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# SPC SmartBox User Manual

Revision 1.1

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**lundix** it

## History Record

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## Contents

<b>1</b>	<b>INTRODUCTION.....</b>	<b>6</b>
1.1	Document References.....	6
1.2	Terminology and Abbreviations.....	7
<b>2</b>	<b>PRODUCT DESCRIPTION.....</b>	<b>8</b>
2.1	Overview.....	8
2.2	Main Features.....	8
<b>3</b>	<b>INSTALLATION.....</b>	<b>9</b>
3.1	Installation Prerequisites.....	9
3.2	Installation Steps.....	9
<b>4</b>	<b>CONFIGURATION.....</b>	<b>10</b>
4.1	First time basic configuration.....	10
4.1.1	Change SmartBox Password.....	10
4.1.2	Network Settings.....	11
4.1.3	Time and Location.....	11
4.1.4	Configure SPC Communications.....	12
4.1.4.1	SPC FlexC Settings.....	12
4.1.4.2	SmartBox SPC Communication Settings.....	13
4.1.5	Sync SmartBox and SPC.....	14
4.1.6	Conclusion.....	14
4.2	Z-Wave Configuration.....	15
4.2.1	Configuring Z-Wave Network.....	15
4.2.2	Z-Wave Device Details.....	16
4.2.2.1	Device Database.....	16
4.2.2.2	Details.....	16
4.2.2.3	Configuration.....	17
4.2.2.4	Associations.....	18
4.2.2.5	Wake Up.....	19
4.2.2.6	Advanced.....	20
4.3	KNX Configuration.....	21
4.3.1	First time KNX configuration.....	21
4.3.2	KNX Communication.....	21
4.3.2.1	Configuration of Weinzierl KNX IP BAOS 777 Gateway.....	21
4.3.2.2	SmartBox KNX Communication Settings.....	21
4.3.3	Sync SmartBox and KNX System.....	22
4.4	Notifications Configuration.....	24
4.4.1	Advanced settings (only for pushover).....	25
4.4.2	Notification Accounts.....	25
4.5	Object Database.....	27
4.5.1	Object Settings dialog.....	28
4.5.2	Sync and Recreate buttons.....	29
4.6	System configuration.....	30
4.6.1	System Info.....	30
4.6.2	Firmware.....	30

<b>5</b>	<b>AUTOMATION CONFIGURATION .....</b>	<b>32</b>
5.1	Scenes .....	32
5.1.1	Scene List .....	32
5.1.2	Scene Editor .....	33
5.1.3	Overview .....	33
5.1.4	Scene Header .....	34
5.1.5	Scene Triggers.....	34
5.1.6	Scene Conditions.....	35
5.1.7	Scene Actions.....	36
5.2	Control elements.....	37
5.2.1	Alarm Areas .....	37
5.2.2	Alarm Zones .....	37
5.2.3	Alarm Outputs.....	38
5.2.4	Actuators.....	38
5.2.5	Batteries .....	39
5.2.6	Meters .....	39
5.2.7	Sensors.....	40
5.2.8	KNX Datapoints .....	40
<b>6</b>	<b>DASHBOARD CONFIGURATION.....</b>	<b>42</b>
6.1	Overview .....	42
6.2	Editor main panel .....	43
6.3	Footer panel .....	44
6.4	Object Selector .....	44
6.5	Widgets .....	44
6.5.1	Alarm Area Widget.....	45
6.5.1.1	Configuration Alarm Area Widget .....	45
6.5.2	Alarm Zone Widget .....	45
6.5.2.1	Configuration Alarm Zone Widget.....	46
6.5.3	Sensor Binary Widget.....	47
6.5.3.1	Configuration Sensor Binary.....	48
6.5.4	Sensor Value Widget.....	48
6.5.4.1	Configuration Sensor Value.....	49
6.5.5	Gauge Widget .....	49
6.5.5.1	Configuration Gauge .....	50
6.5.6	LED Diode Indicator Widget.....	51
6.5.6.1	Configuration LED Diode Indicator .....	51
6.5.7	Plot Widget.....	52
6.5.7.1	Configuration Plot Widget.....	52
6.5.8	Slider Widget - Interactive .....	53
6.5.8.1	Configuration Slider Widget .....	53
6.5.9	Toggle Button Widget - Interactive .....	54
6.5.9.1	Configuration Toggle Button Widget .....	54
6.5.10	Pushbutton Group Widget - Interactive.....	55
6.5.10.1	Configuration Pushbutton Group Widget .....	56
<b>7</b>	<b>APPENDIX.....</b>	<b>57</b>
7.1	SmartBox Hardware Specification .....	57
7.2	SmartBox LED Definitions .....	57
7.3	Supported Z-Wave Command Classes.....	58

---

7.4	Supported KNX Datapoint Types.....	58
7.5	Use a network scanning tool to discover IP Address.....	58
7.5.1	nmap.....	58
7.5.2	arp.....	59
7.5.3	Smartphone app Fing.....	59
7.6	Create Pushover Account and Get Keys.....	59
7.7	License Agreements .....	61
7.7.1	End-User License Agreement for SPC SmartBox(EULA).....	61
7.7.2	Open Source Software.....	62

# 1 Introduction

This guide describes how to install, configure and operate your SPC SmartBox.

SPC SmartBox is a network device that adds smart Home and Building Automation features to Vanderbilt SPC Intrusion Detection System. The product is developed in close cooperation with Vanderbilt Industries and CTS Northern Europe. SPC SmartBox integrates SPC, Z-Wave and KNX devices. For instance, an alarm area mode change or an alarm input status change can be used as a scene trigger to control Z-Wave/KNX light switches or other actuators.

An intuitive graphical user interface allows customers to program their own automation rules (scenes) without any previous programming experience.

For nice looking presentation of current status of alarm areas, alarm zones and Z-Wave/KNX-devices, SmartBox provides an easy to use dashboard tool. The dashboard can easy be customized by the end user.



The SPC SmartBox needs Internet access for time synchronization (NTP) and to be able to send push notifications.

## 1.1 Document References

Id	Description	Revision
[SPC_INST_CONF]	Vanderbilt SPC42xx/43xx/52xx/63xx Installation & Configuration Manual	
[KNX_W777_MAN]	Weinzierl KNX IP BAOS 777 Gateway Operation and installation manual	

## 1.2 Terminology and Abbreviations

Term	Description
FlexC	Vanderbilt SPC Flexible Secure Communications Protocol
TCP	Transmission Control Protocol
Z-Wave	Wireless protocol for building automation certified by Sigma Designs
KNX	Standardized (EN 50090, ISO/IEC 14543), OSI-based network communications protocol for building automation.

## 2 Product Description

### 2.1 Overview



SPC SmartBox hardware is based on the Z-Wave Plus certified Gateway iCPE from CTS Northern Europe. The SmartBox can optionally be equipped with a battery backup module (the extra module in the figure above). Vanderbilt official FlexC network protocol is used for communication with the SPC system. For KNX communication a Weinzierl KNX IP BAOS Gateway 777 is required.

### 2.2 Main Features

- Vanderbilt FlexC communication
- Z-Wave Plus support.
- KNX support (Weinzierl KNX IP BAOS Gateway 777 is required. Not included)
- Status from SPC, Z-Wave and KNX can be used as scene triggers and conditions
- Triggers and conditions can be based on System time and Sunrise/Sunset time
- Control of SPC outputs, Z-Wave and KNX actuators
- Reading values from Z-Wave and KNX sensors
- Push Notifications (Email, Pushover)
- Powerful Scene Engine
- Very easy to use web based Scene Editor
- Web based Admin GUI
- Web based Dashboard and editor



## 3 Installation

### 3.1 Installation Prerequisites

- Vanderbilt SPC panel with firmware  $\geq 3.6$  (3.6 was the first version with support for FlexC)
- Network router with DHCP server enabled
- Network connection between the SPC SmartBox and the SPC panel
- Internet access (to be able to use time synchronization via NTP and push notifications)
- (Optional for use of Z-Wave) Z-Wave devices. Please see Appendix for **supported command classes**.
- (Optional for use of KNX) Weinzierl KNX IP BAOS 777 Gateway and a KNX system. Please see Appendix for a list of **supported KNX datapoint types**.

### 3.2 Installation Steps

1. Read carefully **End-User License Agreement for SPC SmartBox(EULA)** in the Appendix. If you do not agree to the terms of the EULA, do not install or use the SPC SmartBox.
2. Unpack the SPC SmartBox.
3. Mount the Z-wave antenna.
4. Connect SPC SmartBox LAN port (black), with a regular network cable, to your network switch or router.
5. Power up the device by connecting the included power adapter to a wall socket and then to the SPC SmartBox device. The Power LED should become steady green.
6. Wait (~2 minutes) until the Status, Online and Z-Wave LEDs become steady green.
7. Login to your router and look for the IP address assigned to the SPC SmartBox. (As an alternative you can use a network scanning tool to discover the IP address. See Appendix for some examples)
8. Open a web browser and enter the IP address of the SPC SmartBox.
9. In the login window, enter Username (**smartbox**) and Password (default is **Smartbox!**) and you will see the main menu and an empty scene list.
10. You can now start configuration of the device.

## 4 Configuration

### 4.1 First time basic configuration

If you are configuring a new device, you should first configure the basic settings:

- Change SmartBox Password
  - a. Default username is **smartbox**
  - b. Default password is **Smartbox!**
- Network Settings
- Time and Location
- SPC Communication
- Sync SmartBox and SPC

#### 4.1.1 Change SmartBox Password

The web GUI username is always **smartbox**. Of security reasons please change the default password as soon as possible. Do this on the **System->User** page.

Username	<input type="text" value="smartbox"/>
New Password	<input type="password" value="Password"/>
Retype Password	<input type="password" value="Password"/>
<input type="button" value="Save"/>	

Element	Type	Description
Username	Read only text	Always <b>smartbox</b>
New Password	Input text	The password must be minimum six characters including at least one uppercase letter, one lowercase letter and one digit or special character.
Retype Password	Input text	Must match the New Password field
Save	Button	After successful save the password will be used next time you login

### 4.1.2 Network Settings

The network settings are configured in **System->Network**.

MAC Address

DHCP

IP Address

Subnet Mask

Gateway

DNS Server 1

DNS Server 2

**NOTE!** Network settings will take effect immediately after save. If you change IP address you need to redirect the browser to the new IP address and login again. Settings may also affect communication with external systems, e.g. SPC and KNX.

Element	Type	Description
MAC Address	Read only text	SPC SmartBox MAC address (LAN port).
DHCP	Checkbox	Checkbox to enable DHCP. If DHCP is enabled, the IP Address, Subnet Mask and Gateway input fields are disabled.
IP Address	Input text	IP address of the device.
Subnet Mask	Input text	Subnet mask.
Gateway	Input text	IP address of default gateway
DNS Server 1	Input text	IP address of first DNS server (default 8.8.8.8)
DNS Server 2	Input text	IP address of alternative DNS server
Save	Button	Saves new settings.
Reset	Button	Resets form to current settings

### 4.1.3 Time and Location

The time and location settings are configured in **System->Time and Location**.

### Time Settings

Local Time

Time Zone

Enable NTP

NTP Time Server 1

NTP Time Server 2

Synchronization Interval

### Location Settings

Latitude

Longitude

Element	Type	Description
Local Time	Read only text	Shows current time
Sync With Browser	Button	Set the time of the SPC SmartBox to the time of the web browser. Time is saved immediately.
Time Zone	Option menu	Time zone (default GMT+1:00 Stockholm)
Enable NTP	Checkbox	Checkbox to enable the NTP (Network Time Protocol) service.
NTP Time Server 1	Input text	IP address of first NTP time server (default 193.11.166.2)
NTP Time Server 2	Input text	IP address of alternative NTP time server (default 193.11.166.18)
Synchronization Interval	Option menu	Select how often the time should be synced with the NTP servers. (default every hour)
Latitude and Longitude	Input text	Latitude and longitude (used for sunrise/sunset calculation) Valid latitude value is between -89.99 and 90.00 degrees. Valid longitude value is between -179.99 and 180.00 degrees.
Save	Button	Saves all settings (except time)
Reset	Button	Resets form to current settings

#### 4.1.4 Configure SPC Communications

If you are configuring a new device, you should first configure the SPC Communication and then “import” the SPC areas, zones and outputs into the SPC SmartBox Object Database. Thereafter you can use the SPC objects for automation.

##### 4.1.4.1 SPC FlexC Settings

To setup the communication link between the SPC Panel and the SPC SmartBox the SPC must be configured to communicate with the SmartBox.

