

MICROSENS

Quick Start Guide

Using Smart Director MVP Scenarios



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1 Introduction

1.1 MICROSENS Smart Building Solutions

MICROSENS Smart Building Solutions stands for an open, IP based, decentralised and scalable building automation system. It is completely embedded into the corporate network and allows for an integration of a variety of sensors and actuators into the network. Thus MICROSENS Smart Building Solutions provides a high level of security, efficiency and flexibility. Individual adaptations increase the working place's comfort and productivity.

For further information about available hardware and software products please visit the MICROSENS website on <https://www.microsens.com>.

1.2 Smart Director App and MVP Scenarios

The Smart Director is a firmware application (App) running on the intelligent MICROSENS G6 switches or Central Smart Lighting Controllers (CSLC). The App processes and manages the information supplied e.g. by the connected sensors and buttons, generates the control commands and thus controls LED panels, valve trains for temperature control or blinds positions depending on the determined scenarios.

The Smart Director App is shipped with the option to configure a suitable default Smart Building infrastructure easily by presetting one of the contained MVP scenarios:

- Room automation for a room up to 60 m².
- Professional lighting system with CSLC-V4.

For further information about using the Smart Director App please refer to the "Smart Director Product Manual" which is available on our website <https://www.microsens.com>.

1.3 Aim of this Quick Start Guide

This Quick Start Guide covers the following information and installation steps:

1. List of basic MVP scenario components
2. List of supporting scenario components
3. Introduction to Smart Director MVP scenarios
4. Setup of MVP scenarios
5. Installation of the MVP components

6. Operational test of App and scenario installation

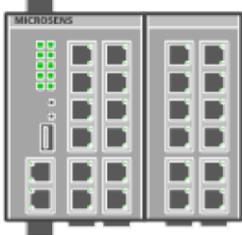
1.4 Preliminaries

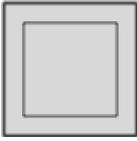
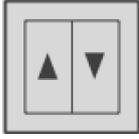
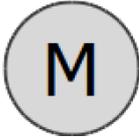
- In order to use the available quick start scenarios it is essential to install Smart Director App V100 with MICROSENS G6 firmware version 10.7.7 and newer.
- The Smart Director App is successfully installed to a MICROSENS G6 switch (Smart Enginge) or a MICROSENS Central Smart Lighting Controller (CSLC).
- To use the preset function you must have administrator rights.

Note:

To generally use the Smart Director App please refer to the Application Note "Operating the Smart Director App".

2 Basic MICROSENS MVP Scenario Components

Marker	Item	Marker	Item	
A	Central Smart Lighting Controller <i>Scenario:</i> <ul style="list-style-type: none"> • MVP-2 			
B	Profi Line Modular Switch <i>Scenario:</i> <ul style="list-style-type: none"> • MVP-1 		C Power Supply <i>Scenario:</i> <ul style="list-style-type: none"> • MVP-1 • MVP-2 	
D	Smart Director App <i>Scenario:</i> <ul style="list-style-type: none"> • MVP-1 • MVP-2 		E Smart Lighting Controller <i>Scenario:</i> <ul style="list-style-type: none"> • MVP-1 	
F	Smart I/O Controller <i>Scenario:</i> <ul style="list-style-type: none"> • MVP-1 • MVP-2 		G Smart Sensor <i>Scenario:</i> <ul style="list-style-type: none"> • MVP-1 • MVP-2 	

Marker	Item	Marker	Item
<p>H</p> <p>Standard LED Panel (*)</p> <p><i>Scenario:</i></p> <ul style="list-style-type: none"> MVP-1 MVP-2 		<p>I</p> <p>Dual tone LED Panel (*)</p> <p><i>Scenario:</i></p> <ul style="list-style-type: none"> MVP-1 MVP-2 	
<p>J</p> <p>Push-Button Switch Light (*)</p> <p><i>Scenario:</i></p> <ul style="list-style-type: none"> MVP-1 		<p>K</p> <p>Push-Button Switch Blind (*)</p> <p><i>Scenario:</i></p> <ul style="list-style-type: none"> MVP-1 	
<p>L</p> <p>Blind Relay (*)</p> <p><i>Scenario:</i></p> <ul style="list-style-type: none"> MVP-1 		<p>M</p> <p>Blind Motor (*)</p> <p><i>Scenario:</i></p> <ul style="list-style-type: none"> MVP-1 	
<p>N</p> <p>Bus Terminator</p> <p><i>Scenario:</i></p> <ul style="list-style-type: none"> MVP-2 			

Note: Components marked with (*) are not included in offering!

3 Supporting Scenario Components

Marker	Item	Marker	Item	
<p>○O</p>	<p>Core Switch (*)</p> <p>Scenario:</p> <ul style="list-style-type: none"> • MVP-1 • MVP-2 			
<p>○P</p>	<p>SBM Server (*)</p> <p>Scenario:</p> <ul style="list-style-type: none"> • MVP-1 • MVP-2 			
<p>○Q</p>	<p>WiFi Access Point (*)</p> <p>Scenario:</p> <ul style="list-style-type: none"> • MVP-1 • MVP-2 		<p>○R</p> <p>Tablet PC (*)</p> <p>Scenario:</p> <ul style="list-style-type: none"> • MVP-1 • MVP-2 	
<p>○S</p>	<p>Window Contact / Dew Point Sensor (*)</p> <p>Scenario:</p> <ul style="list-style-type: none"> • MVP-1 		<p>○T</p> <p>Valve Train Heating / Cooling (*)</p> <p>Scenario:</p> <ul style="list-style-type: none"> • MVP-1 	
<p>○U</p>	<p>Temp. Sensor (*)</p> <p>Scenario:</p> <ul style="list-style-type: none"> • MVP-1 			

Note: Components marked with (*) are not included in offering!

4 Introduction to Smart Director MVP Scenarios

Smart Director App version 100 and newer offers the option to preset two typical application scenarios. The preset function of the App configures the App and some controller functions, so the whole setup is done in two easy steps.

MVP-1: Room Automation

Expects 1x PLM + 1 or 2 Smart IO Controller(s)
Up to 12 LED lights in 4 zones
Configures:

- - 4 light zones with 4 LED lights each
 - 2 Smart Sensors, one sensor per 2 light zones
 - 2 blinds zones
 - 8 push buttons for blinds or lights control
 - 1 climate zone

MVP-2: Professional Lighting System

Expects 1 or 2 Central Smart Lighting Controllers (CSLC)
Up to 24 standard LED panels in 6 zones
additional 12 dual tone LED lights in 3 zones
Configures:

- - 9 light zones
 - 9 Smart Sensors, one sensor per light zone
 - no blinds zones
 - no push buttons, but possible with additional SIO
 - no climate control

Note:

Smart Director is designed for pre-planned applications. Because of this it is not necessary to attach the expected actors and sensors to the network before starting the preset process.

5 Preset MVP Scenario

The following steps describe how to select and install a preset MVP scenario with the Smart Director App:

Using the Web Manager:

- Open the Web Manager of the respective switch.
- Select the screen **Scripting**, then open the tab **Smart Director**.
- In the section **App.smartdirector.quick_start** click on the respective scenario button **preset mvp 1** or **preset mvp 2**.

App.smartdirector.quick_start	
Parameter	Value
clear all	<input type="button" value="clear all"/>
preset mvp 1	<input type="button" value="preset mvp 1"/>
preset mvp 2	<input type="button" value="preset mvp 2"/>
apply configuration	<input type="button" value="apply configuration"/>
update configuration	<input type="button" value="update configuration"/>

Fig. 1: Web Manager - Scripting - Smart Director - Preset MVP-1/MVP-2

- » This will preallocate the respective parameters with the specific preset values. To use these values click on one of the following buttons:

Click on the button **apply configuration** to delete all existing configuration settings and use only the preset values from the selected quick start scenario.

Note:

It is recommended to save the existing SmartOffice configuration before applying the preset configuration.

Click on the button **update configuration** to add the new preset values to the existing configuration.

- In case of returning to the previous configuration click on the button **clear all** and reload the previously saved SmartOffice configuration.
- After successfully applying a quick start scenario add some or all of the necessary devices, sensors and actors to test the new configuration.

