour can be freely defined via the colour field underneath it. The colour can be selected in different modes (pattern, hasB, RGB).
    - Colour Ramp: The background is given a two-tone colour ramp. Here, the ramp direction (vertical or horizontal) and the two colours need to be defined.
  - Template: One of the images from the pool of uploaded files is displayed as the background pattern. The dialogue "Upload Images" is displayed by clicking on the arrow symbol. The alignment is also defined here.
  - Frame: A frame ensures that the Visualisation Interface is always displayed in its full size, regardless of screen resolution. If one of the Visualisation Clients has a screen with a higher resolution than the Visualisation Interface then the frame is displayed in addition. The colour of the frame can also be selected individually, as can the page colour.
  - Security: Every page can be protected with a PIN code. The menu in which the PIN codes are created and managed opens above the arrow symbol to the right next to the PIN selection. A new PIN is created with the aid of the "+" symbol. The PIN code should be unique. Here, digits from 0-9 can be chosen in an arbitrary sequence. The information about the expiry of the PIN code defines how long the user session is permitted to last without the user being asked to input his password again. If the user remains on the page, then - even after the time has elapsed - he will not be asked for the code again until he leaves the page. The "-" symbol is used to remove a PIN code again. The parameters for the PIN codes can be changed again in the user settings.
    - Event Configuration
      - Activate Event: The relevant page is displayed on the screen after being triggered by a telegram. The page change can only occur within the project.
      - Address: This is where the group address for the event trigger is entered. Possible EIS types: EIS 1, EIS 5, EIS 6, EIS 9, EIS 10, EIS 11, EIS 14.
      - Comparison: The incoming group address can be compared to the saved address for triggering the event. If the outcome is correct then the page change is performed. Possible comparative operations are "equal to", "smaller than", "greater than", "smaller than or equal to", "greater than or equal to" and "unequal to". If "\*" is entered then no comparison is performed. The page is triggered for every value of the input.
      - Always Trigger: If this function is enabled then the page is triggered after every correct comparison result. If it is not enabled then the page change is only performed after a change to the comparison result.

Trigger Timeout: This defines the time in seconds during which the system is not to respond to any further triggers.

## IP Control Tablet support

The form in which the visualisation elements and cross-project parameters are also effective for the IP Control Tablet Visualisation is quick and easy to see via the tooltips. With the visualisation elements, a visual marker (blue bar) is added before the element.

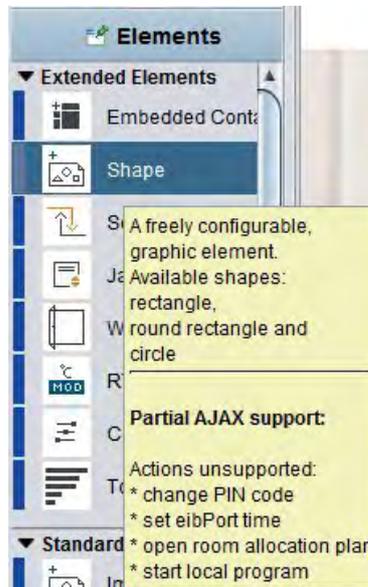


Fig. 43: Visualisation Editor - tooltip IP Control Tablet support

## Visualisation elements

The visualisation elements include all of the elements of the standard library as well as, optionally, also the switches created with the Component Builder. To place elements on the visualisation, it is sufficient to simply click on them. They are automatically placed in the middle of the relevant visualisation page and focussed with a frame, and the window with the corresponding element parameters opens on the left.

### Themes/Interchangeable Elements

The Visualisation, Operating, Job and IP Control Mobile elements can be exchanged. So-called 'Themes' are used for this purpose which contain the complete set of elements. A 'Theme' or the individual elements can be edited with an additional piece of software - the Theme Editor.

### General Element Parameters

Every element has specific parameters depending on its function. They are displayed if an object is selected on the visualisation interface. In addition to the specific parameters, there are properties which apply to all elements.

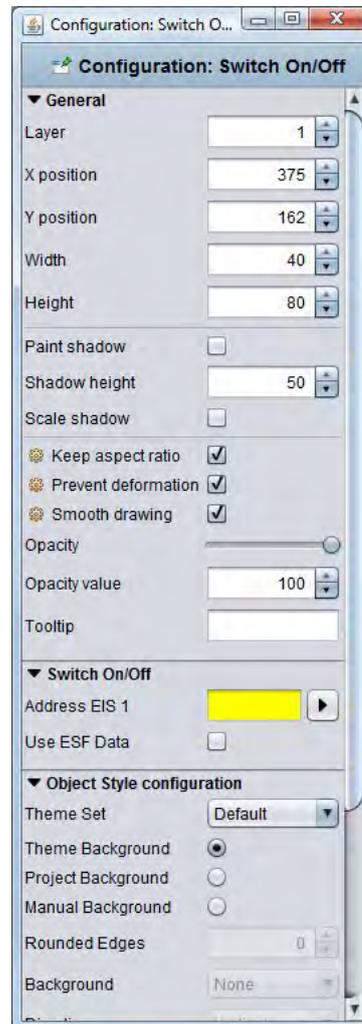


Fig. 44: Visualisation Editor - General element parameters

- Level: This indicates at which level the element is located. Every element has its own level. The level of the element can be changed via the input field. This allows elements to be processed more easily, for example if they need to be placed one above the other.
- Position: The position of the element within the visualisation interface is defined by specifying the pixels. This information can be entered via the keyboard or with the aid of the arrow keys.
- Width/Height: The width and height details can be changed via the arrow keys or via keyboard entry. The option "Preserve Aspect Ratio" is not taken into account here.
- Draw Shadows: Every element can be given a shadow if required. In the process, the element is mirrored downwards by a defined value.
- Shadow Height: The height of the shadow can be set to a value between 0-150%.
- Resize Shadow: If this option is enabled then the complete element with shadow is drawn, regardless of the size of the shadow. If it is not enabled then the element is only displayed to the extent that corresponds to the size of the shadow.
- Preserve Aspect Ratio: When this option is enabled, the aspect ratio is not changed when the element is made bigger or smaller with the mouse.
- Tip: The aspect ratio will remain unchanged if you press the Ctrl key while enlarging the element. If the Shift button is pressed the midpoint of the element is kept the same.

- Distortion-free: The graphics of the element are not distorted during the free resizing. Only the background of the element is changed.
  - Soft Drawing: The edges of the element graphics are shown more "softly".
  - Transparency: The elements are made more or less visible (stepless adjustment) with this function. Here, the value is either entered as a number or adjusted via the slider.
  - Tooltip: A tooltip can be entered for better identification. It is displayed if the mouse pointer briefly hovers over an object in the visualisation.
  - Address Assignment: If no address is assigned this field is yellow; once there is a valid address it is marked green. The field becomes red if the address is entered with an incorrect syntax.
- i** During address assignment the space bar can be used as a "/" (slash) key. This makes the input easier.
- Address Assignment With ESF File: With the aid of the arrow key next to the address input field, the dialog for administration of the ESF file is called up. In the lower area there are 5 fields for addresses which can be assigned to the element. Double-clicking on an address in the overview copies it to one of the fields.

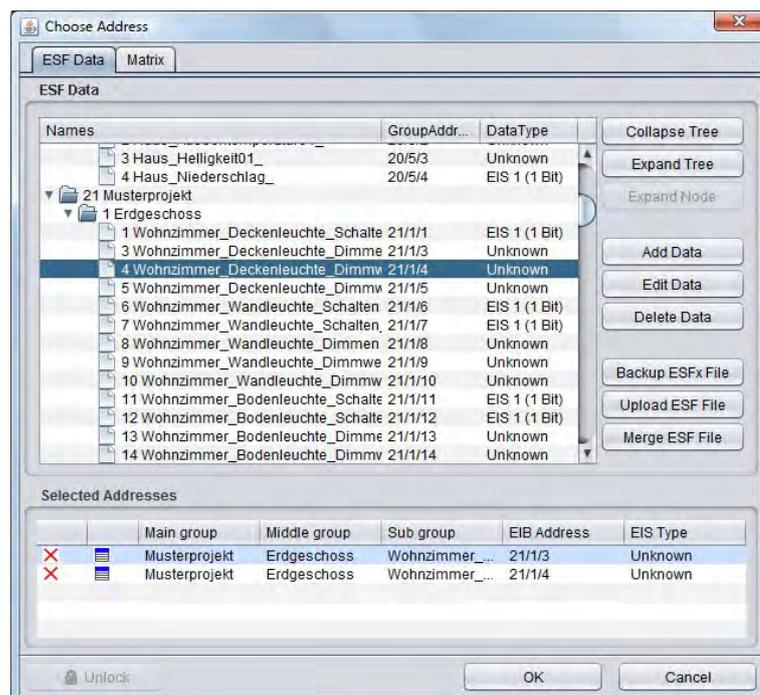


Fig. 45: Address assignment with ESF file

- Use ESF Data: With this option, the description of the group address from the ESF file is used as the tooltip of the element for the visualisation.
- i** In order to have the description copied, first check the box and then select the group address.
- Object Style Configuration: The design of the background of the element is changed. For the selected element, the cross-project style configuration in the Project Parameters is overwritten.
  - Graphics Set: When changing the elements in the Theme Editor, it is possible to assign different graphics sets to the element. With the aid of the sets, it is for example possible to have a power outlet displayed instead of a lamp.

- No Background: The element has no background field. It is transparent.
- Background Theme: When creating a 'Theme' in the Theme Editor, it is possible to define a background colour so that this colour can then be coordinated across the project in the design of the icons. The Theme Editor is an additional program - a description is provided in a separate document.
- Project Background: The background defined in the project parameters is used for the element.
- Standard Background: The element is given the background defined in the global project settings.
- Background Colour: The background colour of the element is selected via the colour selection field.
- Colour Ramp: The background is given a two-tone ramp. Here, the colour and type of ramp (vertical; horizontal) can be defined.
- Change Font Style: Some elements contain writing. Consequently, it is also possible to change the font style under Style Configuration. It is possible to create various style templates which can be reused repeatedly:

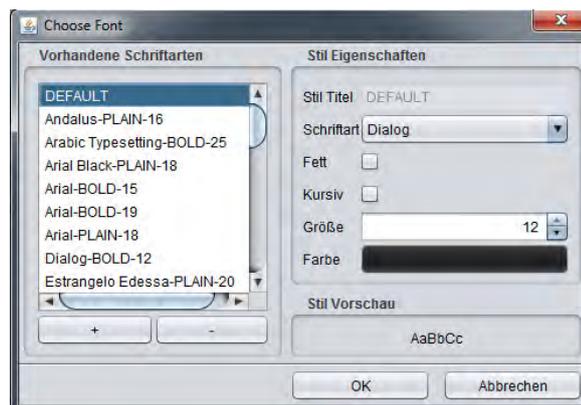


Fig. 46: Changing the font style

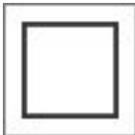
- Create Style: A new font style can be created via the "+" button.
  - Style Properties: The necessary font adjustments can be made here.
  - Style Preview: A preview of the selected font style is shown here.
  - Delete Style: A font style can be deleted via the "-" button.
  - Ignore Font Style: The font style can be ignored for this element if required. The default font style will then be used instead.
  - Font Colour: If the font style has been ignored then this option can be used to give the default font style a different colour.
  - Auto Resizing: If this flag is enabled then the font size of the element is automatically adjusted to its size.
- i** If an existing font style is changed in an element then the changes are copied across to all elements. This also applies to the DEFAULT font style.

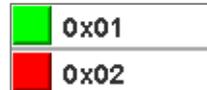
## Visualisation elements 2

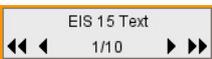
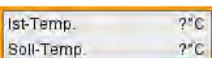
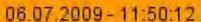
All elements which can be used for the visualisation are displayed in the Elements window. As well as a standard library, there are free components which can be created using the software "Component Builder".

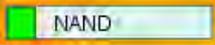
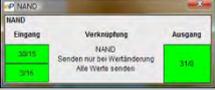
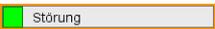
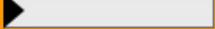
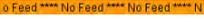
The table below shows a listing of the elements in the standard library. The table also shows the view in the visualisation and in the menu. In addition, it also contains a brief description and information about the supported EIS data type and the bit value. In case a bus subscriber already works with the new DPT data types, you will find a list in the appendix in which the DPT data type designations of the still-current EIS types are described.

Some elements offer very comprehensive adjustment options.

Element	Menu	Visualisation	Description	EIS-Type	Value
Graphical element			The graphical element makes available 7 different functions: 1. Change PIN code 2. Jump between pages 3. Page overview 4. Open URL in browser 5. HTTP request 6. Open Room Allocation Plan 7. Set IP Control time	-	-
Venetian blind + status display			Venetian blind element with status display, position control (EIS 6) and display of the slat angle (EIS 6). The position control and/or display is dynamically divided up if the option "Do Not Preserve Aspect Ratio" is selected	EIS 1	1 Bit
			Approach position	EIS 6	1 Byte
			Slat position (angle)	EIS 6	1 Byte
Window contact			Element with inputs (EIS 1): 1. Open 2. Tilted 3. Glass breakage The image can be mirrored.	EIS 1	1 Bit
Room			Visualisation element for use of the Allocation Plan Module. The element controls a room. The status can be changed, or the calendar view can be called up.	-	-
Image			Images which are uploaded to the IP Control can be freely positioned on the page and can also (optionally) be switched via a group address. All uploaded	EIS 1	1 Bit

			images are available in the selection menu.		
ON/OFF switch			A group address for ON/OFF switching commands can be assigned to the switch.	EIS 1	1 Bit
Button			Toggle: "ON" and "OFF" commands are sent alternately every time the button is pressed. "ON" only: Every time the button is pressed an "ON" signal is sent. "OFF" only: Every time the button is pressed an "OFF" signal is sent.	EIS 1	1 Bit
Status			This indicates binary states. (1 = ON, 0 = OFF)	EIS 1	1 Bit
Venetian blind button			Raise/lower	EIS 7	1 Bit
			Slat adjustment	EIS 7	1 Bit
			Mode: Wind Alarm	EIS 1	1 Bit
EIS 14 push-button			Sends a fixed, defined EIS 14 value to the desired group address. The switch is shown in yellow if the value (0-255) of the group address matches the set value.	EIS 14	1 Byte
Status message (bit bar)			Indicates the status of the individual bits in a telegram. Every bit position can be displayed or hidden. Colours for different states can be chosen. Every bit can be labelled. The individual bits can also be sent. Application: Status display for an actuator which sends a status byte (EIS 14). (Non-typified)	(un-typisiert) EIS 14	8 Bit
Static text			Used for labelling. Text according to the input in the Visualisation Editor. The font style, font colour and font size can be chosen. Note: The font must be installed on the Client computer.	-	-
Dynamic text			Depending on the object value, this displays the text for ON/OFF. Depends on the current value of the group	EIS 1	1 Bit

			address. The font style, font colour and font size can be selected in the Visualisation Editor.		
EIS 15 text			The "EIS 15 text" element shows the text received at a group address. The text is displayed without a frame, and the font style, font size and font colour can be freely chosen.	EIS 15	14 Byte
EIS 15 display			Received messages can be displayed with the text display. To transmit text information to other KNX devices, click on the text field and enter the text.	EIS 15	14 Byte
Temperature switch			The target value can be adjusted with the button.	EIS 5	16 Bit
Temperature display			Displays the current temperature and the target temperature.	EIS 5	16 Bit
Date/time display			Text display for time and date. Both can also be displayed separately; the preferred format can be selected.	EIS 3; EIS 4	3 Byte
Analogue time			Displays the time in the form of an analogue clock. The clock can be adjusted forward or back via the Hours Offset.	EIS 3	3 Bytes
Slider			Depending on the slider position, a value between the minimum and maximum value is sent (EIS 5 floating point, EIS 6 0 to 100%).	EIS 5 EIS 6	2 Byte (FP) 1 Byte
Button			Button in "Switch Mode": The "ON" or "OFF" switching command is sent by briefly pressing the button.	EIS 1	1 Bit
			Button in "Dimmer Mode": The "brighter" or "dimmer" command is sent by pressing and holding the switch.	EIS 2	4 Bit
Value display			This can display and - on request - send various EIS values. Limits can be defined. Format: ##.## : Required digits are shown. Format: 00.00 : All digits are	EIS 5 EIS 6 EIS 9 EIS 10 EIS 11 EIS 14	2 Byte 1 Byte 4 Byte 2 Byte 4 Byte 1 Byte

			shown		
Telegram time			This date/time field shows the time stamp of the last telegram at the indicated group address.	All	All
Bus Monitor			Opens a window which lists all transmitted and received telegrams. This can be directly embedded in the visualisation.	-	-
Job Editor			Link to a weekly/yearly time switch or to a light scene. The linked jobs can be changed by the user in the visualisation.	-	-
Logic display		 	Displays the result of a logical operation parameterised in the Job Editor (1 or 0).  Properties window for the visualisation which displays the current states of the inputs and the output.	EIS 1	1 Bit
Fault detector			If the corresponding group address is tripped, the page on which this icon is positioned is automatically shown in the foreground. In addition, an acoustic warning signal sounds. This can be deactivated via the "Beep enabled" flag. The fault message can be acknowledged via a separate group address and/or with a click of the mouse on the fault message.	EIS 1	1 Bit
Page link			This serves for changing/jumping to a different page of the visualisation.	-	-
RSS Feed			Current messages from a definable source are embedded in the visualisation. Here, the text is displayed which is transmitted by the provider of the RSS feed.	-	-
Camera		 	After being called up, the images from a network camera can be displayed in a separate window (as an icon) or directly in the visualisation.  By triggering the corresponding group address, the current camera image is displayed for a certain period of time. This	-  EIS 1	-  1 Bit

			event is set in the Parameterisation Window.		
Graph			<p>The Diagram function is used to produce a clear overview of curves (graphas) of values. Depending on the diagram, up to 3 graphas can be displayed, and these can be individually formatted (line colour, offset, factor). A distinction is made between two types of graph, 'Total' and 'Differentiated'. (See also "").</p>	<p>EIS 5 EIS 6 EIS 9 EIS 10 EIS 11 EIS 14</p>	<p>2 Byte 1 Byte 4 Byte 2 Byte 4 Byte 1 Byte</p>



### Embedded page (Flip)

This element is used to place the Flip Pages (which were previously created in the "Flip/Dialogue Pages" folder) on a Visualisation Page. This contains definitions about how many individual pages and which functions are included.

#### Specific parameters

- In addition to the general element parameters, there are also element-specific parameters. These define the design and behaviour of the flip element on the visualisation page:
- Select Page: Here, you can select the required Flip/Dialogue Page which is to be placed on the visualisation.
- Visible Pages: Every Flip Page consists of at least 2 segments (individual pages). Via the numerical input field you can define how many of the segments should be visible at the same time. If only two segments are defined then only one segment should be visible so that there is a visible effect when the user slides across to the other segment..

Fading Area In Pixels: Here, areas can be defined in pixels at the left and right-hand edges for flip elements in which the segment that is disappearing is slowly faded out. The fading area is added to the actual segment size.

Example:

A Flip Page as used in the Delivery Project comprises 4 individual segments. This is what the configured 'Flip/Dialogue Page' looks like:



Fig. 47: Visualisation Editor – Flip/Dialogue Page from the Delivery Project

On the right-hand side you can see the specific configuration: the page comprises 4 segments, whereby page 1 is the Start Page (numbered from left to right).

The second picture shows how this page was embedded in the visualisation via the "Embedded Page (Flip)" element:



Fig. 48: Visualisation Editor – embedded page (Flip) in the Delivery Project



## Sequence button

This button can be pressed repeatedly to perform different actions. If it is pressed a second time within a certain time interval then a different action is performed, and not the first action again. This button is used e.g. for visualisations in apartments designed for disabled people.

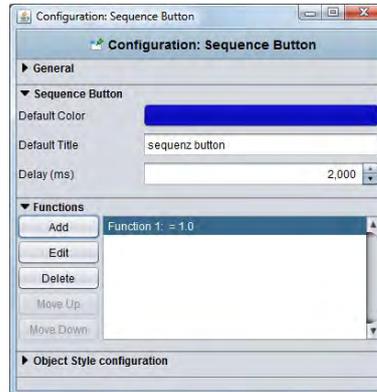


Fig. 49: Sequence button – specific parameters

### Specific parameters:

In addition to the general element parameters, there are also element-specific parameters. These define the behaviour and the design of the sequence button:

- Standard Colour: This defines the colour of the button in its rest position.
- Standard Title: The title is positioned in the middle of the button (optional). The standard title is displayed in the rest state. The font style can be changed via a corresponding menu.
- Delay (ms): The 'Delay' defines the time interval after which the sequence button reverts to the rest state. If the button is pressed a second time during this period of time then the next action is performed.
- Function: The 'Function' menu is used to create the different actions which are to be performed by the button. These are worked through from top to bottom. Configuration:

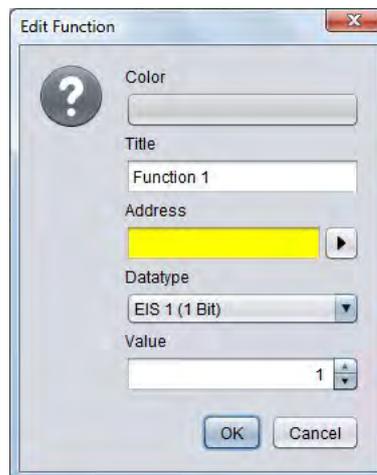


Fig. 50: Sequence button - editing the function

- Colour: This is the colour the sequence button changes to when performing this action.
- Title: The title is displayed in the sequence button when it is performing this action. The font style is the same as the one defined for the standard title.

- Address: The group address can either be entered via the keyboard or selected from a previously uploaded ESF file. The arrow button next to the address input field is used for this purpose. The section entitled "ETS" describes how to load the ESF file into the device.
- Data Type: A data type must be assigned to every address. Here, the types EIS 1, EIS 5, EIS 6 and EIS 14u (unsigned) are possible.
- Value: The value which is to be transmitted should be defined here. This depends on the selected data type.



### RTR display

The room temperature is controlled via the RTR display. In the process, the switch offers the functions 'Standby/Comfort', 'Night-time Temperature Reduction' and 'Frost Protection'. The element can be operated with EIS 1 or EIS 14.

#### Specific parameters

In addition to the general element parameters, there are also element-specific parameters. These define the data type and the address for the RTR display.

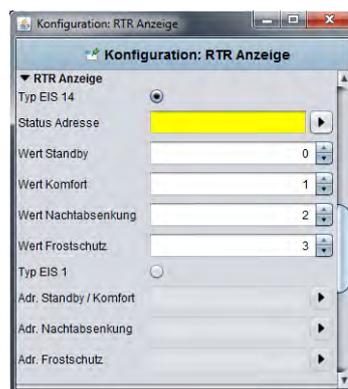


Fig. 51: RTR display - specific parameters

- Type EIS 14/EIS 1: In principle, the RTR display can be operated with EIS 14 or EIS 1 values. Depending on the selected data type, one or the other view is enabled.
- Status Address: If EIS 14 is chosen as the data type then the address is entered here. This can either be done by hand or via the address input dialogue. There you can access the data from the ETS (see 'Uploading ESF Files').
- Standby/Comfort/Night-time Temperature Reduction/Frost Protection Value: The required EIS 14 value is entered in the input fields for every state.
- Standby/Comfort Address: If EIS 1 is defined as the data type then the switchover between Standby and Comfort is performed via this communication object.
- Night-time Temperature Reduction Address: The system switches to 'Night-time Temperature Reduction' via this address.
- Frost Protection Address: The system switches to 'Frost Protection' via this address.



## Colour selection

The colour selection circle is used to mix colours in the RGB colour space. This makes it possible to control e.g. coloured LED lamps with a so-called 'DMX Dimmer' via the visualisation. The required values are transmitted by the IP Control via EIS 14 telegrams,

### Specific parameters

In addition to the general element parameters, there are also element-specific parameters. These define to which group addresses the required values are sent.



Fig. 52: Colour selection - specific parameters

- EIB 14 RED/GREEN/BLUE: The communication objects of the EIS 14 values for red, green and blue are entered here. The addresses can be entered either via the keyboard or via the address input dialogue. In the address input dialogue you will also find the data from the ETS if they have been imported beforehand (refer to the section entitled 'ETS').

EIS 1 Send Ready: An EIS 1 confirmation telegram is sent to this group address if the colour input has been performed. This allows the counterpart to identify without doubt that he has received all values.



## Top Consumers

The 'Top Consumers' is a display element which compares 4 incoming values to each other and automatically lists them sorted by size. In the process, the values are compared in a horizontal bar chart with each other. Consequently, the display is perfectly well suited to displaying the top consumers in a building at a glance. KNX actuators with current value detection are used preferably in order to measure the consumption figures. These supply the instantaneous current (in amps), which is converted by the Integrator Job to a figure for energy consumption (e.g. Watt-hours).

### Specific parameters

In addition to the general element parameters, there are also element-specific parameters. These define the units in which the 'Top Consumers' is displayed, and how many consumers it represents.

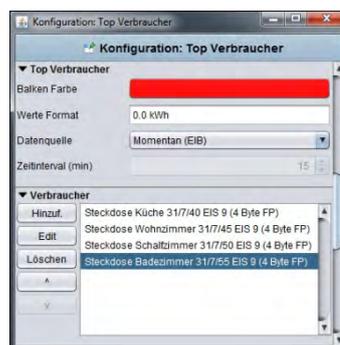


Fig. 53: Top Consumers - specific parameters

- Bar Colour: This defines the colour of the bar which is used to indicate the consumption level.

- Values Format: The following entries can be made for the format of the value: number of digits to the left of the decimal point, number of decimal places - via the digits '0' and '#'. In the case of a '0' the digit is mandatory, i.e. even if no value is present the system will still display a '0'. All digits which are marked with a '#' are optional, i.e. if the relevant digit contains a '0' or no value then the corresponding digit is not displayed.  
An example:
- Take the value of 0.2. If the value format is 0.0 then the system will also display 0.2. If the format is #.#, then only the '.2' is displayed, as there is no value in the first digit.
- Data Source: The only option which is currently available is "Instantaneous (EIB)". The information about the consumption is taken from current EIB telegrams.
- Consumers: The individual consumers are assigned to the element. For this purpose the buttons "Add", "Edit" and "Delete" are positioned on the pages. The sequence can be changed with the arrow keys. A further menu is opened via the "Add" button:

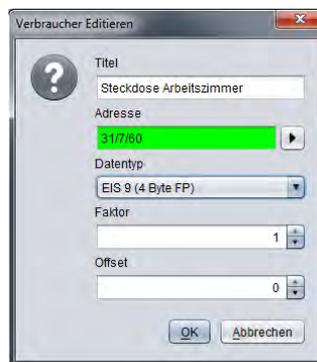


Fig. 54: Top Consumers - editing consumers

- Title: The title is also displayed in the element. The name should be unique and unambiguous.
- Address: The input address of the consumption value. This can not only be entered via the keyboard, but it can also be selected from an ESF file. The ESF dialogue is opened by clicking on the arrow button next to the address input field.
- Data Type: The element supports the following EIS types: EIS 5, EIS 6, EIS 9, EIS 10 (s + u), EIS 11 (s + u), and EIS 14 (s + u).
- Factor and Offset: The value is multiplied by the factor and added to the offset.

**i** The configuration of the Integrator Job is described in the section entitled "JobEditor".

### Notes on the Element Diagram

The visualisation element 'Diagram' produces a curve of values plotted over time. Application examples for this include temperature curves, counter states, power curves etc. The telegrams are taken from the ring buffer (20,000 telegrams) of the IP Control.

- **Special settings:**
  - Axis Format: This text field influences the number format of the y-axis. The number of permissible digits before and after the decimal point is defined. The following Syntax applies here:
  - A '0' stands for a mandatory digit, i.e. the digit is still displayed even if no value is present.

- A '#' stands for an optional digit. The digit is only displayed if a value is actually present. However, the system will never display more digits than indicated.
- A "." stands for the decimal point.

If, for example, a percentage sign is to be added, then this must be put after the number in inverted commas (').

Examples:

- The number 21.2 is to be displayed. The number format is defined as 00.00. The number 21.20 is displayed.  
If the number format is displayed as 0.## then the number 21.2 is displayed. A percentage sign is inserted as follows: 0.##%'.  
– Axis Limit: Ticking this box sets the y-axis to a fixed value range. This range can be defined in the fields underneath.
- Graph Data By Time/By Quantity: The x-axis is dimensioned by time or by the quantity of telegram packets. Details for the time period or quantity are entered in the corresponding fields.
- Auto Update: While the visualisation is active the graph is automatically updated after this interval. The system obtains current data from the IP Control history table and calculates the graph from the new measurement points.
- Graph Type: A distinction is made between two types of graph:
- Total: The value is shown as an absolute value plotted against time. In the case of a counter status measurement the graph would rise continuously.
- Difference: The difference between two successive values of an object is plotted against time. The frequency of the differential measurements in minutes can be adjusted under "Interval". The smaller the time interval, the more accurate the graph.

Data Type: The display of the following EIS formats is supported: EIS 1, 5, 6, 9, 10, 11, 14. Appendices 13 and 14 offer an overview of EIS types in conjunction with DTP data types.

### Data from the EIB history table

The graph uses past values. To do this, it needs to use the ring buffer of the IP Control (EIB history table). This has capacity for 20,000 telegrams. In the process, the oldest telegram is replaced by a new one. In a KNX system, 20,000 telegrams may (in some cases) already have been transmitted within the space of a few hours, as a result of which the graph might only display the values for this short period of time.

A history recording filter needs to be set up so that the graph can also display consumption data etc. for longer periods of time. This determines from which group addresses the data are written to the ring buffer. The history recording filter is created under "System" Configuration Tool > "Configuration" > "EIB History Recording Filter" via Rules. It is possible to specify either complete group addresses or ranges. A wildcard character (\*) is entered for ranges.

Example: "1/\*/\*" (without quotation marks) means that only the data of the main line 1 are recorded. It is sufficient to enter "1/1/\*" if you wish to filter by the middle group. When filtering by a whole address, that address is simply entered.

### Functionality within the visualisation

Within the visualisation, the 'Diagram' element offers further functions which can be called up by right-clicking on the diagram:



Fig. 55: Visualisation - 'Diagram' context menu

- Refresh: refreshes the values in the diagram.
- Export as Image...: Opens the file browser so that the diagram can be saved as a graphics file (\*.png).
- Export as CSV...: Opens the file browser in order to save the values of the diagram as a CSV file.
- Show properties: This opens a dialog which allows users to change the display criteria. You can define which telegrams the 'Diagram' element should use as the basis for its representation:

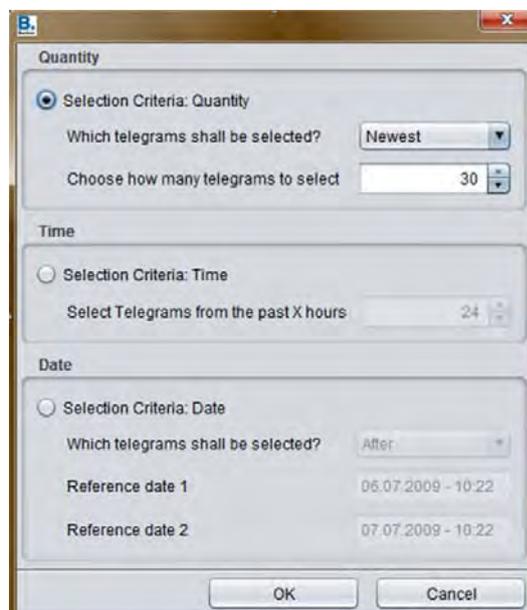


Fig. 56: Visualisation - Diagram - Show Properties

- Quantity: The diagram uses either the latest values or older values. The number of affected diagrams can be defined.
- Time: The 'Diagram' uses the values from the past X. The number of hours can be freely adjusted.