Use **SPC Web interface** and define the FlexC communication following this instructions:

1. Select Full Engineer mode

2. Create a specific user for the SmartBox communication, e.g **spcsmartbox**. User profile should be Manager and you need also to define a web password for the user.
3. Select **Communications -> FlexC -> Event Profiles**. Click on **Add** to add a new event profile. Give the event profile the name **SPC SmartBox Events** and select (check) the report checkboxes for all event types.
4. Select **Communications -> FlexC -> FlexC ATS**. Select **Add Custom ATS** and change following from the default settings:
  - ATS Name = SPC SmartBox
  - Event Profile = SPC SmartBox Events (created in step 3)
  - ATS Polling Timeout = 60 seconds
  - Uncheck Generate FTC and Re-queue Events
5. Select **Add ATP to FlexC RCT** and change following from the default settings:
  - SPT Account Code = 999
  - RCT URL or IP Address = IP Address of the SPC SmartBox
  - ATP Category = Cat 6 [Ethernet]
6. Open **Advanced ATP Settings** and change following from the default settings:
  - Encryption Key Mode = Fixed Encryption
  - Encryption key (64 hex digits) = Your own key (must match the key in the SmartBox)

#### 4.1.4.2 SmartBox SPC Communication Settings

In the **SmartBox Web interface** select **Configuration->SPC Communication** and fill in the form according to:

#### FlexC Settings

ATP Encryption Key   Show Key

SPC Account Code

RCT ID

RCT TCP Port

SPC Username

SPC Password

Element	Type	Description
ATP Encryption Key	Input hex	Input field for ATP Encryption Key. 64 hex numbers (0-9, a-f, A-F). Must match corresponding key in SPC FlexC settings.
Show Key	Checkbox	Checkbox to do the key field readable
SPC Account Code	Input number	Input field for ATP Account Code. Must match corresponding key in SPC FlexC settings.
RCT ID	Input number	RCT Id. Must match corresponding id in SPC FlexC settings.
RCT TCP Port	Input number	RCT TCP Port. Must match corresponding value in SPC FlexC settings.
SPC Username and Password	Input text	Credentials for FlexC communication. User must be defined in the SPC

		Panel and have a corresponding web password.
--	--	----------------------------------------------

### 4.1.5 Sync SmartBox and SPC

After you have setup the SPC communication you need to import the areas, zones and outputs configuration of the SPC panel to SPC SmartBox object database. Go to **Configuration->Object Database**, select **SPC** and click on **Sync Database with SPC Panel**. The areas, zones and outputs of the SPC panel should then appear in the database listing. See example below.

**NOTE!** Every time you change the settings of areas, zones or outputs in the SPC panel you need to update SPC SmartBox Object Database by using the **Sync Database with SPC Panel**.

### Object Database

SPC
Sync Database with SPC Panel

Id	Object	Name	Type	Status	Attribute	Value	Hide in Automation	Settings
1	spc_area_1	Area 1	Area	0	mode	0 [Unset]	0	⚙
				0	input_map	000000ff	0	
				0	status_map	000000ff	0	
				0	confirmed	0	0	
				0	alarm	0	0	
				0	tamper	0	0	
				0	trouble	0	0	
2	spc_area_2	Area 2	Area	0	mode	0 [Unset]	0	⚙
				0	input_map	ffffff00	0	
				0	status_map	ffffff00	0	
				0	confirmed	0	0	
				0	alarm	0	0	
				0	tamper	0	0	
				0	trouble	0	0	
1	spc_output_1	MG 1	Output	0	output	0	0	⚙
2	spc_output_2	MG 2	Output	0	output	0	0	⚙
3	spc_output_3	MG 3	Output	0	output	0	0	⚙

To test the SPC communications go to **Alarm Areas, Alarm Zones and Alarm Outputs** in the **Automation** main menu.

### 4.1.6 Conclusion

You may now configure the SmartBox with Z-wave or/and KNX devices. You may also configure scenes or the dashboard.

## 4.2 Z-Wave Configuration

### 4.2.1 Configuring Z-Wave Network

Z-Wave devices are managed in **Configuration->Z-Wave Network**.

Update Device Status

Id	Name	Product	Status	Battery	Details	Commands
1	Device_1	CTS, 88001, CTS-iCPE	-	-	<span style="border: 1px solid #007bff; border-radius: 50%; padding: 2px;">i</span>	
6	Device_6	Philio, PAN11-1A, Smart Energy Plug In Switch	OK	-	<span style="border: 1px solid #007bff; border-radius: 50%; padding: 2px;">i</span>	<span style="border: 1px solid #007bff; padding: 2px 5px; margin-right: 5px;">Update Route</span> <span style="border: 1px solid #007bff; padding: 2px 5px; margin-right: 5px;">Request Status</span> <span style="border: 1px solid #007bff; padding: 2px 5px;">Remove Failed</span>
9	Device_9	Popp, Flow Stop, Flow Stop	OK	-	<span style="border: 1px solid #007bff; border-radius: 50%; padding: 2px;">i</span>	<span style="border: 1px solid #007bff; padding: 2px 5px; margin-right: 5px;">Update Route</span> <span style="border: 1px solid #007bff; padding: 2px 5px; margin-right: 5px;">Request Status</span> <span style="border: 1px solid #007bff; padding: 2px 5px;">Remove Failed</span>
12	Device_12	Mcohome, MH-S412-EU, MCO Home MH-S412-EU	OK	-	<span style="border: 1px solid #007bff; border-radius: 50%; padding: 2px;">i</span>	<span style="border: 1px solid #007bff; padding: 2px 5px; margin-right: 5px;">Update Route</span> <span style="border: 1px solid #007bff; padding: 2px 5px; margin-right: 5px;">Request Status</span> <span style="border: 1px solid #007bff; padding: 2px 5px;">Remove Failed</span>
13	Device_13	FIBARO, FGD-212, FIBARO Dimmer 2	OK	-	<span style="border: 1px solid #007bff; border-radius: 50%; padding: 2px;">i</span>	<span style="border: 1px solid #007bff; padding: 2px 5px; margin-right: 5px;">Update Route</span> <span style="border: 1px solid #007bff; padding: 2px 5px; margin-right: 5px;">Request Status</span> <span style="border: 1px solid #007bff; padding: 2px 5px;">Remove Failed</span>
14	Device_14	FIBARO, FGWPE/F-101, FIBARO Wall Plug	OK	-	<span style="border: 1px solid #007bff; border-radius: 50%; padding: 2px;">i</span>	<span style="border: 1px solid #007bff; padding: 2px 5px; margin-right: 5px;">Update Route</span> <span style="border: 1px solid #007bff; padding: 2px 5px; margin-right: 5px;">Request Status</span> <span style="border: 1px solid #007bff; padding: 2px 5px;">Remove Failed</span>
16	Device_16	FIBARO, FGFS-101, FIBARO Flood Sensor	Sleeping	77%	<span style="border: 1px solid #007bff; border-radius: 50%; padding: 2px;">i</span>	<span style="border: 1px solid #007bff; padding: 2px 5px; margin-right: 5px;">Update Route</span> <span style="border: 1px solid #007bff; padding: 2px 5px; margin-right: 5px;">Request Status</span> <span style="border: 1px solid #007bff; padding: 2px 5px;">Remove Failed</span>
17	Device_17	Danfoss, 014G0160, Danfoss RS 014G0160 Thermostat	Sleeping	82%	<span style="border: 1px solid #007bff; border-radius: 50%; padding: 2px;">i</span>	<span style="border: 1px solid #007bff; padding: 2px 5px; margin-right: 5px;">Update Route</span> <span style="border: 1px solid #007bff; padding: 2px 5px; margin-right: 5px;">Request Status</span> <span style="border: 1px solid #007bff; padding: 2px 5px;">Remove Failed</span>

Controller is in normal operating mode.

Start Inclusion
Start Exclusion
Reset Z-Wave Network
Rebuild Network Topology

Element	Type	Description
Id	Number	Z-Wave Node Id (unique id assigned by Z-Wave Gateway)
Name	Text	Device name (Default Device_Id. Can be changed in the details form)
Product	Text	Vendor, Product Name and a short description
Status	Text	Shows if the device is alive ( <b>OK</b> ) or is unreachable ( <b>Failed</b> ). Normal mode for battery operated devices is <b>Sleeping</b> .
Update Device Status	Button	Click for updating device status
Battery	Number	Battery status (0-100%). Only available for battery operated devices.
Details	Button	Button to open device detail page
Update Route	Button	Button to request rerouting of the device
Request Status	Button	Button to request status of the device (send a NIF)
Remove Failed	Button	Button to remove a failed node. Only enabled if the device is considered failed. NOTE! If you would like to remove a working device from the network please use the exclusion procedure instead.
Start Inclusion	Button	Button to include (add) a new devices
Start Exclusion	Button	Button to exclude (remove) a device
Reset Z-Wave Network	Button	Button to reset the Z-Wave network to factory state. <b>Warning! All Z-Wave devices will be removed.</b> To be able to include them again you had to exclude them first.
Rebuild Network Topology	Button	Button to rebuild the network.

**NOTE! Please do not use the physical Z-Wave push button** on the SPC SmartBox device to include or exclude devices, because then you have no chance to see what is happening during the inclusion/exclusion. Probably the button will be disabled in the future.

Procedure to **add** a new Z-Wave Device:

1. Click on **Start Inclusion**. This will set the controller in inclusion mode.
2. Activate the device inclusion by following the instructions in the device manual. Note! It can take about 20 seconds before the controller detects the new device. So please be patient before repeating this step.
3. After successful inclusion the device will appear in the device list. The default name of the device is set to Device\_X, where X is Z-Wave node id. The name can be changed on the device details page.

The inclusion mode can be cancelled by clicking on **Stop Inclusion**. Inclusion mode is timed out after 2 minutes.

**NOTE!** It is not possible to add a device that already belongs to another Z-Wave network. You first need to reset it by excluding it from the previous Z-Wave controller or use SPC SmartBox Exclusion function to do this.

Procedure to **remove** a Z-Wave Device:

1. Click on **Start Exclusion**. This will set the controller in exclusion mode.
2. Follow the instruction in the device manual how to exclude the device. Note! It can take about 20 seconds before the controller detects the device. So please be patient before repeating this step.
3. After successful exclusion the device will be removed from the device list

The exclusion mode can be cancelled by clicking on **Stop Exclusion**. Exclusion mode is timed out after 2 minutes.

## 4.2.2 Z-Wave Device Details

### 4.2.2.1 Device Database

The SPC SmartBox has a database with detailed information about certified Z-Wave devices. The database is based on data from Z-Wave Alliance, reported by the device vendors. Unfortunately is the database not complete for all Z-Wave devices on the market. For some devices there is no data at all or very little data available. But even if the device is missed in the database you should still be able to use the device for control and automation.

### 4.2.2.2 Details

On the details page you can change name of the device, select product type and read some information about the device.



Details Configuration Associations

## Details Device 6

Name

Product

Device Type

Description

Include Info

Exclude Info

Element	Type	Description
Name	Input text	Device name
Save Name	Button	Button to save the device name given in the name field.
Product	Option Menu	If there are multiple matches of the device in the Device Database you can manually select the most suitable in this menu.
Device type	Text	Short description of the device type
Description	Text	A longer description of the device
Include Info	Text	Description how to include the device
Exclude Info	Text	Description how to exclude the device
Back	Button	Button to go back to Z-Wave Network page

### 4.2.2.3 Configuration

If the Z-Wave device has configuration parameters for customization of the device, you can change these parameters on the Configuration page. Even if the configuration parameters are not defined in the device database you will still be able to configuring the device using a **generic** interface, see **Advanced** below.

**NOTE!** It is very important that battery devices are awake when you read/write values to them. Read device manual to know how to manually wake up the specific device.

Details Configuration Associations

## Configuration Device 6

### Parameter 1 - Watt Meter Report Period

**Description** If the setting is configured for 1hour (set value =720), the PAN11 will report its instant power consumption every 1 hour to Group1 node. The maximum interval to report its instant power consumption is 45 hours (5s\*32767/3600=45hr).

**Default Value** 720

**Current Value**  **Read Value From Device**

**New Value**  (1-32767) 720\*5s=3600s=1 hour  **Write Value To Device**

### Parameter 2 - KWH Meter Report Period:

**Description** If the setting is configured for 1hour (set value =6), the PAN11 will report its Accumulated Power Consumption (KW/h) every 1 hour to Group1 node. The maximum interval to report its Accumulated Power Consumption (KW/h) is 227.55 days (10min\*32767/1440=227.55 days).

**Default Value** 6

**Current Value**  **Read Value From Device**

**New Value**  (1-32767) 6\*10min=1 hour  **Write Value To Device**

Element	Type	Description
Description	Text	Description of the parameter
Default Value	Number	Default value of the parameter
Current Value	Number	Shows current value of the parameter. Use button Read Value From Device to read this value from the device
Read Value from Device	Button	Request current parameter value from device
New Value	Checkbox, Value Select Box	Fields to enter a new parameter value. Save the value with Write Value to Device
Write Value To Device	Button	Button to write a new parameter value to the device.
Back	Button	Button to go back to Z-Wave Network page

### 4.2.2.4 Associations

If the Z-Wave device has association possibilities you can change these on the Association page.

Details Configuration Associations

## Associations Device 6

### Association Group 1

**Description** Z-Wave Plus Lifeline

**Current Associations** Device\_1:0 **Read From Device**

**New Associations** Device\_1:0 **Write To Device**

**Back**

Element	Type	Description
---------	------	-------------

Description	Text	Description of the association group
Current Associations	Text	Shows which devices this device is current associated to.
Read From Device	Button	Button to read current value from the device.
New Associations	Option Menu	Menu to select which devices this device should be associated to. Multiple selects are possible.
Write To Device	Button	Button to write a new value to the device.
Back	Button	Button to go back to Z-Wave Network page

Even if the associations are not defined in the device database you will still be able to configuring the device using a **generic** interface, see below. It is very important that you read the Z-Wave device manual carefully to understand which parameters that is valid.

