Software Manual

Version 5.3 V1 – English

Inhaltsverzeichnis

1 First steps

Connect all inputs and outputs to the devices and note their installation site, serial number and optionally the IP-address. Thus, you have the prerequisites of a clear programming.

1.1 Making the connection

To access the programming interface, connect the IO-Server to your router or PC. You should always pay attention to the default IP 192.168.1.254 and if necessary adjust it. Check the IP-address of your router or PC, if the address corresponds to 192.168.1.XXX, you can connect the IO-Server directly to it.

1. You can now access the IO-Server using browsers such as Firefox, Chrome, Safari or Opera.

   To do this, enter the IP-address 192.168.1.254 in the address line of the browser.
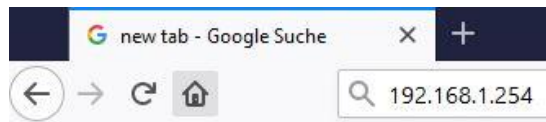
2. A login window appears, here you enter your preferred username and password for the administrator access. Please make a note of this password in any case. If the password is lost, the device can be reset since OS 3.2. For more detailed instructions in this case, please contact support@comexio.com.

   You can also select the language at this point.

If the IP-address of your router is not the same as the IP-address 192.168.1.XXX, you must adjust the IP-address of the IO-Server.

For changing the IP-address of the IO-Server, the connection must be established with your PC. Check the IP-address of your PC, if it does not correspond to 192.168.1.XXX you have to change it (e.g. to 192.168.1.253).

To change the preset IP-address of the IO-Server, follow chapter 2.1 Network settings in the manual.

1.2 Structure of the program

COMEXIO OS has two areas. In COMEXIO Studio administration and programming is done, in COMEXIO Visu the user can use the visualisations created in the Studio.

Switching between the areas is possible using this button.

General info:

To use the web interface of the COMEXIO-Server, JavaScript must be enabled in the browser! The following browsers are supported:

For visualisation:

- Safari (from version 5)
- Firefox (from version 54)
- Opera (from version 45)
- Internet Explorer (from version 11)
- Chrome (from version 59)

For programming:

- Firefox (Recommended) (from version 54)
- Chrome (from version 59)
- Safari (from version 5)

If the programming is opened with Internet Explorer or Microsoft Edge, a warning message appears. Programming with Internet Explorer or Microsoft Edge is not recommended! The COMEXIO Studio won't have a complete function with these browsers!

1.3 System handling

The following terms are differentiated in the **Studio**:

1 Menu bar
2 Created tabs
3 Add Function plan
4 Enterprise search
5 Toolbar
6 Details
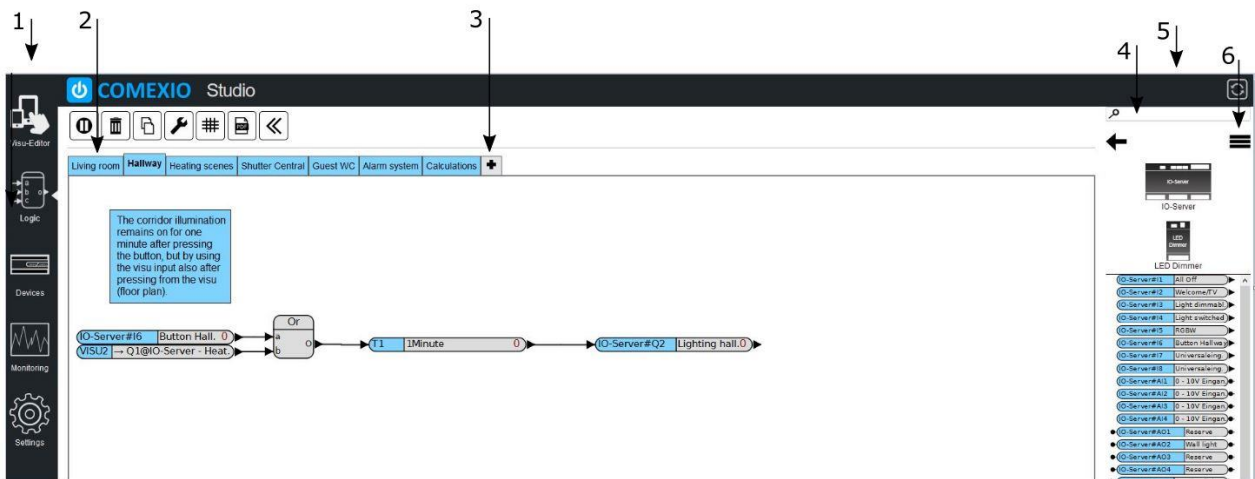
| Note: | After clicking on the menu item "settings" in the menu bar, a drop-down menu opens, which offers further selection options. |

The home screen of the visu could look like this. The overview is generated automatically if no visualisation is selected as start view.
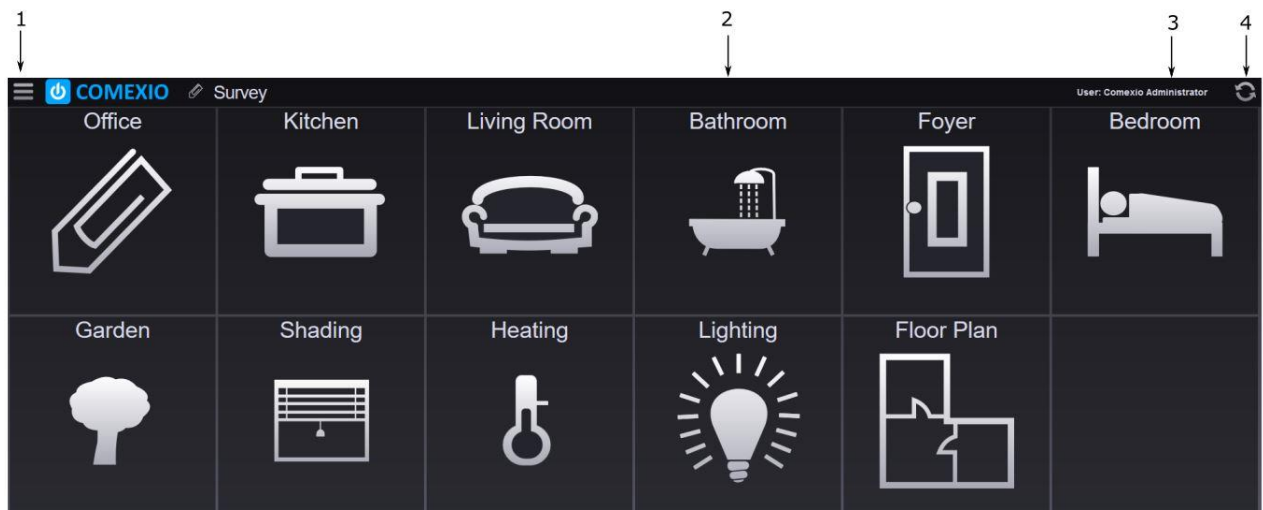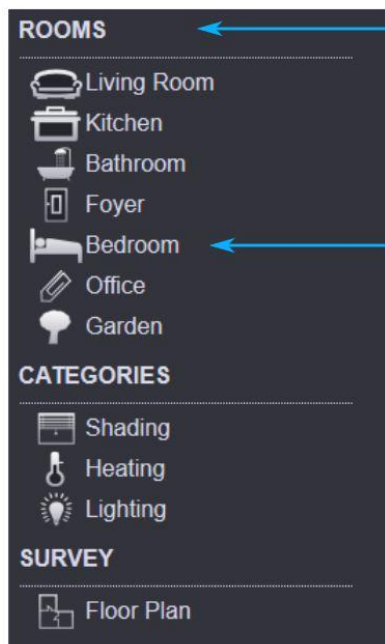
By pressing the button "1" a menu bar appears. There you can see your created Dashboards and individual visualisations. These are assigned to the areas you have classified.

The area "1" (Rooms) is the area you created, the Dashboards listed below e.g. "2" (Bedroom) have been assigned to this area.

 Use the button "4" to enter the studio (only if authorized).

In the window "2" the selected Dashboard or the one you have selected as the home screen will be shown. After clicking on "3" User-X, the following window appears in which you can change your access data.

1.4 Admin Dashboard

The Admin Dashboard provides an overview of the COMEXIO system. Additionally, it offers the possibility to switch to the corresponding settings faster.

After login to the IO-Server, the Admin Dashboard can be opened via the "Visualisations" button.

Beside the information about the Timesettings, the Firmware, the Network, the Configuration of the IO-Server, the number/type of users and the Smartphones located in the system are also listed here.
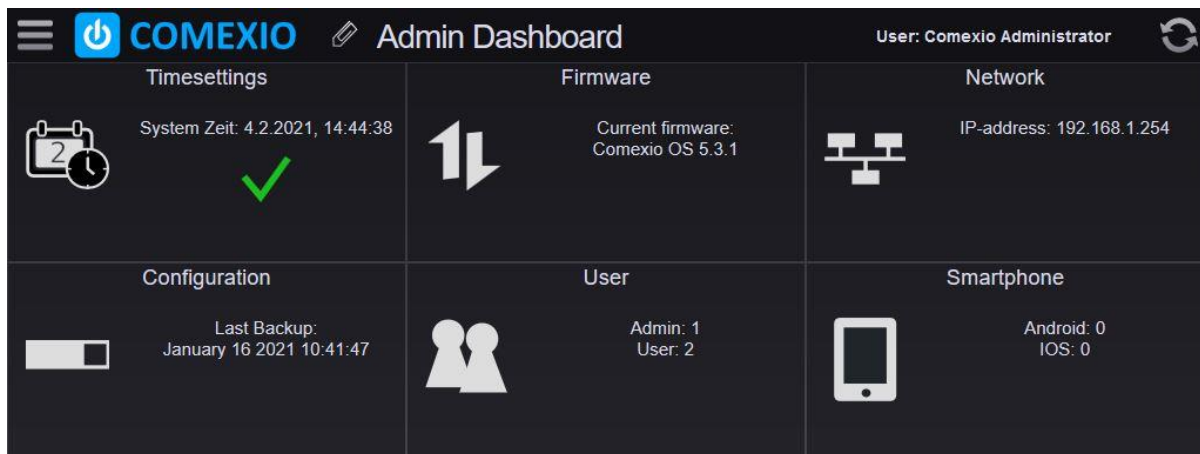
2 General settings

2.1 Network settings

2.1.1 IP, DNS and COMEXIO Remote

Configure the network settings of the COMEXIO Server under "Settings" in the menu bar, afterwards click on "Network" in the drop-down menu. You can enter the desired IP-address in the "IP" field and accept it by clicking the "Save settings" button.

> **ATTENTION:** If you want to get your IP-address dynamically, you have to contact your network administrator or look on the DHCP server which IP-address the COMEXIO IO-Server has got.

During manual configuration, a domain name server (name server) might have to be made known. This allows servers such as www.google.de to be found using your name instead of your IP-address (this setting for example is used by time servers and to send emails.

<table>
<tr><td>**ATTENTION:**</td><td>Make a note of your changed IP-address, because if you enter the wrong IP-address, you will no longer be able to access it.</td></tr>
</table>

If the IP-address of the IO-Server has been lost, a **reset to the default IP-address** can be made. The reset is done by pressing the **RESET button** (at least 5 seconds), which you can find on the front side of the IO-Server below the yellow LED. The LED turns off as long as the key is pressed. If the LED is permanently lit, the IP has been reset.
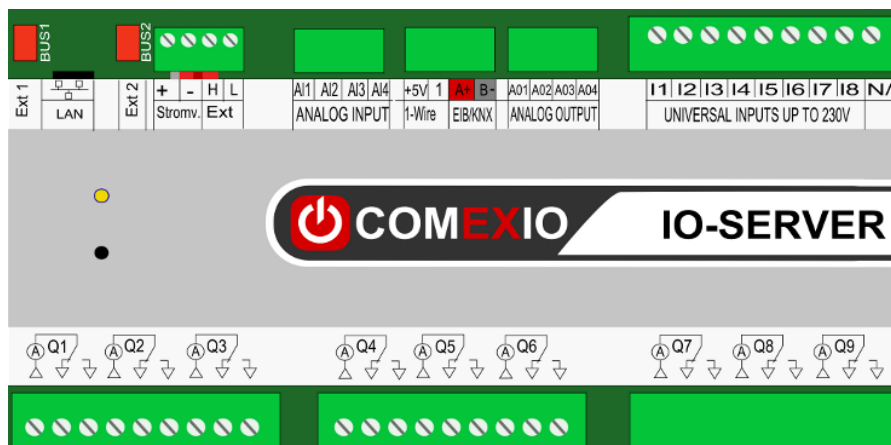
2.1.2 Encryption

Each IO-Server creates its own individual SSL certificate. You can generate a new certificate by clicking the "Create new certificate" button. The certificate is not part of the configuration, it is independent from it.

2.2 Date & Time

In the menu item "Settings" under Date & Time you can make the following settings.

Date & Time

Select Timezone

Continent	Timezone/Location
Europe ⌄	CET / Berlin, Germany ⌄

Current system time
2021 / 02 / 02   12 : 08 : 09

Time
11:56:22

Date
02/02/2021

Synchronisation
[Synchronize with local time]

☑ Use time server for setting the local clock

Time server
ptbtime2.ptb.de

[**Save**]

1   By pressing the "Synchronize with local time" button, the current time and date are taken over from the current operating device. After a power failure, however, the time gets lost and must be set again.

2   If the IO-Server has internet access or if a time server is available in the in-house network, it is recommended to set the checkmark at "Use time server to setting the local clock". For this purpose, a time server for the Internet is deposited by default. This means for you that with the setting of the check mark, the current time is always queried from the time server even in the case of a power failure and is thus always set correctly. While using a time server, it is important to set the continent and time zone correctly, which can be set in the mask at the very top. If the COMEXIO IO-Server cannot find the specified time server, it automatically deactivates this function.

3   Date & Time can be obtained via the KNX bus. A KNX weather station is usually used for this purpose. The data point time/date must be stored in the KNX bus and the transmission mode must be set in automatic mode.

Complete this process by clicking the "Save" button.

If the time differs from the operating device by more than one hour, a corresponding note is issued after logging in.

2.3   User administration

To add and edit users, open the "User administration" menu item under "Settings".

To change the already created user, press the "pencil icon".

Three types of users exist:

1. **Administrator:** All rights are assigned to this user. Only this user can create and edit users without any restrictions.

2. **User:** This user will only have access to the user area and the areas permitted for him.

3. **Priviledged user:** This user has the same rights as a user and can additionally manage certain assigned areas of the administration area. In case of permission, the privileged user can also create users, but not users with more rights than the privileged user himself.

User administration

Add new User

All users

ID	First name	Family name	User name	Level	Action
1	Comexio	Administrator	admin	Administrator	✎✗
2	Comexio	User	user	User	✎✗
3	Comexio	Priviledged	priviledged	Privileged User	✎✗

All fields are required to be filled in when creating a user. A username can only be assigned once. It is important that you assign one or more areas to the new user. In the selection window "Level" you can choose between the three user types already described above. Use the "Save user" button to finish this process.

Edit user **Comexio User**   ✗

First name	Max
Family name	Mustermann
User name	Maxi
Password	
Confirm password	
Level	User
Areas	Rooms Categories Survey

Save user

2.4 Configuration

With the help of the menu item "Configuration" in "Settings" you are able to load projects to the IO-Server, reset to an older configuration and save your project. Saved projects can also be loaded on other IO-Server, which means that a configuration can also be duplicated.

You can also reach this menu item via http://<IP>/admin/configuration/home. When you open this heading, the following window appears:

If you already have a COMEXIO project that you want to install on the IO-Server, select it via the "**Browse**" button. After you have done that, you need to press the "**Upload**" button to install it. The project will be available after a short time. By checking "Ensure Login for this user" the current admin password will be kept.

Note:	Do not switch off the device during the installation process!

Save your project with the "**Download**" button, e.g. to store it in your project folder.

Please note that the configuration files also contain all uploaded images and all status modules and can therefore become very extensive. Only files smaller than 8 megabytes are accepted for upload!

In addition, a backup copy of the current configuration is stored in the system each time the configuration is downloaded or uploaded. This can be restored via the "**Reset**" button.

Monitorings can be filled with fictitious data via the item "Use simulation mode in the visualisation".

> **ATTENTION:** If this is activated in normal operation, the monitoring records data, but these are not displayed in the visualisation.

It is also possible to reset the device to the delivery state. For this, you need to press the key combination "**Ctrl+G**" in the Configuration item. This gives you the following additional setting option:

Configuration

[Reset device]

After pressing the "Reset device" button, you must confirm the process twice more.

> **ATTENTION:** Resetting the device cannot be undone! All data is permanently lost!

2.5 Firmware Update

Two options are available to keep the system firmware up to date. During the manual firmware update, the user selects which update is to be installed at what time. If the automatic update option is enabled, the system will always be up to date even without the user's intervention. Each firmware update represents an intervention in the existing system. This means that a functioning system may no longer work smoothly after a firmware update. For this reason, it should only be run by technically skilled user.

2.5.1 Manuals Firmware update

If a new firmware is available at www.comexio.com, you can download it and install it from your operating device to the IO-Server via the "Firmware update" menu item under "Settings".

The "Firmware update" page can be reached directly via the link http://<IP>/admin/firmware_update/home.

Firmware update

Current version: Comexio OS 5.3.1

Choose firmware file   [Durchsuchen...] Keine Datei ausgewählt.

[**Install firmware**]

Download the firmware file from the link above and select the downloaded firmware file with the "Browse" button. After selecting the file, press the "Install firmware" button. After a short time, it is installed on your device, and you now can use all the features that have been added.

2.5.2 Automatic Firmware Update

As an alternative to the manual firmware update, the automatic update function can also be activated. For this, "Rule" is used to select which updates are to be installed automatically. If there are new updates for connected devices, they will be updated automatically by checking the corresponding box.

Automatic Update

Rule	Manual ⌄
	☐ Update attached devices (Doorstations) too
	Check now
Automatic installation around	03 : 00 ⊗ ☐ Monday ☑ Tuesday ☐ Wednesday ☐ Thursday ☐ Friday ☐ Saturday ☐ Sunday
Minimum age for error correcting Firmware	2
Minimum age for new functions Firmware	14

Save

In addition, a difference is made between the "Release Firmware" and the "Beta Firmware". The beta firmware may contain new features, and bugs cannot be excluded, because this firmware is in the experimental phase.

After selecting the installation time and the required age of the updates, the changes must be confirmed via "Save".

During the update, the LED of the IO-Server is blinking depending on the processor load and is not blinking twice in short intervals, as it is the case in normal operation.

> **Note:**   Do not switch off the device during the installation process!

2.6   System Info

Under the menu item "Settings", "System info" you will find all important information, such as firmware version status, hardware version and serial number of your IO-Server (you will also find these on the right side of the device).

The "System info" page can also be accessed via the link http://<IP>/admin/system_info/home.

General System information

Following Information about the system are available:

COMEXIO Firmware Version:	Comexio OS 5.3.1 - 27/01/2021
COMEXIO Hardware Version:	IO-Server Ver.2 1.1
Serial number:	8105-2032-9801
Mac-Address:	B8:8F:14:00:31:BD
Visualisations:	(12 / 12)
FUB (Function modules):	(0 / 1)
AWL (Instruction list):	(0 / 0)
Network:	Gateway: *Ok*, Connection to Internet: *No Connection*, Internet (DNS): *No Connection*, my.comexio.com: *No Connection*
Running for:	22:39:47
Developed by:	**Comexio GmbH** Eisenberger Str. 56a D-67304 Kerzenheim © 2012-2021 Comexio GmbH
Free disk space:	83%

You may need the Mac-Address shown in the image when connecting to an existing network. Under the three items Visualisations, FUB (Function modules) and IL (Instruction list), the number of your created and active tabs are compared respectively. At Network you have an overview of the different connections. The penultimate section includes the location of development. Certified partners have the additional possibility to leave their address, logo and link to the homepage here. More about this under 2.6.3 Branding.

In the last section you will find the free memory of the system.

> **Note:** In this menu item you can unlock another button via the key combination "Ctrl+G". With this you can restart the system.

General System information

Restart

2.6.1 Extension-Bus Snapshot

Furthermore, a recording function for the Extension-Bus is available with this key combination.

For support purposes, this can be an advantage. After clicking Start, every action on the Extension-Bus is recorded here and is available for download as a .txt file.

2.6.2 1-Wire Bus Analysis

With the same key combination (Ctrl+G) it is also possible to start a analysis of the 1-Wire Bus.

The generated text file is available for download as a .txt file after the time has expired. This can be sent to our support team for error analysis.

2.6.3 Branding

Certified partners have the possibility to permanently integrate their address, logo and link to the homepage in the system info. For this purpose, the partner needs an additional login code. This is given during the workshops, but can also be requested afterwards.

To get to the branding area you have to press the key combination "Ctrl+Shift" while clicking on Settings.

After the code is entered, the following menu is available:

As well as name and address, the logo and link to the homepage can also be entered here. To delete the branding you need to use the same key as you used when creating it and press the X.

Saving is done via this symbol .

2.7 Display theme

In the menu item "Settings", "Display theme" you can choose between different presentation types for the visualisation.

2.8 Devices

You can add up to 25 system devices to each IO-Server. Furthermore, it is possible to connect several IO-Server and their devices via the network. Thus, it is possible to build very large topologies. This makes COMEXIO ideal for projects and buildings of any size.

2.8.1 General

To connect a system device (Extension), you must basically observe the following steps:

1 Connect the Extension to your IO-Server via an Extension connector cable to the terminal marked "1." in the picture below. Alternatively, the connection can be made using the "POWER" (terminal 2.) and "EXT" (terminal 3.) terminals via a shielded cable. It should be considered that the devices must be connected in series with each other.

2 The device bus is terminated by device-internal resistors. Remove the terminal of the connections marked "2." and "3." for this purpose. You will find a small red coding switch right behind on the housing side of the device. Put this on the left side at the 2 devices that form the bus cabling ends, as shown in Figure 2.1 below. For all other devices, the coding switch is set to the right as shown in Fig. 2.2.

3 Switch on the power supply. The operational state of the devices is shown by the blinking of the operational LED on the IO-Server and by the LED lighting up on the other system devices.

> **Note:** The total length of the Extension-Bus is limited to 150m. Only line topology is permitted.
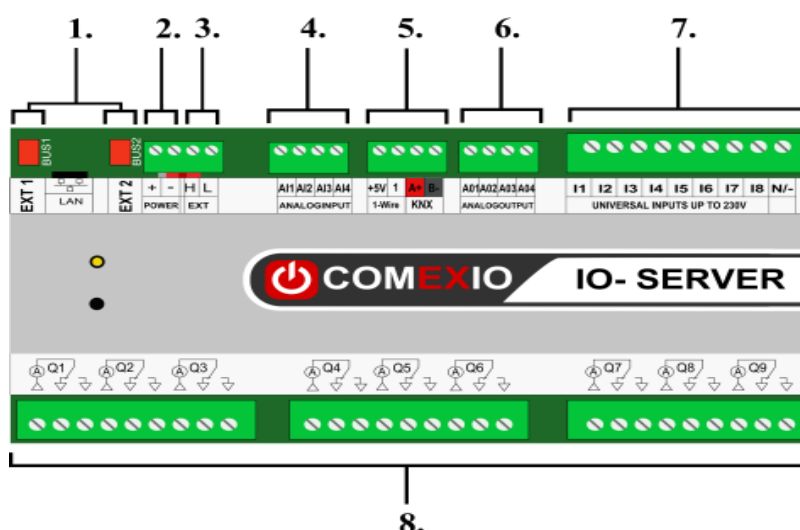
2.1 Coding switch with active bus termination

2.2 Coding switch for all other devices
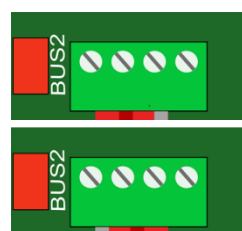
2.8.2 Add

In case of an Extension of your system, carry out the installation of the system devices according to the supplied quick start guide or the steps mentioned above. New Extensions can be learned in the system as follows: Open the "Devices" menu item. In this window you can add and manage Extensions as well as their inputs and outputs.

Devices with an existing bus connection are full color. If there is no bus connection to a device, it is displayed transparently. If there is no bus connection, the following icon is also displayed when the tab is open.

 Please immediately check the bus connection and termination of the devices. The order of the system devices can be changed via drag & drop. The first "Extension" is always the IO-Server itself. Only the name can be changed here.

 With the plus symbol you can create an Extension. An additional window opens. Here you enter the following data:

Add　　　　　　　　　　　　　　　　　　　　✕

Name	Multibridge
Serial number	8465-1004-1020 (Multibridge) ⌄

☐ Add extension offline

Search for local extensions

☐ Add all

| IP-Address (optional) | local |

Add extension

In the "Name" field, enter, e.g., the location of the distribution, room, 1st floor, etc., so that you can understand where the device is located or what it controls. The name must be unique.

If the device is connected directly to the IO-Server, you can also search for it directly using the "Search for local extensions" button. Then you will receive a selection list with the connected devices that have not yet been learned. Otherwise, the serial number attached to the device is entered in the "Serial number" text field (right side of device). If the serial number is entered incorrectly, an error message is displayed.

The text field "IP-Address (optional)" remains empty if the Extension is connected to the local Extension-Bus. If, on the other hand, it is an IO-Server that is to be included as an Extension (or an Extension to its Extension-Bus), the IP-address of the other IO-Server must be entered in this field.

If, however, you have not connected a device directly to the IO-Server, you can also teach the new device offline by clicking on "Add extension offline" and then selecting the type of Extension. After you have connected the Extension, you just need to edit it and add its serial number afterwards.

Changes to an Extension are made by pressing the "pencil icon". Here you can change the name of the Extension. It is also possible, e.g. while replacing an Extension, to change simply the serial number. This will transfer the links of the programming to the new Extension.

After successful changes, please save by pressing the diskette icon.

The "garbage can icon" is used to delete Extensions.

By clicking on this icon, CSV table files can be uploaded or downloaded to accelerate the naming of inputs and outputs. Additionally, all the devices present in the CSV are created. During the upload of the CSV file, all existing Extensions will be deleted and replaced with those contained in the file.

Using the browser's print function, the complete input/output assignment and the devices can be printed here.

The Autotest function can be used to test the outputs of the connected Extensions. This function can be started via the button with the same name.
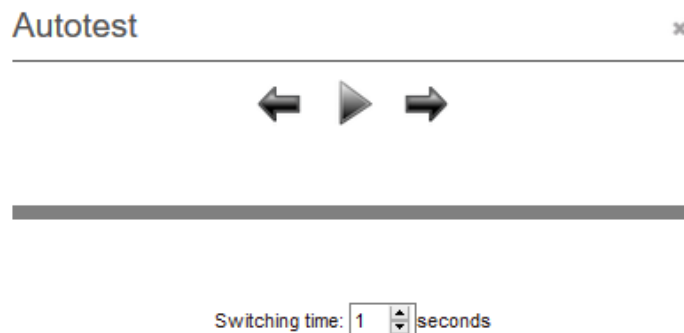
During the test, the outputs of all connected devices are switched on in order for the duration of the value specified under "Switching time".

