MICROSENS

Quick Start Guide

Commissioning the Central Smart
Lighting Controller (CSLC)

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1. Aim of this Quick Start Guide

This quick start guide describes the commissioning of the MICROSENS Central Smart Lighting Controller (CSLC). It aims to introduce familiarity in operating the CSLC and thus initiating the use of MICROSENS Smart Building Solutions.

For further information, please refer to documentation related to the MICROSENS Smart Building Manager or visit the MICROSENS website.

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 using the SmartDirector App.

2. Display and Connections
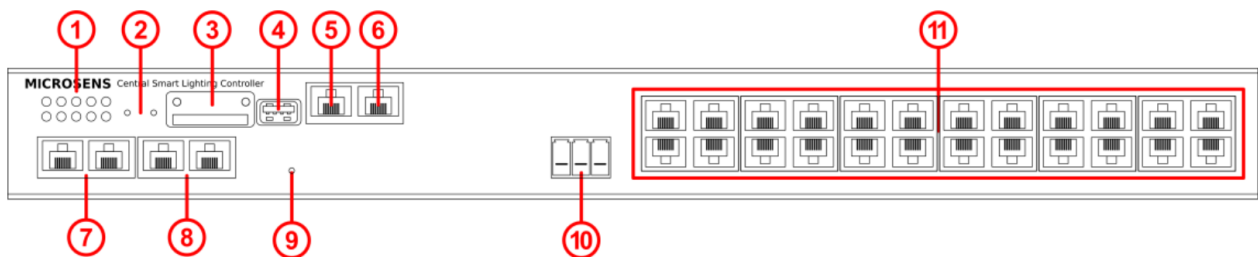
Figure 1. Display and Connections

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		

3. Mechanical Handling

The Central Smart Lighting Controller can be mounted in a standard 19" equipment rack (via Rack Mount Kit, 1 height unit), 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%, noncondensing,
- be accessible for installation, cabling and maintenance,
- allow the clear visibility of the status LEDs.

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.

4. Factory Settings

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
- IP configuration   — DHCP
- Ring function   — Turned off
- VLAN filter   — Turned off
- Serial port   — 115200, 8N1
                        Hardware flow control: No
                        Software flow control: No

5. 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).

> ℹ | It is strongly recommended to cascade no more than 4 CSLCs.

> ℹ | By default all sensor and LED ports are paired to their respective CSLC. It is important to unpair these ports from their CSLC and then pair them to the main CSLC. For unpairing and pairing devices see Unpairing and Pairing Sensor and LED Ports.

6. Connecting the Power Supply

> ℹ | Do not connect sensors or LED panels when the CSLC's power supply is connected! After switching off the CSLC it is recommended to wait for some time before connecting sensors or LED panels to it.

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 with grounding symbol labelling, "+" and "-").

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

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

7. Notifications

7.1. Device Status LEDs

(see Fig. 1, ① and Fig. 2)

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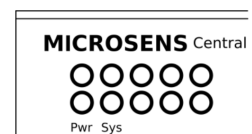

Figure 2. LED Display

7.2. Port Status LEDs

7.2.1. RS-232 (Serial port) and Eth1 (10/100/1000Base-TX Uplink port)

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

- TxD/RxD   — Off (not used)

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
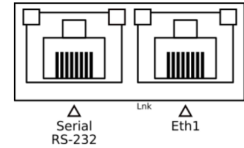
Figure 3. Port Status LEDs

7.2.2. Eth2/Eth3 (10/100Base-TX port)

(see Fig. 1, ⑦ 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

Figure 4. Port Status LEDs

7.2.3. 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 send

  ◦ right   — MS Smart Sensor send

Figure 5. Sensor Input

7.2.4. LED Output Port Status LEDs

(see Fig. 1, ⑪ and Fig. 6)

- Status
  - Off — No calibration needed.
  - Yellow — Calibration value is "0". Calibration needed.
- Sensor 2
  - Off — Dim level is "0"
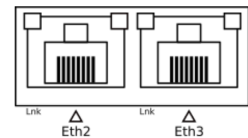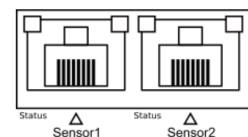 - Green — Dim level is up to "1000", according to LED brightness.
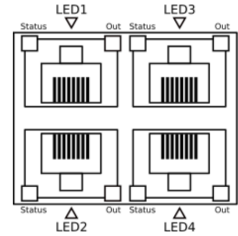
Figure 6. LED Output

8. 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.

