MICROSENS

Quick Start Guide

Commissioning

Central Smart Lighting Controller (CSLC)

V1.0.0

MICROSENS GmbH & Co. KG, Kueferstr. 16, 59067 Hamm, Germany

Table of Contens

0 Aim of this Quick Start Guide

This quick start guide describes the commissioning of the MICROSENS Central Smart Lighting Controller (CSLC). It aims to become familiar with operating the CSLC and with making initial use of the MICROSENS Smart Building solution.

For further documentation see the MICROSENS Smart Building Manager documentation or visit the MICROSENS website under www.microsens.com.

This quick start guide will help you with

- the mechanical handling of the Central Smart Lighting Controller,
- changing the memory card,
- connecting the power supply and commissioning the device,
- understanding the status LEDs,
- operating the buttons,
- setting up access via Network Management Platform (NMP) and Smart Building Manager (SBM),
- installing and initially using the SmartDirector App.

1 Display and Connections

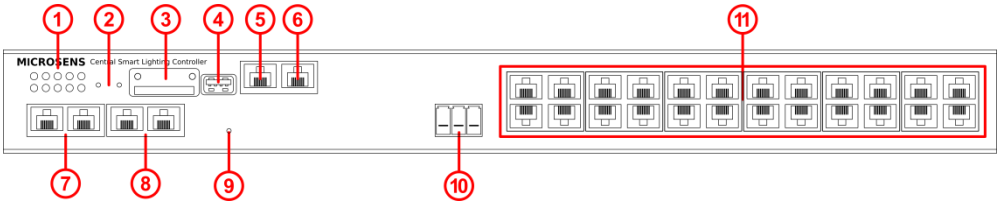

Fig. 1: Display and connections

No.	Description	No.	Description	No.	Description	No.	Description
1	Device status LEDs	2	Buttons "Reset" / "Factory"	3	SD card slot	4	USB port
5	Serial port	6	Uplink port	7	Ethernet ports	8	Sensor ports
9	Button "Test"	10	Power supply	11	LED ports		

2 Mechanical Handling

The Central Smart Lighting Controller can be mounted in a standard 19'' equipment rack (via Rack Mount Kit, 1 height unit) or on a desktop or shelf. Be sure to follow the guidelines below when choosing a location.

The site should

- be at the centre of all the devices you want to link and near a power outlet,
- be able to maintain its temperature within 0 to 50°C and its humidity within 10% to 80%, non-condensing,
- be accessible for installing, cabling and maintaining the device,
- allow the status LEDs to be clearly visible.

Make sure that

- the supply circuit to the rack assembly is not overloaded,
- the airflow at the rear of the unit is sufficient for the fan,
- the air outlets at the sides of the unit are not covered e.g. with cables,
- no equipment is placed on top of a rack-mounted unit,
- the minimum distance between two CSLC devices amounts to 1 rack height unit (1U),
- the twisted-pair Ethernet cable is always routed away from power lines, radio transmitters or any other electrical interference,
- the CSLC is connected to a separate grounded power outlet.

3 Factory settings

Note:
Please note that the factory settings may change with future firmware versions.
For this reason we recommend that you check the release notes for information about any changes to the factory settings before carrying out a firmware update.

The CSLC starts with the following factory settings:

- User level – as per the "Preset user levels for management access" (see section 11)
- IP configuration – DHCP
- Ring function – Turned off
- VLAN filter – Turned off
- Serial port – 115200, 8N1
  Hardware flow control: No
  Software flow control: No

4 Connecting to Network

Connect the CSLC to your local network segment using a Cat5e Ethernet cable plugged into the uplink port (10/100/1000Base-TX, see Fig. 1, ⑥ and Fig. 3).

It is possible to cascade several CSLC devices to manage multiple devices of this kind via a main CSLC that is connected via uplink port to the local network. Connect additional CSLC devices to the Ethernet ports "Eth2" and "Eth3" (see Fig. 1, ⑦ and Fig. 3).

Note:
It is strongly recommended to cascade no more than 4 CSLC devices.

Note:
By default all sensor and LED ports are paired to their respective CSLC. It is important to **unpair** these ports from their CSLC and afterwards to pair them to the main CSLC. For unpairing and pairing devices see "Unpairing and Pairing Sensor and LED Ports" on page 11.