6 Installation of Scenario MVP-1

6.1 Basic Features

This scenario for room automation implies the following basic features:

- 1 PLM G6 switch
- 12 standard LED panels in 4 zones (including 2 zones with 1 Smart Sensor each)
- 2 Smart I/O Controllers for blinds and climatisation
- 2 blinds, additional window contact and dew point sensor
- Smart Director App with tablet control (via WIFI access)
- Standard push-button switches (connected via cable) for manual light and blind control
- Heating and cooling valve train control for climatisation

6.2 Functional Diagram of MVP-1 Scenario

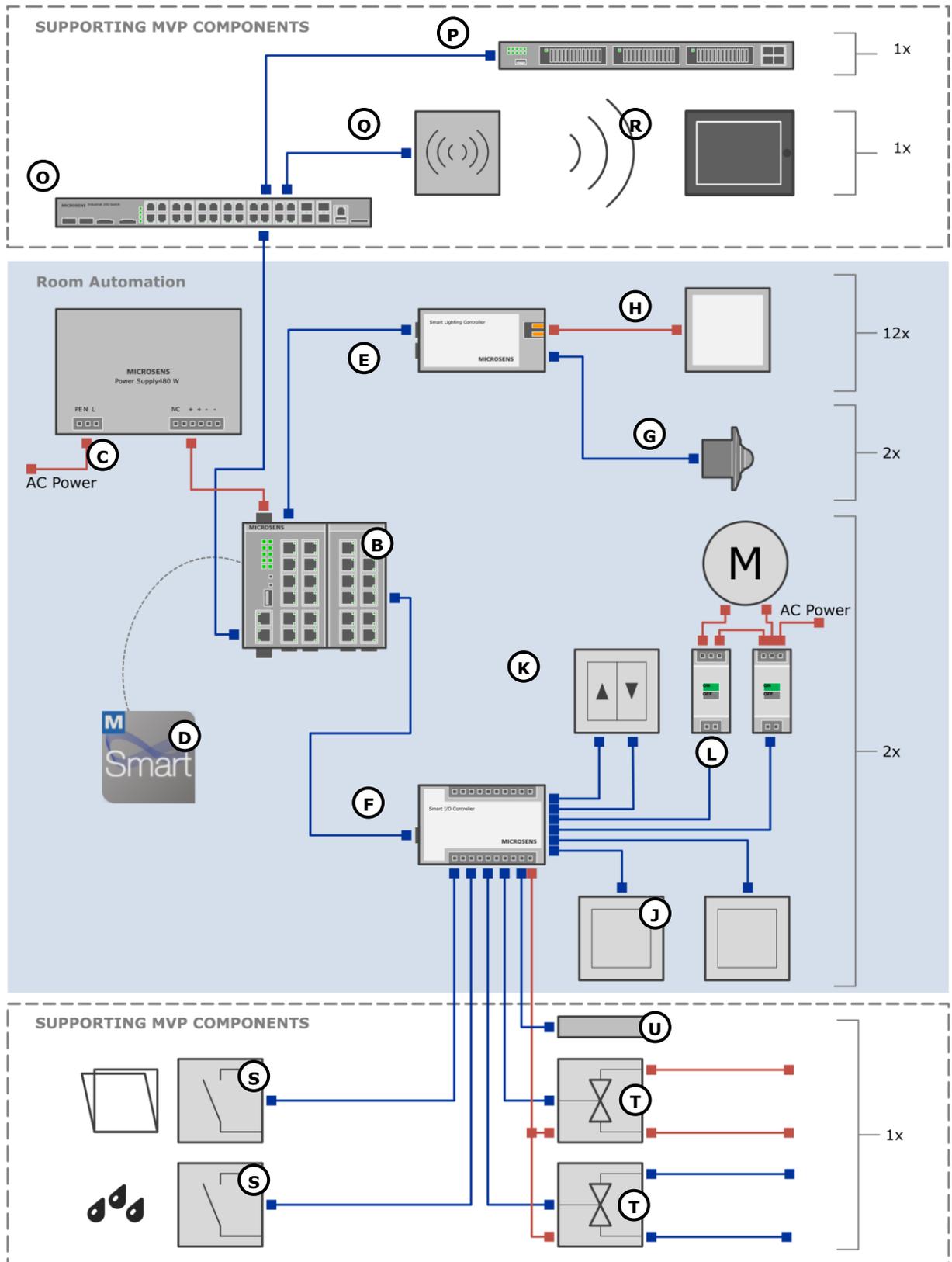


Fig. 2: Functional Diagram MVP-1 Scenario - Room Automation

6.3 Pin Assignments of Smart I/O Controllers

The MVP-1 scenario uses two Smart I/O Controllers (F) for a combined climate, blinds and light control. Use the following pin assignment settings to properly connect all components to the Smart I/O Controllers (F).

6.3.1. Smart I/O Controller 1

Port	Field Device	Function	Control Logic	Comment
Power Out 1				24 VDC supply output
X1 (-) X2 (+)				
Power Out 2				24 VDC supply output
X3 (-) X4 (+)				
Digital Out 1	Relay for blind motor up	Blind up zone 1		Switch output 24 VDC for blind motor, direction up, zone 1
X5 (OC) X6 (+)				
Digital Out 2	Relay for blind motor down	Blind down zone 1		Switch output 24 VDC for blind motor, direction down, zone 1
X7 (OC) X8 (+)				
Digital In 1	Blind button	Blind up zone 1	Digital in	Blind switch for direction up, zone 2
X9 (DI) X10 (+)				
Digital In 2	Blind button	Blind down zone 1	Digital in	Blind switch for direction down, zone 2
X11 (DI) X12 (+)				
Digital In 3	Light button 1	Light zone 1 on/off	Digital in	Light switch on/off, zone 1
X13 (DI) X14 (+)				
Digital In 4	Light button 2	Light zone 2 on/off	Digital in	Light switch on/off, zone 2
X15 (DI) X16 (+)				
PT1000_1	Temperature sensor	Temp. control actual value	PT 1000	Climate control only possible with sensor type PT1000!
X17 (PT) X18 (PT)				
PT1000_2	unused			
X19 (PT) X20 (PT)				
Power In 1				24 VDC supply input
X21 (+) X22 (-)				
Analog Out 1	Valve train heating	open/close valve train	Signal: 0...10 V Supply: 24 VDC	Continuous control with control signal output voltage 0...10 V
X23 (+) X24 (AO) X25 (-)				
Analog Out 2	Valve train cooling	open/close valve train	Signal: 0...10 V Supply: 24 VDC	Continuous control with control signal output voltage 0...10 V
X26 (+) X27 (AO) X28 (-)				
Analog In 1	Window contact	< 3 V: open > 3 V: closed	Digital in	Either external power supply or 24 VDC from pin X29 while using a voltage divider
X29 (+) X30 (AI) X31 (-)				
Analog In 2	Dew point sensor contact	< 3 V: open > 3 V: closed	Digital in	Either external power supply or 24 VDC from pin X29 while using a voltage divider
X32 (+) X33 (AI) X34 (-)				
Analog In 3	unused			
X35 (+) X36 (AI) X37 (-)				
Analog In 4	unused			

Port			Field Device	Function	Control Logic	Comment
X38 (+)	X39 (AI)	X40 (-)				

Note:

Because the installation of the MVP scenarios is based on scripts with predefined port assignments it is important to adhere to the these connection settings!