9. Connecting Sensors

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.

Figure 7. Sensor Input Pin Assignment

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.

10. 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.
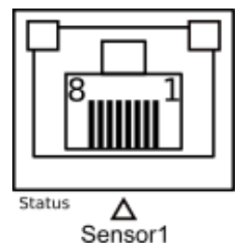
The connectors pin assignment is as follows (see Fig. 8):

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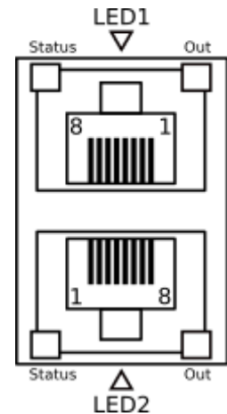- Pin 7: LED +
- Pin 8: LED -

Figure 8. LED Output Pin Assignment

For configuring additional LED panels with SmartDirector please refer to
Configuring additional LED Panels.

> ℹ️ If it is not possible to turn off the CSLC before connecting an LED panel, do
> not connect the LED panel to a port with the port status LED "Out" blinking
> green. This means that the dim level for this port is set to 100% and can
> damage the LED panel.

> ℹ️ When connecting dual tone LED panels to the CSLC's ports please refer to the
> respective manufacturer's device documentation.

10.1. Technical features

- Power restriction can be defined per channel (max. 1 A per channel).
- Power output of 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.

11. Network Management Access

11.1. 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). As an alternative you can manually assign the IP parameters with the
"Switch IP-Config Tool" software or the "Network Management Platform" (NMP) software.

11.2. Using the "Switch IP-Config Tool" Software

The Switch 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.

> ℹ️ Java™ SE Runtime Environment is required for the use of the Switch IP-Config Tool.

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

The latest version is available for download from our website: MICROSENS > Support > Software tools

Step 2: Choose the network interface that is connected to the corporate network.

Step 3: Click on `Device Discovery`. After a short time every MICROSENS switch and CSLC that is connected to the corporate network should appear in the list.

Figure 9. Switch IP-Config Tool

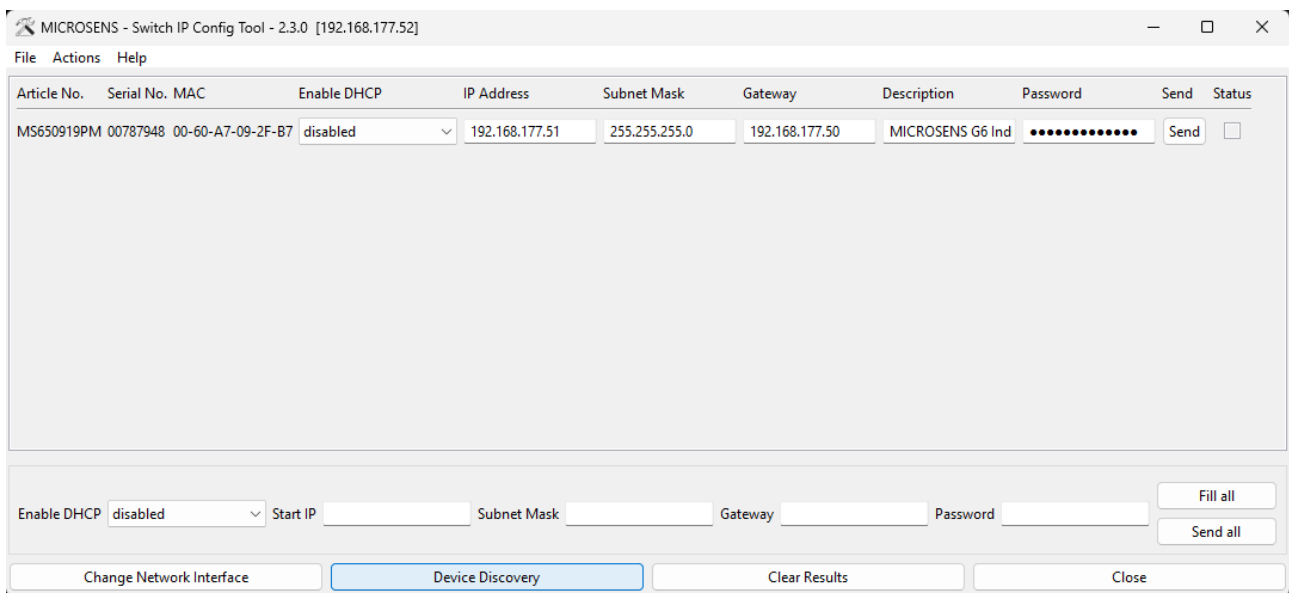**Step 4:** DHCP is enabled by default. Select "disabled" from the drop-down list under the **Enable DHCP** parameter and enter the required IP address under **IP Address** in the row corresponding to the CSLC.