5 Connecting the Power Supply

Note:
Do not connect sensors or LED panels when the CSLC power supply is connected! After switching off the CSLC it is recommended to wait some time before connecting sensors or LED panels to the CSLC..

The CSLC is powered by a **54 VDC** power connector. The respective 3-pin plug connector is labelled "Power" (see Fig. 1, ⑩). Please observe ground and polarity (terminal labelling grounding symbol, "+" and "-").

The connected power supply must deliver at least the total power of 1100 W to the CSLC in case of all LED ports are connected to appropriate LED panels.

After connecting the power supply the CSLC starts automatically and is operational after a short reboot time.

6 Notifications

6.1 Device Status LEDs (see Fig. 1, ① and Fig. 2)

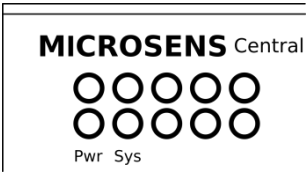

Fig. 2: LED display

- Pwr (Power)
  - Off – CSLC unpowered or monitoring disabled.
  - Green – Power supply functional
- Sys (System)
  - Off – Normal operation
  - Other notification – See "Factory" in chapter "Operating elements" on page 5.

6.2 Port Status LEDs

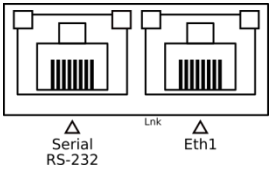

Fig. 3: Port status LEDs

6.2.1 RS-232 (Serial port) (see Fig. 1, ⑤ and Fig. 3)

- TxD/RxD – Off (not used)

6.2.2 Eth1 (10/100/1000Base-TX Uplink port) (see Fig. 1, ⑥ and Fig. 3)

- lnk (Link)
  - Off – Link down, no connection
  - Green – Link up, port open (able to send and receive data)
  - Orange – Link up, port blocked: Port Access Control (PAC), Spanning Tree (STP), MICROSENS Ring Protocol or Local Loop Protection have rejected the user
  - Green *blinking* – Port sending or receiving data

6.2.3 Eth2/Eth3 (10/100Base-TX port) (see Fig. 1, ⑦ and Fig. 3)

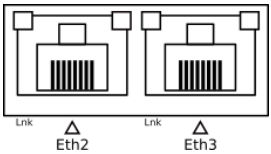

Fig. 4: Port status LEDs

- lnk (Link)
  - Off – Link down, no connection
  - Green – Link up, port open (able to send and receive data)
  - Orange – Link up, port blocked: Port Access Control (PAC), Spanning Tree (STP), MICROSENS Ring Protocol or Local Loop Protection have rejected the user
  - Green *blinking* – Port sending or receiving data

6.2.4 Sensor Input Port Status LEDs (see Fig. 1, ⑧ and Fig. 5)

- Sensor 1
  - left – CP Rapid Sensor send
  - right – MS Smart Sensor send
- Sensor 2
  - left – CP Rapid Sensor receive
  - right – MS Smart Sensor receive

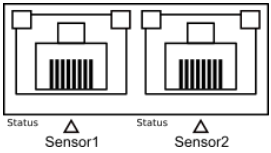

Fig. 5: Sensor Input

6.2.5 LED Output Port Status LEDs (see Fig. 1, ⑪ and Fig. 6)

- Status
  - Off – No calibration needed.
  - Yellow – Calibration value is "0". Calibration needed.
- Out
  - Off – Dim level is "0"
  - Green – Dim level is up to "1000", according to LED brightness.

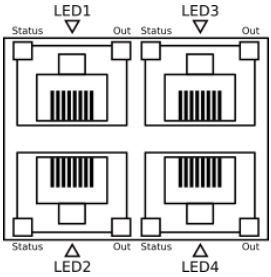

Fig. 6: LED Output

Note:
For detailed pin assignment of the LED output connector see page 5.

7 Operating elements

There are three buttons on the front panel (see Fig. 1, ② and ⑨). These can be activated with a thin object.

- "Reset": Restarting the CSLC (hardware reset).
  By briefly pressing the button labelled "Reset" the memory and the MAC table of the CSLC are erased and all connections are reinitialised. The current configuration of the CSLC remains unchanged.
- "Factory": No function yet.
- "Test": All LED output ports are restarted

8 Connecting Sensors

Note:
Please ensure that the connectors of your sensors meet the pin assignments of the CSLC's sensor ports. If in doubt contact MICROSENS for support.

