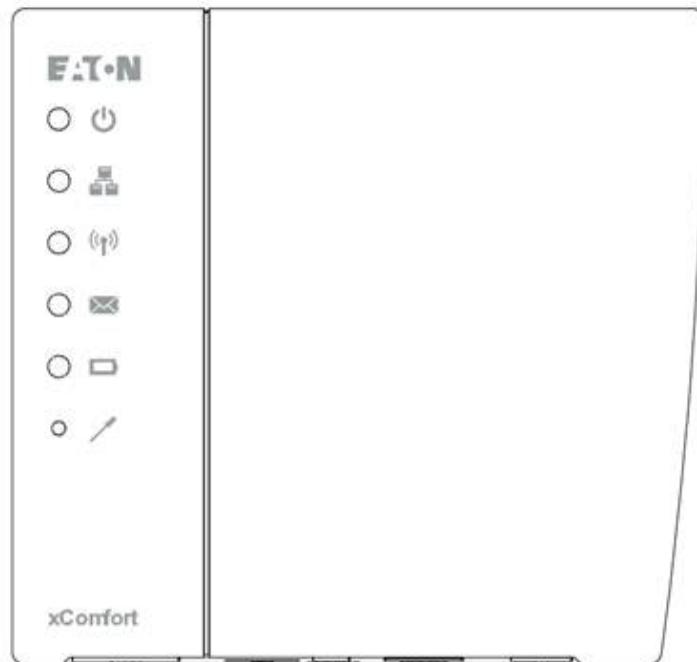


# Smart Home Controller



## WebAdmin Help

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# 1. System

!-> **If you are new to the System**, start with chapter 10 How things work to understand the principles about how the Smart Home Controller use the available xComfort devices to offer the functionalities in Zones. This will directly affect the way the User can control his home.

!-> **If you are already familiar with the system**, you can start directly with the installation and the quick setup steps below.

xComfort MRF Project installation steps:

1. Make a plan of all the functionality in Zones needed. For example:
  - a. Control you lights by Scenes buttons.
  - b. Use the planner to control your lights by time.

- c. Use Macros to control your lights by events and conditions.
  - d. Connect and control Shutters or Shading if present.
  - e. Control the temperature of a room if possible.
  - f. Make use of cameras if needed. Check which vendors are supported.
2. Open the MRF Tool and create a MRF project.
  3. Scan the network for xComfort Devices.
  4. Configure the Device Settings if needed. For example:
    - a. Door (Switch) Actuator: Function: Off / On with switch off delay.
    - b. Shutter Actuator: Runtime.
    - c. Dimming Actuator: Dimming time, Dimming limits.
    - d. Binary Inputs: Mode 2, Cyclic sending.
    - e. Analog Inputs: 0 10V, Cyclic sending.
    - f. Temperature Sensors: Send Temperature value, Cyclic sending. Per default the Climate Function expects within every hour a temperature value. Set cyclic sending value to 55 minutes.
    - g. Room Controller: Send Temperature value, Send Humidity value, Cyclic sending. Per default the Climate Function expects within every hour a temperature value. Set the protection timeout in the Climate Function to 6 hours. See chapter 9.2 Climate Function.
  5. Connect the needed xComfort Devices to the Smart Home Controller.



**ATTENTION! To maintain the correct status of the Actuators it is important to connect all xComfort Actuators directly to the Smart Home Controller or an ECI.**

6. Specify a clear name for each Device.
7. Scan reception quality of all devices. Calculate and check all connections.
8. Load the configuration into the devices.
9. Create datapoint-file for the SHC and select Transmission: download by RF.
10. Save project.

Follow the quick setup steps for the basic setup of the Smart Home Controller. Find additional information in the next chapters.

Quick setup steps:

- Import Data Points
- Adjust available Devices
- Create Users
- Set Time Zone
- Activate the Smart Home Controller
- Create Zones and assign available Devices (To be able to add cameras to Zones, Cameras need to be added to the system first)
- Enable and setup needed Functions
- Download and connect the App (IOS)
- IOS App Function settings

## 1.1. Datapoints

Per default, the Internal RF-module of the SHC is used. If needed add additional ECIs to extend the xComfort network first. Page overview:

- Left side: The already Configured RF Interfaces
- Right side: Possibility to Add new ECI RF Interfaces

### 1.1.1. Add ECI RF Interface

Supported xComfort RF Interfaces:

- **ECI:** Ethernet Communication Interface: CCIA-xx/xx

Steps:

1. Define Interface Name: **ECI 1**
2. Specify IP Address: **<xxx . xxx . xxx . xxx>**
3. Click: **Save**
4. Repeat previous steps for each interface
5. Finally import the datapoints from the interfaces: **Import Data Points**

### 1.1.2. Import Data Points

Import the Data Points if the xComfort network is changed and the Data Points are uploaded to the Smart Home Controller (or

ECI) via MRF. This is indicated by the status message (in red) **DataPoint Lists need to be imported**.

Steps:

1. The status indicates (in red): **DataPoint Lists need to be imported**
2. Click: **Import Data Points**
3. Please wait until the popup shows the process is ready!
4. Click: **OK**
5. Status indicates: **DataPoint Lists are Up-To-Date**

### 1.1.3. **No Data Points available?**

If no Data Points are available in the Smart Home Controller the Data Point file needs to be created in the Smart Home Controller and/or ECI(s) via MRF. Important: Data Point file creation must be done as a separate step after loading a new configuration in the Smart Home Controller or ECI.

Steps:

1. Open the MRF Project
2. Be sure the Device configurations are loaded into all the devices
3. Right-mouse-click on the SHC (or ECI) and select: **Load device new**
4. Right-mouse-click on the SHC (or ECI) and select: **Create datapoint-file**
5. Select Transmission: **download by RF**
6. Click: **OK**
7. Wait until the datapoint file is uploaded. In case of a failure, please reduce the RF traffic as much as possible and retry.
8. Repeat steps 3-7 for each ECI in the project
9. The status indicates (in red): **DataPoint Lists need to be imported**  
(To get the actual status press the refresh button of the browser)
10. Click: **Import Data Points**
11. Please wait until the popup shows the process is ready!
12. Click: **OK**
13. Status indicates: **DataPoint Lists are Up-To-Date**

## 1.2. **Devices**

### **Good to know!**

During the import of the datapoint list the Data Points will be automatically translated to Functional Devices. Based on the purpose of Devices the Functions will know exactly if they can offer their functionality in this Zone where this Device is available. Please read chapter 10.1 Understand the Smart Home Controller concept if more information is required.

### 1.2.1. **Device settings**

Per default the imported devices gets the name and the purpose automatically assigned. Change the Device settings in case:

- The Device Name should be different
- The Device Purpose is not defined or should be different
- A unit needs to be specified (Impulse Counters, Analog Inputs)
- A ratio needs to be specified (Impulse Counters)
- Inverse working of a Door or Window Sensor (Binary Sensors)
- Customized State Names (Binary Sensors)

Steps:

1. Select one Device of the available Devices on the left
2. Change the Device parameters
3. Click: **Save**
4. Repeat previous steps for each Device
5. If finished, Click: **Activate**
6. Wait until the popup window shows the OK button
7. Click: **OK**

### 1.2.2. **Impulse Sensor ratio calculations for Energy Sensors**

To show the correct values the ratio must be set for each Impulse Sensor. To determine the ratio check the specified output rate of the pulse output of the measuring device. For example:

- kWh meter: 10 pulses is 1kWh -> Ratio = 10
- Water meter: 100 pulses is 1M3 -> Ratio = 100.

### 1.2.3. **Examples Device Function**

Find below some examples of Devices with their possible Function explained.

### Impulse Input CIZE-02/01

Device Function per channel	Purpose
Electric	Energy Meter in a Zone (Only for overview and history)
Electric Production	Energy produced by a local system in a Zone (Only for overview and history)
Electric Consumption	Energy consumer in the Zone (Used for TOP consumers overview in the Zone)
Electric Main Production	The Main PV Installation in the building (Used for statistics)
Electric Main Consumption	The Main Electricity meter in the building (Used for statistics)
Gas	The Main Gas Meter in the building (Used for statistics)
Water	The Main Water Meter in the building (Used for statistics)

### EMS CEMx-01/01

Device Function (Energy)	Purpose
Production	Energy produced by a local system in a Zone (Only for overview and history)
Consumption	Energy consumer in the Zone (used for the TOP consumers in the Zone)
Main Production	The Main PV Installation in the building (used for statistics)
Main Consumption	The Main Electricity meter in the building (used for statistics)

### Switch Actuator CSAx-02/xx

Device Function	Purpose
None	General actuator used in Macro, Scene and Status & Control Function
Heating	Climate Function: Heating actuator switches Zone based on heating
Lighting	Light actuator in the Zone supported by many Functions
Valve	Climate Function: Valve actuator switches Zone based on heating and cooling
Cooling	Climate Function: Cooling actuator switches Zone based on cooling
Door	Camera and Status & Control Function: Door Actuator to activate door openers
Main Heating	Climate Function: Switches central Heater of the building on heating request Zones
Main Cooling	Climate Function: Switches central Cooling system of the building on cooling request Zones

Most of the Devices are specifically used by the Climate Function. Each Heating Device added to the Zone for example will automatically be controlled by the Climate Function.

See for configuration examples chapter 9 Functions.

## 1.3. History

Use this page to backup and restore the Device History data. Also the History data can be deleted per Device if the device is reused.

Page overview:

- Left side: Delete the History Data of a Device
- Right side: Backup/Restore History Data

### 1.3.1. Delete Device History Data

Steps:

1. Select one Device of the available Devices on the left
2. Click: **OK**

### 1.3.2. Backup Device History Data

Steps:

1. Click on the right side: **Get History**
2. Save this file on disk following the standard procedure for the used browser

### 1.3.3. Restore Device History Data

Steps:

1. Select the backup file:
2. Click: **Restore**

## 1.4. Cameras

To be able to add cameras to Zones, Cameras need to be added to the system first.

Page overview:

- Left side: The already Available Camera Home Devices (Delete Cameras)
- Right side: All at this moment found Available UPnP Network Devices (Not only Cameras)

Steps:

1. Search for the needed local camera in the list: Available UPnP Network Devices
2. If the camera is found in the list, click: **Use** (Otherwise skip this step and define the address and port manually)
3. Update or define the following parameters:
  - a. Name: **<Name of the camera>**
  - b. Address (Internal/External IP address or URL): **<192 . 168 . 178 . 63>**
  - c. Port: **<8080>**
  - d. Username: **<username>**
  - e. Password: **<password>**
  - f. Select appropriate Driver
4. Click: **Add**
5. Repeat previous steps for each camera
6. The created cameras are now available to add to Zones

## 1.5. Users


**First: Change always the default admin password!**

Read also chapter 1.5.4 Best way to setup users.