- Date: A period of time for determining the values is defined by entering the date. This could be before or after a date, or between two dates. Depending on which of these options is chosen, the date fields are either enabled or not enabled.  
These settings are not saved. If the visualisation is started up again then the settings are lost.

### Notes on the "Image" element

With the aid of the image element, not only is it possible to position images from the IP Control on the visualisation, but also images which are saved on the hard disk of the Client PC, on a server or on another computer. Images can even be downloaded from Internet pages in this way. As a result, this element has some additional parameters alongside the general parameter settings.

To do this, the option "External Image" must be enabled in the parameter settings for the element. The following settings are then possible:

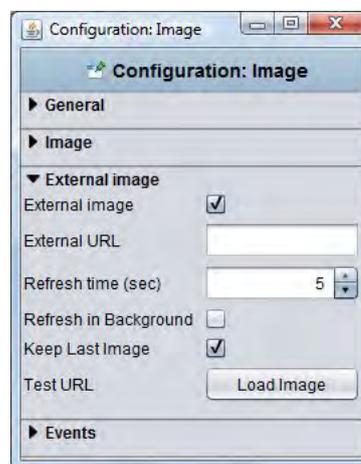


Fig. 57: Editor - Special parameters in the 'Image' element

#### External URL

The path to the required image or Internet page is entered. If an image is to be embedded from the hard disk of the visualisation PC then the path to the image must be stated with the following prefix: "file:///". If a website is to be displayed then the complete URL must be entered (with "http://").

#### Refresh in (sec.)

This defines the time in seconds after which the entered URL is reloaded. If the value "0" is entered here then no update is performed.

#### Background Refresh

If this option is enabled then the URL is still reloaded at the defined interval even if the affected visualisation page is not loaded on-screen.

#### Display Last Image

If the external URL which is entered cannot be reached then the last successfully loaded image is displayed.

#### Test URL

This function can be used to test the specified URL.



- Filter: With the aid of a set filter it is possible to selectively display individual group addresses only.
- Pause: The recording of the Bus Monitor can be paused with this switch.
- Empty: The content of the Bus Monitor is emptied. The recording starts anew.

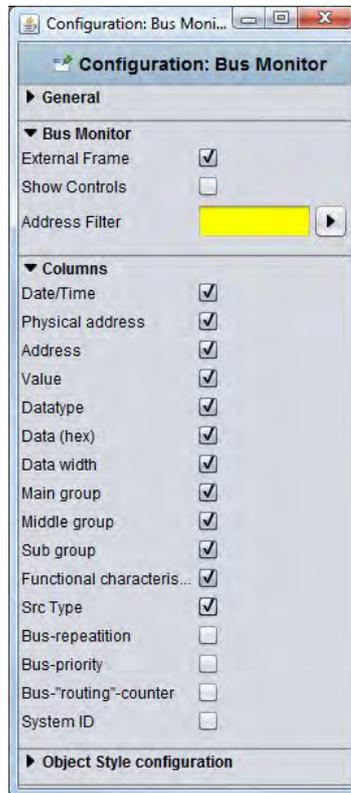


Fig. 59: Editor - Bus Monitor parameters

### Address Filter

An Address Filter can already be specified during parameter setting. The Bus Monitor only displays the entered address in the visualisation.

### Columns

The columns which are to be displayed by the Bus Monitor can be defined via the following checkboxes. By default, the columns "Bus Repetitions", "Bus Priority", "Bus Routing", "Bus Counter" and "System ID" are not activated here.

### Notes on the Graphical Element

So-called 'actions' can be defined for the graphical element which are executed on "pressing" or on "release". Only one function can be defined for each function ("press", "release"). It is also not possible to define the same action for "press" and "release" at the same time.



Fig. 60: Element parameters – action on "press mouse"

**The following actions are available:**

- Change PIN Code: When the user clicks on the relevant graphical element, he is prompted to change the PIN code of a page. Which PIN code is to be changed can be defined in a selection menu.
- Page Jump: A page jump is performed on "pressing" or "releasing". The page to which the system jumps is defined in a selection menu.
- Page History: It is possible to navigate forwards or backwards a page at a time - similarly to an Internet Browser. The navigation "forwards" only works after the "back" function has been used. The "Page back" function depends on the page history generated by a user.

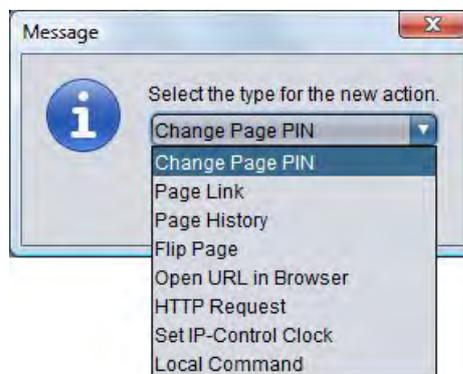


Fig. 61: Selecting the function for mouse clicks

- Open URL in Browser: When this element is clicked the desired URL is opened in a new browser window.
- HTTP Request: A previously defined request is issued. This can be used e.g. to control an IP Camera. This is independent of the job "HTTP Request".
- Open Room Allocation Plan: The view of a previously defined Allocation Plan Module is opened via the graphical element.
- Set IP Control Time: The dialogue for adjusting the time is called up. In addition, it is also possible to adjust the date and time or set the PC time similarly to the way this can be done in the editor.

The menu on the left-hand side of the window is available for adding and editing an action. Use "New" to add an action or "Del" to delete it again. An existing action can be changed via the "Edit" function. The buttons "Up" and "Down" are used to change the order if multiple actions have been defined (currently this function is not yet available).

## Security settings – user administration for the visualisation

Access rights to the visualisation project(s) are managed in the security settings in the user administration. The access rights need to be set up individually for every user. It is possible to release access to entire projects or just to individual pages. During the visualisation, it is possible to change the user via the Visualisation ToolBar.

-  The user settings for the editor and system are saved under "User Administration" in the configuration tool.

### Changing to the security settings/User Administration

Two buttons in the menu bar can be used to switch between the Visualisation Editor and the User Administration / security settings. The button for the selected view is highlighted.

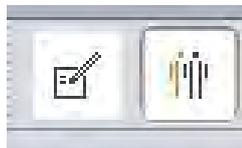


Fig. 62: Switching between the Visualisation and the User Administration

### Settings

The User Administration can be activated or deactivated. If it has been deactivated then the user login stage is skipped. This corresponds to the default status. If the User Administration is activated then the display of individual users during login can be suppressed "Display User List in Login Dialogue". The user name needs to be typed in.

### Create/Delete User

A new user is created via the corresponding icon. As the first step, a unique user name needs to be assigned. This is automatically copied to the field "User Name" and "User Title". To delete a user, it needs to be selected beforehand in the User Overview. The user is deleted without a safety warning.



Fig. 63: Editor - Create/Delete User

### User

All users which have been created are displayed here one below the other.

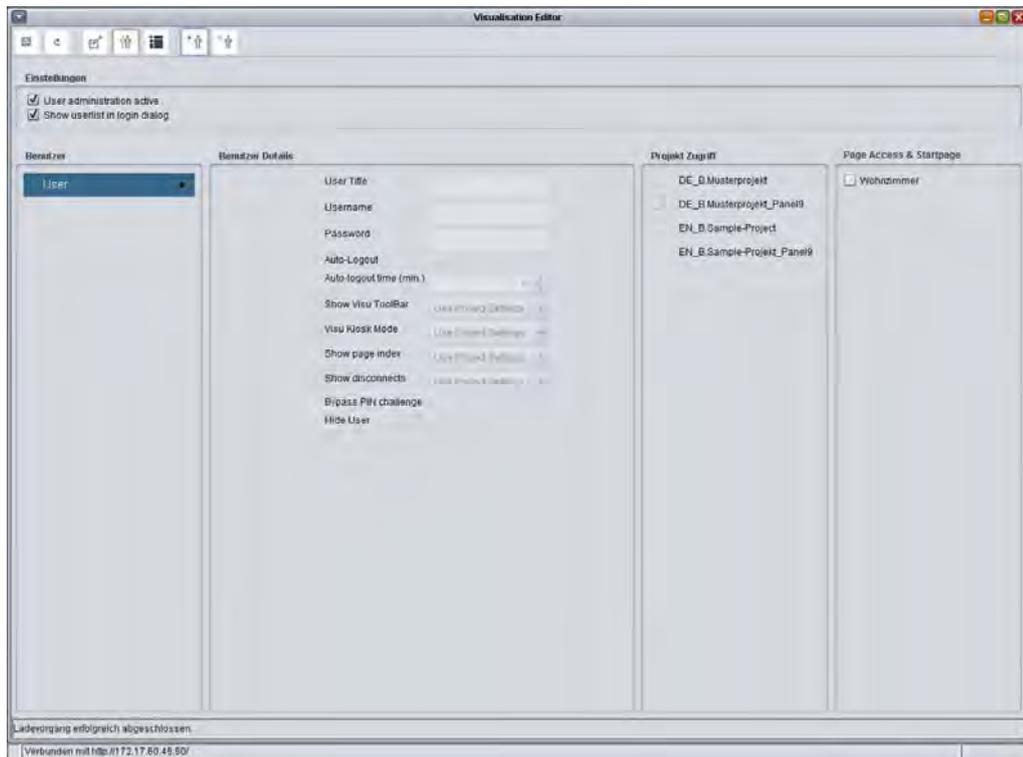


Fig. 64: Editor - User Administration

### User Details

General settings need to be made for every user:

- User Title: The title is displayed in the User Selection Menu. The user is identified with this during start-up of the visualisation.
- User Name: This is queried during login. If the user list is enabled during login then the user name is copied to the login dialogue during selection of the user title.
- Password: This is the password that the user needs to identify himself with.
- Automatic Logout: If this function is enabled then the user is asked to log in again once the set time has elapsed.
- Project Setting Parameters: For every user, individual settings can be assigned in the project parameters "Visualisation Toolbar", "Kiosk Mode", "Page Index" and "Connection Problems". The administrator can assign individual settings (Yes/No) or the project settings to the user (Use Project Settings). The "Yes/No" settings overwrite the project settings.
- Skip PIN Request: If this option is enabled then the user is not asked to enter his PIN.
- Hide User: This user is not displayed in the User List during login.

### Project Access

All created projects are displayed. A project is assigned to the user by ticking the corresponding checkbox. If multiple projects are assigned to the user then a project selection will be displayed after the login.

### Page Access & Start Page

In order to be able to assign just individual pages of a project to a user, the desired project is highlighted in the column. All of the pages in the project can be individually assigned by ticking the checkboxes. After the page name the start page is selected which is to be displayed first for

the user. If the pages of various projects are affected then a project selection will again be displayed for the user after login.

### **Saving Settings**

The created user is saved by clicking on the "Save" button in the menu bar (diskette icon).

## 6.4 Job Editor

The Job Editor is opened via Window > Job Editor. The window does not appear in full-screen mode. It can be minimised, maximised or closed in the right-hand corner of the window.

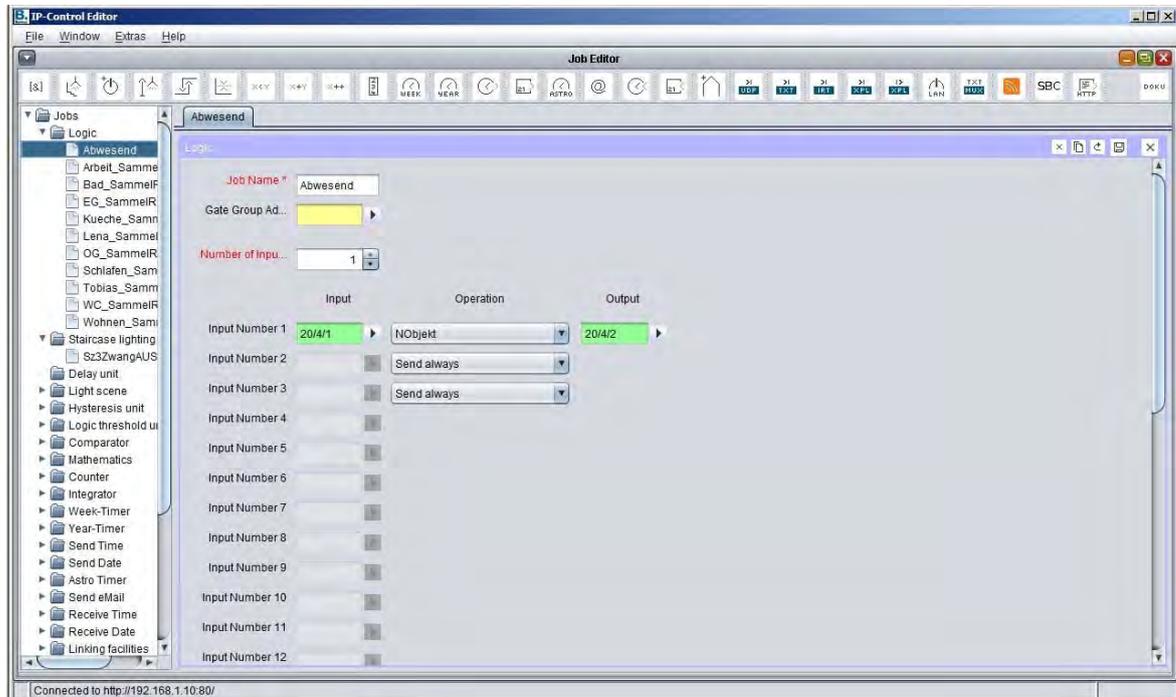


Fig. 65: Job Editor

The Job Editor is used to configure the services (Jobs) of the IP Control. The job types which are made available vary depending on the firmware version of the IP Control. A toolbar and a tree structure are available for creating the jobs. The job window which is currently being configured is shown in the middle.

### Job Toolbar



Fig. 66: Job Editor - Job Toolbar

The Job icons are located in the upper toolbar. Every job has its own icon. When you click on an icon, the relevant job window appears in the middle of the window.

The "Documentation" icon is for the documentation of the job configurations. In the process, a new dialogue opens up in which the existing jobs for the documentation can be selected. This can be done manually for each individual job or for all jobs via the option "Select All".

Via the function "Create Report", an html page is created which summarises the configuration of all selected jobs. This file can be printed out (Print) and archived.

### Tree Structure

On the left-hand side of the Job Editor window, the Job Overview is displayed in a tree structure. Every job type has its own folder which can be opened or closed via the arrow. Every job is displayed as a page. If multiple jobs are defined then they are automatically sorted in alphabetical order.

A new job is created by right-clicking on the job folder. The relevant job window appears in the middle of the window.

## Jobs - Save/Copy and Delete

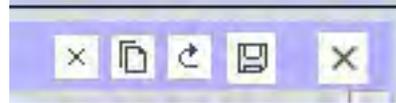


Fig. 67: Job Editor - Job Administration

Administration of the jobs is handled via the job window. In the top right-hand corner of each job window there are icons for the functions Delete, Copy, Reload, Save and Exit. If a job is copied the job name is not copied across as well. Clicking on the "Delete" icon deletes the selected job without a safety prompt!

## Notes on the Job Editor

### Tabs

If several job windows have been opened in the window then they are displayed with the aid of tabs. In the process, a job which has not yet been saved will not yet have a name. You can call up as many job windows as you like.

### Parameters

Every job window has specific parameters. All parameters marked red are mandatory and must be filled in, as otherwise the relevant job cannot be saved. Every job has an enable object. With the aid of this object, jobs can be blocked without having to delete them. An enable object is always defined according to the EIS 1 convention - "1" means "enable issued", "0" means "no enable issued". If an address is entered which has not been assigned beforehand then the job will be disabled until the group address is given a value. If this address had a value previously then the status of the enable object will correspond to this value.

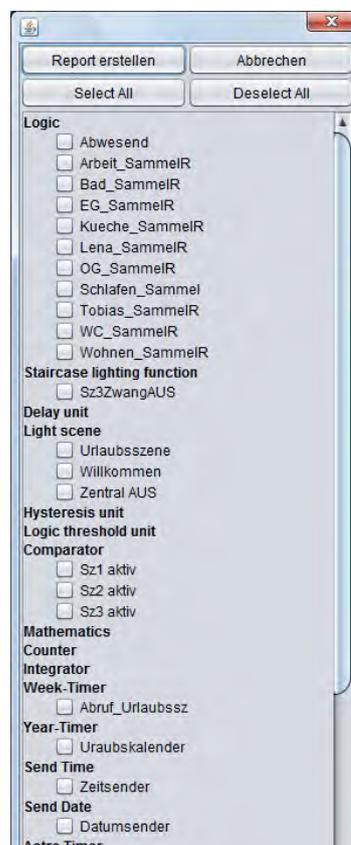


Fig. 68: Job Editor - creating a report

### Assigning group addresses

Group addresses can be entered directly via an input field or via an address table. When entering the addresses directly, the space key can be used as a "/" symbol. The Addresses table is a matrix from which an address can be selected. The dialogue which opens also makes it possible to upload an ESF file which has been exported from the ETS and to use it for the address assignment. In this way, the project data from the ETS is made available in the IP Control, and the risk of mixing up addresses is avoided. The section entitled "ETS" describes how to export an ESF file and load it into the IP Control.

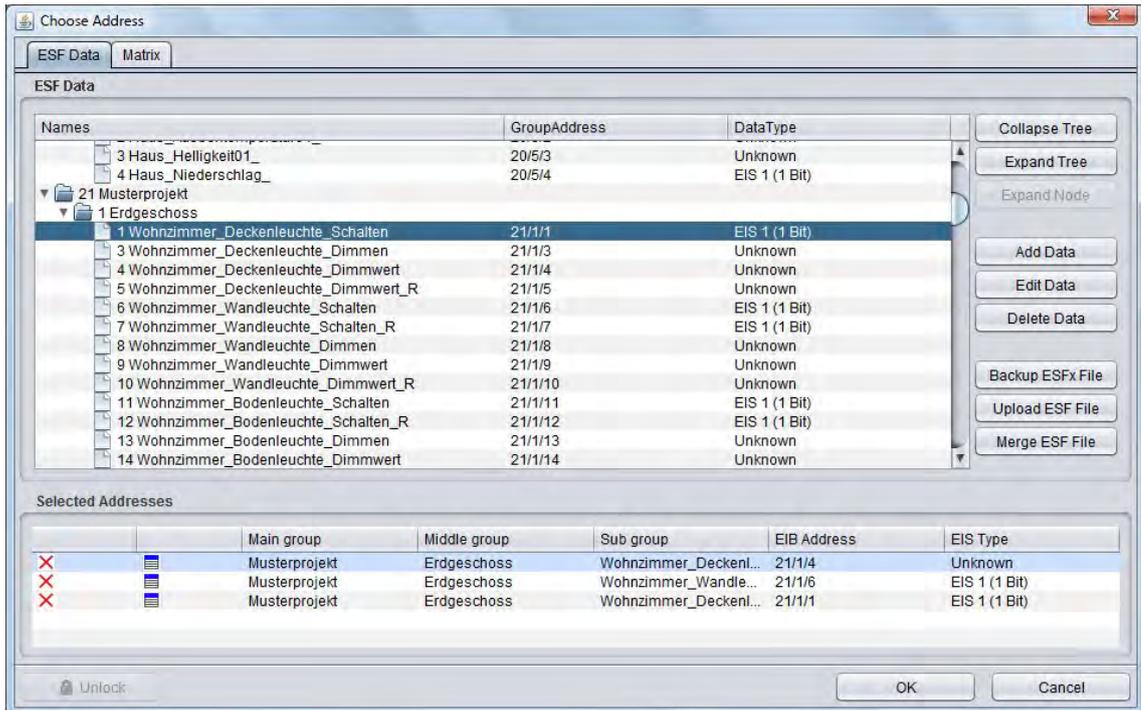


Fig. 69: Job Editor - ESF dialogue

### Virtual Group Addresses

The IP Control not only manages the address space of the main groups from 0 to 15, but also the address space of the main groups from 16 to 31. These addresses are so-called virtual group addresses. With the aid of these addresses, it is possible e.g. to link jobs with each other without using up addresses from the real address space to do this. Virtual group addresses are not transmitted on the KNX.

### Communication objects

The IP Control replicates the structure of the communication objects of the KNX. This means that up to 5 group addresses can be assigned to each object. This allows the assignment of the group address of e.g. an actuator channel to be directly replicated, and the IP Control is informed at all times about the actual status of the actuator (not the group address). Complex and time-intensive working with feedback messages is not necessary. This approach simplifies the task of creating logical links, as up to 5 group addresses can be assigned to each input object of the gates. In this case, all five group addresses can be allocated in the ESF dialogue. In the process, they are automatically entered with the correct syntax in the selected object field. However, in the case of outputs it is only possible to enter one address.

### General Syntax

After the first group address, the remaining addresses should be placed in parentheses and separated with commas.

## Logic



All logic gates perform logical operations on EIS 1 values. For the output, you can choose whether it should be transmitted if there is a change in the gate calculation or whenever an input telegram is received.

In addition, you can also set which values the output is permitted to transmit to the bus after the condition occurs.

Type of operation	Description
AND operation (AND)	The gate has up to 32 inputs which are logically combined in an "AND" operation to return an output object.
OR operation (OR)	The gate has up to 32 inputs which are logically combined in an "OR" operation to return an output object.
XOR-operation (EIS 1)	The gate has up to 32 inputs which are logically combined in an "EXCLUSIVE OR" operation to return an output object. The operation returns a 0 whenever all input objects are 1 or they are all 0 (i.e. whenever they are all the same). Ist ein Eingangsobjekt unterschiedlich, ist der Ausgang 1.
Object	The output has the state of the value last sent to any of the inputs.
NAND, NOR NXOR	The output of the calculation is negated and transmitted.
NObject	The output value is of type EIS 1: 0 for an input value not equal to 0 1 for an input value equal to 0  If there are multiple input objects then the input should be determined on which a telegram was last received.

## Clocks



IP Control includes an easy-to-configure weekly and yearly time switch.

IP Control includes a weekly and yearly time switch with weekly and yearly view:

### Weekly time switch

A 24-hour profile is assigned to the subscribers. In addition to the 7 days of the week, it is also possible to parameterise 3 special days. The switch-on time is set by clicking on the timeline. Double-clicking sets the switch-off time. Clicking three times deletes a point which has been set. The enable for the weekly time switch is controlled via a link to the yearly time switch. In the yearly time switch the switching times are set to inactive, and the weekly mode and special days 1 to 3 are set. The yearly time switch thus determines which day in the month which weekly time switch configuration is "played back". "W" is used for the weekdays Mon-Sun, "S1" to "S3" for the special days and "Inactive" for no function.

### Yearly time switch

Clock Type: this links the weekly time switch (non-EIS), and the weekly time switch which is linked via the corresponding group address is controlled. On the monthly timeline you configure which weekly time switch mode applies: "W" for the normal weekdays, "S1-3" for the special days or "Inactive" for no function. First, select the mode and then position it on the monthly timeline.

Clock type: active/inactive (EIS1) - the yearly time switch is not linked to a weekly time switch. It activates or deactivates one or more subscribers itself. For configuration, select the status

("ON" or "OFF") and position it on the monthly time switch. The clock always switches at 0.00 a.m. on the corresponding day..

### Parameters

#### **Monitor Time Jumps:**

It is possible for a switching time to be skipped (e.g. due to a new time signal being received from an NTP server). This can result in switching operations not being performed. These time jumps can be optionally monitored so that proper operation is still ensured.

#### **On-site Operation:**

If this checkbox is ticked then no on-site operation is possible. The telegram value of the output address is only defined by the clock.

#### **Initialise Clock**

If the checkbox is ticked then the clock transmits the current telegram value after an initialisation phase (e.g.: restart of the IP Control, changes to the clock parameters). If this function is not enabled then the telegram value is only transmitted at the defined switching times.

**i** The yearly time switch always switches at 0.00 a.m., so changes only become effective on the following day.

## Astronomical Clock

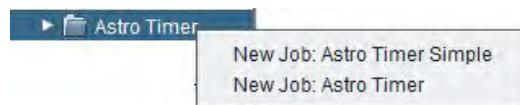


Fig. 70: Astronomical Clock - creating a new job

The Astronomical Clock determines the different times at which the sun adopts defined positions during the course of a year. In this way, it is e.g. possible to operate a Venetian blind to deliver the same brightness level regardless of whether it is winter or summer. Correct position and time information is required for the calculation.

The Astronomical Clock Job in the IP Control offers a choice of a standard input window and a complex input window for advanced users. The following data types are available for the output: EIS 1, EIS 5, EIS 6, EIS 14 and EIS 15:

### Twilight Phases

The term 'twilight' is generally used to describe the transition periods between night and day and day and night. These periods are the result of light reflections in the atmosphere and are longer in the summer and shorter in the winter. Sunrise and sunset can be divided into various twilight phases for improved definability:

- Geometric Twilight  
This describes the phase in which the sun geometrically crosses the horizon. The sun's position is at 0 degrees. It is still almost as bright as broad daylight.
- Civil Twilight  
According to definitions, the so-called civil twilight starts when the midpoint of the sun is approximately -0.83 degrees below the horizon. This twilight phase continues until the sun reaches a position of -6 degrees. As the light is curved by the atmosphere, it remains light enough to read a newspaper out in the open.
- Nautical Twilight  
During this phase there is less light, and the brightest stars may be visible. We refer to this phase when the sun is between 6 and 12 degrees below the horizon.

- **Astronomical Twilight**  
The sun is more than 12 degrees below the horizon. It is so dark that almost all of the stars can be seen. The range for the astronomical twilight is between 12 and 18 degrees.
- **Night-time**  
From an astronomical point of view, we do not talk about night-time until the midpoint of the sun is more than 18 degrees below the horizon. During this phase it is completely dark, and all of the stars can be seen.

### Dimensions for Sun Position Information

The position of the sun can be stated in degrees, or also in arc minutes. Here, 60 arc minutes correspond to one degree.

1 degree = 60 arc minutes

The numerical values after the twilight designations in the Twilight Phase selection indicate the limit of the twilight phases in arc minutes.

### Position and Time Information

For the position and time information of the Astronomical Clock Jobs, the IP Control can either fall back on its installation location, which is already set up, or it can be entered manually. The installation location can be changed under "System" > "Configuration" > "General" > "Installation Location". If this setting is used then the IP Control automatically determines the correct degrees of longitude and latitude (geographical midpoint of the relevant country) and the matching time zone. The specifications in the job window are shown in the greyed out field and cannot be changed. Advanced understanding is required for manual entry. In addition, you must follow the syntax which is displayed in the mouseover help for "Longitude" and "Time Zone".

The screenshot shows the 'Astro Timer Simple' configuration window. The fields are as follows:

Field	Value
Job Name *	timer1
Gate Group Addresses	4/0/0
Use IP-Control Location	<input checked="" type="checkbox"/>
Longitude	10.452
Latitude	51.166
Use IP-Control Timezone	<input checked="" type="checkbox"/>
Timezone	CET-1CEST,M3.5.0/2,M10.5.0/3

Fig. 71: Astronomical Clock - global settings

### Simple Astronomical Clock:

When a new Astronomical Clock job is created, a selection window appears for the two possible configuration windows of the job. If you select the option "Astronomical Clock - Simple" then the standard configuration window will open for the job. In addition to the mandatory position and time information, a name and enabling object can be assigned to the job. This is followed by the settings for sunrise and sunset:

### ***Twilight - Weekdays***

Here, the time is defined at which the sunrise signal is to be sent from Mondays to Fridays. The time can be defined either by selecting a Twilight Phase or by entering a time. If a Twilight Zone is selected the "Time" button can be used to check the switching times of the current settings. If a switching time is defined via the Time dialogue, then the arc minute value which corresponds to the switching time on the relevant day is entered in the Twilight Phase selection field.

**Twilight - Weekend**

Here, the switching times for both days of the weekend (Saturday and Sunday) are defined. This is done in exactly the same way as the settings for "Twilight - Weekdays".

Fig. 72: Astronomical Clock - configuration of the Simple Astronomical Clock

**Fixed Offset (min)**

This defines a period of time in minutes by which the switching time is to be advanced or delayed. If the switching operation is to be performed earlier then a negative value should be entered, while a later switching time is achieved with a positive value.

**Random Offset (min)**

With this offset, the defined switching time is delayed by a random amount. The range within which this random offset may take place should be stated here in minutes. This function can be used to simulate the presence of occupants.

**Earliest Time**

This time setting defines the earliest time from which the output may be transmitted. With the aid of this setting it is possible to prevent switching times before a certain time, e.g. never before 7.00 a.m. in the morning or never before 8.00 p.m. in the evening.

**Latest Time**

With the aid of this setting it is possible to prevent switching times after a certain time, e.g. never later than 8.00 a.m. in the morning or 10.00 p.m. in the evening.

***Output Switching Time - Weekdays***

With the aid of this EIS 3 output object, the determined switching times for the relevant weekday are sent. The output is sent at 0.00 a.m. at the start of every day. Above the arrow next to the address field it is possible to select an address matrix or - if available - an address from the imported ESF file of the ETS (see "Exporting Group Addresses from ETS").

***Output Switching Time - Weekend***

With the aid of this EIS 3 output object, the determined switching times for the relevant day of the weekend are sent. The output is sent at 0.00 a.m. at the start of every day. Above the arrow next to the address field it is possible to select an address matrix or - if available - an address from the imported ESF file of the ETS (see "Exporting Group Addresses from ETS").

***Output Address***

Mandatory field. The defined output is sent to this output address at the determined time. The EIS type and the value of the output are defined in the fields underneath. Above the arrow next to the address field it is possible to select an address matrix or - if available - an address from the imported ESF file of the ETS (see "Exporting Group Addresses from ETS").

***EIS Type***

The EIS type of the output is defined here. The following types are possible: EIS 1, EIS 5, EIS 6, EIS 14 and EIS 15.

***Value***

This defines the value of the telegram. The value must correspond to the selected EIS type.

**Complex Astronomical Clock:**

In comparison to the "Simple Astronomical Clock", the "Complex Astronomical Clock" offers more complex adjustment options and a trigger object. The "Simple Astronomical Clock" job window should be used to realise simple astronomical functions. In addition to the mandatory position and time information, a name and enabling object can be assigned to the job. In addition, it is also possible to specify an EIS 14 trigger object here.

***Trigger Input***

Via the Trigger Input, it is possible to trigger three special times which are defined later on in the job window. This object can also be linked to the yearly time switch. Above the arrow next to the address field it is possible to select an address matrix or - if available - an address from the imported ESF file of the ETS (see "Exporting Group Addresses from ETS").

***Configuration of Times***

In this configuration field, the times are defined which are subsequently to be used in the "Configuration of Outputs". A maximum of 8 times can be created. To create a time, it is selected in the "List of Times" and configured accordingly. The times must be assigned a clear and unique name.

Example: If a Venetian blind is to be opened at sunrise, then one time should be created here for weekdays and one for weekends, e.g. with the names "Weekday Sunrise" and "Weekend Sunrise".

In the "Configuration of Outputs", one time is linked to each of the outputs for weekdays, Saturdays/Sundays and/or the three triggers. The times must therefore be created beforehand and assigned a clear and unique name.