The two sensor input ports (see Fig. 1, ⑧) enable immediate integration of sensors for brightness, motion and presence detection groups via RJ45 BUS input.

Note:
When connecting sensors to the CSLC's sensor ports either directly or via sensor cascade it is important to terminate unused ports (both on the device and the sensors) with a 100 Ω termination plug.

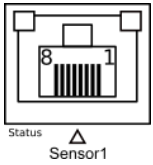

Fig. 7: Sensor Input Pin Assignment

9 Connecting LED Panels

The 24 individually controllable supply channels (see Fig. 1, ⑪) offer power supply for LED lighting via twisted-pair cable and RJ-45 connector.

The connectors pin assignment is as follows (see Fig. 8):

- Pin 1: LED +
- Pin 2: LED -
- Pin 3: LED +
- Pin 4: LED -
- Pin 5: LED +
- Pin 6: LED -
- Pin 7: LED +
- Pin 8: LED -

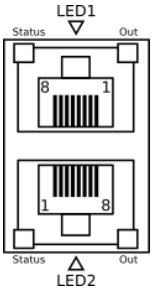

Fig. 8: LED Output Pin Assignment

For configuring additional LED panels with SmartDirector please refer to section "Configuring additional LED Panels" on page 13.

Note:
If it is not possible to switch of the CSLC before connecting an LED panel do not connect an LED panel to a port with port status LED "Out" flashing green. That indicates that the dim level of this port is set up to 100%. This can cause damage to the LED panel.

Note:
When connecting dual tone LED panels to the CSLC's ports please refer to the respective manufacturers device documentation.

9.1 Technical Features

- Power restriction can be defined per channel (max. 1 A per channel).
- Power output up to 50 W available per channel (max. 1000 W total power output).
- 100 m maximum line length to the LED lamps.
- Twisted pair lines of category 5 or higher, AWG 24.

10 Network Management Access

10.1 IP Address Assignment

In order for management over the network to function, the CSLC requires valid IP parameters (IP address, subnet mask, and default gateway). These are obtained automatically via DHCP (see factory settings on page 3). As an alternative you can manually assign the IP parameters with the software "IP-Config Tool" or the software "Network Management Platform" (NMP).

10.2 Using the "IP-Config Tool" Software

The IP-Config Tool allows the initial IP configuration of MICROSENS Switches and CSLC. The following steps describe how to find and configure the Central Smart Lighting Controller in the corporate network.

Note:
Java™ SE Runtime Environment is required for using IP-Config Tool.

Step 1: Install and start the MICROSENS Switch IP Config Tool.

The latest version is available for download from our website:
www.microsens.com > Support > Software tools

Step 2: Choose the network interface that is connected to the corporate network.
Step 3: Click on the button "MAC-based Device Discovery". After a short time every MICROSENS switch and CSLC that is connected to the corporate network should appear in the list.

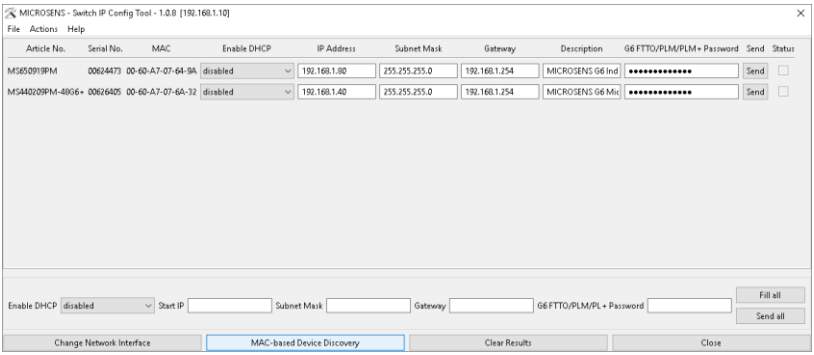

Fig. 9: IP-Config Tool

Step 4: DHCP is enabled by default. For the CSLC change it to "disabled" and enter the required IP address.
Step 5: Click on the respective right-hand button "Send". The new configuration is stored into the device.

Step 6: Open your web browser and enter the IP address of the CSLC.

Fig. 10: Starting Web Manager

Note:
By default, the CSLC uses the secure `HTTPS://` protocol.

Step 7: Enter the default user credentials to open the start dialogue of the Web Manager.

Note:
For further information about configuring Smart Office with CSLC please refer to the Application Note "Configuring Smart Office".