2.8.3 Exchange serial number of the devices

To exchange a device that is already integrated into the system, the serial number of the old device is replaced by that of the new device. This automatically assigns the tasks of the old device to the new one. For this change, the device to be changed is selected in the device menu.
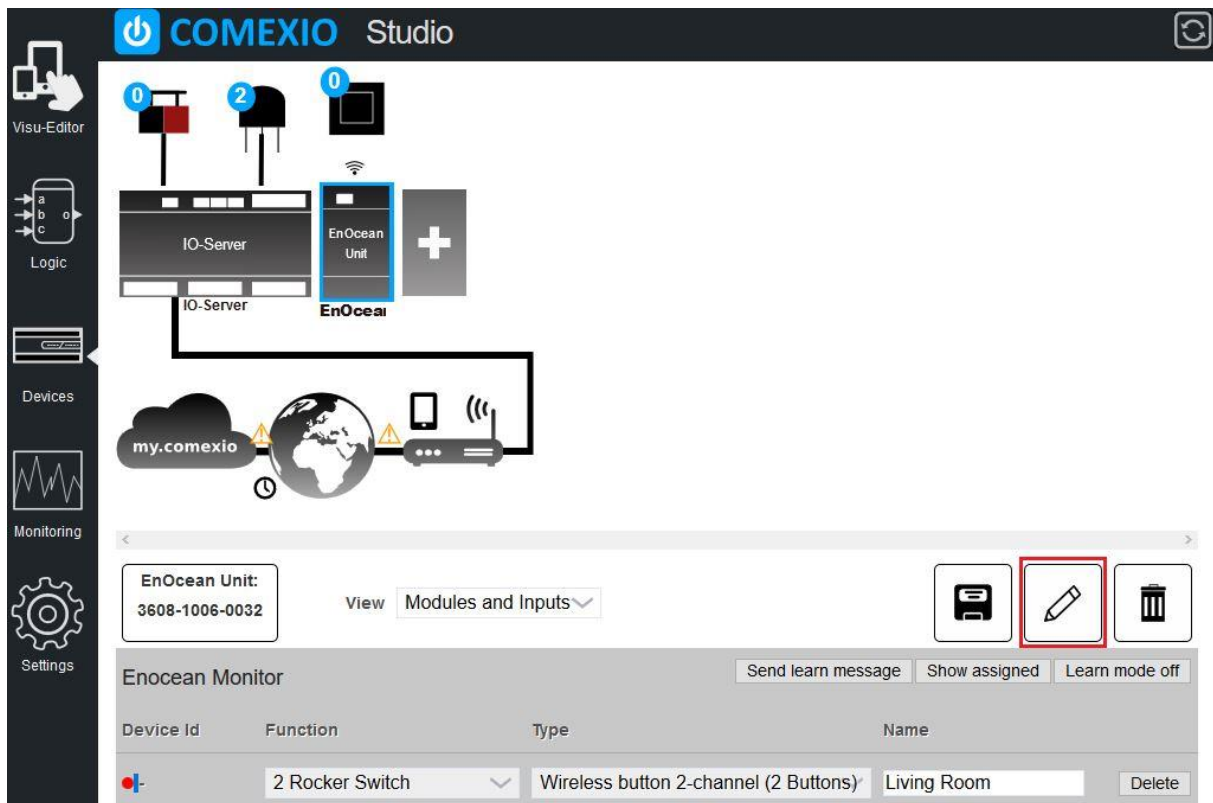
The "Edit" button opens the window where the serial number can be exchanged.

After the new device is connected, the "Search for local extensions" button will search for all new devices from which the replacement device must be selected. The device exchange can be completed by clicking the "Add extension" button.

2.8.4 Updating the firmware of an Extension

In firmware updates for the OS of the IO-Server, updates for different Extensions are regularly integrated. This allows new functions to be integrated or errors to be corrected without having to send in these devices.

In the device overview these updates can be installed via the **Extended View** of the **IO-Server**. To do this, click on "Advanced" – "Update Extension Firmware".

The following dialog appears:

Firmware update ✖

Checking if there is an Update available for extensions at the local extension bus. While doing this, the outputs of the devices may be switched off. This will take some seconds.

[Check] [close]

After clicking on "Check", such a dialog will appear after a short time:

Firmware update ✖

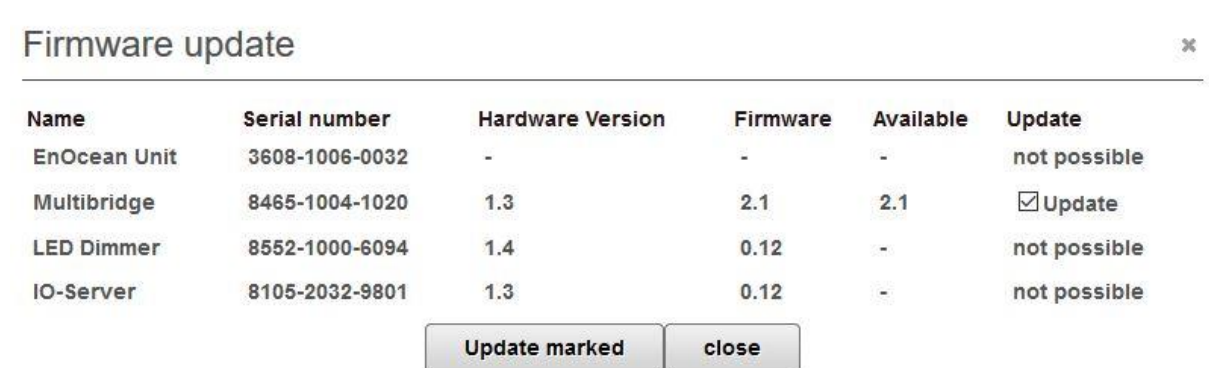| Name	Serial number	Hardware Version	Firmware	Available	Update
EnOcean Unit	3608-1006-0032	-	-	-	not possible
Multibridge	8465-1004-1020	1.3	2.1	2.1	☑ Update
LED Dimmer	8552-1000-6094	1.4	0.12	-	not possible
IO-Server	8105-2032-9801	1.3	0.12	-	not possible

[Update marked] [close]

Select the Extensions for which you want to install the update. The window should be closed only after updating all system devices.

Firmware update ✖

⚠ Please keep this window open, until the update is finished. Do not disconnect the the power supply of the devices! ✖

Name	Serial number	Hardware Version	Firmware	Available	Update
EnOcean Unit	3608-1006-0032	-	-	-	not possible
Multibridge	8465-1004-1020	1.3	2.1	2.1	Programming block 1 of 3: 38%
LED Dimmer	8552-1000-6094	1.4	0.12	-	not possible
IO-Server	8105-2032-9801	1.3	0.12	-	not possible

[Update marked] [close]

A check mark appears after a successful update. The window can now be closed.

Firmware update

Name	Serial number	Hardware Version	Firmware	Available	Update
EnOcean Unit	3608-1006-0032	-	-	-	not possible
Multibridge	8465-1004-1020	1.3	2.1	2.1	✓
LED Dimmer	8552-1000-6094	1.4	0.12	-	not possible
IO-Server	8105-2032-9801	1.3	0.12	-	not possible

close

2.8.5 IO-Server/Extension

Under the menu item "Devices", you can, besides the teaching of Extensions, also manage the inputs and outputs of the system devices and the IO-Server.

You can choose between two views "Standard" and "Advanced". The Standard View is used for changes of designations, type, status and value.

For a better overview, name the inputs and outputs according to their function, activate/deactivate required/unrequired inputs and outputs. You can upload a CSV file via the icon, which is used to name the inputs and outputs.

In the "Value" field you can see the state of the inputs and change the state of the outputs. Enter e.g. at Q1 in the field "Value" a 1, then this output switches.

Q5	Heating living room	Relay	active	1
Q6	Light outside hallway	Relay	active	0

You can do this for all devices at the outputs (Q, AO).

By clicking on the Extension icon you will get to the advanced settings.

Here you can make additional settings. The cycle times of the inputs can be changed to reduce or increase the query time. The cycle time corresponds to the duration between 2 queries of the values. The number value indicates how many milliseconds elapse between 2 queries. The inputs I1-I8 are event based readout if they are set to "Digital". The cycle time is not changeable afterwards. Different inputs are grouped together with the same cycle time. For a better overview, these will be highlighted when changing and also immediately adjusted.

Entering zero means that this input is no longer read out, otherwise the shortest adjustable cycle is 20 ms. For the UL1 and TL1 inputs, the maximum permitted cycle time is 1000 ms.

All outputs are event based, therefore the setting cannot be changed here.

In this view, you can also update the firmware of the Extensions on the IO-Server.

Note:	At very low cycle times the COMEXIO bus is heavily charged, so that in that case only a small number of Extensions can be run.

Remark (only concerns IO-Server of the 1st generation up to production year 2013):

The values for frequency measurement FI1 to FI3 are read out at inputs I1 to I3. These inputs are also used as reference values for measuring the phase shift (QP1-9), where I1 is the reference value for QP1-3, I2 for QP4-6 and I3 for QP7-9.

> **Note:**   Settings for inputs and outputs can also be made in graphical programming (menu item "Logic") by clicking on the component.

After clicking on the component, the following input window appears:

The following settings can be made here.

Output:

- Name: For allocation and clarity.
- Type: The following settings can be made here:
  - Relay output: Relay
  - Analog output: Analog 0-10V
                       0-10V percent
                       1-10V percent
                       Digital 10V
- Status: Can be selected between "Active" and "Inactive".
- Value: Here you can switch the output directly on and off.

Eingang:

- Name: For allocation and clarity.
- Type: The following settings can be made here:
  - Universal input: Digital,
                       Impulse counter or
                       Impulse velocity*)
  - Analog input: 0-10V or Digital (24VDC)
  - Current input: Current, Apparent power at 230V

- Status: Can be selected between "Active" and "Inactive".
- Value: Here you can see if there is currently a signal at the input.

For 1st generation devices, you have more setting options.

*) **Explanation:**

Digital: Returns either the value 1 or 0.

Impulse counter: Captures each impulse and adds them up consecutively.

Impulse velocity: Indicates the average of the number of impulses per counting cycle.

Click "Advanced" to set the cycle time. This determines the counting cycle used for the impulse speed.

2.8.6 Universal-Dimmer

The 6-channel Universal-Dimmer can automatically detect dimmable lamps and assign the appropriate dimming method to the luminaire.

In the selection field "Type" you can choose between "ON/OFF", "Percent" and " Rectified percent".

ON/OFF: This operating mode turns the output into a digital switching output. If the ramp of the output is deactivated, the switching output can be used for the same functions as a relay output, e.g. of an IO-Extension.

Percent: This operating mode turns the output into an analog switching output. The illuminant can be controlled from 0-100%.

Rectified percent: This operating mode turns the output into an analog switching output too. The dimming curve is approached according to the power. This means that the outer ranges (0-20%, 80-100%) are compressed and the inner ranges are stretched.

To adjust the settings of the output, click the "Set" button. An additional window will appear.

Test dimmer settings

You can set the minimal On-value for this dimmer channel

The Dimmer is on, if the dimmer-value is set to 1 or greater. Some illuminants may need greater value for lighting. Sometimes it makes sense to set a minimal brightness, to achieve the minimal necessary illumination.

Set brightness value	1
Dimming method	Automatic detection
Use ramp for dimming	1

Please choose the Dimming method only if the automatic Detection does not work properly. If the wrong dimming method is chosen the dimmer my be damaged. Choose the settings with 'small load' only if the lamp does not work properly without it. If there is a dimming emthod recommended in the lamp manual, consider it. Dimming an inductive ballast is not possible!

Save

At "Set brightness value" you can shift the zero point depending on the illuminant. This makes sense especially for LED illuminants. These often need at least about 15% dimming value, otherwise they do not light up. So here you simply set 15% and can still dim from 0 to 100%. This setting has no function for outputs set to ON/OFF.

In the selection window "Dimming method" you can choose between different types. Standard setting is the automatic dimming method. Depending on the illuminant, it is necessary to set it manually to the appropriate dimming method.

The following are available for you to select from:

- Phase section
- Phase section, small consumer
- Phase section
- Phase section, small consumer

At "Use ramp for dimming" you can deactivate or activate the ramp. The ramp is the smooth start from 0% to the set brightness. If the ramp is active and you use the output in ON/OFF mode, you must not use the output as a regular switching output.

Then save the Dimmer settings and the window closes. Of course, you can also make settings in the graphical programming. By clicking on the respective output, the following window appears:

Edit Input or Output

Extension	Universal-Dimmer	
Output	Q1	Extended
Caption	Dimmer output 1	
Type	Percent	⌄
Status	active	⌄
Value	0	

Save

Output:

- Description: For assignment and clarity.
- Type Percent, Percent improved or On/Off (Digital) can be set here.
- Status Can be selected between "Active" and "Inactive"
- Value Here you can switch the output on and off directly.

Input:

- Description: For assignment and clarity.
- Type Digital can be set here.
- Status Can be selected between "Active" and "Inactive"
- Value You can see here if the input is currently carrying a signal.

2.8.7 LED-Dimmer

The 9 channel Dimmer can be used for countless light sources from 12V LED spots to 24V LED RGB strips. Connect RGB or RGBW strips directly. For your atmospheric indirect lighting in any color.

	Caption	Type	Status	Dimmer setting [ms]	Value
Q1	Dimmer output 1	Percent	active	10 Test	0

In the "Type" selection field, you can choose between "ON/OFF"=digital and "Percent"=analog for dimming. In addition, both variants offer the possibility to switch from immediate output of the value to "soft start" or "continuous dimming".

To test the output settings, click the "Test" button. An additional window appears.

Test dimmer settings   ✕

Please set the biggest possible timing, that the lamp at output
Q1 does not jitter!

The frequency is the inverse

Set brightness value   ms

[50]   [10]

100 %

75 %

50 %

25 %

10 %

0 %

Frequency [100Hz]   Levels [50]

[Save]

Here you can enter the brightness directly or select it via buttons or the slider.

Furthermore, it is possible to optimize dimming by setting the period duration (ms) (right slider). This setting is used to avoid flickering of illuminants.

After saving, the window closes. The minimum period duration is two milliseconds, the maximum period duration is 45 minutes (to be set in ms).

Note: You can also make these settings in the graphical programming.

2.8.8 EnOcean Unit

Expand your installation with wireless components of the battery-free wireless standard EnOcean. With the COMEXIO EnOcean Unit, no chiselling work is necessary. With the EnOcean Unit you are able to integrate the EnOcean Equipment Profiles (EEP) we support into the system and thus use them for control.

Here you can teach, edit and delete EnOcean wireless devices. To be able to learn new EnOcean devices, you must first switch on the learning mode for this Extension. New devices now appear automatically on the screen. Many EnOcean devices have a learn button that sends a learn message when pressed. If such a learn message is recognized, the system tries to find the suitable EnOcean profile and makes only this profile available in the selection box for the type. Otherwise, the type must be determined and selected based on the manufacturer's description. This applies in particular to the often used wireless pushbuttons with 2 or 4 channels. The normal application is then "Wireless pushbutton 4-channel (4 buttons)" or "Wireless button 2-channel (2 Buttons)".

The field strength symbol (image below red box) is used to display the signal strength. Thus, the optimal installation location can also be determined. Telegrams that have been recently received will have a red dot in front of the field strength symbol. Thus, the currently transmitting device can be identified. For sensors that have not been taught-in, the dot is light green and becomes darker over time.

The supported devices can be found on the homepage as download under EnOcean Unit (list of supported devices): http://www.comexio.com/technische-daten-enocean-unit/.

2.8.9 Smart Meter

The Smart Meter is a measuring device for recording electrical parameters in three-phase systems. Since the Smart Meter can be operated via transformers on both the voltage and current sides, it is possible to determine total currents, power, etc. in the private sector as well as to monitor low- and medium-voltage systems in industry. Thereby, the Smart Meter has tolerances for the measurements in the per mille range.
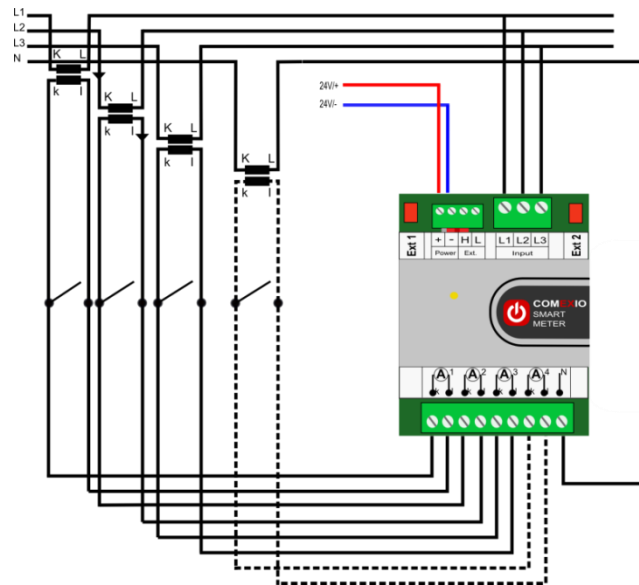
The connection of the Smart Meter is as shown in this picture.

In addition, the voltage can also be picked up via voltage transformers. When installing the current transformers, pay attention to the current direction (k-l), otherwise the measured values will not be correct.

Before connecting the current transformers, the Smart Meter should be taught-in the IO-Server and calibrate the zero line. A description of this follows below.

Inputs and outputs of the Smart Meter:

	Caption	Type	Transformer	Threshold (mA, unscaled)	Value
TL1	Onboard Temperature 1	Board Temperature			0
L1	Phase 1	Voltage	☐ 1 / 1		0
L2	Phase 2	Voltage	☐ 1 / 1		0
L3	Phase 3	Voltage	☐ 1 / 1		0
PhiL1	Phase angle 1	Angle			0
PhiL2	Phase angle 2	Angle			0
PhiL3	Phase angle 3	Angle			0
F1	Frequency Input 1	Frequency			50
F2	Frequency Input 2	Frequency			50
F3	Frequency Input 3	Frequency			50
RF1	Rotating Field 1	Rotating Field			0
IE1	Residual Current 1	Residual Current			0

1 With this button the zero line can be calibrated (explanation follows below).

2 Resetting electricity meters deletes the internal values of the electricity meters.

3 Here you can switch between the Standard View and the Extended View.

4 The cycle time set here applies to all connected Smart Meters.

5 Name of the data point.

6 Own name of the parameter.

7 The data type is set here. There are voltage, current, angle, active power, apparent power and reactive power, work and frequency.

8 Under transducer you can tell the system if a transducer is present and if yes, what the transducer ratio is.

9 With threshold value you can define from which current strength values are to be recorded.

To save the settings you have to click on the disk as usual.

The Smart Meter automatically creates a Visu module. For more information, see 3.7.5 Smart Meter (Visu).

Table of captured values:

	Data point	Designation
1	TL1	Temperatur onboard
2	L1-L3	Phase 1-Phase 3
3	I1-I4	Current 1-Current 4
4	PhiL1-PhiL3	Angle Phase 1-3
5	PhiI1-PhiI4	Angle current 1-4
6	F1-F3	Frequency input 1-3
7	RF1	Rotary field 1
8	DI1-DI3	Current direction 1-3
9	DI1-DI3	Current direction 1-3
10	P1-P3	Power 1-3
11	S1-S3	Apparent Power 1-3
12	Q1-Q3	Reactive Power 1-3
13	E1-E3	Electricity meter 1-3
14	DP1-DP3	Power onboard (True RMS) 1-3
15	DS1-DS3	Apparent Power onboard (True RMS) 1-3
16	DQ1-DQ3	Reactive Power onboard (True RMS) 1-3

The following parameters are recorded by the Smart Meter:

1 **Temperature (TL1):**
The temperature is measured by a temperature sensor integrated in the Smart Meter.

2 **Voltage (L1-L3):**
The voltage is determined in 3-phase, optionally with voltage transformer.

3 **Current (I1-I4):**
For the current, we always recommend converter measurement. Here, of course, not only the current of the 3 phases is recorded, but also optionally the neutral conductor load.

4 **Phase angle (PhiL1-PhiL3):**
The phase angle between the voltages is monitored in order to be able to detect neutral point shifts or something similar as quickly as possible.

5 **Phase shift (PhiI1-PhiI3):**
In addition, the phase shift (PhiI1-PhiI4) between U and I is determined. For the neutral conductor, the phase shift refers to L1.

6 **Frequency (F1-F3):**
The frequency is also measured in 3-phase. The measuring range is between 47 and 53 Hz.

7 **Rotating field (RF1):**
The phase angle is also used to determine the direction of the rotating field (RF1) and is specified via a separate data point (rotating field right: 0; rotating field left: 1).

8 **Residual current (IE1):**
The residual current (IE1=I1+I2+I3-I4) is directly calculated and output.

9 **Current direction (DI1-DI3):**
The current direction is recorded for each channel. Forward direction is indicated with a 0, backward correspondingly with a 1.

10 **Active Power (P1-P3):**
The active power calculated on the server is output here. The active power is the part of the power that can be converted into other power (e.g. mechanical power).

11 **Apparent Power (S1-S3):**
The apparent power calculated on the server is output here. The apparent power (also called installed power) is the electrical power supplied to the consumer, i.e. voltage times current without taking into account the phase shift.

12 Reactive Power (Q1-Q3):
   The reactive power calculated on the server is output here. The reactive power corresponds to the difference between apparent and active power, with geometrically correct calculation.

13 Work (E1-E3):
   The energy is recorded and stored onboard in kWh and can of course also be used directly in monitoring or sent as an e-mail. The values are stored in a non-volatile memory and are therefore retained even in the event of a power failure.
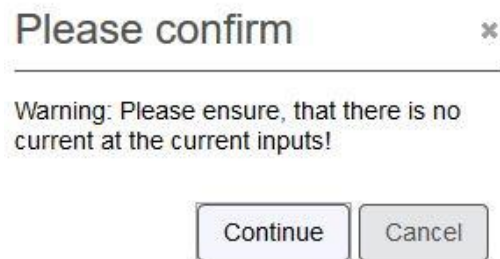
14 Power Onboard (DP1-DP3)
15 Power Onboard (DS1-DS3)
16 Power Onboard (DQ1-DQ3):
   The values for active, apparent and reactive power calculated directly in the Smart Meter are output here. Even if the IO-Server fails, these values continue to be recorded and stored.

Calibrate zero line (only necessary for devices manufactured up to 2016).

After installation, the zero line must be calibrated in a currentless state before connecting the current converters. Otherwise, an offset of up to 20mA occurs and the indicated tolerances are no longer fulfilled. The device is calibrated in the menu item Inputs and Outputs. In the Extended View there is the button Calibrate zero line.

Please confirm

Warning: Please ensure, that there is no current at the current inputs!

Continue   Cancel

At this point it must be confirmed again that no current is running on the current inputs. After successful setup and calibration, the values from the Smart Meter can be used as data points in graphical programming as usual.

2.8.10   COMEXIO Touchpanel

The COMEXIO Touchpanel is a central control unit, which is suitable for the control of lighting, shading, heating and door communication. Due to the high plug & play level and the easy integration into COMEXIO OS, many other application areas arise, e.g. for camera monitoring or as an alarm control center.

The Touchpanel only has to be integrated into the network of an IO-Server via a network cable and is supplied with voltage via POE.

The COMEXIO Touchpanel can be integrated into the system in two different ways. The teach-in process can be initiated either via COMEXIO OS or via the Touchpanel.

1) Teach-in process via COMEXIO OS (recommended):

Adding the Touchpanel is similar to all other COMEXIO system devices. In the device menu of the COMEXIO Studio you can search for the Touchpanel by pressing the "+" button. After a short search time the Touchpanel appears with an IP-address automatically assigned by DHCP. Before the teach-in process can be completed, a user must be assigned in the search mask. If there is no suitable user yet, a suitable user with appropriate rights must be created in the user administration.

Add ✕

Name	Touchpanel
Serial number	0407-4121-3453@192.168.1.2 (Comexi

☐ Add extension offline

[Search for local extensions]

IP-Address (optional)	192.168.1.2
{app_learn_user}	Touchpanel User ⌄

[Add extension]

After creating an Extension, the server is automatically set up on the Touchpanel. A notification window appears on the touch panel for this purpose. After successful setup via COMEXIO OS, the device is listed in the device overview and the following data points are available:

Bright1: This data point can be used to specify the brightness of the display from 0-100%.

Volume1: The volume can be defined here from 0-100%.

PIR1: The proximity sensor is activated when motion is detected in front of the Touchpanel.

DisplayOn1: You can activate the display via this data point.

Signal1: The Touchpanel can be identified via this data point. The screen brightness changes from light to dark.

MUTE1: Via this data point you can switch off the loudspeakers of the Touchpanel.

2) Teach-in process via the Touchpanel (not recommended):

The operation of the teach-in process via the Touchpanel is the same as the teach-in process of an IO-Server via the app see 6.5 The COMEXIO App.

2.8.10.1 Touchpanel settings

The settings in the Touchpanel are very similar to the settings in the COMEXIO App, see 6.5 The COMEXIO App. The following settings can only be found on the Touchpanel.
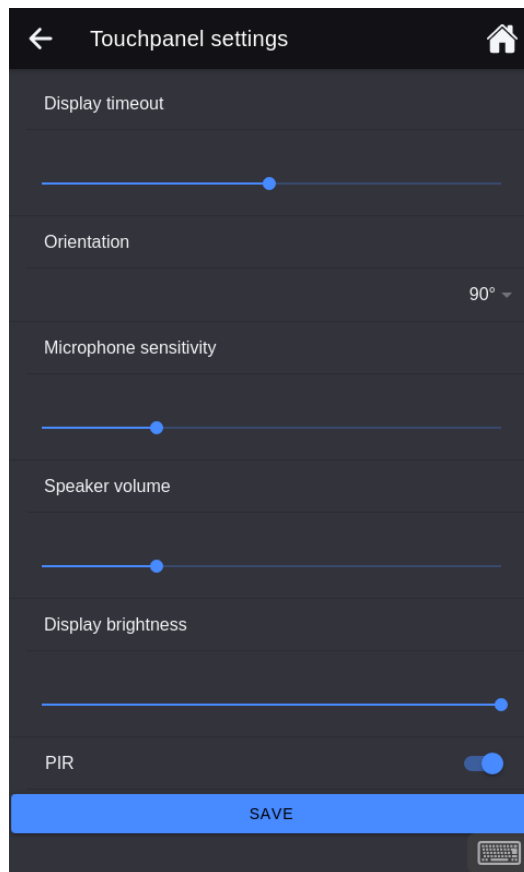
Display timeout: The time in seconds in which the Touchpanel automatically slowly dims and deactivates the screen.

Orientation: Here you can choose between 0°, 90°,180 and 270°. Changes will restart the Touchpanel.

Microphone sensitivity: Here the microphone sensitivity can be set between 0-100%.

Speaker volume: The speaker volume can be selected here between 0-100%.

Display brightness: The screen brightness from 10-100% can be selected here.

PIR: Here you can specify if the display should be activated automatically when motion is detected or not.

2.8.10.2 Firmware
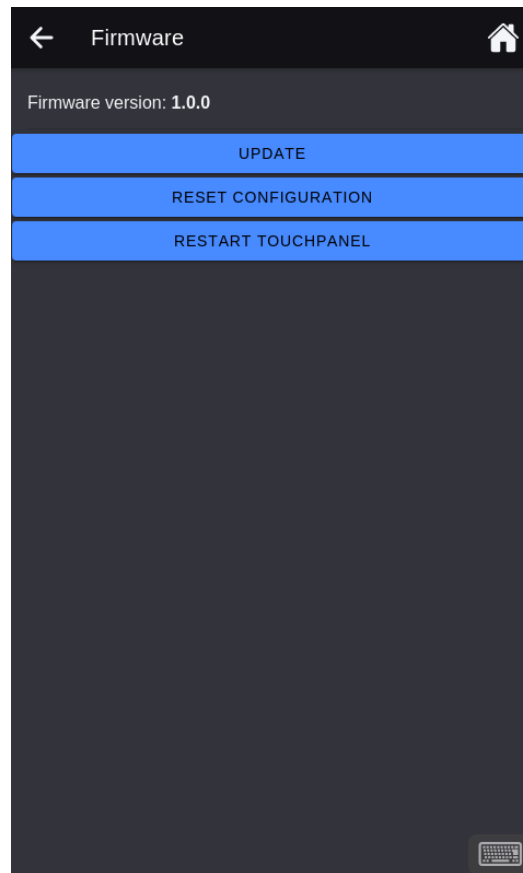
Firmware Version: The current firmware version of the Touchpanel.

Update: Via this button the Touchpanel can be updated. For the update internet connection is required.

Reset Configuration: The Touchpanel is reset to factory settings.

Restart Touchpanel: This can be used to trigger a software restart of the Touchpanel.

2.8.10.3 Other functions

- Several IO-Server can be managed at the same time.

- The microphone can be deactivated mechanically on the bottom of the Touchpanel.

- By double-clicking on the COMEXIO logo or the time, the screen can be dimmed immediately.