## Associations Device 9

### Association Group 1

**Description**

**Current Associations**

**New Associations**

Element	Type	Description
Description	Text	Reference to device manual
Current Associations	Text	Shows which devices this device is current associated to.
Read From Device	Button	Button to read current value from the device.
New Associations	Option Menu	Menu to select which devices this device should be associated to. Multiple selects are possible.
Write To Device	Button	Button to write a new value to the device.
Back	Button	Button to go back to Z-Wave Network page

### 4.2.2.5 Wake Up

Details Configuration Associations **Wake Up** Advanced

#### Wake Up Configuration Device 14

**Current Value**

**New Value**   s

Use Wake Up tool to set wake up interval for battery devices (that support it).

**NOTE!** It is very important that the device is awake when you read/write to it. Read device manual to know how to manually wake it up.

Element	Type	Description
Current Value	Text	Shows which device that is receiver for the wake up report and the current and default wake up interval.
Read Value From Device	Button	Button to read current value from the device.
New Value	Read only text, Option Menu	Option menu to select new wake up interval in seconds. Receiver device is always the SmartBox (Device 1).
Write Value To Device	Button	Button to write a new value to the device.
Back	Button	Button to go back to Z-Wave Network page

#### 4.2.2.6 Advanced

Even if the configuration parameters are not defined in the device database you will still be able to configuring the device using a **generic** interface, see below. It is very important that you read the Z-Wave device manual carefully to understand which parameters that is valid.

[Details](#)
[Configuration](#)
[Associations](#)
[Wake Up](#)
[Advanced](#)

### Advanced Configuration Device 16

Parameter Number:

Current Value: 
Read Value From Device

New Value: 

Write Value To Device

Back

Element	Type	Description
Parameter Number	Option Menu	Parameter number 1 to 255
Current Value	Number	Shows current value of the parameter. Use button Read Value From Device to read this value from the device
Read Value from Device	Button	Request current parameter value from device
New Value	Option Menu Value Select Box	Fields to enter a new parameter value. Parameter length: 1, 2 or 4 bytes Value: 0 to a max value dependent of the parameter length. Save the value with Write Value to Device
Write Value To Device	Button	Button to write a new parameter value to the device.
Back	Button	Button to go back to Z-Wave Network page

### 4.3 KNX Configuration

#### 4.3.1 First time KNX configuration

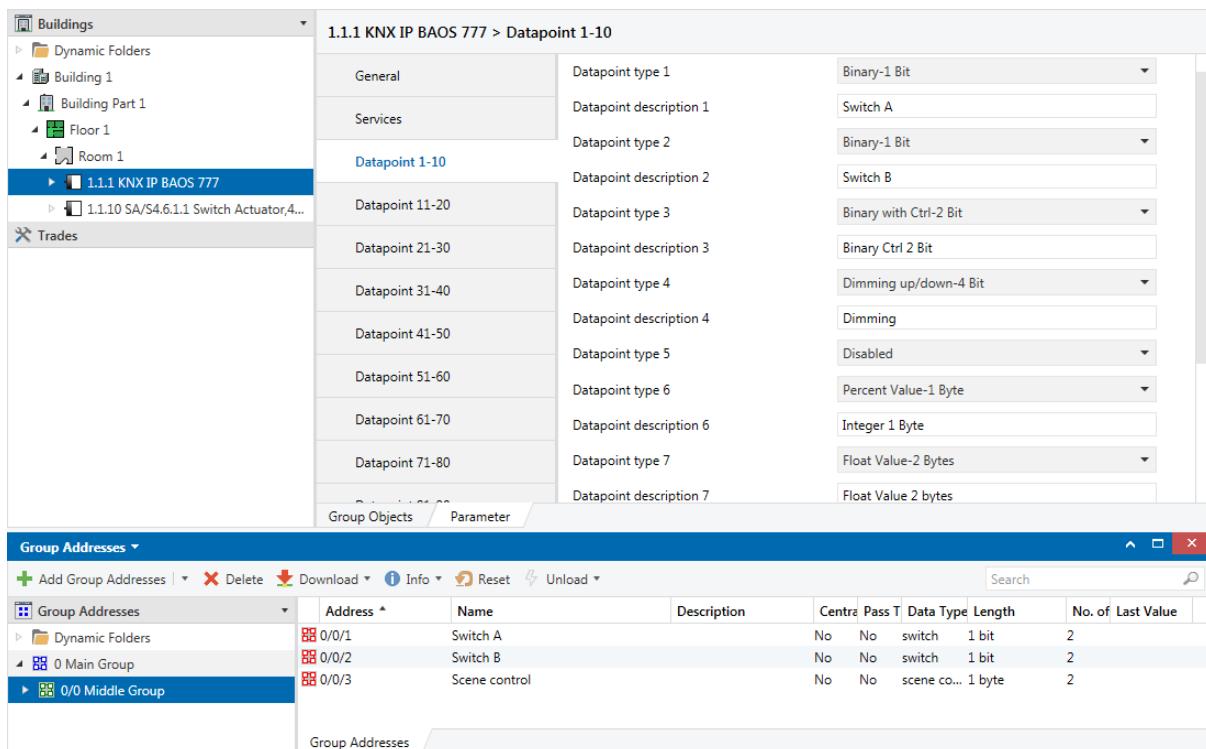
If you are configuring a new device, you should first configure the KNX Communication and then “import” the KNX datapoints to the SPC SmartBox Object Database. Thereafter you can use the KNX objects for automation.

#### 4.3.2 KNX Communication

To setup the communication link between the Weinzierl KNX IP BAOS 777 Gateway and the SPC SmartBox you have to configure the link in both the KNX IP gateway and the SPC SmartBox ends.

##### 4.3.2.1 Configuration of Weinzierl KNX IP BAOS 777 Gateway

SPC SmartBox uses the KNX IP gateway BAOS Webservices to read/write data from/to the KNX system. Follow the instructions in [KNX\_W777\_MAN] to install and connect the KNX IP gateway to your KNX system. Then use the KNX ETS configuration tool to configure the datapoints you want to “see” from the SPC SmartBox. Please see section **Supported KNX Datapoint Types** for supported datapoint types. It is important that you base your configuration on the **Generic Product Database for 777** (the product database with building structure is not supported). The product database file can be downloaded from Weinzierl internet site.



##### 4.3.2.2 SmartBox KNX Communication Settings

Select **Configuration->KNX Communication** and fill in the form according to:

## KNX Gateway Settings

Enable KNX communication

IP Address

Username

Password

Element	Type	Description
Enable KNX communication	Checkbox	Check this to enable the KNX communication
IP Address	Input text	IP Address of the KNX IP Gateway
Username	Input text	KNX IP Gateway username
Password	Input text	KNX IP Gateway password
Save	Button	Saves settings
Reset	Button	Resets form to current settings

### 4.3.3 Sync SmartBox and KNX System

After you have setup the KNX communication you need to import the datapoint configuration to SPC SmartBox object database. Go to **Configuration->Object Database**, select **KNX** and click on **Sync Database with KNX System**. The datapoints you defined in the KNX IP gateway should then appear in the database listing. See example below.

**NOTE!** Every time you change the datapoint settings in the KNX IP gateway you need to update SPC SmartBox Object Database by using the **Sync Database with KNX system**.

Id	Object	Name	Type	Status	Attribute	Value	Hide in Automation	Settings
1	knx_dp_1	Switch A	KNX_DP	0	value	0	0	
2	knx_dp_2	Switch B	KNX_DP	0	value	0	0	
3	knx_dp_3	Binary Ctrl 2 Bit	KNX_DP	0	value	0	0	
4	knx_dp_4	Dimming	KNX_DP	0	value	0	0	
6	knx_dp_6	Integer 1 Byte	KNX_DP	0	value	0	0	
7	knx_dp_7	Float Value 2 bytes	KNX_DP	0	value	0	0	
10	knx_dp_10	Unsigned 4 bytes	KNX_DP	0	value	0	0	
11	knx_dp_11	Signed 4 bytes	KNX_DP	0	value	0	0	
12	knx_dp_12	Float 4 bytes	KNX_DP	0	value	0	0	
14	knx_dp_14	Scene control	KNX_DP	0	value	1	0	

Please see section **Object Database** for more details.

To test the KNX communications go to **Automation->KNX Datapoints**.

### 4.4 Notifications Configuration

SPC SmartBox has support for sending push notifications from scenes. Two types of notifications are supported; email and pushover.

Pushover is a service to receive instant push notifications on your iOS or Android phone or tablet. To use pushover you need to register an user account on [www.pushover.net](http://www.pushover.net) and create an application. You will then get an user key and an application key that you need to configure the Pushover service in the SPC SmartBox. After a 7-day free trail you need to pay a small fee for the App. Please see Appendix for help how to create a pushover account and get the keys.

For email notifications, Gmail is recommended.

Up to five recipients can be defined. To configure notifications go to **Configuration->Notifications**.

Id	Enable	Name	Type	Email Address/User Key	Test
1	<input checked="" type="checkbox"/>	recipient 1	Email	john@gmail.com	Send test message
2	<input checked="" type="checkbox"/>	recipient 2	Pushover	xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx	Advanced Send test message
3	<input type="checkbox"/>	recipient 3	Email	nnn.nnn@nnn.nn	Send test message
4	<input type="checkbox"/>	recipient 4	Email	nnn.nnn@nnn.nn	Send test message
5	<input type="checkbox"/>	recipient 5	Email	nnn.nnn@nnn.nn	Send test message

Save Reset Notification Accounts

Element	Type	Description
Id	Number	Recipient Id
Enable	Checkbox	Checkbox to enable recipient for push notifications
Name	Input text	Recipient name
Type	Option Menu	Type of notification; Email or Pushover
Email Address/User Key	Input text	If email; the recipients email address. If pushover; the recipients user key.
Advanced	Button	Advanced setting. Only available for pushover.
Send test message	Button	Button to send a test message to the recipient
Save	Button	Saves settings
Reset	Button	Resets form to current settings
Notification Accounts	Button	Button to go to form for account settings



### 4.4.1 Advanced settings (only for pushover)

#### Advanced Pushover Settings Notification 2 ✕

Priority	Normal
Retry	Every 1 minute
Expire	After 10 minutes
Sound	Climb (long)

Element	Type	Description
Priority	Option Menu	Select between Normal, High or Emergency priority. Please read on pushover site the differences between the priorities.
Retry	Option Menu	How often the notification should be repeated until the notification is acknowledged by the user. Only available for Emergency notifications.
Expire	Option Menu	Specifies how long time your notification will continue to be retried for. Only available for Emergency notifications.
Sound	Option Menu	Sound to play when receiving notifications

### 4.4.2 Notification Accounts

#### Email

SMTP Server	smtp.gmail.com
SMTP Port	587
SMTP User Name	myuser
SMTP Password	.....
Enable SSL	<input checked="" type="checkbox"/>
Sender Email Address	myuser@gmail.com

#### Pushover

APP Key	yyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyy
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### Email Account Settings

Element	Type	Description
SMTP Server	Input text	SMTP Server, e.g. smtp.gmail.com
SMTP Port	Input text	SMTP Port, e.g. 587
SMTP Username	Input text	Email account username
SMTP Password	Input text	Email account password
Enable SSL	Checkbox	Enable SSL
Sender Email Address	Input text	Sender email address

**Pushover Account Settings**

Element	Type	Description
APP Key	Input text	Pushover APP Key

## 4.5 Object Database

All automation objects are collected in the Object Database. The objects are divided into following main categories:

- **System.** System objects, e.g Automation Mode and global variables.
- **SPC.** All objects imported from the SPC Panel, e.g alarm areas and zones.
- **KNX.** All objects imported from the KNX System.
- **Z-Wave.** All Z-Wave objects.

**NOTE!** After restart of SmartBox the object values are marked as uninitialized (or set to default values) until real values have been collected. Default value for Automation Mode is Home (0) and for Global Variables 0. All default values are possible to change in the Object Settings Dialog.

To look at the objects in the Object Database, go to **System->Object Database** and select the category you are interested in. Most of the columns are sortable and searchable.