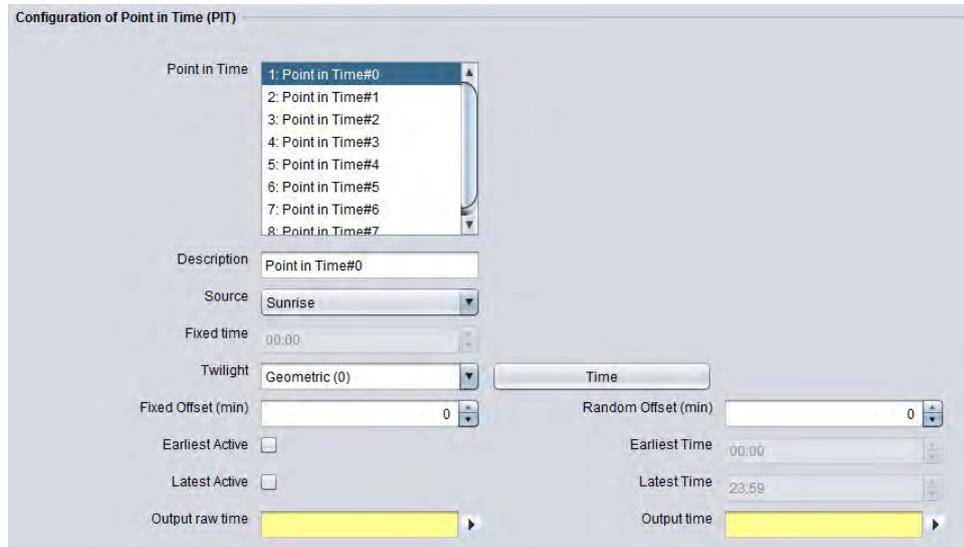


Fig. 73: Complex Astronomical Clock - configuring times

**List of Times**

The defined times are displayed with their names here. To display the configuration of a time, click on it with the mouse to select it. The settings are displayed in the corresponding fields.

**Description**

This is the unique and clear name for a time. Via this descriptive name, the time can be identified when it is linked with the outputs (List of Times).

**Reference Time**

This time forms the starting point for all further calculations (offset etc.). Furthermore, it is also defined here whether the time is a sunrise, sunset, the highest position of the sun or a fixed switching time.

**Fixed Time**

If "Fixed Time" is selected for the Reference Time then a fixed switching time can be entered here. Otherwise this field is greyed out.

**Twilight**

Here you can select the five twilight phases. The Reference Time can be checked via the "Time" button. After the twilight phases, the twilight value is shown in arc minutes.

**Time**

With the aid of the Clock button, the times of the twilight phases can be displayed or, conversely, a twilight value can be entered in arc minutes. To do this, a switching time is entered in the Clock dialogue. After clicking on "OK" to confirm, a value is displayed in arc minutes. If, for example 06.15 (6.15 a.m.) is entered in the Clock dialogue, then a twilight value of -570 arc minutes is displayed. The calculated value varies from day to day.

**Fixed Offset (min)**

With the aid of this input field the previously selected Reference Time can be shifted by a fixed length of time (in minutes). A negative value advances the switching time, while a positive value delays it.

**Random Offset (min)**

Here, the Reference Time can be shifted by a random length of time (in minutes). The adjustment is performed in 5-minute time intervals. The random time is then at some point within the delay time. This function can be used to simulate the presence of occupants.

**Earliest Activity/Earliest Time**

The output is not switched any earlier than this time; it can be used for example to make sure that a Venetian blind is never opened before 7.30 a.m.

**Latest Activity/Latest Time**

This defines the latest time at which the output may be sent; it can be used for example if a Venetian blind is to be closed no later than 10.30 p.m.

**Raw Time Output**

This EIS 3 output object is used to output the pure reference time (raw time). This time does not take into account any fixed or random times or the earliest/latest times. Above the arrow next to the address field it is possible to select an address matrix or - if available - an address from the imported ESF file of the ETS (see "Exporting Group Addresses from ETS").

**Output Switching Time**

This EIS 3 output object is used to output the actual switching time. This time takes into account all offsets and the time limitations. It is the time at which the telegram is sent. Above the arrow next to the address field it is possible to select an address matrix or - if available - an address from the imported ESF file of the ETS (see "Exporting Group Addresses from ETS").

**Configuration of Outputs**

Once all of the required switching times have been defined in the "Configuration of Switching Times", they are linked to the outputs in this configuration area. A maximum of 48 outputs can be created.

The screenshot shows the 'Output Configuration' window. It features a 'List of Outputs' table with columns for Output, EIS-Type, Value, Weekday, Saturday, and Sunday. Below the table are buttons for 'Add new Output' and 'Remove selected Output'. Further down, there are configuration fields for 'Output address \*', 'EIS-Type' (set to 'EIS 1 (1 Bit)'), 'Value', and 'Just use triggers'. There are also dropdown menus for 'PIT Weekday', 'PIT Saturday', and 'PIT Sunday', all currently set to 'Inactive'. At the bottom, there are fields for 'Trigger (e.g. Special day) 1' and '2', with 'Active' radio buttons and 'Trigger-Value' dropdowns (set to 2 and 3) and 'PIT' dropdowns (set to 'Inactive').

Output	EIS-Type	Value	Weekday	Saturday	Sunday
6/0/11	EIS 5 (2 Byte FP)	25.0	MorgensWoche	MorgensWE	MorgensWE
6/0/11	EIS 5 (2 Byte FP)	75.0	AbendsWoche	AbendsWE	AbendsWE
6/0/17	EIS 5 (2 Byte FP)	100.0	Inaktiv	Inaktiv	Inaktiv
6/0/16	EIS 5 (2 Byte FP)	100.0	Inaktiv	Inaktiv	Inaktiv
6/0/25	EIS 1 (1 Bit)	1	Inaktiv	SonderZU	SonderZU
	Unknown		Inaktiv	Inaktiv	Inaktiv

Fig. 74: Complex Astronomical Clock - configuring outputs

**List of Outputs**

The created outputs are displayed in this table. Here, the output address, the EIS type, the value of the output and the linking of switching times are displayed.

### **Add Output**

In order to add a new output, a new entry must be inserted in the list by clicking on the button "Add Output". A highlighted entry entitled "unknown" appears in the List of Outputs, and the input fields underneath are enabled.

### **Output Address**

Mandatory field. The actual output address is entered in this field. The address of the object which is to be controlled should also be entered here. Above the arrow next to the address field it is possible to select an address matrix or - if available - an address from the imported ESF file of the ETS (see "Exporting Group Addresses from ETS").

### **EIS Type**

The EIS type of the output is defined here. The following are available: EIS 1, EIS 5, EIS 6, EIS 14 and EIS 15.

### **Value**

This defines the value of the telegram. The value must correspond to the selected EIS type.

### **Weekday Time**

The output address defines which object/device is operated. The time selection determines when the command to operate the device is sent. The selection menu now shows the List of Times which was previously configured. If the time is set to "Inactive" then no actions are carried out.

Example: If a Venetian blind is to be operated on weekdays at the configured time "Weekday Sunrise", then this needs to be selected from the selection menu.

### **Saturday/Sunday Time**

The switching times for operations at weekends can be defined in these two selection menus. For example, if the time that applies during the week should also apply at the weekend then the "Weekday Time" is simply entered. If different times are to apply at the weekend then they must first be configured in the List of Times.

**i** Save Output: To save a configured output, either click on "Add Output" again or select a previously defined output from the List of Outputs.

### **Delete Output**

To delete an output, it needs to be selected in the list (it is then highlighted in blue).

### **Trigger Configuration**

In order to use the "Trigger" function or the link to the yearly time switch, a Trigger Address must be entered in the input object of the job. The triggers are not displayed in the "List of Outputs" overview, but instead are only displayed when the corresponding output is highlighted in the list.

### **Link to the Yearly Time Switch**

In order to establish a link to the "Yearly Time Switch" job, the trigger object of the Astronomical Clock must be linked to the output of the yearly time switch. In the yearly time switch, the Special Days 1 to 3 can be placed on a calendar timeline (refer to the "Yearly Time Switch" job). This will then initiate the corresponding trigger settings in the Astronomical Clock via the EIS 14 values 2-4. In the Astronomical Clock the trigger values are pre-set accordingly.

**i** A maximum of three trigger objects can be assigned to each Astronomical Clock job. If multiple special times are required then multiple Astronomical Clock jobs will need to be created for this.

**Trigger (e.g. Special Day 1, 2, 3)**

The trigger is activated via this checkbox. The trigger will react to the trigger address indicated in the job.

**Trigger Value**

In this field, the EIS 14 value needs to be entered via which the trigger is to be initiated (0-255). The following values are possible for a link to a yearly time switch:

- Inaktiv = 0
- Week mode = 1
- S 1 = 2 (S = Special day) 2
- S 2 = 3 (S = Special day) 3
- S 3 = 4 (S = Special day) 4

**Time (Trigger)**

Similarly to the standard output configuration, a time needs to be assigned to every trigger. This is selected under "Time" and accesses the same list which was created under "Configuration of Times".

**Edit 'Trigger Only'**

With the aid of this checkbox you can define whether an output should only be controlled by the triggers, or whether the triggers and the standard weekday/weekend configuration should run in parallel. If this option is checked then the time selection for weekdays and Saturdays/Sundays is disabled.

**Switch ON/OFF delay timer (EIS 1)**

Gate with one input and one output. The output is sent with a time delay. The input object starts the timer. The format is EIS 1:

- Time range from 1 to 65,000 seconds
- Delay Type: This defines which telegrams are sent with a delay. By default, all telegrams are delayed at the input by x seconds. If required, the service can also restrict the delay to just "ON" or "OFF" telegrams.
- i** If the input is different to this then the output is switched without a delay.
- Enabling Object

**Stair light time switch (EIS 1)**

When an ON telegram is received at the input, the OFF command is sent automatically after a configurable length of time.

- Time range from 1 to 65,000 seconds
- Enabling object
- Invert output: An OFF telegram received at the input becomes a delayed ON telegram at the output
- Triggering: when another **ON telegram** is received at the input the delay time is restarted.
- Stopping: this telegram at the output stops the automatic function.

## Light scenes (EIS 1, EIS 5, EIS 6)



Up to 28 KNX participants can be combined into a group. Here, you can assign to each participant an individual value which is to be transmitted by the participant. The light scene is triggered via a start object. The triggering value (0 or 1) needs to be specified for every group address. This means that 2 different light scenes are available for each group address.

- Enabling Object: The execution can be blocked or enabled via the enabling object (e.g. time switch).
- Start Object: The light scene is started via an EIS 1 telegram.
- Light Scene Triggering: This defines the value of the EIS 1 telegram which starts the light scene.
- Memory Object: This object saves the current states of the light scene subscribers. If the value of a subscriber has been changed and saved then the light scene is immediately executed with the changed value. A save can be performed for an "ON" or "OFF" telegram.
- Stoppable: The light scene can be stopped by a telegram at the input. This telegram must not satisfy the start condition.
- Delay (s): The delay time is adjusted in seconds. A delay time of less than 1 second is impossible for safety reasons (bus overload).
- EIS types: The output addresses can be of type EIS 1, EIS 5, EIS 6, EIS 9, EIS 10, EIS 11 or EIS 14.

**i** The light scene should always have just as many outputs set up as are actually used.

## Receiving the time and date



IP Control can receive time telegrams (EIS 3) and date telegrams (EIS 4) in order to set the internal system clock. If the discrepancy between this date/time and the IP Control system clock is too large the system clock is adjusted. You can assign enabling objects.

With time telegrams you can also set the date to be taken into account, while with date telegrams you can also set the time to be taken into account. The discrepancy which should be tolerated before the system clock is corrected is entered in seconds.

## Transmitting the time and date



IP Control can send time telegrams (EIS 3) and date telegrams (EIS 4). You can assign enabling objects. The time between the transmission of two telegrams (telegram pause) is entered in seconds.

### Service (clocks, light scenes)

Normally, clocks and light scenes can only be edited in the Job Editor. In order to enable the end customer to also make changes himself to clocks and light scenes in the visualisation, it is possible to position the **Link Job Editor** element in the visualisation editor.

Under **Destination** you can choose the clocks and light scenes that you wish to enable and choose names you should agree with the customer. The clocks and scenes positioned in the Visualisation Editor can also be changed subsequently in the visualisation.

## Threshold switch



As can be seen in the graphic below, there are two important switching events for the threshold switch:

### First switching event: value exceeds switching point 1

In this case the upper threshold is exceeded. When the upper threshold is exceeded the **Dead time** timer starts. If, once this timer has elapsed, the input condition **Value above switching point 1** is still satisfied then the output value parameterised in the column **Upper threshold** is transmitted on the KNX. The associated KNX group address is entered in the Output Parameters window. The output value can be EIS 1, 5 or 6. The aim of this dead time is to prevent the threshold switch from constantly transmitting the output value on the KNX if the input value fluctuates around the upper (lower) threshold.

After the output value has been transmitted on the KNX, the **Repeat time** timer starts. If, after the Repeat time has elapsed, the input condition **Value above switching point 1** is still satisfied, then the output value is transmitted on the KNX again. The system keeps running through this program loop until the input condition **Value above switching point 1** is no longer satisfied. In our example this is the case after switching point 1.1.

If the input value is between the upper and lower threshold then the threshold switch transmits nothing on the KNX.

### Second switching event: value below switching point 2

When the value drops below the lower threshold the **Dead time** timer starts. If, once this timer has elapsed, the input condition **Value below switching point 2** is still satisfied then the output value parameterised in the column **Lower threshold** is transmitted on the KNX. The output value can be EIS 1, 5 or 6.

After the output value has been transmitted on the KNX, the **Repeat time** timer starts. If, after the Repeat time has elapsed, the input condition **Value below switching point 2** is still satisfied, then the output value is transmitted on the KNX again. The system keeps running through this program loop until the input condition **Value below switching point 2** is no longer satisfied.

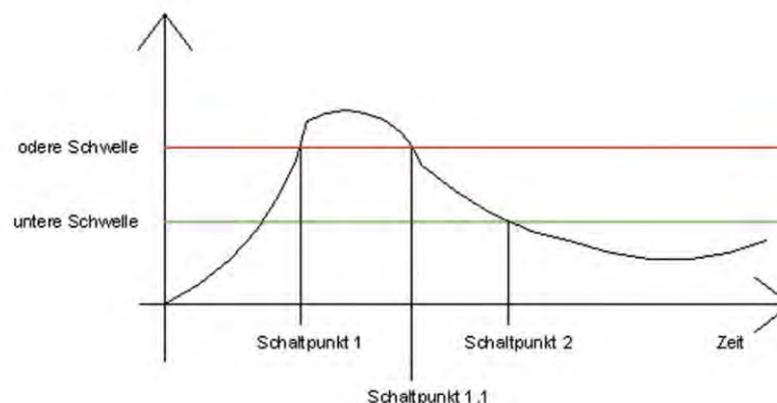


Fig. 75: Switching points for the threshold switch

## Comparator



This job compares the value of an input object with that of a different one or with that of a static value. The result is assessed as being "True" or "False". The output can be parameterised independently of the input.

### Input 1 and 2

The two inputs are compared according to the selected comparison operations. Depending on the outcome, the output is sent either as "True" or "False". The input objects contain the following parameters:

### Group address

The group addresses of the input object.

### EIS format - input

- Here, the EIS type of the input object is selected. The following EIS types are supported by the comparator:
- EIS 1 (switching, 1 bit)
- EIS 2 (dimming, 1/4/8 bits)
- EIS 3 (time, 3 bytes)
- EIS 4 (date, 3 bytes)
- EIS 5 (floating point, 16 bits)
- EIS 6 (percentage 0-100%, 1 byte)
- EIS 8 (priority, 2 bits)
- EIS 9 (floating point, 32 bits)
- EIS 10 (counter, 16 bits)
- EIS 11 (counter, 32 bits)
- EIS 14 (counter, 8 bits)

EIS 15 (text, 14 bytes)

### Static

If this entry is active then the value from the adjacent field is used instead of the value of the group address for the comparison operation.

### Factor and offset

With the aid of these two parameters you can format the value of the group address. The value is multiplied by the factor and the offset is added.

### Comparison operations

The following comparison operations are available:

- „=" equal to
- „<>" not equal to
- „>" greater than
- „<" less than
- „>=" greater than or equal to
- „<=" less than or equal to

With each received telegram on the input object the comparison operation is carried out once again.

### Output ("true" or "untrue")

The corresponding output is transmitted depending on the result produced by the comparison operation. The outputs can contain the following parameters:

**Group address**

A group address is assigned to each output. Both outputs can also have the same address.

**EIS format output**

If the output is marked as static, the following EIS types are available:

- EIS 1 (switching, 1 bit)
- EIS 2 (dimming, 1/4/8 bits)
- EIS 3 (time, 3 bytes)
- EIS 4 (date, 3 bytes)
- EIS 5 (floating point, 16 bits)
- EIS 6 (percentage 0-100%, 1 byte)
- EIS 8 (priority, 2 bits)
- EIS 9 (floating point, 32 bits)
- EIS 10 (counter, 16 bits)
- EIS 11 (counter, 32 bits)
- EIS 14 (counter, 8 bits)
- EIS 15 (text, 14 bytes)

**Static**

The value entered in the adjacent field is sent as the output value. The value must correspond to the selected EIS type.

**Dynamic output**

The output does not have a fixed value. One of the following values is used as the output value:

- Triggering telegram (input 1 or input 2)
- last telegram from input 1
- last telegram from input 2

If an input is static, no telegram received on the input object can be transmitted to the output.

**Non-overwritable**

If an input is static, no telegram received on the input object can be transmitted to the output.

**Changes only**

The changes only relate to the value of the relevant output object. Ist das Ausgangsobjekt statisch, erfolgen keine Änderungen des Ausgangswertes. This setting is only meaningful in conjunction with a dynamic output.

**Mathematik**

IP control contains a mathematic job. Apart from all conventional mathematical operations, this also provides lots of other mathematical functions.

**EIS Formats**

The mathematic job supports the following data types on the input and output object:

- EIS 1 (1 bit)
- EIS 5 (2 bytes FP)
- EIS 6 (1 byte)
- EIS 9 (4 bytes FP)
- EIS 10s (2 byte value)
- EIS 11s (4 byte value)
- EIS 14u (1 byte unsigned)

- EIS 15 (14 bytes text)

Additionally, the job has an enabling object as well as an EIS 14 output for an error code and an EIS 15 text output for an error text. They are output when the checkmark is set to "output runtime error".

**Inputs**

All input fields titled in red mark mandatory data without which the job cannot be saved.

**Flags**

The job contains 2 flags:

- Output runtime error: During activation, error codes are output per EIS 14 and error texts per EIS 15. The address for this are entered in the fields below. An overview of the error codes is already available at the end of the job description.
- Always calculate values: During activation of this flag, the output of the job is calculated for each incoming telegram regardless of whether the value has changed or not. If the flag is deactivated, a calculation only takes place when the value changes.

**Inputs**

There are 12 input objects available per mathematic job. These can correspond to the data types mentioned above. The keyboard or ESF dialog are available for the input of a group address. The latter is opened using the arrow key next to the address input field as an overview of the data from the ETS, which was previously loaded into the IP control (see chapter ETS).

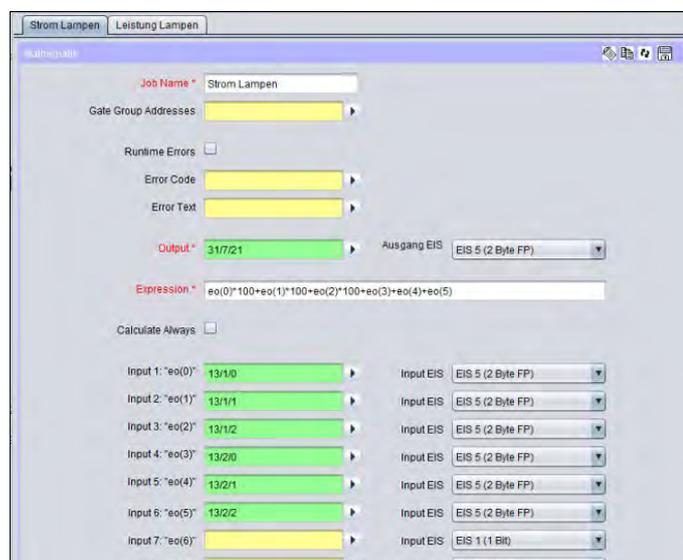


Fig. 76: Job-Editor - Job Mask Mathematic

**Access to the inputs in the mathematical expression**

The following syntax applies in order to use the values of the input objects for the mathematical expression:

- The inputs 1-12 have the index numbers 0-11.
- The respective value of the input object is brought to the mathematical expression by entering "eo(indexnummer)". Thus, "eo(0)" for input 1.
- If, conversely, then the index of the object should be output (and possibly continue to be used) on which a telegram was last received, then "eoi()" must be entered.

**Mathematical expression**

The mathematical expression is combined in this field. The usual mathematical rules apply here. During the output of the result, it should be born in mind that the level of the result does not exceed the range of the data type from the output object! The following operations are possible:

**Mathematical operations:**

<b>Symbol</b>	<b>Description</b>
+	Addition (or stringing together of strings)
-	Subtraction
*	Multiplication
/	Division (real value)
%	Modulo (remainder after an integer division)
&	Bitwise "and"
	Bitwise "or"
^	Exponentiation

**Logical (boolean) operations**

<b>Symbol</b>	<b>Description</b>
	logical OR
&&	logical AND
>	Comparison operation "greater than"
>=	Comparison operation "greater than or equal to"
<	Comparison operation "less than"
<=	Comparison operation "less than or equal to"
==	Comparison operation "equality"

**Other operations**

<b>Symbol</b>	<b>Description</b>
=	Assignment
(' and ')	Parenthesis for change of the operator priority

**Integrated functions**

<b>Symbol</b>	<b>Description</b>
sqrt(x)	Square root calculation
sin(x)	Sine calculation
cos(x)	Cosine calculation
tan(x)	Tangent calculation
max(x,...)	Maximum determination of a (finite) quantity of values
min(x,...)	Minimum determination of a (finite) quantity of values
rad(x)	Conversion of degree to radian (arc calculation)
asin(x)	Calculation of the arc sine
acos(x)	Calculation of the arc cosine
atan(x)	Calculation of the arc tangent
ceil(x)	Calculation of the smallest integer value that is not less than the argument ("round up")
floor(x)	Calculation of the greatest integer value that is not greater than the argument ("round down")
abs(x)	Calculation of the absolute value of an argument
exp(x)	Calculation of the exponential function for the base 'e' (Euler's constant)
log10(x)	Calculation of the logarithm of 10
pow(x,y)	Exponential function calculates $x^y$
time()	Returns the system time in seconds since the beginning of the epoch (00:00:00 UTC, January 1, 1970)
srand(x)	Sets the (pseudo)random generator to a defined initial value
rand()	Returns the next random number
eo_sum(x,...)	Adds up the EIB objects with the numbers according to the arguments
integer(x)	Truncates the real number and returns the integer value only
fraction(x)	Returns the decimal part of a real value (the places after the decimal point)
round(x)	Returns a correctly rounded integer of a real argument

**Number types/classes and strings:**

<b>Class</b>	<b>Notation</b>
Integer numbers	42
Hexadecimal numbers	0x12ab
Real numbers	1.23
Exponential numbers	1.23e3 for $1.23 * 10^3$ or 1023.0
Texts	"text"

**Predefined constants:**

Symbol	Description
M_PI	The constant Pi (3.14.....)
M_E	The Euler's constant (base of natural logarithms)
M_LOG2E	Logarithm for base 2 of 'e'
M_LOG10E	Logarithm for base 10 of 'e'
M_LN2	Natural log of 2
M_LN10	Natural log of 10
M_PI_2	Pi divided by 2 ("Pi-half")
M_PI_4	Pi divided by 4 ("Pi-quarter")
M_1_PI	Reciprocal value of Pi (1 divided by Pi)
M_2_PI	2 times 1 divided by PI
M_2_SQRTPI	2 times 1 divided by the square root of Pi
M_SQRT2	Square root of 2
M_SQRT1_2	The reciprocal value of the square root of 2 (square root of 1/2)

Self-defined variables and several expressions in succession:

"a=10" assigns the value 10 to the variable "a". "a=1; b=2; a+b" assigns the values 1 or 2 to the variables "a" and "b" and returns "3" as the result.

**i** Self-defined variables have a limited validity only within the calculation of an expression!

**Examples:**

Here are a few examples so that the use of various functions and operations is more comprehensible:

- "eo(1) + 100" -> returns the value of the EIB object with the number 1 (in the following EO\_1) plus 100. It is important to always keep to the possible value range for the EIB output object!
- "eo(3)\*eo(4)" -> multiplies EO\_3 and EO\_4. If EIB objects are used in an expression which are not provided with GA in the editor, an error is reported. This should already have been reported during the configuration, however.
- "100 / eo(1)" -> divides 100 by EO\_1. Caution: If a zero is sent to input 1, the calculation of this expression will return a runtime error! ("Division by zero").
- "sqrt(eo(0)^2+eo(1)^2)" -> Calculates the length of the hypotenuse in a right-angled triangle if on EO\_0 and EO\_1 the lengths of the sides are sent. ("Pythagoras' theorem")
- "eoi()" -> Returns a 2 if something is received on the EIB object with the number 2.
- "eo(eoi())" ->Returns the received value.
- "eo(eoi())^2" -> Calculates the square for every telegram value received.
- "rand()" -> Returns a random value.
- "rand() & 0xff" -> Limits this value to a value range from 0 up to a maximum of 255. Hence, the result would be representable in EIS\_14.

- "srand(time())" -> Returns nothing (or zero) but initialises the random generator with a pseudo random initial value.
- "eo(0)+eo(2)+eo(3)+eo(1)+eo(5)+eo(6)+eo(4)" -> Calculates the sum of several EIB objects.
- "eo\_sum(0,1,2,3,4,5,6)" -> As above, but much more "runtime friendlier" and insightful.
- ""foo" + "bar"" -> Returns "foobar" as result. This can only be output as EIS 15 on the output, however.

**Error codes and error texts**

Number (error codes EIS 14)	Meaning or EIS 15 text output (in English)
0	No error
42	Syntax error
43	General runtime error (e.g. division by zero or tan(PI/2))
1	Missing right-hand bracket
2	Missing left-hand bracket (in the case of integrated function)
3	Missing right-hand bracket (expression found instead)
4	Unknown variable
5	Unknown keyword
6	Error in the string expression, must not contain any mathematical operator
7	Division by zero
8	String cannot be raised to an assigned power
9	Error in the string expression, cannot be reconciled with operator
10	Error in the string expression, cannot be reconciled with operator
11	Missing comma
12	Missing argument
50	Error in EO function: Wrong number of arguments
51	Error in EO function: Wrong index
52	Error in EO function: EO is empty

**Counters**

Eight input objects can be counted with a counter job. There are 7 different counting operations available for this purpose. In addition, the job can be controlled by an enabling object.

**EIS Formats**

The counter job supports the following data types on the input and output object:

- EIS 1 (1 bit)
- EIS 5 (2 bytes FP)
- EIS 6 (1 byte)
- EIS 6 (1 byte)

- EIS 10s (2 byte value)
- EIS 11s (4 byte value)
- EIS 11s (4 byte value)
- EIS 15 (14 bytes text)

### Mandatory fields

All input fields titled in red mark mandatory data without which the job cannot be saved.

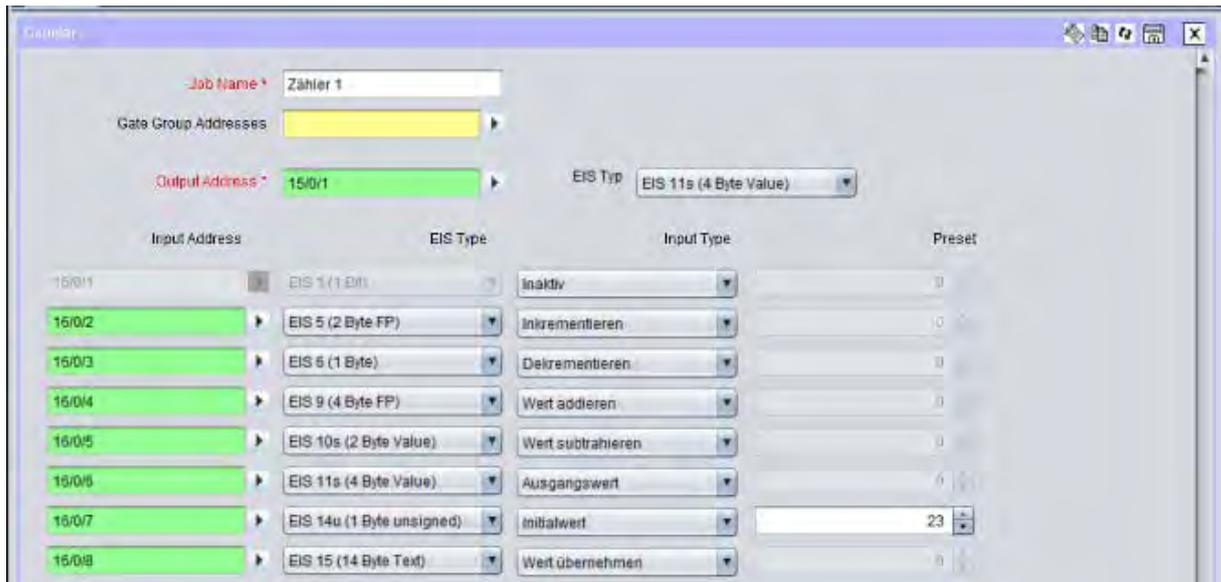


Fig. 77: Job-Editor - Job mask counter

### Address fields

If an address field has a yellow background, no valid group address has been entered yet. A group address can be entered via the keyboard or via the ESF dialogue. This is opened via the arrow symbol adjacent to the input field. The address can then be selected from the ETS data imported previously (more information can be found in the chapter ETS).

### Input type

The counter-job can execute various counting operations by selecting the input type:

- Inactive: The input is not counted.
- Increment: On receipt of a telegram, the result is increased by one regardless of data type and value. The number of incoming telegrams on the input objects is counted.
- Decrement: On receipt of a telegram, the result is reduced by one regardless of data type and value. The number of incoming telegrams on the input objects is counted.
- Add value: The value of the incoming telegram is added to the currently calculated value.
- Subtract value: The value of the incoming telegram is subtracted from the currently calculated value.
- Output value: If an input is detected on this object, the result of the counter is reset to this value (the output value).
- Initial value: With this option an initial value can be used for further calculation. This enables a kind of offset value to be defined.
- Accept value: The value of the input object is also used as the value for the output object.

### Initial value

The initial value can be defined if the corresponding counter operation was selected. This value is used as a basis for further calculations. The initial value thus creates a kind of offset value.

- i** With the output object care must be taken to ensure that the counted value does not exceed its value range.

## Integrator

This job executes the mathematical function of the integration. The area calculation below the graphs of a function is meant here (specific integral). The function here is the input value over the time. Consequently, the job is particularly suitable for calculating the energy consumption from the current values of the actuators with current value detection. An example for this is also described below.

### EIS Formats

The integrating job supports the following EIS formats on output and input:

- Input
  - EIS 1 (1 bit)
  - EIS 5 (2 bytes FP)
  - EIS 6 (1 Byte)
  - EIS 9 (4 bytes FP)
  - EIS 10s (2 byte value)
  - EIS 11s (4 byte value)
  - EIS 14u (1 byte unsigned)
- Output
  - EIS 5 (2 bytes FP)
  - EIS 6 (1 byte)
  - EIS 9 (4 bytes FP)
  - EIS 10s (2 byte value)
  - EIS 11s (4 byte value)
  - EIS 14u (1 byte unsigned)

A special feature of this job is the fact that the output can also send the result formatted in EIS 15. Hence, the places before and after the decimal point can be influenced via control characters. The following syntax applies with the control characters:

- Open control character - '%'
- Close control character - 'f'
- Optional digit - '#'
- Mandatory digit - '2' (example)

Example: A number with only 2 places before the decimal point but at least 3 places after the decimal point is to be displayed: %2.###f

### Mandatory fields

All input fields titled in red mark mandatory data without which the job cannot be saved.