Page overview:

- Left side: Available Users (Change User options, delete User)
- Right side: Possibility to Add new Users

### 1.5.1. **Change the admin password**

1. Click for User admin the Change Password Icon: 
2. Change and remember the password
3. Click: **Ok**
4. Change the language if needed (Used for the Admin Console)
5. To enable remote access\* for the admin, check option: **Remote**


\*Remote access is only possible when Remote Access activated flag in the section 1.8 is enabled

### 1.5.2. **Setup steps per User**

1. Specify User credentials:
  - a. Username: **<Username>**
  - b. Password: **<Password>**
  - c. Retype Password: **<Password>**
2. Select: **Language**
3. Click: **Add**
4. The new User is shown in the list of Users
5. For Advanced User check option: **Advanced**
6. To enable remote access\*, check option: **Remote**

\*Remote access is only possible when Remote Access activated flag in the section 1.8 is enabled

### 1.5.3. **Setup Zones and Functions (Hide and Order) per User**

1. Click for the User the Change Order Icon: 
2. The Change Order popup appears
3. Make the necessary changes to this user:
  - a. Hide Zones by unchecking the checkboxes (Disabled for Advanced Users)
  - b. Hide Functions by unchecking the checkboxes (Disabled for Advanced Users)
  - c. Change order of Zones with the arrow buttons
  - d. Change order of Functions with the arrow buttons
4. Click: **Ok**

### 1.5.4. **Best way to setup users**

The following type of Users exists in the system:

- **admin**: Only this user can access the Web Admin Console via a web browser (Normally used only by the Installer or Owner). This User can also create and manage additional Users with language, advanced and remote access per User.
- **Normal User**: The option Advanced is **NOT** set for this User.  
This User can only control the system with the available controls shown in the Functions (For example children or

guests). Use the Change Order button to hide Zones and Functions for this User.

- **Advanced User:** The option Advanced is set for this User.

This User (For example parents) can also edit some Function configurations via the App, like:

- Add, change or delete a Scene.
- Switch between Heating/Cooling/Off.
- Change the predefined temperature setpoints.
- Program Planner events.
- Enable, Disable or delete a Macro.

Define Users based on the following questions:

- Who will make small changes in the Function configurations?  
Advanced User (Enable Advanced).
- Who needs to control Functions only locally?  
Normal User.
- Who needs to control Functions locally and remotely?  
Normal User (Enable Remote).
- Who needs to have the menu and Functions presentation in another language (Own defined Scene names are not translated)?  
Normal User (Select Language).
- Which Functions and Zones do I need to hide for this User?  
Normal User
- How to present the order of the Zones and Functions?  
Normal User, Advanced User

It is not necessary that everyone needs his own account. But create always the following accounts:

1. One general Normal User account with or without Remote access.
2. One Advanced User account with Remote access.

---

 **ATTENTION! Be careful providing account information to persons. With wireless network access this person could also control Door Actuators from the outside of the building.**

---

## 1.6. Time Zone

The Smart Home Controller time is automatically set if there is internet access. Otherwise set the time and date by hand. For the correct Sunrise and Sunset calculation the correct Country and City must be selected.

Page overview:

- Left side: The Time Zone Settings
- Right side: Possibility to change the Time Zone Settings

Setup steps:

1. Select: **Country**
2. Select: **City**
3. Select: Date and Time
4. Save settings: **save**

## 1.7. Network

Per default DHCP is enabled on the SHC. Follow the steps to assign a Static IP Address to the Smart Home Controller.

**Remark! Only change to Static IP Address if absolutely necessary. In case of failures use chapter 11.3 How to restore the SHC network settings.**

Setup steps:

1. Uncheck: DHCP enabled
2. Per default, the configuration fields are prefilled with the settings provided by DHCP. Check or update the IP Address.
3. Check or update the Gateway (Change the name into the IP Address of the Gateway).
4. Click: **Save**

## 1.8. Remote Access

The Remote Access features offers you the possibility to receive software updates for your Smart Home Controller and access your system from anywhere in the world. To have Remote Access available you need to activate the SHC and enable the Global Remote Access .

Setup steps:

1. Check if there is Internet Access: **Connection status: Connected to Internet**



2. Select: **Activate**
3. Accept Terms And Conditions: **Accept**
4. Wait until the popup closes
5. Remember the received Remote Access ID to connect remotely
6. Enable: **Global Remote Access**

## 1.9. Messages

Via the Macro Function, notifications can be send via:

- Wireless (SMS): Send SMS messages via Clickatell.
- Mail: Send email messages via an email provider. This can also be a Gmail account.

SMS notifications can be send via the Clickatell SMS Gateway.

See for more information and pricing: <http://www.clickatell.com>

Steps to create a Clickatell SMS account (In general. Subject to changes):

1. Go to: <http://www.clickatell.com>
2. Create account (Remember Username and Password)
3. Buy credits
4. Go to page: **Central Home**
5. Click: **Create a new Connection**
6. Select: **HTTP**
7. Fill-in description: **HTTP API**
8. Click: **Submit and Get API ID** (Remember API ID)
9. Go to page: **My Settings**
10. Select: **Manage Sender IDs**
11. Select: **Add Sender ID**
12. Fill-in your mobile phone number: **31612345678** (Remember Sender Address)
13. Click: **Submit**

Setup and test Wireless (SMS) notification account:

1. Fill-in Server Address: **http://api.clickatell.com/http/** (Default)
2. Username: (From Clickatell Account)
3. Password: (From Clickatell Account)
4. System Type/API ID: (Created API ID)
5. Source/Sender address: **31612345678** (Created Sender ID)
6. Click: **Save**
7. Test the account settings:
  - a. Set phone number of the receiver: **31611111111**
  - b. Click: **Test**
  - c. Check for SMS message: **Test message Smart Home Controller**

Setup and test Mail notification account (Gmail example):

1. Create a Gmail account via: <http://mail.google.com>
2. Fill-in SMTP Server Address: **smtp.gmail.com**
3. Fill-in Server Port: **587**
4. Username: (From Gmail Account)
5. Password: (From Gmail Account)
6. E-mail Address: **yourname@gmail.com**
7. Connection Type: **TLS**
8. Click: **Save**
9. Test the account settings:
  - a. Set mail address of the receiver: **someone@provider.com**
  - b. Click: **Test**
  - c. Check for Mail message: **Test message Smart Home Controller**

## 1.10. Backup/Restore

Use this page to backup and restore the Smart Home Controller system configurations. **Remark! Datapoints in the RF Module are not part of the backup and restore. Only via MRF the datapoint-file can be restored via RF locally.**


### 1.10.1. Backup System Configurations

Steps:

1. Click: **Backup**
2. Save this file on disk following the standard procedure for the used browser

### 1.10.2. **Restore System Configurations**

Steps:

1. Select the backup file:
2. Click: Restore
3. Wait until the popup window shows the OK button
4. Click: Ok
5. The Power Led on the Smart Home Controller will become green if finished: 

## 1.11. **Firmware**

This tab gives general information including installed software versions and supported languages.

Item	Information example
Uptime	08:20:58 up 40 days, 22:13, 0 users, load average: 1.11, 0.81, 0.73
Hardware version	Freescale i.MX28 (Device Tree)
OS version	Linux 3.7.0-theobroma-00023-gd6b7d2a armv5tejl
SHC software version	Eaton-SHC-7.1.1-1.1.5
RF module firmware version	1.10
Language package version	0.2.11
Languages	English, Czech, German, French, Italian, Dutch, Norwegian, Polish

### 1.11.1. **SHC software update**

In case the Smart Home Controller is activated and a newer software release is available a Update button will become visible.

Steps:

1. Make a Backup of the History Data and System Configuration
2. Click: **Update to: <version>**
3. Please wait until the popup shows the process is ready! This will take several minutes.
4. Click: **OK**

### 1.11.2. **SHC software rollback**

In case the Smart Home Controller software is updated the previous release will become available for rollback. Perform a rollback only if the new release is not working correctly.

Steps:

1. Click: **Rollback to: <version>**
2. Please wait until the popup shows the process is ready! This will take several minutes.
3. Click: **OK**

### 1.11.3. **RF module firmware**

After an SHC Software update a new version of the RF module firmware could become available. Always install the new firmware in this case the Update button is available.

In case of a SHC software rollback the previous firmware will become available for update. Only update to the previous firmware version if absolutely necessary.

Steps:

1. Click: **Update to: <version>**
2. Please wait until the popup shows the process is ready!
3. Click: **OK**

### 1.11.4. **Set system back to factory default**

**Remark! All data will be lost! Only the datapoints and RF password remains in the RF Module.**

Use this recovery method only in case a fresh configuration is needed. Otherwise use the Restore System Configurations.

Steps:

1. Only proceed if you have a Smart Home Controller Configuration backup available!
2. Click: **Apply**
3. Read the popup box information

4. Click: **OK**

### 1.11.5. **Set internal RF Module back to factory settings:**

**Remark! All datapoints and the RF password in the RF Module will be lost and can only be reprogrammed locally via the MRF.**

Use this recovery method only in case the SHC RF Module is not accessible via MRF (Question mark or password unknown).

Steps:

1. Only proceed if you're able to reprogram with MRF locally!
2. Click: **Apply**
3. Read the popup box information
4. Click: **OK**

### 1.11.6. **Reboot system:**

**Remark! A reboot will take several minutes.**

The Power Led on the Smart Home Controller will become green if finished: 

## 2. Zones

**Good to know!**

Based on the purpose of Devices the Functions will know exactly if they can offer their functionality in this Zone where this Device made available.


**Important!:** Before creating zones in the Smart Home Controller first define together with the end-user (Customer) how, which zones, the system should be organized. Please read chapter 10.1 Understand the Smart Home Controller concept if more information is required.

As defined with the Customer create the Zones and add the Devices to their Zones. Create general Zones if needed.

Page overview:

- Left side: Devices already in the selected Zone
- Right side: All available Devices not in this Zone

Steps:

1. Click: **New**
2. Define a Zone name and click: **OK**
3. Select one or more Available Devices on the right side (Hold shift or ctrl):
4. Click to add the selected Devices to the Zone: 
5. Added Devices are shown in the left screen
6. Repeat all steps for each Zone

## 3. Functions

Based on the devices which are put into the Zone the Smart Home Controller will determine which Functions are available (possible). Per default new Functions are disabled. Enable for each Zone the Function needed by the Customer.

Find detailed information about Functions and Function properties in chapter 9 Functions.

Steps:

1. Select the Zone (Per default the Functions are disabled)
2. Enable the needed Functions for this Zone (Function properties appears)
3. Adjust specific properties if needed (See chapter 9 Functions)
4. Repeat all steps for each Zone

## 4. Planner

Via the Planner, Planner Events can be scheduled to control Functions time based. To understand the event driven mechanism of the Smart Home Controller please read chapter 10.5 How to use: Scenes, Macros and Planner.

**Remark! The Climate and Shading Functions needs to be set to Auto to be controlled by Planner Events.**

Steps to schedule a Planner Event:

1. Select the Function (On the left side the Zones for this Function are presented)
2. Click on the Zone name in which a planner event needs to be scheduled  
(or Click: **New Event** and select the Zone)
3. Select Event: **<Supported Function event>**  
Example Climate Function: **Protection, Comfort, Economy, Standby**
4. Select Mode: **<Time, Sunrise, Sunset>**
5. Set Time
  - a. Time: **<Hour, Minute>** (The exact time)
  - b. Before/After: **<Minute>** (Offset in minutes before or after Sunrise/Sunset)
6. Select the Days of the week
7. Click: **Save**

#### Steps to edit a Planner Event:

1. Select the Function (All known events for this Function are presented)
2. Select the event to be changed or deleted
3. Make changes and click: **Save**  
(To remove this event click: **Delete**)




## 5. Scenes

Scene buttons can be created per Zone, which will show up in the GUI. Beside the Scenes buttons, Scenes can also be triggered by xComfort Sensor Devices like Push Buttons and contacts.