6.3.2. Smart I/O Controller 2

Port			Field Device	Function	Control Logic	Comment
Power Out 1						24 VDC supply output
X1 (-)	X2 (+)					
Power Out 2						24 VDC supply output
X3 (-)	X4 (+)					
Digital Out 1			Relay for blind motor up	Blind up zone 2		Switch output 24 VDC for blind motor, direction up, zone 2
X5 (OC)	X6 (+)					
Digital Out 2			Relay for blind motor down	Blind down zone 2		Switch output 24 VDC for blind motor, direction down, zone 2
X7 (OC)	X8 (+)					
Digital In 1			Blind button	Blind up zone 2	Digital in	Blind switch for direction up, zone 2
X9 (DI)	X10 (+)					
Digital In 2			Blind button	Blind down zone 2	Digital in	Blind switch for direction down, zone 2
X11 (DI)	X12 (+)					
Digital In 3			Light button 3	Light zone 3 on/off	Digital in	Light switch on/off, zone 3
X13 (DI)	X14 (+)					
Digital In 4			Light button 4	Light zone 4 on/off	Digital in	Light switch on/off, zone 4
X15 (DI)	X16 (+)					
PT1000_1			unused			
X17 (PT)	X18 (PT)					
PT1000_2			unused			
X19 (PT)	X20 (PT)					
Power In 1						24 VDC supply input
X21 (+)	X22 (-)					
Analog Out 1			unused			
X23 (+)	X24 (AO)	X25 (-)				
Analog Out 2			unused			
X26 (+)	X27 (AO)	X28 (-)				
Analog In 1			unused			
X29 (+)	X30 (AI)	X31 (-)				
Analog In 2			unused			
X32 (+)	X33 (AI)	X34 (-)				
Analog In 3			unused			
X35 (+)	X36 (AI)	X37 (-)				

Port			Field Device	Function	Control Logic	Comment
Analog In 4			unused			
X38 (+)	X39 (AI)	X40 (-)				

Note:

Because the installation of the MVP scenarios is based on scripts with predefined port assignments it is important to adhere to these connection settings!

6.4 Install Supporting Components

Note:

Please refer to the respective component's user manual for further information about configuration and connections. Manuals, Quick Start Guides and Application Notes related to MICROSENS components are available from the MICROSENS homepage under <https://www.microsens.com>.

6.4.1. Supporting Components Configuration

MVP-1 scenario assumes the following component configuration:

- Core switch:
 - IPv4: 192.168.11.200
- SBM Server:
 - IPv4: 192.168.11.220
- WiFi access point:
 - IPv4: 192.168.11.210

6.4.2. Connect Supporting Components

Note:

Supporting climate control components like window contact and dew point sensor (S), temperature sensor (U) and valve trains for heating and cooling (T) are only applied once. Therefore only one of the two Smart I/O Controllers (F) is used.

Execute the following steps to connect all supporting components:

1. Connect the uplink port of the SBM Server (P) to the core switch (O).
2. Connect the WIFI access point (Q) to the core switch (O).
3. Connect the core switch (O) to the uplink port of the MICROSENS Profi Line switch (B).
 - Use at least a Cat5e network cable with a max. length of 100 m to connect the core switch (O) to the Profi Line switch (B).
 - The uplink port of the Profi Line switch is named "Eth 1/1" on the base module.
4. Connect a window contact (S) to the port "Ain 1" of the Smart I/O Controller (F).
 - Set the DIP switch "Analog In select" to "0...10 V" for port "Ain 1".
 - Use a voltage divider to generate the given output voltage of 24 V between pins X29 and X31 into the necessary input voltage of **max. 10 V** on pin X30.
 - A voltage value of more than 3 V on pin X30 of the Smart I/O Controller (F) indicates an open window.
5. Connect a dew point sensor (S) to the port "Ain 2" of the Smart I/O Controller (F).
 - Set the DIP switch "Analog In select" to "0...10 V" for port "Ain 2".

- Use a voltage divider to generate the given output voltage of 24 V between pins X32 and X34 into the necessary input voltage of **max. 10 V** on pin X33.
- A voltage value of more than 3 V on pin X33 of the Smart I/O Controller (F) indicates detected dew.

Note:

A maximum voltage of 10 V must not be exceeded on the analogue input ports of the Smart I/O Controller (F)!

6. Connect a room temperature sensor (U) to the port "PT100/PT1000 1" of the Smart I/O Controller (F).
 - Set the DIP switch "PT100/PT1000 select" to "PT1000" for port "PT100/PT1000 1".
 - The port "PT1000" expects a PT1000 resistance temperature detector with a nominal resistance of 1000 Ω at 0 °C.
7. Connect the valve train for room heating (T) to the port "Aout 1" of the Smart I/O Controller (F).
 - The valve train should have a control voltage input range from 0 V to 10 V.
 - It must not exceed a power rating up to 6 W (P_{max}).
 - Connect the valve trains with their respective connectors to the pins X23 (V_{out}), X24 ($V_{control}$) and X25 (GND) of the Smart I/O Controller (F).
8. Connect the valve train for room cooling (T) to the port "Aout 2" of the Smart I/O Controller (F).
 - The valve train should have a control voltage input range from 0 V to 10 V.
 - It must not exceed a power rating up to 6 W (P_{max}).
 - Connect the valve trains with their respective connectors to the pins X26 (V_{out}), X27 ($V_{control}$) and X28 (GND) of the Smart I/O Controller (F).

Note:

Use 3x 0.75 mm² cable with a max. length of 3 m for connecting sensors, contacts and valve trains to the Smart I/O Controller (F).

6.5 Install Basic MVP-1 Scenario Components

Note:

Please refer to the respective component's user manual for further information about configuration and connections.

Note:

Bear in mind that due to greater clarity the functional diagram on page 9 only shows particular components although some components are used in larger numbers (i.e. 12x Smart Lighting Controllers and standard LED panels, 2x Smart I/O Controllers, 2x Smart Sensors etc.). The following steps need to be performed for every appropriate component.

6.5.1. Basic Components Configuration

MVP-1 scenario assumes the following component configuration:

- Profi Line switch:
 - IPv4: 192.168.11.80
 - IPv6: Link Local Address
- Smart Lighting Controller:

IPv6: Link Local Address

- Smart I/O Controller:

IPv6: Link Local Address

6.5.2. Connect Basic Components

Note:

Use 2x 0.75 mm² cable with a max. length of 3 m for connecting switches and relays to the Smart I/O Controller (F).

Execute the following steps to connect all basic components:

1. Connect the blind switches (K) to ports "Din 1" and "Din 2" of the Smart I/O Controllers (F).
 - The blind switches have two dry contact push buttons: One for blinds up, one for blinds down.

Connect the up button to the port "Din 1".
Connect the down button to the port "Din 2".

2. Connect the blind motors (M) to the load circuit contacts of the blind relays (L).

- The blind motors (M) should have the following technical data:

Voltage: 230 VAC
Current: max. 10 A
Coil: 24 V, 0.1 A
Contacts: max. 250 VAC, 10 A
Electrical interlocking of up/down motor coils

- To connect the blind motors to the relays use cables as specified by the manufacturer.



DANGER!

Risk of electrical shock!

Only qualified personnel accustomed to working with electrical equipment is allowed to perform this step.

Disconnect all sources of power supply prior to connecting blind motors and blind relays.

Only connect the blind relays to the building's power line after motors and relays are securely connected.

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- 1" and "Dout 2" of the Smart I/O Controllers (F).

- The two relays per blind motor perform the following functions:

One blind relay triggers the blind motor for "up/stop".
Connect this relay to the port "Dout 1" of the respective Smart I/O Controller (F).
The other blind relay triggers the blind for "down/stop".
Connect this relay to the port "Dout 2" of the respective Smart I/O Controller (F).

4. Connect the light switches (J) to the ports "Din 1" and "Din 2" of the Smart I/O Controllers (F).
5. Connect the Smart I/O Controllers (F) to the Profi Line switch (B).
 - Use at least Cat5e network cables with a max. length of 100 m each.
6. Connect the standard LED panels (H) to the LED output ports of the Smart Lighting Controllers (E).
 - The LED panels (H) should have the following technical data:

P_{\max} : 28 W
 I_{\max} : 1 A
 V_{\max} : 50 V

- The LED panels must not use LED drivers!
 - An LED panel's maximum power consumption must not exceed the respective CSLC port's power output!
 - Use 2x 0.75 mm² cables with a max. length of 3 m each.
7. Connect the Smart Sensors (G) to the Smart Sensor ports of two of the Smart Lighting Controllers (E).
- Use fixed cables with a max. length of 1 m each.
 - The sensors are able to detect motion, brightness, temperature and humidity.

Note:

Due to technical requirements the Smart Sensors (G) for MVP-1 (connected to SLC) and MVP-2 (connected to CSLC) are not identical! Please make sure to use the appropriate Smart Sensor (G) for this MVP-1 scenario! If any questions or concerns regarding the correct components arise please contact the manufacturers support.