2.8.10.4   Wiring example

Field distributor
Touchpanel
Doorstation

Power supply unit | IO-Server

Patchpanel
Multimedia Distributor

POE   POE

Router/Switches
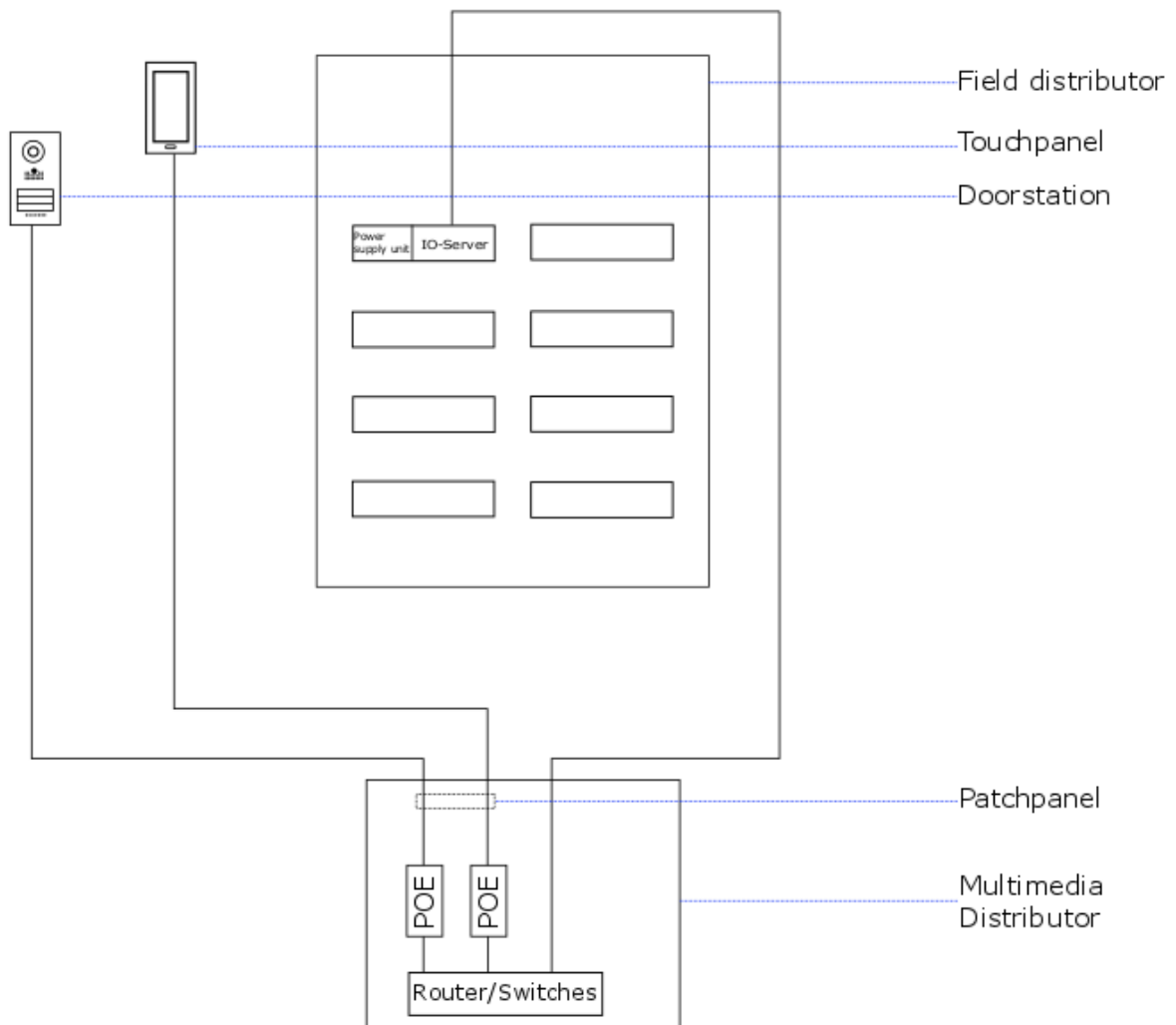
2.8.11   IP-Roomcontroller

The IP-Roomcontroller is a visualisation-, control- and output-device which allows you to operate almost all COMEXIO functions like e.g. heating- or blind control in the whole house. The device is integrated into the network and receives its power supply via POE (= Power Over Ethernet).

Adding the IP-Roomcontrollers works the same way as with other Extensions. If several room controllers are taught-in, the IP-address shown on the Roomcontroller after switching on is important in order to be able to distinguish between the devices during configuration. After successfully creating an IP-Roomcontroller, the page should look like this:
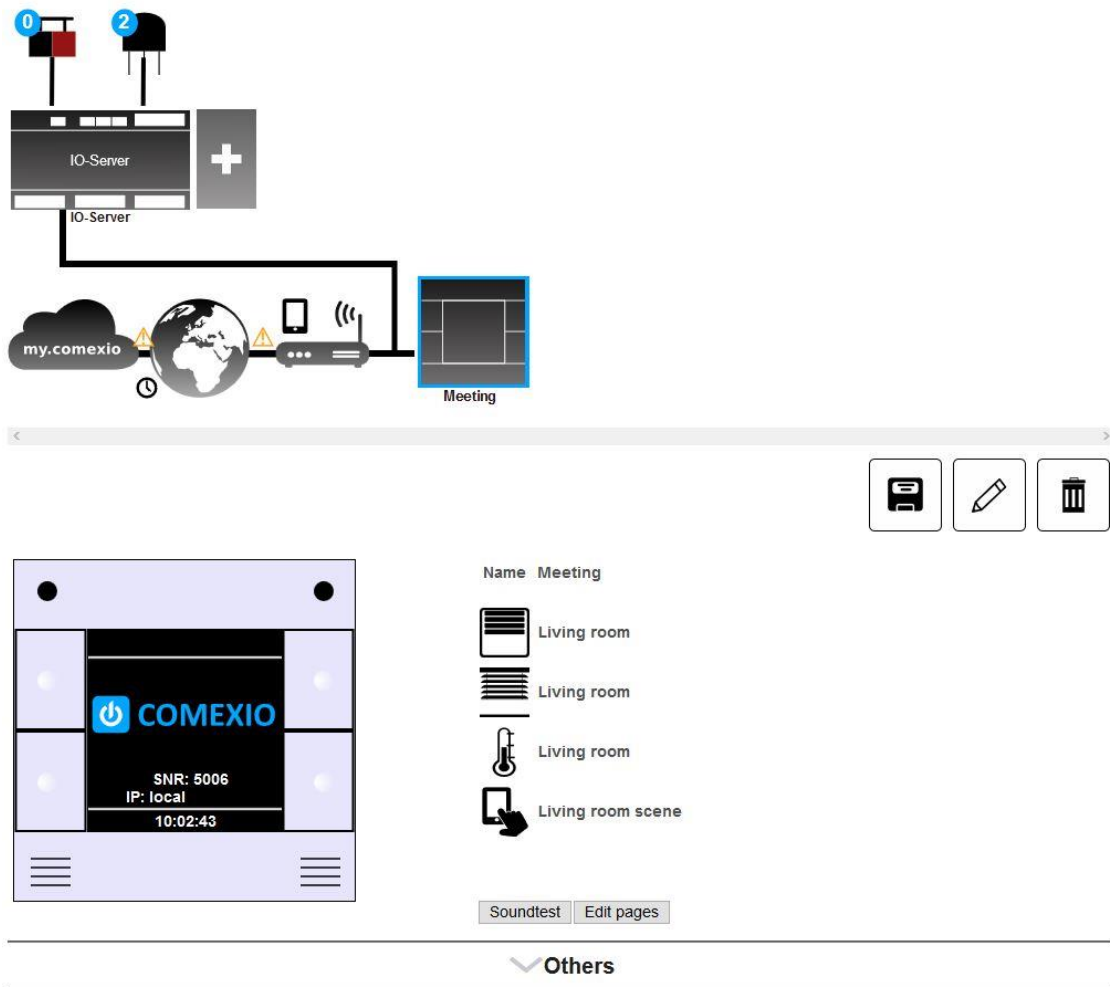
Each Room Controller has four internal data points that can be accessed in programming:

ProximitySensor: Sensor/proximity sensor: Normally switches on the backlight, but can also be used in programming for any function (e.g. switch on light).

InternalError: Indicates an internal error.

Panic: If all four buttons are pressed simultaneously, this data point is 1.

LuxSensor: Depending on the type, either indicates the illuminance in lx or only differentiates between light and dark.

In addition, there is an internal loudspeaker, which can be used e.g. for acoustic output of messages, and a microphone, which enables to use the device as an intercom station for the Doorstation.

Others

ProximitySensor		0
InternalError		0
Panic		0
LuxSensor		681

☐ Rotated 180°   **Proximity sensor density**
100

IP default settings: Static IP assignment

IP-range: 192 . 168 . 1 . 150 - 192 . 168 . 1 . 170

In addition, it is possible to edit the IP-address range of all IP-Roomcontrollers and set basic IP allocation settings.

Furthermore, the installation position (0° or 180°) and the sensitivity (1-100%) of the proximity sensor can be set for each individual IP-Roomcontroller. As an additional function, the IP-Roomcontroller is dimmed as soon as the illuminance falls below a certain value.

By pressing the button "Edit pages" the following window appears:

Here you can either add all elements of a Function plan via the selection above or add any element such as temperature, message, monitoring or blind via "New". Via the pencil button, the name can be adjusted locally in the room controller. The order can also be changed via drag & drop.

> **Important Note:** In the future, the IP-Roomcontroller will no longer have a microphone. We recommend that you no longer use it for door communication. The new COMEXIO Touchpanel is available as an alternative.

2.8.12   Universal Actuator

The Universal Actuator offers you a large number of switching outputs to give you the possibility to automate even more consumers. Due to the common foot contact (four outputs), you have a huge time saving in wiring. The integrated optional locking function allows you to use the Universal Actuator just as flexible as you know it from the IO-Extension, from roller shutters to lighting.

1   **Caption:** The outputs are designated here.

2   **Type:** Here you can choose between "Relay" and "Locked Relay". Locked Relays can no longer be switched on at the same time, as well as in the logic. But even as long as one relay is closed, our innovative technology can not switch the other relay (only at 230V).

3   For a better overview, a graphic illustrates which relays are locked.

4   **Status:** Here you can select whether the relays are active or inactive.

5   **Value:** The value of the relays is displayed here. In addition, the relays can be switched here.

> **Note:**   The outputs can only be locked in advance. This means that output Q1 can be interlocked with Q2, Q3 with Q4, Q5 with Q6, ...

2.8.13   DALI Bridge

The DALI Bridge is required to integrate participants of the DALI Bus (Digital Addressable Lighting Interface). With a DALI Bridge and the internal DALI Bus power supply, 40 DALI devices can be controlled (with external DALI power supply up to 64 DALI devices).

After adding the DALI Bridge in the "Devices" section, the following options will be available:

1   Serial number of the DALI Bridge.

2   **Switch on own power supply:** Here the integrated DALI power supply can be switched on and off. For this, mains voltage must be connected to the DALI Bridge. If the internal power supply is deactivated, an external DALI mains voltage must be connected. If an external power supply is used, up to 64 DALI participants can be managed.

3   **Overcurrent of Power supply:** If the power supply is overloaded, a 1 is displayed in the text field.

4   **Search DALI devices/Add Offline:** Depending on the setting under point 7, the corresponding search process is started here. DALI participants can also be added via "Add Offline" without them being physically present (e.g. when programming in the office or online).

5   **DALI Groups:** DALI Groups can be assigned here.

6   Here there is the Extended View. Pressing this button gives access to the cycle time. This only affects the DALI status.

7   The search mode is set here.

8   **Short name:** DALI n: nth DALI participant, DG n: nth DALI Group.

9   **Caption:** Freely selectable caption for programming.

10   Type

11   **Status:** Active/Inactive.

12   **Value:** The current value is displayed here. DALI participants and DALI Groups can be assigned a value here.

13   During teach-in, each DALI participant generates a new random Id.

14   When a device is detected, the light of the DALI ballast flashes briefly. If the lighting is already on, it merely switches off.

15   **Initial learn:** Existing assignments are deleted here during the search.

16   **Short Id:** The Id created by the COMEXIO system is displayed here.

17   **Random Id:** The Id of the DALI participant in the DALI system is displayed here.

About DALI Groups:

DALI Groups 1 to 16 can be configured freely. Any number of DALI participants can be assigned to each group. The DALI participants can also be assigned to several groups. An assignment is not mandatory.

Because the DALI Bus is quite slow, DALI Groups should be used when switching several participants at the same time, otherwise there will be visible delays from three to four participants. Particular attention should be paid to this in the case of central functions.

Search Mode:

There are the following options for the search mode:

1 **Read in existing DALI installation:** The already set configuration remains. All IDs remain unchanged.

2 **Read in newly connected subscriber:** Scans the entire DALI Bus and adds the new DALI participants. An attempt is made to preserve existing assignments (short IDs) if possible.

3 **Initialize DALI installation:** Deletes existing assignments. Initializes the entire DALI system.

4 Individual selection.

If offline DALI participants were created before the search process, they are automatically added to the first DALI participants which are found. If this assignment does not fit, the IDs can be reassigned via drag & drop. This means that you can also assign a DALI light to the COMEXIO data point later.

The search run takes about 45s longer on average per connected DALI participant.

After the search mode, it is essential to save the result, otherwise all participants will be deleted again when you change the tab.

The "Test button" already works, even if the DALI participant has not yet been saved. The assignment of a value only works if the devices have also been saved.

About the Type:

For DALI participants, you can choose between DALI (%) and DALI (On/Off):

DALI (%):   Analog Value 0-100%

DALI (On/Off):   Digital Value

For DALI Groups, the system basically assumes DALI (%), i.e. analog values. If one of the participants cannot accept percentage values, this will result in incalculable expenses for this participant. The other participants are not affected by this.

Setting options for DALI components:

After teaching DALI components, the following options are available:

 This button takes you to the DALI settings.

 By pressing this button, the corresponding DALI light flashes briefly.

 With this button DALI participants can be deleted.

Under Settings the Name, DALI Power on level, DALI System failure level and the DALI Fade time can be set.

DALI Power on level:	This specifies the value to which the lighting is switched on after a power failure (Example: Emergency lighting).
DALI System failure level:	This specifies the value to which the brightness is switched on when communication with the DALI Bridge is interrupted.
DALI Fade time:	DALI Fade time allows you to specify in seconds how long it takes to reach the set brightness.

2.8.14   Compact-Server

Like the IO-Server, the Compact-Server has the same scope of features in the software. In contrast to the IO-Server, however, the Compact-Server does not have any physical inputs or outputs, neither are there any EIB/KNX and 1-Wire interfaces.

An interface to the WirelessIO retrofit system is already integrated.

2.8.15   Multi Bridge

With the Multi Bridge, both Quickbus devices and WirelessIO devices can be integrated into the COMEXIO system. For more information, see the 2.8.16 Quickbus and 2.8.17 WirelessIO sections.

2.8.16   Quickbus

To integrate Quickbus devices into the COMEXIO system, the Multi Bridge is selected in the device menu and then the button for the Quickbus menu is pressed.
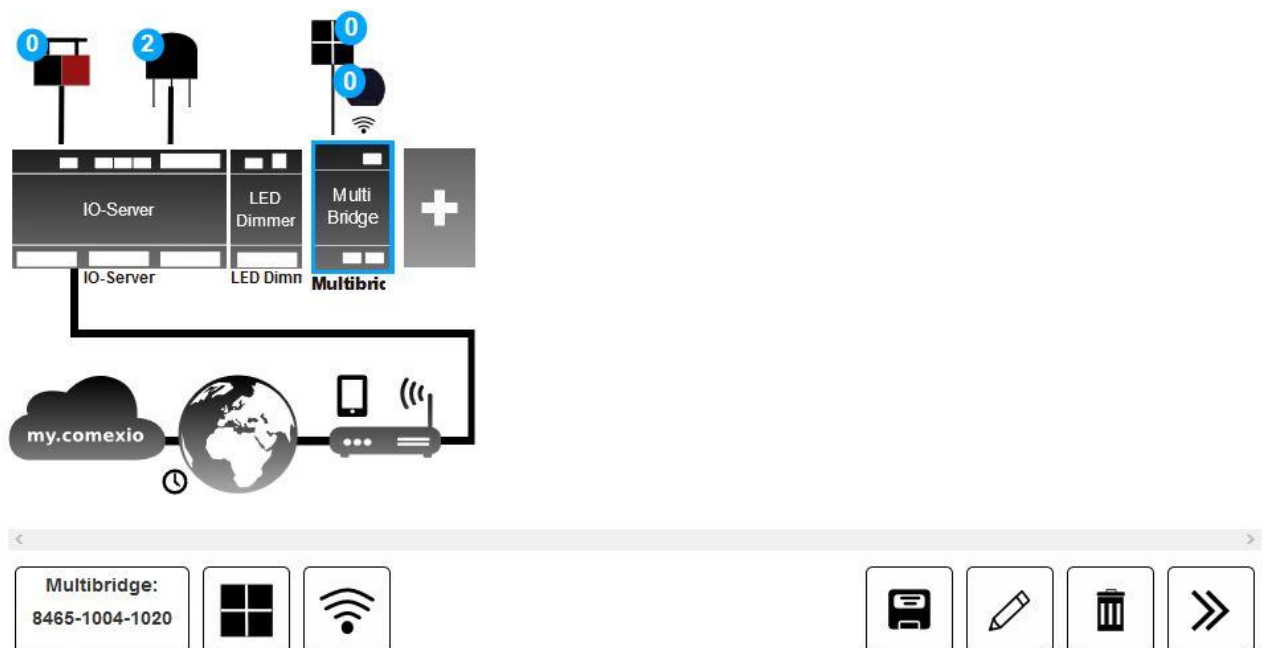
The "Add device" button opens a window in which new Quickbus devices can be searched for. Here the button "Search for local extensions" is used.

After selecting the correct device and confirming with the "Add extension" button, the new device can be used.

Alternatively, a device can also be created as a "dummy" by setting the corresponding check mark for "Add extension offline" when adding it.

If several new Quickbus devices have been connected to the system, a further option is added by which these devices can all be taught in at the same time. To do this, select "Add all".


A Quickbus device that is already integrated into the system can easily be replaced by a new one. For this purpose, the new device must be added via the described path. If the new device is grasped at the marked position and placed over the old device, all functions are transferred automatically, which eliminates additional programming effort.

The serial number of a connected device can be found out by moving the mouse over the marked position.
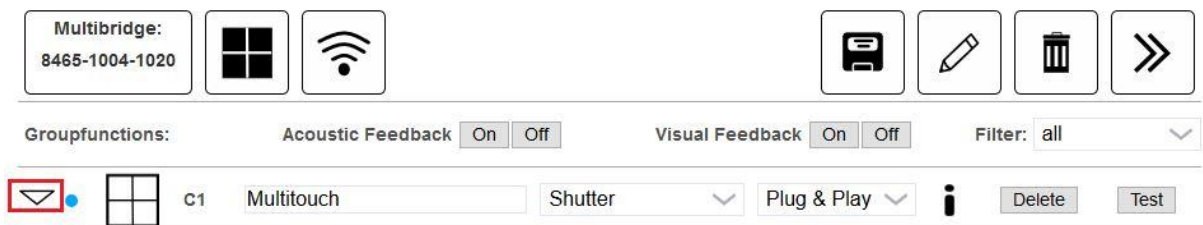
2.8.16.1   Multitouch

The Multitouch can be used in Plug & Play mode as well as in individual mode. With the Plug & Play mode, control tasks can be realized without complex programming, because gestures are already assigned to certain tasks. In the individual mode, however, the gestures can be used freely. The modes are selected via the drop down list.
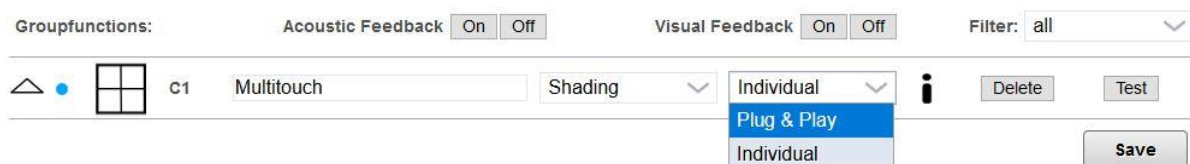

When using the Plug & Play mode, the tab must be selected in which the controlled logic device is located. In this example, the tab is called "Shutter". The "Plug and play info" button provides information about which functions are available in the selected tab and the names of the blocks that can be addressed.

Pressing the highlighted button opens a submenu containing a list of gestures and their associated functions.

These are listed in the following table:

Gesture	Function	Gesture	Function
(four dots in 2x2 grid)	Next light scene	(dot in center)	Light Off
(down arrow, left)	Shutter Down	(up arrow, left)	Shutter Up
(down arrow, center)	Shutter Down	(up arrow, center)	Shutter Up
(two down arrows)	Shutter Down	(two up arrows)	Shutter Up
(right arrow, top)	Heating +1°C	(left arrow, top)	Heating -1°C
(right arrow, bottom)	Heating +1°C	(left arrow, bottom)	Heating -1°C
(two right arrows)	Heating +1°C	(two left arrows)	Heating -1°C

The gestures of the Multitouch can be freely used for programming in the individual mode. The assignment is shown in the following table:

(four dots)	G1	(center dot)	G2	(down arrow left)	G3	(down arrow center)	G4	(up arrow center)	G5
(up arrow left)	G6	(two down arrows)	G7	(two up arrows)	G8	(right arrow top)	G9	(right arrow bottom)	G10
(two right arrows)	G11	(left arrow top)	G12	(left arrow bottom)	G13	(two left arrows)	G14	(circle clockwise)	G15
(circle counterclockwise)	G16	(dot top left)	G17	(dot top right)	G18	(dot bottom left)	G19	(dot bottom right)	G20

In addition, functions can be tested, settings can be made and measured values can be displayed.

TL1	Indicates the measured temperature.
R	Setting of the red color portion of the effect light in percent.
G	Setting of the green color portion of the effect light in percent.
B	Setting of the blue color portion of the effect light in percent.
HUM	Indicates the measured humidity.
S1, S2, S3	Test possibility of the tones that can be assigned to certain events.
AcFeed	Switch acoustic feedback on and off.
VisFeed	Switch visual feedback on and off.

If several Multitouch devices are in use, the group function can be used to activate or deactivate the visual and acoustic feedback for all devices simultaneously.

2.8.16.2 COMEXIO Motion

A correctly connected and commissioned Multi Bridge is required to operate the Motion. To integrate the newly connected Motion into the system, select Multi Bridge and Add Device.

Add   ✕

Name	Motion

Serial number	9483-1000-0681 (MotionSensor) ⌄

☐ Add extension offline

[Search for local extensions]

☐ Add all

[**Add extension**]

In case of several Quickbus participants, you can optionally add them all at once. Then a tab will appear where you can click on "Add All" or select them individually. Afterwards, it is necessary to identify them. This can be checked with the "Test" button. Now label the Motion clearly. The Motion is now taught-in and ready for operation.

By confirming the marked button, a submenu opens in which all data points are listed (see in the picture below).

Multibridge: 8465-1004-1020	▦	📶		💾	✏	🗑	»

| Groupfunctions: | | Acoustic Feedback | On | Off | | Visual Feedback | On | Off | | Filter: | all ⌄ |

▽ ●	🚶	C1	Motion		Standard ⌄	Delete	Test

	🚶	PIR1	-	☑ active	☐ 0	Digital
	☀	LUX	-	☑ active	286	lux
	◑	TH1	-	☑ active	100 ⇳	%
	🌡	TL1	-	☑ active	26	°C
	💧	HUM	-	☑ active	36	%
	💬	S1	-	☑ active	☐ 0	Digital
	🔔	S2	-	☑ active	☐ 0	Digital
	⚠	S3	-	☑ active	☐ 0	Digital

PIR1: The motion indicator changes from 0 to 1 when motion is detected.

SmartOn: This is a smart data point of the COMEXIO Motion. An impulse is sent within a predefined adjustable time. During this time, no impulse is sent. Only after the set time has elapsed and a movement is detected, a new impulse is sent. This data point can be used to implement scene control with the COMEXIO Motion.

SmartOff: This is a smart data point of the COMEXIO Motion. If no movement is detected, an impulse is sent after the preset time has elapsed. The preset time always restarts again if a movement has been detected.

SmartTime: Here you can set the adjustable time.

LUX: Indicates the measured illuminance.

TH1: Motion offers the option of manually setting the trigger sensitivity. Reducing the alarm sensitivity to generate fewer false alarms and increasing the sensitivity of the lighting should be considered.

TL1: Indicates the measured temperature. Since the motion detector is mounted on the ceiling, you must consider during programming that the temperature in the room rises upwards and is therefore 1 to 2 degrees higher near the ceiling.

HUM: Indicates the measured relative humidity in %.

S1, S2, S3: The data points S1, S2 and S3 represent signal tones.

2.8.16.3   Digital Input Module

The Digital Input Module has 8 inputs. For testing them, the submenu must be opened by pressing the marked button. The current switched inputs are listed here. As soon as an input is switched, the value behind it changes from 0 to 1.

2.8.17 Modbus Bridge

More information about the Modbus Bridge can be found in the developer's manual.

2.8.18 WirelessIO

The term "WirelessIO" covers all self-developed wireless extensions that COMEXIO offers.

2.8.18.1 WirelessP (Power)

WirelessP Extension has one input (I1) and one output (Q1). In addition, a power measurement (QI1) of the output, as well as an overtemperature monitoring (OTMP) are integrated.

All data points are freely available in the logic.

The following operating modes are available for WirelessP:

P	**Deactivated*:**	No functions active (main switch).
ON	**Latching button button*:**	Functionality like a power surge button, which reacts to a short pulse at the input and sets the output to ON or OFF. A pulse is expected at input I1.
ONs	**Latching button switch*:**	Functionality like a power surge switch, which reacts to a change at the input and sets the output to ON or OFF. A signal change is expected at input I1 (edge analysis).
((•))	**Slave mode:**	No active functionality in WirelessP, all logical links must be made in the logic of the server (IO-Server or Compact-Server).

* Functionality in WirelessP remains even if the wireless connection is interrupted in these operating modes.

2.8.18.2   WirelessM (Motor)

WirelessM Extension has two inputs (I1+I2) and two outputs (Q1+Q2). In addition, two power measurements (QI1+QI2) and two overcurrent measurements (OVC1+OVC2) of the outputs, as well as a common overtemperature monitoring (OTMP) are integrated. This makes the WirelessM ideal for controlling roller shutters, for example.

All data points are freely available in the logic.

▽ Signal	≡	W1	-	Dining room	Wireless-M	Shutter botton ⌄	Delete

System	Dining room	☑ active	0 0	
Q1	Dining room	☑ active	0	Digital
Q2	Dining room	☑ active	0	Digital
I1	Dining room	☑ active	0	Digital
I2	Dining room	☑ active	0	Digital
QI1	Dining room	☑ active	0	W
QI2	Dining room	☑ active	0	W
OVC1	Dining room	☑ active	0	Digital
OVC2	Dining room	☑ active	0	Digital
OTMP	Dining room	☑ active	0	Digital

The following operating modes are available for the WirelessM:

	Deactivated*:	No functions active (main switch).
	Shutter button*:	I1 is linked to Q1 and I2 is linked to Q2. Short press makes the shutter move. Second press of the button in the opposite direction makes the shutter stop. Simultaneous switching on of output Q1 and Q2 is not possible.
	Blind*:	I1 is linked to Q1 and I2 is linked to Q2. Brief pressing adjusts the inclination of the slats. Pressing long makes the blind move. Second button press in the opposite direction makes the blind stop. Simultaneous switching on of output Q1 and Q2 is not possible.
	Shutter switch*:	I1 is linked to Q1 and I2 is linked to Q2. A change at the entrance makes the shutter move. Simultaneous switching on of output Q1 and Q2 is not possible.
	Slave mode interlocked:	No active functionality in the WirelessM, all logical links must be made in the logic of the server (IO-Server or Compact-Server). Simultaneous switching on of output Q1 and Q2 is not possible.
	Dimmer button*:	I1 is linked to Q1 and I2 is linked to Q2. Short pulse switches ON or OFF, long press dims the brightness.
	Dimmer switch*:	I1 is linked to Q1 and I2 is linked to Q2. Change at the input will switch ON or OFF. Dimming is only available via visualisation.
	Slave Mode:	No active functionality in the WirelessM, all logical links must be made in the Logic of the server (IO-Server or Compact-Server).
	Latching button button*:	Functionality like a power surge switch, which reacts to a short pulse at the input and sets the output to ON or OFF. A pulse is expected at input I1.
	Latching button switch*:	Functionality like a power surge switch, which reacts to a change at the input and sets the output to ON or OFF. A signal change is expected at input I1 (edge analysis).

* Functionality in WirelessM remains in these operating modes even if the wireless connection is interrupted.

2.8.19   Doorstation

If the Doorstation has been successfully taught-in, it will be available in the "Devices" menu like any other system device.

2.8.19.1 Name tag configuration

To create a name tag and at the same time define the number of bell buttons of the Doorstation, click on "Name tag configuration".

Up to three parties can be named here.

By setting the checkmark at "Invert color" the background will be displayed white and the text black. The "Print nameplate" button generates a print preview. From this, the printing of the sign can be started.

Finish the input with the button "Save". The configuration of the Doorstation is now automatically adjusted.

You can also create your own name tag, the necessary dimensions are 98mm in width and 51mm in height.

> **Note:**   In case the name tag is changed while the Doorstation is switched on, it may be necessary to recalibrate the keypad of the Doorstation by clicking on "Name plate changed".

2.8.19.2 Camera settings

In the "Camera settings" submenu, you can set if an image should be saved when the motion sensor registers a movement. For this, the option "On" must be selected for "Picture on motion detection". In addition, a picture can also be saved each time the bell rings. For this, the option "On" must be selected for "Picture on ringing".

Camera settings

Picture on motion detection	Off
Picture on ringing	On
Pictures per Second	15
Resolution	1280x720

Delete pictures

The number of images transferred per second can also be set. Please note that more images also cause more data to be transferred.