A Scene is based on:

- Events: Standard the Scene button will trigger the Scene. In addition, one or more xComfort Device Events can trigger the Scene. The Planner can also trigger the Scene directly.
- Actions: List of defined Actions to be executed, if the Scene is triggered.





Type of Actions:

-  Control a Function in a Zone (Example Climate Function):  
Set Climate Function in mode: **Protection, Comfort, Economy, Standby**
-  Device operation (Example DimActuator):  
Send a command to an Actor: **darker, brighter, stop, switchOff, switchOn**
-  Device property (Example DimActuator):  
Send a value to an Actor: **level = 0 - 100%**

Scenes can be created in two ways:





- Create Scene: Add Events and Actions manually.
- Create Light Scene: Set all Light and Dim Actuators in the Zone in the preferred state and create a Light Scene. This Light Scene will add all Light and Dim Actuators with their state to the Action list automatically. The User can update the Scene manually afterwards.

#### Steps to create a Scene:

1. Select the Zone
2. Define a Scene name (Is also the button name): **<New Scene>**
3. Click: **Add Scene**
4. Click on the new created entry in the list of scenes:  **<New Scene>**
5. Click in the opened sub tree, the folder:  **Actions**
6. On the right side a list is presented: **Available Actions**
7. Select the needed item and drag this in the folder **Actions** on the left side
  - a. Example: Dialog Add action:  **Control Function: <Zone>**
    - 1) Select **Function** name
    - 2) Select **Event** name
    - 3) Click: **ok**
  - b. Example: Dialog Add action:  **<Device name>: operation**
    - 1) Select **Command** name: **darker, brighter, stop, switchOff, switchOn**
    - 2) Define **Execution delay** if needed (delay relative to the previous action)
    - 3) Click: **ok**

- c. Example: Dialog Add action:  **<Device name>: property**
  - 1) Select **Command** name: **level**
  - 2) Set **property** value: 0 100%
  - 3) Define **Execution delay** if needed (delay relative to the previous action)
  - 4) Click: **ok**
8. Repeat the previous step for each additional needed action
9. Follow the next steps if additional Scene triggers are needed:
10. Click in the Scene sub tree, the folder:  **Events**
11. On the right side a list is presented: **Available Device Triggers**
12. Select the needed item and drag this in the folder **Events** on the left side
  - a. Example: Dialog Add trigger event:  **<Device name>: state**
    - 1) Select **Command** name
    - 2) Define property value
    - 3) Define **Execution delay** if needed
    - 4) Click: **ok**
13. Repeat the previous step for each additional needed trigger

#### Steps to create a Light Scene:

1. Select the Zone
2. Set all Light and Dim Actuators in the Zone in the preferred state
3. Define a Scene name (Is also the button name): **<New Scene>**
4. Click: **Add Light Scene**
5. Click on the new created entry in the list of scenes:  **<New Scene>**
6. Click in the opened sub tree, the folder:  **Actions**
7. Find the list of all found Light and Dim Actuators. Add or Remove devices if needed
8. Follow the next steps if additional Scene triggers are needed:
9. Click in the Scene sub tree, the folder:  **Events**
10. On the right side a list is presented: **Available Device Triggers**
11. Select the needed item and drag this in the folder **Events** on the left side
12. Dialog Add trigger event (example):  **<Device name>: state**
  - a. Select **Command** name
  - b. Define property value
  - c. Define **Execution delay** if needed
  - d. Click: **ok**
13. Repeat the previous step for each additional needed trigger

Find extra options in the Right click mouse popup menu:

- Test Scene
- Enable/Disable Scene
- Edit Item
- Delete Item




## 6. Macros

With Macros, additional functionality can be added to the system.



A Macro is based on:

- Events: One or more xComfort Device Events can trigger the Macro. The Planner can also trigger the Macro directly.
- Conditions: Define xComfort Device conditions and Time periods to be met, before the Actions will be executed. If no Condition is defined, the condition is met.
- Actions: List of defined Actions to be executed, if the Macro is triggered and the Conditions are met.

Type of Actions:

-  Control a Function in a Zone (Example Climate Function):  
Set Climate Function in mode: **Protection, Comfort, Economy, Standby**
-  Device operation (Example DimActuator):  
Send a command to an Actor: **darker, brighter, stop, switchOff, switchOn**
-  Device property (Example DimActuator):

Send a value to an Actor: **level = 0 - 100%**

-  Send text message via SMS
-  Send text message to multiple E-Mail addresses

#### How Conditions work:

Conditions are checked sequential, from top to bottom.

For example:

1. Condition1
2. AND Condition2
3. OR Condition3
4. AND Condition4

The next condition will be compared with the previous one.



In case of an AND condition, the previous condition must be fulfilled also.

In case of an OR condition, the previous condition does not matter.


The notation of this example is:

**(Condition1 AND (Condition2 OR Condition3) AND Condition4)**

In case of an Time Period Condition the condition is met between the Start and the End time. If the condition continues into the next day (like Sunset Sunrise), two conditions needs to be defined. For example:

- 1)  **Time period: Sunset - 23:59 (All Days)**
- 2)  **OR Time period: 00:00 - Sunrise (All Days)**





#### Steps to create a Macro:

1. Select the Zone
2. Define a Macro name: **<New Macro>**
3. Click: **Add Macro**
4. Click on the new created entry in the list of macros:  **<New Macro>**
5. Follow the steps to add Events
6. Follow the steps to add Conditions
7. Follow the steps to add Actions

#### Steps to add Events to the Macro:








1. Open the sub tree of the macro:  **<Macro>**
2. Click on the folder:  **Events**
3. On the right side a list is presented: **Available Device Triggers**
4. Select the needed item and drag this in the folder **Events** on the left side
  - a. Example: Dialog Add trigger event:  **<Device name>: temperature**
    - 1) Select operator: =, <, >, <=, >=
    - 2) Define property value
    - 3) Click: **ok**
5. Repeat the previous step for each additional needed trigger

#### Steps to add Conditions to the Macro:

1. Open the sub tree of the macro:  **<Macro>**
2. Click on the folder:  **Conditions**
3. On the right side a list is presented: **Available Device Conditions**
4. Select the needed item and drag this in the folder **Conditions** on the left side
  - a. Example: Dialog Add Condition:  **Time period**
    - 1) Start condition (Skip for the first one): **<AND/OR>**
    - 2) Set Start Time: **<Time, Sunrise, Sunset>**  
(For Sunrise/Sunset is minutes the offset before or after)
    - 3) Set End Time: **<Time, Sunrise, Sunset>**  
(For Sunrise/Sunset is minutes the offset before or after)
    - 4) Select the Days of the week
    - 5) Click: **ok**
  - b. Example: Dialog Add Condition:  **<Device name (Channel A)>: state**
    - 1) Select condition (Skip for the first one): **<AND/OR>**
    - 2) Select operator: **equals**

- 3) Select state: **<OPEN/CLOSE>**
- 4) Click: **ok**
5. Repeat the previous step for each additional needed condition

#### Steps to add Actions to the Macro:

1. Open the sub tree of the macro:  **<Macro>**
2. Click on the folder:  **Actions**
3. On the right side a list is presented: **Available Actions**
4. Select the needed item and drag this in the folder **Actions** on the left side
  - a. Example: Dialog Add action:  **Control Function: <Zone>**
    - 1) Select **Function** name
    - 2) Select **Event** name
    - 3) Click: **ok**
  - b. Example: Dialog Add action:  **<Device name>: operation**
    - 1) Select **Command** name: **darker, brighter, stop, switchOff, switchOn**
    - 2) Define **Execution delay** if needed (delay relative to the previous action)
    - 3) Click: **ok**
  - c. Example: Dialog Add action:  **<Device name>: property**
    - 1) Select **Command** name: **level**
    - 2) Set **property** value: 0 100%
    - 3) Define **Execution delay** if needed (delay relative to the previous action)
    - 4) Click: **ok**
  - d. Example: Dialog Add action:  Send message: SMS
    - 1) To (Phone number): **+31611111111**
    - 2) Define **Message**
    - 3) Click: **ok**
  - e. Example: Dialog Add action:  Send message: Mail
    - 1) To (Email address): [name1@gmail.com](mailto:name1@gmail.com)  
Multiple Email addresses: [name1@gmail.com](mailto:name1@gmail.com), [name2@gmail.com](mailto:name2@gmail.com)
    - 2) Define **Subject**
    - 3) Define **Message**
    - 4) Click: **ok**
5. Repeat the previous step for each additional needed action

Find extra options in the Right click mouse popup menu:

- Test Macro
- Enable/Disable macro
- Edit Item
- Delete Item

## 7. Diagnostics

### 7.1. Status bar: Indicators and colors



In the top bar the following status indicators are shown:



Network status:

- Green: Connected to the Remote Server
- Yellow: Connected to Internet
- Red: No Internet connection



Battery status battery powered Devices:

- Green: All batteries are good
- Yellow: One or more batteries are weak
- Red: One or more batteries are empty



RF Interface status:

- o Green: All configured Interfaces are up
- o Red: One or more Interfaces are down



New Messages available in the System Log:

- o Green: No new messages after the last check
- o Yellow: New Warning messages
- o Red: New Error messages

## 7.2. Device Status

Find in the Device Status tab an overview of all known devices. For Battery powered Devices the Battery Status is provided.

In front of the name the following Device status information is provided	
*	No messages received yet from this Device.
!	Attention is needed for this Device. Check the Battery Status.

## 7.3. Device Recording

For investigation or statistics the Device Recording can be enabled for one or more Devices. The selected Devices in the list are in record mode.

Maximum number of records: 10000 (5 files of 2000 records)

All selected devices will log into the same buffer.

Buffer type: Circular buffer (If buffer is full new entries overwrites the oldest data)

The Record files can be downloaded via the [Record Files](#) link in the right bottom corner of the screen.

Steps to enable/disable recording:

1. Select one or more available Devices (Hold shift or ctrl)
2. To enable the recording click: **Record**
3. All other unselected devices are not recording

Steps to disable all recording:

1. Select only (None) in the list of devices
2. Click: **Record**

## 7.4. System Log

Always check for the log messages if the system does not work properly.

Log messages are indicated with a Log Level indication:

Log Level indication	
<b>Warning</b>	The System has discovered a temporary issue. All System functions are fully operational.
<b>Minor</b>	The System has discovered some limited functionality at this moment. Major System functions still work. Actions needs to be taken if the message is logged more often.
<b>Major</b>	The System is operational but exhibits serious shortcomings; a patch / workaround is possible; situation requires urgent solution.
<b>Critical</b>	The System cannot be used; it has critical impact on the environment where it is applied; requires immediate solution. There is no workaround possible.