10.3 Using the NMP Software for IP Configuration

If you use the management software NMP, you can optionally use the "Switch IP Config Tool" integrated into it. The user interface is available in a number of languages. The "Switch IP Config Tool" does not need to be downloaded separately.

10.4 User Interfaces of the Controller

Once the IP configuration is ready, you are able to manage the controller. The controller has the following user interfaces:

- https – Web Manager (graphical interface, encrypted)
  Access: `https://<IP address of controller>`
  User documentation is available via link "Documentation" in the navigation bar.

  Note:
  This interface is also used for NMP (see page 7).
- http – Web Manager (graphical interface, unencrypted)
  Access: `http://<IP address of controller>`
  disabled by default, can be enabled instead of https.
- ssh – Encrypted text-based interface (CLI)
- telnet – Unencrypted text-based interface (CLI)
- snmp – For third-party management software SNMPv1, SNMPv2c, SNMPv3 are supported.

11 Preset User Levels for Management Access

The following user levels (roles with specific access rights) are preset:

User	Password	Access	Comments
public	microsens	Read only	This user cannot make any changes.
user	microsens	Limited write	This user has write access to selected parameters such as aliases, time, test functions, etc.
admin	administrator	Full rights	This user can adjust all settings.

Note:
It is strongly recommended to change the default passwords after putting the CSLC into operation!

12 Network Management Platform (NMP)

With the Network Management Platform (NMP) MICROSENS offers a universal management software for the central configuration and administration of all MICROSENS devices. The clearly structured graphical user interface and intelligent mechanisms greatly simplify the tasks for the administrator.

The software interface offers a number of languages. The "IP-Config Tool" is integrated.

The latest version is available for download from our website:

- www.microsens.com > Support > Downloads

A license key is required to operate this software. A test licence is available either from your MICROSENS products sales partner or directly from MICROSENS Sales (sales@microsens.de).

13 Smart Building Manager (SBM)

The Smart Building Manager (SBM) is a powerful software to assist the Building Management Administrator with the management of Smart Building devices. To operate this software a license key is required. A test licence is available either from your MICROSENS products sales partner or directly from MICROSENS Sales (sales@microsens.de).

Please refer to the included SBM documentation for information on how to use SBM.

14 Web browser

When accessing the Web Manager, use a standard web browser that runs on a user's local computer or workstation with all operating systems (Microsoft Windows®, Linux, Mac OS®) and connect to a server as necessary. The recommended display resolution is at least 1280*1024.

Supported web browsers are:

- Mozilla Firefox 37 or later
- Microsoft Edge

When the CSLC is ready for operation after start up the web browser can be used to access the Web Manager with one of the following URL addresses:

- `http://<CSLC_ip_address>` for standard HTTP connections or
- `https://<CSLC_ip_address>` for secured HTTP connections.

Note:
Support for JavaScript has to be enabled at the web browser. There is no need to install any additional plug-ins.

15 Basic Configuring of MICROSENS Central Smart Lighting Controller

In order to be able to configure the CSLC, the following basic measures must be put into place:

- Administrator access rights to the CSLC are a must-have.
- All Smart Building components (e.g. LED panels) have to be properly connected to the CSLC and the corporate network.

The following descriptions assume you are using the Web Manager and logged in into the MICROSENS CSLC, from where you want to configure and manage the Smart Building infrastructure.

Note:
For information about using NMP or SBM please refer to the respective user documentation.

15.1 Enabling IPv6 and ICMP Auto Address

The CSLC communicates via IPv6 to operate sensor and LED ports. It is necessary to enable IPv6 and ICMP Auto Address functions of the CSLC.

Using the Web Manager:

□ Select the **IPSetting** screen, then select the tab **IPv6 configuration**.

Using the Web Manager:

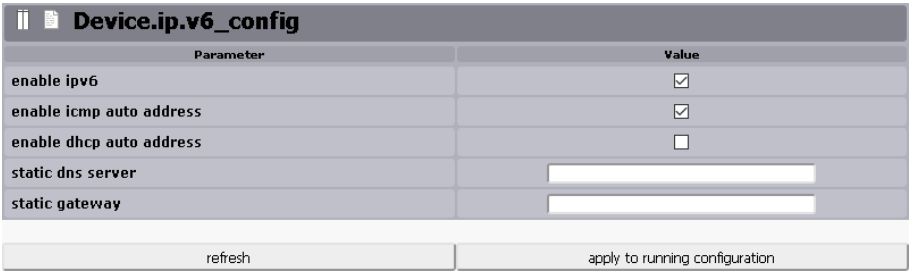

Fig. 11: Web Manager - IPSetting - IPv6 Configuration

- In the section **Device.ip.v6_config** enable the options **enable ipv6** and enable **icmp auto address**.
- Leave all other settings as they are.
- Click the button **apply to running configuration** to save the changes to the running configuration.