Z-Wave Sync Database with Z-Wave Network

Id	Object	Name	Type	Status	Attribute	Value Type	Unit	Value	Hide in Automation	Settings
1	zwave_node_1	Device_1	-	-	-	-	-	-	-	
6:0	zwave_node_6:0	Device_6:0	Power Switch Binary	0	bswitch	-	-	0 [Off]	-	
6:0	zwave_node_6:0	Device_6:0	Power Switch Binary	0	basic	-	-	0	-	
6:0	zwave_node_6:0	Device_6:0	Power Switch Binary	0	meter	Electric meter	kWh	0	-	
					meter	Electric meter	W	0	-	
					meter	Electric meter	V	227.7	-	
					meter	Electric meter	A	0	-	
					meter	Electric meter	%	0	-	
9:0	zwave_node_9:0	Device_9:0	Valve Open/Close	0	basic	-	-	255	-	
9:0	zwave_node_9:0	Device_9:0	Valve Open/Close	0	bswitch	-	-	0 [Off]	-	
12:0	zwave_node_12:0	Device_12:0	Power Switch Binary	0	basic	-	-	0	-	
12:0	zwave_node_12:0	Device_12:0	Power Switch Binary	0	bswitch	-	-	0 [Off]	-	
12:1	zwave_node_12:1	Device_12:1	Power Switch Binary	0	basic	-	-	0	-	

Element	Type	Description
Id	Number	Internal object Id.
Object	Text	Internal object name
Name	Text	Public object name
Type	Text	Type of object (only for SPC, KNX and Z-Wave)
Status	Number	Bitmask with internal status information. (only bit 0 is used at the moment) Bit 0: 0 = Initialized value, 1 = Uninitialized value
Attribute	Text	For <b>System</b> and <b>KNX</b> objects the attribute is always 'value'.  For <b>Z-Wave</b> objects the attribute is the same as the command class name, e.g basic, bswitch, mswitch, meter.  For <b>SPC Areas</b> : mode = Area mode confirmed = 1 if at least two zones in the area have status Alarm. alarm = 1 if at least one zone in the area has status Alarm. tamper = 1 if at least one zone in the area has status Tamper.

		<p>trouble = 1 if at least one zone in the area has status Trouble. input_map = Bitmap with input states for zones belonging to the area. status_map = Bitmap with status for zones belonging to the area.</p> <p><b>input_map and status_map are used internally in dashboard area widget and can't be used in scenes and automation.</b></p> <p>For <b>SPC Zones</b>: input = Zone input value status = Zone status</p> <p>For <b>SPC Outputs</b>: output = Output value.</p>
Value Type	Text	Type of value, e.g Electric Meter, Power, Temperature. Only Z-Wave.
Unit	Text	Unit. Only Z-Wave
Value	Number	Current value (updates dynamically)
Hide in Automation	Number	1 = the object is hidden in scenes and automation lists (see settings how to hide objects)
Settings	Button	Open the Object Settings dialog, see below.

### 4.5.1 Object Settings dialog

In the object settings dialog it is possible to set a default value for the object/attribute and select to hide the object/attribute in scenes and automation lists.

The **Default Value** is used to initialize the object/attribute when the Scene Engine is restarted, for instance when the SPC SmartBox is rebooted. Specific for battery operated Z-Wave devices, that can take some time until a real value has been reported, this feature can be useful.

If you don't want to use the object/attribute in scenes or see the object in automation lists, you can select **Hide in automation**.

Object Settings
✕

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Name

Attribute	Value Type	Unit	Value	Default Value	Hide In Automation
meter	Electric meter	kWh	<input style="width: 50px;" type="text" value="0"/>	<input style="width: 50px;" type="text" value="Uninitialized"/>	<input type="checkbox"/>
meter	Electric meter	W	<input style="width: 50px;" type="text" value="0"/>	<input style="width: 50px;" type="text" value="Uninitialized"/>	<input type="checkbox"/>
meter	Electric meter	V	<input style="width: 50px;" type="text" value="226.5"/>	<input style="width: 50px;" type="text" value="Uninitialized"/>	<input type="checkbox"/>
meter	Electric meter	A	<input style="width: 50px;" type="text" value="0"/>	<input style="width: 50px;" type="text" value="Uninitialized"/>	<input type="checkbox"/>
meter	Electric meter	%	<input style="width: 50px;" type="text" value="0"/>	<input style="width: 50px;" type="text" value="Uninitialized"/>	<input type="checkbox"/>

#### 4.5.2 Sync and Recreate buttons

Each category in the Object Database has a specific button to sync the database with the datasource and/or recreate the objects in the database.

For SPC and KNX it is necessary to use the buttons **Sync Database with SPC Panel** and **Sync Database with KNX System** to import changes in SPC panel and KNX IP Gateway settings, respectively.

For Z-Wave the button **Sync Database with Z-Wave Network** should only be needed to use if the Object Database of some reason has become out of sync with the Z-Wave network.

For System the button **Recreate System Objects** should only be used in emergency case if the system objects have been corrupted.

## 4.6 System configuration

### 4.6.1 System Info

Select **System->System Info** to view the SPC SmartBox system info.

System Name	iCPE
Serial Number	507916110000076
Firmware Version	1.00-RC31
SmartBox Version	1.0-1
Uptime	22 days 07:26:21
Local Time	Fri Apr 07 2017 16:13:26 GMT+0200
Load Average	4.70 4.56 4.54
Total Memory	125480 kB
Free Memory	24032 kB

Element	Type	Description
System Name	Read only text	SmartBox system name (always iCPE).
Serial Number	Read only text	SmartBox device serial number.
Firmware Version	Read only text	Version of installed firmware.
SmartBox Version	Read only text	Version of installed SmartBox Application
Uptime	Read only text	Time since last boot. Updated every 5 seconds.
Local Time	Read only text	Local time. Updated every 5 seconds.
Load Average	Read only text	The load average of the CPU over the last 1, 5 and 15 minutes. Updated every 5 seconds.
Total Memory	Read only text	SmartBox total memory. Updated every 5 seconds.
Free Memory	Read only text	Current free memory. Updated every 5 seconds.

### 4.6.2 Firmware

Use **System->Firmware** to upgrade firmware and/or backup system configuration.

#### Firmware Upgrade

Keep Settings

Image File  No image file selected

#### System Configuration Backup and Restore

Backup File

Restore File  No configuration file selected

Element	Type	Description
Keep Settings	Checkbox	Check this to keep current settings.
Image File – Browse	Button	Button to select image file on your PC.
Flash image	Button	Flash selected image file to the SPC SmartBox
Backup File	Button	Button to backup current system configuration.
Restore File – Browse	Button	Button to select a backup file on your PC.
Restore Configuration	Button	Button to restore a configuration file.

Normal upgrade procedure:

1. Download the new firmware file to your computer.
2. Log on to the SmartBox and go to **System->Firmware**
3. Under **Firmware Upgrade**
  - Let **Keep Settings** remain checked (if otherwise not mentioned).
  - Click on **Browse** and select the new firmware file.
  - Click on **Flash Image** to start the installation.
4. Wait until the installation is finished and the SmartBox has been rebooted (you should be directed to the login screen)
5. Log on to the SmartBox, go to **System->System Info** and verify Firmware and SmartBox version numbers.

## 5 Automation configuration

### 5.1 Scenes

#### 5.1.1 Scene List

Select **Automation->Scenes** to list and control the defined scenes and add new scenes:

Id	Status	Name	Description	Run	Edit	Delete
1	Enabled <span>Disable</span>	Home	Coming Home			
2	Enabled <span>Disable</span>	Away	Leaving home			
3	Enabled <span>Disable</span>	Night	Goodnight Scene			
4	Enabled <span>Disable</span>	Entrance	Entrance Outdoor Light			
5	Enabled <span>Disable</span>	Bathroom	Bathroom Light			
7	Enabled <span>Disable</span>	Night lamp	Hall night lamp			
8	Enabled <span>Disable</span>	Flood	Leakage monitoring			

New scene

Element	Type	Description
Id	Number	Scene number
Status	Text	Status of the scene: Enabled – Scene is valid and can be started both manually and automatically on trigger. Disabled – Scene is manually disabled. Scene will not start on trigger. Invalid – Scene syntax is invalid. Will e.g. happen if a variable in the scene is removed from object database. Invalid scenes are automatically disabled.
Disable	Button	Button to disable scene
Name	Text	Scene name
Description	Text	Scene description
Run	Button	Button to run the actions in the scene once.
Edit	Button	Open the scene in the Scene Editor
Delete	Button	Button to delete the scene
New Scene	Button	Button to open the Scene Editor to create a new scene.



### 5.1.2 Scene Editor

#### 5.1.3 Overview

Scene Name

Description

Weekdays  Monday  Tuesday  Wednesday  Thursday  Friday  Saturday  Sunday

**When**

Trigger

Condition   ↓ ↑ ✕

Condition   ↓ ↑ ✕

**Then**

Delay   ↓ ↑ ✕

Action

Delay   ↓ ↑ ✕

Action

The **Scene Editor** is used to define automation rules and actions. Basically a scene is composed of a trigger, conditions and actions.

Triggers are used to automatically activate a scene. A trigger can be based on time (system time, sunset, sunrise), system object value change (automation mode, global variable) or an event from the SPC system or from a KNX or Z-Wave device, e.g. a motion sensor detecting movement or temperature pass a threshold value.

Conditions are an optional part of a scene and be used to prevent an action from happening when triggered. Conditions look very similar to triggers but are very different. A trigger will look at events happening in the system while a condition only looks at how the system looks right now. A trigger

can observe that a switch is being turned on. A condition can only see if a switch is currently on or off. Multiple conditions can be combined with AND or OR logic.

The actions specify what is being executed when a scene is activated, e.g. switch on a lamp. If more than one action is specified the actions are executed in sequence with an optional time delay between each action. If the scene is retriggered during execution of the scene actions, the activity will restart again from first action.

The example above shows an example of a scene that will switch on a lamp in the hall for a short time, when someone is moving in the hall during the night. The scene is triggered by the PIR (motion sensor connected to SPC) in the hall and if time is between 23:30 and 30 minutes after sunrise the lamp is switched on and then switched off again after 2 and half minutes.

### 5.1.4 Scene Header

Scene Name

Description

Weekdays  Monday  Tuesday  Wednesday  Thursday  Friday  Saturday  Sunday

Element	Type	Description
Scene Name	Text input	Scene name
Description	Text input	Scene description
Weekdays	Checkboxes	Limits the action of the scene to specific days in week

### 5.1.5 Scene Triggers

Trigger Type	Trigger Operator	Trigger Value/Parameter
Manual	-	-
Actuator	changes to	Off, On
Alarm Area (mode)	changes to, changes from	Unset, Partset A, Partset B, Fullset
Alarm Area (confirmed, alarm, tamper, trouble)	changes to, changes from	No Confirmed Alarm, Confirmed Alarm No Alarm, Alarm No Tamper, Tamper No Trouble, Trouble  The trigger will have Confirmed Alarm, Alarm, Tamper and/or Trouble status if at least one zone in the area has corresponding status.
Alarm Zone (input)	changes to, changes from	Open, Closed, Short, Disconnected, PIR Masked, DC Substitution, Sensor Missing, Offline
Alarm Zone (status)	changes to, changes from	OK, Inhibit, Isolate, Soak, Tamper, Alarm, Trouble
Battery, Meter and Sensor	falling edge less than, falling edge greater than	Threshold value
Sensor Alarm	on event	Event type e.g Water Leak Detected
KNX (DPT1)	changes to	0, 1
KNX (DPT2)	priority disabled and value changes to, priority enabled and value changes to	0, 1
KNX (DPT3, DPT5, DPT9, DPT12, DPT13, DPT14)	falling edge less than, falling edge greater than	Threshold value
KNX (DPT18)	scene changes to, scene changes from	1 – 64 (scene number)

System (Automation Mode)	changes to, changes from	Home, Away, Night, Vacation
System (Global variable)	falling edge less than, falling edge greater than, changes to, changes from	Threshold value
Time (System Time)	time is	HH:MM:SS
Time (Sunrise)	time is (sunrise + offset)	Offset -360 to 360 minutes
Time (Sunset)	time is (sunset + offset)	Offset -360 to 360 minutes

Select trigger **Manual** if you only want to run the scene manually from the **Run** button in the Scene List. It is not possible to define conditions for a Manual scene.

**NOTE!** Maximum trigger and condition time based on Sunset and offset is midnight. Minimum trigger and condition time based on Sunrise and offset is midnight.

### 5.1.6 Scene Conditions

Condition Type	Condition Operator	Condition Value/Parameter
Actuator	equal	Off, On
Alarm Area (mode)	equal, not equal	Unset, Partset A, Partset B, Fullset
Alarm Area (confirmed, alarm, tamper, trouble)	equal, not equal	No Confirmed Alarm, Confirmed Alarm No Alarm, Alarm No Tamper, Tamper No Trouble, Trouble  The trigger will have Confirmed Alarm, Alarm, Tamper and/or Trouble status if at least one zone in the area has corresponding status.
Alarm Zone (input)	equal, not equal	Open, Closed, Short, Disconnected, PIR Masked, DC Substitution, Sensor Missing, Offline
Alarm Zone (status)	equal, not equal	OK, Inhibit, Isolate, Soak, Tamper, Alarm, Trouble
Battery, Meter and Sensor	less or equal than, greater than	Threshold value
KNX (DPT1)	equal	0, 1
KNX (DPT2)	priority disabled and value equal, priority enabled and value equal	0, 1
KNX (DPT3, DPT5, DPT9, DPT12, DPT13, DPT14)	less or equal than, greater than	Threshold value
KNX (DPT18)	scene equal, scene not equal	1 – 64 (scene number)
System (Automation Mode)	equal, not equal	Home, Away, Night, Vacation
System (Global variable)	less or equal than, greater than, equal, not equal	Threshold value
Time (System Time)	time after, time before	HH:MM:SS
Time (Sunrise)	time after (sunrise + offset), time before (sunrise + offset)	Offset -360 to 360 minutes
Time (Sunset)	time after (sunset + offset), time before (sunset + offset)	Offset -360 to 360 minutes

Conditions are logically combined with AND or OR. You can reorder or remove conditions by using the buttons to the right of the conditions.