### Address fields

If an address field has a yellow background, no valid group address has been entered yet. A group address can be entered via the keyboard or via the ESF dialog. This is opened via the arrow symbol adjacent to the input field. The address can then be selected from the ETS data imported previously (for more information see chapter ETS).

### Interval

Since the integrator is based on a function over time, the time intervals of the x-axis can be defined here. At the same time, the interval also determines how often the result is sent to the output.

**i** The integrator's calculation is based on a constant corresponding to the input value that is within the interval!

### Reset

If this option is activated and no further input is detected within the set timeout, the output of the job is reset.

### Inputs

Each integrator can use 4 inputs. The different input values are added and integrated. There are several things to bear in mind during the input configuration.

- Factor: The input value is multiplied with the factor. Since this also determines the conversion into the individual units, several factors are preset for this job. They can be selected via the menu. The following are available:
  - mA in Ws (milliamperes in watt seconds)
  - mA in Wh (milliamperes in watt hours)
  - 100 mA in Ws (100 milliamperes in watt seconds)
  - 100 mA in Wh (100 milliamperes in watt hours)
  - A in Ws (milliamperes in watt seconds)
  - A in Wh (milliamperes in watt hours)

During selection, the correct factor is entered automatically.

- Offset: The offset is added to the input value.
- Minimum/Maximum value: Can determine a value range, in which the value of the input object must lie.
- Timeout: Determines the time in seconds, after whose expiration a timeout is sent. If the "reset" flag is activated in the output, the output is reset due to the timeout.
- Initialize: If activated, the input uses the information from the address status table when initializing the job. After the interval time has expired, data is sent to the output according to the information from the status table even if the actual value might differ in the meantime.

### Example

As described in the "Top consumers" visualisation element, the integrator is primarily intended for converting the current current sent to the KNX bus from the actuators with current value detection into the energy consumption (e.g. in watt hours).

Here is a small example for this:

The configuration of a job for calculating the values to display in a "Top Consumers" visualisation element:

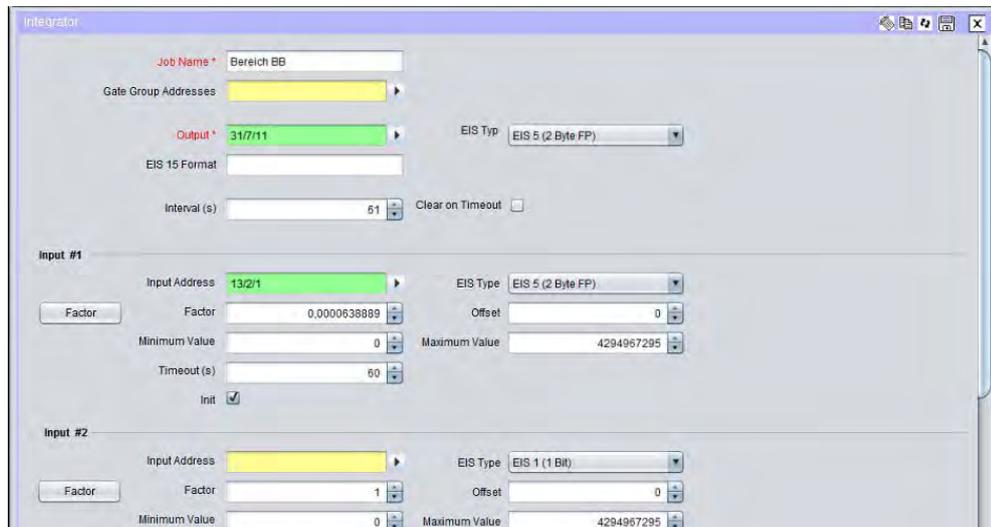


Fig. 78: Job-Editor - Configuration example for integrator

In the example presented, the job receives a milliampere value from an actuator with current detection and calculates the watt hours from this. The output of the integrator is transmitted to the "Top Consumers" element of the visualisation via a virtual group address.

### Configuration of the "Top Consumers" Element



Fig. 79: Visualisation Editor - Configuration example for Top Consumers

The virtual group address is linked to a consumer in the visualisation element. Apart from the correct data type and value format, nothing else needs to be considered.

## Sending e-mails



The IP Control can send out e-mails in response to events in the KNX. An e-mail can be sent out to multiple recipients simultaneously.

### Input object

This object launches the job, i.e. the dispatch of an e-mail. The exact details, e.g. the ON edge, are defined under the "Conditions for sending".

### Value object

The value of this object can be displayed in the body of the e-mail text with the aid of a control character

. Detailed information about use of the control character can be found in Appendix 2: Control characters. The value can be calibrated with the aid of a factor and an offset.

### Conditions for sending

The sending of an e-mail can be instigated under different conditions. The following choice is available: **edge change**, **OFF**, **edge OFF**, **ON**, **edge ON**, **ON of OFF** and **edge ON of OFF**.

### E-mail provider

Here you should choose the entry for the e-mail provider via which the e-mails should be sent out. The entry is directly linked to the e-mail providers created in the configuration tool (see Appendix 9).

### Type

Here the type of e-mail is specified for the corresponding recipient. If the entry "Inactive" is chosen then this recipient is no longer taken into account.

### Name/e-mail address

The name and e-mail address should be entered here. If no name and no e-mail address are specified for the sender then the IP Control uses the address from the configuration.

### Subject

This text will appear in the **Subject** line at the recipient.

### Text

This field is where the actual body of the e-mail text is entered. You can have values entered via value objects (see also Appendix 2: Control characters).

### Settings in the configuration tool

In order to make proper use of the job e-mail dispatch function, you will need to create an e-mail provider in the configuration tool. You can do this in the configuration tool under Configuration > E-mail.

- Click on the **Add** button to add one or more e-mail providers.
- After entering the name, you will need to select the settings for the SMTP server and the TLS encryption.

**i** The settings depend on the particular provider. The address entered in the configuration tool or the name of the sender is the default setting for the job. These settings are used if no sender address or name is given for the job e-mail dispatch function. E-mail provider settings which are no longer required can also be deleted again by clicking on the **Delete** button.

- In addition, you will also need to enter the IP address of the DNS server of your e-mail provider. This setting can be found in the configuration tool under the "Network settings" (see Appendix 5: Network settings).

## Device linkage

The IP Control can be used for the device linkage. The IP Control can be used for the device linkage. Address overlaps in the area of the physical addresses are not relevant here. The address overlap of KNX group addresses is prevented here by using virtual KNX group addresses.

### Hardware installation

The IP Control devices are connected to each other via the Ethernet (LAN).

### Parameterisation

The parameterisation of the device linkage takes place via the integrated Job-Editor – Job "Device linkage". All parameters of the device linkage are always parameterised in the direction of the KNX target system from the perspective of the local KNX system.

- i** If a KNX system 1 should be linked to a KNX system 2 and vice versa, the service device linkage must be configured in both IP Control devices respectively.

### *Enable*

Group address (format EIS 1) for enabling (value 1)/disabling (value 0) the function device linkage. If nothing is entered here, this service is always active.

### *Host name or IP address*

Host name or IP address of the IP Control target device of the device linkage (as soon as a DNS server can be reached by the IP Control, the name of the target device must be entered.).

### *Delete host name immediately*

- active: A name resolution takes place immediately when commissioning the IP Control
- not active: the name resolution first takes place during activation of the device linkage service

### *Resolve host name each time*

- active: during each start of the device linkage service, the host name is resolved once again. (only useful for dynamic name resolution)
- not active: The host name is only resolved during the first start of the device linkage service

### *Feedback allowed*

- active: allows feedbacks via LAN
- not active: Feedbacks via LAN are suppressed

### *Connection type*

- Direct (LAN): device linkage via Ethernet

### *Target System ID*

Unique KNX system ID (0 - 255) – with no entry: Target system-ID = 0

### Rules for device linkage

Wild characters can be used for fast entry of the rules for device linkage. The "\*" symbol is used as a wild card. Depending on the position (before or after the "/") the "\*" represents the KNX main group or subgroup.

Rule	Severity
*/* -> */*	All main groups and subgroups of the KNX system 1 are linked one-to-one to the KNX system 2. <b>Caution:</b> This function may only be used with a device linkage via Ethernet!
6/* -> 6/*	All group addresses of the main group 6 of the KNX system 1 are linked one-to-one in the main group 6 of the KNX system 2.
7/* -> 17/*	All group addresses of the main group 7 of the KNX system 1 are linked in the virtual main group 17 of the KNX system 2. <ul style="list-style-type: none"> <li>No KNX address overlap is possible in system 2!</li> </ul>
*/1 -> */1	The addresses 0/1; 1/1; 2/1...32/1 are linked one-to-one in the KNX system 2

### Virtual group addresses

Virtual group addresses are the main groups 16-32. They are only available in the IP Control and cannot be used for the parameterisation of a system with the ETS. Virtual group addresses are used during device linkages in order to avoid address overlaps. If, for example, a light scene is to be started from system 1 in system 2, the light scene in system 2 receives a virtual group address (e.g, 17/1). In the IP Control of system 1, the following rule is then parameterised:

e.g. 2/3 -> 17/1. The real group address in system 1 (e.g. assigned to a push-button) is translated into the virtual group address in system 2 (the light scene).

### UDP sender



This job sends UDP datagrams to LAN participants as a function of the input object. One application in this context is the sending of IR commands to any infrared devices (refer to the section entitled **Applications**).

#### Input object

The group address is entered here which should trigger the transmission of the UDP datagrams. The value of the input object determines which of the maximum of 8 UDP datagrams is transmitted upon receipt. The EIS types EIS 1 (1 bit) and EIS 14 (8 bits) are automatically interpreted – see **Input/trigger value**.

#### Host name/IP address

This is where the IP address of the recipient is set, e.g. the IP address of the IRTrans.

#### Port number

The port used by the recipient should be entered in this field. Check the port settings for the recipient. In the case of IRTrans, you can do this via the web interface of the device.

**i** You can access the web interface by entering the IP address in your Internet Browser. There, you will also be able to change all other settings for the IRTrans.

### Command mode

Here you can choose the command type. The IRTrans uses ASCII commands to send IR commands from the database of the IRTrans (refer to "Transmission data" for information about syntax).

- i** If the entry **Disabled** is selected then the corresponding line is not processed.
- i** In the command mode **Hex** the transmission data must be specified in hexadecimal.

### Wildcard

If this entry is active then the IP Control transmits this UDP datagram every time the input object is received.

### Input/trigger value

This value specifies whether this UDP datagram is sent on receipt of the input object.

Example:

If the input object of type EIS 14 with the value 147 is received, the IP Control transmits the UDP datagrams with the **input/trigger value** 147. The value range of the input/trigger value is 0–255 (EIS 14).

### Transmission data

The sent data/commands are entered in this field. The syntax of the ASCII string for the IR Trans is:

**snd <remote>,<command>,<ledselect>**

- **remote** - name of the device or remote control; this is specified during the process of learning the commands (e.g. dvdplayer)
- **command** – name of the command; this is specified during the process of learning the commands (e.g. play)
- **ledselect** – selection of the internal or external transmission LED (I = internal, E = external, B = both)

Example: **snd dvdplayer,play**

- i** The parameter **ledselect** is optional and does not necessarily need to be used. If it is not specified then the LED selection in the Device Settings is used.
- i** In the command mode **Hex** the transmission data need to be entered in hexadecimal.  
Example: 0A 39 F2 21 46 DE C4

### SB Control



With SB Control it is possible to use several MP3 streaming clients to set up a multi-room solution that can be controlled via KNX operating units.

SB Control is a job for remote control of Logitech Squeezebox devices and of the centralised music server software SqueezeCenter. Operation is via a KNX push-button, room control units, KNX panels or the IP Control visualisation. With SB Control it is possible to use KNX operating units to switch a Squeezebox on or off, to mute it, to make it louder or softer, to navigate among the titles in the playlists, or to select playlists. Titles of songs, playlists, status information such as volume or muting can be displayed, for example via the text display of the B.IQ RTR room control unit or via display elements in a MasterControl or or in the IP Control visualisation.

**Requirements for the operation of Squeezebox via IP Control:**

- a functioning SqueezeCenter on a PC or a network hard drive (NAS)
- an installed and running ExPL plugin under the SqueezeCenter (from the IP Control CD or from the Berker download area)
- a running xPL hub on the SqueezeCenter PC or the network hard drive (NAS)
- one or more Squeezeboxes connected with the SqueezeCenter with instance names that differentiate them (e.g. room designations)
- a Gateway address entered under the network settings in IP Control (configuration tool). If no gateway is present, an unused dummy address must be entered e.g. 192.168.1.254)
- Compiled playlists in the SqueezeCenter

**i** Before setting up the SC Control job, read the documentation for the SqueezeCenter software and the Squeezebox devices.

**i** Before continuing commissioning of the Squeezebox control, make sure that at least one playlist is defined in the SqueezeCenter.

**Installing the ExPL plugin:**

- Copy ExPL directories from the CD or from the download area to the SqueezeCenter folder Plugins

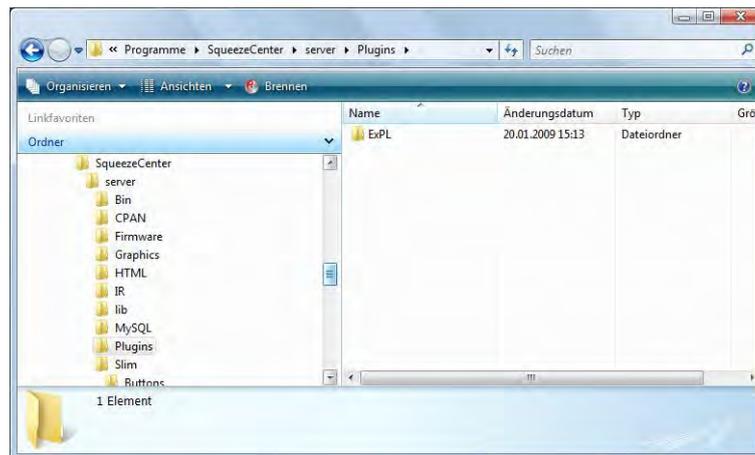


Fig. 80: Plugins folder for SqueezeCenter

- Restart SqueezeCenter (restart PC) and check under SqueezeCenter – Settings – Plugins if the ExPL Plugin has started.

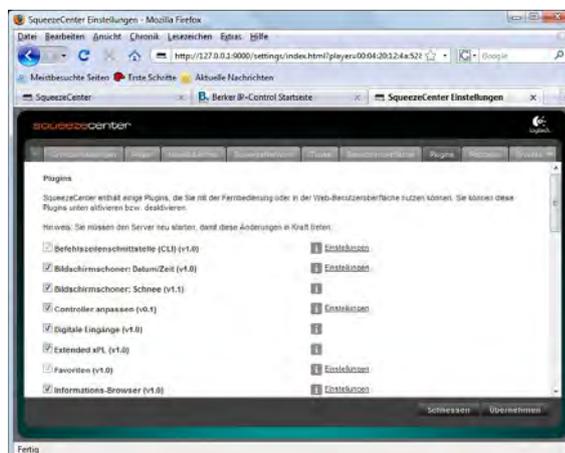


Fig. 81: SqueezeCenter settings

## Install xPL Hub

SqueezeCenter is runs on a Windows System

- Download Freeware Hub f.e. from [www.xplmonkey.com](http://www.xplmonkey.com) and install it as a Windows Service.
- ❏ More Hubs for different systems (f.E. Linux by using a network attached storage (NAS)) will be found at [http://wiki.xplproject.org.uk/index.php/Core\\_Software](http://wiki.xplproject.org.uk/index.php/Core_Software).

## Creating the SB Control job

An SB Control job is defined for each Squeezebox that is to be controlled via KNX.

### Parameters for SB Control

<i>Element Name</i>	Name of the job in IP Control (e.g. "SC living room").
<i>Enable Object</i>	The enable object can be used to block or activate the execution of the job.
<i>SB Name</i>	Instance name of the Squeezebox that is to be controlled using this job.
<i>Max. Volume</i>	Absolute limit for the maximum volume of this Squeezebox (in %).
<i>Max. Vol. Input</i>	Object for defining the maximum volume via the bus, e.g. via telegrams from a visualisation (0% – 100%, 1 byte, EIS 6, DPT 5.001).
<i>Min. Volume</i>	Absolute limit for the minimum volume of this Squeezebox (in %).
<i>Min. Vol. Input</i>	Object for defining the minimum volume via the bus, e.g. via telegrams from a visualisation (0% – 100%, 1 byte, EIS 6, DPT 5.001).
<i>Vol. Dimming</i>	Object for controlling the volume via relative dimming telegrams (dimming, 4 bits, EIS 2, DPT3.007).
<i>Dimming Spd. per s</i>	When the volume is dimmed up/down, the volume is dimmed each second by the set amount (in %).
<i>Vol. In Steps</i>	Object for increasing or decreasing the volume in steps by pressing a button briefly when there is a button with a dimming function; via switching telegrams (louder = on) (switching, 1 bit, EIS 1, DPT 1.001).
<i>Vol. Step Size</i>	Size of steps for changing volume in steps (in %).
<i>Output Volume</i>	Object for outputting the current volume as an EIS6 telegram (0% – 100%, 1 byte, EIS 6, DPT 5.001) .
<i>Set Volume</i>	Object for setting an absolute volume with a telegram. Is limited by the max. and min. volume (0% – 100%, 1 byte, EIS 6, DPT 5.001).
<i>Zone On/Off</i>	Object for switching the Squeezebox on/off (switching, 1 bit, EIS 1, DPT 1.001).
<i>Pause/Play</i>	Object for switching the pause function on/off (Pause = on) (switching, 1 bit, EIS 1, DPT 1.001).
<i>Title Forward/Back</i>	Object for navigating in the track list (Forward = on) (switching, 1 bit, EIS 1, DPT 1.001).
<i>Forward/Reverse</i>	Object for controlling the search function within the track (Forward = brighter) (dimming, 4 bits, EIS 2, DPT3.007).
<i>Forward/Rev. Spd.</i>	Parameter for setting the size of jumps for the search function within the track. The unit of measurement depends on the end device.

<i>Playlist Forward/Back</i>	Object for selecting the next or previous playlist (Forward = on) (switching, 1 bit, EIS 1, DPT 1.001).
<i>Text Display Output</i>	Object for transmitting the text information to a single-line text display (ASCII text, 14 bytes, EIS 15, DPT 16.000).
<i>Text Input Infotext</i>	Object for showing additional texts from an external source from the bus, e.g. fault messages (ASCII text, 14 bytes, EIS 15, DPT 16.000).
<i>Reset Text Display</i>	Object for resetting the alarm text line of the B.IQ display. The alarm text line can be used for the text information of this Squeezebox control. If the Squeezebox is switched off, the alarm function of the B.IQ display is reset and the normal display contents are shown again. Alternatively the B.IQ display can also be configured right away with a text line, or a different KNX display with a text function can be used, in which case this object is superfluous (switching, 1 bit, EIS 1, DPT 1.001).
<i>Reverse Reset</i>	This flag can be used to invert the output of the Reset Display object (similarly to the settings for B.IQ).
<i>Reset when Zone Off</i>	Selects whether the display is reset when the Squeezebox is switched off.
<i>Reset when Mute</i>	Selects whether the display is reset when the mute function is switched on.
<i>Display "no playlist"</i>	Controls whether "no playlist" is displayed when no playlist is available for selection.
<i>Display "no title"</i>	Controls whether "no title" is displayed when no title is available for selection.
<i>Time Playlist Visib.</i>	Time (in s) after which the text display of the selected playlist name returns to the standard display (as a rule the title of the song being played at that moment). All other text displays to which none of the other timeout rules apply also come under this parameter.
<i>Time Mute, On/Off</i>	Time after which the text display of the on/off and mute status returns to the standard display.
<i>Time Volume</i>	Time after which the text display of the volume status returns to the standard display.

The following job parameters define the interface to a high-performance visualisation interface that is capable of depicting up to four text displays on a single screen. Here SB Control depicts an extract of all of the available playlists. "Page PL Fwd/Back" can be used to display the next four or previous four playlist names. Transmitting a value from 0 to 3 selects the corresponding line and plays the selected playlist.

<i>Current Playlist</i>	Object for text output of the current playlist name (ASCII text, 14 bytes, EIS 15, DPT 16.000).
<i>Select PL Line 1</i>	Object for text output of the first item in the playlist selection (ASCII Text, 14 Bytes, EIS 15, DPT 16.000).
<i>Select PL Line 2</i>	Object for text output of the second item in the playlist selection (ASCII text, 14 bytes, EIS 15, DPT 16.000).
<i>Select PL Line 3</i>	Object for text output of the third item in the playlist selection (ASCII text, 14 bytes, EIS 15, DPT 16.000).
<i>Select PL Line 4</i>	Object for text output of the fourth item in the playlist selection (ASCII text, 14 bytes, EIS 15, DPT 16.000).

<i>Current Title</i>	Object for text output of the current title (ASCII text, 14 bytes, EIS 15, DPT 16.000).
<i>Current Album</i>	Object for text output of the current album (ASCII text, 14 bytes, EIS 15, DPT 16.000).
<i>Current Artist</i>	Object for text output of the current artist (ASCII text, 14 bytes, EIS 15, DPT 16.000).
<i>Page PL Fwd/Back</i>	Object for going to the previous or next page in the playlist selection (the next or previous 4 playlist names) (Forward = on) (switching, 1 bit, EIS 1, DPT 1.001).
<i>Select PL</i>	Object for selecting a playlist from the playlist selection. (Values 0-3 for selecting lines 1-4) (0 - 3, 1 byte, EIS 14, DPT 5.010)
<i>Command Input</i>	Object for accepting control commands (1 - 67, 1 byte, EIS 14, DPT 5.010). 2 – Update playlists. If the playlists in the SqueezeCenter have been modified, this command can be used to apply the changes in IP Control. 21 – Next playlist 22 – Previous playlist 23 – Next title 24 – Previous title 25 – Lower volume using dimming speed, stop with 27 26 – Raise volume using dimming speed, stop with 27 27 – Stop volume changing 28 – Lower volume by one step 29 – Raise volume by one step 30 – Zone off 31 – Zone on 32 – Play (Mute Off) 33 – Pause (Mute On) 34 – Transmit display contents again 35 – Start forward until stop with 37 36 – Start reverse until stop with 37 37 – Stop forward/reverse 38 – (B.IQ) Reset display 39 – Forward by one step 40 – Reverse by one step 62 – Display the current title 63 – Display the current playlist 64 – Display the current volume 65 – Display the switching state of the zone 66 – Display the play/pause state 67 – Display information: SB Control version, ExPL plugin version, current playlist source, current volume, minimum volume, maximum volume, zone status, mute status

**xPL sender**



The IP Control can send xPL datagrams as a function of the KNX telegrams. These datagrams can be heard and processed by other xPL participants in the LAN. One application in this context is the control of music playback via a SlimServer (refer to the section entitled Applications). The SB Control job is a job which is optimised for the control of the Squeezebox, and which performs the functions of the xPL transmitter (see SB Control job and the chapter "Applications").

### Input object

The input object determines which of a maximum of 16 commands are executed. The EIS types EIS 1 (1 bit) and EIS 14 (8 bits) are automatically interpreted – see **Input/trigger value**. On receipt of the input object the list of commands is worked through in full from the top to the bottom.

### Value object

If text is sent to one or more xPL subscribers, a value from the KNX value can be added to the text via this function - such as a temperature value. Almost all EIS types are available for the value object:

- EIS 1
- EIS 2
- EIS 3
- EIS 4
- EIS 5
- EIS 6
- EIS 8
- EIS 9
- EIS 10
- EIS 11
- EIS 14
- EIS 15

Furthermore, each value object can be calibrated with factor and offset.

### Service type

The service type defines the type of xPL datagram we are dealing with. There are three different types to choose from:

- Command
- Status message
- Event message

The entry **Command** nearly always makes sense, as most xPL commands originating from the IP Control are intended to be executed. If the status **Disabled** is selected the command is ignored during execution.

### Wildcard

If this entry is active then the IP Control transmits this command every time the input object is received.

### Input/trigger value

This value specifies whether this command is sent on receipt of the input object. To do this, either an EIS 1 or EIS 14 value must be received at the input.

Example:

If the input object of type EIS 14 with the value 147 is received, the IP Control transmits the command with the **input/trigger value** 147. The value range of the **input/trigger value** is 0–255.

### xPL broadcast

If this entry is active then this command is transmitted to all xPL devices in the LAN. For example, this can be used to simultaneously stop or start multiple SlimServers in the LAN.

### xPL manufacturer/device/instance

These settings are used for clear and unique addressing of a device for which the xPL datagram is intended. The address is made up of the **xPL manufacture**, the **xPL device** and the **xPL instance**.

The syntax is: **[manufacturer]-[device].[instance]**

For the SlimServer, this yields the following address: **slimdev-slimserv.instance**.

These values can be found in the xPL Hal Manager under xPL device. The instance corresponds to the name of the Squeezebox, e.g. LIVING\_ROOM. The names of the Squeezeboxes can be assigned via the SlimServer (Settings > Player).

**i** When assigning a name to the Squeezebox, please note that it must not exceed a length of 15 characters.

The IP control always transmits under the following address: **berker-ip-control.[serial number]**

### xPL scheme

The xPL scheme describes the device type/class and defines the associated commands. In some cases, a device may support multiple schemes. As well as the scheme **Audio.Slimserv** for audio control, the SlimServer also supports the schemes **Remote. Basic** and **OSD.Basic**. With the scheme **OSD.Basic** it is possible to control the display of a connected Squeezebox.

### xPL command

This is where the actual **command** is specified which is to be transmitted. The commands are linked to the selected scheme. Most of the commands do not require any further parameters, in which case there is no need to input the **additional data**.

### Additional data

This field is intended for the input of additional text parameters which are required for some xPL commands. This is, for example, the case with the scheme/command **Audio.Slimserv/play list**. The name of the **playlist** which is to be started is entered here.

Some of the commands are marked with **(VALUE)**. These can display the value of a value object in the command with the aid of a control character (%f). Detailed information about use of the control character can be found in Appendix 2.

If **OSD.Basic** is chosen as the xPL scheme and **write** as the xPL command then the text entered here is output on the display of the Squeezebox.

## SlimServer receiver



This job translates the title information transmitted by the SlimServer onto the KNX. This information is then displayed in the visualisation or on KNX displays. The title

information is sent by the SlimServer as xPL datagrams into the network. The SB Control job is a job optimised for integration of the Squeezebox, and which performs the functions of displaying the title information on KNX displays (see SB Control job and the chapter "Applications").

IP Control receives these datagrams and then broadcasts them as an EIS 15 value on the KNX. For this job, the services described in Appendix 8: (xPL requirements) must be installed and running.

## Settings

The name and enabling object have the same meaning as for the other jobs.

### xPL broadcast?

If this setting is active then the xPL datagrams are evaluated by all of the Squeezeboxes in the network. In this case, the xPL instance does not need to be set.

### xPL instance

The xPL instance defines which Squeezebox is used as the source. This differentiation makes it possible to evaluate the title information of just one Squeezebox even if there are multiple Squeezeboxes in the network. This value can be found in the xPL Hal Manager under **xPL device**.

The instance corresponds to the name of the Squeezebox, e.g. LIVING ROOM. When assigning a name to the Squeezebox, please note that it must not exceed a length of 15 characters. The names of the Squeezeboxes can be assigned via the SlimServer (Settings > Player).

## Outputs

Here you choose the group address to which one of the pieces of information (artist, album, song) is to be sent. The value of the object has the type EIS 15.

### Mode/display

The text can be displayed in different ways. You can choose between the following display variants:

- Left-aligned
- Right-aligned

The following display variants are still being implemented:

- From **start** character
- From **start** character (maximised)
- From **start** word
- From **start** word (maximised)
- Rolling to the left (by character)
- Rolling to the right (by character)
- Rolling to the left (by word)
- Rolling to the right (by word)
- Rolling to the left and right (by character)
- Rolling to the left and right (by word)

## Speed

This setting allows you to set the rolling speed. A distinction is made between the following speeds:

- Stationary (no rolling)
- Very fast
- Fast
- Normal
- Slow
- Very slow

## "Start" character/word

In planning.

## xPL Remote. Basic receiver



Not only can the IP Control send xPL datagrams to control other xPL devices and applications, but it can also receive them. This job then translates them onto the KNX. In this way, switching processes can be also instigated on the KNX by other xPL devices and applications. The requirement for this is that the scheme Remote. Basic is supported.

## Element name and enabling object

The element name and enabling object have the same meaning as for the other jobs.

## xPL broadcast?

When this entry is enabled the xPL datagrams from all xPL devices and applications are processed. If only the datagrams from one particular device should be processed, then this entry must be disabled and the full name (xPL manufacturer/device/instance) specified.

## xPL manufacturer/device/instance

These values are used for clear and unique addressing of the xPL devices, and they can be taken from the xPL Hal Manager under **xPL Device**. (Appendix 8: xPL requirements).

## Zone "broadcast"?

When this entry is enabled all xPL datagrams from all zones are processed. If the entry is disabled then attention is only paid to the xPL datagrams from the zone whose name is specified.

## Zone name

The zone name is either fixed or can be freely changed depending on the device or application. The zone for the SlimServers is called **slimserver**.

## Zone "broadcast"?

When this entry is enabled all xPL datagrams from all terminal devices located in the LAN are processed. If the entry is disabled then attention is only paid to the xPL datagrams from the terminal device whose name is specified.

## Terminal device name

For most devices, the terminal device name can be freely chosen. The choice of names that can be assigned and the specifics of how they need to be set up depend on the device and the manufacturer. Please refer to the operating manual supplied by the manufacturer. In the case of the Squeezebox, the terminal device name is the same as the xPL instance.

**i** xPL settings:

It is easiest to access the xPL settings via the monitor of the xPL Hal Manager. There you will be able to see all of the xPL datagrams in the network and derive the individual parameters (see Appendix 8: xPL requirements).

**Power status**

Here you can define what the status of the device should be for the xPL datagram to be further processed.

ON The xPL datagram is only processed if the device is switched on.

OFF The xPL datagram is only processed if the device is switched off. When switched off, the Squeezebox will only send the key code **dead** when any of the buttons on the remote control are pressed.

ANY The xPL datagram is processed regardless of the status.

**Entry no.**

With the send mode EIS 14, the entry No. is sent as a value to the corresponding group address.

**Outputs**

The entered group address is transmitted when the corresponding command is received.

**Send mode**

The send mode determines what is sent to the selected group address. The following send modes are available:

EIS 1 Switch over

EIS 1 ON

EIS 1 OFF

EIS 14 Entry no. equal to value

EIS 15 The key code is sent to the group address. If the key code "+." is entered then all received key codes are sent to the group address.

**Key code**

The key code which should be entered here depends on the xPL device. You can look it up in the documentation or manual for the xPL device, or you can use the monitor of the xPL Hal manager for observation. There you will be able to see the individual xPL datagrams in plain text.

The key code can also be made visible on the bus monitor or on displays. To do this, select the send mode EIS 15 and enter "RE:." (RE colon dot plus) as the key code. Then all received key codes will be sent as text to the selected group address and can be made visible on the bus monitor or on displays.