Step 5: Click on `Send` in the row corresponding to the CSLC. The new configuration is stored into the device.

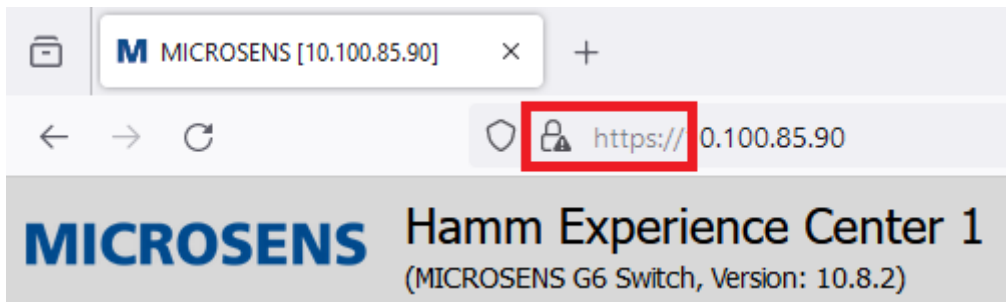**Step 6:** Open your web browser and enter the IP address of the CSLC.

Figure 10. Starting Web Manager

ℹ | The CSLC uses the secure HTTPS:// protocol by default.

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

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

11.3. Using the NMP Software for IP Configuration

If you use the management software NMP, you can 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.

11.4. User Interfaces of the Controller

Once the IP configuration is ready, you can 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 in the **Documentation** option under **Information** in the navigation bar on the left side.

  ℹ | This interface is also used for NMP.

- http — Web Manager (graphical interface, unencrypted)
  Access: https://<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 — Third-party management software SNMPv1, SNMPv2c, SNMPv3 are supported.

12. 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.

> 🛈 It is strongly recommended to change the default passwords after putting the CSLC into operation!

13. Network Management Platform (NMP)

MICROSENS provides a universal management software called the Network Management Platform (NMP) for centralizing the 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 "Switch IP-Config Tool" is integrated into NMP.

The latest version is available for download from our website:

- MICROSENS > Support > Downloads

This software requires a license key to work. A test license is available via your MICROSENS product sales partner or by emailing MICROSENS Sales.

14. Smart Building Manager (SBM)

The Smart Building Manager (SBM) is a powerful software tool that helps Building Management Administrators manage Smart Building devices. This software requires a license key to work. A test license is available via your MICROSENS product sales partner or by emailing MICROSENS Sales.

For information on how to use the Smart Building Manager, please refer to documentation included that is related to the MICROSENS Smart Building Manager or visit the MICROSENS website.

15. Web Browser

To access the Web Manager, use a standard web browser that runs on the user's local computer or workstation with any operating system (Microsoft Windows®, Linux, Mac OS®) and connected to the server. The recommended display resolution is at least 1280x1024.

Supported web browsers are:

- Mozilla Firefox 37 or later
- Microsoft Edge

After start-up and once the CSLC is ready for operation, the Web Manager can be accessed via the web browser with one of the following URL addresses:

- http://<CSLC-ip-address>/ for standard HTTP connections or
- https://<CSLC-ip-address>/ for secured HTTP connections.

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

16. 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.
- All Smart Building components (e.g. LED panels) have to be properly connected to the CSLC and the corporate network.

The following detailed instructions are given with the assumption that you are logged in into the Web Manager of the CSLC, from where you want to configure and manage the Smart Building infrastructure.

> ℹ️ For information on how to use the Smart Building Manager (SBM) or the Network Management Platform (NMP), please refer to documentation related to the corresponding software or visit the MICROSENS website.

16.1. 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** option under **Device**, then select the **IPv6 Configuration** tab.