Log message examples	Level	Interpretation
No temperature value received	Warning	The Climate Function in this Zone missed a temperature event from the Temperature Sensor and will wait for the next event. Per default the Climate Function expects every 55 minutes a temperature from the sensor. Possible causes: <ul style="list-style-type: none"> <li>- Missed an event due to traffic</li> <li>- The Sensor is not set to cyclic sending of 50 minutes</li> <li>- The Climate Function protection Timer needs adjusted</li> <li>- The Sensor battery is empty</li> <li>- The Sensor is out of reach</li> </ul>
Timeout. Sending retry to the device	Warning	The Smart Home Controller could successfully reach the Device after resending of the command.
Timeout. No response received	Warning	The Smart Home Controller tried several times to reach the Device but did



from device. Check RF network		not receive any acknowledgement from the Device.
Device not responding. Check RF network	Minor	The Smart Home Controller tried several times to reach the Device but did not receive any acknowledgement from the Device.
Remote access available via Remote Server Connected to Internet but no Remote Server Remote Server disconnected	Warning	These messages could sometime be logged. Some providers will close the network connection every day mostly during the night. The Smart Home Controller will always try to reconnect to the Eaton Server after a disconnect. This is normally done in a minute.

## 8. Quick setup iPhone App

### 8.1. Download and connect the App (IOS)

This example is based on the iPhone.

Figure 1: Download App




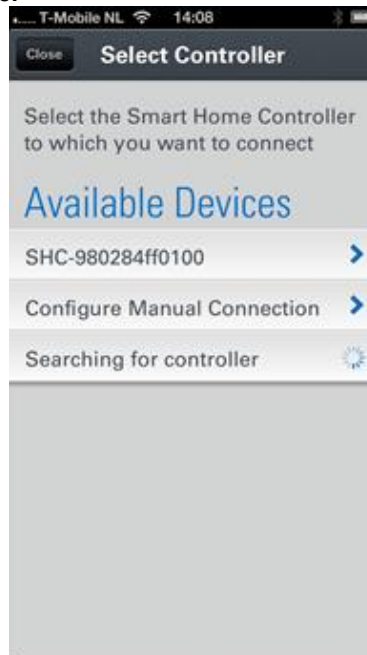
Open the App Store:   
 Search for: **Eaton**  
 Install and open the App

Figure 2: Connect to Smart Home Controller



Click: **Connect**



Select your controller



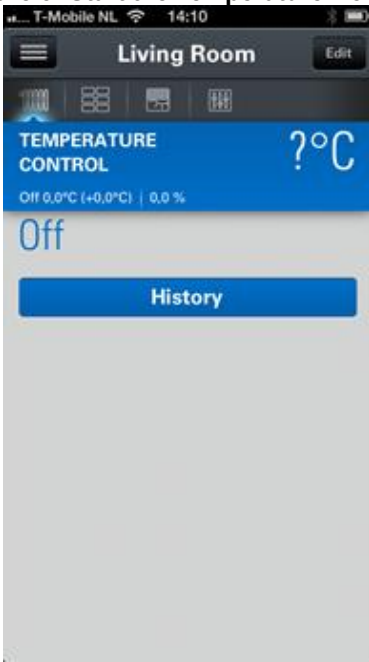
Login as advanced User

### 8.2. IOS App: Start the Temperature Control

Select the Climate Function:



**Figure 3: Start the Temperature Control**



Click: **Edit**



Select: **Heating**  
And: **Close**



Select a predefined mode

The question mark indicates that no temperature value is received yet. Find detailed information in chapter 9.2 Climate Function.

Start the Temperature Control in every Zone with a Climate Function.

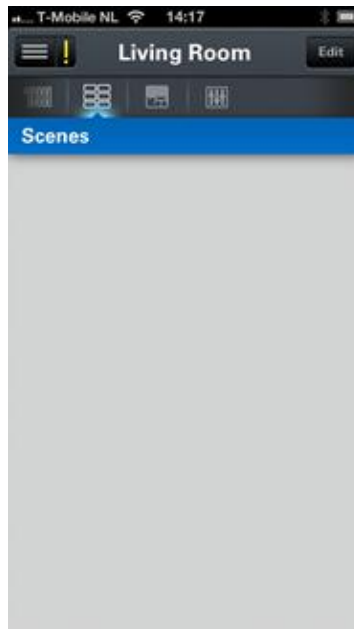
### 8.3. IOS App: Create Light Scenes

To create a Light Scene, select the Status & Control Function to set the preferred light settings.

**Figure 4: Create a Light Scene 1**



Select Status & Control  
Set preferred Lights



Select Scene Function  
And click: **Edit**

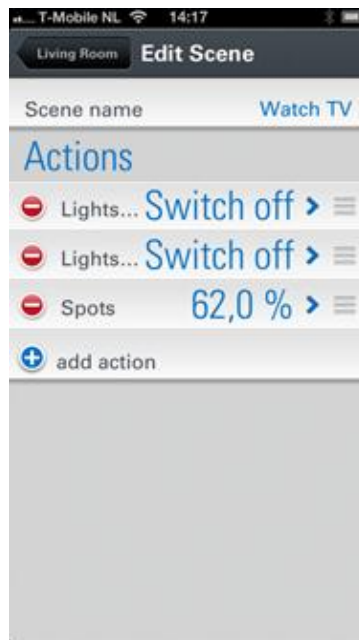


Click: 

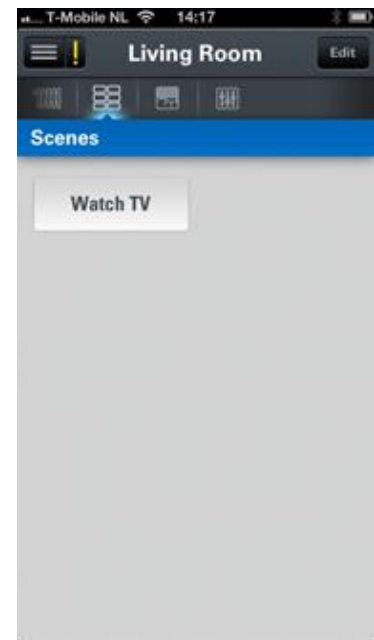
**Figure 5: Create a Light Scene 2**



Define a Scene name  
And click: **OK**



Check light settings  
And return to Zone



Button created

## 9. Functions

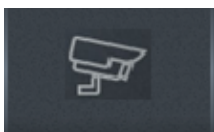
Find in this chapter an overview of all the available Functions with their functionality.  
Per default the following Functions are installed:

- Camera Function
- Climate Function
- Energy Function
- Macro Function
- Scene Function
- Shading Function
- Status and Control Function

Per Function the following information is provided:

- What can it do: Short description of functionality.
- How does it work: Description of behavior
- Supported Functional Devices: All supported Functional Devices
- Function Settings: The possible Function configuration settings

### 9.1. Camera Function



Purpose: See camera images of a Zone, control the lights and open the door.

#### 9.1.1. What can it do

- Show Camera images: The Dashboard presents a snapshot per available camera. Click on the snapshot to watch the camera stream.
- Control lights: The screen presents control buttons to switch on and off the lights if one or more Light and/or Dimming Actuators are present.
- Control Door Actuators: The screen presents a control button to open doors if one or more Door Actuators are present.

#### 9.1.2. How does it work

##### Function availability in a Zone

The Function starts if a Camera Device is moved into the Zone. To be able to add cameras to Zones, Cameras need to be added to the system first. See section 1.4 Cameras.

#### 9.1.3. Supported Functional Devices

Functional Device	xComfort Device
Door Actuator	Switch Actuator connected to a door or gate opener. The door or gate can be opened/closed via the Camera Function .
Light Actuator	Available Switch Actuators can be switched on and off via the Camera Function.
Dim Actuator	Available Dim Actuators can be switched on and off via the Camera Function.

#### 9.1.4. **Function Settings**

Per default the Function is disabled. Just check the checkbox behind the Function name to enable this Function in this Zone. The Function settings appears.

Parameter	Type	Purpose
<Device type>: <Device name>	Checkbox	Enable/Disable Device. Disabled Devices are not used in the Function.

## 9.2. **Climate Function**



Purpose: Control the climate per Zone and see the overall temperature information and statistics per Zone.

#### 9.2.1. **What can it do**

- Heating or Cooling per Zone.
- Set in one click the Zone in a default temperature mode.
- See in the Dashboard the temperature and humidity of the Zone.
- See the graphical temperature overviews in time.

#### 9.2.2. **How does it work**

##### Function availability in a Zone

The Function starts already with a Temperature Sensor in the Zone. The temperate (and humidity if available) is already visible in the GUI.

##### Heating or Cooling

The Function will provide Heating and Cooling control only if the appropriate actuators are available in the Zone or Building. At least one of the following actuators should be available:

Zone control	Needed Devices
Heating	Heating Temperature Actuator, Heating Actuator, Main Heating Actuator
Cooling	Cooling Actuator, Main Cooling Actuator
Heating and Cooling	Temperature Actuator, Valve Actuator

Each additional added actuator in the Zone will be switched by the Function automatically.

A central Heater or Cooling system in the building can be controlled by the **Main Heating Actuator** and **Main Cooling Actuator**. These actuator types are present on building level and will be switched on automatically if one of the running Climate Functions demands it.

##### Temperature control

The Climate Function can only perform Heating or Cooling on building level. So if one Zone is switched to Heating or Cooling, all Zones will switch over. The temperature is controlled per Zone individually.

The Zone temperature control is based on the internal on/off temperature regulation. This will be switched off if one of the following devices are available in the Zone:

xComfort Device	Control
<b>Radiator Thermostat</b> (Valve Sensor)	The heating or cooling demand is based on one or more open valves.
<b>Multi-Channel Actuator</b> (Binary Pump Demand Sensor)	The heating or cooling demand is based on the pump is ON state.

##### Auto mode (Planner)

In Auto Mode the Climate Function reacts on the programmed Planner events. Planner events can be programmed via the Web Admin Console and the Smartphone App.

If the Function is switched from manual to Auto Mode the Function will switch to the last programmed Temperature mode from the Planner.

### Inertia and outside temperature

The inertia functionality works only in Auto Mode and will influence the scheduled planner event time. The Inertia function calculates the start time to get the room on the temperature level on the scheduled planner time. The calculation is more precisely if an outside temperature sensor is used. Otherwise it is recommended to switch the Inertia function off.

**Remark!** The time of the scheduled Planner events will be influenced by the Inertia function if enabled. The temperature mode could be switched much more earlier than planned. This could lead to unexpected switching behavior.

### Multi-Channel Actuator

The Multi-Channel Actuator provides 12 channels. Each channel (Heating input) represents a Temperature Actuator which will be updated with the new temperature and setpoint of the Zone automatically.

**Important!** Only connect the channels to the Smart Home Controller which are used in Zones. Channels not assigned to a Zone will not be updated by the SHC. The according led on the Multi-Channel Actuator will blink.

The Binary Pump Demand Sensor (Sum request) is per default available in each Zone and will be enabled automatically if also a Temperature Actuator is in this Zone.

**Important!** If the Binary Pump Demand Sensor is enabled in a Zone without one of the Temperature Actuators, the Zone regulation will follow the pump sum request of the Multi-Channel Actuator.