**IRTrans receiver**

This job makes it possible to trigger events in the KNX in conjunction with the IRTrans with any IR remote control. To do this, the IP Control receives the UDP datagrams transmitted by the IRTrans and then broadcasts KNX telegrams according to its configuration. The IRTrans with Ethernet connection and database is required for this application.

- i** The processes of setting up remote controls and learning the IR commands are performed with the aid of the IRTrans software. In the process, names are assigned to the remote controls and commands. These need to be known during the configuration of this job.

**Element name and enabling object**

The element name and enabling object have the same meaning as for the other jobs.

**Port number**

Only the UDP datagrams received via this port are processed. Use of port 21001 is preferred for IRTrans. Check the IRTrans settings in the web interface of IRTrans.

**IRTrans "Broadcast"**

When this entry is enabled all UDP datagrams from all IRTrans modules located in the LAN are processed.

If the entry is disabled then attention is only paid to the UDP datagrams from the IRTrans module whose name is specified.

**IRTrans name**

The name of the IRTrans which is to be listened to is entered here. If the entry IRTrans Broadcast is enabled then the name is ignored and all IRTrans modules are listened to. The name of the devices is assigned with the IRTrans software.

- i** Only use alphanumeric characters for the names.

**"RC" broadcast**

Multiple remote controls can be set up in one IRTrans. This entry must be enabled if all of the remote controls are to be processed by this job. Otherwise only the remote control whose name is entered will be used.

**"RC" name**

The name of the remote control which is to be listened to exclusively. If the entry RC Broadcast is enabled then the name is ignored and all remote controls are responded to.

**Entry no.**

With the send mode EIS 14, the entry no. is sent as a value to the corresponding group address. For example, this might be done in order to call up a particular light scene.

**Outputs**

The entered group address is transmitted when the corresponding command is received.

**Send mode**

The send mode determines what is sent to the selected group address. The following send modes are available:

EIS 1    Switch over  
          ON  
          OFF

EIS 14    Entry no. equal to value

EIS 15    The key code is sent to the group address. If the key code "+" is entered then all received key codes are sent to the group address.

## Key code

The name for the learned command assigned with the IRTrans software is entered here.

- i** **Important!** The processes of setting up remote controls and learning commands for the IRTrans are performed via the IRTrans software. Changes are not implemented until the database is loaded (flashed) into the IRTrans.

Check the port settings for the recipient. In the case of IRTrans, you can do this via the web interface of the device.

- i** You can access the web interface by entering the IP address in your Internet Browser. There, you will also be able to change all other settings for the IRTrans.

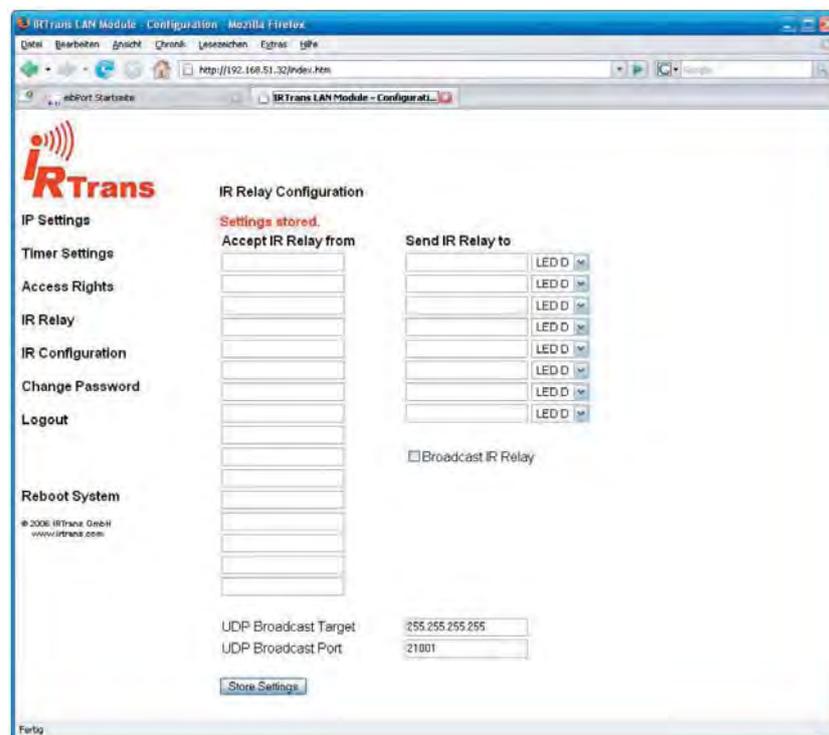


Fig. 82: Web interface IRTrans

Check the settings **IR Relay Configuration**. Enter the following parameters there:

- UDP port = 21001
- Broadcast address = 255.255.255.255
- Enable UDP relaying

- i** In order to avoid any mix-ups and improve flexibility, when using several IRTrans modules we recommend loading them all with the same database (flashing). This has the major advantage that all set up remote controls with commands are available in every IRTrans. This also means that the process of learning the commands, which can be lengthy, only needs to be done once. Changes to the assignment can be made quickly and easily in the Job Editor.

## UDP receiver

The IRTrans receiver job is a job which receives UDP telegrams and then sends out KNX telegrams on the basis of this. Thees UDP telegrams do not necessarily have to be sent from an IRTrans module, but can instead also come from other devices (e.g. from a PC in the network). In this way switching processes can also be triggered in the KNX by other devices Auf by means of UDP telegrams.

### UDP datagram

In order for the IP Control to be able to process the UDP datagrams, they need to comply with a particular syntax:

**<Name or remote control>,<Name of command> 0d 0a**

The two placeholders (<Name of the remote control> and <Name of the command>) stand for a freely chosen device PIN. The hexadecimal values **0d** and **0a** stand for **return** and **line-feed**.

Example:

living, light 0d 0a – This example telegram must be sent to the IP address of the IP control on the selected port.

### Job Parameters

The following parameters and values should be entered in the window of the IRTrans receiver job:

#### **Port number**

Enter the number of the port here to which the UDP datagram is to be sent. Enable IRTrans broadcast.

#### **"RC" name**

Enter the name of the remote control here (see UDP datagram).

#### **Key code**

Enter the name of the command here (see UDP datagram).

The remaining settings and parameters should be used in the same way as for a standard IRTrans receiver.

### Wake on LAN



With the aid of the job **Wake on LAN** it is possible to "wake up" up to 8 PCs or other clients via the network, i.e. to switch them into operating mode.

#### **Parameters**

##### **Active**

Selection of the active or enabled entries

##### **Wildcard**

If this flag is set then the WOL packets are transmitted for every input value.

##### **MAC address**

MAC address of the device which is to be woken up

##### **Transfer type**

Standard setting: UDP broadcast.

It is possible to switch over to UDP unicast in order to reach devices which are behind a router.

##### **Broadcast IP**

IP address of the device which is to be woken up

Standard: 255.255.255.255

**UDP port**

The port can be changed to allow the packets to pass a router.  
Standard: 40.000

**RSS Feed Sender**

The RSS Feed Sender sends item headings of RSS feeds in the form of 14-character ASCII texts to the bus, whereby the text runs through letter-by-letter or in block steps of up to 14 characters. A maximum of 8 different RSS feeds can be worked through in sequence, whereby a navigation and control can be implemented with EIS 14 telegrams.

**Enabling object**

Optional control object for activation [1] and deactivation [0] of the service.

**Command**

Optional control object for control and navigation. Control commands [EIS 14 values]:

- [100] New retrieving of all entries RSS from the Internet
- [101] Jump to next entered feed
- [102] Jump back to previously entered feed
- [103] Jump to next item heading within the current feed
- [104] Jump back to previous item heading within the feed
- [107] Accelerate the text display
- [108] Slow down the text display
- [109] Stop and continue the text display
- [110] Switch to the character-by-character running text display
- [111] Switch to the block-by-block display

**1. Output**

Object for outputting the RSS feed texts onto the bus.

**Update**

[15 .. 120 .. 3825] *minutes*

The feeds are updated from the Internet after the specified time.

**Speed**

[1 .. 2 .. 255] [s]

The time in seconds until the next text fragment is displayed.

**Pause**

[1 .. 4 .. 255] [s]

The time in seconds during a changeover until a further feed in the RSS feed list

**Jump width**

[1 .. 14] [characters]

The length of the RSS string of characters which is skipped during the display of the next text fragment.

**RSS Feed 0 .. 7**

**URL**

The URL for the desired feed (e.g. <http://www.tagesschau.de/xml/rss2> ).

**Quantity**

[1 .. 100]

The maximum quantity of displayed item headings per feed.

**Max. age**

[600 .. 35.791.394] [minutes]

The maximum age of a feed in minutes since the last update from the Internet. If the feed cannot be updated in this time then it is no longer displayed until the update.

**Fault displays**

Displays fault messages instead of the feed if it was not possible to retrieve the feed from the Internet.

**Announcements**

Displays the name of the feed before the display of the corresponding item headings.

**HTTP- Request**

Contents of web servers can be retrieved and processed or data sent to a server by means of http Requests. A valid Request consists of a URL with one or more parameters. The URL (Uniform Resource Locator) is composed of three parts - basic URL, target and value object(s). These can be freely configured in the job. Mandatory fields are element name, input object and Up to ten value objects can be defined.

Wildcard	Trigger Value	URL
<input type="checkbox"/> Target1	7	wert1=10
<input type="checkbox"/> Target2	1	
<input type="checkbox"/> Target3	2	

Fig. 83: Job-Editor - HTTP Request

**Element Name**

Mandatory field. A unique name by which the job can be identified unequivocally

**Enabling Object**

The job can be controlled by an enable (EIS 1).

**Input object**

Mandatory field. The input object must correspond to type EIS 14. The various entries are resolved in the target objects based upon its value. If the "wildcard" option is set in the target objects, the triggering EIS 14 value is not relevant.

**Error text**

If the query is not successful, the server usually displays an error message. The job can reproduce this as EIS 15 text message.

**Protocol**

"http", "https" (http-Secure) can be used as protocol. Https transfers the data encrypted. The server and client (IP Control) must exchange certificates and keys for this purpose. The establishment of a connection therefore takes much longer.

**Basic URL**

Mandatory field. The address of the server to be addressed is entered here. DNS names or IP addresses can be used. With a DNS name, the DNS settings in the IP Control must be correct or the entered DNS server must be reachable.

- i** A DNS request might take slightly longer. The IP address of the server can be entered to accelerate the execution of the job. The DNS request is then not necessary.
- i** If the IP address of a DynDNS account changes, this might differ for a short period of time from the address stored in the internal DNS table. Then the request is set to the wrong address.

**Auth Name and Auth Password**

User name and password can be entered here for an http authentication if necessary. If the "http" protocol is activated, the http Basic Authentication is used. User data and password are transferred unencrypted. In the case of "https", the same logon is used, but the transfer of the authentication data is encrypted, too.

**Number of targets (target objects??)**

Several targets can be assigned to each basic URL. The variable part of the URL that changes for the different function calls is entered in the targets. A maximum of 8 targets is possible.

**Wildcard**

If this option is activated, the corresponding target and the job is triggered by any EIS 14 trigger value.

- i** Only one target is "retrieved" per http request so that there can only be one wildcard entry per job

**Trigger value**

Is an EIS 14 value that triggers the request with the respective target. EIS 14 can have a value from 0 to 255.

**URL**

The basic URL is completed with this field. The variables "\0" to "\9" must be used in order to transfer the value objects entered in the following part. Whereby the "backslash" 'announces' a value object and the following number determines the value objects 1-10. "0" is value object 1 and "9" is value object 10

- i** The separation by a "/" (slash) character is not added automatically between basic URL and URL completion. This must be set by the user either at the end of the basic URL or at the beginning of the URL completion.

**Value objects**

Up to ten value objects can be defined. Every value object can contain the following EIS types:

- EIS 1
- EIS 5
- EIS 6
- EIS 9
- EIS 10
- EIS 11
- EIS 14
- EIS 15

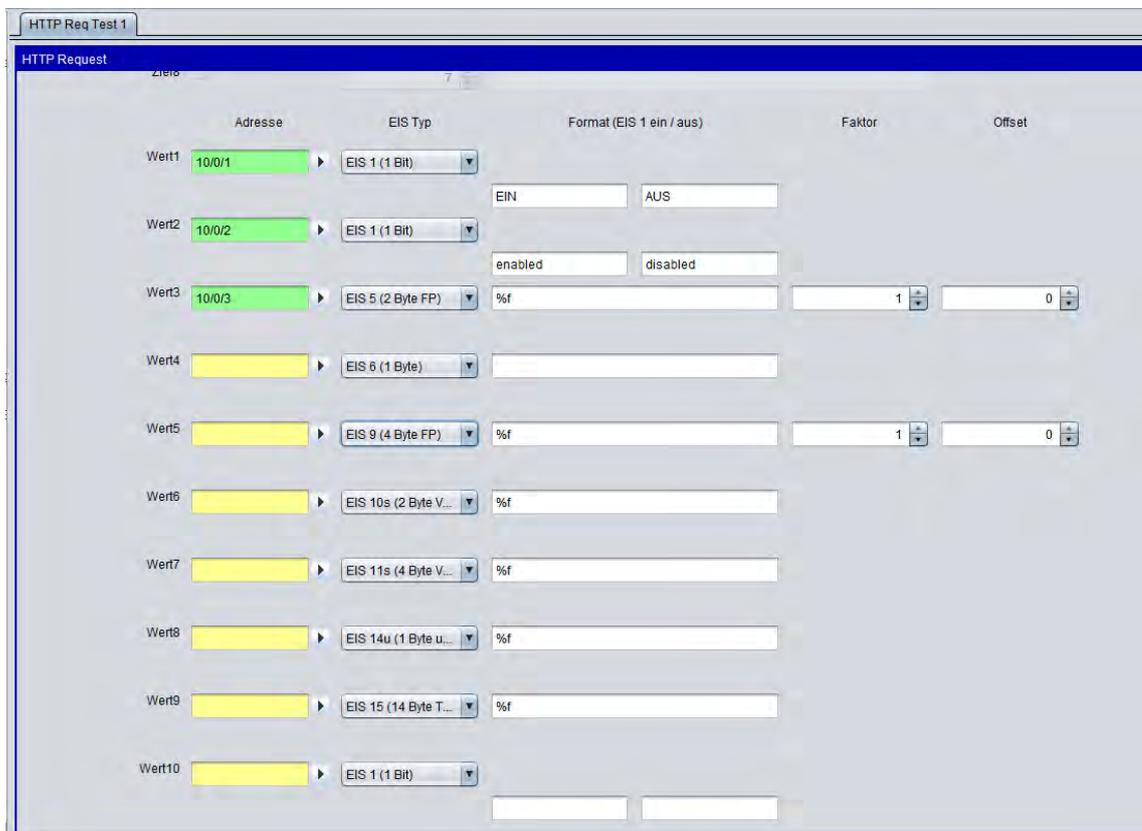


Fig. 84: Job-Editor - HTTP Request Value Object

**Address**

Specify the group address here that the corresponding value object should transfer.

**EIS Type**

The format field behind changes with each EIS type.

**Format**

The format field is set depending on EIS type. The format field is used for giving the incoming value object the desired formatting. The format is an expression that must be entered according to the output value in the URL completion. Thus, "ON" or "OFF" can be used instead of "1" or "0" for EIS 1.

- EIS 1: A text can be specified for "1" and "0".
- EIS 5 and EIS 9: Factor and offset are adjustable. The value is multiplied by "Factor" and added with "Offset".

- EIS 6: Is interpreted as a percentage value from 0% to 100%. The percent sign is not transferred. This must be entered in the URL completion (by means of "%").
- EIS 10, EIS 11 and EIS 14: Are copied directly to the URL completion as text values.
- EIS 15: These values are copied directly as text values. Consequently, completely free completions can be realised from the KNX. EIS 15 allows a maximum of 14 characters.

## Graph



The visualisation element **Graph** produces a curve of values plotted over time. Application examples for this include temperature curves, counter states, power curves etc. The telegrams are taken from the ring buffer (500,000 telegrams) from IP Control.

### Supporting the IP control tablet visualisation

- i** This element is also displayed in the Ajax visualisation. The graph provides several additional functions there that cannot be used with the Java visualisation. The corresponding functions are marked in the parameter window with an "\*".

The screenshot shows the parameter window for the Graph element, organized into several sections:

- Graph**
  - Beim Start aktualis...
  - Gitternetzlinien Far...
  - Achsen Farbe
  - Achsen Format
  - Achsen Limit
  - Min. Wert
  - Max. Wert
  - ESF Daten nutzen
- Graph Daten**
  - Auto. Aktualisieren
  - Zeitbereich
  - Fester Zeitbereich
  - Vor-/Nachlaufzeit
  - Bereich "Blaettern"
- Kurve 0**
  - Berechnung
  - Interval
  - Adresse
  - Datentyp
  - Titel
  - Faktor
  - Offset
  - Farbe
  - \* Kurventyp
  - \* Stufen zeichnen
  - \* Punkte zeichnen
  - \* Wert fortfuehren

Figure 85: Graph - Parameter

### Updating at the start

The graph updates its entries immediately when starting the visualisation.

### Grid Line Colour / Axis Colour

Determine the colour from the grid and axes.

### **Axis Format**

This text field influences the number format of the y-axis. The number of permissible digits before and after the decimal point is defined. The following Syntax applies here:

- A "0" stands for a mandatory digit, i.e. the digit is still displayed even if no value is present.
- A '#' stands for an optional digit. The digit is only displayed if a value is actually present. However, the system will never display more digits than indicated.
- A "." stands for the decimal point.
- If, for example, a percentage sign is to be added, then this must be put after the number in inverted commas (').

Examples:

The number "21.2" is to be displayed. If the number format is defined as "00.00", then the number "21.20" is displayed. If the number format is defined as "0.##", "21.2" is displayed. A percentage sign with "0.##%" is inserted

### **Axes Limit**

The y-axis is set to a fixed value range with this checkmark. The range can then be set in the fields below.

- i** Care must be taken to ensure that the graph with the corresponding data setting also finds values in the history table. If the data of a corresponding group address is assigned with a time stamp long before the current time e.g. due to an incorrect eibPort time, the data will not be seen in the graph (or the graph will have to be scrolled backwards until this date).

### **Auto. Update**

Once the visualisation is opened, the graph updates itself automatically after this interval (in minutes). At the same time, current data is retrieved again from the IP control history table and new measurement points are calculated.

### **Time range**

Determines the underlying time frame of the graph. The following choice is possible:

- 1 hour
- 3 hours
- 6 hours
- 12 hours
- 1 day
- 2 days
- 1 week

### **Fixed time range**

When activated, the time range is always displayed continuously from beginning to end. If the option is deactivated, the time range is always calculated back from the current time.

### **Lead time / delay time**

Determines the time interval in minutes, in which data is taken into account even before and after the beginning or end of the time range. If, for example, the time range is set on a day, values will also be taken into account that were active before or after 0:00. Otherwise, the graph would not accept any value ("0") at this point and would display incorrectly.

### **Range "Scroll" (also available under Java)**

With this option, the user can scroll forwards or backwards in the visualisation by the respective set time range if data is available at this time.

### **Calculation**

A distinction is made between two different types of calculation:

- Total: The value of the object is plotted absolute over time. In the case of a counter status measurement the graph would rise continuously
- Difference: The difference between two sequential values of an object is plotted over time. The frequency of the differential measurements in minutes can be adjusted under "Interval". The smaller the time interval, the more accurate the graph.

### **Data type**

The display of the following EIS formats is supported:

- EIS 1 (1 bit)
- EIS 5 (2 bytes FP)
- EIS 6 (1 byte)
- EIS 9 (4 bytes FP)
- EIS 10s (2 byte value)
- EIS 10u (2 byte unsigned value)
- EIS 11s (4 byte value)
- EIS 11u (4 byte unsigned value)
- EIS 14s (1 byte value)
- EIS 14u (1 byte unsigned value)
- DPT 29 (8 byte signed value)

**i** The appendix offers an overview of EIS types in conjunction with DTP data types.

### **Title**

Enter a legend for the curve here. The text is displayed below the graph in the curve colour selected.

### **Factor / Offset**

The input value can be formatted in any way required by means of Factor and Offset. The value is multiplied by "Factor" and added with the "Offset".

### **Colour**

Determines the colour and curve of the title.

### **Curve type (only with IP control tablet visualisation)**

Curve type determines which form of diagram is displayed. The following is available for selection:

- Line: A line diagram is drawn
- Area: An area diagram is created in which the area below the line is marked correspondingly.

### **Drawing levels (only with IP control tablet visualisation)**

If activated, levels are drawn instead of curves. This is interesting, for example, when representing EIS 1 values.

### **Drawing points (only with IP control tablet visualisation)**

The various measuring points are drawn on the line of the graph upon activation.

### **Continuing value (only with IP control tablet visualisation)**

If no value for a group address is recorded for a group address for some time, this can result in the graph displaying "0", for example, (when intermittently changing the time range) even though the previous value of the group address is still actually active. With this option, the value is presented so that the value currently in the chart is displayed.

### **Functionality within the JAVA visualisation**

Within the Java visualisation, the 'Diagram' element offers further functions which can be called up by right-clicking on the diagram:

- *Refresh:*  
Refreshes the values of the diagram.
- *Export as image...:*  
Opens the file browser so that the diagram can be saved as a graphics file (\*.png).
- *Export as CSV...:*  
Opens the file browser in order to save the values of the diagram as a CSV file.

### **Information for the history table (ring buffer)**

The graph uses past values. To do this, it needs to use the ring buffer of the IP Control (EIB history table) This has capacity for 500,000 telegrams. In the process, the oldest telegram is replaced by a new one 500,000 telegrams may not be enough for the desired time period sometimes. This is remedied here by the history recording filter:

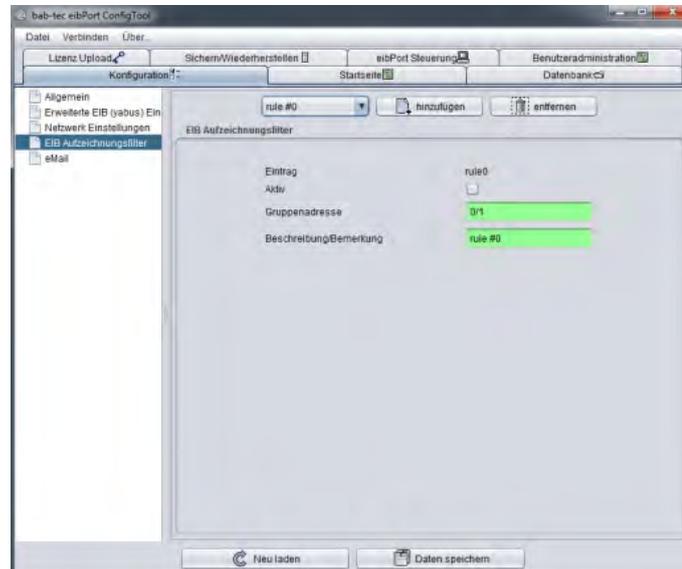


Figure 86: ConfigTool - EIB history recording filter

A history recording filter needs to be set up so that the graph can also display consumption data etc. for longer periods of time. This determines from which group addresses the data is written to the ring buffer. The recording history filter is created under "System" > "Configuration" > "EIB History Recording filter" via rules. It is possible to specify either complete group addresses or ranges. A wildcard character (\*) is entered for ranges.

Example: "1/\*/\*" (without quotation marks) means that only the data of the main line 1 are recorded. It is sufficient to enter "1/1/\*" if you wish to filter by the middle group. When filtering by whole address, that address is simply entered.

## 6.5 Berker IP Control Mobile (IPCM)

IP Control Mobile is an IP Control visualisation for mobile terminal devices such as the iPhone, iPod Touch or mobile phones/PDAs with suitable Internet browsers (e.g. Opera mobile). This means that you can use mobile terminal devices to switch lights, change temperatures or query values, as well as to integrate the image of a webcam and to control multimedia. You can set up and configure the IP Control Mobile using the IP Control Mobile Editor.

The user interface of IP Control Mobile is accessed via the browser of your mobile phone.

**URL:**

*http://172.70.60.18/ipcm*



Fig. 87: Example of user interface for mobile applications

## IP Control Mobile Editor

You can use the IP Control Editor for IP Control Mobile to create the project for your mobile phone, PDA or iPhone. Directories and elements are available for setting up a visualisation in IP Control Mobile.

### Directories

The directories are located inside of a view; they can be used to reproduce any desired tree structures (directory > subdirectory > subsubdirectory...> element).

### Element

An element has certain properties (see element types), and is located in a directory. Each element has assigned to it a group address that it listens to and also transmits to in the event of active operation.

### Available element types

#### EIS 1 on/off

On/off is transmitted when operation is activated. When operation is deactivated, this element can be used as a simple status display.

#### EIS 5 temperature

This element has actual and setpoint displays that indicate the values of the assigned group addresses. When operation is activated it is possible to change the setpoint temperature in the specified steps using +/-.

### EIS 5 value floating point

Depicts values of the type EIS 5. It is also possible to define maximum and minimum values and steps for the operation.

### EIS 6 value 0-100%

Depicts values of the type EIS 6. It is also possible to define maximum and minimum values and steps for the operation.

### EIS14 value 0-255

Depicts values of the type EIS 14. It is also possible to define maximum and minimum values and steps for the operation.

### Camera

Displays the image of a webcam; to enable this the parameters of the URL for the freeze frame of the camera must be entered in the parameters (e.g.: [http://<camera\\_IP>/jpg/image.jpg](http://<camera_IP>/jpg/image.jpg)). Please refer to the user instructions for your camera.

### Shutter

Element for controlling a Venetian blind / roller blind.

### MediaControl

Controls the media player connected to the system.

### List

Element for starting playlists (e.g. from SqueezeCenter™)

## Working with the IP Control Mobile Editor

### Calling up the IP Control Mobile Editor

- Using a PC, establish a connection with IP Control and open the **Editor** on the IP Control start page.
- Use the menu **Window > IP Control Mobile** to access the IP Control Mobile Editor.

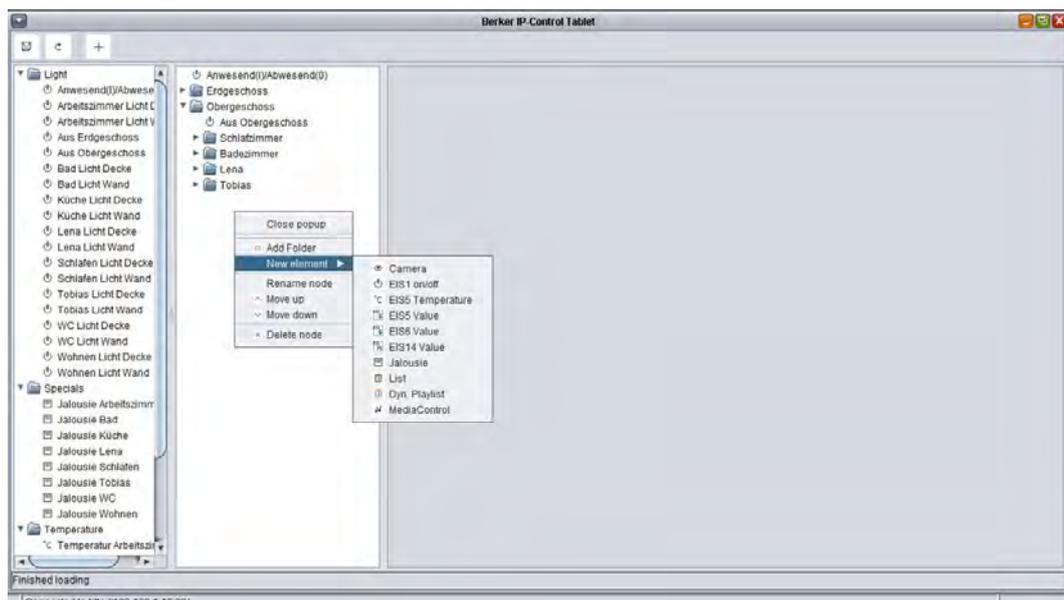


Fig. 88: IP Control Mobile – editor and pop-up menu

## Functions

The following commands can be accessed quickly via the menu bar:

-  Load - The current IP Control Mobile Project is loaded from IP Control.
-  Save - Saves the IP Control Mobile project in IP Control.
-  New Element – Opens a selection list that can be used to add a new element of the desired type

## Left column - Element overview

In the element overview, all necessary elements are first added via the corresponding button in the control menu. Each element is created automatically in a category folder. Hence, the element "EIS 14 value" is stored in the "Value" folder, for example. In this column, all necessary elements are sorted by their category and can be configured via the parameterisation window (right column). The context menu is used for deleting an element or entire folder.



Fig. 89: Mobile Editor - Element overview

## Middle column – Visualisation view

The middle column corresponds to the view in the visualisation. The division made here can also be seen later in the mobile phone browser. The division made here can also be seen later in the mobile phone browser. A folder is created via the context menu (right-click in the column). The elements parameterised previously in the left column are dragged into the desired folder by "drag & drop". The display can, for instance, be allocated according to floors and rooms and/or functions. The context menu is used for deleting an element or entire folder.



Fig. 90: Mobile Editor - Visualisation view

## Right column - Parameterisation window

In the right column, the parameters of the elements are entered. These are displayed as soon as a selection is made in the left or middle column. During the parameterisation, it makes no difference in which column the element is selected.



Fig. 91: Mobile Editor - Parameterisation window

### Address assignment

The addresses in the IP Control Mobile Editor can be assigned comfortably via the ESF dialogue as in the case of the other editors. This dialogue is opened by clicking on the arrow symbol adjacent to the address input field. An overview is displayed via the addresses of the uploaded ESF file or address matrix. An address is assigned to an object by double-clicking. A maximum of five addresses can be assigned to each input object. Feedback addresses are entered in brackets behind the address used, separated by commas.

### Protecting access to IP Control Mobile using a password

To prevent unauthorised access to the IP Control Mobile visualisation, you can activate a password. This can be done in the configuration tool in the area User Administration using the button IPCM Password. (Figure 23)

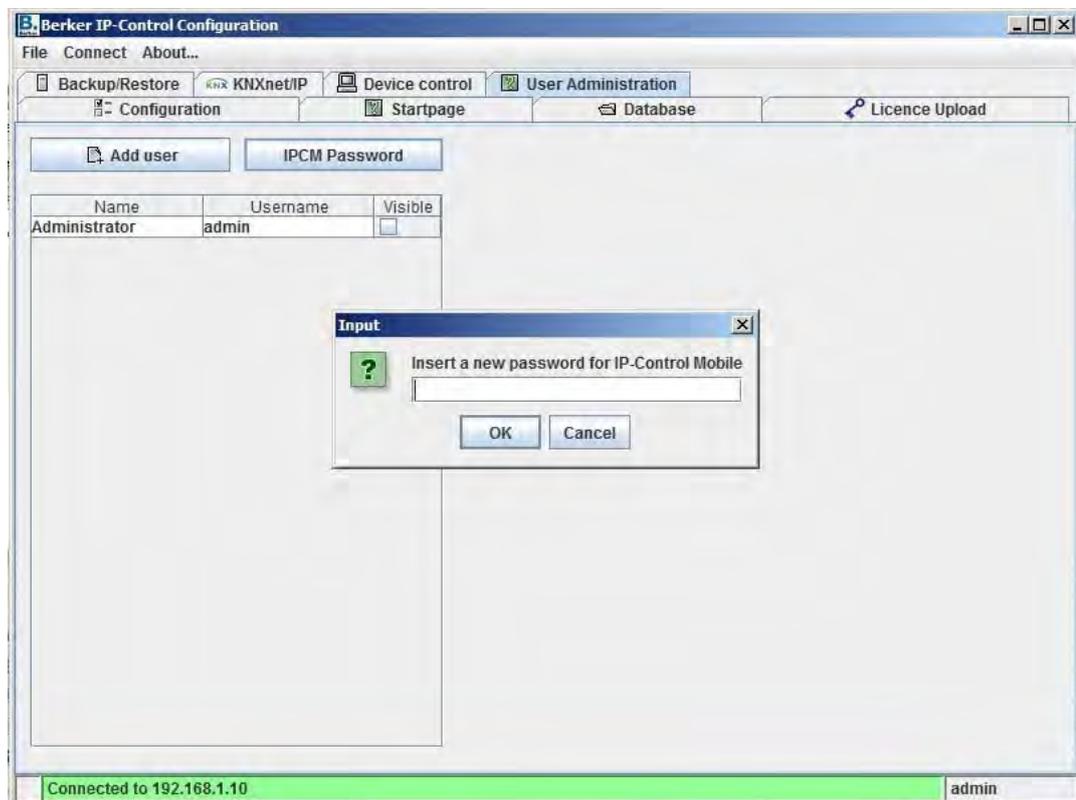


Fig. 92: Assigning passwords in the configuration tool

**i** If no characters are entered, IP Control Mobile can be accessed without a password query.

- i** If a password has been entered, a password query appears in the browser when the IP Control Mobile page is called up. The username here is always "ipcm" (Figure 23).