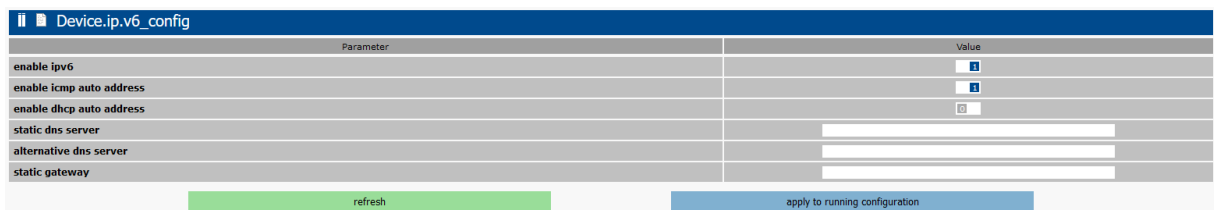| Parameter	Value
enable ipv6	☑
enable icmp auto address	☑
enable dhcp auto address	☐
static dns server	
alternative dns server	
static gateway	
refresh	apply to running configuration

Figure 11. Web Manager - IPSetting - IPv6 Configuration

- In the **Device.ip.v6_config** section, enable the **enable ipv6** and **icmp auto address** options.

- Leave all other settings as they are.
- Click on `apply to running configuration` to save the changes to the running configuration.

16.2. Installing SmartDirector

The SmartDirector is a firmware application (App) running on the CSLC. The App processes and manages the information supplied e.g. by the connected sensors and buttons, generates the control commands and subsquently controls LED panels, heating valves or blinds positions depending on the determined scenarios.

> **i** To work effectively with a CSLC, utilize a Smart Director App Version 100 or newer on a CSLC running firmware version 10.7.7 or newer.

The following steps aid in installation of the SmartDirector App.

Using the Web Manager

- Select the **Scripting** option under **Management**, then select the **Apps** tab.
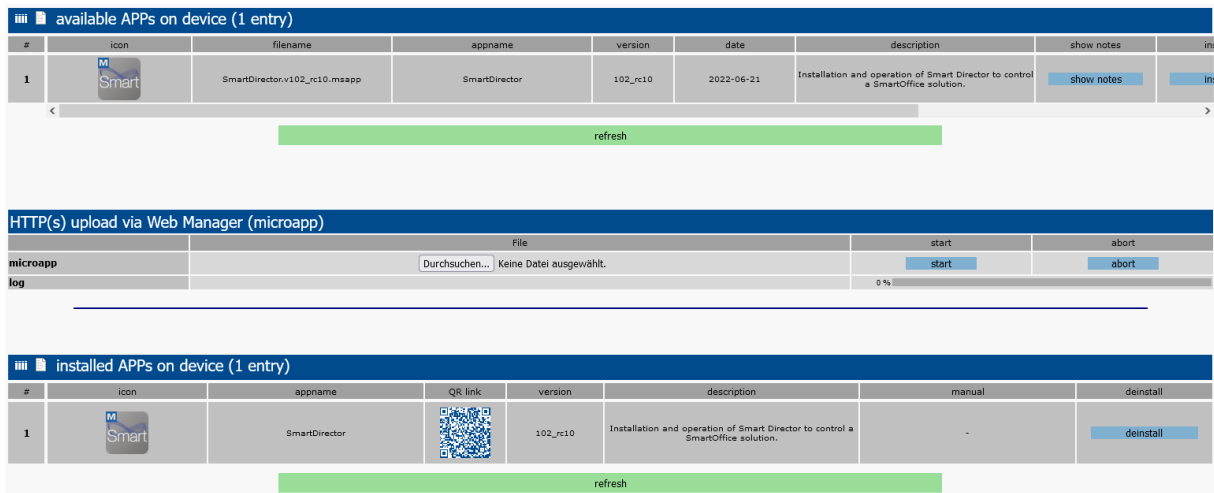

Figure 12. Web Manager - Scripting - Apps

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

  Your browser will upload the file into the switch.

  After successful upload, the SmartDirector appears in the **available APPs on device** section.

- Click on `install` in the **available APPs on device** section. This starts the installation of the SmartDirector.

  > **i** When installing a new version over a previously installed version, the current configuration is backed up. After the new version replaces the older version, the previously backed up configuration is loaded.

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

- After successful installation, the SmartDirector appears in the **installed APPs on device** section.