For the resolution, select the maximum resolution you want to have. If IP-Roomcontroller are used as intercom stations, a resolution of 640x320 is sufficient.

2.8.19.3 PIR

In the setting "PIR", you define whether the backlight of the bell field should be switched on for a short time as soon as the motion detector detects a movement.

PIR

Name tag illumination at motion detection	On

2.8.19.4 Other

A data point can be assigned to the door opener in submenu "Others". The door can also be opened from the visualisation via this data point. In addition, it is possible to specify whether a confirmation has to be made via the visualisation.

Others

Dooropener	None
Confirmation for door opener in the visualisation required	(none)

Enter the contact to which the door opener is connected under the "Dooropener" item. If you make this setting, you can open the door directly from the visualisation of the Doorstation.

2.8.19.5 Audio Signal

The "Audio Signal" submenu can be used to set the signal that will be heard when the bell is pressed. In addition to the existing signals, you can also play your own audio file. If an IP-Roomcontroller is used as a bell, you can set how often it rings after the bell is pressed.

2.8.19.6 Messages

At "Messages" you can configure what is supposed to happen at each button. Here you have the possibility to send an e-mail, to display a popup in the web interface or to send a push message to a defined smartphone.

2.8.19.7 IO's data points

Under "IOs", you have an overview of all inputs and outputs of the Doorstation, as with other system devices. You can also use these freely in programming.

3 LOGIC

With graphical programming, you can program any requirement simply by drag & drop. Use prefabricated modules for a variety of applications or program your own applications. No limits are set to your imagination here. Even complex requirements can be realized without any problems.

3.1 Creating a Function plan
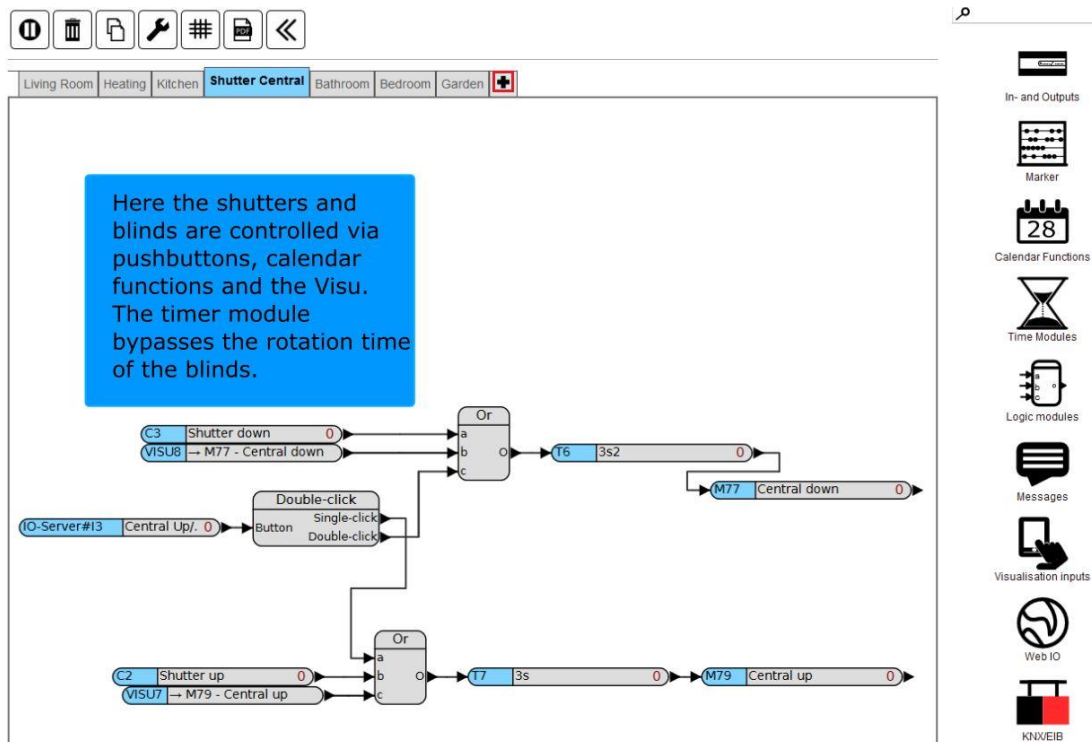
To create a new workspace, click on the plus symbol, marked red in the image. A dialog window appears.

Enter a clear name here. Under "Outputs when stopping" you can define whether the values of the outputs and markers are to be retained or set back when the function block diagram is stopped. Each output or marker whose input is connected will be set to 0 at "Reset values". At Paper size and Orientation you can select the size of the working area. If the value for the resolution is smaller, the modules will be larger.

3.2 Explanation of the buttons

The buttons above the Function plan provide additional options, which are explained below.

By pressing this button you can switch the grid snap on/off. If this is switched on, it is highlighted in green and switched off in gray.

Activate/stop. The first key activates the Function plan, the second stops it and enables programming.

This icon is used for deleting. If you press the button, either the function block diagram or the elements marked in the diagram will be deleted. It is also possible to delete Function plans, individual modules or module groups by drag & drop.

This button allows you to copy existing workspaces. The copy will be created with the same modules and names, the name of the space will always contain the addition "Copy" (can be renamed afterwards).

This button allows you to edit the settings of the current tab.

By clicking this button you save the current Function plan as a PDF.

3.3 Programming

You can use the function blocks to program your COMEXIO IO-Server and its expansion devices.

A Function plan can only be completely programmed if the programming mode is active, i.e. the program is stopped. If the Function plan has already been started with the activate symbol, it has to be stopped first with the stop symbol for further programming. In this case, only the affected Function plan is stopped. All other active Function plans still continue to operate during programming.

For programming, drag the required blocks, such as inputs and outputs, logic modules, etc., from the toolbox on the right and place them on the white workspace. Then, depending on the desired function, you can connect the outputs of the blocks with inputs of other blocks. Inputs are always on the left side of the blocks, outputs on the right side. A connection is made by clicking on an output with the mouse, holding the mouse button and dragging the mouse to an input and releasing the mouse button on this input. If the connection is valid, the line will turn green as soon as the mouse is over the input. If it turns red, however, the connection is not valid, e.g. because you are trying to connect an analog output to a digital input. Alternatively, there is the option to use an automatic docking function, whereby a connection is automatically established. This happens, for example, by setting an input close to the block with which the connection is to be established. If the background of the Function plan changes color for a short time, the connection was successful.

To make the programming more understandable, it is recommended to insert comments in form of a comment module to explain certain points in the programming.

When the function block diagram is activated, the current values of the inputs, outputs and markers are displayed on the respective modules.

If a Function plan is to be copied partially or completely into a new Function plan, the corresponding part is first marked and then copied by pressing the "CTRL" and "C" keys simultaneously. Pressing the "CTRL" and "V" keys simultaneously inserts the copied part into the selected Function plan.

3.4 Inputs and Outputs

In graphical programming, two types of inputs and outputs are distinguished:

A connection can only be established between two analog or two digital devices.

Connections between analog and digital are not accepted. This is signaled by a red colored connecting line.

The outputs of the system devices (i.e. relay and dimming outputs) should only be used once. Inputs (analog/digital and universal inputs) may be used multiple times. Markers and timers should only be used at one place in the program, the value of the marker or timer can be used as often as required.

If inputs or outputs have been used, the connections in the toolbox become light gray. If you move the mouse over such a connector, the Function plan(s) in which the data point was used will appear. By clicking on the Function plan, you can jump there directly.
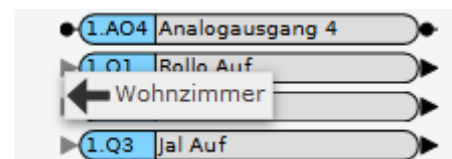
3.5 Logic modules

COMEXIO has a large number of Logic modules, which differ in their properties. In the toolbox (menu on the right side) they are divided into different categories. All inputs/outputs and all function blocks can be searched using the "Enterprise Search" in the upper area. In this case, both part names and registered names are searched for.

Logic modules have an integrated help. In order to open it, click on the function block in the selection list of function blocks instead of dragging it into the Function plan. You can also open the information window for blocks which are already in use. If you move the mouse over the corresponding module, either a wrench appears here, in the case of modules with internal setting options, or an I-symbol, if no setting options are available. If you are using a touch device, you can display the icon via a tab.
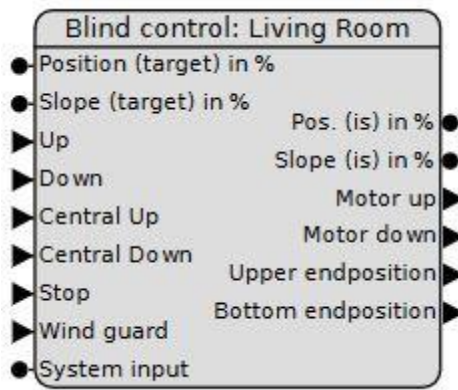
You can also change most parameters directly from the graphical programming. For example, you can create, modify or delete timers. The creation is done by clicking on the "module" with "(new)" such as "T(new)" for a new timer. These data points can also be created by drag & drop.
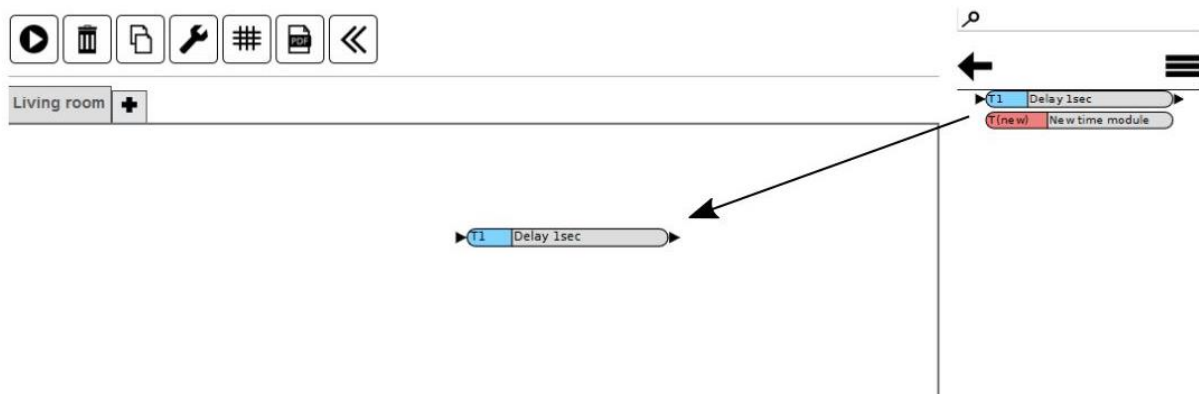
Please note that the inputs of timers can only be used once. Thus, they cannot be used more than once. If, for example, you need two timers with a switch-on delay of 1s, this timer is also generated twice by clicking T(new). Then you will have two independent timers. The outputs can be used as often as you like.
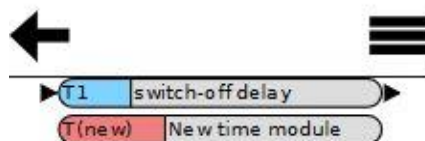
This variant of recreating functions is also available for visualisation inputs, calendar functions, markers, 1-Wire dummies and messages.

For changing the parameters, you can open an editing window for the current element by pointing to the module with the mouse, as with the information about the Logic modules. By clicking on the appearing wrench symbol you open a parameter window. For deleting, drag the module directly from the list into the garbage can at the top of the screen.

3.6 Basic modules

Basic modules are the most frequently used modules, which are applied in the graphical programming for the logic links.

3.6.1 Digital modules
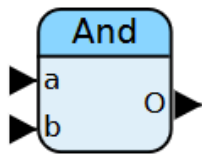
And module:

Outputs a 1 signal at output O if a 1 signal is present at all inputs.

When all inputs are occupied, the module automatically grows by one additional input.
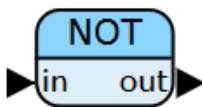
Not module:

Negates the input signal, outputs a 1 signal at the output out when a 0 signal is present at the input and conversely.
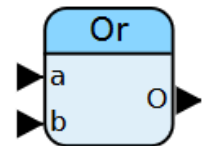
Or module:

Outputs a 1 signal at output O if a 1 signal is present at one or more inputs.

When all inputs are occupied, the block automatically grows by one additional input.
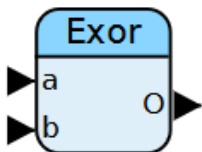
Exclusive-Or module:

Outputs a 1 signal at output O if a 1 signal is present at only one input.

3.6.2 Compare modules
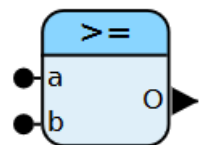
Greater than or equal to module:

Outputs a 1 signal at output O if the value at input a is greater than or equal to the value at input b.
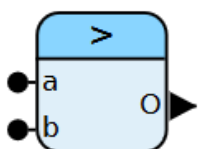
Greater than module:

Outputs a 1 signal at output O if the value at input a is greater than the value at input b.
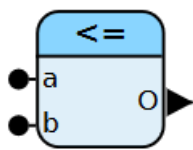
Less than or equal to module:

Outputs a 1 signal at output O if the value at input a is less than or equal to the value at input b.

3.6.3 Arithmetic modules
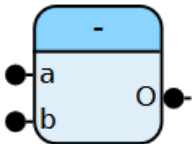
Minus module:

Outputs the result of the calculation of a minus b at output O.
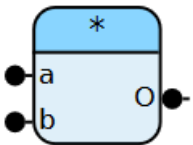
Multiplication module:

Multiplies the values at the inputs and outputs the result of the calculation at output O.

When all inputs are occupied, the module automatically grows by one additional input.
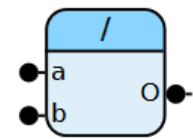
Divisions module:

Divides the value at input a by the value b and outputs the result of the calculation at output O. If b=zero or not connected, a zero is output at output O.

3.6.4 Function modules

Impulse relay (R/S):
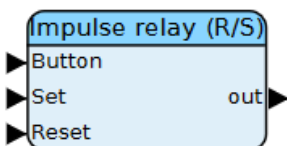
Button: Converts a button press into a switching signal (ON/OFF).
1. button press: out = 1,
2. button press: out = 0 …
Set: switches out = 1.
Reset: switches out = 0 and has priority over all other inputs.

Set and reset inputs are well suited for central functions (ON or OFF).

Selector:
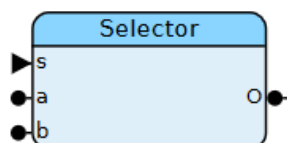
Set: switches out = 1.
Reset: switches out = 0 and has priority over the set input.

Double-click module:
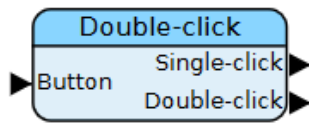
If the input "Button" is pressed only once, the output "Single-click" emits a switching pulse.

If the input "Button" is pressed twice within 0.3 seconds, the output "Double-click" emits a switching pulse.

Counter II module:
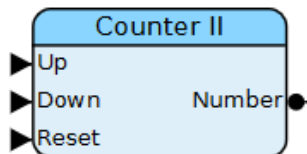
Counts the impulses (rising flanks) at the impulse inputs "Up" or "Down" and outputs the result "Number".

If the input "Reset" is set to 1, the value "Number" is reset to zero. "Reset" has priority.

Dimmer module:

Inputs:

Button:	Single-button operation for dimming and switching with memory function.
	Button press shortly: On/Off. Button press long: Dimming function.
Setpoint (%)*:	As an alternative to the button, a target value in % can be applied here.
Dimming duration*:	Dimming time between 0-100% (default 5s).
Holding time*:	Dwell time with pressed button at minimum or maximum brightness until inverse dimming (default 1s).
Minimal value*:	The minimum output brightness that can be dimmed to (default 5%).
Set:	The output % is set to maximum brightness.
Reset:	The output % is set to 0%. This input is prioritized.
Mode:	With Mode "0" the dimming direction is reversed after the holding time has elapsed With Mode "1" the lamp remains on the output stage after the holding time has elapsed.
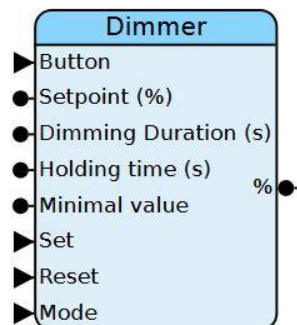
Outputs:

%:	Output value of the Dimmer in %.

*= Optional settings, are not necessarily required for standard operation.

3.7 Automatically generated modules

If one of the following modules is used in logic programming, it automatically creates a Visualisation module. You can use the automatically generated module in the visualisation and it is linked to the logic modules without any further action from your side. Both, the logic module and its generated Visualisation module can be used as often as you like. This allows you to work very efficiently and clearly.

3.7.1   Scene module

You can find the Scene module in the logic programming in the toolbar at:

With this you can create various scenarios. Switch and dim your lighting with a single button press, integrate e.g. your blinds, shutters and heating into your scene. Later, the settings can be adjusted and saved in the visualisation.
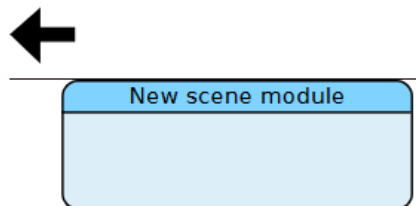
To create a new scene, drag the module "New scene module" with the mouse into your Function plan.

After inserting, the following additional window appears:

1. In the "Name" field, enter a suitable name, e.g. "Living room/Kitchen".
2. You can select storage functions "Allow", "Do not allow" or "Allow only in visualisation". This function affects the complete Scene module.
3. With the "+" you can create another scene e.g. "All On".
4. "Name": use a suitable name here as well.
5. If the check mark is set, the scene can be saved (this saving always only affects the respective scene, here "All Off"). Even if the check mark is set, saving is possible only if saving has not been generally prohibited under "2".
6. Here you can define a start scene which should be invoked when the system is restarted. This is especially useful for heating scenes to ensure frost protection after restart.
7. With X it is possible to delete outputs for which neither inputs nor outputs are occupied.
8. Here you can choose between different types (explanation see below).

Types selection:

Edit scene

Name		Living room/Kitchen
Allow saving values for the user.		Allow ⌄
On/Off with Inputs		(Default) Off or Save ⌄

[All Off | Cleaning | **TV** | Romantic | Dinner | ✚]

Name	TV	✕
Saving	☑ Allow user	
Default Scene	☐ Is Default	

	Type		Value		
1	Digital (Switching) ⟋		0	✕	← 1
2	Analog ⌄		10	✕	← 2
3	Digital (Holding) ⌄		30	✕	← 3
4	Dimmer ⌄	Red ⌄	0	✕	← 4
5	E.b. dimmer ⌄		0	✕	← 5
6	RGB-Dimmer ⌄	Select color ⌄	▬	✕	← 6
7	RGBW-Dimmer ⌄	Select color ⌄	▬ 0 ⇳	✕	← 6
8	none ⌄				

The settings that can be selected in the field "Type" have the following function:

1. Digital (Switching): Turns on or off by entering a "1" or "0" in the field "Value". This type has an input on the Scene module so that the output can also be switched from outside (power surge function: 1 or 0). If the input remains free, the value entered here is used for the scene.

2. Analog: Allows you to process any value, e.g. 0-100%. This type also has an input on the Scene module, so that a value can be applied from the outside. If the input remains free, the value entered here is used.

3. Digital (Holding): This outputs a "1" as soon as a "1" is present at the input, until then a "0".

4. Dimmer: This outputs a "value" 0-100%. It can be switched on, switched off and dimmed by button. Furthermore, you can specify a setpoint (setpoint (%)) at the module input with markers etc. This outputs a "value" 0-100%. It can be switched on, switched off and dimmed by button. Furthermore, you can specify a setpoint (setpoint (%)) at the module input with markers etc.

5. E.b. Dimmer: This outputs a "value" 0-100% (brightness) and a "1" or "0" for switching and can be switched on, off and dimmed by button. Furthermore, you can specify a setpoint (setpoint (%)) with

markers etc.

6. RGB-Dimmer/ RGBW-Dimmer: This one has three or four "value" outputs 0-100%. It can be switched on or off and dimmed by button. Furthermore you can set three (resp. four) values via the module inputs. If the setpoint inputs remain free, the values entered under "Value" will be output when the scene is activated. The values can be adjusted either by setting in percent of red, green and blue or a color selector.

> **Note:** If no value is entered, i.e. the line remains empty, the state of the output is not changed by this scene. The preset value is retained.

After saving, the following module appears:

```
                    Living Room
   ▶ All Off
   ▶ Cleaning
   ▶ TV
   ▶ Romantic
   ▶ I5      (1) Digital (Switching)    O1 ▶
   ● I6          (2) Analog             O2 ●
   ▶ I7      (3) Digital (Holding)      O3 ▶
   ▶ Button      (4) Dimmer             O4 ●
   ● Set (%)
   ▶ Button    (5) E.b. dimmer       Relay ▶
   ● Set (%)                     Brightness ●
   ▶ Button   (6) RGBW-Dimmer          Red ●
   ● Red                             Green ●
   ● Green                            Blue ●
   ● Blue                            White ●
   ● White
```
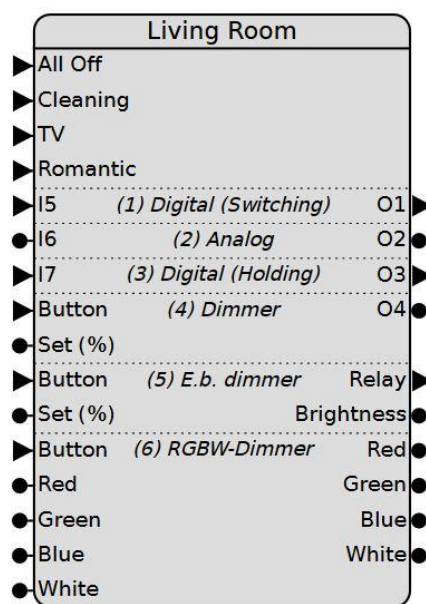
Explanation:

In the example above, you have defined several scenes. If you create additional scenes, they will appear under the "Romantic" input. They can be activated via the scene inputs. If, for example, you place a button on this input, the scene will be activated by pressing the button. Each selected "Type" receives an input (button) as well, which allows you to control the output and hence to control it separately.

Integration of the scene into the visualisation:

A Visu module is automatically created for each Scene module, which you can use as often as you like. Therefore, it makes sense to give the scene a unique name to prevent confusion. The Scene module appears in the Visu-Editor in the toolbar under:

TV Mode

👆

Scene module

You can place the module highlighted in blue on the visualisation by drag & drop using the mouse pointer. For insertion into a Dashboard, you basically need a 2x1 (width x height) grid for this. Additionally, you have to set whether changes of the scenes in this visualisation may be saved.
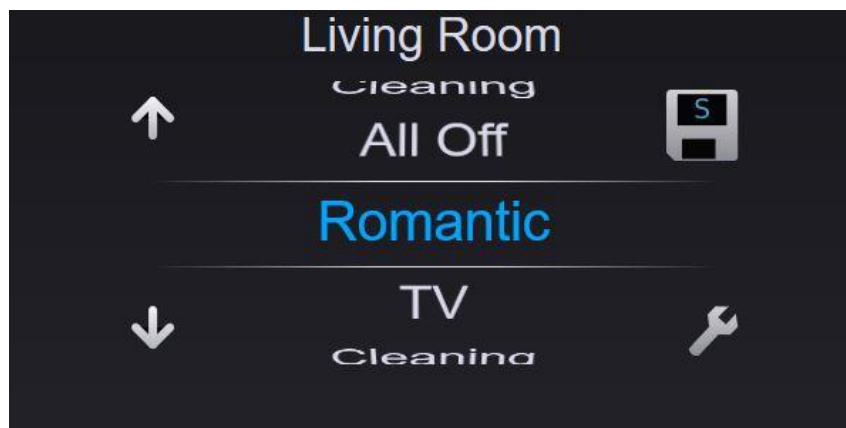
To save a scene after making changes, click the save icon in the upper right corner and confirm with "Yes". The scene starts with the newly saved values from this point on.
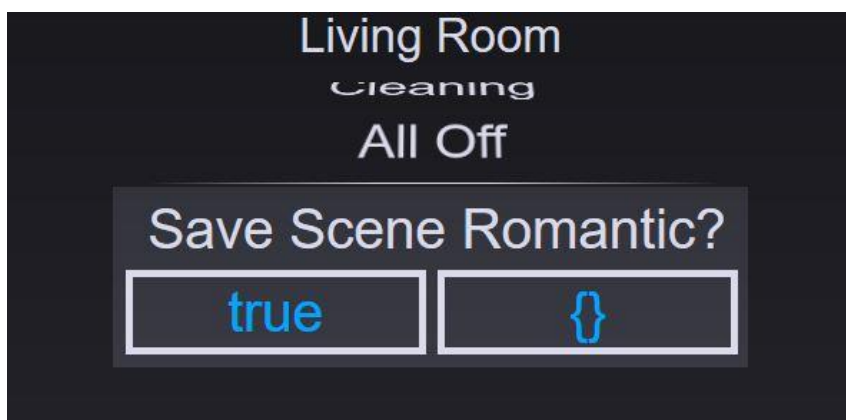
3.7.2   Shutter/blind module

The shutter and blind module can be used for the control and visualisation of shutters and blinds. In the visualisation you can control as well as see in which position the roller shutter or blind is currently located.
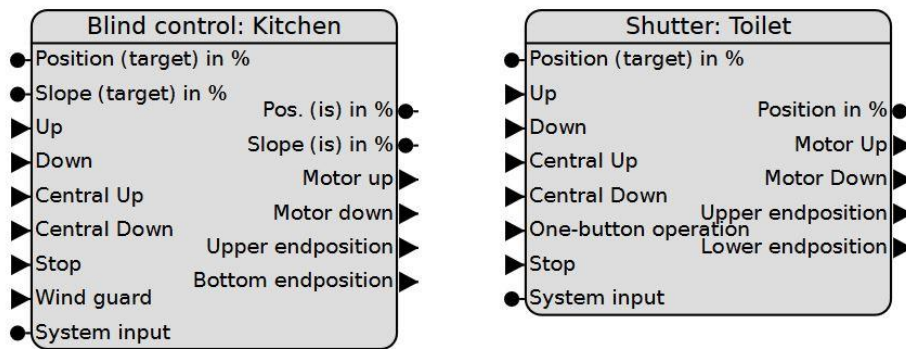
You can find the modules in the toolbar under:

 in the submenu
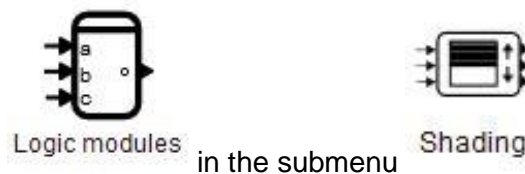
In the default setting, the following inputs and outputs are visible for the shading modules:

Position (target) in %:   This refers respectively to the opening in percent (0% fully open). With "set point" any value can be approached, with "is value" the calculated position is output (Attention! The values may differ when the system is restarted).

Slope (target) in %:   Here, the inclination of the slats can be changed in analogy to the position.

Up/Down: These are the button inputs for up and down. Shutters move completely up or down by impulse and can be stopped in the opposite direction by impulse. Blinds only move completely up and down if the buttons are pressed for longer than the rotation time of the slats, otherwise only the slat position is changed. If "Up" and "Down" are pressed at the same time, the function of the module is disabled.

Central Up/Down: Analogous to Up/Down. Central commands have priority. Shading modules can be effectively blocked by simultaneously assigning a logical 1 to Central Up and Down.

One-button operation: Input for one-hand operation up/down/stop. This is the button input for up and down. Shutters move completely up or down on impulse and can be stopped by second impulse.

Stop: When the input is set to 1, the shutter is stopped/blocked (highest priority).

System input: System input for internal functions (currently without control option).

Motor Up/Down: Relays are connected here. Please do not forget to lock them.

Upper endposition/Lower endposition: A logical "1" is output here when the end position is reached.

This following dialog window opens when you access the module using the wrench:

Different values such as runtimes etc. are directly entered here. If the checkmark is set at "Show all", additional inputs and outputs are available, which are explained in detail in the help area of the module.

Note:	If a connection is made to the previously hidden inputs or outputs, it is no longer possible to hide them as long as this connection remains.

The modules are able to determine runtimes themselves. Note that COMEXIO relay outputs must be used for this purpose and that the electricity demand must be at least 200 mA for error-free detection. Because the rotation time cannot be detected for blinds, the time has to be entered previously. The runtime can be recorded individually for each shading element (using "Determine runtimes"). A function to determine the running time for all shutters and all blinds at the same time will be implemented in the future. To do this, press the "All" button.