### 9.2.3. Supported Functional Devices

Functional Device	xComfort Device
Temperature Sensor	Room Controller, Radiator Thermostat, CTEU, Room Manager: Just one temperature sensor can be selected. Per default the first one assigned to the Zone is preselected.
Humidity Sensor	Room Controller: Just one humidity sensor can be selected. Per default the first one assigned to the Zone is preselected.
Wheel Sensor	Room Controller: Just one wheel sensor can be selected. Per default the first one assigned to the Zone is preselected.
Binary Window Sensor	Binary Input: If one or more windows are open the Zone switches to Protection mode and the Planner events will be blocked. If all windows are closed the Zone switches back to the previous settings.
Heating Actuator	Switch actuator: switches Zone based on heating demand.
Cooling Actuator	Switch actuator: switches Zone based on cooling demand.
Valve Actuator	Switch actuator: switches Zone based on heating and cooling demands.
Valve Sensor	Radiator Thermostat: The internal temperature regulation will be switched off. The heating or cooling demand is based on one or more open valves.
Temperature Actuator	Multi-Channel Actuator, Room Manager (Heating/Cooling): The new temperature and setpoint in each device will be updated automatically.
Binary Pump Demand Sensor	Multi-Channel Actuator (Sum request): Is per default available in each Zone. The internal temperature regulation will be switched off. The heating or cooling demand is based on the pump is ON state.
Changeover Actuator	Multi-Channel Actuator: heating, cooling. Will be switched based on the Heating or Cooling.
Heating Temperature Actuator	Radiator Thermostat, E-Heating Actor (Only Heating): The new temperature and setpoint in each device will be updated automatically.
Main Heating Actuator	Switch actuator: Is per default available in each Zone. Switches the central Heater of the building on heating request of Zones.
Main Cooling Actuator	Switch actuator: Is per default available in each Zone. Switches the central Cooling system of the building on cooling request Zones.
Outdoor Temperature Sensor	If available the outdoor temperature is additionally used by the Inertia function.

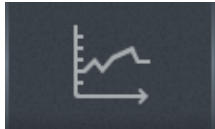
### 9.2.4. Function settings

Per default the Function is disabled. Just check the checkbox behind the Function name to enable this Function in this Zone. The Function settings appears.

Parameter	Type	Purpose
general: inertia	Selection box	Calculates the inertia time to start the climate system earlier. Works only in Auto Mode. Planner event times will be influenced. Off: default Fast: Radiator heating with high temperature Middle: Radiator heating with low temperature Slow: Floor heating
general: protectionTimer	Selection box	The Climate will switch off the actuators if within the protection time no temperature value is received. In the GUI this is indicated with a question mark. With the next received temperature value the Climate starts again. The Temperature Sensor must be set to cyclic sending with the protection timer accordingly. 0: Disable protection 1: default (set cyclic sending sensor to 55 minutes) 1-6: (set cyclic sending sensor to 55 minutes 5 hours) 6: Use with Temperature Sensor from Home Manager

heating: <Mode name>	Selection box	Select the default temperature setpoint for this mode.
cooling: <Mode name>	Selection box	Select the default temperature setpoint for this mode.
TemperatureSensor	Selection box	Just one temperature sensor can be selected.
HumiditySensor	Selection box	Just one humidity sensor can be selected.
WheelSensor	Selection box	Just one wheel sensor can be selected.
<Device type>: <Device name>	Checkbox	Enable/Disable Device. Disabled Devices are not used in the Function.

### 9.3. Energy Function



Purpose: See per Zone the Energy Consumption statistics.

#### 9.3.1. What can it do

- Show overall status: The Dashboard presents real-time the total used power in the Zone. How do we do so far this year presented in costs.
- Energy statistics: See per Device the graphical consumption overviews in time.
- Top 5 Consumers: See in one pie chart overview the top five consumers per Zone.

#### 9.3.2. How does it work

##### Function availability in a Zone

The Function starts if one or more Energy Sensors (EMS, Impulse Counter) are available in the Zone.

##### Power Balance Meter

The Power Balance Meter represents the balance between Production and Consumption Meters on main building level and/or Zone level.

The following two Balance Meters are supported:

- Zone Power Balance Meter:  
Sum of Power Consumption Meter(s) and Power Production Meter(s) in a Zone.
- Main Power Balance Meter:  
Sum of Main Power Consumption Meter(s) and Main Power Production Meter(s).

The Power Balance Meter will become available automatically based on the presence of Production Meter(s) and Energy Consumption Meter(s).

EMS device settings: The Power Meter will get the same function assignment as configured for the Energy Meter: Production, Consumption, Main Production, Main Consumption.

Example to use the Main Power Balance Meter: The Main Production Energy Meter needs to provide the available produced energy of your own renewable energy installation like a Solar PV installation. The Main Consumption Energy Meter is connected to the main electricity meter in the building. Select in a Macro the Power Balance Meter to trigger on positive and negative values of this Meter.

##### Zone Power consumption indication on Dashboard

The Energy Function Dashboard shows on the right the power consumption in watts. This is the sum of all enabled Energy Consumption Meters available in the Zone. This can be verified with the Power Meters shown in the Status & Control Function.

#### 9.3.3. Supported Functional Devices

Functional Device	xComfort Device
Main Energy Production Meter	EMS or Impulse Counter: Used for measuring the available output of your own renewable energy installation (Solar PV installation).
Main Energy Consumption Meter	EMS or Impulse Counter: Used for the main electricity meter in the building.
Energy Production Meter	EMS or Impulse Counter: Used for small Zone based energy generators.
Energy Consumption Meter	EMS or Impulse Counter: Used for an energy consumer in the Zone.
Gas Meter	Impulse Counting Input: If connected to the main gas meter.
Water Meter	Impulse Counting Input: If connected to the main water meter.
Impulse Counter	Impulse Counting Input: Anything else.

#### 9.3.4. Function Settings

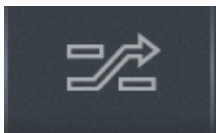
Per default the Function is disabled. Just check the checkbox behind the Function name to enable this Function in this Zone. The Function settings appears.

Parameter	Type	Purpose
Energy: co2_factor	Input field	CO2 factor per kWh. Only indicative representation.



		Default: 0.41228
<b>Energy: cost</b>	Input field	Define the costs per kWh. Only indicative representation. Default: 0.2211
<b>Energy: co2_unit</b>	Selection box	Default: Kg Carbon dioxide equivalent per kWh (kgCO2e/kWh)
<b>Water: co2_factor</b>	Input field	CO2 factor per liter. Only indicative representation. Default: 0.41228
<b>Water: cost</b>	Input field	Cost per liter. Only indicative representation. Default: 1.5392
<b>Water: co2_unit</b>	Selection box	Default: Kg Carbon dioxide equivalent per liter (kgCO2e/l)
<b>Gas: co2_factor</b>	Input field	CO2 factor per Cubic meter. Only indicative representation. Default: 0.41228
<b>Gas: cost</b>	Input field	Cost per Cubic meter. Only indicative representation. Default: 0.8632
<b>Gas: co2_unit</b>	Selection box	Default: Kg Carbon dioxide equivalent per Cubic meter (kgCO2e/m3)
<Device type>: <Device name>	Checkbox	Enable/Disable Device. Disabled Devices are not used in the Function.
<b>Main Power Balance Meter</b>	Checkbox	Enable/Disable the Balance Meter. Disabled Devices are not used in the Function. The Main Power Balance Meter will be available automatically if a Main Energy Production Meter and a Main Energy Consumption Meter is available in the building.
<b>Zone Power Balance Meter</b>	Checkbox	Enable/Disable the Balance Meter. Disabled Devices are not used in the Function. The Zone Power Balance Meter will be available automatically if Energy Production Meter(s) and Energy Consumption Meter(s) are available in the Zone

## 9.4. Macro Function



Purpose: Create automatic control by Device events.

### 9.4.1. What can it do

- Trigger a Macro (Only advanced users).
- Enable and disable macros (Only advanced users).
- Set Planner Events.
- Take actions based on Events and Conditions.

### 9.4.2. How does it work

See section 6 Macros.

#### Function availability in a Zone

The Function starts if one or more supported Functional Devices are available in the Zone.

### 9.4.3. Supported Functional Devices

All available Devices in the Zone.

### 9.4.4. Function Settings

Per default the Function is disabled. Just check the checkbox behind the Function name to enable this Function in this Zone. The Function settings appears.

Parameter	Type	Purpose
<Device type>: <Device name>	Checkbox	Enable/Disable Device. Disabled Devices are not used in the Function.

## 9.5. Scene Function



Purpose: Create Scene buttons.

### 9.5.1. What can it do

- Trigger a Scene with the Scene button.
- Add and configure scenes.
- Set Planner Events.

### 9.5.2. **How does it work**

See section 5 Scenes.

#### **Function availability in a Zone**

The Function starts if one or more supported Functional Devices are available in the Zone.

### 9.5.3. **Supported Functional Devices**

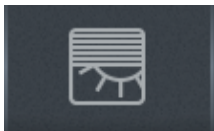
Functional Device	xComfort Device
< > Actuator	AnalogActuator, DimActuator, DoorActuator, LightActuator, ShutterActuator, SwitchActuator, TemperatureActuator, ValveActuator
Binary Inputs	BinaryAirQualitySensor, BinaryAnalogSensor, BinaryDoorSensor, BinaryHumiditySensor, BinaryInput, BinaryLuxSensor, BinaryMotionSensor, BinarySmokeSensor, BinaryTemperatureSensor, BinaryWindowSensor
Analog Input	AnalogInput
PushButton	PushButton
Remote Control Button	RemoteControlButton

### 9.5.4. **Function Settings**

Per default the Function is disabled. Just check the checkbox behind the Function name to enable this Function in this Zone. The Function settings appears.

Parameter	Type	Purpose
<Device type>: <Device name>	Checkbox	Enable/Disable Device. Disabled Devices are not used in the Function.

## 9.6. **Shading Function**



Purpose: Control shading automatically. See overall information in Dashboard bar.

### 9.6.1. **What can it do**

- Control all shading simultaneously with the up, down and stop button.
- Select Sensor mode to control shading by temperature or light intensity.
- See the value and setpoint of the enabled sensor.
- Change the setpoint of the enabled sensor.

### 9.6.2. **How does it work**

#### **Function availability in a Zone**

The Function starts if one or more Shutter Actuators are available in the Zone.

#### **Auto mode (Planner)**

In Auto Mode the Shading Function reacts on the programmed Planner events and also the selected sensor. Planner events can be programmed via the Web Admin Console and the Smartphone App.

#### **Control by Sensor**

The shading in a Zone can be controlled by a temperature or lux sensor to prevent that the room is getting too hot. Just one sensor can be selected to control the shading in the room. This works only in Auto Mode.

### 9.6.3. **Supported Functional Devices**

Functional Device	xComfort Device
Shutter Actuator	Shutter Actuator
Binary Temperature Sensor	Binary Input, Analog Input, Room Controller: Just one sensor can be selected.
Temperature Sensor	Room Controller, Radiator Thermostat, CTEU, Room Manager: Just one sensor can be selected.
Binary Lux Sensor	Binary Input, Analog Input: Just one sensor can be selected.
Lux Sensor	Analog Input: Just one sensor can be selected.



## 9.6.4. **Function Settings**

Per default the Function is disabled. Just check the checkbox behind the Function name to enable this Function in this Zone. The Function settings appears.

Parameter	Type	Purpose
temperature: setpoint	Input field	Temperature setpoint. Default: 26
temperature: hysteresis	Input field	Hysteresis around the setpoint to prevent fast up/down toggle. Default: 5
lux: setpoint	Input field	Lux setpoint. Default: 50
lux: hysteresis	Input field	Hysteresis around the setpoint to prevent fast up/down toggle. Default: 20
general: inverseMode	Checkbox	Normally the Shading is going down if for example the temperature is too hot in the room. Check this option if the shading needs to go down if it gets to cold.
<Device type>: <Device name>	Checkbox	Enable/Disable Device. Disabled Devices are not used in the Function.
Sensor	Selection box	Just one of the available sensors can be selected (temperature of lux). The shading up/down in this Zone is controlled by this selected sensor value according to the setpoint set.