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

16.3. 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 then pair them to the main CSLC.

Using the Web Manager

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

Figure 13. Web Manager - SmartOffice - Device Configuration - Unpairing

- Click on `unpair` to unpair the device from the respective CSLC.
- This is applied to the running configuration immediately; clicking on `apply to running configuration` is not necessary for it to take effect.
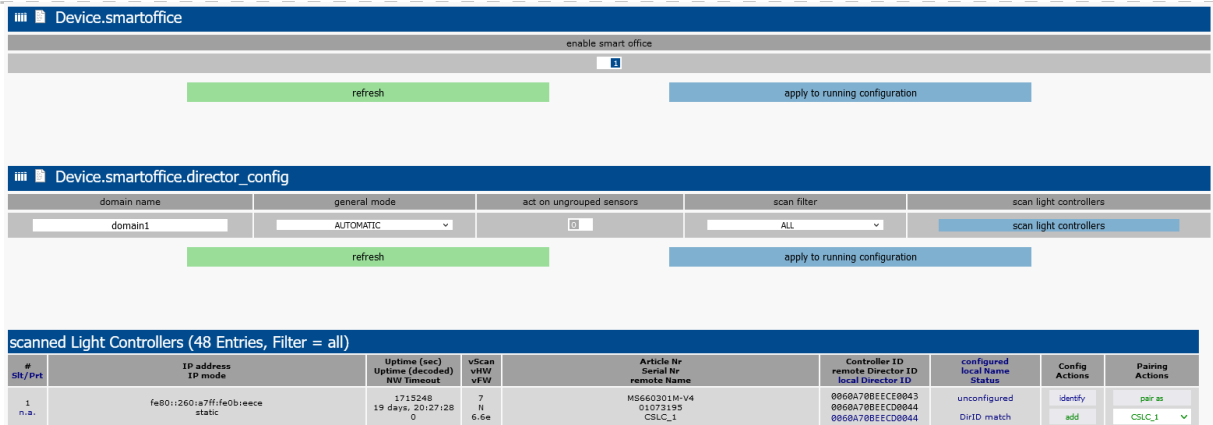- Then select the **Basic Configuration** tab.

Figure 14. Web Manager - SmartOffice - Basic Configuration

- Select "UNPAIRED" from the **scan filter** drop-down list in the **Device.smartoffice.director_config** section.

- Click on `apply to running configuration` to save the changes to the running configuration.

- Click on `scan light controllers` to find unpaired devices in the local network.
  Unpaired devices in the network appear in the **scanned Light Controllers** section.

- Find the required device and click on `force pair as` in the **Pairing Actions** column. When the device is successfully paired the "Status" entry in the **configured local name Status** column changes from "DirID mismatch" to "DirID match".

16.4. Configuring additional LED Panels

After connecting additional LED panels to the CSLC, they have to be configured via SmartDirector.

Using the Web Manager

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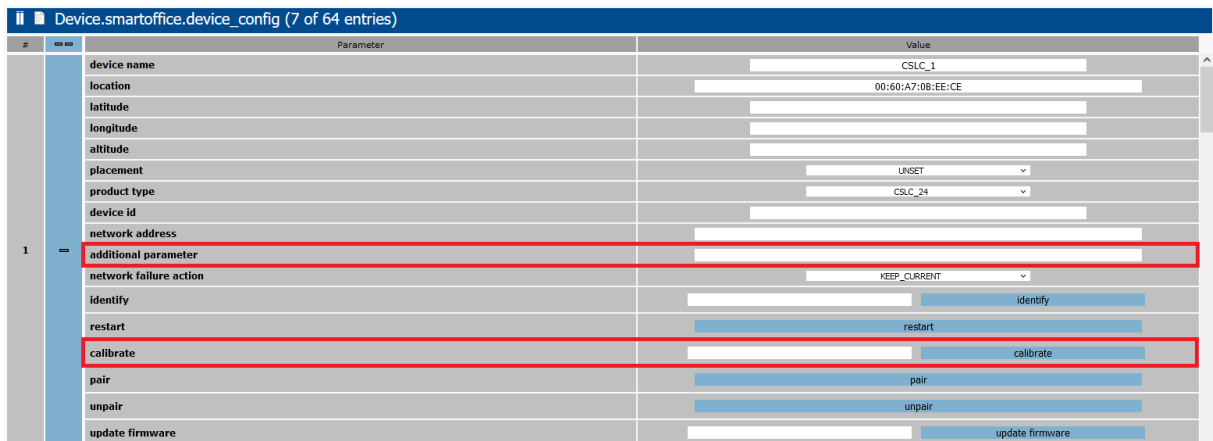

Figure 15. Web Manager - SmartOffice - Device Configuration

- Enter "MaxPanelPower=[value]" (where "[value]" is the max. power consumption of the

LED panel in mW, depending on the panels data sheet) as the value to the **additional parameter** setting in the **Device.smartoffice.device_config** section.
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.