During runtime determination, all shutters are started with a time delay of 1s to avoid overcurrents due to excessive switch-on currents. By using the Universal Actuator, two shading elements connected to one terminal block will move one after the other.
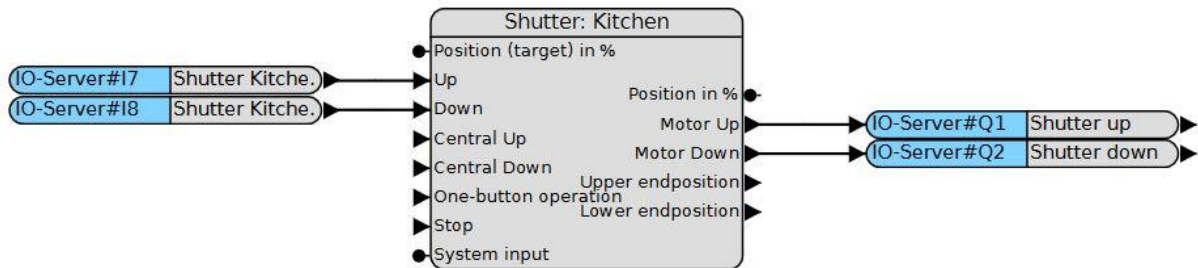
After inserting the logic module, a corresponding "Shutter {tab name} 1" module is created in the visualisation.

To be able to insert these modules, you need to open the shading item in the Visu-Editor toolbar.

The following module will appear here:
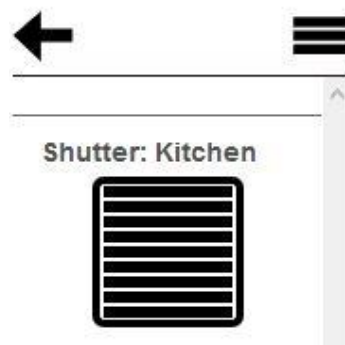
Now you can drag & drop the module, a new "Module Settings" dialog box will appear.

Name: This is automatically created continuously, but can be changed as needed. A change in the visualisation automatically entails a change in the logic.

Zoom %: If there is enough space, the module can be enlarged. The zoom works from the top left to the bottom right.

Function Switching function on=the shutter can be controlled using the visualisation.

View only=represents only the position. It cannot be controlled.

Status: Here you can link to another visualisation or homepage. By pressing the module, the linked Dashboard or homepage opens.

After saving and switching to the visualisation area, the module with which the shutter or blind can be controlled appears. In this view, the blind module has a button on the top left of the slat position that opens the blind completely.

By clicking on the blue arrow in the blind module, the view appears in which the position and the slat position can be set separately:

Note: Visu modules calibrate themselves via the end positions. This means that if the shutter/blind is moved several times during the day, but is never completely opened or closed, the actual position may differ from the displayed position. To eliminate this deviation, the shutter/blind must be opened completely once. This resets the display value to "0" and the display matches again.

3.7.3   Heating module

The Heating module allows you to view and change the current temperature of the room at any time via smartphone or tablet, even when you are on the road.
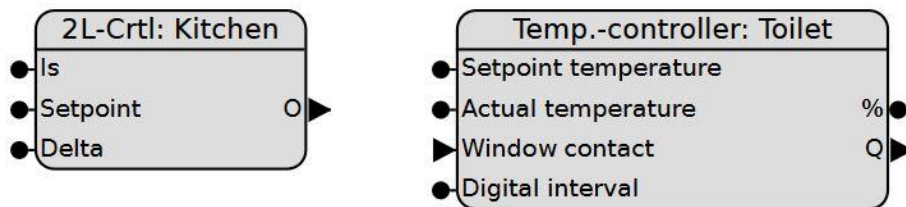
Add the required module in the graphical programming. Now you have to assign at least the following inputs and outputs of the module:

- "Is" (e. g. 1-Wire sensor).
- "O" the output Qx, which controls the heating valve.
- "Setpoint" is optional for the setpoint transfer e.g. from a Scene module (otherwise the setpoint can only be set in the visualisation).


> **Note:**   The module basically takes the name of the tab in which the module is inserted. The name of the module can be changed by clicking on the "wrench icon" under settings.

Further settings can be made in the Room temperature control:

Room temperature control

Settings	Help

Name	Toilet
Digital interval	10
Resolution	10
Autoadaptation	1
Kp	1
Tn	4
Control time	45

☐ Show all

Cancel   Ok

You can find a detailed description of the individual parameters under Help.

Note: We recommend connecting a marker with a start value to the input "Setpoint temperature" or "Setpoint". This start value should correspond to the minimum temperature. This prevents that after a power failure the value 0="0°C" is assumed as setpoint temperature.

If a Scene module is used for temperature pre-selection, a "DEFAULT" scene should be selected. Here, for example, the scene absent or a comparable one is recommended.
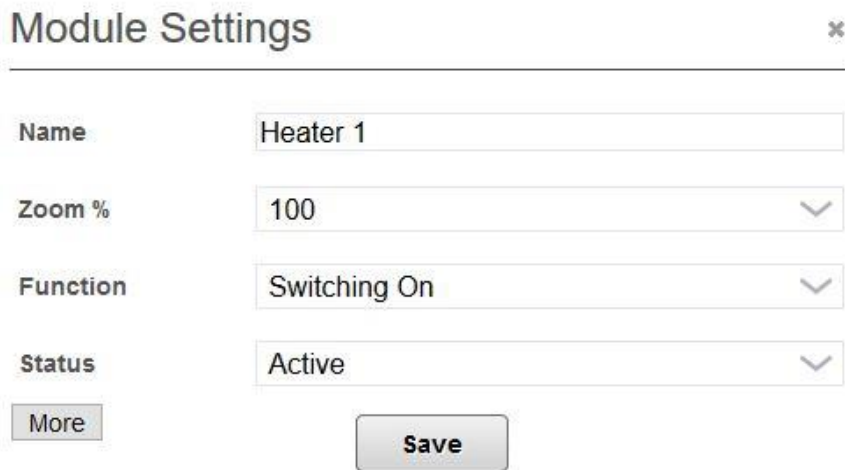
After link creation, an associated "Heating {tab name} 1" module appears in the visualisation.

For inserting these modules you need to open the regulation item in the toolbar of the Visu-Editor.

Then the following module appears:

2L-Crtl: Kitchen

20^5 °C

Now you can drag & drop the module. A new window "Module Settings" appears:

Module Settings ✕

Name	Heater 1
Zoom %	100 ⌄
Function	Switching On ⌄
Status	Active ⌄

[More]   [**Save**]

Name: Automatically created continuously (but can be changed as needed).

Zoom %:   If there is enough space, the module can be enlarged.

Function: Switching On: Heating is controlled via the visualisation.

          View only: Only represents the position, it cannot be controlled.

          Link: Here you can link to another visualisation. Pressing the module opens the linked Dashboard.

After saving and switching to the visualisation area, the module appears with which the temperature of the room can be controlled.

The setpoint can be changed directly in the graphic by dragging the red arrow. However, it is also possible to enter a new value after clicking on the graphic.

3.7.4   Alarm module

Create your own alarm function with the Alarm module. The module shows you the current status in the visualisation. In the event of an alarm, there is not only the option to control a siren, but also to send a message via e-mail.
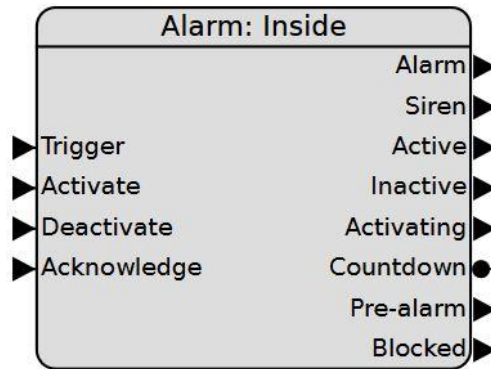
Add the required module in the graphical programming. Now you have to assign at least the following inputs and outputs of the module.

- Trigger (can be e.g. motion detectors, window contacts, etc.).
- Alarm: (e.g. a message by e-mail).
- Activate, Deactivate and Acknowledge can be e.g. linked to buttons or key switches.

The following parameters can be changed in the module:

- Delay: (preset 60 sec.) Time from triggering to activation in seconds.
- Duration: Duration of the siren alarm in seconds (preset 60 sec.). Please observe the legal regulations for outdoor alarm transmitters, which currently limit the alarm time to 180s. An alarm within the building is currently not subject to any restriction.

Other outputs are intended for individual programming and are not required for simple alarm control. A description of the other inputs and outputs can be found in the integrated description of the module, which you can reach by clicking on the wrench symbol.

Note:	The module always takes the name of the tab in which the module is inserted. The name of the module can be changed by clicking on the "Info icon" in settings.
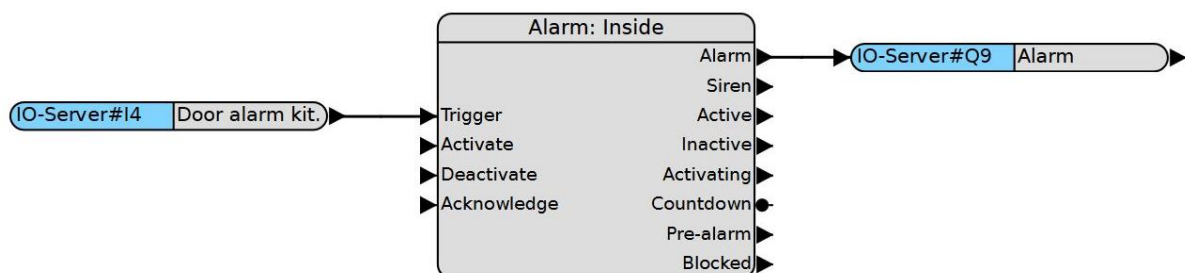
After creating the links, an associated "Alarm Inside" module appears in the visualisation.

To be able to insert these modules, you have to open the special item in the toolbar of the Visu-Editor.

The following module will appear:

Alarm: Inside

Alarm

Confirm

Now you can drag & drop the module as usual. A new window "Module Settings" appears.

Note:	The module requires a grid size of at least 2 x 1.

Module Settings ✕

Name	Alarm 1
Zoom %	100 ⌄
Function	Switching On ⌄
Status	Active ⌄

Save

Name: Automatically created continuously (but can be changed as needed).

Zoom %: If there is enough space, the module can be enlarged.

Function: Switching On: The alarm is controlled via the visualisation.

View only: Represents only the position, it cannot be controlled.

Link: Here you can link to another visualisation. Pressing the module opens the linked Dashboard.

After saving and switching to the visualisation, the module now appears in the created visualisation.

Inside

Inactive

Activate | Activate Now
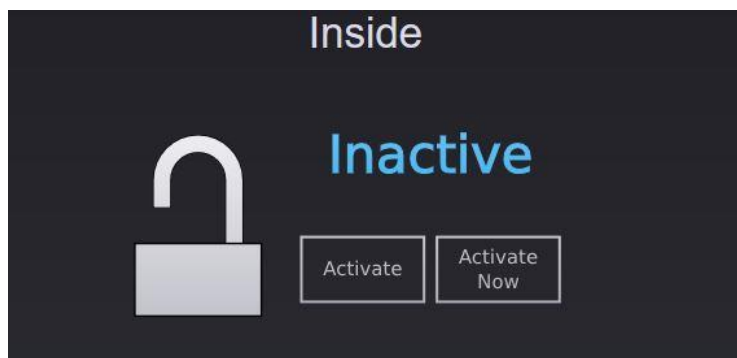
Now you can "Activate" the alarm function (with expiration of time).

Or click on "Activate now" here the set delay is ignored and activated directly.
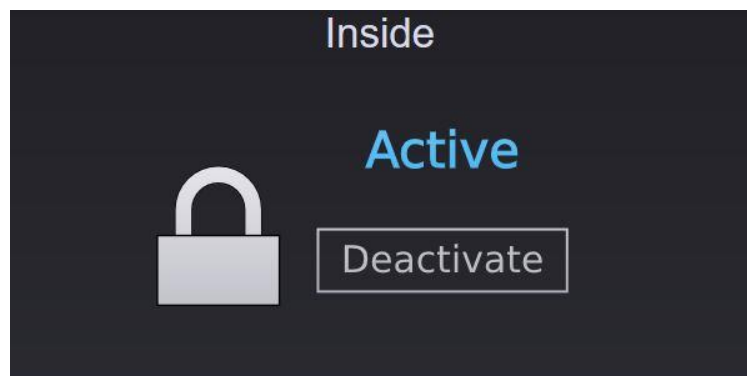
The triggered alarm is acknowledged via the "acknowledge" button.

3.7.5 Smart Meter (Visu)

If a Smart Meter has been created under devices, it will be available in the visualisation. You can find the Visu module in the toolbox on the right side under Power Measure Extension.

The "Module Settings" window appears when you insert it into the Dashboard or the individual visualisation. Here you can define which parameters should be displayed in the visualisation.

Module Settings   ✕

Name	Smart Meter 1

Display values

☑ Voltage
☑ Current
☐ Phase Angle
☐ Current Angle
☐ Frequency Input
☐ Rotating Field
☐ Residual Current
☐ Current Direction
☐ Active Power
☐ Apparent Power
☐ Reactive Power
☑ Electric Meter
☑ Active Power (onboard)
☑ Apparent Power (onboard)
☑ Reactive Power (onboard)

Zoom %	100 ⌄
Status	Active ⌄

Save

3.7.6   Weather module

In the logic you can find the weather module under "Logic modules" – "Special". Various sensors such as rain, temperature, wind and brightness can be applied here. Using "Wind", the value of the anemometer can be converted from pulse number to km/h, depending on the sensor. By the value "Max. Brightness" the value of the brightness is calculated from the 0-10V signal. The values are deposited with markers. For the COMEXIO anemometer, the wind factor amounts 2.664. The maximum brightness depends on the setting of the sensor.
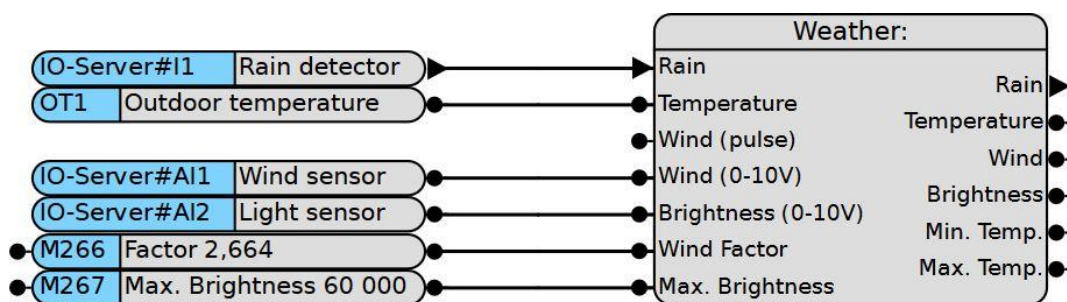
After inserting the logic module into a Function plan, the corresponding Visu module is available in the Visu-Editor.
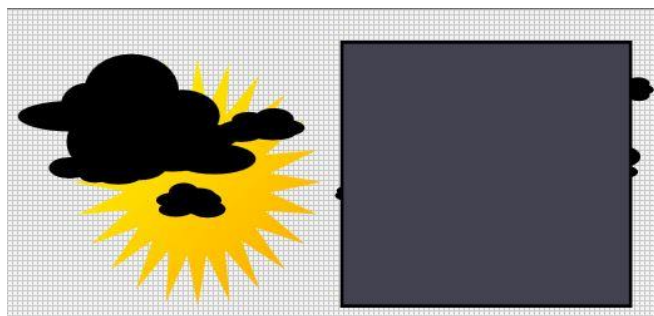
The display in the Visu looks like this:
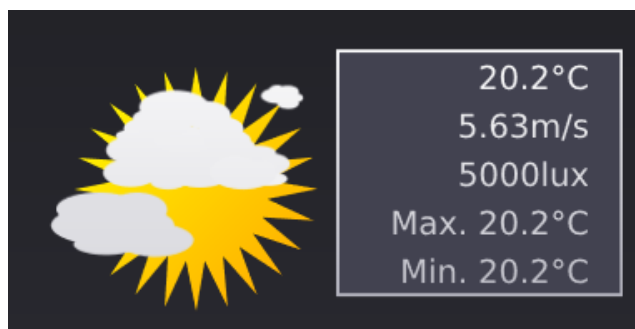
The maximum and minimum values are reset at 00:00 each time.

3.7.7 Irrigation module

The irrigation module can be found in the Logic in the toolbox under "Logic modules" - "Special".

This module is conceived for the control of an irrigation circuit. In standard irrigation controls, only one circuit can be irrigated at a time.
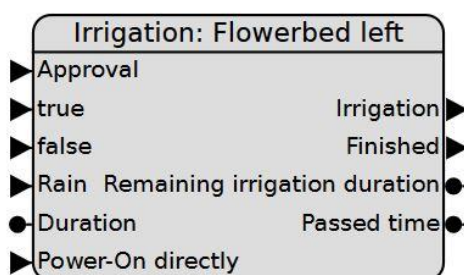
After inserting the module, you can connect the following inputs and outputs:

Inputs:

Approval: If there is a logical "1" at the release, the irrigation is active, so the irrigation can be started from the logic, e.g. via a calendar function. In case of a logical "0", switching on is only possible via the visualisation.

true: In this case, an impulse is expected to start an irrigation. This impulse usually comes from a calendar function or via the ready impulse of the previous irrigation module.

false:	An impulse to stop irrigation is expected here. The irrigation automatically turns off after duration.
Rain:	Input for rain sensor. In the event of rainfall, irrigation is not carried out. The duration of irrigation is shortened by the duration of rain. Irrigation (if necessary) is started only after an hour's rain break.
Duration:	The irrigation duration indicates how long a irrigation cycle takes. The time can be stored using a marker or can be set from the visu.
Power-On directly:	The irrigation is directly triggered by an impulse. Inputs such as Approval and Rain are not considered.

Outputs:

Irrigation:	Turns on the irrigation circuit.
Finished:	A pulse is output here after irrigation has been performed.
Remaining irrigation duration:	Indicates the remaining time in seconds of irrigation.
Passed time:	Indicates the remaining time in seconds of irrigation.

After creating the logic, an automatically generated Visu module is available in the Visu-Editor in "Special". By inserting into the Dashboard, the name can be changed, the size can be varied, the switching function can be turned on or off and the status can be set to active or inactive.

You can see in the Visu how long it has been since irrigation and you can turn irrigation on or off. By clicking the arrow, the watering duration can be set directly from the Visu. If a marker is used to define a value in the Logic, it will also be adjusted.
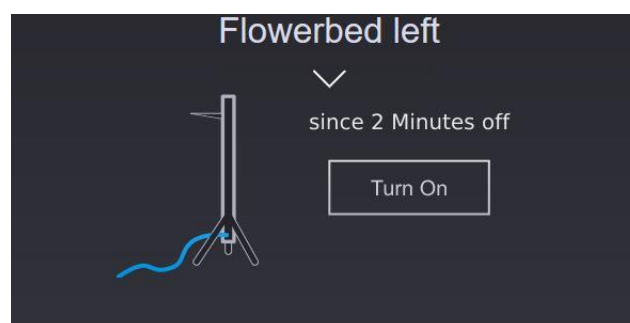
3.7.8 Staircase module

You can find the staircase module in the logic in the toolbox in "Logic modules" - "Logic". This module implements a staircase lighting function with switch-off prewarning.
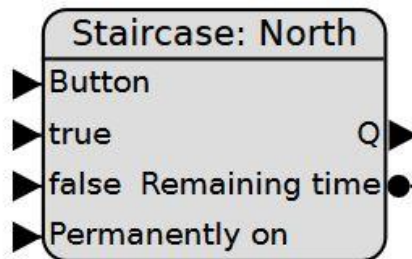
After inserting the module, you can connect the following inputs and outputs:

Inputs:

Button:	Switch on/off (if the output is "On" and this button is pressed before the prewarning the output will be switched off).
true:	Switches on the output. Requires a rising flank.
false:	Switches off the output (has priority).
Duration:	How long should the output remain on (in seconds)? Standard: 2 minutes (Maximum: 1 day).
Prewarning:	Defines how many seconds earlier the light should be briefly switched off for extending the runtime. Standard value: 5 seconds. If the value 0 is entered here, the prewarning is switched off.

Outputs:

Q:	The output for the lamp.
Remaining time:	Defines for how many seconds the lamp will remain on.

After creating the logic, an automatically created Visu module is available in the Visu-Editor under "Special". While inserting into the Dashboard, the name can be changed, the size can be varied, the switching function can be turned on or off, and the status can be set to active or inactive.

In Visu, the staircase function can be started with a click. The remaining time is symbolized by an expiring ring. By clicking while the light is on, the time starts again. The lamp cannot be actively switched off from the visualisation via the automatically generated module.
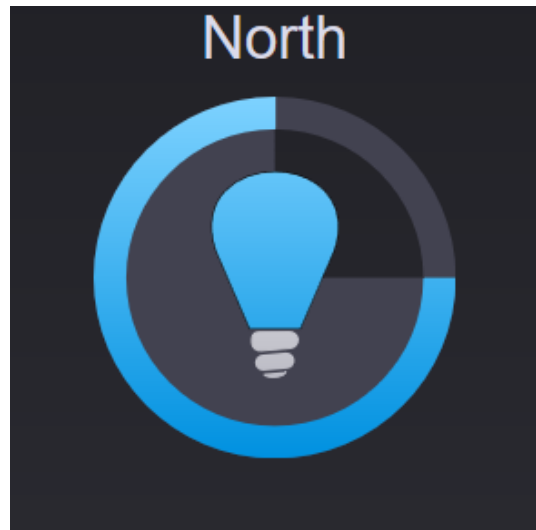
3.8 Parameters

3.8.1   1-Wire

1-Wire is a low-cost bus system, which was developed and is mainly used for the acquisition of temperature values. These sensors can be used, for example, to measure room temperatures for heating control. The 1-Wire bus can be set up in different topologies. Each individual 1-Wire sensor has a unique ID (e.g. "5782dfc"), which enables a unique assignment of the individual sensors.

3.8.1.1 Connection

Connection of the DS18B20 1-Wire sensors to the terminals of the IO-server:
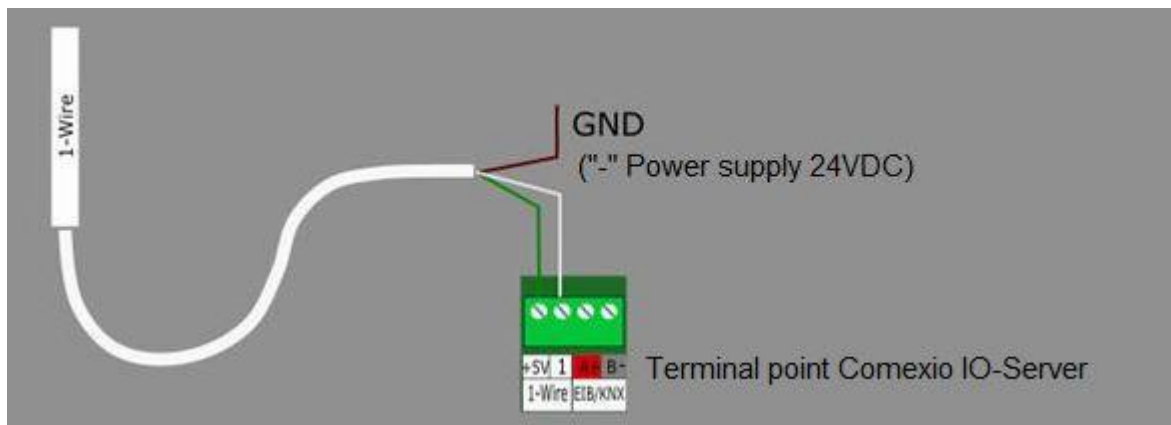
Connection colors (May 2017):

Green	→ +5V (terminal +5V 1-Wire at the IO-Server)
Brown	→ GND (terminal "-" on the 24V power supply)
White	→ Data (terminal "1")

Other sensors are connected analogously.

3.8.1.2 Topologies in normal operation (three-wire operation):

* Branches at the sensor connection, of up to 2m length, have no adverse effect.

Ring-topology

Nicht zulässig
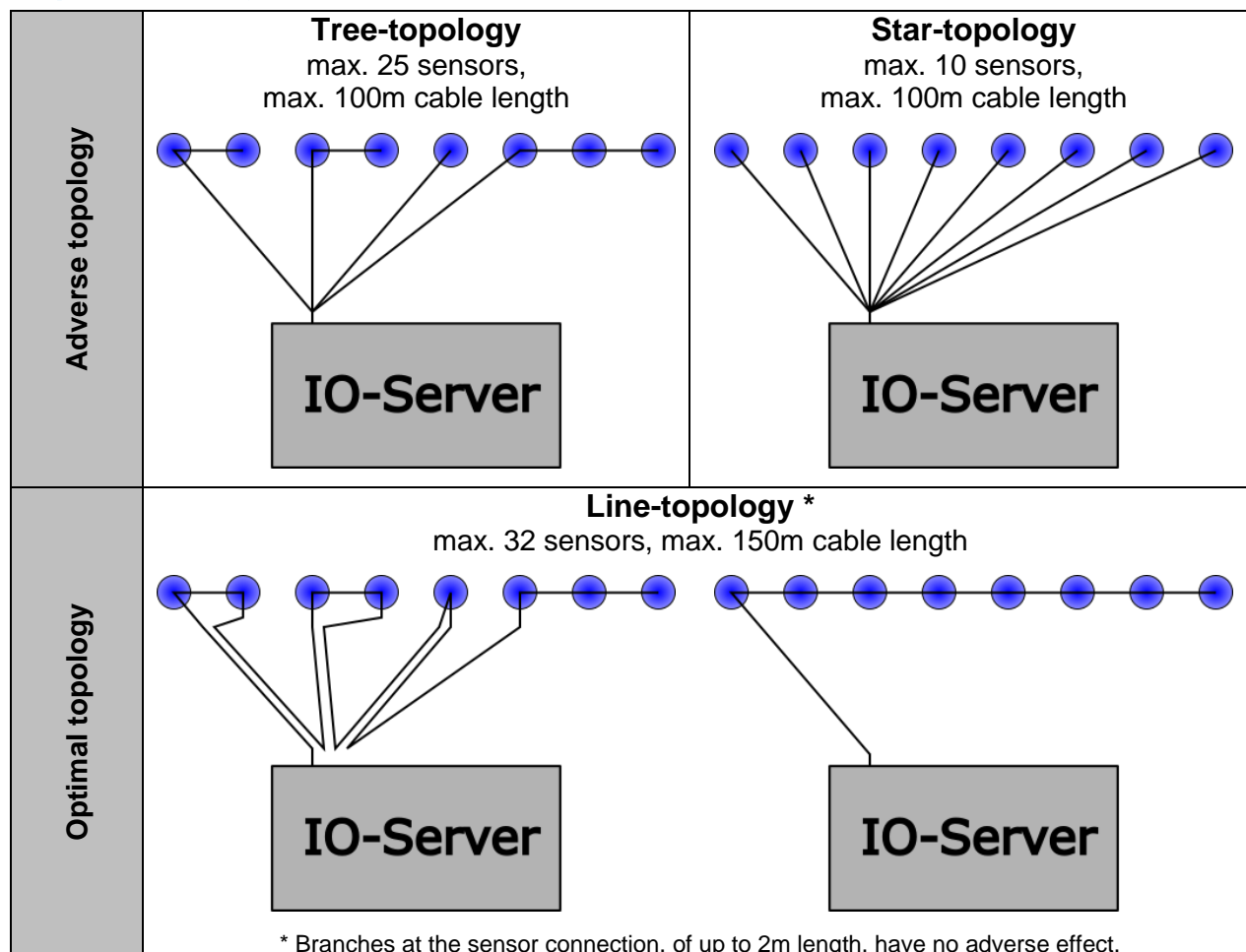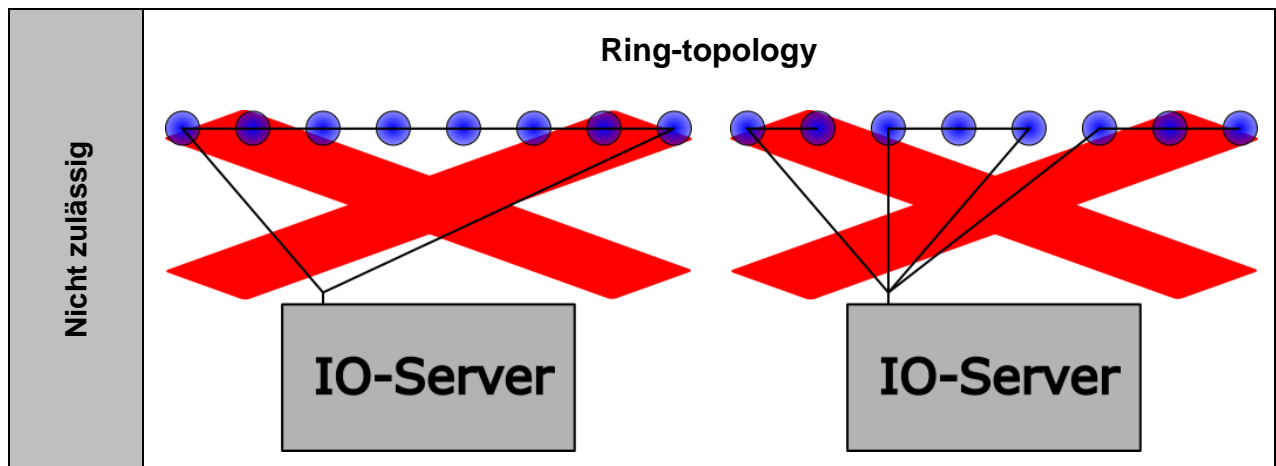
> **Note:** For new installations we always recommend to choose a line-topology!