## 9.7. **Status & Control Function**



Purpose: Provide Actuator controls and Sensor information per individual Device. See overall information in Dashboard bar.

### 9.7.1. **What can it do**

- Show Device status overview: The Dashboard presents an icon per Device Type if one or more Device of this type is active. The icon shows also the number of active devices.
- Show Sensor Devices: The screen shows each known and supported Sensor with their value. Sensors with historical data do have a button to enter the graphics.
- Show Actuator Devices: The screen shows each known and supported Actuator with controls to set the state or value.

### 9.7.2. **How does it work**

#### Function availability in a Zone

The Function starts if one or more Sensor Devices and/or Actuators are available in the Zone.

### 9.7.3. **Supported Functional Devices**

All Devices except for Heating and Cooling Actuators.

### 9.7.4. **Function Settings**

Per default the Function is disabled. Just check the checkbox behind the Function name to enable this Function in this Zone. The Function settings appears.

Parameter	Type	Purpose
<Device type>: <Device name>	Checkbox	Enable/Disable Device. Disabled Devices are not used in the Function.

## 10. How things work

Read this chapter to understand the Smart Home Controller concept and the way functionality is provided. Find also additional information about the system setup and configurations. Just take some time to read this chapter before starting the installation and configuration. Based on this the best suitable configuration can be determined.

### 10.1. **Understand the Smart Home Controller concept**

This chapter describes in general the basic concept of the Smart Home Controller.

### 10.1.1. **Main concept**

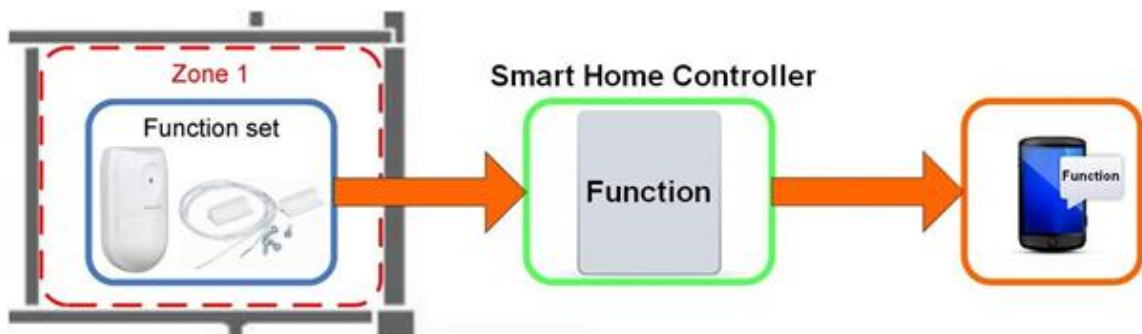
The SHC Concept is based on the following basic principles:

- Zones: A Building can be divided in one or more Zones.  
A Zone can be used to represent:
  - A small House.
  - A floor with some rooms.
  - A room.
  - A group of xComfort Devices like:
    - All Light Actuators.
    - All Energy Consumption Sensors.
- Functions per Zone: A combination of xComfort Devices installed in a Zone can provide specific functionality. This functionality will become automatically available as a Function in this Zone.

Definition of a Zone: A zone is a room or area with specific Functions.

Definition of a Function: A Function can perform a specific job based on a set of one or more xComfort Devices installed in a Zone.

Installing a set of xComfort Devices in a Zone will trigger Functions to become available in this Zone. If the User likes to use this functionality this Function just needs to be enabled. The Function is already configured per default and available in the GUI directly. See Figure 6: Function available based on supported xComfort Devices.



**Figure 6: Function available based on supported xComfort Devices**

Highlights:

- Predefined Functions: Functions replace the normally needed macros to get some specific functionality available.
- Automatic Function availability: Functions will recognize if they can support there functionality and will become available based on the installed xComfort Devices.
- Recognizable Functions: The User can recognize the needed xComfort components to get the desired functionality available in a Zone or room.
- Recognizable features: The User is able to recognize the additional available functionality and use it directly.
- Flexibility: The User can easily define the Functions per Zone needed. and enable only the Functions. s are needed and which Functions are needed and in which he/she likes to use and the way the functionality is available create Zones
- System scalability: Based on new desired functionality or new type of xComfort Devices, new Functions can be delivered to the market.
- System lifetime: The xComfort System can support the User during his lifetime with additional needed Functions to support his/her life stage.

### 10.1.2. **Physical and Functional Devices**

Functionality in Functions of the Smart Home Controller is based on functional capabilities provided by the installed xComfort Devices. Each Physical xComfort Device represents one or more Functional Devices in the system. During the import of a datapoint list the Data Points will be automatically translated to the Functional Devices. Each Functional Device can be used in one or more Zones.

Definition of a Physical Device: A Physical Device represents the xComfort Device itself.

Definition of a Functional Device: A Functional Device represents one dedicated input or output (On, Off, Value).

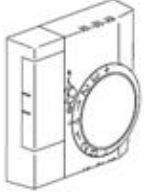
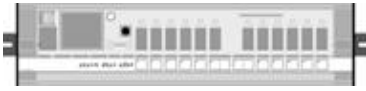
In the xComfort Device product range, we can identify the following types of xComfort Devices:

- Dedicated purpose xComfort Devices: The physical xComfort Device represents one or more dedicated Functional Devices, which will always be the same.  
See Table 1: Example dedicated xComfort Device.
- General purpose xComfort Devices: The physical xComfort Device represents one or more Functional Devices, which


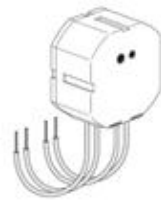
can be used for different kind of purposes. In this case, the needed Functional Device type will be selected during the installation.

See Table 2: Example generic xComfort Devices.

**Table 1: Example dedicated xComfort Devices**

	Physical xComfort Device	Supported Functional Devices
	Room Controller CRCA-00/05	Binary Humidity Sensor Binary Temperature Sensor Humidity Sensor Temperature Sensor Wheel Sensor
	Multichannel Heating actuator	Temperature Actuator Binary Pump Demand Sensor Dew Point Actuator Changeover Actuator Binary Status Sensor

**Table 2: Example generic xComfort Devices**

	Physical xComfort Device	Selectable Functional Device
	Binary Input CBEU-02/02 (Per channel a Functional Device can be selected)	Binary Air Quality Sensor Binary Door Sensor Binary Humidity Sensor Binary Input Binary Lux Sensor Binary Motion Sensor Binary Temperature Sensor Binary Window Sensor
	Switch Actuator CSAx-01/xx	Cooling Actuator Door Actuator Heating Actuator Light Actuator Main Cooling Actuator Main Heating Actuator Switch Actuator Valve Actuator

### 10.1.3. **Functional Device types**

Two Functional Device types are used by Functions:

- **Zone Device type:** This device is only available to a Function if this device is placed in the Zone.
- **Home Device type:** This device is global available to all Functions in all Zones.

Default Functional Devices are only available to a Function if this device is assigned to a Zone. Also some Functions use Functional Devices which are general available in the building, like an Outside Temperature Sensor or a Main Energy Consumption Meter. Normally there is just one device of this type available in the building.

### 10.1.4. **Functions based on Functional Devices**

An xComfort Function can perform a specific job based on one or more Functional Devices in a Zone. This Function will only become available in the Zone if one or more available Functional Devices in this Zone matches the Function Profile.

Functions are based on the following profiles:

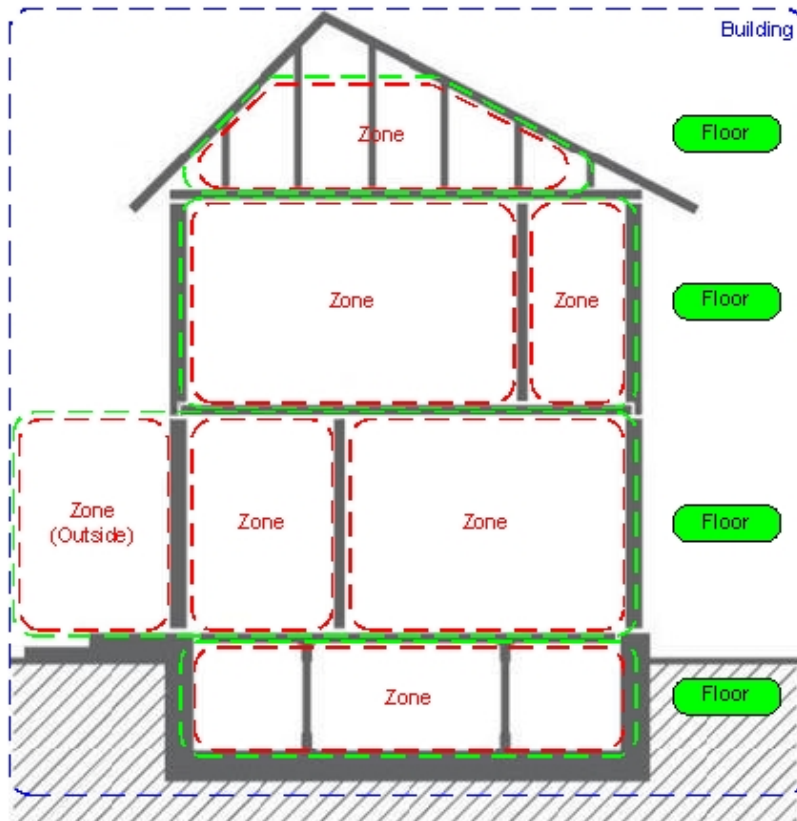
- **Function profile:** The Function profile of a Function identifies the needed Functional Device(s) to be able to do the Job. The Function will only start in the Zone if the available Functional Devices in a Zone do match one of the rules in the Function profile.
- **Supported Functional Device(s) profile:** Additional supported Functional Devices (Zone and Home device types), which will be controlled by the Function if available.

Besides the xComfort Functional Devices, the Camera Function supports additional Functional Devices based on the selected Camera driver.

## 10.2. **How to divide a building in to Zones**

An xComfort Installation in large buildings is in a good way manageable using the hierarchical structure based on floors and Zones. At the other hand, the xComfort Installation can also be as simple as just one large Zone on just one Floor. This can be

the case if the xComfort Installation and/or Building is very small.  
Find an example in Figure 7: xComfort Building Topology.



**Figure 7: xComfort Building Topology**

In this example, the Building is divided in some Zones. As explained chapter 10.1 Understand the Smart Home Controller concept, a Zone represents one or multiple rooms. For example, the basement in Figure 7 does have three separate rooms, defined as one Zone. For the User all Functions is available and controllable on Zone level. Functional Devices can be moved and used in several Zones at the same time. Additional Zones can be created to represent a group of lights or Energy Consumption Meters. In this case two extra Zones could be created called Lights and Energy. Put all the Light Actuators in the Zone called Lights and put all Energy Consumption Meters in the Zone called Energy. Now the User can see in one overview the status off all the lights in de building and see in one overview the Top Consumers in the building.

### **10.3. How to define and create the needed functionality**

This chapter gives an example of how simple it is to get the needed functionality available in your house, divided in simple controllable Zones.