Fig. 93: Password query in mobile applications

## 7 System

With the aid of this menu item you can access the configuration tool. There you can select/change the basic parameters and various settings for the integration of IP Control in network routing, password administration etc. The chapter "Initial installation" covers these settings in detail.

### Device PIN

Before you can access the configuration tool you will be asked to enter a device PIN. The PIN of the device can be found on a sticker in these instructions and on the back of the device. It is used to identify the IP Control and is unique.

- i** The device PIN cannot be changed and is requested every time the configuration tool is accessed. The device PIN is used to protect the IP Control settings against misuse. Please note that the device PIN input is case sensitive.

### Passwords

In addition to the device PIN, access to the configuration tool is also protected with user names and passwords. The passwords can be changed in the System area.

The following default passwords are active on delivery:

Area:	User name:	Password:
Visualisation Editor	admin	berker
System	admin	berker

- i** To change a password the new password needs to be entered twice. This prompt does not appear when no password is entered. Access rights to the visualisation pages are assigned under the user management in the Visualization Editor.

## 7.1 Configuration tool

Adjustments of settings and parameters for the IP Control are performed independently of the ETS via the configuration tool. All settings are implemented here: uploading images and files, setting up users, creating backups, ...

### Configuration

The parameter categories are contained in the panel on the left. Click on a category to have the parameters displayed in the right-hand panel. The number of displayed parameters depends on the user rights. The Online help function will assist you with parameter setting.

To display the Online help function, click on a parameter name with the mouse. In this chapter you will find more in-depth information about the following categories:

#### General

This is where fundamental settings like names, physical addresses and assembly/installation locations are defined.

#### Expanded KNX (bxd) settings

Further settings are selected here. These include for example the port selection for communications.

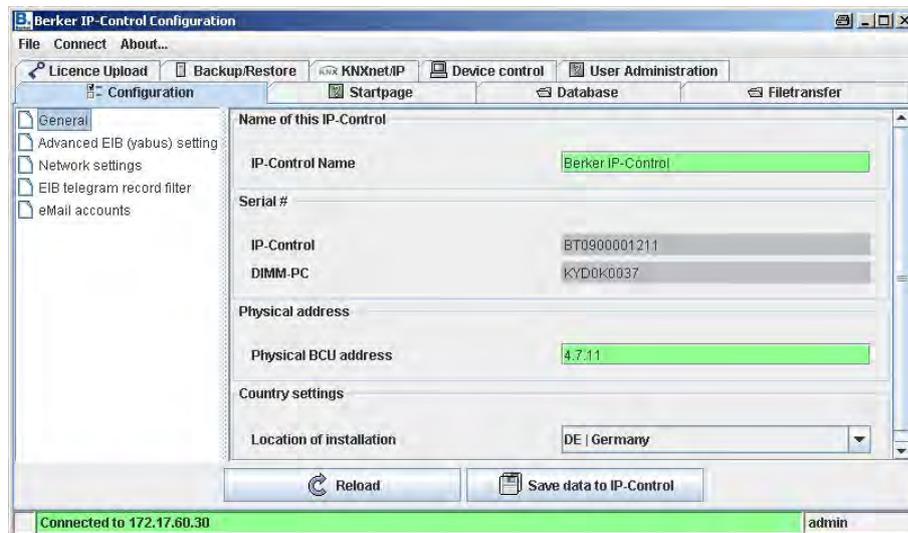


Fig. 94: Configuration tool window

## Network settings

### Use DHCP

If **Use DHCP** is enabled then the following four parameters (IP address, subnet mask, ...) are not taken into account. The IP Control does not receive these parameters from the DHCP server in the network. The IP Control will reboot after these settings are changed. This process will take a moment.

### DNS server

If you are using a DNS server to resolve the names then you can enter its IP address here.

### Time server

**i** If no time server is used, the clock of the IP Control must be set manually (**see Section 4.1 Setting the clock**); otherwise errors will occur in the transmission of commands between the PC and IP Control.

The IP Control can be used as an KNX clock. It gets the current time from an NTP server (Network Time Protocol) and adjusts its own internal clock accordingly. This time can then be sent via a time transmitter to other KNX participants. For this function, enter the IP address or the name of one (or preferably two or even three) NTP time servers.

Public NTP servers:

- |   |  |                               |
|---|--|-------------------------------|
| – | Physikalische Technische Bundesanstalt | <b>ptbtime2.ptb.de</b>        |
| – | Technical University of Berlin         | <b>ntp1-0.cs.tu-berlin.de</b> |
| – | University of Erlangen                 | <b>ntp0.fau.de</b>            |

Please note that the IP Control must establish a connection to the Internet before you can use this function. Make allowance for this in the network administration. The IP Control will attempt once a day to reach a time server in order to match its time. If the attempt at reaching a registered NTP server fails repeatedly then the IP Control will attempt this process again at particular intervals.

### KNX group address filter

The IP Control saves the last 10,000 telegrams in its ring memory. Rules can be defined here as to which group addresses are stored in the memory. In this way, individual group addresses can be selectively acquired or entire middle groups/main groups can be acquired in this way.

## E-mail

In order to send out e-mails, additional settings need to be selected as well as configuring the e-mail job. The necessary providers need to be set up via whom the e-mails are sent out. Instructions on how to set up e-mail providers can be found in Appendix 9.

## File transfer

Pictures and graphics, IP Control components and ESF files can be loaded into the IP Control here.

### Loading pictures

Pictures and graphics for the visualisation are loaded here. The following formats are supported: JPEG, BMP, TIFF and PNG.

- Click on **Choose File** and select an image file.
- Enter a description in the **Description** field and click on **Start Upload**.  
Progress is indicated on the bottom edge of the window. The overview window shows a list of loaded pictures and graphics.
- Click on **Refresh list** to update the list.

### Loading IP Control components

Here files are loaded from freely definable switches. Freely definable switches are created and saved with the separate ComponentBuilder.

- Click on **Choose File** and select a file.
- Enter a description in the **Description** field and click on **Start Upload**.  
Progress is indicated on the bottom edge of the window. The overview window shows a list of loaded pictures and graphics.
- Click on **Refresh list** to update the list.

### Login an ESF file

Data can be loaded from ETS projects in order to facilitate the assignment of group addresses in the different editors. The address table then shows the available group addresses in the ETS project together with a description. Please refer to the help files provided with the ETS for more information on how to export data from ETS into an ESF file.

- Click on **Choose File** and select a file.
- Click on **Start Upload**.  
The ESF file is loaded into the IP Control.

## Save/Restore

The configuration files as well as all jobs, visualisation files and pictures can be saved and subsequently restored.

### Performing a save

The save file can contain the following information:

#### Configuration files data:

Saving of the configuration files

#### All files:

Saving of configuration files, jobs, visualisation data and pictures/graphics

- Click on **Save**.
- Enter a clear and unique name and click on **Save**.

The save is performed.

#### Restoring saved data

- Click on **File** and select a saved file.
- Click on **Restore**.

The saved data are restored.

- i** IP Control will reboot after restoring a project. This process will take a short time (around 1 – 2 minutes). During the boot process IP Control cannot be reached and changes are not adopted.

## Control of IP Control

Cold start: Complete restart (corresponds to disconnecting the power supply)

Warm start: Restart of the KNX kernel

LED test: Test of the Signal LEDs

BCU reset: Restart of the BCU

## User administration

The user administration in the configuration tool is independent of the user administration in the Visualisation (Visualisation Editor). In the Visualisation Editor the user rights are defined for access to visualisation data. In the configuration tool the user rights are defined for access to the configuration tool functions.

### Creating a new user

- Click on **Add User** and enter a user name.

If the option "Visible" is selected then the user name is displayed in the selection list during user logon.

### Assigning user rights

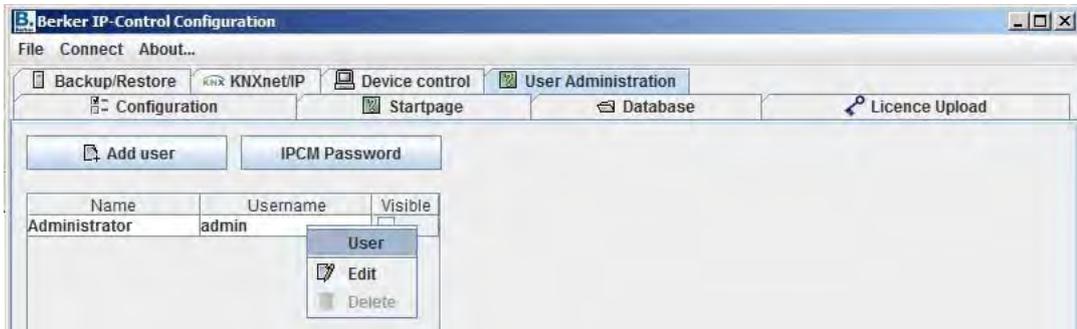


Fig. 95: User administration view

- Right-click on a user name and select **Edit** from the context menu.

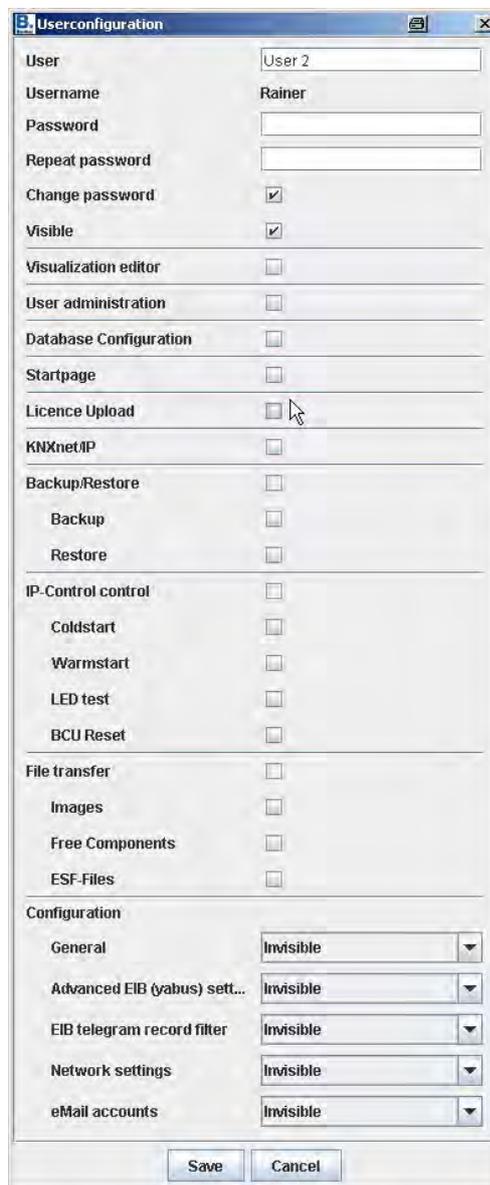


Fig. 96: User settings

**User**

The name of the user.

**User name**

The user name used to log on (this is defined when a new user is created).

**Password/Repeat password**

User logon password and repeat input of the password for verification.

**Change password**

If this is set then you will be prompted to define a new password during every user logon.

**Visible**

If this is set then the user name is displayed in the selection list during logon.

**Visualisation Editor**

The user will only be granted access to the Visualisation Editor if this option is selected. The user name and password are then requested when the user accesses the Visualisation Editor.

**User administration**

If this option is set then the user is granted access to the user administration of the configuration tool. The following parameters define whether the user is to have access to the different areas of the configuration tool.

- Check the boxes for the areas for which the user is to be granted access.  
Areas for which access has not been granted will be hidden in the configuration tool.

**Save/Restore**

Access to the Save/Restore data area.

**Control of IP Control**

Access to the IP Control restart functions.

**Data transfer**

Access to the functions for loading pictures, own switches created with the ComponentBuilder and ESF files.

**Configuration**

In the Configuration area you can assign the following user levels to the individual parameter categories.

User level	Effect/function
Not visible	The parameter category is hidden.
Level 1	Initial start-up; only the parameters required for initial start-up are displayed.
Level 2	Standard
Level 3	Expanded access
Level 4	Full access to all parameters

- i** The MouseOver help function shows which parameters can be edited at the respective levels.

### Delete user

- Right-click on a user name and select **Delete** from the context menu.

## Database

The IP Control can establish a connection to a database and write numerous types of information to that database. As well as telegrams and the current status, log information can also be recorded in the database.

### Establishing a database connection

- Right-click in the left-hand field.  
A popup menu will appear for creating a new database connection.

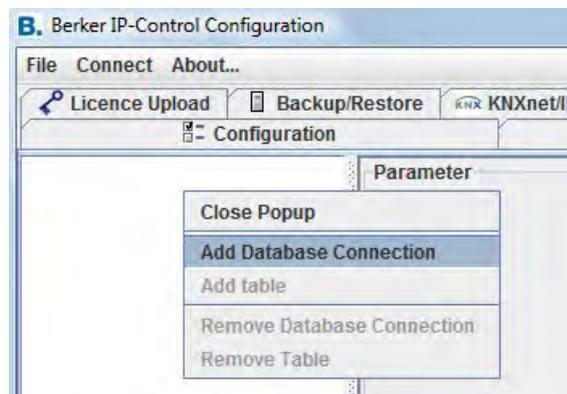


Fig. 97: Database connection window

- Enter the following parameters in the window:

Description	This is the name used to set up the database connection in IP Control.
Enable	This checkmark is used to enable and disable the database connection.
Database type	At present, IP Control only supports MySQL databases.
Host	The IP address of the computer on which the database is stored.
Port	The port for the database communications; the default port is 3306.
Database	The name of the database.
User name	User names The user must be given the rights INSERT, DELETE and UPDATE in the administration of the MySQL server.
Password	Database password

- Save the parameters by clicking on the **Save** button.

The information is saved in a table in the database.

The following table types are available (they only differ in terms of the information written to them by the IP Control):

#### **Status table**

Table showing the current states in the KNX.

#### **Telegram table**

All telegrams are collected in this table.

**Log table**

Numerous types of log information are collected in this table.

**Adding a table to the database connections**

- Add the table by right-clicking on the database connection.

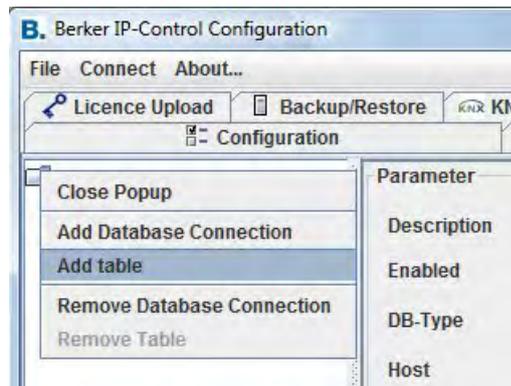


Fig. 98: Database connection configuration tool

- Next please enter the following parameters:

Parameter

Description:

Enabled:

Type:

Name:

Description	Enabled
System ID	<input checked="" type="checkbox"/>
SerialNumber	<input checked="" type="checkbox"/>
Group Address	<input checked="" type="checkbox"/>
Data	<input checked="" type="checkbox"/>
Telegram ID	<input checked="" type="checkbox"/>
Process ID	<input checked="" type="checkbox"/>
IP-Control Time	<input checked="" type="checkbox"/>
Last Time	<input checked="" type="checkbox"/>
Source Type	<input checked="" type="checkbox"/>
Source Address	<input checked="" type="checkbox"/>

Fig. 99: Database connection parameters

Description	This is the name used to set up the database connection in IP Control.
Enable	This checkmark is used to enable and disable the database connection.
Type	Table type
Name	Name of the table

In the table underneath you can define which types of information are to be written to the database table. With the aid of the **Generate SQL Statements** button you can generate the SQL commands with which the corresponding database is created on the server.

- i Important!** The information can only be written to the database if it is possible to establish a connection to the database. Physical interruptions (disconnected mains plug, failure of a router or other network components) will result in the loss of information.

**Status table**

This table collects the current states of the KNX group addresses and their time stamps. This table type is also necessary for the IP Control Mobile (previous version 0.8.5) Visualisation.

**Telegram table**

All KNX telegrams (group address, value and time) are collected in this table.

**Log table**

Log information is collected in this table. The recording depth of these log messages can be set in the configuration tool.

Telegram table	Status table	Log messages
System ID	Serial number	IP Control time
Serial number	Group address	Relevance
Group address	Data	Serial number
Data	Telegram ID	Origin
Telegram ID	Process ID	Text
Process ID	IP Control time	Process ID
IP Control time	Initial time	The most recent time
The most recent time	The most recent time	Log ID
Source type	Source type	Repetition counter
Source address	Source address	
Routing counter	Routing counter	
	Update counter	

**Generate SQL instruction**

The appropriate instructions that cause a database server to create the database with the corresponding tables are generated with the "Generate SQL instruction" button. The instruction can be changed via the checkbox in the upper part of the window if an existing database of the same name should be deleted.

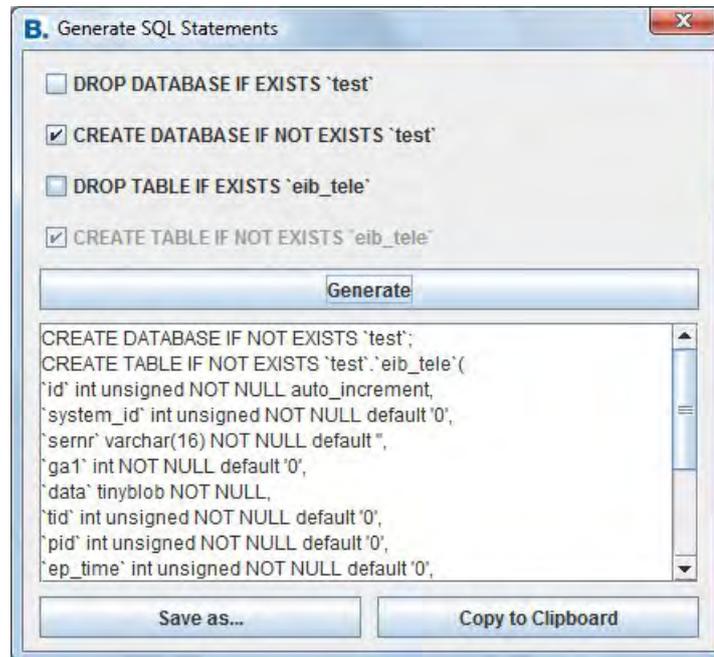


Fig. 100: Configuration Tool - database connection- generate SQL instruction

## Start page

The start page of the IP Control can be loaded with various options or with your own picture or graphic. The following options are available:

### ***Display standard page***

The familiar start page with the buttons **Visualisation**, **Editor** and **System** is displayed.

### ***Open visualisation in a separate window***

The visualisation is launched directly in a new window.

### ***Opening visualisation in a browser window***

The visualisation is launched directly in a browser window.

### ***User-defined start page***

The background image uploaded here is used as the background image.

- i** Regardless of the settings chosen here, the standard page can be reached directly under the following URL:  
<http://<IP-Control>/bmxJava2/default.php> (see also Appendix 10: URL parameters)

## KNXnet/IP

To couple the IP Control to KNXnet/IP gateways, activate KNXnet/IP. As a result, all KNX telegrams are broadcast to all KNXnet/IP gateways, and all KNX telegrams are received by all gateways.

Filter rules can be defined by clicking on **Advanced**. This means that only entered group addresses are transmitted or received.

## 8 Object Structure

IP Control replicates the structure of the communication objects of the KNX. This means that up to 5 group addresses can be assigned to each object. This allows the assignment of the group address of e.g. an actuator channel to be directly replicated. This keeps IP Control informed at all times about the actual status of the actuator (not the group address), thus negating the need for complex working with return messages. This approach simplifies the task of creating logical links, as up to 5 group addresses can be assigned to each input object of the gates.

IP Control supports 32 main groups (with 2 or 3-digit syntax). These are divided up as follows:

### IP Control address space

0–15      Real KNX address space

**i** The real KNX address space is sent by the IP Control to the KNX.

16–31      Virtual KNX address space

**i** The virtual KNX address space is used by the IP Control in the network and internally in the IP Control.

On the basis of this division of addresses the real KNX bus load can be reduced. A centralised visualisation which is connected to the network can e.g. selectively activate/deactivate timers in the IP Control without placing a strain on the KNX.

### General syntax

After the first group address, the remaining addresses should be placed in parentheses and separated with commas.

Example: 2/12(2/13,2/14,2/15,2/16)

## 9 ETS

### 9.1 Inserting the IP Control into the ETS

There is no ETS application for the IP control, and this means that it cannot be inserted directly into the ETS project.

A dummy device should be inserted into the project to ensure that the physical address is reserved in the project and so that, if necessary, filter tables can be correctly generated.

### 9.2 Exporting group addresses from ETS3

In order to transfer the group addresses from the project which is to be visualised to the IP Control, the group addresses are exported into an esf file with the OPC Export function of the ETS3. In the process, all of the group addresses which are linked in the project are written to the esf file.

In the ETS3, the export of the group addresses is selected via the "File" menu and the "File Exchange (e.g. OPC)..." menu option. Here, the esf file with the used group addresses is generated in the "Export to OPC Server" area via the "Export" button. This is then loaded into the IP Control in the editor of the IP Control under "File Transfer".

### 9.3 Connection settings in the ETS

A new communication interface must be set up in order to establish a connection to the iETS server in the ETS. The following parameters must be used:

#### Communication type

IP (EIBlib/IP) must be selected as protocol for the connection.

#### Server

The IP Control or DynDNS address of the IP Control.

#### Protocol

A TCP or UDP can be selected (since version 0.8.5, previously only TCP). UDP should only be used if the packet runtime of the connection is very high. In this case, the establishment of a connection via TCP might fail due to longer runtimes. UDP can reduce the runtime here.

#### Ports

The ports must not be changed. It is only possible for the iETS server in the IP Control to establish a connection on these port numbers (50000 – 50002).

#### Connection

These settings are determined by the serial interface that should be addressed in the bus coupler of the IP Control. This setting can be ignored.

## 9.4 Notes on using the iETS server

When using the IP Control as a programming interface, important information must be taken into account:

### Disconnection

The iETS server in the IP Control must be terminated correctly. The server needs the termination signal from the ETS. If the client computer has crashed or the ETS was not terminated correctly, the iETS server will continue running. After a waiting time of 5 minutes, the iETS server can be terminated by triggering a telegram. Alternatively, the device can also be restarted.

### KNXnet/IP Tunneling

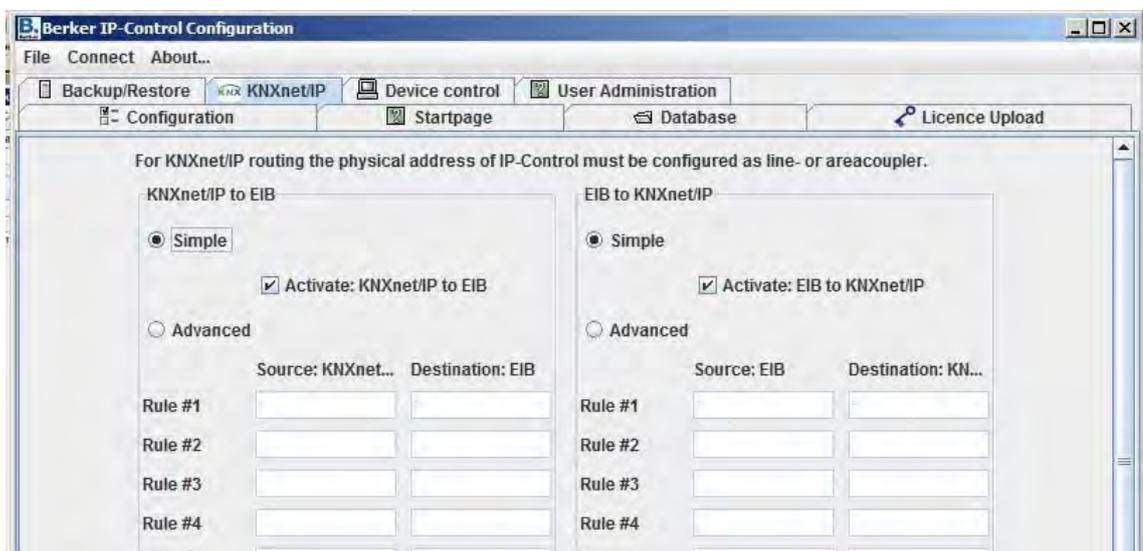


Fig. 101: Configuration tool - KNXnet/IP Tunneling

KNXnet/IP Tunneling has been implemented since the firmware, version 0.8.5. KNXnet/IP Tunneling must be activated in the configuration tool in the KNXnet/IP settings (System > KNXnet/IP). The checkbox "activate KNXnet/IP for EIB" and "EIB for KNXnet/IP" must be activated there. It cannot be used for programming. It is intended for communicating with other devices that also have a Tunneling interface e.g. B+O Mediagateway).

**i** It is intended for communicating with other devices that also have a Tunneling interface e.g. B+O Mediagateway).

### Connection quality

The connection quality can play an important role particularly in the case of connections via the Internet. Normally, the connection with EIBlib/IP is established via TCP. TCP first establishes a virtual connection between client and server before the actual communication begins. In the case of longer package running times in the Internet, the connection might be interrupted constantly. The use of UDP as protocol can solve this. In contrast to TCP, UDP has no control mechanisms (data loss etc.)

### Port forwarding

If a connection to the iETS server should be established via Internet, it is necessary to provide the router in the receiving network appropriate port forwarding. The ports 50000, 50001 and 50002 must be forwarded.

**Activating/deactivating iETS server**

The function can be activated or deactivated in the IP Control. The setting can be carried out in the configuration tool under Configuration > Extended EIB (yabus) Settings> EIBlib/IP Server.

## 10 Cameras and IP Control on the Internet

This chapter describes the settings required to reach IP Control and cameras on the Intranet and Internet. The IP addresses mentioned here are examples and may need to be modified.

### 10.1 Network structure diagram

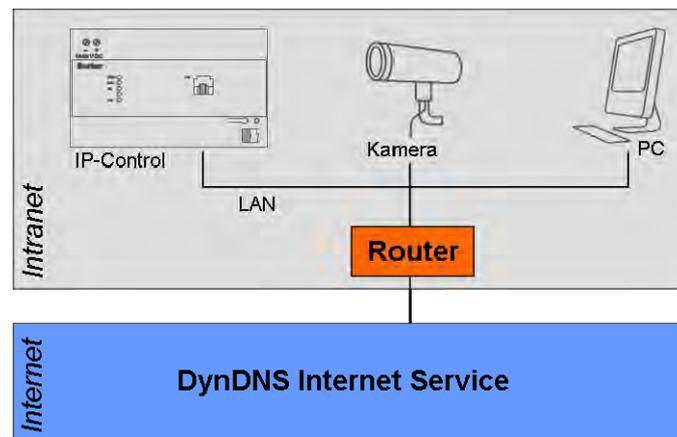


Fig. 102: Network structure

#### IP Control settings

IP address: 192.168.1.10  
Standard gateway address: 192.168.1.200  
Ports: 80, 1735, 50 000 - 50 002

#### Camera settings

IP address: 192.168.1.2  
Standard gateway address: 192.168.1.200  
Port: 81

#### PC settings

IP address: 192.168.1.3  
Standard gateway address: 192.168.1.200

#### Router settings

IP address: 192.168.1.200

In the network, a distinction is made between internal and external IP addresses:

- The internal IP addresses are fixed IP addresses and are assigned to the devices in the Intranet (IP Control, camera, PC, router).
- The Intranet can be reached from the Internet via the external dynamic IP address. The Internet service DynDNS.org manages these external IP addresses. The router translates the external IP addresses into internal IP addresses.

**i** **Important!** A routing table needs to be set up in the router. Depending on the model, the corresponding function can be found in different locations in the menu of the router. Look for menu items like **DMZ** or **Port Forwarding**.

The function for the DynDns.org service needs to be enabled and set up in the router. Entry of the routing rules is different for every router, but follows the following layout:

**[Port Number] -> [Internal IP Address]:[Port Number]**

The IP control and the camera are distinguished via the port number. In the example, the IP control can be reached via port 80 (standard) and the camera via port 81.

The inner IP address is the address which has been assigned to the IP Control or the camera. With the IP Control, port 80 is for the visualisation and port 1735 is for the Java applets. For the camera, you will need to specify the port assigned to the camera in the routing rule.

Example of a routing table with DynDNS service:

```
80    →  192.168.10.1:80 (visualisation)
1735  →  192.168.10.1:1735 (Java applets)
81    →  192.168.1.2:81 (camera)
```

## 10.2 Settings for the camera element in the visualisation

The URL address for the demonstrations is:

**<http://www.berkerbeispiel.dyndns.org:81>**

**i** So that the camera can also be reached from the Intranet, the router must support internal enquiries to external IP addresses. Please refer to the operating manual for the router. If the router does not support this function then you will need to insert a further camera element. This will need to have the internal IP address of the camera:

Example: **<http://192.168.1.2:81>**

## 11 IP addresses on the Internet

Usually the IP control is connected via a router to the Internet. In order to be able to reach the gateway, the gateway must be given its own IP address:

### Static IP address

A static IP address always remains unchanged. An IP Control with a static IP address can be reached under this IP address via the Internet. You can request a fixed IP address from your provider.

### Dynamic IP address

Every device which dials itself into the Internet (and does not have a fixed IP address) is automatically given a dynamic IP address by the Internet Service Provider. The address will change every time the connection is established. This is why the IP Control cannot be reached under a dynamic IP address.

Even if the IP Control remains constantly connected to the Internet via a router it is not certain that the current IP address will remain valid. Some ISPs automatically disconnect the connection every 24 hours.

- i** Free services are available on the Internet (e.g. berkerexample.dyndns.org:81), which link dynamic IP addresses to a domain. Here you are given your own domain address (e.g. berkerexample.dyndns.org), under which you can always reach your IP Control. In order to take advantage of this service you will need a router which is capable of autonomously dialing into the Internet and connecting to the DNS service. Please refer to the operating manual which was supplied with your router.

## 12 Changing the language settings

To switch over the language in the IP Control visualisation, a parameter in the Java VM software needs to be changed or added. Proceed as follows:

- In Windows, click on Start -> Settings -> Control Panel.
- Double-click on the Java symbol.
- Click on the **Java** tab.