15.2 Installing SmartDirector

The SmartDirector is a firmware application (App) running on the intelligent MICROSENS 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, heating valves or blinds positions depending on the determined scenarios.

Note:
For working properly with a MICROSENS Central Smart Lighting Controller it is necessary to use a Smart Director App Version 100 and newer on a CSLC containing a firmware version 10.7.7 and newer.

The following steps will install the SmartDirector App.

Using the Web Manager:

- Select the **Scripting** screen, then select the tab **Apps**.

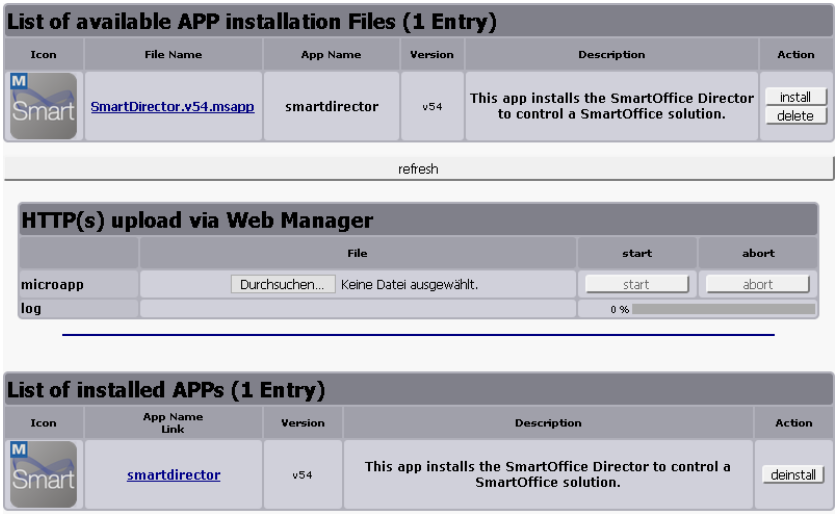

Fig. 12: Web Manager - Scripting - Apps

- If the SmartDirector App is missing in the section **List of available APP installation Files** click on the button "Browse" in the section **HTTP(s) upload via Web Manager** to open the file browsing dialogue. Navigate to the SmartDirector App file (`.msapp` extension) on your local computer and click on "OK".

  Your browser uploads the file into the switch.

  After successful upload the SmartDirector appears as available app in the list.

- A click on the right-hand button "install" in the section **List of available APP installation Files** starts the app installation process.

  Note:
  When installing a new version over an previously installed version, initially the current configuration is backed up. Afterwards the new app version replaces the older version and loads the previously saved configuration.

  Any parameter added or removed with the new version will be displayed.

- After successful installation the SmartDirector appears as installed app in the **List of installed Apps**.

Note:
To operate the SmartDirector App please refer to the Application Note "Operating the SmartDirector App".

15.3 Unpairing and Pairing Sensor and LED Ports

By default all sensor and LED ports are paired to their respective CSLC. When cascading CSLC devices it is important to unpair these ports from their CSLC and afterwards to pair them to the main CSLC.

Using the Web Manager:

- Open the Web Manager of the cascaded CSLC.
- Select the **SmartOffice** screen, then select the tab **Device Configuration**.