3.8.1.3 Pullup resistor

Depending on the length and number of sensors, a pullup resistor must be mounted between the terminals "+5V" and "1". Do not use a pullup resistor smaller than 0.5 kOhm. Use the resistors supplied with the IO-Server.

Connection of the pullup resistor to the 1-Wire bus:
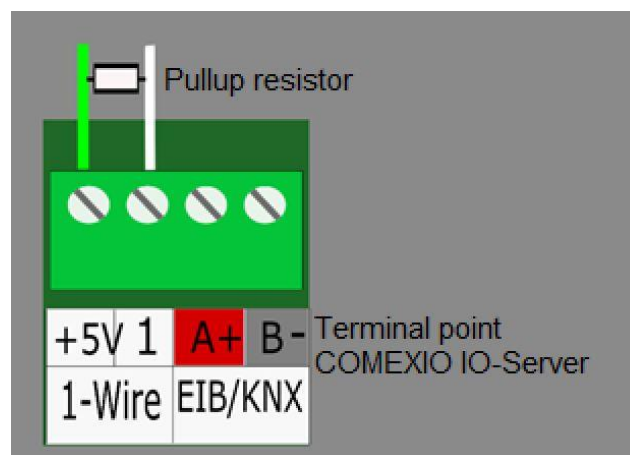
The pullup resistor is included in the scope of delivery of the COMEXIO IO-Server. Here you can choose between two different resistors:

	Use for systems with:
1kOhm (0,25 Watt)	Cable lengths >50m and Number of sensors >5 pieces
4,3kOhm (0,25 Watt)	Cable lengths <50m and Number of sensors >8 pieces

For systems with cable lengths of <30m, pullup resistors are normally not necessary. Depending on the load of the 1-Wire bus, faults can also occur in the form of incorrect

temperature values (e.g. 85°C), even with short cable lengths but a high number of sensors. Here, pullup resistor can be used to remedy the situation.

3.8.1.4 1-Wire settings

To add 1-Wire sensors, open "1-Wire" in the logic toolbar and press the detail button (outlined in red in the following image).

1   All already added 1-Wire participants are listed here, they are available in the logic programming under the respective "Id".

2   Name: Name of the participant.

3   Type: The respective type is displayed here (Temperature sensor, iButton, Multi sensor, etc.).

4   Standard View/Extended View: By clicking the button another column "Active" appears. Here you can activate or deactivate the added participant.

5   Delete: Delete a participant.

6   Hide known: Hide all known 1-Wire participants.

7   Switch On/Off the 1-Wire monitor: Switch on here to find participants.

8   Here you can create a 1-Wire Dummy to complete the logic programming even without 1-Wire sensors. 1-Wire Dummies can additionally be created via the "New 1-Wire Dummy" button by clicking or drag & drop into the Function plan.

9 The 1-Wire Id is a unique number which uniquely identifies each sensor. If a sensor is defective or if a Dummy is to be replaced by a real sensor, the Id of the new sensor can simply be dragged onto the Id of the one to be replaced.

10 You can change the type and supported values of your Multi sensor under "Edit". If you set values which are not supported by the sensor, the sensor will display any values at this position.

1 By pressing "CTRL+G" you get the possibility to switch off or on the extended 1-Wire possibilities. If this check mark is not set, you can only include temperature sensors and iButtons. By default, the check mark is set.

2 The left number reflects the bus quality after the last restart, the right number is a measure for the current bus quality. The respective maximum is 100. For numbers smaller than 70, there can be a problem.

Example: Teaching a temperature sensor

Again, you can only teach-in 1-Wire sensors if the 1-Wire monitor is activated (button 7). If a known 1-Wire device is detected, it appears in the list. Clicking the "Add" button will save it.

Supported chips:			
DS18S20	Temperature	Measuring range: Precision: Resolution:	-55°C to +125°C ±0,5°C (-10°C to +85°C) 9-Bit
DS1822 DS18B20	Temperature Temperature	Measuring range: Precision: Resolution:	-55°C to +125°C ±2,0°C (-10°C to +85°C) Up to 12-Bit
DS1825	Temperature	Measuring range: Precision: Resolution:	-55°C to +125°C ±0,5°C (-10°C to +85°C) Up to 12-Bit
DS1990 DS2401 DS2411	iButton iButton iButton	Only sends the serial number in case of contact/inquiry with the bus	
DS2438	Multi sensor	Used as: • Humidity sensor	

	• Reed relay
	• Glass breakage sensor
	• Soil moisture sensor
	• Brightness sensor
	• Motion detector
	• Converter (0-10V to 1-Wire)
	• Air quality sensor

Tip: It is recommended to teach the sensors one by one and to give them directly a corresponding name. In this way, they can be easily used in logic programming.

> **Note:**   In case of operating iButton's at the 1-Wire interface, the max. number of sensors reduces.

3.8.2   Calendar functions

Using the Calendar functions, you can implement date and time-controlled call-ups, such as opening the shutters every morning at 8:00. This functionality depends on the correct date and time being set on the IO-Server. See Chapter 2.2 Date & Time.

Open Calendar functions in the Logic toolbox and press the detail button (outlined in red on the image) to add Calendar functions. Now click on "New Calendar function" or drag this area directly into the Function plan.

Calendar Functions

Click at an empty area for creating a new calendar function!

To create a new Calendar function you can simply select an empty area of the desired duration, then the input mask will be opened for editing.

Enter a unique designation to avoid any confusion. You can also set calendar entry to "inactive", which means that the entry is turned off and grayed out in the calendar.

The line "Start" corresponds to the first day of the calendar entry. The duration is calculated by taking the difference between the end time and the start time. Alternatively, you can enter the duration and the matching end time to the start time will be calculated.

There are several types of repetitions in the Calendar functions: once, daily, weekly, monthly, every nth day and yearly. In the case of weekly and monthly repetitions, it is possible to specify the days on which the function is performed. In this way you can program for example a working day timer and a weekend timer. Then the appropriate selection area will be displayed. It is not possible to switch off the day of the week or month of the first execution.

> **Note:** When selecting the monthly repetition, make sure that 31 days are always available, even if February was selected with only 28 days.

For most applications it is useful to use a Calendar function with a impulse, e.g. when controlling a scene or Central Up or Down as well as Central On or Off etc.

With the setting "Impulse" (hook) a short impulse is emitted at a certain time.

By clicking "Exit at" you can select a time after which the Calendar function should be deactivated by the system.

When a Calendar function is saved for the first time, it receives a unique Id, which can be used - like the name - as a designation within statement lists.

The Calendar function can also be programmed by drag & drop or by resizing them in the overview.

Furthermore, you also have the possibility to create and edit a Calendar function directly in the graphical programming. For more information, see chapter 3 LOGIC.

3.8.3   Astro function

You have the option to use an Astro function. You can use this ideally for a shutter control. You can select the following options under "Function".

- Sunrise
- Dawn
- Sunset
- Twilight
- Day
- Night

The following settings are important for an Astro function:

Select one of the four Astro functions in the selection field "Function". In the example, the Sunrise function was selected. At this point, you can set "Starting offset" (a delay) in the input field, e.g. +01:00:00. This means that the Calendar function is executed one hour after sunrise.

Note:	In order to use the Astro function completely, the coordinates of the location must be entered.

To do this, press the button "Insert coordinate" and the following window opens:

Edit coordinates

Latitude (north)	`49.572465`
Longitude (East)	`8.055755`
Find automatically	Find coordinates

Save

Now you can enter the coordinates, width and length (if available). Otherwise click on the button "Find coordinates".

A browser window will appear with the message "Do you want your location to be forwarded to 192.XXX.XXX.X". After you allowed the access, you will find your current coordinates in the window. Now you just have to save the settings. After that you can use this Calendar function in programming.

3.8.4   Time Modules
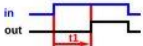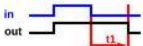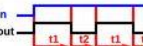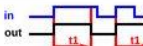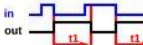
To add time elements, open Time Modules in the Logic toolbox and then press the detail button or click on "New time module". Optionally, you can also drag the button "New time module" directly into the Function plan to create a new time element.
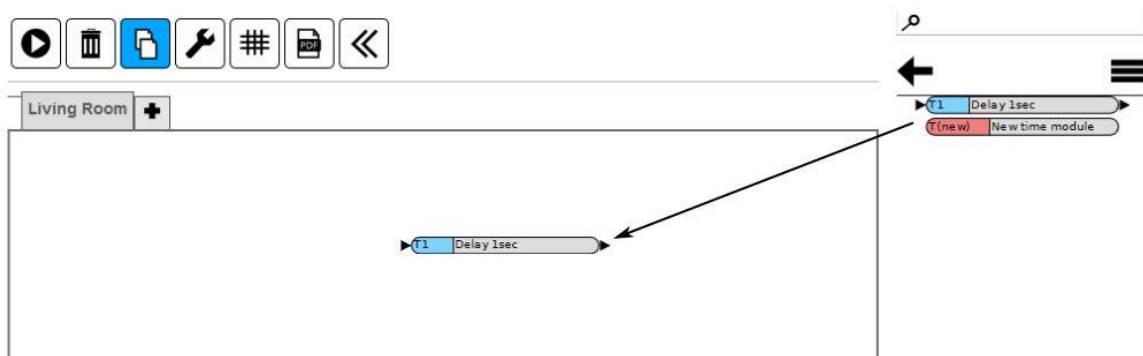
Time Modules

Add new time module

Survey

id	Name	Type		t1 [sec]	t2 [sec]	
T1	Switch-on delay	switch-on delay		10.0	1.0	X
T2	Switch-off delay	switch-off delay		2.0	1.0	X
T3	Pulse generator	pulse generator		1.0	1.0	X
T4	Switch-on-pulse	switch-on-pulse		1.0	1.0	X
T5	Switch-off-pulse	switch-off-pulse		1.0	1.0	X

Time elements are intended for time-controlled functions. In contrast to the Calendar functions, the time-controlled call-up is triggered by a switching signal. This allows you, for example, to switch off the signal at the output with a delay (this can be used to implement a pushbutton for a corridor).

The following types of time elements are available:

Switch-on delay: The output switches on after an adjustable delay.

Switch-off delay: After the input has been set to "Off", the output remains on for an adjustable time.

Pulse generator: As long as the input is "On", a clock signal is given, t1 is the duration for "On", t2 is the duration for "Off".

Switch-on-pulse: A pulse with a definable length is triggered when switching on.

Switch-off-pulse: A pulse with a definable length is triggered when switching off.

The smallest time unit that can be set is 0.1 seconds.

The input of a time element should only be assigned once in the entire programming. Otherwise, an error message is displayed when you try to start the Function plan. In this case, the outputs are assigned multiple times. On the other hand, the time element can be inserted as often as required in Function plans in order to use its output in several places.

Time elements which are no longer used in logic programming can be deleted by simply drag & drop to the trash can.

Note:	Time elements that are still in use cannot be deleted.

Note for IL programming:

Time elements are used similarly as Calendar functions with the difference that a value can be assigned to them. This corresponds to the input signal. You get the output signal by reading out the module.

Furthermore, it is also possible to create or edit a timer directly in the logic. For more information, see section 3 LOGIC.

3.8.5   Marker

Marker help to transfer values from one Function plan to another or to define fixed values. If a fixed value is assigned to the marker, its input is not used. At its output the specified value is always present. To save this value permanently to ensure that the value is still present after a power failure or restart, the value must be defined as a start value. Alternatively, the input of a marker can be linked to a device input or a function output. The marker outputs the value that is present at its input. Even if its input is linked on another Function plan, the marker always outputs this value. The input of the marker should be assigned only once in the entire programming. However, it can be inserted into Function plans as often as required in order to use its output multiple times.

To edit the markers, open Logic in the menu bar. In the toolbar, select "Marker". The detail button takes you to the tabular view. You can change the markers by clicking on them. New markers, i.e. beyond the 256 standard markers, can be created by clicking on the button "New Marker" or by dragging them into the Function plan.
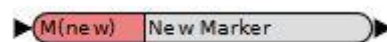
Marker

id	Caption	Type		Value	Default	
M1	Set temperature	Analog	⌄		0	
M2	Temperature-delta	Analog	⌄		2	☑ Apply directly
M3	1A	Analog	⌄		1	☑ Apply directly
M4	8A	Analog	⌄		0	
M5	Output	Analog	⌄		4	☑ Apply directly
M6	Set temperature Room2	Analog	⌄	2 ⬍	8	☑ Apply directly
M7	Set temperature Room3	Analog	⌄		0	

Here you can define markers. They are used like variables. You can use the markers both in the Instruction lists (IL), and in the graphical programming to store combined values or to remember states (alarm on/off).

The input of the "designation" must be unique! Furthermore, you can change the marker in the field "Type" from digital (on/off) to analog, for processing also numerical values. The start value is assigned to the marker every time the COMEXIO system is started. This allows you,

for example, to store the setpoint temperature of the heating using a fixed numerical value "X".

After starting a Function plan, markers have a direct switching function. This function facilitates the test of the logic.

You can also edit the markers directly in the logic. More information can be found under 3 LOGIC.

3.8.6 Messages

By pressing the detail button in "Messages" of the toolbar in the logic, following window will show up:

Here you can write messages and define their type. Each message can be triggered as a popup in webinterface, push message and email. If a message is triggered, a popup with the message optionally appears in the browser. In the case of one or more smartphones, push messages appear and/or an e-mail is sent to the specified e-mail address.

3.8.7 Create new message

There are several ways to create a new message. Click on the button "New message" in the tabular view, which is reached via the detail button. Press the "New message" button in the toolbox or drag this button directly into the Function plan.

The designation in the messages must be unique, i.e. it can only be used once. In the field "Type" set the check mark for the required function. In the field "Room-Controller Signal" you can distinguish between no signal, siren and bell. To ensure that the signal is output, the message must be stored in the Room-Controller. The e-mail address field only needs to be filled in if you decide to use the "Send push message to" function.

It is possible to display values within the messages. Here the scheme is the same as for the IL scripts: Extension#Connection, but in order for them to be inserted, they must be placed between two tildes "~" (e.g.~Extension#Connection~ or for markers e.g. ~M1~). The values are updated regularly for the popups and for the e-mail messages they are entered at the time of triggering.

The item "Embed Site" appears only if you have selected the type popup. You can then display either a COMEXIO visualisation or another page under the message text.

Messages are triggered by setting them to one (from zero) in an IL script or by changing the input of the message from 0 to 1 in a Function plan.

IL command: MES1=1

3.8.8 Push notification

Besides emails, push notifications can also be sent to the COMEXIO App. For this purpose, each smartphone must be entered in the Smartphone Monitor. You can get to this via new Message/Edit Message if the push message has been set under type. Push messages can basically be sent to all smartphones that have been taught-in, or only to certain subscribers via individual selection.

New Message   ✕

Caption	Temperature monitoring
Type	☑ Send email ☑ Show popup in webinterface ☑ Send push message
Room-Controller Signal	Siren ⌄
Send push message to	☑ All known Smartphones Smartphone Monitor
Email address	max.mustermann@comexio.com
Message text	Warning, the temperature of the IO server is too high! It is ~TL1~°C
Embed Site	☑ Internal site none ⌄

Save message

All smartphones which login to this IO-Server via app, will appear in the Smartphone Monitor. A test message can be sent to the smartphone via "Send Test-pushmessage" if the IO-Server is connected to the Internet.

Smartphone Monitor   ✕

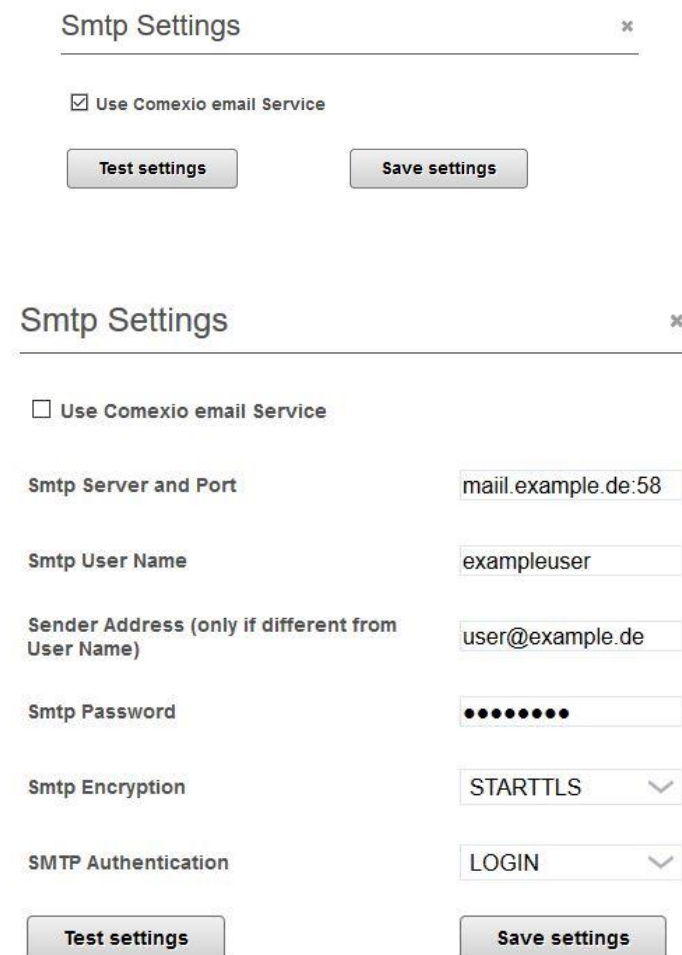| Smartphone Monitor	User for new smartphones	Off ⌄			Switch Off

	Push-Id	Name	Time	User		
1	e81d1fdde853ecf0d		No Data	Off ⌄	Send Test-Pushmessage	Delete

3.8.9 E-Mail settings

To send e-mails you can either use a SMTP server of an e-mail provider (which requires an e-mail account on it) or use the COMEXIO e-mail service. Click on the "Smtp Settings" button. An additional window appears. Here you can make the following entries:

By setting a check mark at "Use COMEXIO email Service", the other settings will disappear and you can test the sending immediately. Using this option, the e-mail is first sent to the COMEXIO Server, which forwards the e-mail to the desired address. This setting is stored as default value.

You can get the name of the SMTP server from your e-mail provider. If the SMTP server uses default ports (unencrypted: 25, TLS: 465. STARTTLS: 587), they are set automatically, otherwise the port must be added manually in the field "Smtp Server and Port" (Example.smtp.com:123 if the port 123 would be used by your provider). The SMTP User Name is normally the e-mail address of the email sender. When sending, this username is used as the sender address. For some providers, the username for the email account is not the same as the email address. In this case the sender address must be entered separately, otherwise the field can be left blank.

After entering your data, click the "Test settings" button. A window will appear where you can insert your e-mail address and press OK. After successful sending you should receive an e-mail in a few moments.

4 Autoinstaller

Navigate to the device overview in COMEXIO Studio. To start the Autoinstaller, click on the IO-Server and then on the button "Installer".

Important Note:	If you want to create a new configuration, please make sure that you have reset the IO-Server to factory settings previously. New Function plans and devices are created, but the old ones are not deleted.
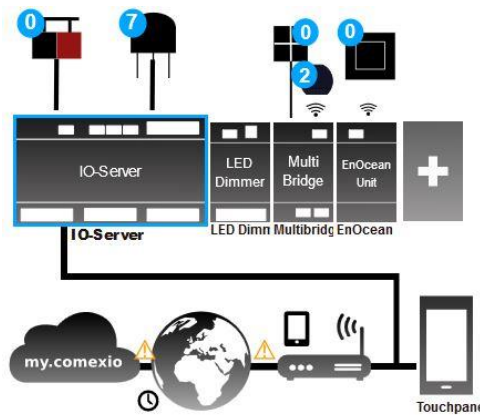
After pressing the "Installer" button, the Autoinstaller will open.

On the first page you have the possibility to integrate a planer file from the COMEXIO Planer. An automatic programming is generated for you based on the documentation of your planning.

Use the next steps of the Autoinstaller if you don't want to create a programming based on a plan, but want to generate an individual one.

Delete the already created rooms via the "X" (1), change the name of a room via the pencil symbol (2) or create new rooms via the "Add room" function (3).

Which rooms do you want to be controlled?
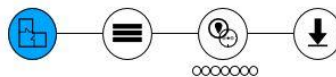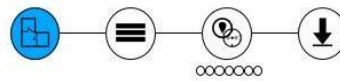
Comexio-Planning-File (*.cpf)
Durchsuchen... Keine Datei ausgewählt.
Import

Livingroom		× **1**
Kitchen	**2** ×
Bedroom	×
Hallway	×
Bathroom	×
-- Add room -- ⌄ **3**

Reset Configuration

In the next step you can define which functions should be included in the automatic programming.

Automatic IO labeling: Here the outputs are named after the connected consumer. Should you assign a shutter in the living room to Q3+Q4 of the IO-Server, the outputs shutter up plus shutter down living room are called.

Automatic Programming: With this option, Function plans are created, the respective logic module is used and the outputs are linked to the logic modules.

Automatic Visualisation: Each function is automatically assigned a visualisation.

Which areas do you want to be programmed?
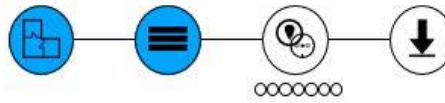
	Automatic IO labeling
☑	Automatic Programming
☑ Shading	
☑ Lighting	
☑ Heating	
☑	Automatic Visualisation

In the next step, functions are assigned to the respective room and device. Please consider already existing terminal diagrams when assigning the outputs.

Mapping of Relays - Shutter 4
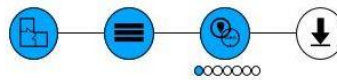
Device	Output	Livingroom	Kitchen	Bedroom	Hallway	Bathroom
			Floor 1			
	Q1	○	○	○	○	○
	Q2	○	○	○	○	○
	Q3	○	○	○	○	○
	Q4	○	○	○	○	○
IO-Server IO-Server 3	Q5	○	○	○	○	○
	Q6	○	○	○	○	○
	Q7	○	○	○	○	○
	Q8	○	○	○	○	○
	Q9	○	○	○	○	○

New device ∨ 1   ☐ Hide assigned 2

You can add further outputs to your system under "New device" (1). If you want to hide an already assigned output, you can set the checkmark at (2). This gives you a better overview for large installations. Under (3) you can change the names of the system devices.

In this step, the existing relays are assigned to the "Shutter" function. You can see which function is currently active under (4).

After assigning all relays to the connected consumers and their local premises, you can create the basic programming. Save your configuration using the diskette (2). Via the button "Create basic programming" (1) you start the process.

You can recognize that the installation is complete by the following message. Exit the Autoinstaller via the "X" in the upper right corner.
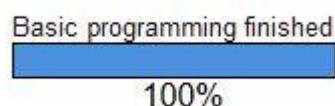
5 Monitoring

This allows you to monitor inputs and outputs, markers and temperature values etc. and to save these values. Later, these can be displayed graphically in the visualisation or exported for other applications.

5.1. Basics
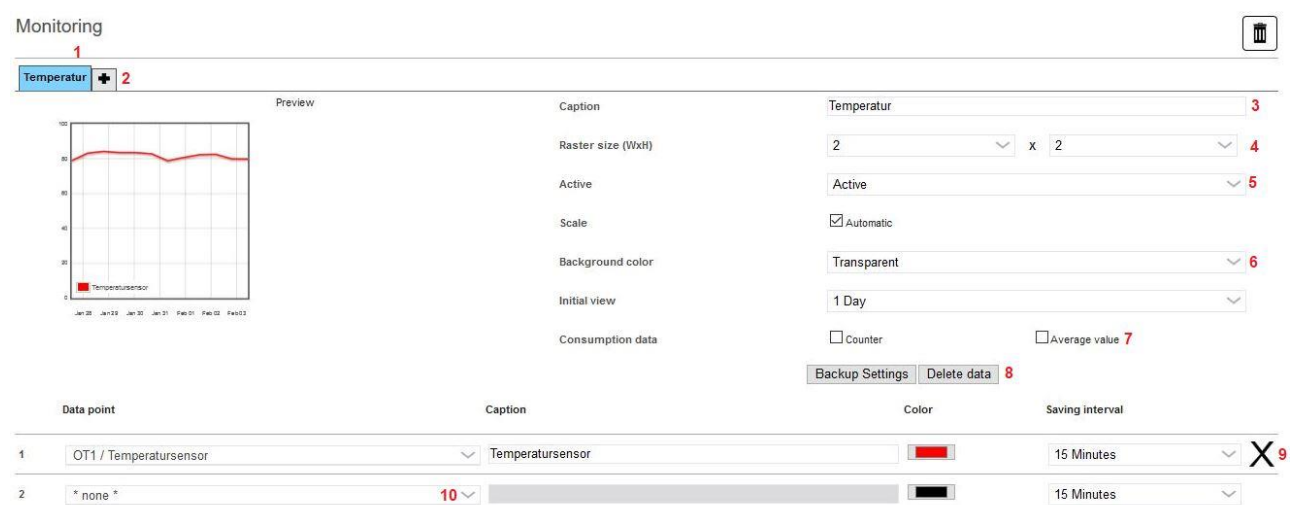
1 Already created tabs (monitorings) can be seen with a blue color background in the active state. If the tab appears gray, the monitoring is deactivated.
2 By pressing the "+" you can add a new monitoring.
3 A unique name should be entered for designation.
4 Raster size defines the size in the visualisation.
5 Here, the monitoring can be either activated or deactivated.
6 The colors for the individual data points should be matched with the background color.
7 The consumption data are available in the logic in the toolbox after setting. If a counter is set for power, this results in the energy, which can also be used to calculate costs, for example.
8 Here you can delete the data recorded so far and set the backup.
9 By pressing the "X" symbol to the right of the data point entry, you can delete the data point from the monitoring.
10 In the last line, additional data points can be added to the monitoring. To do this, you can select any data point from a list. The designation is used in the legend of the monitoring. At Storage interval you can set how often the data point should be recorded. The average value within the storage interval is stored. Digital values are always saved when they are changed.

Digital data points are displayed as a text. With this setting, texts for the "On" and "Off" states can be defined. Then this text is always output with time and date. In this way, it is possible, for example, to track when there was movement in the corridor or to determine which light was switched on and off at what time.

- The COMEXIO IO-Server can regularly send the data of a monitoring as an e-mail attachment or upload it via FTP to an FTP server. You can set this interval under the item Storage interval. "Off" means that the data will not be exported.
- The storage destination specifies where the data is to be written. If email sending is used, the email address that is to receive the emails must be entered here. If, on the other hand, FTP was selected as the storage type, the name of the FTP server must be entered. Some FTP servers require a username and password before you are allowed to upload data. You can also do this here by adding the username and password to the save destination as follows: user:password@ftp-server, the username and password are connected with a colon and separated by an "@" before the name/IP-address of the FTP server.
- You can then test if your settings work by pressing the "Test" button.

The maximum number of data points per monitoring is 10.

The total number of data points for all monitoring is limited to 50.

If a value (e.g. M1) is used as a data point within two different monitorings, it will still be saved only once. Changing the storage interval for a value always affects all monitorings in which this value is used. This means that deleting the data in a monitoring also deletes the data stored together. Consequently, the data of the respective value will be lost for the other monitoring as well.

The individual data points are stored asynchronously. During data export, intermediate values may therefore be interpolated.

A data point is stored as long as it is included in an active monitoring.

If consumption data points are created in the monitoring, they are also available under "Counter" in the toolbar of the logic.
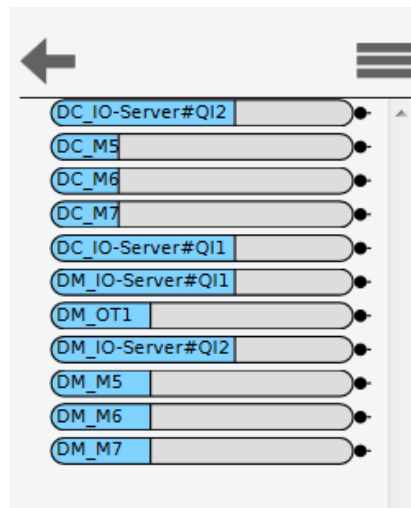
The data points beginning with DC stand for counters, those beginning with DM for the average values.