Fig. 103: Java Control Panel

- Click on **Displays** in the **Java Applet Runtime Settings** field.  
The Java Runtime Settings window will open.

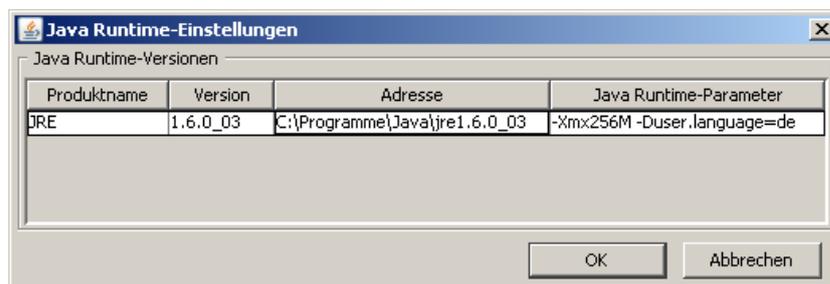


Fig. 104: Java runtime settings

- Enter the required language in the column **Java Runtime Parameters**:  
German-Duser.language=de  
English-Duser.language=en  
Swedish-Duser.language=se  
French-Duser.language=fr  
Spanish-Duser.language=es  
Dutch-Duser.language=nl  
Italian-Duser.language=it

**i** If you have installed several different versions of Java over time, make sure that the parameter is entered on all versions.

- Click on OK to close the Java Control Panel.
- Close the browser and all other programs which use Java.

The chosen language is displayed after restarting the browser and calling up IP Control.

## 13 Applications

With the numerous available jobs, a wealth of applications can be realised quickly and easily. A number of ideas are described in more detail below.

### 13.1 IP Control – IRTrans

Together with the IRTrans, the IP Control can transmit infrared signals via the IRTrans as a function of group addresses. This means that all devices which can be controlled via an IR remote control can also be operated via the KNX and the visualisation. The IP Control makes the job UDP transmitter available for this purpose. For this application the IR Trans Ethernet with database is required.

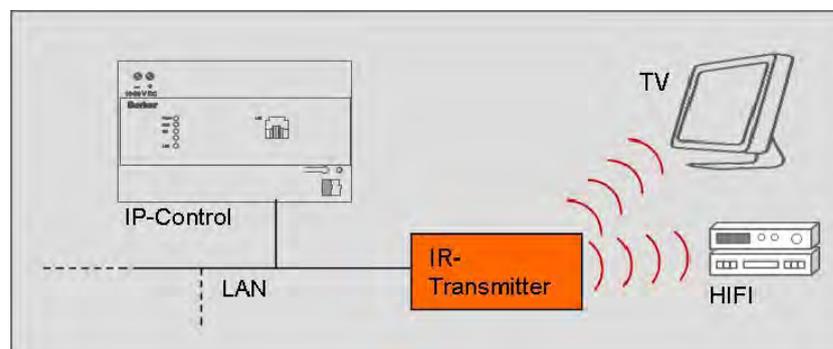


Fig. 105: IR control layout

### IRTrans Ethernet with DB

IRTrans can be seen as a learning-capable IR remote control with a network connection. IRTrans interprets the UDP datagrams received via the LAN with the aid of its database. The previously learned commands are located in the database of the IRTrans. The process of learning the commands and loading them into the memory of the IRTrans is performed via an IRTrans PC software tool.

- i** Newly learned commands will not become active until the database of the IRTrans is **flashed**.
- i** Information, operating instructions and software for IRTrans can be found on the Internet at [www.irtrans.de](http://www.irtrans.de).

Check the port settings for the recipient, in particular the ports and broadcast settings. In the case of IRTrans, you can do this via the web interface of the device.

- i** You can access the web interface by entering the IP address in your Internet Browser. There, you will also be able to change all other settings for the IRTrans.

## Setting up an IR remote control for the control of several rooms

Proceed as follows if you want to use a remote control in several rooms but you want the system to be set up so that the buttons you press only affect the room you are currently in:

- Create the remote control with commands via the IRTrans software and then load (flash) the database into all of the IRTrans modules.
- Set up an IRTrans receiver job for every room in which an IRTrans is installed. Here, disable the entry IRTrans Broadcast and enter the name of the IRTrans belonging to the room to establish the link between the room and the IRTrans.
- i The settings for the port (21001) can be left unchanged provided the settings of the IRTrans module have not been changed.
- If you have set up multiple remote controls to work in a room then you need to enable the option RC Broadcast.
- Select the assignment of IR command and group address. Here, several EIS types are available (refer to the section "IRTrans receiver").
- Afterwards enter the names of the commands which were assigned when the IR commands were "learned".
- Save the settings.

The IR remote control is now fully set up.

It goes without saying that any other concept of your choice can also be realised. For example, you could use the enabling object to selectively enable or block the use of individual IR remote controls.

## 13.2 Music control with Squeezebox

With IP Control you have the option of controlling music via the KNX. The job **xPL Sender** is available for this purpose. After receiving a group address, this job sends a command such as play, stop, skip, back ... in the form of an xPL datagram to SlimServer, which in turn controls the Squeezebox. In this way, volume and playback can be controlled via KNX buttons or via the visualisation.

Another function of the music control is to display information about the music currently playing, such as the name of the artist, song titles etc. These can be displayed in the visualisation or on KNX displays. This function is also implemented via the SB Control job.

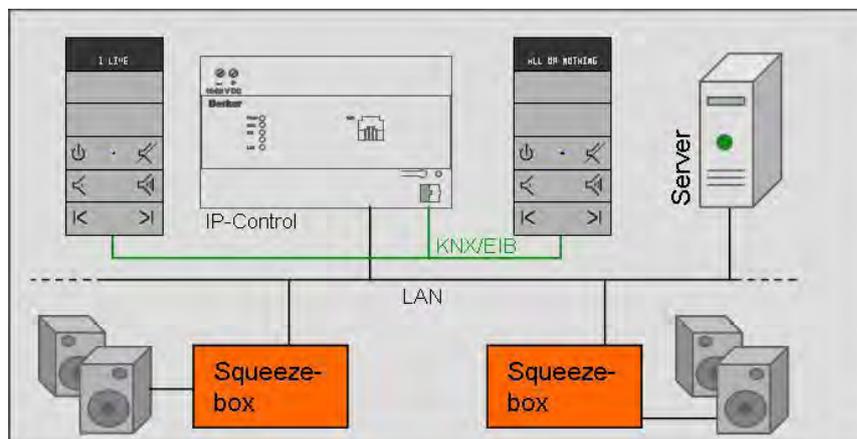


Fig. 106: Music control setup

## Server

The server contains SlimServer, a free server program. With the aid of SlimServer you can manage the MP3 files and playlists saved on the server.

## Squeezebox

The Squeezebox is a network player which plays back MP3 files saved on the server. It can be controlled via SlimServer. Integration into the network is performed either via cables or W-LAN.

## PC playback device

MP3 files can also be played back on a PC. Softsqueeze, a free software version of Squeezebox, is available for this purpose.

**i** The xPL setting must be enabled for SlimServer. This can be enabled via the web browser. Go to <http://localhost:9000/> to access SlimServer. The xPL settings can be found under Server Settings > Network.

To use this function, you will need to have installed the xPL Hub service both on the server and on all involved PCs (see also Appendix xxx: xPL requirements). The xPL Hub service must be launched before SlimServer.

## 13.3 Further Squeezebox applications

### Controlling lights with the Squeezebox remote control

With the Squeezebox, you can send IR commands from the Squeezebox remote control as xPL datagrams into the network. The IP Control then translates this xPL datagram to a group address. To do this, all you need to do is set up and parameterise the job xPL Remote.Basic Receiver. Notes on the xPL settings can be found in Appendix xxx: xPL requirements.

### Squeezebox as a display device

As well as displaying track information, the display of the Squeezebox can also be used to display text messages.

Example: door bell

When the door bell rings, the display of the Squeezebox shows the text message "Front door".

This application is also realised with the xPL Sender job. The configuration of this job is performed in the same way as for the music playback controls (see xPL Sender), except that a different scheme needs to be chosen.

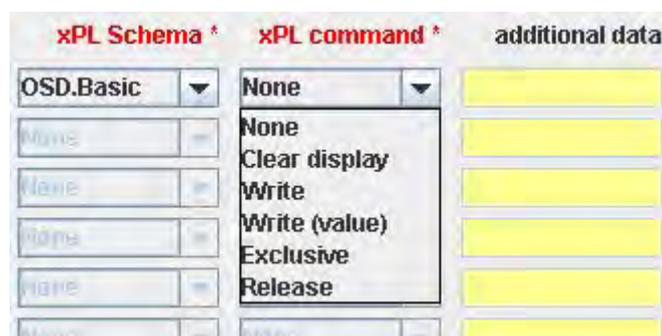


Fig. 107: xPL scheme, shown here for the "Door bell" example

The OSD.Basic scheme provides commands for controlling the Squeezebox display. Values can also be output for the value object. This is done with the aid of the control character (see Appendix 2).

## 13.4 Calling up web pages from the visualisation

In order to be able to call up specific Internet pages from the visualisation you will just need to insert the **Camera** element into the visualisation. As the URL you should enter the corresponding Internet address of the website you would like to call up from the visualisation. In this way, with a single click you can view e.g. the latest weather forecast information from the Internet on the visualisation.

-  You need to enable the option **As Icon**, and your browser settings must allow popups from this source (IP Control).

## 14 ComponentBuilder

The ComponentBuilder is an additional piece of software which can be found on the CD enclosed with the device under ...\\Deutsch\\Software\\Berker\_ComponentBuilder.jar.

### 14.1 Application

With the aid of the ComponentBuilder you can create control panels with freely definable, static display and control elements. The control panels can be inserted as visualization elements in the IP Control and linked to group addresses. In this way you will obtain a personalised visualisation with your own chosen elements to suit your requirements.

- i** It takes time to get used to working with the ComponentBuilder software. It is expressly not intended for novice users. Please follow the instructions carefully and pay attention to all additional notes and information.

### 14.2 Program window

The program window is split into 3 areas:

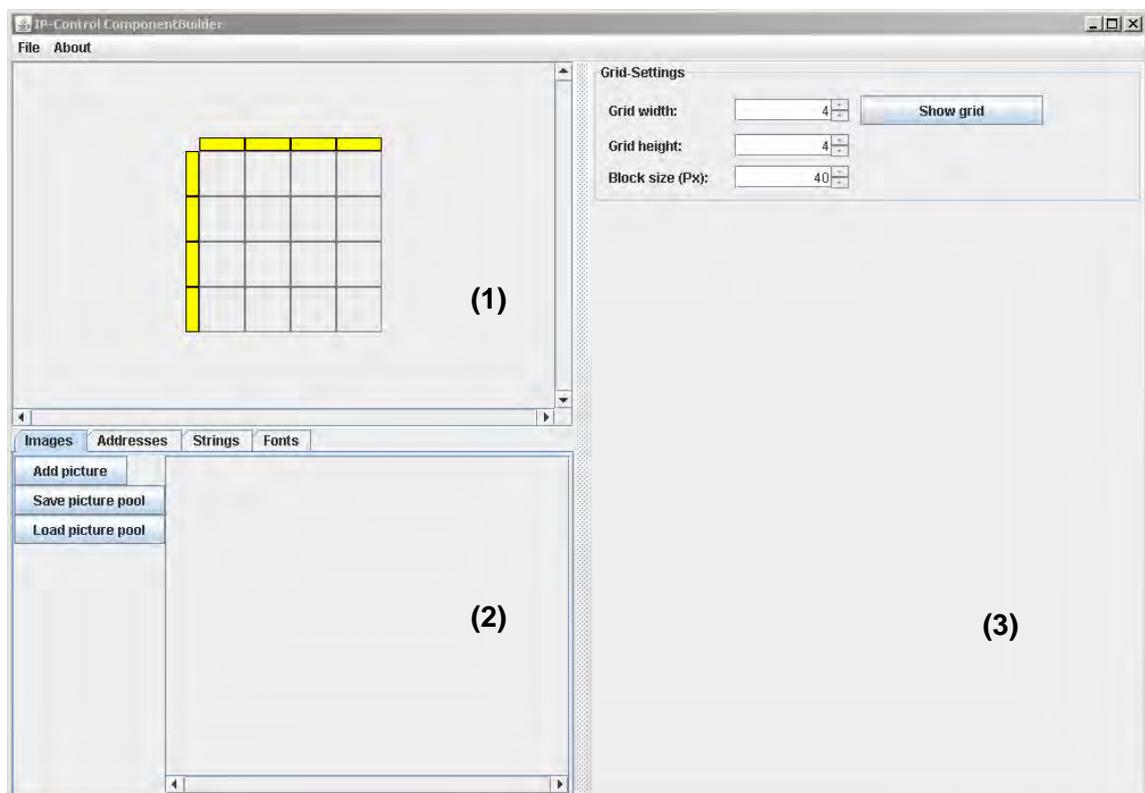


Fig. 108: Program window

#### Switch preview (1)

In this part of the program window you can see the individual segments of the panel. These can be selected for configuration.

#### Configuration (2)

The size of the segments can be adjusted in the configuration. If a segment is selected then detailed configuration options for this segment will appear.

### Data pools (3)

All of the required data for the current panel are created and managed in the data pools. These include pictures, addresses, character strings and fonts.

## 14.3 The File menu

<b>Open</b>	Opens a panel with the suffix.btn
<b>Save</b>	Saves a panel with the suffix.btn
<b>Close</b>	Exits the program

## 14.4 Defining a panel

A panel comprises between 1 (minimum) and 100 (10 x 10) (maximum) individual buttons and is represented by a grid. Each box represents a segment and can be defined as one of the four element types.

Grid-Settings	
Grid width:	4
Grid height:	4
Block size (Px):	40

Information	
Width	40px
Height	40px

Fig. 109: Definition of the grid

### Grid settings

<b>Grid width</b>	No. of columns (max.: 10)
<b>Grid height</b>	No. of rows (max.: 10)
<b>Block size (Px)</b>	Height/width of a segment, 200 pixels max. Does not apply if the cell height or column width has been changed.
<b>Display grid</b>	Displays/hides the grid net
<b>Information</b>	Width and height of the selected cell

### Change column width

- Click on the yellow bar above a column.
- Select the width in the input field.

### Change cell height

- Click on the yellow bar to the left of a cell.
- Select the height in the input field.

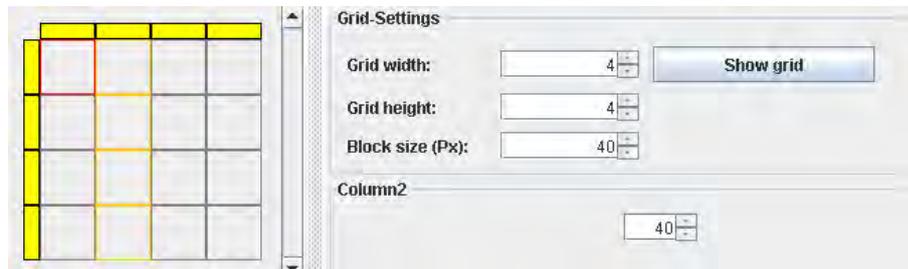


Fig. 110: Grid settings

## Connecting segments

Multiple segments can be connected.

- To do this, press and hold the Control key whilst selecting the corresponding segments with the mouse.
  - Right-clicking on the selected segments will open up a popup menu with the option **Connect**. You can also restore previously joined segments to their original separate status by clicking on the menu operation Separate.
- i** You can only connect segments which are adjacent to each other and form a rectangle together.

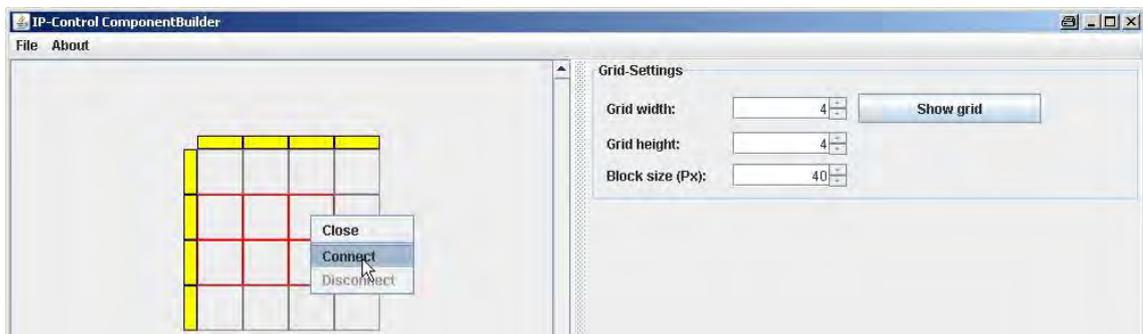


Fig. 111: Segment handling

## 14.5 Data pool

The data pool is used to manage all the data required for the current switch. These data include graphics, addresses, character strings and fonts. The data first need to be created in the individual tools before they can be used to generate the panels.

### Images

Pictures and images for a panel can be individually loaded into the pool. They are then available in the graphics selection and can be used as the background for the segments. All of the images can be grouped together and saved in an Images pool. This file has the suffix.pool and can subsequently be loaded for other switches as well.

The following image file formats are supported:

- .jpeg
- .jpg
- .gif
- .png



Fig. 112: Managing the images/pictures pool

**i** Images can be deleted again from the Images pool by right-clicking on them.

## Addresses

In the Addresses pool, address descriptions are assigned which are then replaced by the real group addresses in the Visualisation Editor. An address is defined by the EIS type, factor and offset.

The following EIS types are supported:

- EIS 1: 1 bit, switching
- EIS 3: 3 bytes, time (factor: 1, offset: 0)
- EIS 4: 3 bytes, date (factor: 1, offset: 0)
- EIS 5: 2 bytes, floating point
- EIS 6: 1 byte, 0–100 %
- EIS 9: 4 bytes, floating point
- EIS 10: 2 bytes integer
- EIS 11: 4 bytes integer
- EIS 14: 1 byte, 0–255

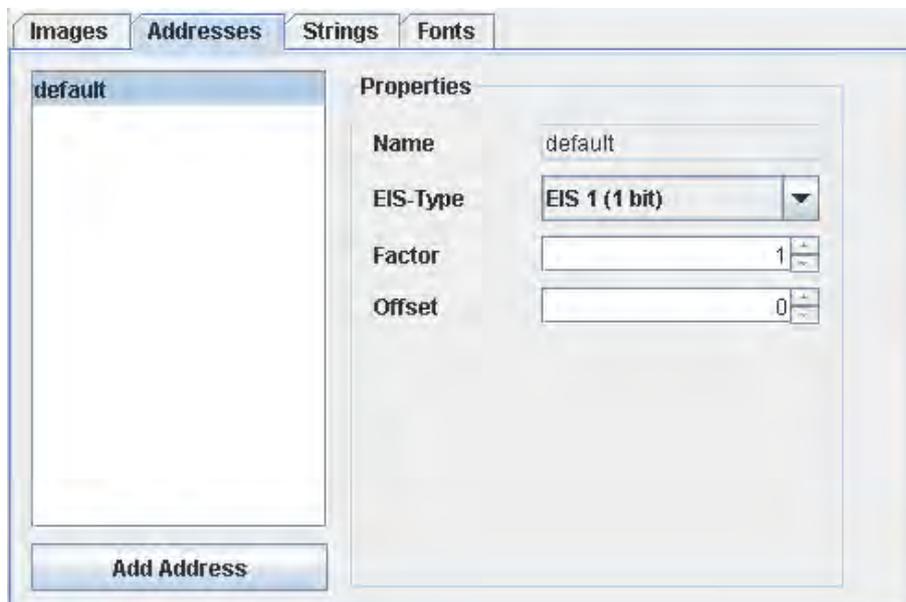


Fig. 113: Address assignment, EIS type

The character strings can also represent values from address objects. To do this, the address is selected and the number of digits before and after the decimal point is defined. Afterwards, the **Insert value into string** is used to insert the text at the cursor position.

- i** The specified text can still be changed later on in the Visualisation Editor, for example it can be translated into a different language.



Fig. 114: String assignment

## Fonts

Here you can set up various fonts for the texts and character strings.

The preview shows the currently selected font in the specified font size and style (bold or italic). We recommend mostly using standard fonts, as this will ensure that the visualisation looks the same on different operating systems.

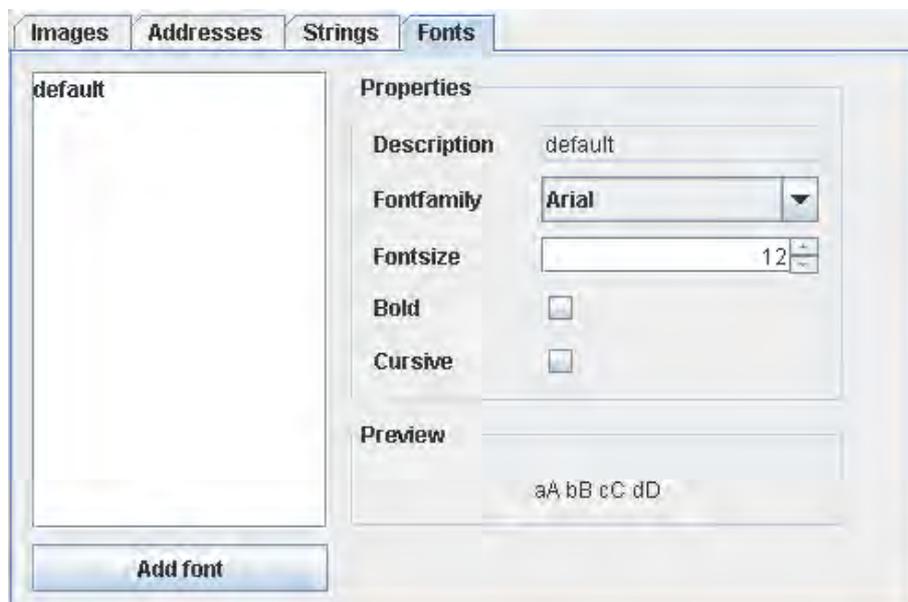


Fig. 115: Font properties

## 14.6 Background & lettering

The way in which the elements are represented with regard to the background and the lettering can be defined for all element types.

### Background



Fig. 116: Background definition

#### Background type

##### *Transparent*

The button is shown transparent. This means that any elements underneath the panel in the visualisation or the page background can still be seen.

##### *Colour*

You can choose a background colour from the colour charts.

##### *Graphic*

You can use a graphic (JPG or GIF) as the background.

#### Colour

- Click on the button **Choose Colour** and select a colour.

**i** This function is only available if **Colour** is chosen as the background type.

#### Graphic

- Click on the arrow and select an image from the menu.

or

- Click on the plus symbol and insert an image from the hard disk.

**i** The menu contains all of the graphics from the data pool. This function is only available if **Graphic** is chosen as the background type.

#### Text selection

Here you can select the text and font for a label/lettering. The different character strings and fonts can be defined in the data pool.

#### Text

- Click on the arrow and select an existing text previously created in Data pool / Character strings.

## Font

- Click on the arrow and select a previously defined font from Data pool / Fonts.

## Text colour

- Click on the button and select a text colour.

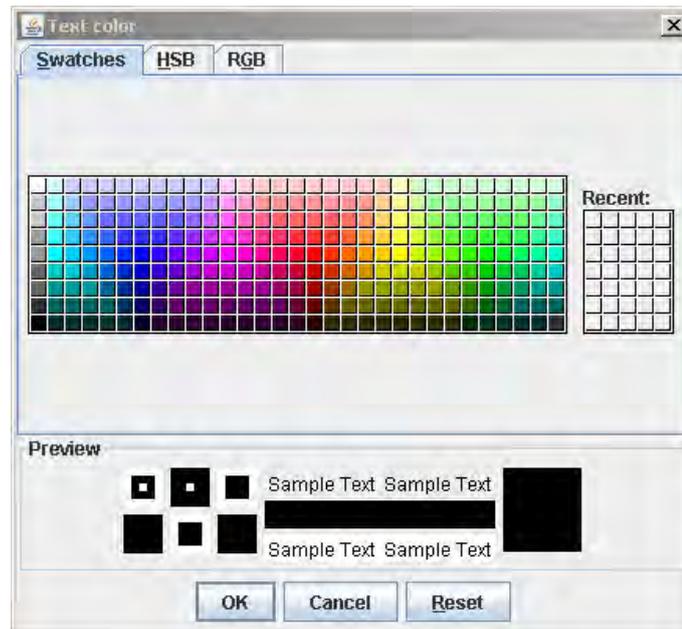


Fig. 117: Selecting the text colour

## 14.7 Static element

On the one hand, static elements are used for the graphic design of control panels. For example, e.g. very narrow static elements can form a frame around a switch element or serve as a visual separating bar between different active elements.

With the background type **Transparent**, the elements behind the control panels or the background of the visualisation page are made visible.

You can also insert graphics and images. On the other hand, static elements can also be used as labelling fields.

### Defining a static element

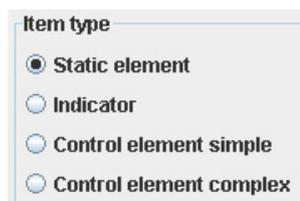


Fig. 118: Element types

- Click in a segment and activate the element type **Static Element**.  
The parameters **Background** and **Text Selection** can be defined.
- i** For more information, read the section entitled **Background & lettering**.

- i** After making any changes during configuration, click on the **Accept** button at the bottom edge of the window, as otherwise the changes will be discarded.

## 14.8 Display element

Display elements are used to signal states and display text and values (e.g. temperatures). States can be signalled by means of colours, graphics and text with values. The way in which a display element is displayed is governed by rules, whereby you can define rules for specific states (e.g. ON) and threshold values (e.g. greater than 20).

### Defining a display element

- Click on a segment and activate the element type **Display Element**.

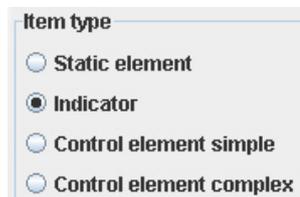


Fig. 119: Element types

- i** After making any changes during configuration, click on the **Accept** button at the bottom edge of the window, as otherwise the changes will be discarded.

### Configuring rules

Rules are used to define which display of the segment applies at which values. With every rule a display/representation is saved for the relevant segment. If a rule is satisfied then the segment adopts this display/representation. In this way, rules can be created for particular values (1; 2; 10; 2.25), threshold values (<20; >2.5) and value ranges.

**Default rule:** This rule applies when no other rule is satisfied, and in this case it defines the display/representation of the element. This rule can be configured but not deleted.

#### **Edit**

By clicking on a rule in the **Editing** column the Parameters window will open up, allowing you to edit the parameters for the rule.

#### **Delete**

Clicking on a rule in the **Delete** column deletes the rule.

#### **Edit as New**

Clicking on a rule in the column **Edit as New** will create a new rule on the basis of the existing rule.

#### **New Rule**

You can create new or additional rules via the button **New Rule**.

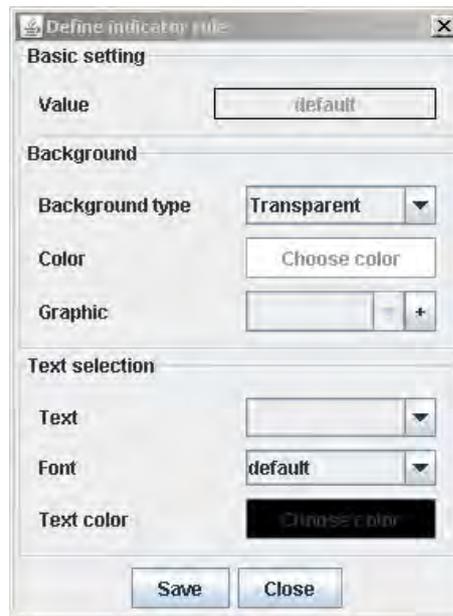


Fig. 120: Rules

**Selecting a rule**

- Click on the field **Value** to access the rule selection
- i** In the rule selection you will have access to a comprehensive selection of conditions. The rule definition in the lower part of the window will change to match the chosen rule format.
- To define a rule you first need to select an address. Click on the arrow to display the selection of available addresses (all of the addresses contained in the data pool).

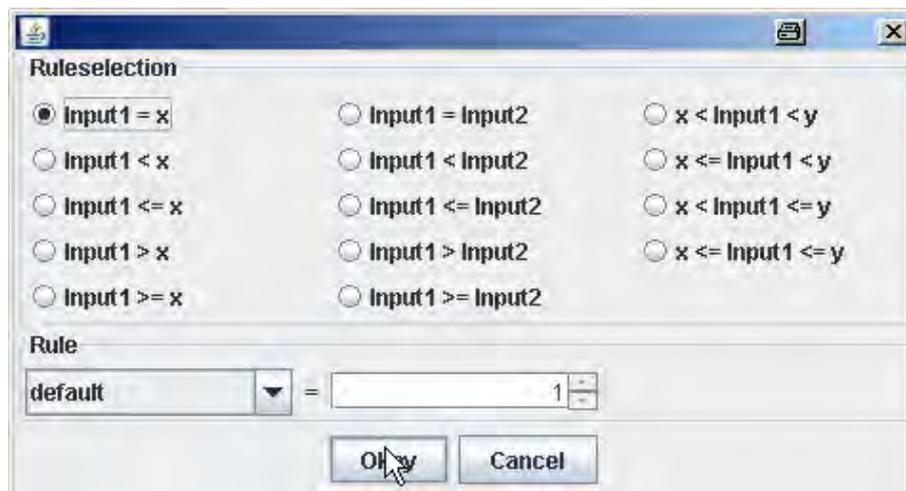


Fig. 121: Rule selection window

- In the field on the right you can enter the values for the rule.
- Click on **OK** to use this rule.
- i** The settings for the background and the test selection are described in the section entitled **Background & lettering**.
- To create the new rule click on the Save button.

## Displaying a rule

All of the defined rules are listed in the **Display rule** menu under the Rule Editor. The display of the selected rule is shown in the editor. This makes it possible to check the different displays/representations of the switching states of elements.

- i** After making any changes during configuration, click on the **Accept** button at the bottom edge of the window, as otherwise the changes will be discarded.

## Order of priority

If several rules are satisfied at the same time then the rule with the highest priority takes effect. Priorities are defined as follows:

1. Fixed comparisons (input1 = x)
2. Value ranges (x < input1 > y)
3. Greater/less than (input1 < x)

If the priority is identical then the rules are weighted via a ranking system:

- In the case of a value range, the rule which defines a narrower value range has a higher ranking.
- In the case of "greater/less than" ranges the rule with the smaller difference to the value at Input1 takes priority.

If the ranking of different rules is also identical then the rule which comes first in the list takes priority.

## 14.9 Control element - simple

The **Control element - simple** option is used to create switches and buttons. One status can be transmitted when an element is pressed and released. The representation of a simple control element can be defined for the following states:

- Standard
- Mouseover (i.e. when the mouse pointer is pointing at the element) and
- Mouse pressed (i.e. when the user clicks on the element)

## Defining a simple control element

- Click on an element and enable the element type **Control element - simple**.

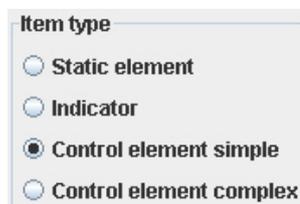


Fig. 122: Element types

- i** After making any changes during configuration, click on the **Accept** button at the bottom edge of the window, as otherwise the changes will be discarded.