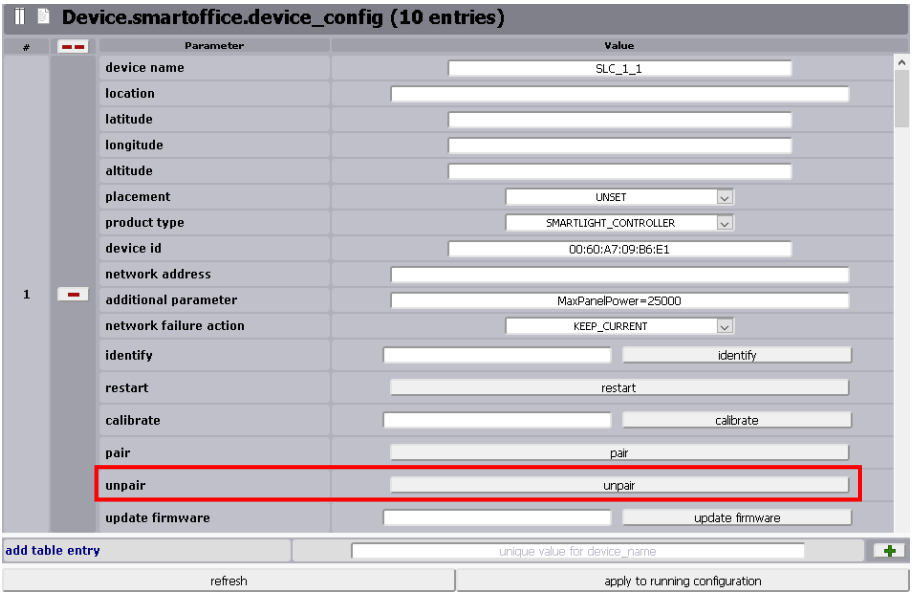

Fig. 13: Web Manager - SmartOffice - Device Configuration - Unpairing

- Click on the button unpair to unpair the device from the respective CSLC.
- Unpairing the device is processed immediately. It is not neccesary to click the button **apply to running configuration** to save the changes to the running configuration.
- Open the Web Manager of the main CSLC.
- Select the **SmartOffice** screen, then select the tab **Basic Configuration**.

Using the Web Manager:

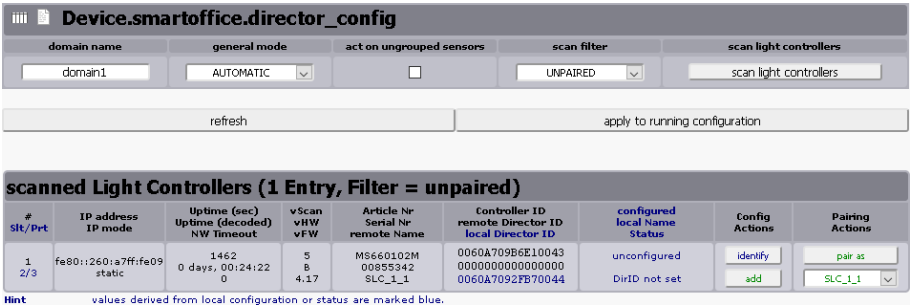

Fig. 14: Web Manager - SmartOffice - Basic Configuration

- In the section **Device.smartoffice.director_config** open the drop-down list **scan filter** and select the entry "UNPAIRED".
- Click the button **apply to running configuration** to save the changes to the running configuration.
- Click the button **scan light controllers** to find unpaired devices in the local network.

  In the section **scanned Light Controllers** the previously unpaired devices appear.
- In the column **Pairing Actions** select the respective device name and click on the button **pair as**.

  With the device successfully paired the status entry changes to "DirID match".

15.4 Configuring additional LED Panels

After connecting additional LED panels to the CSLC you have to configure them via SmartDirector.

Using the Web Manager:

- Select the **SmartOffice** screen, then select the tab **Device Configuration**.