8. Connect all Smart Lighting Controllers (E) to the ports of the Profi Line switch (B) (main chassis and expansion module).
- Use at least a Cat5e network cable with a max. length of 100 m.
9. Connect the power output port of the power supply (C) to the power supply port of the Profi Line switch (B).
- Use a 2x 1.5 mm² cable with a max. length of 1 m.

Note:

Make sure that you earth the switch before connecting it to any other cables (power supply, network, etc.). The grounding screw is located on the top of the chassis and is marked with the grounding symbol. The expansion module also requires grounding. For more information please see the Quick Start Guide for MICROSENS Industrial Switches.

10. Connect the AC/DC power supply (C) to the building's mains supply.



DANGER!

Risk of electrical shock!

Only qualified personnel accustomed to working with electrical equipment is allowed to perform this step.

Only connect the AC/DC power supply to the mains supply after AC/DC power supply and Profi Line switch are securely connected.

fulfil the following technical requirements:

Power: 480 W
 Voltage output: 54 VDC

- Use a 3x 0.75 mm² cable with a max. length of 3 m.
 - After connection to the mains power the Profi Line switch (B) starts automatically and is ready for operation after approx. 45 s.
11. Pair the connected controllers to the Profi Line switch (B) (see chapter "9 Pairing the Controllers" on page 24).
12. Calibrate the components (see chapter "10 Calibrating the " on page 25).

• T
 he
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 er
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 ly (C)
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To test the MVP-1 installation, follow the steps in chapter “11 Operational Test of App and Infrastructure” on page 26.

7 Installation of Scenario MVP-2

Note:

Because the installation of the MVP scenarios is based on scripts with predefined port assignments it is important to adhere to the connection settings of this quick start guide!

7.1 Basic Features

This scenario for a professional lighting system implies the following basic features:

- 2 Central Smart Lighting Controllers (CSLC-V4) with 2 power supplies each
- Control of 24 standard LED panels and 12 dual tone LED panels in 9 zones in total
- 9 Smart Sensors (1 sensor per zone, serial connected, provided with line termination)
- Smart Director App with tablet control (via WIFI access)

7.2 Functional Diagram of MVP-2 Scenario

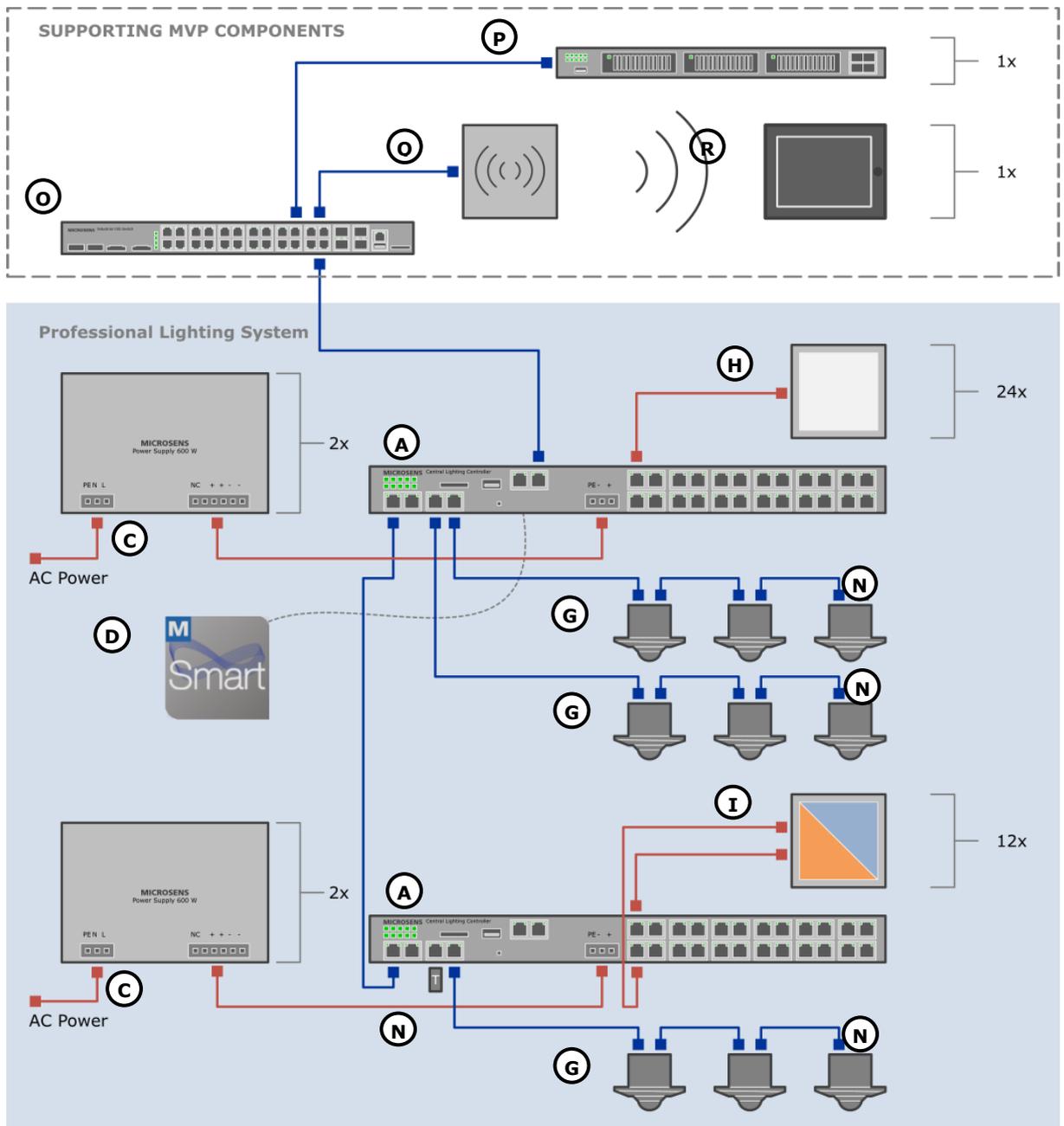


Fig. 3: Functional Diagram MVP-2 Scenario - Professional Lighting System

7.3 Port Assignments of Central Smart Lighting Controllers

Note:

Because the installation of the MVP scenarios is based on scripts with predefined port assignments it is important to adhere to these connection settings!

The MVP-2 scenario uses two Central Smart Lighting Controllers (A) for combined lighting control of 9 light zones. Use the following port assignment settings to properly connect all LED panels to the respective Central Smart Lighting Controllers (A).

7.3.1. Main Central Smart Lighting Controller

Port	Function	Field Device	Comment
Eth1	Ethernet		Uplink to core switch
Eth2	Ethernet		Connection to cascaded CSLC
Eth3	unused		
Sensor 1	Smart sensors light zones 1 - 3	Smart Sensors 1 - 3	<ul style="list-style-type: none"> 3 Smart Sensors connected in series Final Smart Sensor terminated with bus terminator
Sensor 2	Smart sensors light zones 4 - 6	Smart Sensors 4 - 6	<ul style="list-style-type: none"> 3 Smart Sensors connected in series Final Smart Sensor terminated with bus terminator
LED 1	Light zone 1	LED panel 1	<ul style="list-style-type: none"> Standard LED panels 4 panels per light zone 1 panel per port
LED 2		LED panel 2	
LED 3		LED panel 3	
LED 4		LED panel 4	
LED 5	Light zone 2	LED panel 1	
LED 6		LED panel 2	
LED 7		LED panel 3	
LED 8		LED panel 4	
LED 9	Light zone 3	LED panel 1	
LED 10		LED panel 2	
LED 11		LED panel 3	
LED 12		LED panel 4	
LED 13	Light zone 4	LED panel 1	
LED 14		LED panel 2	
LED 15		LED panel 3	
LED 16		LED panel 4	
LED 17	Light zone 5	LED panel 1	
LED 18		LED panel 2	
LED 19		LED panel 3	
LED 20		LED panel 4	
LED 21	Light zone 6	LED panel 1	
LED 22		LED panel 2	
LED 23		LED panel 3	
LED 24		LED panel 4	