## Basic configuration



Fig. 123: Rule selection example

### ***Upon pressing***

Here you specify the value which is to be sent when the button is pressed. This could be a fixed value or a calculated value.

- Click on the field **Upon pressing** to display a selection of options.  
The lower part shows the selection of available addresses (all in the data pool).

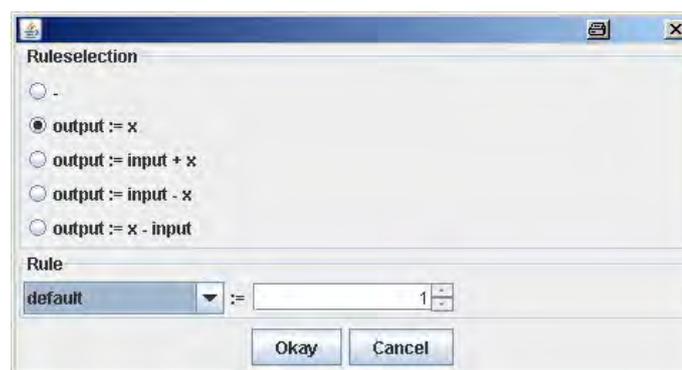


Fig. 124: Rule selection

In the example shown above (Fig. x), a "1" is sent to the address "output" whenever the control element is pressed.

However, it is also possible to send the differences or the sum of an address and a fixed value x via the output.

### ***Upon release***

The settings for the value which is to be sent when the button is released are selected in the same way as for when the button is pressed.

By combining these two functions, it is for example possible to configure a switch which transmits a "1" when it is pressed and a "0" as soon as it is released.

## **Appearance**

Here you can define the displays for the three states described below. The Enable option must be selected before the display/representation can be changed.

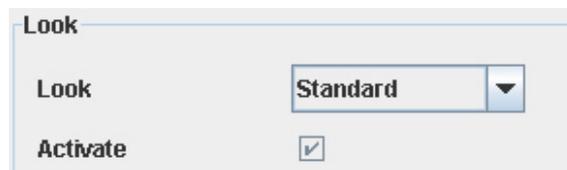


Fig. 125: Rule selection example

### ***Standard***

These settings for the background and text selection apply under normal conditions.

### ***Mouseover***

This display/representation becomes visible in the visualisation when the mouse pointer rolls over the control element. For example, the current value/status can be displayed in the form a character string.

### ***Mouse pressed***

This display/representation applies when the element is actuated.

For information about parameterisation of the background and the text selection please refer to the section entitled **Background & lettering**.

- i** After making any changes during configuration, click on the **Accept** button at the bottom edge of the window, as otherwise the changes will be discarded.

## **14.10 Control element - complex**

This element is used to realize complex control elements. This control element is a combination of a display element and a simple control element. It is an input-dependent control element. It can be used for example to create a shutter switch which deactivates its function if a wind alarm is issued.

Rules are used to define which values are sent when the element is operated. These rules also determine how the element is displayed/represented.

### **Defining a complex control element**

- Click on an element and enable the element type **Control element - complex**.
- i** After making any changes during configuration, click on the **Accept** button at the bottom edge of the window, as otherwise the changes will be discarded.

## Configuration

In order to make it as easy as possible to understand handling this element, setting options were taken over from the other element types. The configuration and process for creating rules are the same as for the display element - refer to the chapter entitled **Display element**.

For details on configuration of the control functions refer to the section entitled **Control element - simple**.

### Additional information for the complex control element

The complex control element has an additional parameter.

#### ***Keep value***

When this parameter is set, the current rule also applies if the input value changes between when the mouse button is pressed and when it is released.

## 14.11 Saving the project

After configuration the project is saved.

- Under the File menu select the option **Save** and give the panel a name.

## 15 Firmware Updates with IP Control Update Tool

It is possible to load new firmware into the device by means of the IP Control Update Tool. The Update Tool is a Java program that can run on all operating systems. During this procedure, it is extremely important to read and observe the following information carefully. If the update procedure fails, IP Control might have to be returned to the manufacturer.

### 15.1 Important measures:

First create a current backup of your project if it has not already been done anyway. IP Control is reset to the factory settings by an update, the project data are therefore lost.

- i** Please note that the passwords of the visualisation users are not copied during recovery. Please note that you can reenter these after the update procedure and project recovery.
- For an update you need the Update Tool and the desired firmware image. This is delivered as a zip file together with a checksum file in order to check the correct transfer and avoid any errors. Both of these can be downloaded in the download area at <http://www.berker.de>. Both files have to be unzipped in a directory.
- We strongly recommend that you carry out the firmware update only within sight of the IP Control. IP Control reproduces a status feedback via its five LEDs during the update procedure. A firmware update via one or more networks is not possible, they must be in the same physical and logical network as the IP Control.
- If you operate your IP Control with DHCP, you should switch this off and assign IP Control a fixed IP address.
- i** For the update you need the IP Control string and password of the user "admin".
- i** During the firmware update, IP Control is reset to the factory settings, i.e. it retains its old IP address xxx.xxx.xxx.xxx but has been overwritten with the password "berker".
- i** The entire update procedure lasts approximately 15 min.

### 15.2 Procedure

If all the necessary measures have been made, please proceed as follows:

- i** Switch off all security software and/or firewall for the update procedure since this might disturb the communication. (The communication takes place on the UDP port 1735).
- **Creating backup**  
If you have not already done so, make a backup of the current project.
- **Opening update tool**  
Open the update tool. All relevant information and tips are summarised in the help text of the update tool.
- **Selecting IP Control**  
Select the desired IP Control in the left column and enter the IP Control string and admin password on the right.
- i** **Selecting IP Control**  
Select the desired IP Control in the left column and enter the IP Control string and admin password on the right. If the device is in the same network, the text has a green background, if it is not in the same network, it has a yellow background. Below the display is a display of the necessary IP Control parameters. Experienced IP Control users will

know this from the Discovery Tool. If several IP Control are installed, the IP Control can be identified visually by means of the "LED Test".

- **Starting rescue system**

Press the button "Start in rescue system".

**i** In the status window below, you will be shown which actions are being executed. If the IP Control system is already installed with a rescue system, it will be restarted with this. If the device has not yet been equipped with the system, this step will first be executed.

**i** The selected device first appears in the list of the IP Control with a blue background. If the rescue mode is active, it appears there with a green background and with a red cross. On the device itself, the power LED orange lights up at this moment, the LAN LED flashes depending on the network traffic and the BMX LED flashes red.

- **Selecting firmware file**

If the IP Control is in rescue mode, the view in the Update Tool changes and the request to select the correct firmware file appears on the right. When opening the image file, the Update Tool checks whether the firmware image was transferred correctly during download by means of the md5-checksum included.

The update procedure can now be started by pressing the button "Start IP Control Update". After the firmware file is loaded into the device, the IP Control is busy checking the file for approx. 5 min. Now the BMX and EIB LED flash red simultaneously.

After successful checking, the installation begins. This procedure takes approx. 5 minutes again. During this time, the three middle LEDs flash red.

**i** **IP Control should not be disconnected from the power supply under any circumstances during the entire procedure. This can cause irreparable damage to the software, the device must be returned.**

- **Factory settings**

If the firmware is installed, the IP Control restarts. Afterwards, it is in the network with the factory settings. It therefore has the IP address assigned by you xxx.xxx.xxx.xxx but the password for the user "admin" is now "berker".

- **Recovering backup file**

Load your current backup into the device. All the settings are recovered, and the device restarts. Afterwards, it is available with all known settings but new firmware.

**i** Please note that the backup file does not contain any information about the IP address settings. During the backup, only the port settings are saved but not the IP address settings (except for NTP timeserver)!

- **Recovering user administration**

The user passwords must be reentered so that the user login on the Visualisation works perfectly again. Afterwards, the project must be saved once again.

**i** **During the recovery of your project file, please bear in mind that no projects from newer firmware versions may be loaded into older versions.**

## Appendix 1: Status LED

### Description of the LED functionality

The current operating status of the IP Control is signalled by means of an LED which is positioned on the front panel of the device.

- i** During the boot-up phase the POWER LED lights up orange for approx. 30 seconds. The end of the boot-up phase is indicated by a test of all LEDs. After the end of the boot-up phase the POWER LED lights up green.

The LEDs also indicate the following states:

#### POWER LED

OFF	The device is ready for operation. There is no operating voltage present.
GREEN	The device is ready for operation.
ORANGE	The IP Control is still in the boot-up phase (approx. 30 seconds).
Flashing every 1 second	The BCU is not yet configured, or it is incorrectly configured with the ETS.
Flashing every 2 seconds	The BCU has been configured with illogical data (implausible IP parameters, MSN, password).

#### BMX LED

OFF	No data exchange with the IP Control program kernel
RED	Device in ETS mode
RED, flashing	ETS traffic
GREEN	Data exchange with the IP Control program kernel
ORANGE	Fallback from ETS mode to BMX mode

#### KNX LED

OFF	The IP Control has no connection to the KNX.
RED, flashing	The IP Control is attempting to establish contact to the KNX.
GREEN	The IP Control has contact to the KNX.
ORANGE	The IP Control is exchanging data with the KNX.

#### LAN LED

OFF	The IP Control has no connection to the LAN.
GREEN	The IP control has a physical connection to the LAN.
ORANGE	The IP Control is exchanging data with the LAN.

## Appendix 2: Control characters for values in text messages

IP Control can send out values. To do this, control characters need to be inserted into the body of the text according to the relevant EIS value. First of all the corresponding EIS type needs to be parameterised.

Values are displayed by placeholder characters % (always without quotation marks) within the text. The following format is used for all numerical values:

%[No. of digits before decimal point. No. of decimal places after decimal point]f

These placeholder characters can be inserted anywhere in the body of the text.

### Examples:

A floating point number with five digits and two decimal places is to be displayed. The following is entered in the text:

"... Text %5.2f Text ..."

If the sign is also to be displayed in the text then the entry must appear as follows. The following is entered in the text:

"... Text -5.2f Text..."

If exactly the matching number of digits is to be displayed in the text then the entry must appear as follows. The following is entered in the text:

"... Text %.1f Text..."

If the percentage symbol is to be displayed within the text then the text must be entered as follows: %%. Example of a text entry:

"The tank is %.1f%% full."

The following text would then be displayed in the text (e.g. e-mail):

"The tank is 82.3% full."

If a value of type EIS3 (time) or EIS4 (date) is selected then the following character combination needs to be placed in the text: %s.

## Appendix 3: Technical data

Operating voltage: 10-30 V

Power draw: <= 5 VA

Bus voltage: via KNX

**i** The **IP Control** is equipped with a gold cap condenser for data buffering. This guarantees buffering of the internal clock for an operating voltage failure of approximately 30 minutes. The data remain permanently saved in the flash memory.

Climate resistant: acc. to EN 50090-2-2

Ambient temperature: 0 - 35°C

Storage temperature: -20 - +70

Rel. humidity (non-condensing) 5% - 80%

### Mechanical data

Dimensions: DIN rail mounted device; (8 modular widths @ 18 mm)

Housing: Plastic

Weight: approx. 0.4 kg

Mounting: Top hat rail (acc. to EN 50022)

Protection system: IP20 (acc. to EN 60529)

### Other features of the device:

Operating system Embedded Linux  
Java version 1.5 or higher required

Processor 586DX, AMD Elan

Interfaces KNX, Ethernet

Software Integrated browser visualisation;  
Integrated startup software;  
WAP gateway  
EIBlib/IP and KNXnet/IP

Memory 64 Mbyte RAM

KNX data points Administration of all KNX group addresses

KNX memory History memory (20,000 telegrams)

## Appendix 4: Network and browser settings

The IP Control supports Internet browsers in conjunction with a run capable Java Virtual Machine (VM) version 1.5 or higher.

### Fast network installation

The connection between the PC and IP Control is normally established via Port 80 (HTTP) and Port 1735 (Java Applet data traffic). Access to these ports must be provided at all times, for example when you have integrated a router or firewall between the Client Browser and the IP Control.

In the event of any connection problems, we strongly recommend first setting up an installation with a crossover cable connected directly between the PC and the IP Control.



Fig. 126: TCP/IP properties

An IP address in the same subnetwork is assigned to the PC (this means that only the last digit in the IP address is different between the PC and the IP Control – based on the use of a subnet mask of 255.255.255.0).

The default IP address of the IP Control is 192.168.1.10. Assign an IP address of e.g. 192.168.1.25 to the network card of your (under Network Settings -> TCP-IP Properties).

**i Important!** In our example, it is vital that the first three segments of the IP address are the same and that the last segment is different.

IP-Control	192.168.1.10
PC	192.168.1.25
Subnet mask	255.255.255.0

For more information about network configurations please refer to the handbook for your firewall and/or router, or ask you system administrator.

**i Important!** A connection must be provided between the Browser Client and the IP Control via Port 80 and Port 1735 (default setting).

## ETS

To use the IP Control as an interface for the KNX programming, it must be ensured that the iETS server is activated in the configuration tool. This can be checked under System > Configuration > extended EIB (yabus) or (bxd) Settings. The EIBLib/IP server must be activated. Furthermore, the IP Control must have a valid gateway address. And a DNS server must be entered (under: System > Configuration > Network settings).

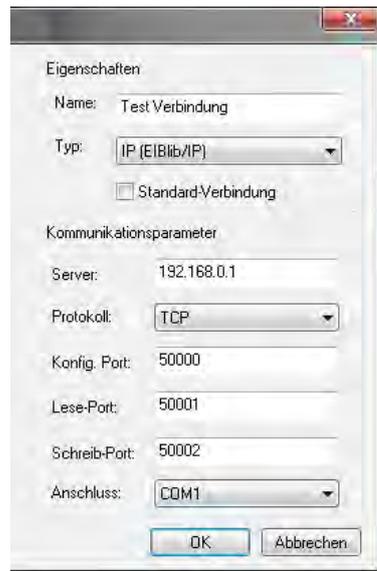


Fig. 127: ETS - Interface configuration

The protocol must be selected in the interface configuration of the ETS. Under: Extras > Options > Communication, a new interface can be configured.

The interface must be given a unique name. For server, the IP address or dynDNS address must be entered, under which the IP Control is reachable. Protocol (TCP) and the ports (50000-50002) are preset.

- i** The connection of the ETS must always be terminated properly (Offline-Button and File > Terminate). Otherwise, the IP Control may remain in iETS mode and no services or switching operations will be executed.

## Appendix 5: Camera

With IP Control you can have images from network cameras displayed directly in the visualisation or in a dedicated window. With the Event Camera function, the system automatically switches to the visualisation page with the camera image or places the window with the camera image on top whenever triggered by the corresponding group address.

### Integrating a camera

Every network capable camera can be integrated in the visualisation.

#### Displaying a camera feed in a dedicated window

- Insert a new camera element and enable the option "As icon".
- In the URL field, enter the full network path to the camera, preceded by HTTP:// (e.g. HTTP://192.168.1.2).

#### Displaying a camera image as an image in the visualisation

- Insert a new camera element. The option **As icon** must not be enabled.
- In the URL field, enter the full network path to the image memory of the camera, preceded by HTTP:// (e.g. HTTP://192.168.1.2/record/current.jpg).

#### MJPEG camera

- In order to embed an MJPEG stream in the visualisation, select the MJPEG camera option and enter the network path for the camera.

#### Event camera

In order to automatically display the camera image in a separate window when triggered by the corresponding group address, enable the option "As icon".

- In the URL field, enter the full network path to the camera, preceded by HTTP:// (e.g. HTTP://192.168.1.2).

In order to automatically change to the page with the camera when triggered by the corresponding group address, the option **As icon** must not be enabled.

- In the URL field, enter the full network path to the image memory of the camera, preceded by HTTP:// (e.g. HTTP://192.168.1.2/record/current.jpg).

**i** For the image-in-image function the camera will need to have an intermediate memory in which the images are saved as JPEG files. The image memory path depends on the manufacturer. Please refer to the manual supplied with your camera.

## Appendix 6: Certificate

In order to ensure that the IP Control visualisation works, a Java Applet needs to be transmitted from the IP Control to the PC. This Java Applet is signed by Berker. When you open the editor or the visualisation for the first time after launching the Internet browser the following security warning will be displayed.

- Confirm the warning by clicking on **Run**.
- ❏ If you would prefer not to see the warning every time, check the option **Always trust content from this originator**.



Fig. 128: Security warning

## Appendix 7: xPL requirements

In order to be able to utilise the functions of the xPL sender and receiver, the xPL Hub service needs to be installed.

### xPL Hub

The xPL Hub is part of the Windows xPL installation and required for any type of xPL application. This service listens to the xPL telegrams from the network and passes them on to the xPL program. The hub can support several xPL programs at the same time.

**i** **Important!** The xPL Hub uses the Port 3865, which must be enabled in the firewall.

### xPL Hal Manager

The xPL Manager allows you to see all of the xPL participants in the network. In the xPL Hal Manager you can also find the values for xPL Manufacturer, xPL Device and xPL Instance under xPL Devices. The manager also provides a monitor and a send function in order to test the settings. The xPL Hal Manager is not absolutely essential for the SlimServer function, as it only makes it easier to adjust and test the settings.

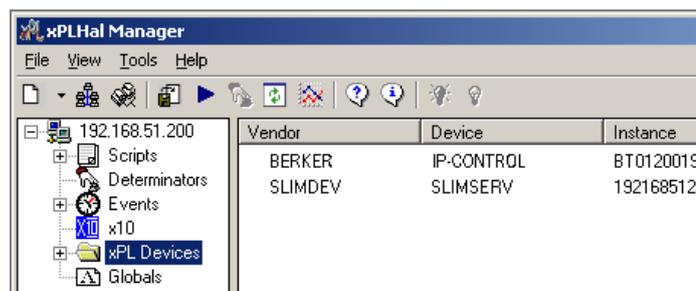


Fig. 129: xPL Hal Manager window

Further information about installation and settings, as well as links for downloading the xPL Hub and the xPL Hal Manager, can be found on the Internet under [www.xplhal.org](http://www.xplhal.org).

### Addressing the xPL devices

The address of the xPL devices looks like this:  
[manufacturer]-[device].[instance]

For the SlimServer, this corresponds to the following address:  
slimdev-slimserv.instance

The IP Control always transmits under the address  
berker-IP-Control.[serial number]

These values can be found in the xPL Hal Manager under xPL device. The instance corresponds to the name of the Squeezebox, e.g. LIVING ROOM. When assigning a name to the Squeezebox, please note that it must not exceed a length of 15 characters. The names of the Squeezeboxes can be assigned via the SlimServer (Settings > Player).

**i** If a Squeezebox has not yet been given a name then the xPL Hub will take the numerical sequence from the IP address as its name. Subsequent changes to the IP address will not be carried over by the xPL Hub, so it is important to give each Squeezebox a clear and unique name. This is done with the aid of the SlimServer under Settings -> Player.

**xPL settings**

It is easiest to access the xPL settings via the monitor of xPL Hal Manager. There you can see all of the xPL datagrams in the network and derive the individual parameters. The screenshot below shows part of the monitor. All of the required information is contained in the lower part of the window.

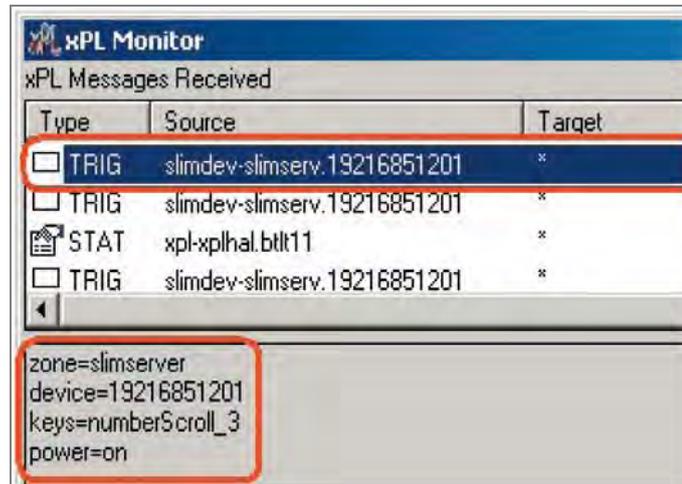


Fig. 130: xPL Monitor

## Appendix 8: E-mail provider

As well as setting up the configuration, you also need to set up an e-mail provider before you can send e-mails. The set-up is performed in the configuration tool, along with the associated settings.

- Click on the **Configuration** tab.
- In the left-hand column, click on **E-mail**.
- The window for managing and setting up e-mail providers (Figure 35) will open.

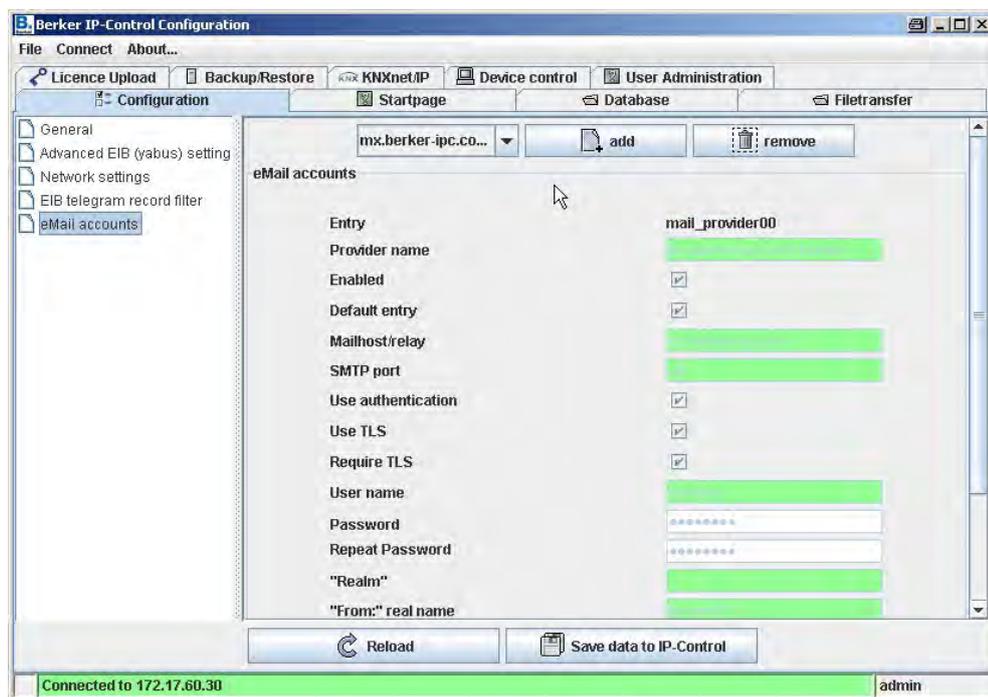


Fig. 131: E-mail configuration

- Click on the **Add** button.  
The IP Control will create a new blank form in which the following parameters need to be entered.

**i** The settings chosen here will depend on your e-mail provider/e-mail server.

- Use the following settings to create an e-mail provider:

### **Entry**

This entry contains the created e-mail provider in the IP Control. This entry needs to be specified when configuring the e-mail job.

### **Provider name**

This is the name under which the provider will be displayed and managed in the configuration tool.

### **Active**

This entry is used to enable or disable individual providers.

### **Default entry**

Select this to use the current provider as the default provider.

**SMTP server**

The name of the SMTP server (outgoing mail server) should be entered here, e.g.: mail.gmx.de

**SMTP port**

Enter the name of the port here which is used by the SMTP server.

**User authentication**

Depending on the SMTP server, authentication may be required. This entry must be enabled if this is the case.

**Use TLS**

This entry should be enabled if you would like the connection to the SMTP server to be encrypted.

**Requires TLS**

This entry should be enabled if the SMTP server requires an encrypted connection. This also depends on your provider and the server settings.

**SMTP server user name**

This is the user name (e-mail account name) which is used by the IP Control to log on to the SMTP (outgoing mail server).

**SMTP server password**

Enter the password which belongs to the e-mail account here. You will be asked to enter it a second time for verification.

**"Realm"**

Enter the realm to be used for the authentication here. This entry is not required for every provider or outgoing mail server in order to send out e-mails. Ask your provider or the administrator of the outgoing mail server.

**"From:" Actual name**

This is the name under which the e-mail is dispatched if no name was specified during the configuration of the e-mail job.

**"From:" Address**

The e-mail is dispatched via this e-mail address if no address was specified during the configuration of the e-mail job.

**Company and signature**

These are both optional pieces of information which are inserted into the e-mail.

- i** You can send test e-mails via the already created providers in order to test the network side of the installation. If you are unsure about the settings for an e-mail provider, the easiest thing to do is to test them with one of the commonly used e-mail programs (Outlook, Thunderbird).  
To do this, simply create an account with the same settings. Please note that the settings in the IP Control only affect the outgoing mail server, as it only sends out e-mails but cannot receive e-mails. With the network settings, enter a DNS server for your Internet provider.

## Appendix 9: URL parameters

When connecting to the IP Control, it is possible to transmit login parameters directly in the URL. The following URL will take you directly to the visualisation:

<IP-Control>/bmxJava2/visuPlain.php

The familiar default page can be reached via the following URL:

<IP-Control>bmxJava2/default.php

<IP-Control> = IP address/name of the IP Control

The start page options can be configured in the configuration tool (refer to **Start page** in the section entitled **Configuration tool**).

### Login parameters

The following syntax needs to be followed when attaching parameters to the URL. Here, the parameters are separated from each other by the ampersand symbol (&) and from the URL with a question mark (?).

Example:

IP-Control = 192.168.1.10

Username: username = xxx

Password: password = yyy

Login autologin = true / false

Example URL:

192.168.1:10/bmxJava2/visuPlain?username=xxx&password=yyy&autologin=true

The autologin parameter is an optional parameter. Its default value is "true".

- If autologin = true then the user is logged in without any further queries.
- If autologin = false then the fields in the login dialog are filled in with the specified user name/password. These need to be confirmed to log in.

 In some cases it is possible to log in under a different name.

## Appendix 10: Expanded clock options

The jobs **Week time switch** and **Year time switch** can be used to switch group addresses at certain times (e.g. for automatic lighting).

### ***Monitoring time jumps***

If the switching time is skipped (e.g. due to a new clock time from an NTP server) then the group addresses are not switched. You can prevent this by enabling the **Monitor time jumps** option in the Job Editor.

Once this is done group addresses will still be switched if their switching time is in a period of time which has been skipped.

### ***Local operation***

If this checkbox is activated then local operation is not possible. The telegram value of the output address is only defined by the clock.

### ***Initialise clock***

When this checkbox is activated the clock sends the current telegram value after an initialisation phase (restart of the IP Control, changes to the clock parameters). If this function is not enabled then the telegram value is only transmitted at the defined switching points.

## Appendix 11: EIS 15 Multiplexer

The job **EIS 15 Multiplexer** can be used to send pre-defined texts on the basis of EIS 14 values.

### ***Input object***

Triggering object of the service. Format: EIS 14

### ***Active***

Enables or disables the relevant command.

### ***Wildcard***

When this checkbox is selected the command is sent for every input value.

### ***Trigger***

The command is sent when the entered value is received.

### ***Overwrite***

When this checkbox is selected the output object can be overwritten with the text.

### ***Text***

This EIS 15 text is transmitted.

### ***EIS 15 output***

The text is transmitted to this group address.

## Appendix 12: EIS types

Item	EIS type	Description	Resolution	Data type	Value range
1	EIS 1	Switching	1 bits	DPT 1.001	[0 .. 1]
2	EIS 2	Switching	1 bits	DPT 1.001	[0 .. 1]
3	EIS 2	Dimming (relative)	4 bits	DPT 3.007	[Brighter .. darker .. stop]
4	EIS 2	Dimming value (absolute)	1 bytes	DPT 5.001	[0% .. 100%] (increment size 0.4%)
5	EIS 3	Time	3 bytes	DPT 10.001	
6	EIS 4	Date	3 bytes	DPT 11.001	
7	EIS 5	Floating point number	2 bytes	DPT 9.xxx	[-671088.64 .. 670760.96]
8	EIS 6	Scaling	1 bytes	DPT 5.xxx	[0x .. 255x] (increment size x)
9	EIS 6	Percentage	1 bytes	DPT 5.001	[0% .. 100%] (increment size 0.4%)
10	EIS 6	Angle	1 bytes	DPT 5.003	[0° .. 360°] (increment size 1.41°)
11	EIS 7	Drive control, moving (direction)	1 bits	DTP 1.008	[Up (0) .. Down (1)]
12	EIS 7	Drive control, step (direction) / stop	1 bits	DTP 1.007	[Up (0) .. Down (1)]
13	EIS 9	Floating point number (high accuracy)	4 bytes	DPT 14.xxx	[- 3.4028*10 <sup>38</sup> .. 3.4028*10 <sup>38</sup> ]
14	EIS 10	Integer without sign	2 bytes	DPT 7.001	[0 .. 65536]
15	EIS 10	Integer with sign	2 bytes	DPT 8.001	[-32768 .. 32767]
16	EIS 11	Integer without sign (large value range)	4 bytes	DPT 12.001	[0 .. 4294967296]
17	EIS 11	Integer with sign (large value range)	4 bytes	DPT 13.001	[-2147483648 .. 2147483647]
18	EIS 14	Integer without sign (small value range)	1 bytes	DPT 5.010	[0 .. 255]
19	EIS 14	Integer with sign (small value range)	1 bytes	DPT 6.001	[-128 .. 127]
20	EIS 15	Character string (14 ASCII characters)	14 bytes	DPT 16.000	

## Appendix 13: DTP (data point types)

Item	Data type	Description	Resolution	EIS type	Value range
1	DPT 1.001	Switching	1 bits	EIS 1	[0 .. 1]
2	DPT 1.001	Switching	1 bits	EIS 2	[0 .. 1]
3	DTP 1.007	Drive control, step (direction) / stop	1 bits	EIS 7	[Up (0) .. Down (1)]
4	DTP 1.008	Drive control, moving (direction)	1 bits	EIS 7	[Up (0) .. Down (1)]
5	DPT 3.007	Dimming (relative)	4 bits	EIS 2	[Brighter .. darker .. stop]
6	DPT 5.xxx	Scaling	1 bytes	EIS 6	[0x .. 255x] (increment size x)
7	DPT 5.001	Dimming value (absolute)	1 bytes	EIS 2	[0% .. 100%] (increment size 0.4%)
8	DPT 5.001	Percentage	1 bytes	EIS 6	[0% .. 100%] (increment size 0.4%)
9	DPT 5.003	Angle	1 bytes	EIS 6	[0° .. 360°] (increment size 1.41°)
10	DPT 5.010	Integer without sign (small value range)	1 bytes	EIS 14	[0 .. 255]
11	DPT 6.001	Integer with sign (small value range)	1 bytes	EIS 14	[-128 .. 127]
12	DPT 7.001	Integer without sign	2 bytes	EIS 10	[0 .. 65536]
13	DPT 8.001	Integer with sign	2 bytes	EIS 10	[-32768 .. 32767]
14	DPT 9.xxx	Floating point number	2 bytes	EIS 5	[-671088.64 .. 670760.96]
15	DPT 10.001	Time	3 bytes	EIS 3	
16	DPT 11.001	Date	3 bytes	EIS 4	
17	DPT 12.001	Integer without sign (large value range)	4 bytes	EIS 11	[0 .. 4294967296]
18	DPT 13.001	Integer with sign (large value range)	4 bytes	EIS 11	[-2147483648 .. 2147483647]
19	DPT 14.xxx	Floating point number (high accuracy)	4 bytes	EIS 9	[- 3.4028*10 <sup>38</sup> .. 3.4028*10 <sup>38</sup> ]
20	DPT 16.000	Character string (14 ASCII characters)	14 bytes	EIS 15	