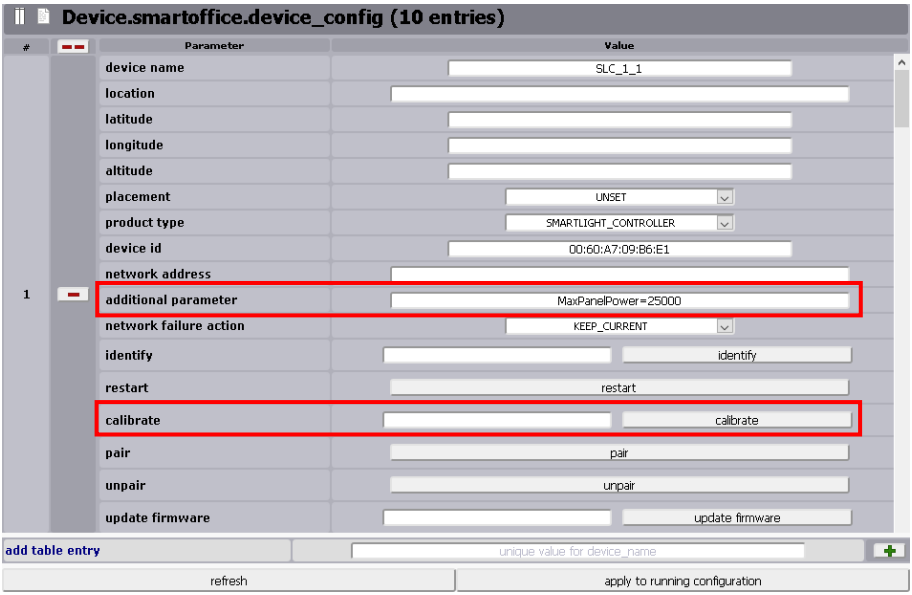

Fig. 15: Web Manager - SmartOffice - Device Configuration

- In the section **Device.smartoffice.device_config** enter an **additional parameter** "MaxPanelPower=[value]" where "[value]" is the max. power consumption of the LED panel in mW, depending on the panels data sheet.

  To assign different values to specific ports use a comma-separated list with up to 24 entries:

  "MaxPanelPower=25000,12000,23000,[…]"

  If the list contains less than 24 entries the last entry is assigned to the remaining ports.

  Note:
  Without assigning this value to a specific port it is valid for all 24 ports. Bear in mind that the power sum of all 24 ports must not exceed a total power output of max. 1000 W (or max. 50 W per port).

- Click the button **apply to running configuration** to save the changes to the running configuration.

- Click on the button calibrate.

  This will set the dim level of 100% to the max. power output level.

- Calibrating the dim level processed immediately. It is not neccesary to click the button **apply to running configuration** to save the changes to the running configuration..

15.5 Default SmartDirector Settings

Note:
To operate the SmartDirector App please refer to the Application Note "Managing the SmartDirector App".

During the installation of the SmartDirector App the following settings are applied:

- Additional tab **SmartDirector** on screen **Scripting**, containing SmartDirector status and commands.

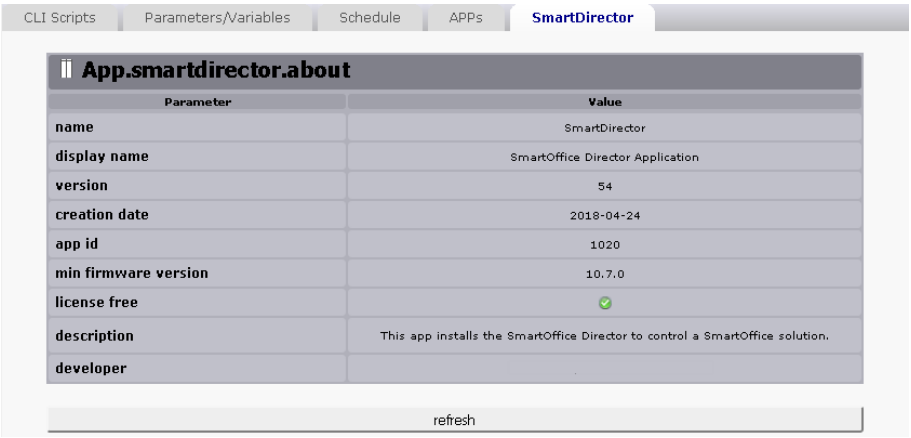

Fig. 16: Web Manager - Scripting - New Tab "SmartDirector"

- The tab **SmartDirector** additionally contains the default Smart Office infrastructure configuration for the room the SmartDirector is provided for (i.e. light zones, buttons with scene control, climate control).
- Via preset scenarios it is possible to assign more complex Smart Lighting infrastructures. Please refer to the Quick Installation Guide "Using Smart Lighting MVP Scenarios".
- On the screen **Userinterfaces** the tab **Web** additionally contains the configuration of default web GUI pages and elements for controlling the Smart Office installation via web browser.

  These web GUI pages are accessible via the address
  `http(s)://<CSLC_ip_address>/gui/SmartOffice.html`.

  Note:
  The address is case-sensitive!