> **i** If this value is not assigned 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 on `apply to running configuration` to save the changes to the running configuration.

- Click on `calibrate`.
  When this button is pressed, the calibration values are tested, recalculated and tested until the max. power output level is reached.

- This is applied to the running configuration immediately; clicking on `apply to running configuration` is not necessary for it to take effect.

It is also possible to configure the CSLC completely in the **Controller** page. This can be accessed by selecting the **Controller** option under **Device** and then selecting the **CSLC** tab.

Device.controller.cslc_config (4 of 20 entries)		
#	Parameter	Value
1	name	CSLC_1
	cslc type	CSLC_V4
	max source power	960
	panel power limit 1 6	40,40,40,40,40,40
	panel power limit 7 12	40,40,40,40,40,40
	panel power limit 13 18	40,40,40,40,40,40
	panel power limit 19 24	40,40,40,40,40,40
	connection timeout	0
	read command	read command
	write command	write command
2	name	CSLC_2
	cslc type	CSLC_V4
	max source power	960
	panel power limit 1 6	40,40,40,40,40,40
	panel power limit 7 12	40,40,40,40,40,40
	panel power limit 13 18	40,40,40,40,40,40
	panel power limit 19 24	40,40,40,40,40,40
	connection timeout	0
	read command	read command
	write command	write command
add table entry	unique value(s) for name	
refresh	apply to running configuration	

Figure 16. Web Manager - Controller

16.5. Default SmartDirector Settings

> **i** To operate the SmartDirector App please refer to the "Managing the SmartDirector App" Application Note.

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

- Select the **SmartDirector** option under **Apps**. This page contains all the information, status and commands related to the SmartDirector App.
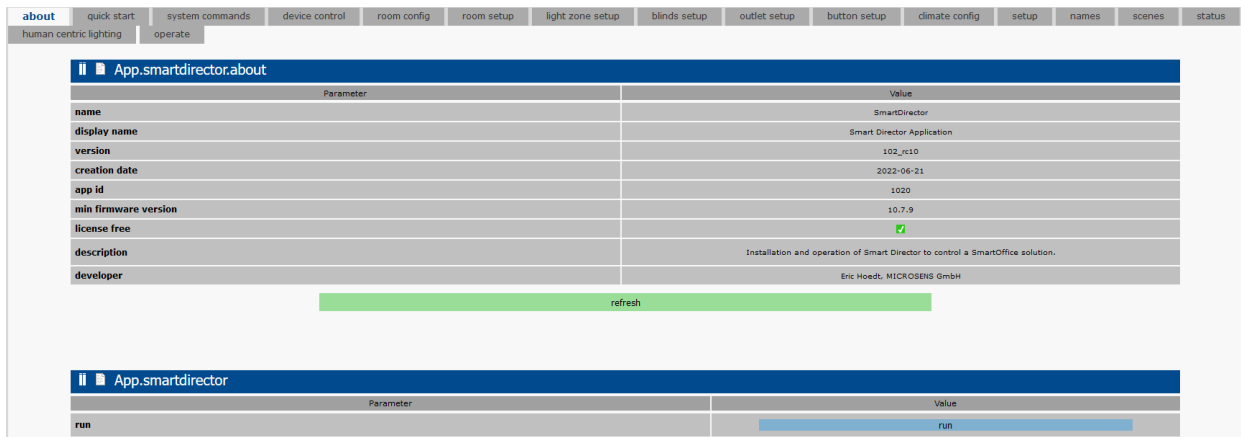
Figure 17. Web Manager - Scripting - New Tab "SmartDirector"

- This page also includes the default Smart Office infrastructure configuration of the room for which the SmartDirector is provided (i.e. light zones, buttons with scene control, climate control).