5.2. Graphics/Visualisation

After creating a monitoring, a Visu module is available in the Visu-Editor. The data is updated approximately every minute in the visualisation.

Here you can insert a monitoring by drag & drop.

After inserting, the following window will appear:

If necessary, you can change the name under which it is to be displayed. If the size of the Dashboard or the individual view allows it, you can zoom the monitoring. After saving, the preview will appear.
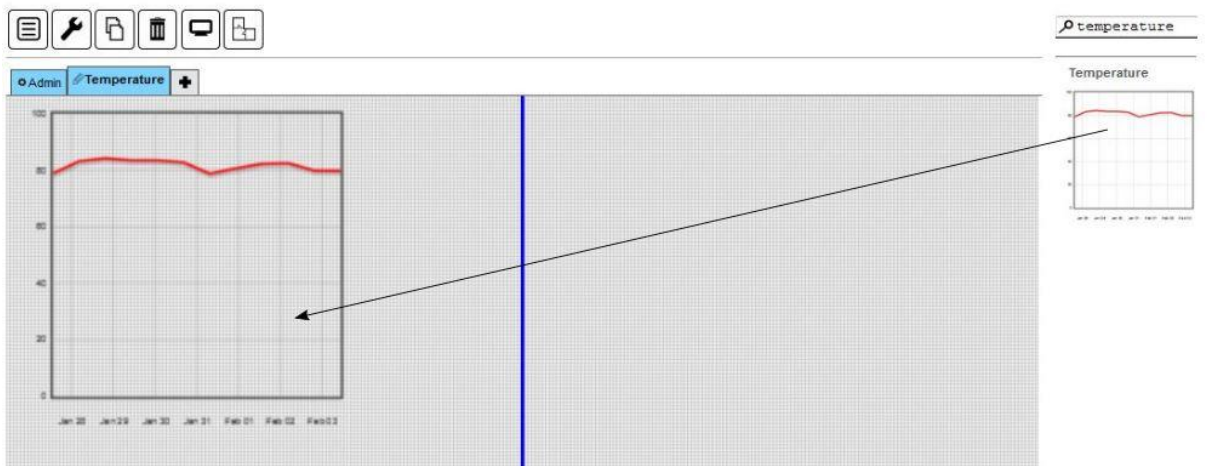
The Dashboards can be deleted, like the Function plans, either by clicking on the garbage can on the object or by drag & drop into the garbage can.

When you switch to the user area, the created monitoring appears.

> **Note:** Depending on the storage interval, only after changing a switching state (digital) or after expiration of the storage interval (analog) a line is displayed.

In the Visu the current value of the data points is displayed next to the history as graph or text. For analog values, you can zoom into the monitoring via swipe gesture at touch (from top to bottom) or the mouse wheel functions. In addition, the area can be moved via mouse or touch. After double-clicking on the monitoring, the values can be downloaded as a CSV file.
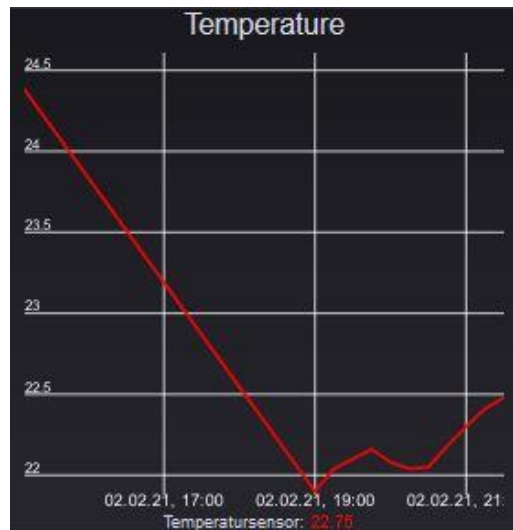
6   Visu

An overview of all visualisations is displayed after logging in to the IO-Server, if no start view has been set.

Here is an example of a Dashboard:

6.1 Basics

In Visu, COMEXIO differentiates between two types. The Dashboard has a grid that can be created in different sizes. The individually visualisation allows you to include images, floor plans as well as web pages. This way you can create a very flexible visualisation.

By clicking on this symbol you can see detailed information of your Dashboard. An overlay appears over the respective module.

This opens the menu editor. At this point the different views can be renamed, changed in order and grouped into areas.

This button allows you to copy already existing Dashboards. Then the copy is created with the same modules and names, whereby the name of the Dashboard always includes the addition "Copy" (can be renamed afterwards).

Delete individual modules as well as a complete Dashboards. To delete a module simply drag & drop it into the garbage can or use the delete button. The Dashboard can also be deleted in this way or by opening the Dashboard to be deleted and then clicking on the button.

Change Dashboard settings, an additional window will appear where you can change the settings.

By pressing this button you can change the grid snap, a window will open where you can enter the size of the grid (note: only for individual visualisation). Pressing the button again deactivates the grid snap.

Preview window: From here, a window with a functioning Dashboard preview will appear.

This will take you to the individual Visu-Editor.

This will take you from the individual part back to the Dashboards.

This button indicates whether automatic conversion to smartphone display is possible.

Menu Editor

☐ Show overview in menu

Rooms
- 🛋 Living Room
- 🍳 Kitchen
- 🛁 Bathroom
- 🚪 Foyer
- 🛏 Bedroom
- ✏ Office
- 🍷 Garden

Categories
- 🖼 Shading
- 🌡 Heating
- 💡 Lighting

Survey
- 🗺 Floor Plan

Createa Area   **Save**   **Cancel**

In the Menu Editor you can administer the areas and assign the different visualisations to corresponding areas via drag & drop. Areas can only be deleted (x at the bottom right) if they no longer contain any visualisations. In addition, the designations of the contained elements can also be changed here.

Use areas when assigning rights to a user. For example, to enable visualisations only for the corresponding user. Areas are also very useful to get a better overview.

6.2 Dashboard

With a Dashboard you can visualize the data and control the outputs. Create tabs for the different tasks and use drag & drop to place the modules on the grid.

The modules can either be selected via the areas in the toolbox or searched via Enterprise Search. In addition to module names, Enterprise Search also searches for names inserted in the logic for automatically generated modules.

To each Dashboard an icon and a section can be assigned.
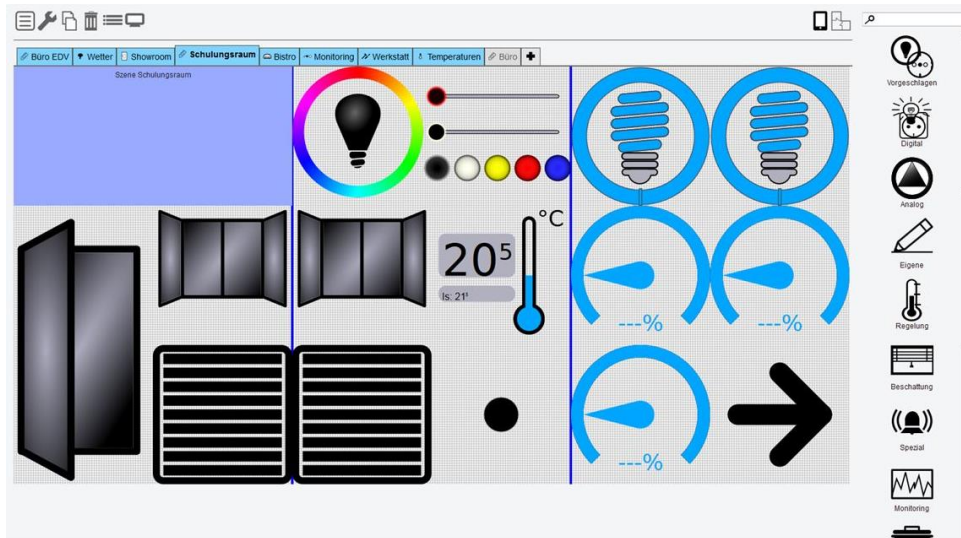
By clicking on the plus symbol in the row of tabs, a new Dashboard can be created. The following input field appears after pressing the button:

The Smartphone mode can also be configured besides the Name, Raster size, Icon and Area. You can choose between three variants:

Reorder in Blocks   In "Reorder in Blocks", the block that is on the very left in the Visu-Editor in the Dashboard is displayed at the top of the smartphone, and the block that is on the very right in the Visu-Editor is displayed at the bottom. The remaining ones are in between.

Create line blocks   In "Create line blocks", the procedure is from left to right, row by row. This means that the first two (or three) fields of the first line in the Visu-Editor form the first line in the smartphone, the next two fields of the first line in the Visu-Editor form the second line in the smartphone, and so on.

No smartphone responsiveness   You can also turn off smartphone adjustment, i.e. "No smartphone responsiveness".

By using the mouseover effect, the icon will be visible for the settings menu for the respective module (for devices with touch, by one click). In the popup all active inputs and outputs can be assigned:

Module Settings   ✕

Name	Analog display
Unit	Percent ⌄
In-/Output	IO-Server / AI3 / 0 - 10V Eingang 3 ⌄
Zoom %	100 ⌄
Function	View only ⌄
Status	Active ⌄

[More]   [**Save**]

For some modules there is the possibility to display further setting options via the "More" button:

Module Settings   ✕

Name	Analog display
Unit	Percent ⌄
In-/Output	IO-Server / AI3 / 0 - 10V Eingang 3 ⌄
Zoom %	100 ⌄
Function	View only ⌄
Status	Active ⌄
Unit	
Minimum	0 ⌄
Maximum	100 ⌄
Round to decimal place (<0: off)	-1 ⌄
Number base	Standard ⌄

[Less]   [**Save**]

If the module controls several units, this can also be set here. For some modules the option of more than one connection exists, e.g. an RGB module has three outputs for the basic colors.

Under "Function" you can define how the module should behave in case of user actions. The following options exist for this purpose:

1. **Direct switching:** The value of the displayed parameter is manipulated here directly. The value set here is permanent, i.e. relays remain set and analog values are retained. State of the data point set at input/output is displayed even if the change comes from logic or other visualisations. This function is often used for switching lights because the function is similar to a power surge relay.

2. **Visualisation input:** A Visualisation input is created for the module. This also appears within the logic as a separate (input) parameter and can be used as such. The Visu module shows the on-state as long as the set data point has the value 1. The Visualisation input sends a very brief impulse when actuated.

3. **Direct pushbutton function:** The adjusted output becomes for the duration of the actuation of the Visu module 1. The Visu module shows the on-state as long as the set data point has the value 1. This function is only available for digital modules.

4. **Button on visu input of data point:** The function is similar to the visualisation input. In contrast to this, the visualisation input remains 1 in programming as long as the Visu module is actuated. The Visu module shows the on-state as long as the set data point has the value 1. This function is only available for digital modules.

5. **Button function without display:** The input/output which is set becomes 1 for the duration of the operation of the Visu module. The Visu module shows the on-state as long as the Visu module is actuated. The datapoint has no effect on the display state.

6. **View only:** The module does not respond to user input.

7. **Link:** One click on the module will jump to the page set as a link target. Here we differentiate between an internal link to another visualisation or an external link to any homepage.

Visu inputs can also be created in the logic. For this, the button can be clicked in the toolbox under "Visualisation inputs" or dragged into the Function plan.

By clicking on the wrench you can change the properties of the Dashboard. There you can change e.g. the size, the name or the area.

Dashboards belong to areas. Different users can be assigned rights to these areas to control access.

You can delete Dashboards, just like Function plans, either by pressing the garbage can button or by drag & drop into the garbage can.
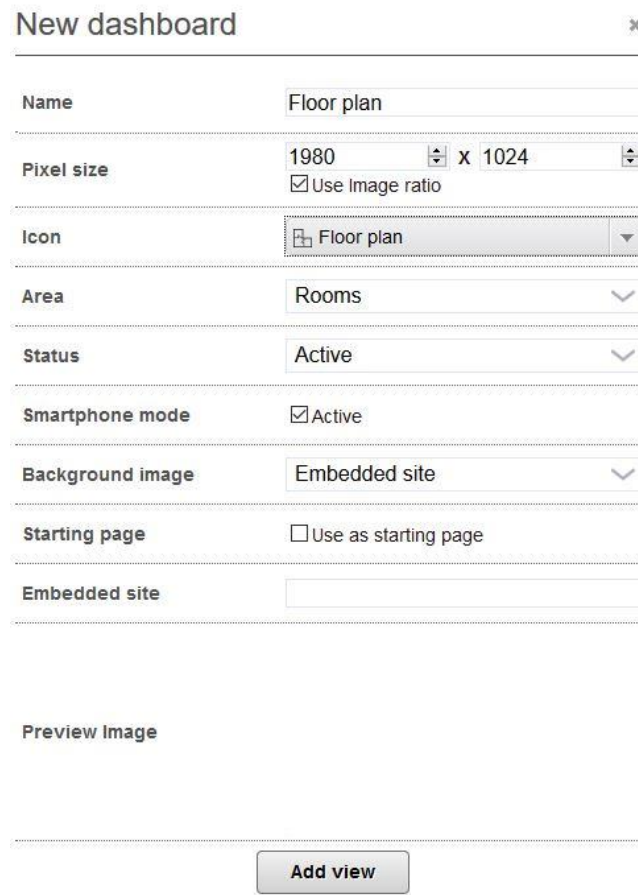
6.3 Individual

Individual views are used to visualize the data and control the outputs. Create tabs for the different tasks and place the modules on the board raster via drag & drop. In contrast to the Dashboard, the modules can be placed at any point (almost) without restrictions.

6.3.1.   Background image

Images (jpg, png, svg, gif) or embedded pages can be used as background images for individual visualisations.

When using embedded pages, make sure that the complete URL is entered (e.g. http://www.comexio.com/ not www.comexio.com).

If "New image" is selected for Background image, the file item appears, under which you can upload images. Another way to upload images can be found under the item "Icon" in the toolbar. Here you can upload new icons for menu navigation as well as images for individual visualisation.

Please note that the images should not be larger than 300KB. The complete configuration, which includes the images, should not be larger than 8MB (normal size without images <1.5MB).

6.3.2.   Creation of the visualisation

The Visu modules can be added to the individual visualisation by drag & drop. After adding the following window will open:

Module Settings

Name	Guest WC lamp
Unit	Percent
In-/Output	LED Dimmer / Q1 / Dimmer output 1
Zoom %	100
Function	Direct switching
Status	Active

More   Save

In contrast to the Dashboard view, you can enter any value for the size in "Zoom %".

In case of already inserted Visu modules the settings menu becomes visible by the mouseover effect, in case of touch displays by "Tap". All existing inputs and outputs can be assigned there.

You can also activate a configurable grid snap for better alignment of the Visu modules. Some Visu modules can be rotated. This includes windows, doors and all self-generated modules.

Similar to the Dashboards, you can change the characteristics of the active view by clicking on the wrench. Here you have the additional option to set the background of the view.

New dashboard

Name	COMEXIO
Pixel size	1769 x 1000 ☑ Use Image ratio
Icon	⊞ Floor plan
Area	Rooms
Status	Active
Smartphone mode	☑ Active
Background image	New image
File	Durchsuchen... Keine Datei ausgewählt. Upload image
Starting page	☑ Use as starting page
Embedded site	

Preview Image

Add view

Using the wrench icon in the header, you can also subsequently edit the properties of the individual programming. In addition to many other settings, the smartphone mode can also be activated here. As a result, the floor plan is optimally displayed even with smartphone operation.

The operation is similar to the description in chapter 6.2 Dashboard.
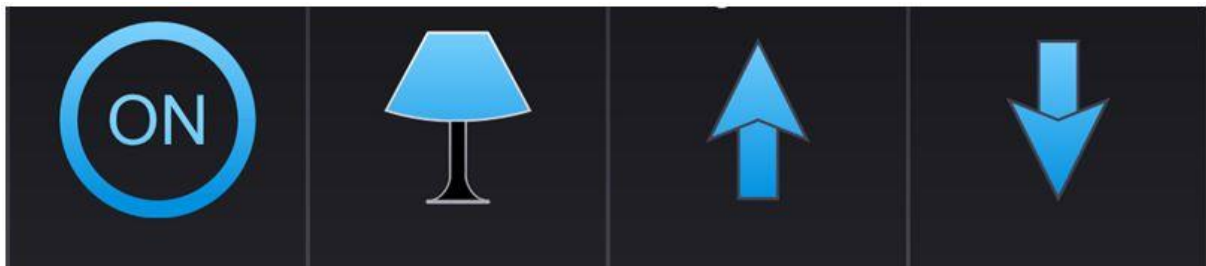
6.4. Visualisation modules

Create your individual visualisation with the existing visualisation modules or the modules you have created yourself. Place the modules on the grid or in the individual view by drag & drop.

6.4.1. Basic modules

Basically, the modules are divided into different types:

Digital

These Visu modules are suitable for switching and displaying inputs and outputs. These processes a signal of 0 and 1.
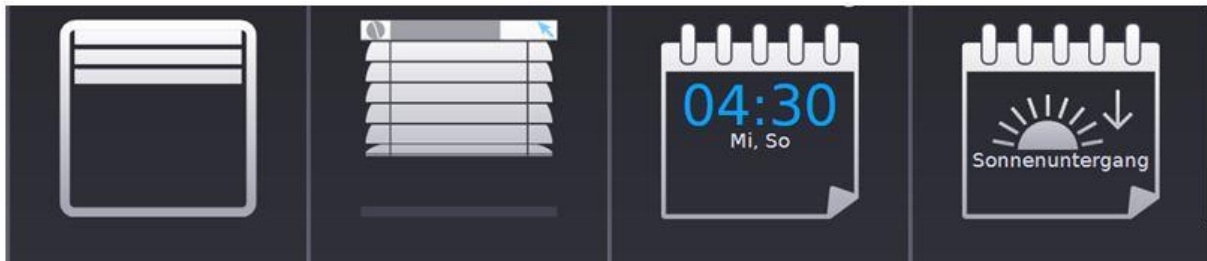
The modules created in the Visu-Editor correspond to a digital module.

Analog

These Visu modules are suitable for analog values. These processes e.g. a signal from 0 to 100 for a Dimmer.

Automatically generated modules

These Visu modules are created automatically by using the respective Function plans (for more information see 3.7 Automatically created modules).

6.4.2. Text module

With the text module you can display information. Here various formatting, queries and also links are possible.

As usual, the first step is to drag & drop the text module into the visualisation. Under "Text display settings" fill and select as desired.

- **Name:**   Here you enter a suitable name for the text display.

- **Show text:**   Here you enter the display text that will be shown if no conditions apply (see below text and value).

- **Format:**   Choose here a suitable font size and optionally a text or background color.

- **Width x Height:** Select the width and height of the module. In the individual visualisation, the size of the module adapts to the font size.

- **Function:**   Here you can choose between four functions (see below).

- **Status:**   Here you can select Active or Inactive.

In "Function" you can choose between Simple text display, Text and Value display, Link to page and Text/Value display with link.

- **Time and date:** To display the time or date, _date_ and _time_ are used as display text. Those show the time of the browser in the Dashboard. To display the data from the server _sysdate_ and _systime_ are used.

- **Simple text display:** Select the simple text display if you want to have a static info display that does not change its color and text or just show time/date.

- **Text and Value display:** "Text and Value display" is used to show values of data points such as inputs, outputs and markers, but also to define conditions and display them via a text (e.g. "Lamp kitchen on", "Lamp off").

- **Example:** Only the temperature in °C is to be displayed in the display text. After you have selected the number of inputs, you can now enter "_1°C" in the display text, so the temperature value transferred from the selected sensor appears in the visualisation instead of "_1". First select the number of inputs and then determine them. Optionally, you can specify up to how many decimal places the number should be rounded.

You can display data points, like the system time and date, via _1, _2, _3.

- **Edit conditional view:** In "Edit conditional view" you can compare the previously selected data points with each other and also with constants. If this condition is fulfilled, the subsequent text will be output in the corresponding color.

The conditional view is activated by clicking the conditional view box.

Edit conditional text display

You can change the text display for selected values. The conditions are evaluated from top to bottom. If 2 conditions are true, then the text for the last 'true' one is displayed.

Condition			Show text	Color	
_1	<	_1	Temp over _1°C!	☐ Color	☐ Background

Ok

- **Link to page:**

Function	Link to page
Link	☑ Internal Link (none)
Status	Active

Save

By clicking on this module in the Dashboard, you will be redirected to the next page.

Example: _sysdate_
systime

Thus, the first line contains the date and the second line contains the time.

Furthermore, you can also write italic (<i>text</i>) and bold (text).

6.4.3.   Calendar functions

After creating the Calendar functions in the logic, they are also available in the Visu-Editor. This allows the user to be granted access to certain settings.

Which parameters the user is allowed to change can be defined in the Module Settings.

Besides the name, the COMEXIO Visu also displays the time and the days when the function is triggered.


Depending on the rights assigned to the user in the Visu-Editor, the functions can now be edited by clicking on the Calendar functions.

6.4.4. Visu module editor

You can find the Visu module Editor in the Visu-Editor in the detail view of the Visu modules or by clicking on the detail button under "Own". Alternatively, you can also enter the following link:

http://<IP>/admin/status_display/editor

You can create your own Visu modules according to your needs. Draw your own graphic and use it to turn on and off. Existing graphics can be inserted via drag & drop. Copy & Paste does not work.
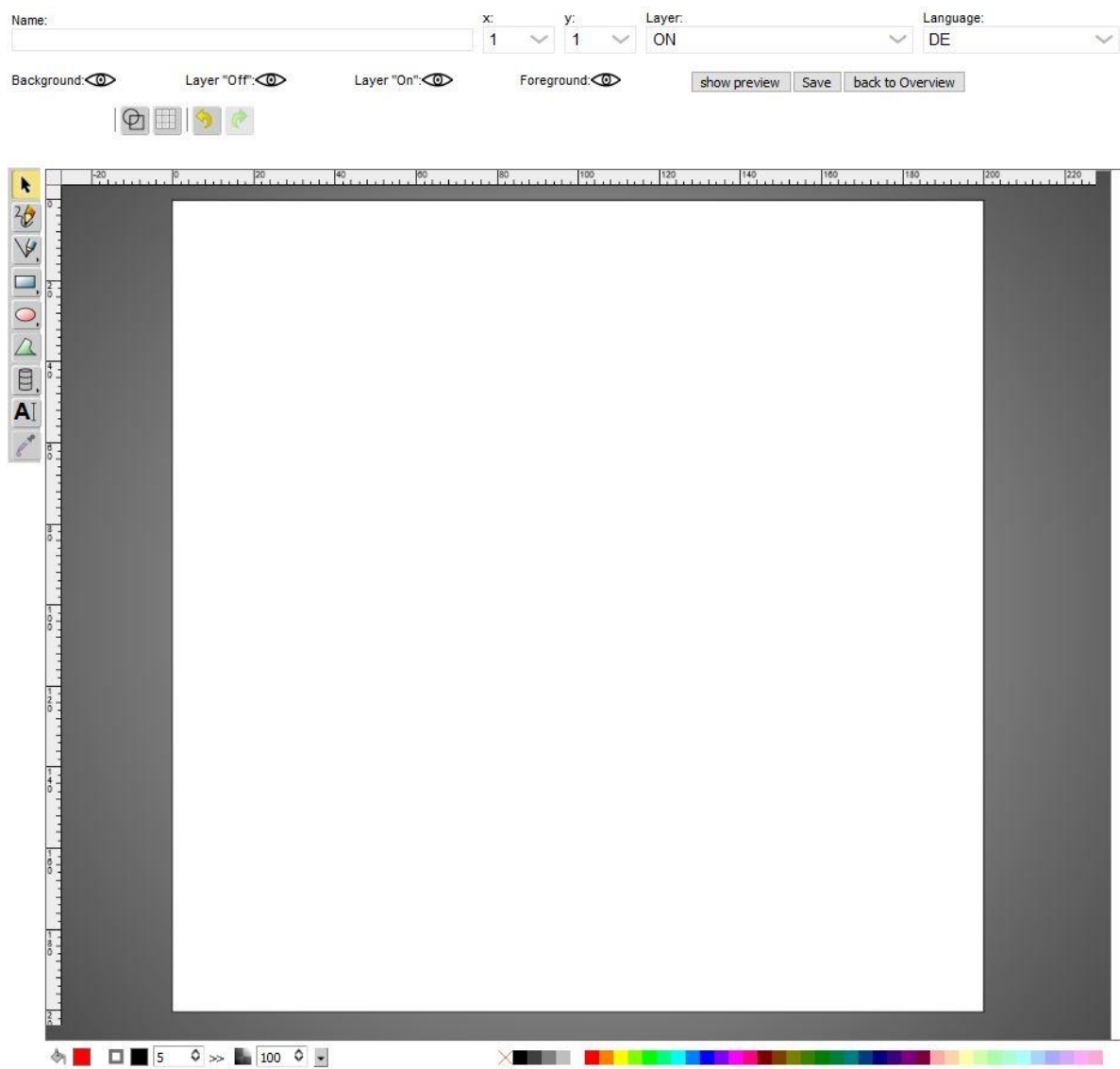
Name: Here you can enter the name of the module.

x, y: Specify the width and height of the module in fields (note that only the ratio is determined here, if you want to double the size, for example, this is done in the Dashboard).

Layer: Select the layer you want to edit here, the other levels are displayed transparently. Four layers are available.

Foreground: Represents the top level and "covers" the others.

ON: This level is only displayed if value "1" is applied to the module.

OFF: This is displayed as a counterpart to the "ON level" when the value is "0".

Background: The lowest level, it is covered by all the others. With one click you can show and hide individual layers.
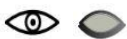
Show preview: Here you can test your created module by clicking the button "Show Preview", this will open a window. With further clicks on your module you change the state.

Save: Only by clicking this button your module will be saved. If this happens successfully, you will be forwarded to the Visu module page. Now your module is available in the Dashboard.

Back to overview: You will be forwarded to the Visu module page without saving the module.

6.5. COMEXIO App

COMEXIO App is available for Apple and Android devices. Besides the control of integrated functions familiar from the visualisation, there are several other functions.

Below is an overview of the functions:

Control: all functions integrated in COMEXIO.

Automated login: The password of your IO-Server is saved and the App logs in automatically as soon as it is opened.

Automatic connection selection: Depending on whether you are on your home WLAN or the Internet, the App either uses remote access or logs in directly.

IO-Server search function: You don't necessarily need the IP-address of the IO-Server, the app is able to find it in the network.

Pre-installed demo server: In the pre-installed demo you can see all the usual functions and their implementation even without COMEXIO system.

Push notifications: Messages can also be sent to one or more smartphones.

COMEXIO Studio: Open the COMEXIO Studio via the App.

When the App is started for the first time, the demo server is started. The settings can be accessed via the upper right button.
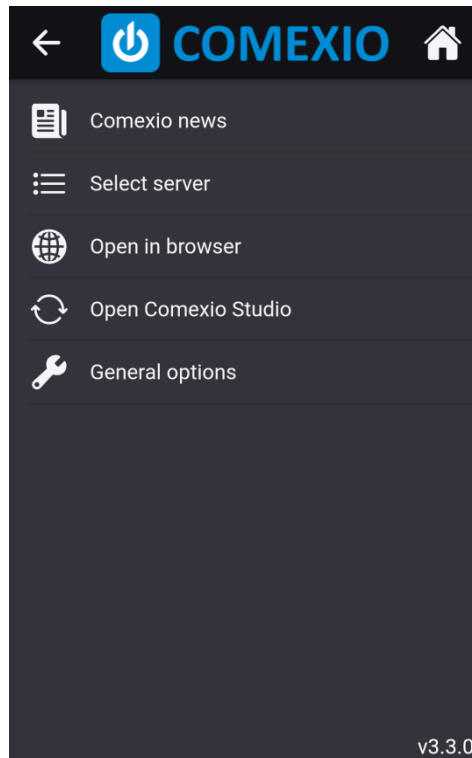
COMEXIO news: This button will take you to the news of COMEXIO.

Select server: The servers are managed here. For further explanations see **Fehler! Verweisquelle konnte nicht gefunden werden.** Select server.

Open in browser: Opens the COMEXIO interface using the smartphone's default browser.

Open COMEXIO Studio: Only available in landscape mode. Opens the COMEXIO Studio within the App.

General options: Further options regarding the App are made here. For further explanations see **Fehler! Verweisquelle konnte nicht gefunden werden.** General options.