7.3.2. Cascaded Central Smart Lighting Controller

Port	Function	Field Device	Comment
Eth1	unused		
Eth2	Ethernet		Connection to main CSLC
Eth3	unused		
Sensor 1	Bus terminator		<ul style="list-style-type: none"> Terminated with bus terminator
Sensor 2	Smart sensors light zones 7 - 9	Smart Sensors 7 - 9	<ul style="list-style-type: none"> 3 Smart Sensors connected in series Final Smart Sensor terminated with bus terminator
LED 1	Light zone 7	Panel 1	Dual tone LED panel 1 (cold)
LED 2		Panel 2	Dual tone LED panel 2 (cold)
LED 3		Panel 3	Dual tone LED panel 3 (cold)
LED 4		Panel 4	Dual tone LED panel 4 (cold)
LED 5		Panel 1	Dual tone LED panel 1 (warm)
LED 6		Panel 2	Dual tone LED panel 2 (warm)
LED 7		Panel 3	Dual tone LED panel 3 (warm)
LED 8		Panel 4	Dual tone LED panel 4 (warm)
LED 9	Light zone 8	Panel 5	Dual tone LED panel 5 (cold)
LED 10		Panel 6	Dual tone LED panel 6 (cold)
LED 11		Panel 7	Dual tone LED panel 7 (cold)
LED 12		Panel 8	Dual tone LED panel 8 (cold)
LED 13		Panel 5	Dual tone LED panel 5 (warm)
LED 14		Panel 6	Dual tone LED panel 6 (warm)
LED 15		Panel 7	Dual tone LED panel 7 (warm)
LED 16		Panel 8	Dual tone LED panel 8 (warm)
LED 17	Light zone 9	Panel 9	Dual tone LED panel 9 (cold)
LED 18		Panel 10	Dual tone LED panel 10 (cold)
LED 19		Panel 11	Dual tone LED panel 11 (cold)
LED 20		Panel 12	Dual tone LED panel 12 (cold)
LED 21		Panel 9	Dual tone LED panel 9 (warm)
LED 22		Panel 10	Dual tone LED panel 10 (warm)
LED 23		Panel 11	Dual tone LED panel 11 (warm)
LED 24		Panel 12	Dual tone LED panel 12 (warm)

7.4 Install Supporting Components

7.4.1. Supporting Components Configuration

Note:

Please refer to the respective component's user manual for configuration.

MVP-2 scenario assumes the following IPv4 addresses:

- Core switch: 192.168.11.200
- SBM Server: 192.168.11.220
- WIFI access point: 192.168.11.210

7.4.2. Connect Supporting Components

Execute the following steps to connect all supporting components:

1. Connect the uplink port of the SBM Server (P) to the core switch (C).
2. Connect the WIFI access point (Q) to the core switch (C).
3. Connect the core switch (C) to the uplink port of the main MICROSENS Central Smart Lighting Controller (A).
 - Use at least a Cat5e network cable with a max. length of 100 m to connect the core switch (C) to the CSLC (A).
 - The uplink port of the CSLC is named "Eth 1/1".

7.5 Install Basic MVP-2 Scenario Components

Note:

Please refer to the respective component's user manual for further information about configuration and connections. Manuals, Quick Start Guides and Application Notes related to MICROSENS components are available from the MICROSENS homepage under <https://www.microsens.com>.

Note:

Bear in mind that due to greater clarity the functional diagram on page 17 only shows particular components although some components are used in larger numbers (i.e. 24x standard LED panels, 12 dual tone LED panels). The following steps need to be performed for every appropriate component.

7.5.1. Basic Components Configuration

MVP-2 scenario assumes the following component configuration:

- Main CSLC:
 - IPv4: 192.168.11.90
 - IPv6: Link Local Address
- Cascaded CSLC:
 - IPv4: 192.168.11.91
 - IPv6: Link Local Address

7.5.2. Connect Basic Components

Execute the following steps to connect all basic components:

1. Connect all standard LED panels (H) to the 24 LED output ports of the main Central Smart Lighting Controller (A).
 - The standard LED panels (H) should have the following technical data:
 - P_{max} : 50 W
 - I_{max} : 1 A
 - V_{max} : 50 V
 - The LED panels must not use LED drivers!
 - An LED panel's maximum power consumption must not exceed the respective CSLC port's power output!
 - Use at least a Cat5e network cable with a max. length of 100 m.
2. Connect Smart Sensors (G) to the sensor ports of the main Central Smart Lighting Controller (A).
 - Connect 2x 3 Smart Sensors (G) in series using at least a Cat5e network cable with a max. length of 10 m.
 - Terminate the last Smart Sensor of the strand with a bus terminator (N).
 - Connect every Smart Sensor strand to the respective port "Sensor 1" and "Sensor 2" of the main Central Smart Lighting Controller (A) with at least Cat5e network cables with a max. length of 100 m each.
 - The sensors are able to detect motion, brightness, temperature and humidity.

Note:

Due to technical requirements the Smart Sensors (G) for MVP-1 (connected to SLC) and MVP-2 (connected to CSLC) are not identical! Please make sure to use the appropriate Smart Sensor (G) for this MVP-2 scenario! If any questions or concerns regarding the correct components arise please contact the manufacturers support.

3. Connect all dual tone LED panels (I) to the 24 LED output ports of the cascaded Central Smart Lighting Controller (A).
 - The LED panels (I) should have the following technical data:
 - P_{max} : 50 W
 - I_{max} : 1 A
 - V_{max} : 50 V
 - Dual tone: Cold / warm white
 - Use at least a Cat5e network cable with a max. length of 100 m.
 - The dual tone LED panel design requires to use two LED ports per LED panel.
4. Connect Smart Sensors (G) to the sensor port of the cascaded Central Smart Lighting Controller (A).
 - Connect 3 Smart Sensors (G) in series using at least a Cat5e network cable with a max. length of 10m.
 - Terminate the last Smart Sensor of the strand with a bus terminator (N).
 - Connect the Smart Sensor strand to one port "Sensor 1" or "Sensor 2" of the main Central Smart Lighting Controller (A) with at least a Cat5e network cable with a max. length of 100 m.
 - Terminate the other sensor port with a bus terminator (N).

- The sensors are able to detect motion, brightness, temperature and humidity.
- 5. Connect the port "Eth2" of the cascaded Central Smart Lighting Controller to the port "Eth2" of the main Central Smart Lighting Controller (A).
 - Use at least a Cat5e network cable with a max. length of 100 m.
- 6. Connect the power output ports of two power supplies (C) each to the power supply port of both the main and cascaded Central Smart Lighting Controllers (A).
 - Use a 2x 4 mm² cable with a max. length of 1 m.

Note:

For more information about connecting the Central Smart Lighting Controllers to the power supply please see the Quick Start Guide for MICROSENS Central Smart Lighting Controller.

7. Connect the AC/DC power supply (C) to the building's mains supply.



DANGER!

Risk of electrical shock!

Only qualified personnel accustomed to working with electrical equipment is allowed to perform this step.

Only connect the AC/DC power supplies to the mains supply after AC/DC power supply and Central Smart Lighting Controllers are securely connected.

fulfil the following technical requirements:

- Power: 2x 600 W per CSLC
 - Voltage output: 54 VDC
 - Use a 3x 1.5 mm² cable with a max. length of 3 m.
 - After connection to the mains power the Central Smart Lighting Controllers (A) start automatically and are ready for operation after approx. 45 s.
8. Pair the connected controllers the main Central Smart Lighting Controller (A) (see chapter "9 Pairing the Controllers" on page 24).
 9. Calibrate the components (see chapter "10 Calibrating the " on page 25).

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8 Linking Smart Sensors to Light Zones (MVP-2 only)

When connected to a CSLC for the first time every Smart Sensor gets a unique ID from the CSLC. It is important to logically assign those IDs to light zones.

To implement this use the MICROSENS application "Smart Sensor ID Control". For more information about this application please contact the manufacturer's support.