### 5.1.7 Scene Actions

Action Type	Action Operator	Action Value/Parameter
Delay	-	HH:MM:SS
Actuator	set to	Off, On
Alarm Output	set to	Off, On
KNX (DPT1)	set to	0, 1
KNX (DPT2)	disable priority and set value to, enable priority and set value to	0, 1
KNX (DPT3)	decrease dimming and set step code to, increase dimming and set step code to	Value (Step Code)
KNX (DPT5, DPT9, DPT12, DPT13, DPT14)	set to	Value
KNX (DPT18)	activate scene number	1 – 64 (Scene number)
Notification	-	Notification subject and message
System (Automation Mode)	set to	Home, Away, Night, Vacation
System (Global variable)	set to	Value

You can reorder or remove actions by using the buttons to the right of the actions.

**NOTE!** If the scene is retrIGGERED during execution of the scene actions, the activity will restart again from first action.

**Tip!** You can activate another scene from a scene by using a global variable as action in first scene and as a trigger in second scene.

## 5.2 Control elements

### 5.2.1 Alarm Areas

Select **Automation->Alarm Areas** to list and control the SPC alarm areas.

Id	Name	Confirmed Alarm	Alarm	Tamper	Trouble	Mode	Command
1	Area 1	No	No	No	No	Unset	<a href="#">Unset</a> <a href="#">Partset A</a> <a href="#">Partset B</a> <a href="#">Set</a>
2	Area 2	No	No	No	No	Unset	<a href="#">Unset</a> <a href="#">Partset B</a> <a href="#">Set</a>

Element	Type	Description
Id	Number	Area id
Name	Text	Area name (imported from the SPC panel)
Confirmed Alarm	Text	No = The area has no confirmed alarms Yes = The area has confirmed alarms (Alarm on at least two zones)
Alarm	Text	No = There are no zones with status Alarm in the area Yes = At least one zone in the area has status Alarm
Tamper	Text	No = There are no zones with status Tamper in the area Yes = At least one zone in the area has status Tamper
Trouble	Text	No = There are no zones with status Trouble in the area Yes = At least one zone in the area has status Trouble
Mode	Text	Current area mode (Unset, Partset A, Partset B, Set). Updated in real-time.
Command	Buttons	Command buttons: Unset, Partset A, Partset B, Set. Only allowed if remote commands are enabled in the SPC panel.

### 5.2.2 Alarm Zones

Select **Automation->Alarm Zones** to list and control the SPC alarm zones.

Id	Name	Type	Area	Input	Status	Command
1	PIR Hall	Alarm	Area 1	Closed	OK	<a href="#">Inhibit</a> <a href="#">Isolate</a>
2	PIR Living Room	Alarm	Area 1	Closed	OK	<a href="#">Inhibit</a> <a href="#">Isolate</a>
3	PIR Kitchen	Alarm	Area 1	Closed	OK	<a href="#">Inhibit</a> <a href="#">Isolate</a>
4	Door Entrance	Entry/Exit	Area 1	Closed	OK	<a href="#">Inhibit</a> <a href="#">Isolate</a>
5	Door Garage	Alarm	Area 1	Closed	OK	<a href="#">Inhibit</a> <a href="#">Isolate</a>
6	Window Living Rm	Alarm	Area 1	Closed	OK	<a href="#">Inhibit</a> <a href="#">Isolate</a>
7	Window Kitchen	Alarm	Area 1	Closed	OK	<a href="#">Inhibit</a> <a href="#">Isolate</a>
8	Window Hall	Alarm	Area 1	Closed	OK	<a href="#">Inhibit</a> <a href="#">Isolate</a>

Element	Type	Description
Id	Number	Zone id
Name	Text	Zone name (imported from the SPC panel)
Type	Text	Zone type (Alarm, Entry/Exit, Exit Terminator, Fire, Fire Exit, Line, Panic, Hold-up, Tamper, Technical, Medical, Keyarm, Shunt, X-shunt, Fault, Lock Supervision, Seismic)
Area	Text	Area the zone is assigned to
Input	Text	Current zone input value (Closed, Open, Short, Disconnected, PIR Masked, DC Substitution, Sensor Missing, Offline). Updated in real-time.

Status	Text	Current zone status (OK, Inhibit, Isolate, Soak, Tamper, Alarm, Trouble). Updated in real-time.
Command	Buttons	Command buttons: Inhibit, Isolate

### 5.2.3 Alarm Outputs

Select **Automation->Alarm Outputs** to list and control the SPC outputs (actually the mapping gates).

Id	Name	State	Command
1	MG 1	1	<input type="button" value="Unset"/> <input type="button" value="Set"/>
2	MG 2	0	<input type="button" value="Unset"/> <input type="button" value="Set"/>
3	MG 3	0	<input type="button" value="Unset"/> <input type="button" value="Set"/>
4	MG 4	0	<input type="button" value="Unset"/> <input type="button" value="Set"/>

Element	Type	Description
Id	Number	Mapping gate id
Name	Text	Mapping gate name (imported from the SPC panel)
State	Text	Current state of the mapping gate (0, 1)
Command	Buttons	Command buttons: Unset, Set
Update state from SPC Panel	Button	Get current mapping gate states from the SPC panel

### 5.2.4 Actuators

Select **Automation->Actuators** to list and control the Z-Wave actuators.

Id	Device Name	Type	Value	Command
6:0	Device_6	Power Switch Binary [bswitch]	Off	<input type="button" value="Off"/> <input type="button" value="On"/>
9:0	Device_9	Valve Open/Close [bswitch]	Off	<input type="button" value="Off"/> <input type="button" value="On"/>
12:0	Device_12	Power Switch Binary [bswitch]	Off	<input type="button" value="Off"/> <input type="button" value="On"/>
12:1	Device_12	Power Switch Binary [bswitch]	Off	<input type="button" value="Off"/> <input type="button" value="On"/>
12:2	Device_12	Power Switch Binary [bswitch]	Off	<input type="button" value="Off"/> <input type="button" value="On"/>
13:0	Device_13	Power Switch Multilevel [mswitch]	0%	<input type="button" value="Off"/> <input type="button" value="On"/> <input type="range" value="0%"/> <input type="button" value="0%"/>
13:1	Device_13	Power Switch Multilevel [mswitch]	0%	<input type="button" value="Off"/> <input type="button" value="On"/> <input type="range" value="0%"/> <input type="button" value="0%"/>
13:2	Device_13	Power Switch Multilevel [mswitch]	0%	<input type="button" value="Off"/> <input type="button" value="On"/> <input type="range" value="0%"/> <input type="button" value="0%"/>
14:0	Device_14	Switch Binary [bswitch]	Off	<input type="button" value="Off"/> <input type="button" value="On"/>
20:0	Device_20	Power Switch Binary [bswitch]	Off	<input type="button" value="Off"/> <input type="button" value="On"/>

Element	Type	Description
Id	Number	Z-Wave device id and endpoint number
Device Name	Text	Z-Wave device name
Type	Text	Device type and command class type

Value	Text	Current value. Updated in real-time.
Command	Buttons	Command buttons: Binary switch commands: Off, On Multilevel switch commands: Off, On, Dimmer value 0-99%

### 5.2.5 Batteries

Select **Automation->Batteries** to list the battery levels for battery operated Z-Wave devices.

Id	Device Name	Type	Unit	Value
16:0	Device_16	Notification Sensor [battery]	%	77
17:0	Device_17	Routing Sensor Multilevel [battery]	%	82
19:0	Device_19	Routing Sensor Binary [battery]	%	61
24:0	Device_24	Notification Sensor [battery]	%	100
26:0	Device_26	Notification Sensor [battery]	%	100

Element	Type	Description
Id	Number	Z-Wave device id and endpoint number
Device Name	Text	Z-Wave device name
Type	Text	Device type and command class type
Unit	Text	Unit. Always %.
Value	Text	Current battery level. Updated in real-time.

### 5.2.6 Meters

Select **Automation->Meters** to list the Z-Wave meters.

Id	Device Name	Type	Unit	Value
6:0	Device_6	Power Switch Binary [meter, Electric meter]	kWh	0
6:0	Device_6	Power Switch Binary [meter, Electric meter]	W	0
6:0	Device_6	Power Switch Binary [meter, Electric meter]	V	228.1
6:0	Device_6	Power Switch Binary [meter, Electric meter]	A	0
6:0	Device_6	Power Switch Binary [meter, Electric meter]	%	0
13:0	Device_13	Power Switch Multilevel [meter, Electric meter]	kWh	0.7
13:0	Device_13	Power Switch Multilevel [meter, Electric meter]	W	0
13:1	Device_13	Power Switch Multilevel [meter, Electric meter]	kWh	0.7
13:1	Device_13	Power Switch Multilevel [meter, Electric meter]	W	0
14:0	Device_14	Switch Binary [meter, Electric meter]	kWh	0
14:0	Device_14	Switch Binary [meter, Electric meter]	W	0

Element	Type	Description
Id	Number	Z-Wave device id and endpoint number
Device Name	Text	Z-Wave device name
Type	Text	Device type and command class type
Unit	Text	Unit

Value	Text	Current value. Updated in real-time.
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### 5.2.7 Sensors

Select **Automation->Sensors** to list the Z-Wave sensors.

Id	Device Name	Type	Unit	Value
13:0	Device_13	Power Switch Multilevel [msensor, Power]	W	0
13:1	Device_13	Power Switch Multilevel [msensor, Power]	W	0
14:0	Device_14	Switch Binary [msensor, Power]	W	0
16:0	Device_16	Notification Sensor [msensor, Air temperature]	C	25.66
19:0	Device_19	Routing Sensor Binary [msensor, Air temperature]	C	28
19:0	Device_19	Routing Sensor Binary [msensor, Air temperature]	F	0
19:0	Device_19	Routing Sensor Binary [msensor, Luminance]	Lux	0
19:0	Device_19	Routing Sensor Binary [msensor, Humidity]	%	0
24:0	Device_24	Notification Sensor [msensor, Air temperature]	C	25

Element	Type	Description
Id	Number	Z-Wave device id and endpoint
Device Name	Text	Z-Wave device name
Type	Text	Device type and command class type
Unit	Text	Unit
Value	Text	Current value. Updated in real-time.

### 5.2.8 KNX Datapoints

Select **Automation->KNX Datapoints** to list and control the KNX datapoints.

Id	Name	Type	Value	Control	Command
1	Switch A	DPT1	0	-	Control Unused 0 <input type="button" value="Save"/>
2	Switch B	DPT1	0	-	Control Unused 0 <input type="button" value="Save"/>
3	Binary Ctrl 2 Bit	DPT2	0	0	Disable Priority 0 <input type="button" value="Save"/>
4	Dimming	DPT3	0	0	Decrease Dimming 0 <input type="button" value="Save"/>
6	Integer 1 Byte	DPT5	0	-	Control Unused 0 <input type="button" value="Save"/>
7	Float Value 2 bytes	DPT9	0	-	Control Unused 0 <input type="button" value="Save"/>
10	Unsigned 4 bytes	DPT12	0	-	Control Unused 0 <input type="button" value="Save"/>
11	Signed 4 bytes	DPT13	0	-	Control Unused 0 <input type="button" value="Save"/>
12	Float 4 bytes	DPT14	0	-	Control Unused 0 <input type="button" value="Save"/>
14	Scene control	DPT18	1	0	Activate Scene 1 <input type="button" value="Save"/>

Element	Type	Description
---------	------	-------------



Id	Number	KNX datapoint ID. (= Parameter number in BAOS Gateway)
Name	Text	Datapoint name (imported from BAOS Gateway)
Type	Text	Datapoint type (imported from BAOS Gateway)
Value	Text	Current value. Updated in real-time.
Control	Text	Current Control value. Updated in real-time.
Command	Option menu, Select menu	Command fields. See table below.