6.5.1. Select server
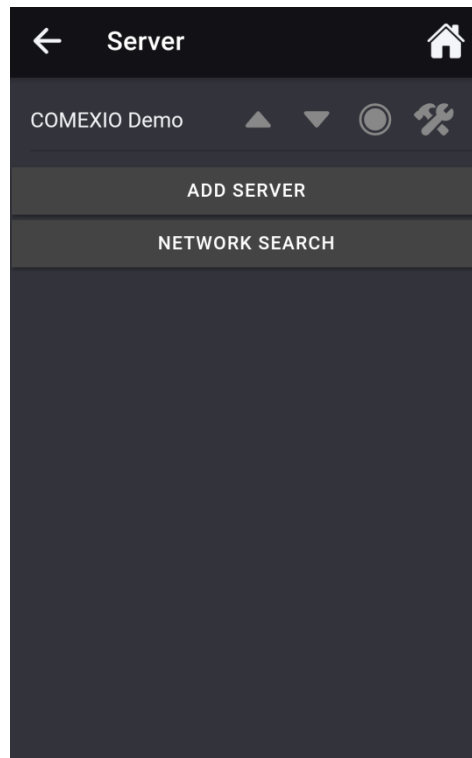
You can create an IO-Server under "Add server". This can be done either manually or automatically.

- **Manually:**
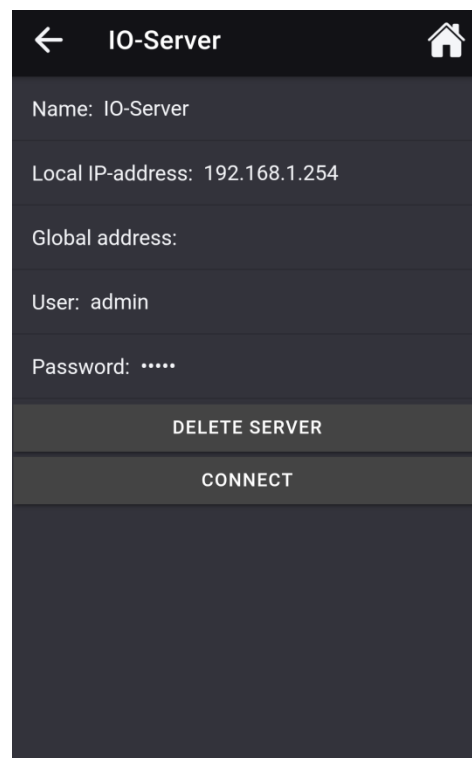
| Name:	Here you enter the name of the control.
Local IP-address:	Here the IP-address of the IO-Server is entered (factory default IP-address → 192.168.1.254)
Global address:	The IP-address of the remote access is entered here. The App first tries to connect to the local network using the local IP-address. If this is not possible, the App connects via the global address.
User:	The user name of the different users is entered here (case sensitive).
Password:	The password of the respective user is entered here.

- **Automatically:**

For automatic teaching of an IO-Server, an authorization must first be given via COMEXIO Studio. For this purpose, a user with appropriate rights must be created in the user administration and then selected in the Smartphone Monitor. Automatic teach-in is then enabled for 15 minutes.

- **Search in Wi-Fi:**

It searches automatically for IO-Servers in the Wi-Fi.

6.5.2. General options
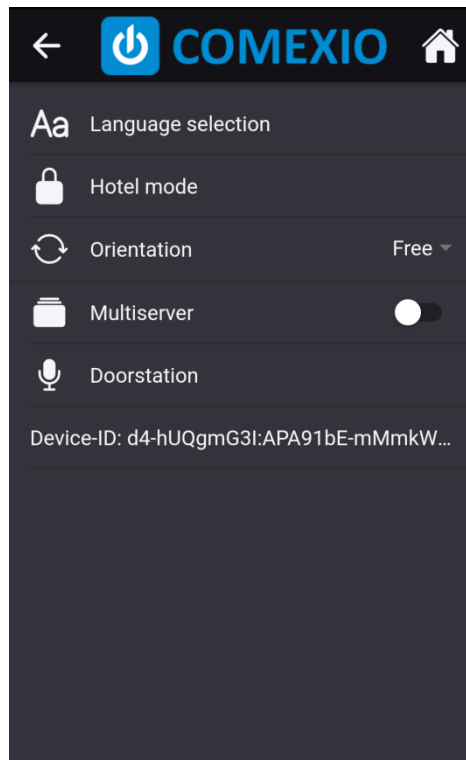
Language selection:	Can be selected between English, German, Spanish and French.
Hotel mode:	In Hotel mode, the settings of the App can be protected by a defined password. With the tab "Show menu" the switching of Dashboards via the menu can additionally be prevented and limited to one Dashboard.
Orientation:	Here you can choose between portrait mode, landscape mode and free orientation.
Multiserver:	If the Multiserver is activated, there is the possibility to connect to several IO-Servers at the same time. In this way, several COMEXIO controls can be used simultaneously in different locations without being confronted with long loading times.
Doorstation:	Here, microphone sensitivity and speaker volume can be adjusted regarding communication with the Doorstation. If your smartphone does not have echo cancellation, you must deactivate the tab "App echo cancellation activated". Thus, in the Doorstation visualisation, there is only the option of intercom.
Device-ID:	The Device-ID is a generated key that is used to identify the smartphone in the COMEXIO Studio. The Device-ID should be synchronized in the Smartphone Monitor when programming the smartphone. Note: When the App is uninstalled, a new key is generated and the smartphone must be taught in the smartphone monitor again.

7   Programming examples

7.1 Power surge circuit

The following steps must be performed during programming:

1. Designation of all used inputs/outputs
2. Creation of the Function plan
3. Generating the logic
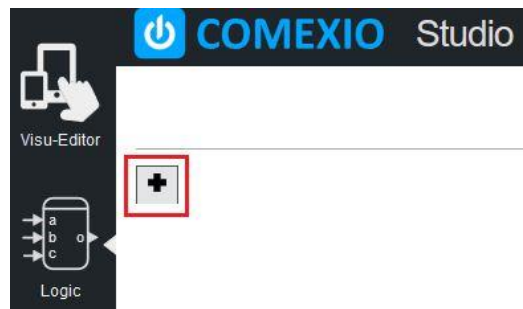4. Start the Function plan

Step 1: Designation of the inputs/outputs

If several inputs and outputs are named, this should be done in the item "Devices". In this case, you must not forget to save the data.

Step 2: Creation of a Function plan

In the item Logic a Function plan is created via the "Plus".

This one should be named and some properties can be adjusted.

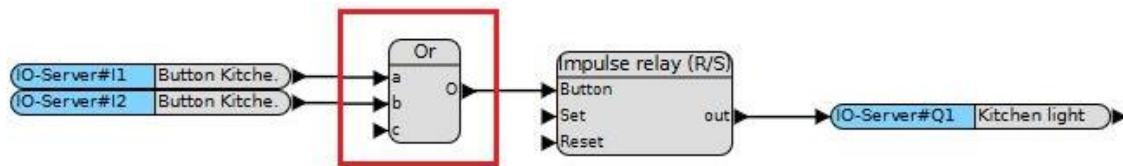**Step 3: Generating the logic**

The required modules can be found either via the sub-items of the toolbox or the Enterprise Search.
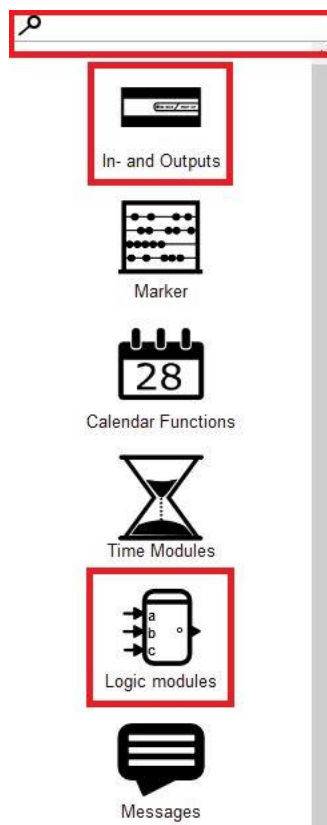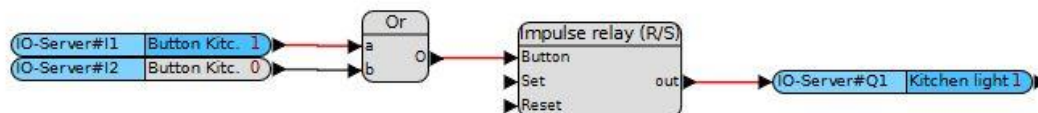
If several module outputs are connected to one module input, an OR element must be used here. A module output can be connected to several module inputs.

Step 4: Start the Function plan

After starting the Function plan, the lamp can be switched.

7.2 Shutter and blind control/central functions

When programming, the following steps must be performed:

1 Designation of all used inputs/outputs
2 Creation of the Function plan
3 Generating the logic
4 Creating the visualisation

The **steps 1 and 2** are analogous to the power surge circuit programming example. We need the following inputs and outputs:

| Inputs:		Outputs:	
I1	Blind 1 up	**Q1**	Blind 1 up
I2	Blind 1 down	**Q2**	Blind 1 down
I3	Shutter 2 up	**Q3**	Shutter 2 up
I4	Shutter 2 down	**Q4**	Shutter 2 down
I5	Central on		
I6	Central down		

Step 3: Generating the logic

In the first step, a shutter and a blind have to be controlled. Due to the adjustable logic modules you just need the inputs and outputs and the logic modules "shutter control" and "blind control".
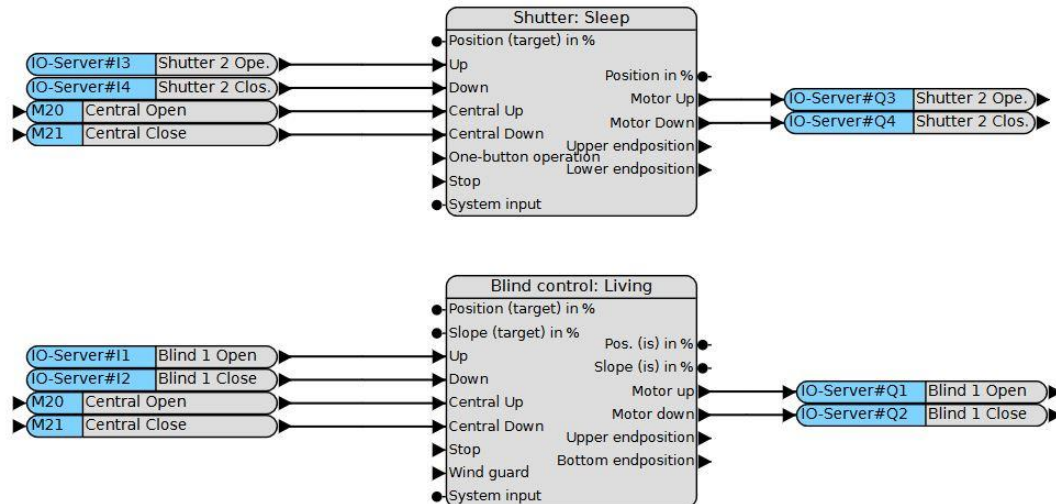
Central functions should be managed in a separate Function plan. You can set the run time directly in the Logic module or use the Auto function to determine the run time.

Digression: Central functions are used for lighting controls as well as shading controls. The control is based on the fact that a impulse is passed on to each affected Function plan via an OR module. Blind control requires the use of a signal with the minimum length of the rotation time instead of a pure impulse.
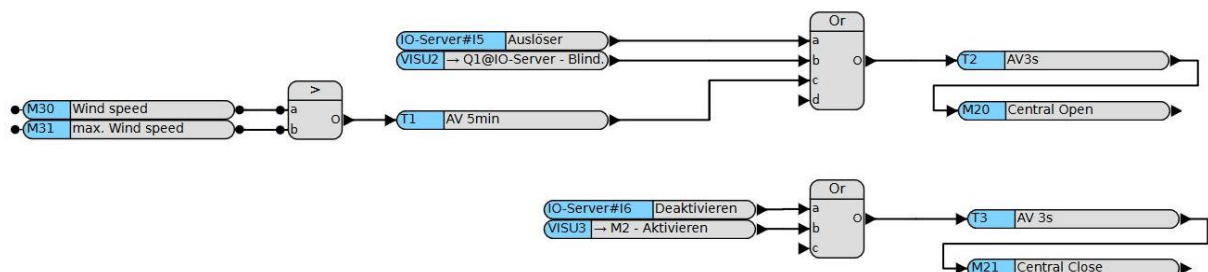
In addition to central pushbuttons, this control system also includes Visu inputs and a wind monitor.

For wind-dependent control of blinds;

In case of exceeding a certain wind force, the blinds must either be raised or blocked (depending on the type). If the Central Up input of the module is permanently assigned a 1, the blind moves to the end position at the top and accepts no further commands. If a 1 is present at Central Up and Central Down, the module is "locked" and therefore does not react to any inputs.

It is recommended to lock the control for a few minutes even after the wind subsides, because even single gusts that exceed the maximum wind force can damage the blind.

The advantages of programming in separate Function plan are obvious:

- One-time programming of the central function instead of multiple programming per Function plan.
- Additional functions can be easily added, e.g. Visu inputs, Calendar functions, etc.
- Central programming avoids overlooking individual Function plans when functions are changed.
- Clearer programming by reducing the number of logic modules per Function plan.

Step 4: Creating the visualisation

In the Visu-Editor you can find the shutter and blind modules in the item shading. Enterprise Search can also be used to search for the names used in the logic.
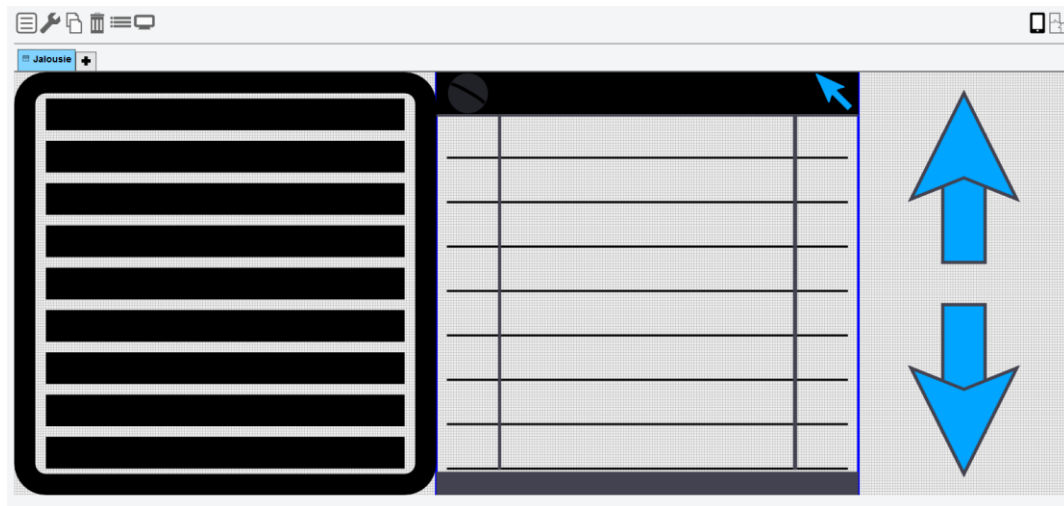
Arrow up and Arrow down are used as Central up and Central down. These are set as visu-input to the markers. The "Direct button function" setting can also be used as an alternative.
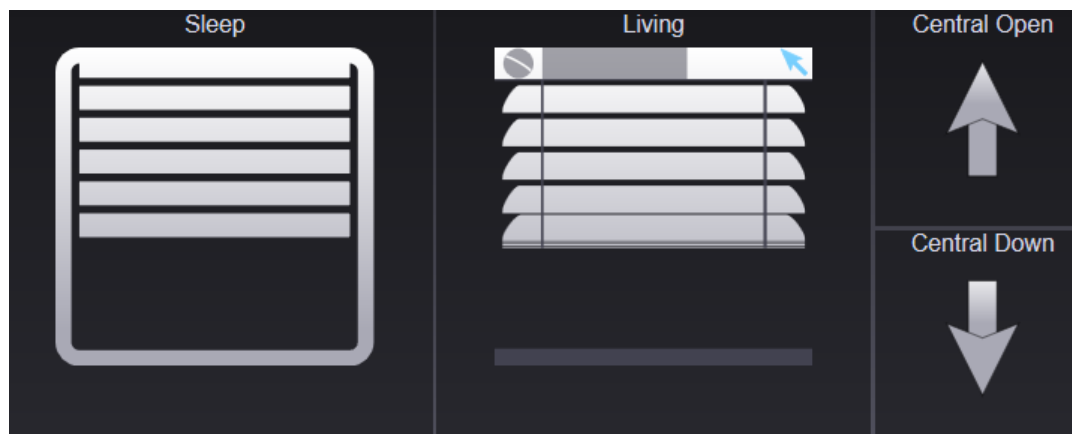
7.3 Light scene

The following steps must be performed during programming:

1. Designation of all used inputs/outputs
2. Creation of the Function plan
3. Generating the logic
4. Creating the visualisation

Steps 1 and 2 are analogous to the power surge circuit programming example. We need the following inputs and outputs:

Inputs:		Outputs:	
I1	All Off	IO-Server	
I2	Welcome/TV	**Q1**	Ceiling light
I3	Light dimmable	Uni-Dimmer	
I4	Light switched	**Q2**	Wall lamp
I5	RGBW	LED-Dimmer	
		Q1-Q4	Indirect lighting

Step 3: Generating the logic

Because the Scene module is two-dimensional, a value must be defined for each output at each scene.

In the Logic, you can assign all scenes and outputs with inputs, but you do not have to. It is possible to switch different scenes only from the visualisation or to store them as a second function for a pushbutton. Indirect lighting is often switched only via scenes, not directly via pushbuttons. Central Off and All Off have the same effect in the room. However, Central Off not only turns off this scene but also the lights in the entire house. Nevertheless, both access the same scene.
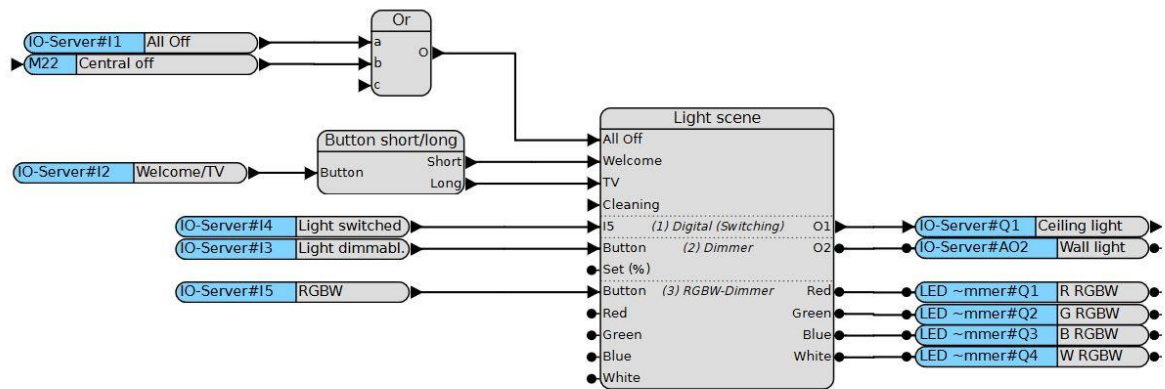
Step 4: Creating the visualisation

It is useful to include all switched lights with a Scene module in a Dashboard. In this way, the storage function can be used optimally, because the values of all affected lights are visible.

7.4 Heating control

The following steps must be performed during programming:

1. Designation of all used inputs/outputs
2. Creation of the Function plan
3. Generating the logic
4. Creating the visualisation

Steps 1 and 2 are analogous to the power surge circuit programming example. We need the following inputs and outputs:

| Inputs:		Outputs:	
		Q1	Heating living
		Q2	Heating kitchen
		Q3	Heating bathroom
		Q4	Heating sleeping

Step 3: Generating the logic

The setpoints are set individually for each room by a Scene module. It is essential to set a scene as default so that the setpoint temperatures are not 0 after a restart. Depending on the type of heating you need more or less scenes. Modern floor heating systems are usually turned off only during very long absences.
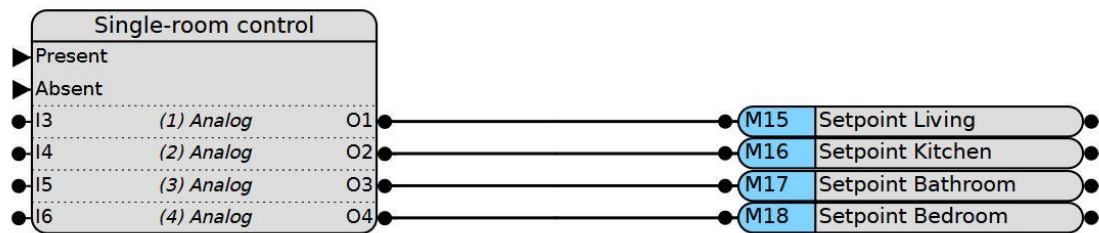

The control of the individual room temperatures takes place in the corresponding Function plan. In this case, either a 2L-Crtl or an analog room temperature controller can be used.
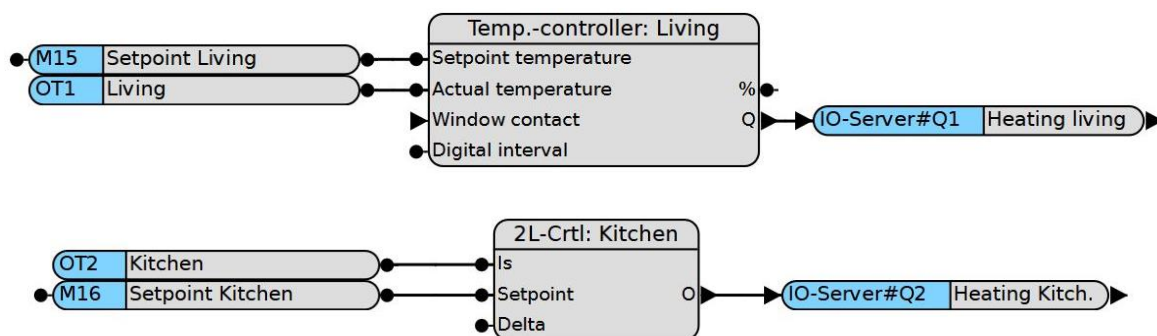
The room temperature controller is suitable for floor heating systems. Further settings for optimization can be made here in the module. The 2L-Crtl can be used for wall heaters.

Step 4: Creating the visualisation

The Visu modules can be found under Control or via Enterprise Search (by function or room name).
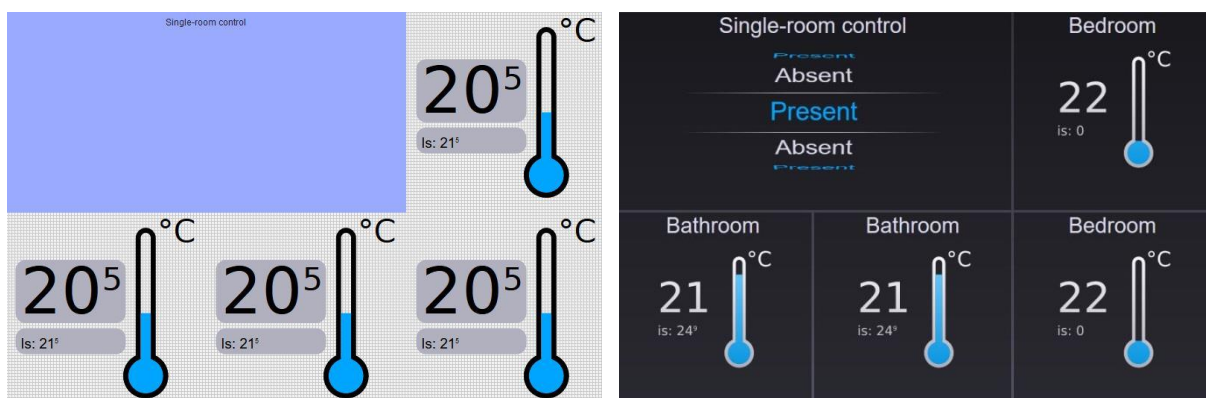
8   Advanced

Besides the integration of KNX and web commands, you will also find a description of the COMEXIO Instruction list.

8.1 KNX

Integrate e.g. EIB/KNX sensors and push buttons into COMEXIO or add logic functions and visualisations to existing KNX installations. You can also use the COMEXIO IO-Server as EIB/KNX IP gateway for programming.

Basically you need the KNX software ETS to integrate KNX participants. Using this, you add a physical address and an application to the respective participant, which contains a corresponding group address.

The KNX monitor can be found in the logic under KNX/EIB. You can open it via the detail button.

Here KNX devices can be added which have been described by ETS with a physical address and/or group address as well as application. The IO-Server can be used here as a gateway for communication between modules and the programming device.

1   Here the KNX bus can be tunneled into the IP-Network in order to be able to program KNX devices with the help of the IO-Server via the ETS in exceptional cases when the KNX gateway is not available.
2   If the check mark is set here, only the KNX group address, not the physical address, is taken into account during programming.
3   Auto preselection: If this is activated, only the applicable type (a selection option) appears in the "Type" field.
4   Add manually: Here you can add a participant.
5   Hide known: Hide known KNX/EIB participants here.
6   Pause: Stops the KNX bus monitor.

7 Switch On/Switch Off: Switch On to find participants.

8 CSV-Upload/-Download: Here the data points of whole KNX projects can be uploaded at once or the list of current KNX data points in COMEXIO can be downloaded.

9 Name: Name of the participant.

10 Type: Select here the type of KNX component, e.g. binary for push button and floating point number for temperature measurement.

11 Subtype: Here you can set the subtype such as "Binary value".

12 Type Id: Displays the used KNX data point (DPT).

13 Send mode: Automatic: sends when the value is changed; Manual: sends only when the KNX trigger of the device is set to "On".

14 Data: The current value or data point is displayed here.

15 Copy function: Here, data points of the same type as the original can be created quickly.

16 Delete: Delete a participant.

17 You can find here all already added EIB/KNX participants, these are then available under the respective "Id".

18 Send type, is only visible when the advanced view is enabled. Shows another field where you can decide if only a logical 1 is sent.

19 Physical address and group address of the KNX participant.

20 The Extended View, i.e. including points 1, 2 and 18, can be activated here.

Teach-in of a pushbutton:

To teach a KNX participant, the KNX monitor must be activated (see button 12 above). If a button is pressed, it appears in the display of the KNX participants. When you define the subtype, the station is saved and an input is created for this pushbutton. Alternatively, if you know the groups and physical addresses of the pushbutton, you can create it using the "Add manually" button.

Supported EIB/KNX data points:

-DPT 1	-DPT 3	-DPT 5
-DPT 6	-DPT 7	-DPT 8
-DPT9	-DPT 10	-DPT11
-DPT12	-DPT 13	-DPT 14
-DPT 17	-DPT 18	-DPT 19

KNX trigger function:

KNX triggers are able to send a 1 or 0 again without changing the value of the group address. In COMEXIO, such a function is generally not needed for the data points. This function can be used if, for example, you want to control a KNX dimming actuator, shutter actuator or a scene. To do this, you must change the transmit mode to manual in the KNX monitor for the respective data point.

> **Note:** If the transmit mode is set to "Manual", a telegram is only sent with a change of the KT (KNX trigger) (if only the state of K1 changes, no telegram is sent).

Physical Address	Group Address	Name	Type	Subtype	TypeId	Send mode	Data	
● 1.1.1	0/2/1	stop	Binary (DPT1) ⌄	Binary Value (1.006)	1.006	Manual⌄		Delete

Now you get in the graphical programming under "KNX triggers" the corresponding KNX triggers, abbreviated with "KT". Please note that the trigger for K1 does not necessarily have to be KT1. Here you have to pay attention to the group address for the assignment.
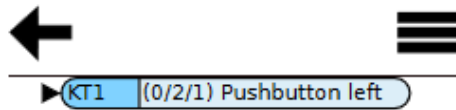
Functional principle: K1=1 and KT1 is set then K1 sends again a 1

K1=0 and KT1 is set then K1 sends a 0

Time data points:

When using time data points, there are two variants:

1. Using the auto function: When using the auto function, the IO-Server obtains its system time from the KNX bus. This time can come, for example, from a GPS-supported weather station. The use is especially advantageous when using COMEXIO without internet connection.

2. Using the manual function: With the manual function, the system time of the COMEXIO system is transferred to the KNX bus, e.g. to supply intelligent pushbuttons that have a time display with the correct time or to set integrated Calendar functions to the correct time even after a power failure. This function is recommended if the KNX bus does not have direct access to the correct time.

8.2 Web IO

Informations about Web IO can be found in the developer's manual.

8.3 API

Informations about API can be found in the developer's manual.

8.4 COMEXIO IL

COMEXIO IL has been discontinued. Please use the COMEXIO InApp. More informations about the InApp can be found in the developer's manual.

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