1. Start the application "Smart Sensor ID Control". The following main screen appears.

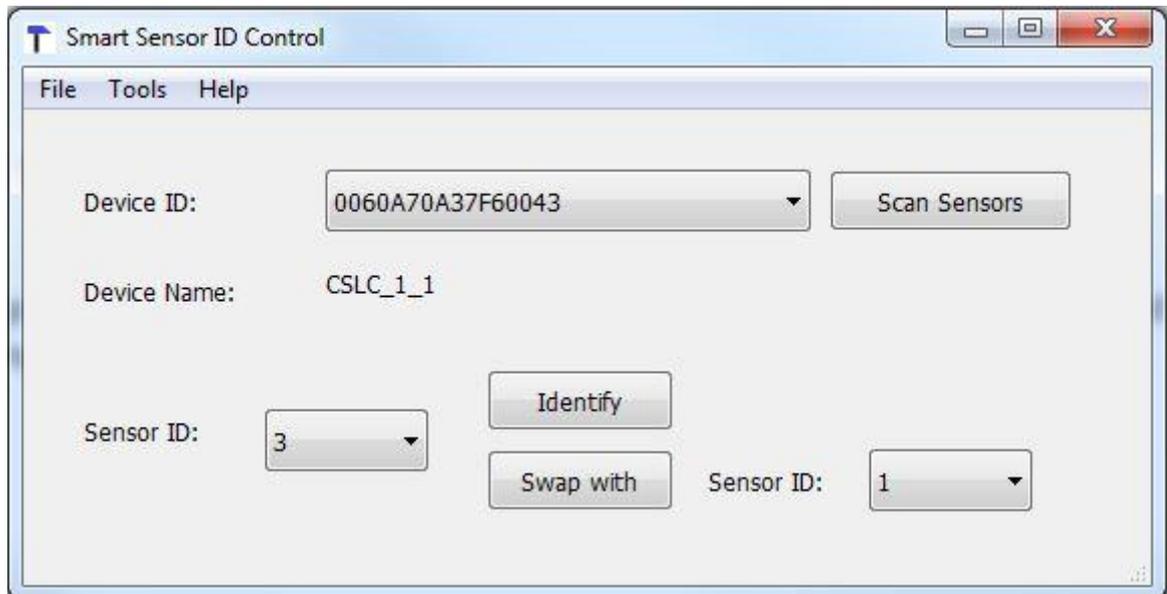


Fig. 4: Smart Sensor ID Control Start Dialogue

2. In the drop-down list **Device ID** select the respective CSLC.
3. Click on the button **Scan Sensors** to find all Smart Sensors connected to this CSLC.
4. In the left-hand drop-down list **Sensor ID** select a listed sensor.
5. Click on the button Identify. The selected Smart Sensor will blink blue for several seconds.
6. In the right-hand drop-down list **Sensor ID** select the zone ID you want to assign to this sensor.
7. Click on the button Swap with to finalise this ID assignment.
8. Repeat this process for all available Smart Sensors.

9 Pairing the Controllers

Pair the connected controllers with the central switches as follows:

- Open the Web Manager of the respective switch (Central Smart Lighting Controller (A), Profi Line switch (B)).

Note:

With MVP-2 only pair the controllers to the main CSLC. The cascading CSLC just relays the connected controllers to the main CSLC.

- Select the screen **SmartOffice**, then open the tab **Basic Configuration**.

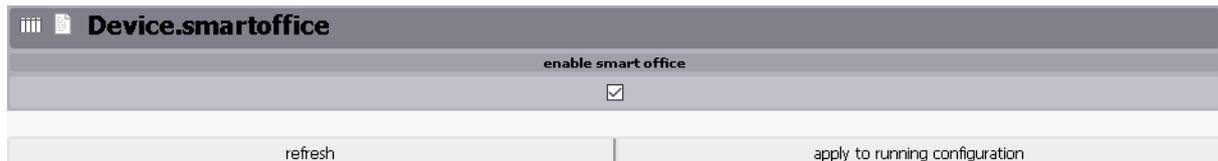


Fig. 5: Web Manager - SmartOffice - Basic Configuration - Enable Smart Office

- In the section **Device.smartoffice** check the option **enable smart office**.
- In the section **Device.smartoffice.director_config** click on the button **scan light controllers** to search for connected controllers.



Fig. 6: Web Manager - SmartOffice - Basic Configuration - Scan Light Controllers

- When using the MVP-1 scenario scan for lighting controllers ("SLC"), I/O controllers (SIOC), when using the MVP-2 scenario scan for Central Smart Lighting Controllers ("CSLC") by choosing the respective value from the drop-down list under **scan filter** or choose "ALL" for both scenarios to scan for all available components connected to the switch.

scanned Light Controllers (4 Entries, Filter = SLC)									
# Slt/Prt	IP address IP mode	Uptime (sec) Uptime (decoded) NW Timeout	vScan vHW vFW	Article Nr Serial Nr remote Name	Controller ID remote Director ID local Director ID	configured local Name Status	Config Actions	Pairing Actions	
1 3/3	fe80::260:a7ff:fe09:64e9 static	12245 0 days, 03:24:05 0	5 B 4.24	MS660102M 00812109 SLC_3_1	0060A70964E90043 0060A709A8C90044 0060A709A8C90044	unconfigured DirID match	identify add	pair as SLC_1_1	
2 3/4	fe80::260:a7ff:fe09:648c static	12246 0 days, 03:24:06 0	5 B 4.24	MS660102M 00812016 SLC_2_1	0060A709648C0043 0060A709A8C90044 0060A709A8C90044	unconfigured DirID match	identify add	pair as SLC_1_1	
3 2/2	fe80::260:a7ff:fe08:985c static	12245 0 days, 03:24:05 0	5 B 4.24	MS660102M 00764258 SLC_4_1	0060A708985C0043 0060A709A8C90044 0060A709A8C90044	unconfigured DirID match	identify add	pair as SLC_1_1	
4 2/4	fe80::260:a7ff:fe09:b6ed static	12765 0 days, 03:32:45 0	5 B 4.24	MS660102M 00855354 SLC_1_1	0060A70986ED0043 0060A709A8C90044 0060A709A8C90044	unconfigured DirID match	identify add	pair as SLC_1_1	

Hint values derived from local configuration or status are marked blue.

Fig. 7: Web Manager - SmartOffice - Basic Configuration - Scan Results

- The section **scanned Light Controllers** lists all found components depending on the chosen scan filter.
- For listed SLCs click in the column **Config Actions** on the button **identify** of the respective entry. This will activate the connected LED panel.

- For listed SIOCs compare the listed MAC address to the MAC address used by the respective SIOC.
- In the column **Pairing Action** click on the button **pair** of the respective device that should be paired.
 - » After the pairing process all devices are ready for use.

Note:

It is strongly recommended to calibrate the components before operating them the first time!

10 Calibrating the Devices

All available lighting controllers (SLC or CSLC) have to be calibrated to make sure the output voltage of the respective controller’s port does not exceed the specifications of the connected component (i.e. LED panels). Calibrate the devices as follows:

- Open the Web Manager of the respective switch (Central Smart Lighting Controller **(A)**, Profi Line switch **(B)**).
- Select the screen **SmartOffice**, then open the tab **Device Configuration**.