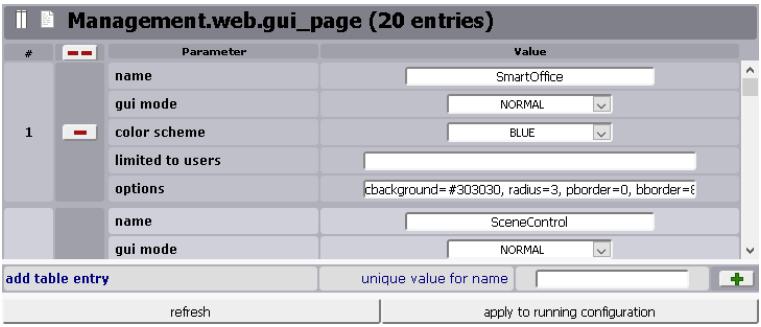

Fig. 17: Web Manager - Userinterface - Web Page Configuration

- The SmartDirector initially generates logical sensor and actor groups which combine and present the information from actors and sensors connected to the specific Smart Light Controller. These groups are located on the screen **SmartOffice** under the tabs **Sensor Configuration** and **Actor Configuration**.

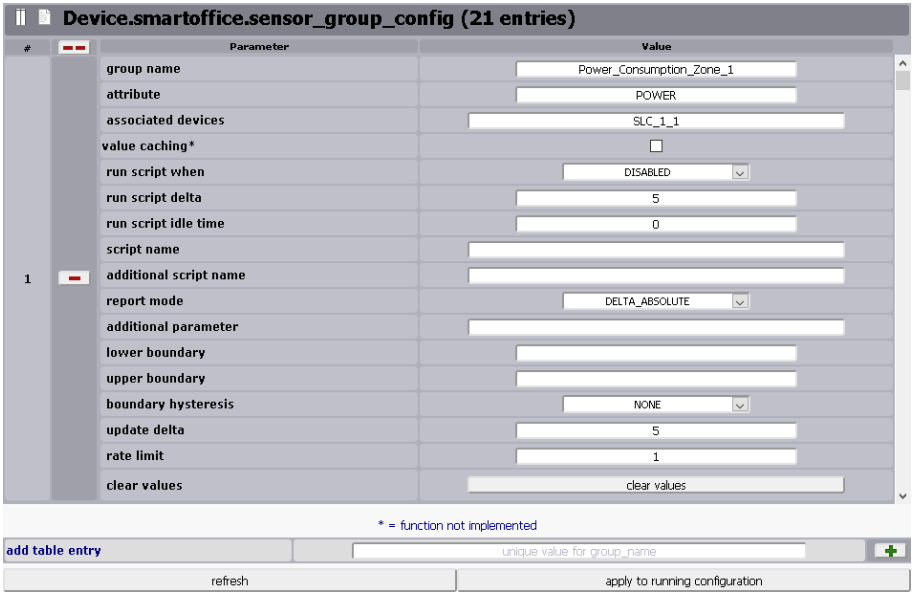

Fig. 18: SmartOffice - Sensor Configuration - Group Config

16 SD Memory Card

An SD memory card is required to operate the controller. This is already installed before delivery. The card slot cover on the top of the chassis is labelled "Card" (see Fig. 1, ③).

Note:
The SD memory card that is supplied for your MICROSENS Controller is formatted in a non-Microsoft Windows® format. Do not reformat the SD card, otherwise the device will not be able to recognise it anymore.
If the SD card is defective, please contact your MICROSENS representative or the MICROSENS support (support@microsens.de) for a replacement.

16.1 Changing the SD Memory Card

- Disconnect the controller from the power supply.
- Unscrew the cover of the card slot.
- Press the inserted card inward so that it releases, and pull it out.
- Insert the card with the contacts first in the indicated orientation and press it gently until it locks into place.
- Screw the cover of the card slot tight.
- Reconnect the power supply.

17 Firmware updates and further information

Note:
The latest CSLC firmware is contained in the G6 firmware that is available on the MICROSENS website.

You have access to current firmware versions and further information once you have registered on our website.

17.1 Register

- Go to www.microsens.com > Partner-Login.
- Please follow the link "Please register here".
- Fill out and submit the online User Registration form.

MICROSENS will send you an e-mail containing a user name and password.

17.2 Login

- Go to www.microsens.com > Partner-Login.
- Enter your user name and password.
- Click the button "Login".

17.3 Firmware images

- Please navigate to your device and select the tab "Services".
- To find your device quickly, enter the item number of your device into the search box on the website.
- Further information is available by selecting the other tabs.

17.4 MICROSENS Support

For further questions please contact our support via the following service desk portal:

- https://microsens.atlassian.net/servicedesk/customer/portals

Document ID: QSG-20011_Central_Smart_Lighting_Controller