## Supported datapoint types and possible commands:

Datapoint type	Description	Control	Value
DPT1	Binary	-	0 or 1
DPT2	Binary with Control	Disable/Enable Priority	0 or 1
DPT3	Dimming with Control	Decrease/Increase Dimming	11 to 4379
DPT5	Integer 1 byte value	-	0 to 255
DPT9	Float 2 bytes value	-	-671088 to 670761
DPT12	Unsigned 4 bytes value	-	0 to 4294967295
DPT13	Signed 4 bytes value		-2147483648 to 2147483647
DPT14	Float 4 bytes value		-1000000000 to 1000000000
DPT18	Scene with Control	Activate Scene or Learn Scene	1 to 64

## 6 Dashboard Configuration

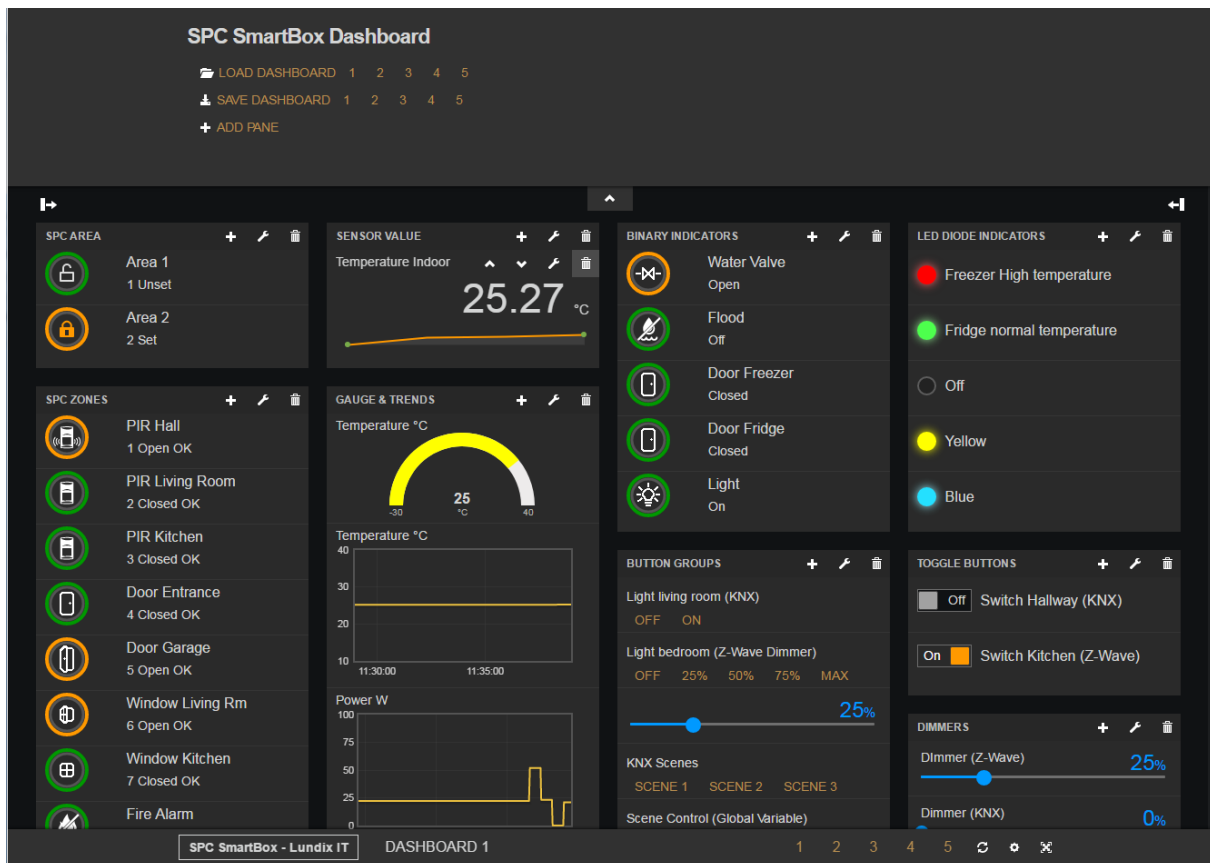
### 6.1 Overview

For nice looking presentation of current status of alarm areas, alarm zones and Z-Wave/KNX-devices, SmartBox provides an easy to use dashboard tool. The dashboard can easy be customized by the end user.

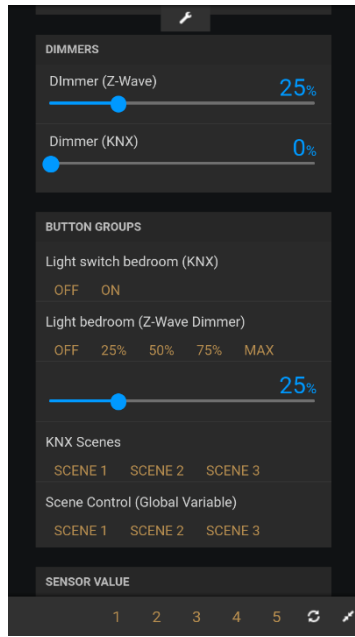
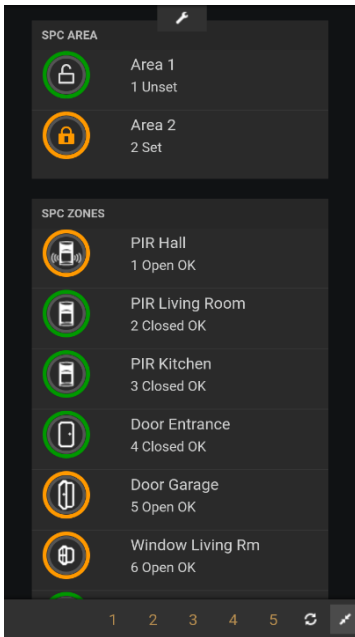
The dashboard is responsive and can be displayed on any device (PC, laptop, tablet, smart phone) that has a web browser.

The dashboard tool is based on freboard.io, a free open-sourced application ([www.freeboard.io](http://www.freeboard.io)). The figure below shows the tool in edit mode where all fields is possible to customize and move.

The standard freeboard application has been adapted to better suit SmartBox users. Unsupported datasources and widgets have been removed. A new websockets datasource has been integrated and some new widgets have been added.

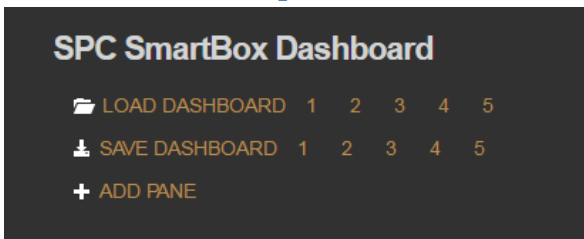


Dashboard on PC (edit mode)



Dashboard on Smart Phone

## 6.2 Editor main panel



Up to five dashboards can be created. From the editor main panel you can save and load these dashboards.

You can also load the dashboards from the footer panel (see below) or from web GUI main menu **Dashboard**.

The dashboards are excluded from credentials control so one more way is to load a dashboard directly by giving following Http address:

*SPC\_SMARTBOX\_IP/dashboard.html?id=DASHBOARD\_NUMBER&edit=EDIT\_MODE, there DASHBOARD\_NUMBER is 1 to 5 and EDIT\_MODE is true if the dashboard should be editable otherwise false.*

Example: 192.168.0.10/dashboard.html?id=1&edit=false

Click on **ADD PANE** to add a new pane to a dashboard.

**NOTE!** When you reload a newly saved dashboard you sometimes need to flush the web browser cache to see changes. (Cntrl + F5 on Chrome)

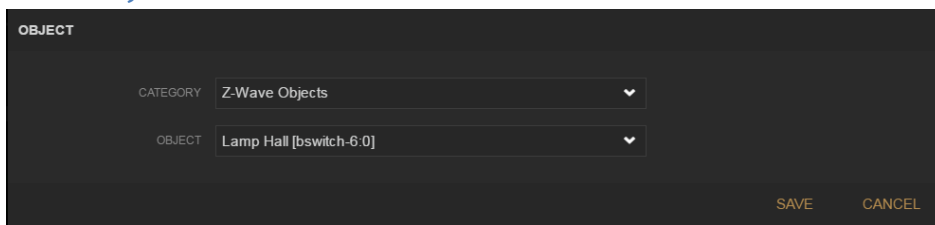
### 6.3 Footer panel



The footer panel is showing current dashboard id and has following buttons

Button	Description
1 – 5	Buttons to load corresponding dashboard
	Reload current dashboard (dashboard in fullscreen mode will be shrunk and history will be lost)
	Go to Smartbox login screen
	Toggle fullscreen mode (Not supported on all platforms)

### 6.4 Object Selector



The object selector is used in some widgets to add datasource variables/objects.

The objects are sorted in following categories.

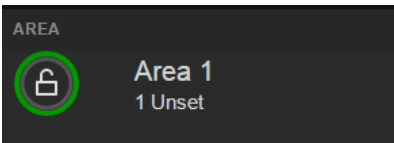
- System Objects
- SPC Objects
- Z-Wave Objects
- KNX Objects

### 6.5 Widgets

The widget renders and displays the data. At the moment following widgets are supported:

- Alarm Area
- Alarm Zone
- Gauge
- LED Diode Indicator
- Pushbutton Group (interactive)
- Sensor Binary
- Sensor Value
- Slider (interactive)
- Toggle Button (interactive)
- Plot

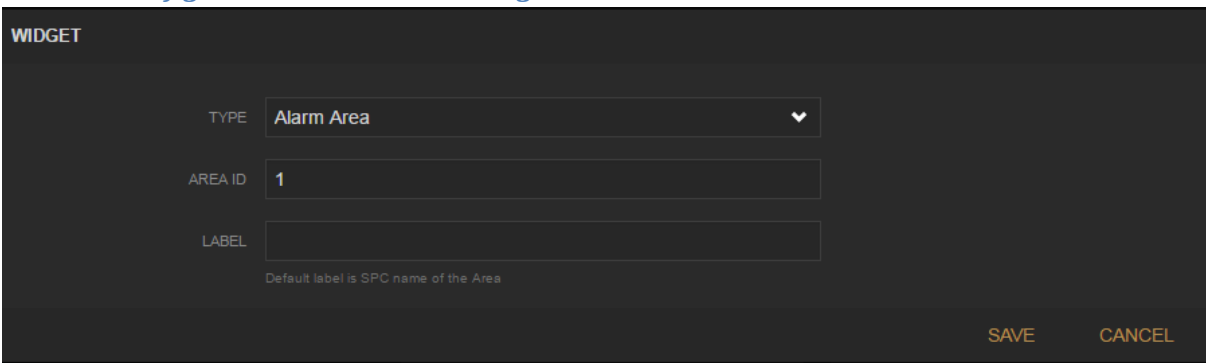
### 6.5.1 Alarm Area Widget



This is a specialized widget to visualize the mode of a SPC alarm area.

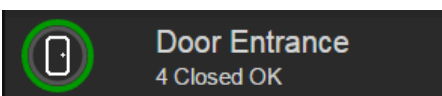
Indicator	Type	Description
Label	Text	Default the label is the area name imported from SPC panel (Area 1 in example)
Area Id	Number	Area Id (1 in example)
Area Mode	Text	Current area mode (Unset, Partset A, Partset B. Set). Dynamically updated.
	Image	Area set
	Image	Area partset A
	Image	Area partset B
	Image	Area unset

#### 6.5.1.1 Configuration Alarm Area Widget














Element	Type	Description
TYPE	Option Menu	Alarm Area
AREA ID	Number	Area Id
LABEL	Text	Label. Leave blank to use the name of the Area given in SPC

### 6.5.2 Alarm Zone Widget



This is a specialized widget to visualize the input value and status of a SPC alarm zone.

Indicator	Type	Description
Label	Text	Default the label is the zone name imported from SPC panel ()
Zone Id	Number	Zone Id (4 in example)
Zone Input	Text	Current zone input value (Closed, Open, Short, Disconnected, PIR Masked, DC Substitution, Sensor Missing, Offline)
Zone Status	Text	Current zone status (OK, Inhibit, Isolate, Soak, Tamper, Alarm, Trouble)
	Circle	Circle indicating zone open OR inhibit OR isolated
	Circle	Circle indicating zone closed AND status OK
	Circle	Circle indicating alarm or failure (Short OR Disconnected OR PIR Masked OR DC Substitution OR Sensor Missing OR Offline OR Soak OR Tamper OR Alarm OR Trouble)
 	Icon	Closed and Open Icons for Door indicator.
 	Icon	Closed and Open Icons for Window indicator.
 	Icon	Closed and Open Icons for PIR indicator.
 	Icon	Closed and Open Icons for Fire indicator.

### 6.5.2.1 Configuration Alarm Zone Widget

**WIDGET**

TYPE: Alarm Zone ▼

ZONE ID: 1

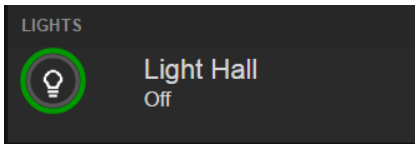
LABEL:    
Default label is SPC name of the Zone

INDICATOR: PIR ▼

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Element	Type	Description
TYPE	Option Menu	Alarm Zone
ZONE ID	Number	Zone Id
LABEL	Text	Label. Leave blank to use the name of the Zone given in SPC
INDICATOR	Option Menu	Type of indicators; PIR, Door, Window or Fire

**6.5.3 Sensor Binary Widget**



This is a generic widget to visualize an ON/OFF state. The state could be 0/1 or a value lower respective higher than a given threshold value.

Indicator	Type	Description
Description	Text	Sensor description (Light Hall in example)
Label	Text	label for sensor values OFF and ON (Off in example)
	Circle	Circle indicating sensor values 0/1 (The colors is customizable)
	Circle	
	Icon	Light Off
	Icon	Light On
	Icon	Valve Closed
	Icon	Valve Open
	Icon	Door Closed
	Icon	Door Open
	Icon	Window Closed
	Icon	Window Open
	Icon	PIR Off
	Icon	PIR On
	Icon	Fire Off
	Icon	Fire On
	Icon	Flood On
	Icon	Flood Off

**6.5.3.1 Configuration Sensor Binary**

**WIDGET**

TYPE:

OBJECT:  OBJECT

DESCRIPTION:

ICON OFF:

CIRCLE COLOR OFF:

LABEL OFF:

THRESHOLD VALUE:

ICON ON:

CIRCLE COLOR ON:

LABEL ON:

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Element	Type	Description
TYPE	Option Menu	Sensor Binary
OBJECT	Read only text	Datasource variable/object.
OBJECT	Button	Open object selector (see above)
DESCRIPTION	Text	Description
ICON OFF	Option menu	Menu to select Off state Icon
CIRCLE COLOR OFF	Color code	Color of circle for Off state (#RGB)
LABEL OFF	Text	Label shown if Off state
THRESHOLD VALUE	Number	Threshold value between OFF and ON state
ICON ON	Option menu	Menu to select On state Icon
COLOR ON	Color code	Color of circle for On state (#RGB)
LABEL ON	Text	Label shown if On state

**6.5.4 Sensor Value Widget**



Generic widget to display sensor values.