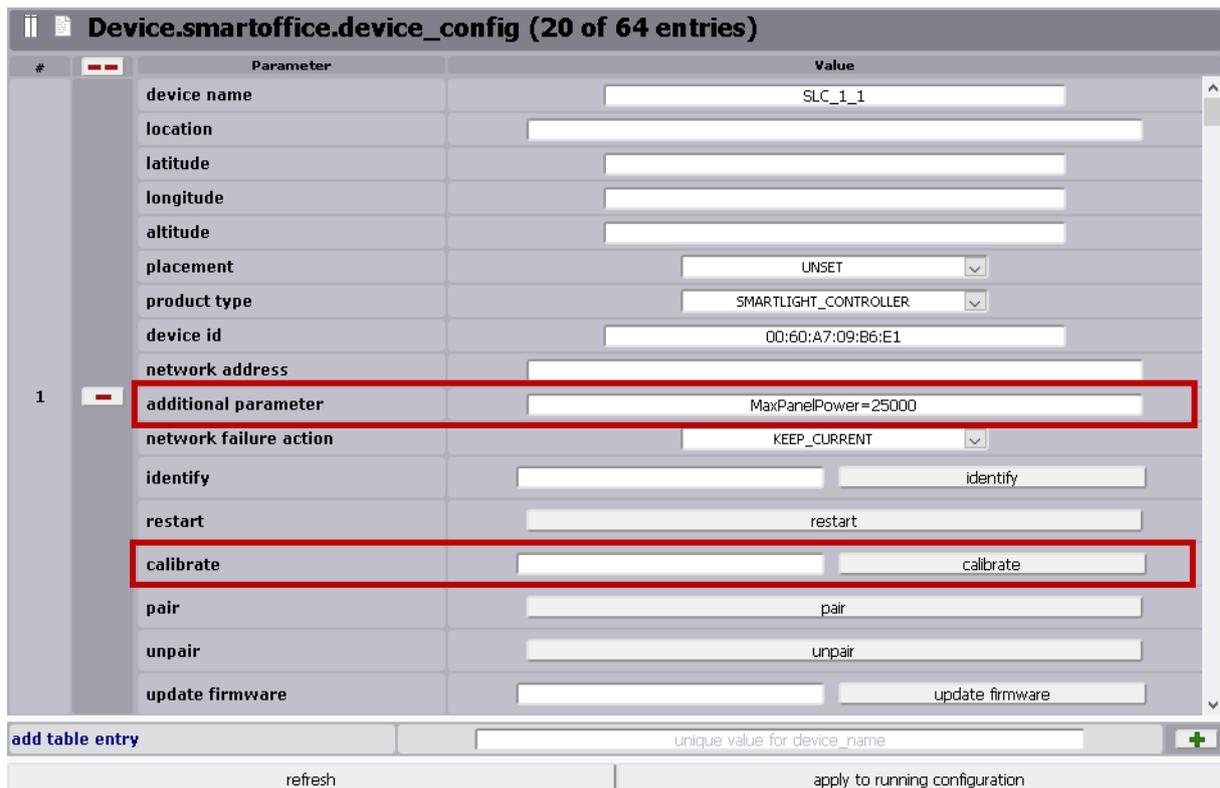


Fig. 8: Web Manager - SmartOffice - Device Configuration - Calibrate Device

- In the section **Device.smartoffice.device_config** scroll down to the respective device.

- In the field **additional parameter** enter the value for the maximum power consumption of the connected component.
 - » See the technical specifications for the power consumption values.
 - » Use the syntax **MaxPanelPower=xxxx** to enter the maximum value **in mW**.
- Click on the button **apply to running configuration** to save the changes to the running configuration.
- Click on the button **calibrate**.
 - » The device starts powering the output port to detect the proper output current required for the permitted power consumption previously assigned as value for "MaxPanelPower".
 - » After successful calibration the respective MVP installation is ready to use.

11 Operational Test of App and Infrastructure

11.1 Start WEB UI of SBM Server

11.1.1. Prerequisites

After starting SBM Server and enabling the required HTTP service a web browser of your tablet PC [®] can be used to access the server with one of the following URL addresses.

- for standard HTTP connections:
http://<server_ip_address>:<http_server_port>/sbm
- for secured HTTP connections, if the secured HTTP was configured on SBM Server:
https://<server_ip_address>:<https_server_port>/sbm

Note:

You will find the URL also on the bottom of the SBM Server window:



Fig. 9: SBM Server - Web Server IP Address

11.1.2. Login as Valid User

The very first step is to log in to use the UI. Therefore you will get a login screen before accessing the WEB UI of the SBM product.

Note:

For more information about using SBM please refer to the Quick Start Guide "Smart Building Manager" which is available on our website <https://www.microsens.com>.

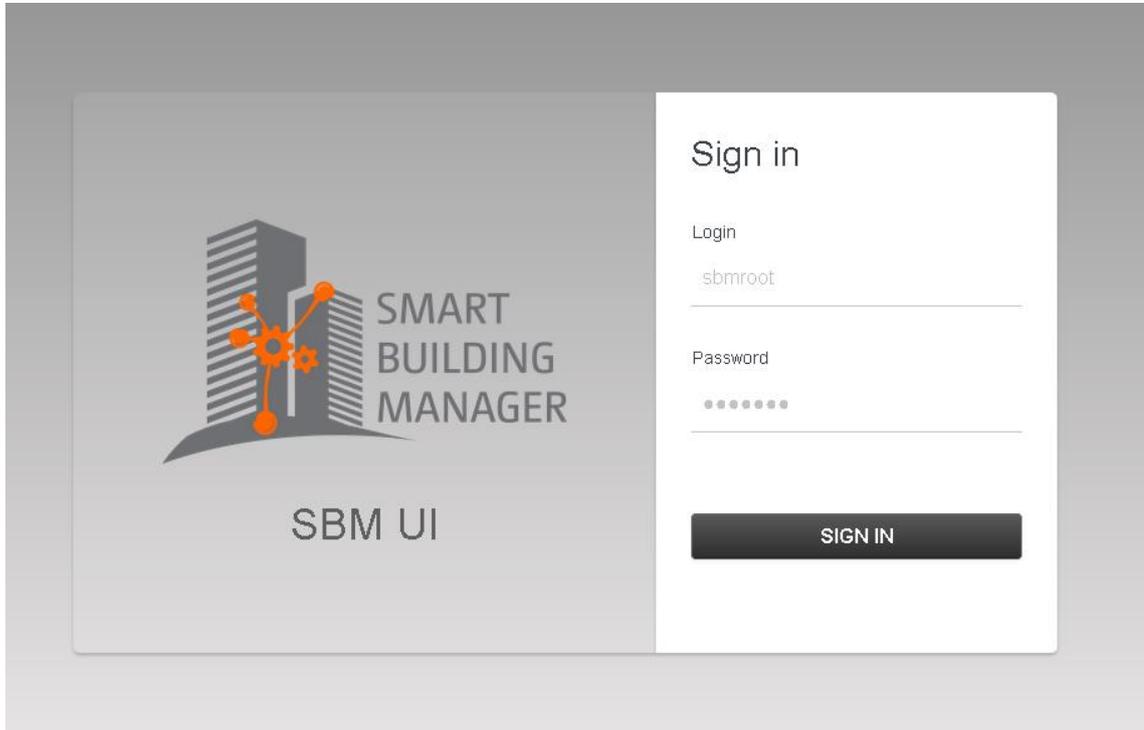


Fig. 10: SBM WEB UI - Login Screen

11.2 Review Building Summary

After login you see the main navigation bar on the left hand side of the WEB UI. If it is not already active click on the menu item "Building Status".



Fig. 11: SBM WEB UI - Building Status Icon

Right of the main navigation bar there is a navigation column to navigate through your building structure for the assigned MVP scenario. In addition on the right hand pane there is a summary page which shows the most relevant data points as defined for a room. A click on the "Info button" near the top right corner will open a legend containing information about the different icons and colour codes used in the summary screen.

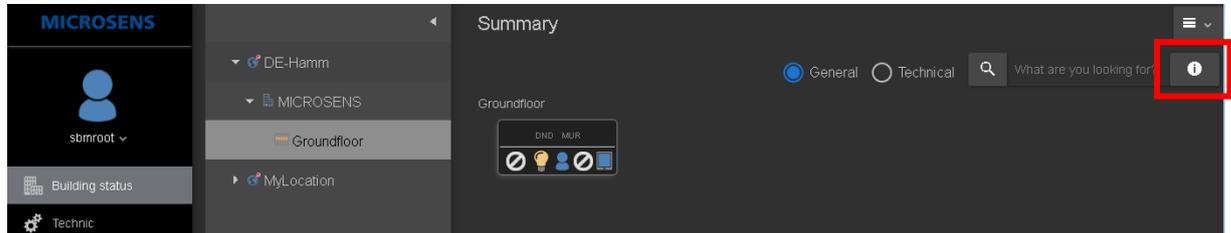


Fig. 12: SBM WEB UI - Building Structure Navigation and Summary Screen

11.3 Review Inventory

Select the node "Inventory" in the main navigation bar on the left hand pane to get an overview about the managed devices.