The User just has to do the following steps:

1. Define needed functionality
2. Define needed xComfort Components
3. Define Zones
4. Install and Setup the system

#### **10.3.1. Define needed functionality**

First thing the User just needs to do is to write down the needed functionality.

In this example, the User needs:

1. Heating control in the Living Room
2. Heating control in the Bedroom
3. See outside temperature
4. Shading control in the Living Room based on light intensity outside
5. Switch lights in the Living Room, Bedroom and Entrance remotely
6. Switch lights and Shading in the Living Room locally by switch
7. Switch lights automatically by sunset and timer
8. Open front door Entrance remotely
9. Camera to see front door Entrance
10. Night Orientation in the Entrance
11. See and monitor the total Energy Consumption of the house

Additional functionality can be added easily afterwards.

### 10.3.2. *Define needed xComfort Components*

Select the needed xComfort Components, based on the needed functionality and the existing installation.

1. Heating control in the Living Room
  - a) Two radiators: 2x Radiator Thermostat: **CHVZ-01/03**
  - b) One Central Heater in the house: 1x Main Heating Actuator with potential free contact: **CSAU-01/02**
2. Heating control in the Bedroom
  - a) One radiator: 1x Radiator Thermostat: **CHVZ-01/03**
  - b) One Central Heater in the house: Already mentioned in point one.
3. See outside temperature
  - a) 1x Temperature input module: **CTEU-02/01**
  - b) 1x Temperature Sensor: **CSEZ-01/05**
4. Shading control in the Living Room based on light intensity outside
  - a) Two Shutters: 2x Jalousie Actuator: **CJAU-01/02**
  - b) 1x Lux Sensor outside: **CSEZ-01/15**
  - c) 1x Analog Input Module: **CAEE-02/01**
5. Switch lights in the Living Room, Bedroom and Entrance remotely
  - a) Three dimmable light bulbs: 3x Dimmer Actuator: **CDAU-01/03**
6. Switch lights and Shading in the Living Room locally by switch.
  - a) 1x Niko double push button: **CPAD-00/131**
7. Switch lights automatically by sunset and timer
  - a) No additional components needed.
8. Open front door Entrance remotely
  - a) One Electronic door opener: 1x Door Actuator with potential free contact: **CSAU-01/02**
9. Camera to see front door Entrance
  - a) One camera for example: 1x **Axis M1011**
10. Night Orientation in the Entrance
  - a) 1x Motion Sensor: **CBMA-02/01**
11. See and monitor the total Energy Consumption of the house
  - a) 1x Energy measurement Sensor: **CEMU-01/04**

### 10.3.3. *Define Zones*

Based on the needed functionality in the house, the User can easily define the Zones. The xComfort Components belongs to the following rooms or locations.

1. Living Room:
  - a) 2x Radiator Thermostat: **CHVZ-01/03**
  - b) 1x Dimmer Actuator: **CDAU-01/03**
  - c) 1x Niko double push button: **CPAD-00/131**
  - d) 2x Jalousie Actuator: **CJAU-01/02**
2. Bedroom:
  - a) One radiator: 1x Radiator Thermostat: **CHVZ-01/03**
  - b) 1x Dimmer Actuator: **CDAU-01/03**
3. Entrance:
  - a) 1x Door Actuator with potential free contact: **CSAU-01/02**
  - b) 1x camera: **Axis M1011**
  - c) 1x Motion Sensor: **CBMA-02/01**
  - d) 1x Dimmer Actuator: **CDAU-01/03**
4. Outside:
  - a) 1x Temperature input module: **CTEU-02/01**
  - b) 1x Temperature Sensor: **CSEZ-01/05**
  - c) 1x Lux Sensor outside: **CSEZ-01/15**
  - d) 1x Analog Input Module: **CAEE-02/01**
5. General in the house
  - a) 1x Main Heating Actuator with potential free contact: **CSAU-01/02**
  - b) 1x Main Energy Consumption measurement Sensor: **CEMU-01/04**

In this example, we see:

- A few rooms we can define directly as Zones.
- Some general xComfort Components we can put them in a Zone called House.

### 10.3.4. *Install and setup the system*

With the previous information, the install and setup of the system will look like:

- Install the xComfort Components in the house.
- Use MRF to create the xComfort network with all datapoints to the SHC.
- Setup the SHC.
- Create the Zones.
- Move the xComfort Devices to their Zones.
- Enable the needed Functions per Zone.

Now the functionality is already available and usable. Only some additional steps are needed to customize and add the required functionality. This will look like:

- Enable the Lux Sensor in the Shading Function.
- Create the light and shading control scenes. Add the switch to trigger manually some scenes.
- Create a macro for the Night Orientation.
- Create some planner events to switch the lights automatically.
- Set the Climate Function to heating and select the required temperature level per Zone.

Based on the installed xComfort Components the functionality became available in the Zones. See Figure 8: Example established Functions in Zones.

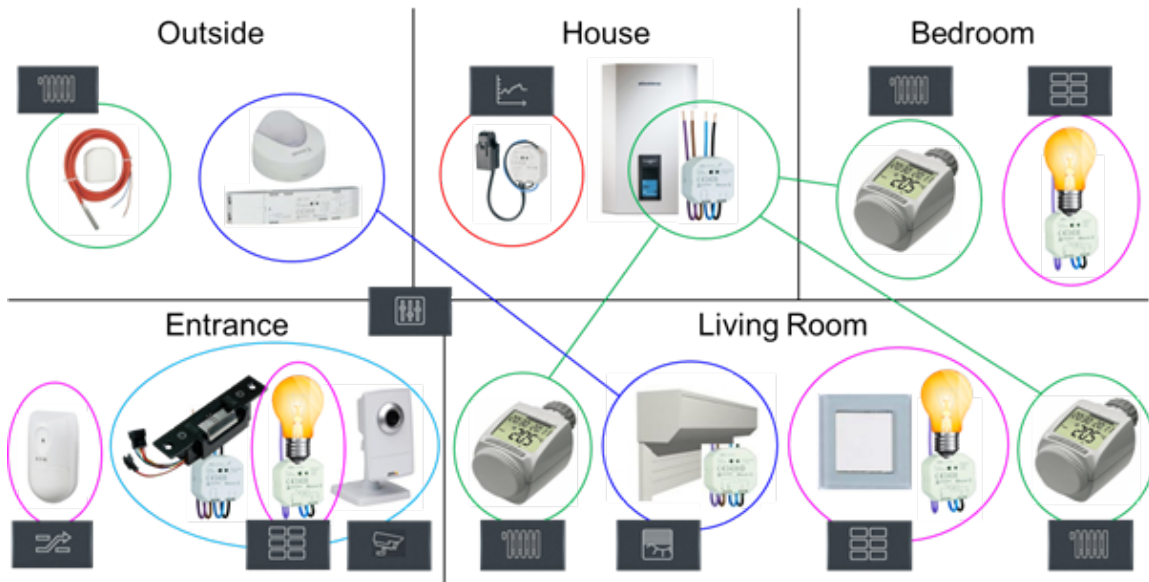


Figure 8: Example established Functions in Zones

The User can recognize the available Functions. See Figure 9: Available Functions.

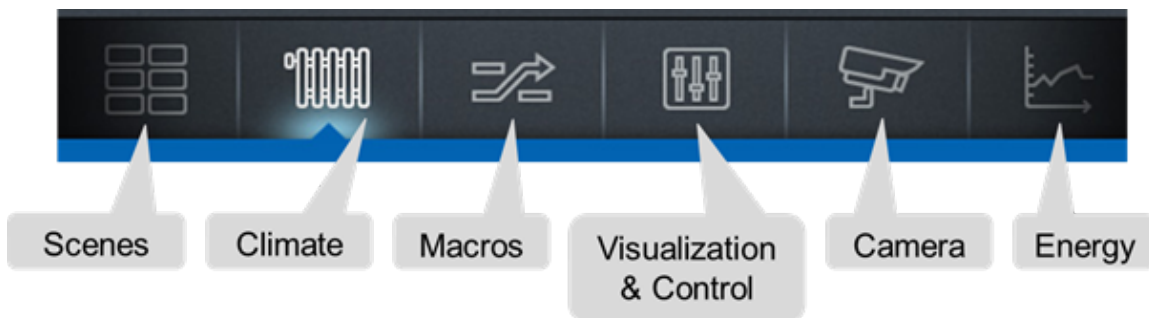


Figure 9: Available Functions

## 10.4. *How to get a reliable status indication in the xComfort network*

The Smart Home Controller maintains the status information of known xComfort Sensors and Actuators in the xComfort network. Status information is used by Functions to present it to the User or to use it in their controls (For example in Macros).

Sensor values are always received directly from the xComfort network. This will never be a problem unless the Sensor is out of reach, defect or the battery is empty.

For Actuators this is different. Actuator status information is maintained in two ways:

1. The Smart Home Controller sends a command to the Actuator. The status will be maintained by the controller itself.
2. The Actuator sends a status update to the Smart Home Controller. The status will be updated according this status update information.

To maintain the correct status of the Actuators it is important to connect all xComfort Actuators directly to the Smart Home Controller or an ECI via MRF. Use for larger xComfort networks always extra ECIs.

---

**! ATTENTION! In MRF connect always an Actuator directly to the Smart Home Controller or an ECI. Verify if no routers are in between.**

---

#### 10.4.1. *The status of the Sensors is not shown?*

The status of a Sensor is not shown in the following situations:

- After a power up of the Smart Home Controller and no status is received yet.
- The sensor is not configured properly. Check this with MRF.
- The sensor is out of reach. Check this with MRF.
- If the battery is empty. Replace the battery.

#### 10.4.2. *The status of the Actor is not correct?*

The status of an Actuator is not correct in the following situations:

- After a power up of the Smart Home Controller and no Actuator command is send or received.
- The Actuator is not directly connected to the Smart Home Controller or ECI, but uses an indirect connection via a router. Reconfigure the network via MRF.
- The Actuator status message to the Smart Home Controller is lost.
- The Actuator is out of reach. Check this with MRF.

### 10.5. *How to use: Scenes, Macros and Planner*

The Smart Home Controller supports a general event driven mechanism to automate the control of Functions and xComfort Devices. With the Scenes, Macros and Planner functionality, a lot of automation is possible.

---

**! ATTENTION! Please understand the event mechanism before you think Who did that?.**

---

#### 10.5.1. *The event mechanism*

The whole System works event driven.

In general:

- The Planner can send time based Planner Events to all Functions in all Zones.
- Functions can send and receive xComfort Device events within their Zone.
- The Macro and Scene Function can also send Function Events to all Functions in all Zones.
- Only the Macro Function can send SMS and Email notification events.

Find below an overview of the possible event control flows in the system in Figure 10: Event Control flow.