Indicator	Type	Description
Title	Text	Widget title (BEDROOM in example)
Value	Text	Numeric or text value (21.11 in example)



Unit	Text	Unit
Sparkline	Diagram	Sparkline that displays historic values

### 6.5.4.1 Configuration Sensor Value

**WIDGET**

TYPE:  ▼

TITLE:

OBJECT:  OBJECT

SIZE:  ▼

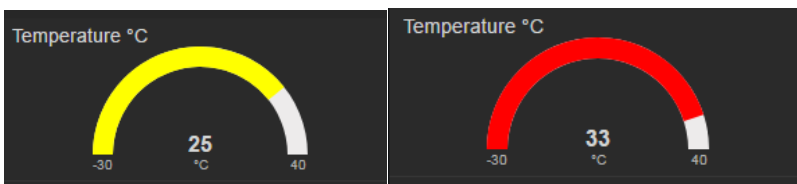
INCLUDE SPARKLINE:  YES

UNIT:

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Element	Type	Description
TYPE	Option Menu	Sensor Value
TITLE	Text	Widget title
OBJECT	Text read only	Datasource variable/object
OBJECT	Button	Open object selector (see above)
SIZE	Option Menu	Size of value characters. (Small, Regular, Big, Extra Big)
INCLUDE SPARKLINE	Checkbox	YES to include sparkline
UNIT	Text	Unit (Special characters allowed in HTML format, e.g. <b>&amp;deg;</b> for degree sign)

### 6.5.5 Gauge Widget



Gauge widget to display sensor value.

Indicator	Type	Description
Title	Text	Widget title (Temperature C in examples)
Gauge	Gauge	The gauge can be divided in three sectors that define the gauge color.
Min, Max	Number	Gauge min and max value (-30, 40 in examples)
Value	Number	Numeric value (25 and 33 in examples)
Unit	Text	Unit

**6.5.5.1 Configuration Gauge**

**WIDGET**

TYPE: Gauge

TITLE: Temperature &deg;C

OBJECT: Device\_18 [msensor-18:0] Air temperature C OBJECT

UNIT: &deg;C

MINIMUM: -30

MAXIMUM: 40

COLOR LOW SECTOR: #4dff4d  
Low sector range [Min Value - Start Middle Sector]

START MIDDLE SECTOR: 0

COLOR MIDDLE SECTOR: #ffff00  
Middle sector range [Start Middle Sector - Start High Sector]

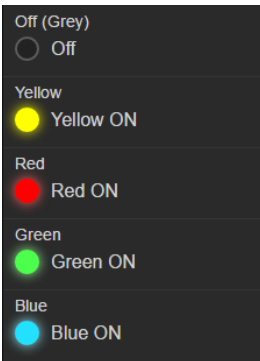
START HIGH SECTOR: 25

COLOR HIGH SECTOR: #ff0000  
High sector range [Start High Sector - Max Value]

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Element	Type	Description
TYPE	Option Menu	Gauge
TITLE	Text	Widget title
OBJECT	Text read only	Datasource variable/object
OBJECT	Button	Open object selector (see above)
UNIT	Text	Unit (Special characters allowed in HTML format, e.g. <b>&amp;deg;</b> for degree sign)
MINIMUM	Number	Gauge minimum value
MAXIMUM	Number	Gauge maximum value
COLOR LOW SECTOR	Color code	Color low sector (min value – start middle sector) . #RGB.
START MIDDLE SECTOR	Number	Start value of middle sector
COLOR MIDDLE SECTOR	Color code	Color middle sector (start middle sector – start high sector). #RGB.
START HIGH SECTOR	Number	Start value of high sector
COLOR HIGH SECTOR	Color code	Color high sector (start high sector – max value). #RGB.

### 6.5.6 LED Diode Indicator Widget



Widget to display an ON/OFF state as a “LED Diode”. The state could be 0/1 or a value lower respective higher than a given threshold value.

Indicator	Type	Description
Title	Text	Widget title
LED Indicator ON/OFF	LED Indicator	Colored LED indicator. Following colors are supported; Grey, Yellow, Red, Green. Blue, Blinking Yellow, Blinking Red, Blinking Green, Blinking Blue
Text ON/OFF	Text	Text for state ON/OFF

#### 6.5.6.1 Configuration LED Diode Indicator

**WIDGET**

TYPE: LED Diode Indicator

TITLE: Freezer

OBJECT: Device\_13 [msensor-13:0] Air temperature C OBJECT

LED OFF COLOR: Green

OFF TEXT: Freezer normal temperature

THRESHOLD VALUE: -10

LED ON COLOR: Red

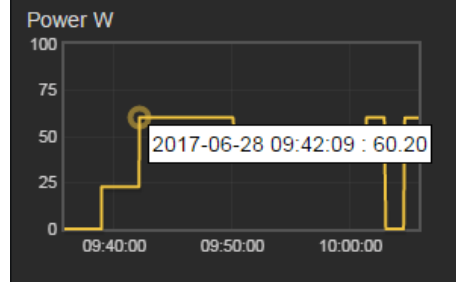
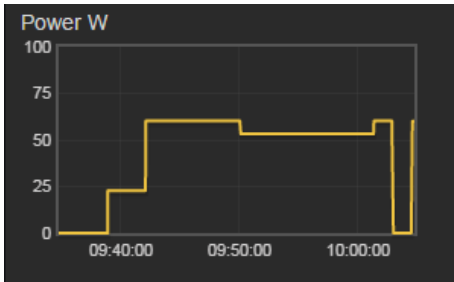
ON TEXT: Freezer High temperature

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Element	Type	Description
TYPE	Option Menu	LED Diode Indicator
TITLE	Text	Widget title
OBJECT	Text read only	Datasource variable/object
OBJECT	Button	Open object selector (see above)
LED OFF COLOR	Color code	Color for state OFF (value < threshold value). #RGB.
OFF TEXT	Text	Text state OFF

THRESHOLD VALUE	Number	Threshold value between OFF and ON state
LED ON COLOR	Color code	Color for state ON (value >= threshold value). #RGB.
ON TEXT	Text	Text state ON

### 6.5.7 Plot Widget



Plot is a real-time line chart widget with a predefined historical time window. Note! The historical data is not preserved on reload of the dashboard.

Indicator	Type	Description
Title	Text	Widget title
Plot Area	Graph	The plot data is updated every 10 seconds. The value axis (Y) is automatically extended if necessary. The time axis (X) has a predefined length (time window) and is updated in real-time. You can temporary zoom in the graph with left mouse button (only X zoom). The graph is automatically zoomed out next update (after max 10 seconds). Hovering over the data line shows values as tooltips.

#### 6.5.7.1 Configuration Plot Widget

**WIDGET**

TYPE: Plot

TITLE: Power W

OBJECT: Device\_8 [meter-8:1] Electric meter W ✖ OBJECT

TIME WINDOW: 30  
Length (in minutes) of sliding time window

Y AXIS MIN: 0  
Will be automatically extended if necessary.

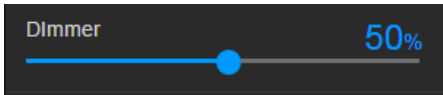
Y AXIS MAX: 100  
Will be automatically extended if necessary.

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Element	Type	Description
TYPE	Option Menu	Plot
TITLE	Text	Widget title

OBJECT	Text read only	Datasource variable/object
OBJECT	Button	Open object selector (see above)
TIME WINDOW	Number	Length in minutes of sliding time window
Y AXIS MIN	Number	Minimum Y axis value. Will be extended if necessary.
Y AXIS MAX	Number	Maximum Y axis value Will be extended if necessary.

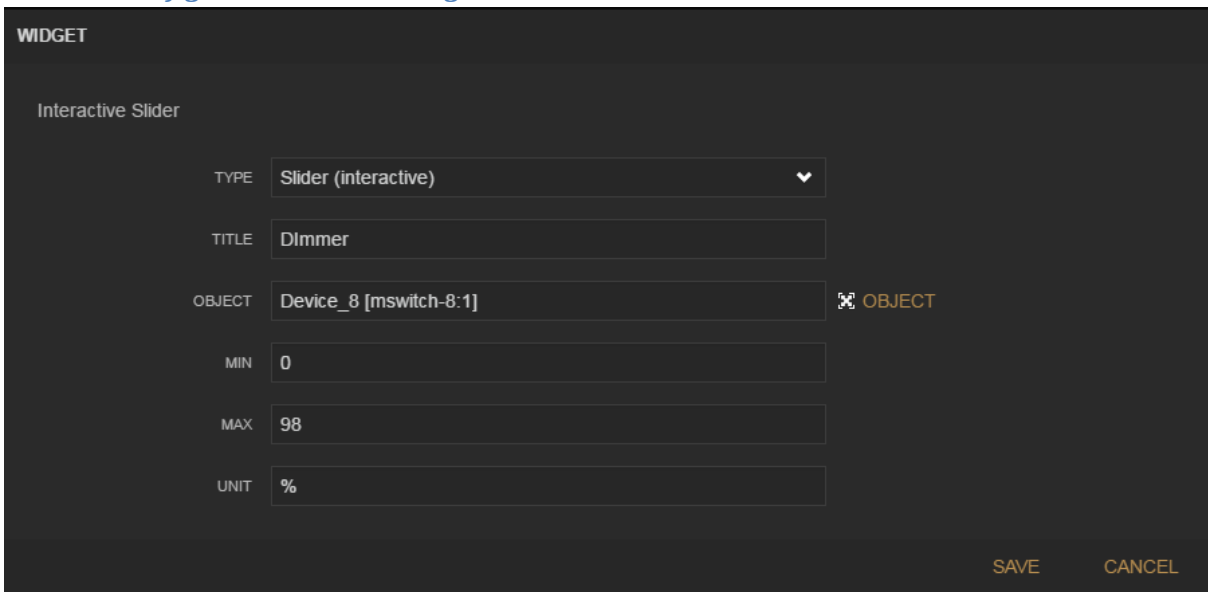
### 6.5.8 Slider Widget - Interactive



An interactive slider widget that could be used for control of e.g. a dimmer actuator.

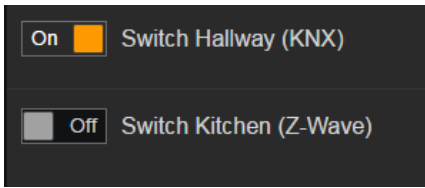
Indicator	Type	Description
Title	Text	Widget title
Slider	Slider	Interactive slider
Value	Text	Slider value

#### 6.5.8.1 Configuration Slider Widget



Element	Type	Description
TYPE	Option Menu	Slider
TITLE	Text	Widget title
OBJECT	Text read only	Datasource variable/object.
OBJECT	Button	Open object selector. Following object types are supported: <ul style="list-style-type: none"> <li>• Z-Wave; Command class Switch Multilevel (mswitch)</li> <li>• KNX; Datapoint types 5, 9, 12, 13 and 14</li> <li>• System; Global Variables</li> </ul>
MIN	Number	Slider minimum value
MAX	Number	Slider maximum value
UNIT	Text	Unit (Special characters allowed in HTML format, e.g. <b>°</b> for degree sign)

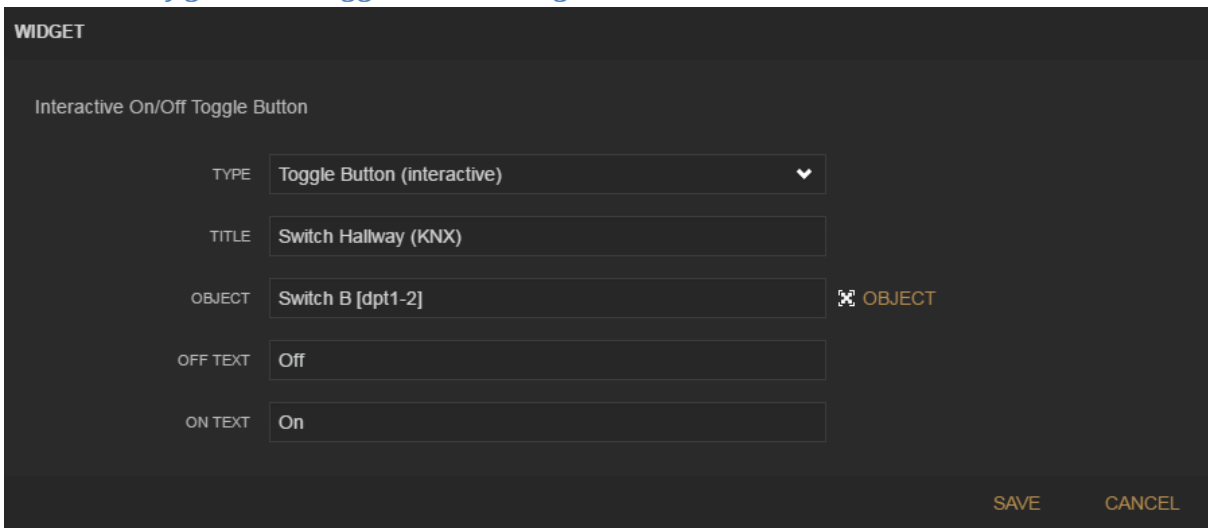
### 6.5.9 Toggle Button Widget - Interactive



An interactive toggle button widget that could be used for control of e.g. a binary actuator.