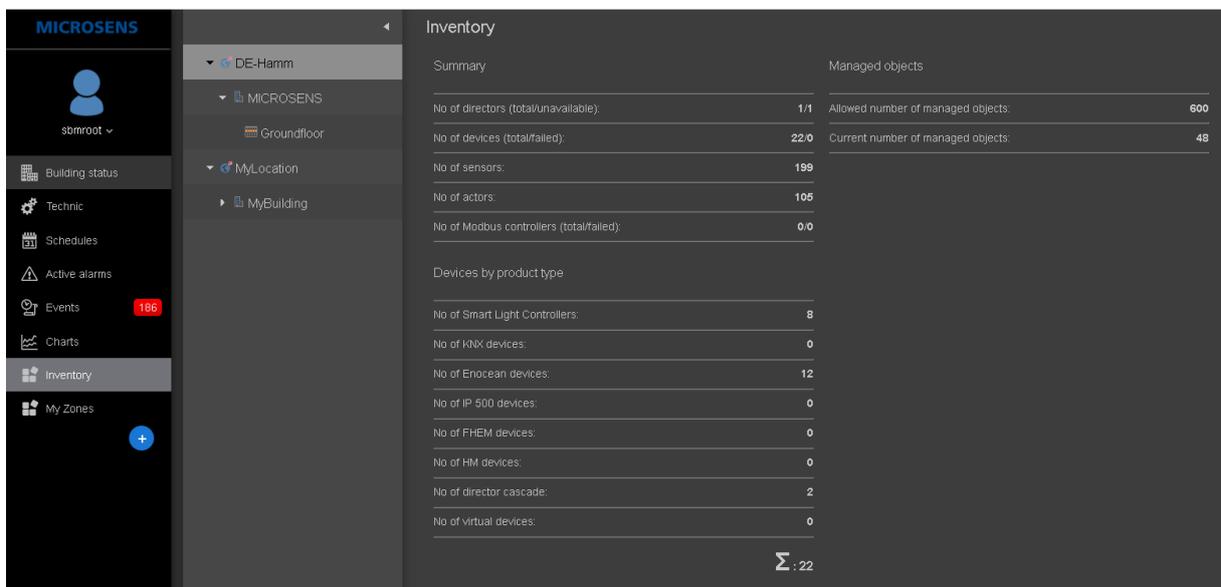


Fig. 13: SBM WEB UI - Inventory Screen

This page shows all devices, sensors and actors which are installed. When navigating through the building structure nodes the inventory page updates to the components available for this specific node.

11.4 Review History Charts

Click on the node "Charts" in the main navigation bar.

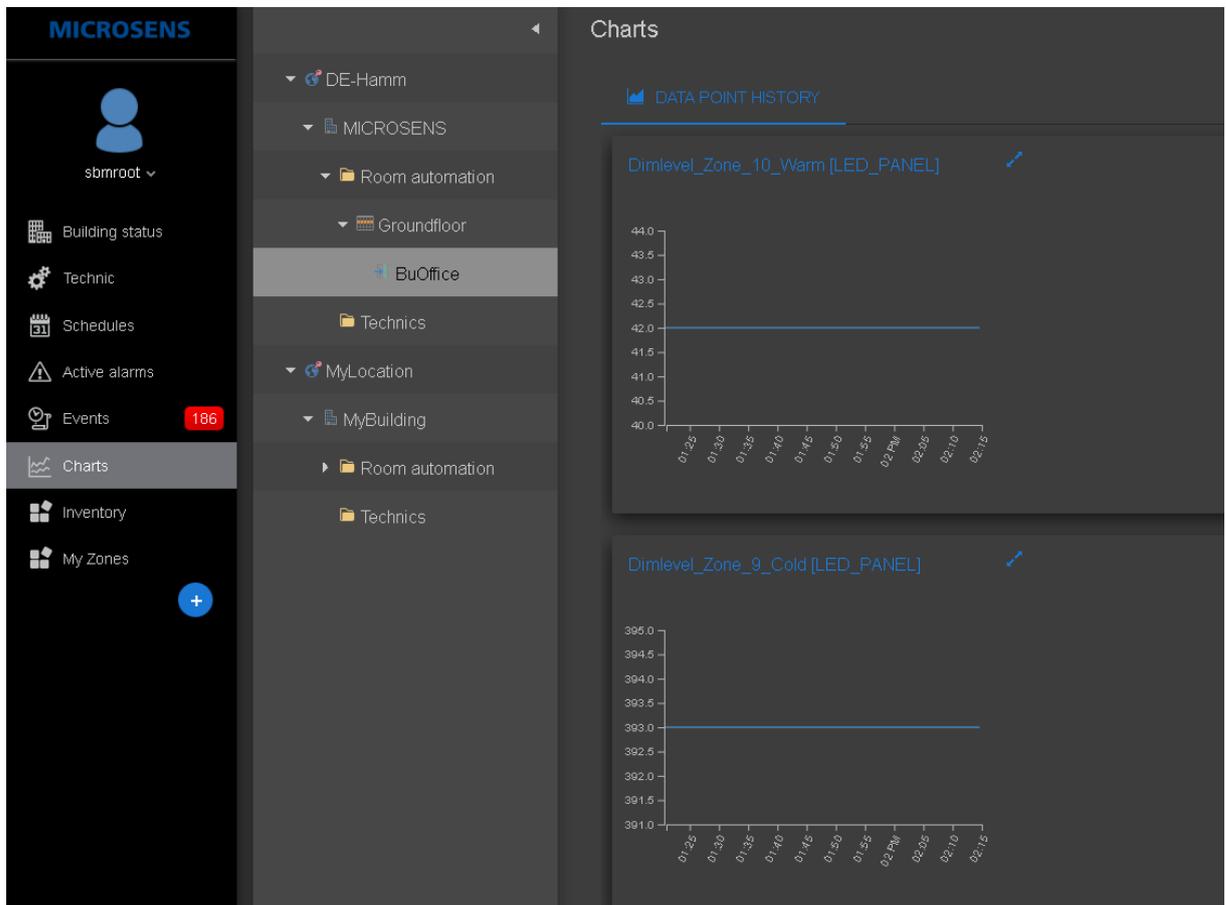
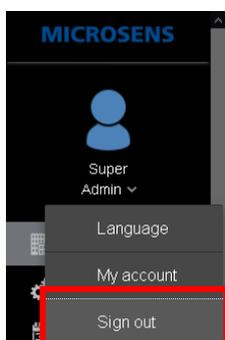


Fig. 14: SBM WEB UI - Charts Screen

The charts screen shows the history data charts for the data points which are defined by SBM client depending on the node which is selected under the Node "Room Automation".

11.5 Logout from SBM WEB UI



Click on the user icon on the top right corner once. A scroll down menu appears. Click again on the menu item Sign out to logout from the SBM WEB UI.

Fig. 15: SBM WEB UI - Sign Out

12 Using the Web UI with the Tablet PC

For monitoring and controlling the previously installed MVP scenarios use the browser of a tablet PC and connect to the web interface of the Smart Director..

12.1 Prerequisites for Accessing the Web UI

The following conditions have to be met to access the Web UI of the Smart Director:

- All IP addresses have to be assigned correctly according to this quick step guide.
- The web UI of the Smart Director is enabled.

12.2 Connecting the Web UI

Use the following steps to connect to the web UI:

1. Open the web browser.
2. Enter the following URL:
 - `https://<IP address of PLM/CSLC>/gui/SceneControl.html`

Note:

The IP address corresponds to the following settings according to this quick start guide:

- **MVP-1: 192.168.11.80**
This is the default address of the MICROSENS G6 switch.
- **MVP-2: 192.168.11.90**
This is the default address of the main Central Smart Lighting Controller.

In case the IP addresses of your MVP installation differ from the default addresses insert your specific IP addresses into the URL.

3. A login dialogue appears. Enter the following credentials into the fields:
 - User: smartuser
 - Password: microsens

Note:

Due to a possibly unknown certificate your browser may prompt you to import the certificate of Smart Director. After accepting the certificate the login process continues.

4. When logged in successfully the Smart Director web UI home screen appears:



Fig. 16: Smart Director Web UI Home Screen

5. To switch all light zones at once click on one of the four prominent icons:
 - "All Off": Switches all LED panels off.
 - "Auto": Changes the brightness of the LED panels depending on the Smart Sensor values.
 - "Dim": Lowers the brightness of all LED panels to the default dim level.
 - "On": Switches all LED panels to maximum brightness.
6. To change the settings of the light and climate control zones click on the icon "Settings" on the lower left. The respective dialogue opens. At the bottom of the window select the specific icon to change to the respective settings screen.



Fig. 17: Smart Director Web UI Zone Controlling

7. To return to the web UI home screen click on the home icon on the bottom left.

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