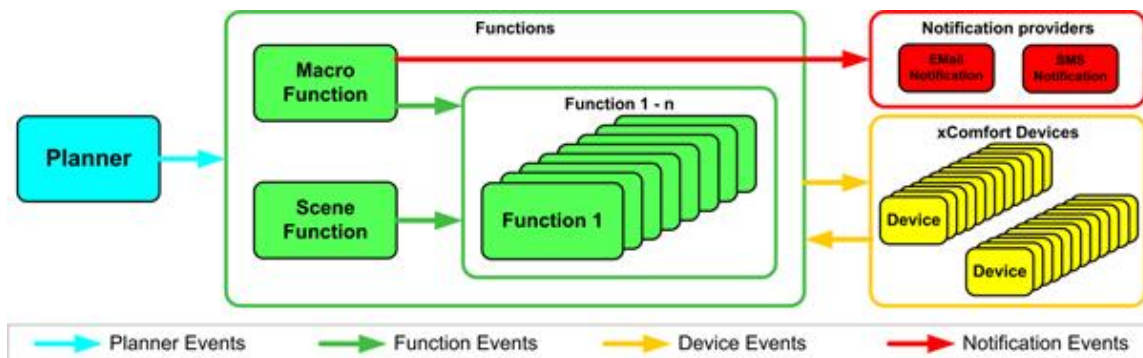


Figure 10: Event Control flow

The follow types of event control flows are possible in the System:

#### **➡ Planner Events**

Use the Planner to schedule Planner Events to control Functions based on time. The Planner support the following event types:



Date, Time, Time Period, Sunset, Sunrise

Supported Planner Events (Based on Function), like:

- Scene Function: Trigger Scenes
- Macro Function: Enable, Disable, and Trigger macros
- Climate Function: Switch to a Mode: Comfort, Economy, Standby, Off.
- Shading Function: Open, Close, Stop and Sensor Mode On/Off
- Status and Control Function: Commands to xComfort Devices

Some Functions will block planner events if they are not in auto mode!



### Function Events

Like the Planner, the Scene and Macro Function can also send Function events to all Functions (Also to themselves). Functions can provide other type of Function event controls to Functions then to the Planner.

Supported Function Events (Based on Function), like:

- Scene Function: Trigger Scenes
- Macro Function: Enable, Disable, and Trigger macros
- Climate Function: Switch to a Mode: Comfort, Economy, Standby, Off.
- Shading Function: Open, Close and Stop.
- Status and Control Function: Commands to xComfort Devices
- Switch Function Auto Mode: Auto, Manual



### Device Events

Each Function can send and receive xComfort Device events based on their specific functionality and support of Devices. Only the Scene Function, the Macro Function and the Status Control Function support almost all xComfort Device events, which the User can program.



### Notification Events

Only the Macro Function support notification events to be send as an action.

Supported Notification Events:

- SMS (Via a Clickatell account, based on credits)
- Email

## 10.5.2. *Best way to use Scenes and Macros*

Almost all controls can be defined by Scenes. A Scene is also directly available to the User by a Scene Button. Use a Macro to define actions triggered by Sensor Events.

Best practice:

- Define the most used scenarios for Light Actuators, Dimming Actuators and Shutter Actuators in Scenes per Zone.
- Define general scenes in a Zone to trigger other Scenes (Wake up, Sleep) in different Zones or to set Functions (Climate, Shading) in a specific mode (Auto, Manual) in different Zones.
- Assign Push Buttons (Hallway, Stairway) to Scenes to trigger a scenario directly.
- Define a Macro if still needed. For example the night orientation in hallways can be created by using a motion sensor to switch on the lights for some time during the night.

# 11. Troubleshooting

Find in this chapter information and instructions to solve problems. Consult also the latest FAQ to find answers to questions.

## 11.1. *LED Indicators on the Smart Home Controller Box*



Power LED:

- Green: Power ON, the System is operational.
- Orange: The System is booting.



Network Connection LED:

- Green: Remote Server Connection.
- Orange: Internet connection. The SHC is not activated yet.



- Red: No Internet connection. Check your internet connection via a PC or laptop.



RF Traffic LED:

- Blinking Green: RF traffic.



System Message LED:

- Green: There are no new messages in the Mailbox.
- Yellow: New Warning Message in the Mailbox.
- Red: New Error Messages in the Mailbox.



Battery Status LED

- Green: All batteries are OK.
- Yellow: At least one battery is weak. Consider to replace batteries.
- Red: At least one battery one battery is very weak or empty. Replace batteries.

## 11.2. How to restore the default admin password



This symbol indicates the recovery button on the Smart Home Controller Box. Use a small pin to access this button.

Press the button on the Smart Home Controller for 15 seconds (power LED flashes green and will finally change to orange), system will reboot. Wait until the LED is green. Also the network settings will be set to DHCP.

## 11.3. How to restore the SHC network settings



This symbol indicates the recovery button on the Smart Home Controller Box. Use a small pin to access this button.

Press the button on the Smart Home Controller for 15 seconds (power LED flashes green and will finally change to orange), system will reboot. Wait until the LED is green. Also the admin password is set to default.

## 11.4. How to do a SHC recovery from SD card



This symbol indicates the recovery button on the Smart Home Controller Box. Use a small pin to access this button.

Use this procedure only to do a complete Recovery from SD Card. All software will be overwritten and set to default. Please backup your settings as they will be lost during recovery process. Disconnect the power supply, insert the EATON micro SD Card, during reconnecting the power supply - keep the button pressed for ~ 3 sec till the power LED switches from orange to red. The flashing red power LED indicates the update process. Make sure the power supply is not disconnected and the SD Card is not removed. System will reboot when finished. Wait until the Power LED turns to green and restore the saved configurations.

In case of a failed recovery process, all LEDs will flash red and please contact your Eaton support contact person.

## 11.5. Ways to recover the SHC

The Smart Home Controller can be recovered in the following ways:

- Power Off the System by removing the power plug for 1 minute and reconnect.
- Reboot the Smart Home Controller via the Web Admin Console.
- Set the Smart Home Controller back to factory settings. Reconfigure everything.
- Reset internal RF Module password and datapoint list. Use MRF to reprogram.



## 11.6. How to connect to the SHC Web Admin Console via address

1. Open a browser
2. Open the login page: `http://<address>`:



3. Login with:
  - Username: **admin**
  - Password: **admin**
4. The Web Admin Console is available


### **11.7. How to connect to the SHC Web Admin Console via Bonjour (MAC)**

1. Open: Safari
2. Click the Bookmark icon: 
3. Select Bonjour: 
4. Double click Bookmark: Smart Home Controller
5. The browser opens and show the login page:



6. Login with:
  - Username: **admin**
  - Password: **admin**
7. The Web Admin Console is available

### **11.8. How to connect to the SHC Web Admin Console via UPnP (Windows)**

1. Open My Network Places: 
2. Double click link: Smart Home Controller
3. The browser opens and show the login page:



4. Login with:
  - Username: **admin**
  - Password: **admin**
5. The Web Admin Console is available

### **11.9. How to connect to the SHC Web Admin Console via MRF**



1. Open MRF and right-click on the SHC:
2. Select Check IP-Address
3. Click on the Address
4. The browser opens and show the login page:

5. Login with:
  - Username: **admin**
  - Password: **admin**
6. The Web Admin Console is available

### 11.10. Default admin password?

The default password for admin is admin. Please change this password directly after the setup.

### 11.11. How to check your ONVIF Camera?

#### 11.11.1. About ONVIF

ONVIF (Open Network Video Interface Forum) is an open industry forum for the development of a global standard for the interface of IP-based physical security products. ONVIF is committed to the adoption of IP in the security market. The ONVIF specification will ensure interoperability between products regardless of manufacturer. Information about ONVIF, its objectives and members can be found on <http://www.onvif.org/>.

#### 11.11.2. SHC ONVIF Support

The Smart Home Controller (software version Eaton-SHC-7.1.1-1.1.5 or higher) supports ONVIF Cameras based on the ONVIF Core specification version 1.02. The ONVIF Driver supports the basic Profile S (streaming profile) which is forward compatible. Profile S provides a standard interface to stream video and audio (Audio not supported) between conformant devices and clients. Only the first Camera video connection (1st stream) with JPEG is supported. Default used RTSP port: 554

The following two ONVIF Camera drivers are available in the Camera configuration tab of the Web Admin Console:

- v1.02 (ONVIF) Default
- v1.02 (ONVIF-SOAP) Camera requiring SOAP authentication

Eaton cannot guarantee that all ONVIF Cameras will work. Check always if the Camera is ONVIF enabled.

#### 11.11.3. Check for Camera ONVIF compliancy

If the Camera doesnt work. Not all cameras are ONVIF compliant or do not have the latest firmware installed. Also in some Cameras the ONVIF support option needs to be enabled. First some verification must be done in order to ensure the Camera is ONVIF enabled.

Please follow the below instructions first:

- |   |                          |
|---|--------------------------|
|   | Checked                  |
| 1. Check if the camera is ONVIF compliant ( <a href="http://www.onvif.org/">http://www.onvif.org/</a> ) | <input type="checkbox"/> |
| 2. Check if the latest firmware is installed  | <input type="checkbox"/> |
| 3. Check if ONVIF support needs to be enabled (Camera manufacturer)                                     | <input type="checkbox"/> |
| 4. Check if the camera stream is set to: First stream: JPEG   | <input type="checkbox"/> |

If the Camera still doesnt work use the ONVIF Camera Checker tool to send a test report to your supplier.

Steps:

1. Open Camera Checker tab of the administrator console
2. Click: **Discover**  
ONVIF Cameras will be discovered automatically (If the Camera is not listed, the Camera IP Address and Port is additional needed)
3. Specify User credentials:
  - a. Username: **<username>**
  - b. Password: **<password>**

4. Click: **Check**
5. Save the Report file and send this to your supplier

## Appendix A Supported Functional Devices

xComfort Device capabilities are translated to one or more Functional Devices in the Smart Home Controller. Find in the table below the supported Functional Devices per xComfort Device.

**Table 3: Overview supported Functional Devices**

Functional Device	Supported xComfort Devices																	
	Push-button single/dual/4-fold CTAA-0x/xx	Room Manager CRMA-00/xx	Room Controller CRCA-00/01..04	Switch Actuator CSAx-02/xx	Dim Actuator CDAX-01/xx	Shutter Actuator CIAU-01/xx	Binary Input Module CBEU-02/0x	Temperature Sensor CTEU-02/01	Analogue Input CAEE-02/xx	Analog Actuator CAAE-01/xx	Motion Detector CBMA-02/xx	Remote Control 2 channel CHSZ-x2/0x	Room Controller w/ humidity CRCA-00/05..07	Impulse Input CIZE-02/01	EMS CEMx-01/01	E-Radiator Actuator CHAZ-01/xx	Multi Channel Heating Actuator CHAZ-01/12	Radiator Valve Drive CHVZ-01/03
ActuatorMainsPowered				x	x	x				x						x	x	
SensorBatteryPowered	x		x				x	x			x	x	x					x
SensorMainsPowered		x					x		x					x	x			
AirQualitySensor									x									
AnalogActuator		x																
AnalogInput		x							x									
BinaryAirQualitySensor							x		x									
BinaryAnalogSensor		x							x									
BinaryDoorSensor							x											
BinaryHumiditySensor							x						x					
BinaryInput							x											
BinaryLuxSensor							x		x									
BinaryMotionSensor							x				x							
BinaryPumpDemandSensor																	x	
BinarySmokeSensor							x											
BinaryStatusSensor		x															x	
BinaryTemperatureSensor			x				x	x	x				x					
BinaryWindowSensor							x											
ChangeoverActuator																	x	
CoolingActuator				x	x					x								
CurrentMeter															x			
DewPointActuator																	x	
DimActuator					x					x								
DoorActuator				x	x					x								
EnergyConsumptionMeter														x	x			
EnergyMeter														x	x			