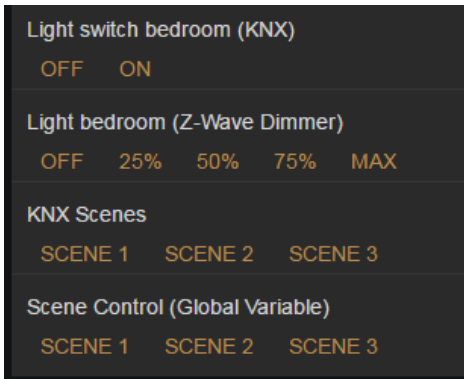
Indicator	Type	Description
Title	Text	Widget title
Switch	Switch	Interactive switch
ON/OFF text	Text	Button label ON/OFF text

#### 6.5.9.1 Configuration Toggle Button Widget



Element	Type	Description
TYPE	Option Menu	Toggle Button
TITLE	Text	Widget title
OBJECT	Text read only	Datasource variable/object.
OBJECT	Button	Open object selector. Following object types are supported: <ul style="list-style-type: none"> <li>• Z-Wave; Command class Switch Binary (bswitch)</li> <li>• KNX; Datapoint type 1</li> <li>• System; Global Variables</li> </ul>
OFF TEXT	Text	Button label state OFF
ON TEXT	Text	Button label state ON

### 6.5.10 Pushbutton Group Widget - Interactive



An interactive pushbutton group widget that could be used for control of e.g. actuators and scenes. Up to 5 buttons can be defined in a group. **If you need more space for the buttons you can increase the number of columns in the pane settings.**

Indicator	Type	Description
Title	Text	Widget title
Button text	Text	Button label

**6.5.10.1 Configuration Pushbutton Group Widget**

**WIDGET**

Interactive Pushbutton Group

TYPE: Pushbutton group (interactive) ▼

TITLE: KNX Scenes

OBJECT: Scene control [dpt18-14] ✕ OBJECT

BUTTON 1 TEXT: Scene 1

BUTTON 1 VALUE: 1

BUTTON 2 TEXT: Scene 2

BUTTON 2 VALUE: 2

BUTTON 3 TEXT: Scene 3

BUTTON 3 VALUE: 3

BUTTON 4 TEXT:

BUTTON 4 VALUE: 0

BUTTON 5 TEXT:

BUTTON 5 VALUE: 0

SAVE    CANCEL

Element	Type	Description
TYPE	Option Menu	Pushbutton group
TITLE	Text	Widget title
OBJECT	Text read only	Datasource variable/object.
OBJECT	Button	Open object selector. Following object types are supported: <ul style="list-style-type: none"> <li>• Z-Wave; Command class Switch Binary (bswitch) and Switch Multilevel (mswitch)</li> <li>• KNX; Datapoint type 1, 5, 9, 12, 13, 14 and 18</li> <li>• System; Global Variables</li> </ul>
BUTTON 1 – 5 TEXT	Text	Label on button 1 to 5. <b>If the text is leaved blank the button is not shown.</b>
BUTTON 1 – 5 VALUE	Number	Value sent when button is activated. Valid values are object type dependent.



## 7 Appendix

### 7.1 SmartBox Hardware Specification

Processor	ATMEL ARM Cortex A5
Flash	256MB NAND
RAM	128MB
Power input	12V DC
Power Consumption	1W empty load
Network	2 x Ethernet RJ45 Connectors 10/100/1000 Mbps
USB	2 external USB 2.0 Type A, 1 internal USB 2.0
System Platform	OpenWRT
Wireless Module	Z-Wave Plus
Environmental Conditions	Operation: 0°C~ 50°C Storage: -20°C ~ 60°C Humidity: 5% ~ 90%, Non-Condensing
Dimension	167 x 123 x 30mm (WxDxH) (without battery module)
Weight	0.24Kg (without battery module)
Battery Backup Module (optional)	Type: Li-On, Voltage: 3.7V, Capacity:5800mAH

### 7.2 SmartBox LED Definitions

LED	Definition	Color	Operation
Power	Power	Off	Device is powered down.
		Green	Device is powered up.
Status	System Status	Solid Green	System is working normally.
		Solid Orange	System is booting up.
		Blinking Orange	When the system is set back to default factory setting, the Status LED indicator will blink 3 times in orange. When the system is restarted, the Status LED indicator will blink once in orange.
		Off	The default gateway is unreachable.
Online	Online Status	Solid Green	The default gateway is reachable.
		Off	The port is link down
LAN	LAN Port Status	Solid Green	Link is up and works at 10 or 100Mbps or 1000Mbps.
		Blinking Green	The traffic is active.
		Off	The WAN port has no support. WAN LED should always be off.
Z-WAVE	Z-Wave Status	Off	Z-Wave is disabled or not ready.
		Solid Green	Z-Wave is in operation.
		Normal Blinking Green	Z-Wave is in Include mode when the indicator is on and off for 1 second in turn. Under this mode, the device is allowed to join other sensors.
		Slow Blinking Green	Z-Wave is in Exclude mode when the indicator is on and off for 2 second in turn. Under this mode, the device is allowed to disconnect with other sensors.
USB1	USB1 Port Status	Off	USB device is unplugged on USB1 port.
		Solid Green	USB device is plugged on USB1 port.
USB2	USB2 Port Status	Off	USB device is unplugged on USB2 port.
		Solid Green	USB device is plugged on USB2 port.

### 7.3 Supported Z-Wave Command Classes

Class	Class Name	Description
0x20	COMMAND_CLASS_BASIC	The Basic command class is used as a fallback mechanism when trying to communicate with devices that do not support any specific command class.
0x25	COMMAND_CLASS_SWITCH_BINARY	The Binary Switch command class is used to control devices that can be turned on or off, for instance a power switch.
0x26	COMMAND_CLASS_SWITCH_MULTILEVEL	The Multilevel Switch command class is used to control devices that accept a numerical value. Examples are dimmers and curtain control devices.
0x31	COMMAND_CLASS_SENSOR_MULTILEVEL	The Multilevel Sensor command class is used to obtain the state of a numerical sensor, for instance a temperature sensor.
0x32	COMMAND_CLASS_METER	The Meter command class is used to obtain the value of a Z-Wave enabled electric, water or other kind of meters.
0x71	COMMAND_CLASS_ALARM	The Alarm command class is used to obtain alarm notifications events from devices.
0x80	COMMAND_CLASS_BATTERY	The Battery command class is used to obtain battery information from devices.

### 7.4 Supported KNX Datapoint Types

Datapoint Type	Description
DPT1	Binary
DPT2	Binary with Control
DPT3	Dimming with Control
DPT5	Integer 1 byte value
DPT9	Float 2 bytes value
DPT12	Unsigned 4 bytes value
DPT13	Signed 4 bytes value
DPT14	Float 4 bytes value
DPT18	Scene with Control

### 7.5 Use a network scanning tool to discover IP Address

As an alternative to log on the DHCP router to find the IP address of the SmartBox you can use a network scanning tool. There are many free tools available. Here are just a few examples.

#### 7.5.1 nmap

If you have a Linux system and have root permissions you can use **nmap** to discover the SmartBox on the network. Look for the manufacturer name Connection Technology Company and the device MAC address (shown on the SmartBox bottom sticker). Example:

```
sudo nmap -sn 192.168.0.*

Starting Nmap 6.40 ( http://nmap.org ) at 2017-05-01 06:41 CEST
...
Nmap scan report for 192.168.0.101
Host is up (-0.100s latency).
MAC Address: 00:04:19:19:28:58 (Connection Technology Systems)
...
```

The report tells us that the SmartBox has IP address 192.168.0.101

### 7.5.2 arp

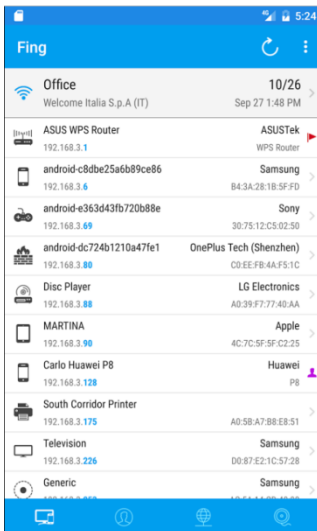
The command **arp** is available both on Windows and Linux. Look for the device MAC address (shown on the SmartBox bottom sticker). Example:

```
arp -a
...
(192.168.0.101) at 00:04:19:19:28:58 [ether] on eth0
...
```

The report tells us that device with MAC address 00:04:19:19:28:58 has IP address 192.168.0.101.

### 7.5.3 Smartphone app Fing

If you have access permissions from your smartphone to the same network as the SmartBox is connected to, you can use the app Fing from Domotz to find the IP address of the SmartBox. Just install the app, connect to the network and look for manufacturer Connection Technology Systems and you will see the IP address of the SmartBox.



## 7.6 Create Pushover Account and Get Keys

To use the Pushover notification, you need an User Key and an API Token/Key. This section will describe how to register yourself and request these keys.

1. Go to the website [www.pushover.net](http://www.pushover.net) and click on **Login or Signup**.
2. In the Signup section, enter your email address and password and click on the **Signup** button.
3. After you clicked on Signup you will be re-directed to the main web page again. Now check your email account for the Pushover email, because you need to validate your email address. After you received the email and clicked on the link, you can go for the login option.
4. If your supplied information is correct, it will show you the following web page. In this example the free account is successfully registered and you have your **User Key**, which is a 30 character string.

## Push a Notification

To send a notification to one or all of your devices, enter a message below. To send notifications programmatically, check out our [API](#).

Device:

Sound:

Title:

Message:

URL:

## Your User Key

To receive notifications from a Pushover-powered [application](#), service, or website, just supply your user key:

To receive Pushover notifications from e-mails, send to:

## Your Quiet Hours [\(Edit\)](#)

You do not have any enabled quiet hours.

## Your Devices [\(Add Phone, Tablet, or Desktop\)](#) [\(View Your Licenses\)](#)

Name	Status	Last Synced	Messages Delivered/Pending
lunix	Trial Period <a href="#">(Upgrade Now)</a>	about 1 hour ago	4 delivered, 0 pending

## Your E-mail Aliases [\(Create an E-mail Alias\)](#)

Address	Settings
[redacted]@pomail.net	Deliver to all of your devices (default)

## Your Delivery Groups [\(Create a Group\)](#)

No delivery groups created yet. [Want to create one?](#)

## Your Applications [\(Create an Application/API Token\)](#)

No applications created yet. [Want to register a new one?](#)

- The next step is to create your own application. Click on **Create an Application/API Token**. This will open a new form, see below. Enter a **name** (This can be any name, it doesn't need to be SPC Smartbox), select **type Application** and tick the Agreement checkbox. After you finished, click on the **Create Application** button

## Create New Application/Plugin

To start pushing notifications with Pushover, you'll need to create an Application and get a unique [API token](#), which you can do here. Each website, service, application, plugin, etc. may only be registered once and each application is currently limited to 7,500 messages per month. Additional message capacity may be purchased after creating an application. For more on monthly limits, see our [API page](#).

### Application Information

Name:   
This name should be short (20 character maximum), such as "Nagios", "Adium", or "Network Monitor". If messages are sent with no title, this name will be displayed.

Type:

Description:

URL:   
If this is a public app/plugin, you can include a URL to point to a homepage, Github repo, or anything else related to the app.

Icon:  Ingen fil har valts  
To customize your app's notifications, upload a 72x72 icon in PNG format (transparent background preferred). Any images not 72x72 will be resized.

By checking this box, you agree that you have read our [Terms of Service](#) and our [Guide to Being Friendly to our API](#).

- Following web page is shown, with your just generated API Token/Key. This API Key is a 30 characters string.

## SPC SmartBox (Application)

### API Token/Key [\(Edit or Delete Application\)](#)

To begin using our API to send notifications, use this application's API token:

as [REDACTED] zj

### Subscription [\(Edit Subscription Settings\)](#)

This application has not activated user subscriptions. [Create a subscription code](#) to allow users to subscribe.

### Licensing Credits [\(Purchase License Credits\)](#)

This application does not have any licensing credits.

To get started with our [Licensing API](#) to assign device licenses to your users, you can [purchase license credits](#).

### Recent Usage [\(Upgrade Message Capacity\)](#)

3 messages have been sent out of 7,500 allowed this month.

7. After you have installed the Pushover App (and have logged in) on your smart phone, you can use **Push a Notification** (in same page as you see your User Key), to test your setup.

## 7.7 License Agreements

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