- It is possible to assign more complex Smart Lighting infrastructures via preset scenarios. Please refer to the "Using Smart Lighting MVP Scenarios" Quick Installation Guide.

- Additionally, the configuration of default web GUI pages and elements for managing the Smart Office installation via web browser are found in the **GUI** tab of the **WEB** option under **Management** in the navigation bar on the left side.

These web GUI pages are accessible via the address
`https://<CSLC-ip-address>/gui/SmartOffice.html`
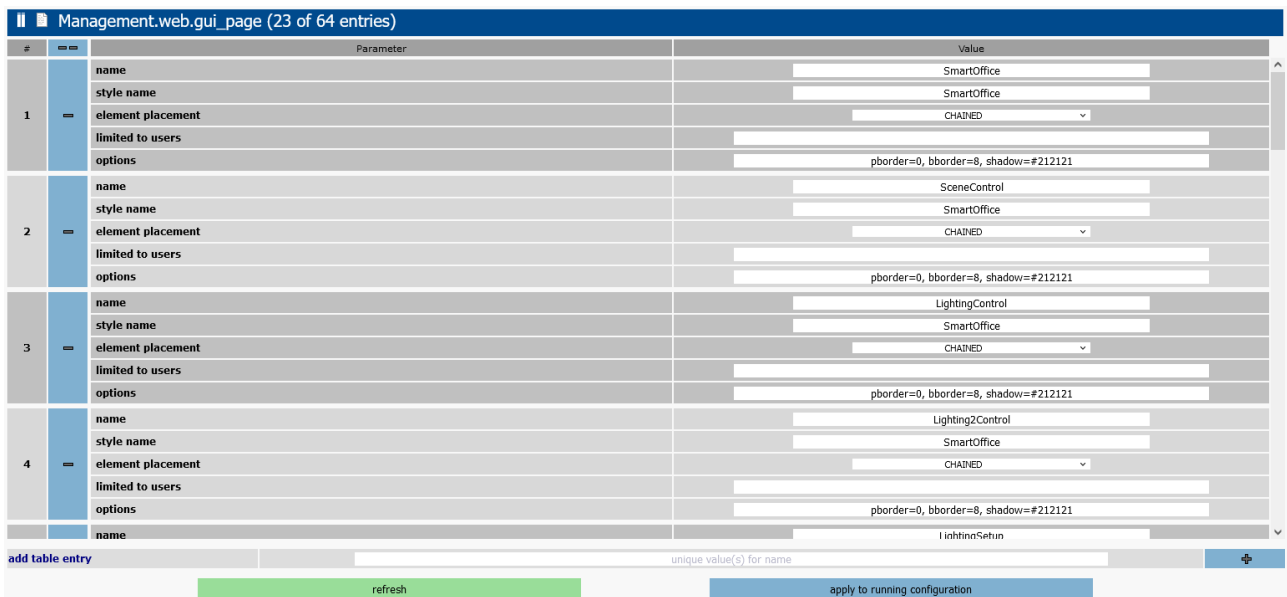
> ℹ️ The address is case-sensitive!

Figure 18. 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 can be found under the **Sensor Configuration** and **Actor Configu-**

ration tabs in the **SmartOffice** option under **Device** in the navigation bar on the left side.

Figure 19. SmartOffice - Sensor Configuration - Group Config

17. 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).

> ℹ️ 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 email MICROSENS Support for a replacement.

17.1. 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.

18. Firmware Updates and Further Information

ℹ️ 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.

18.1. Register

- Go to MICROSENS.

- Click on "Login" at the top right corner of the page and then on "Not Registered?".

- A email window opens up with a form.

- Fill this form and press `Send`.

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

18.2. Login

- Go to MICROSENS.

- Click on "Login" at the top right corner of the page.

- Enter your user name and password.

- Click on `Login`.

18.3. Firmware Download

- Navigate to the page your device and scroll down to the "Secure Download" section of the page. The firmware can be found here.

- To find your device quickly, enter the article number of your device into the search box on the website.

18.4. MICROSENS Support

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

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

Our General Terms and Conditions of Sale (GTCS) apply to all orders (see
https://www.microsens.com/fileadmin/files/downloads/Impressum/MICROSENS_AVB_EN.pdf).

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Document ID: QSG-EN-20011_Central_Smart_Lighting_Controller_v1.0

Date of Issue: 2024-05-14