MICROSENS

Data Sheet
Smart Lighting Controller

Made
in
Germany

Description

The MICROSENS Smart Lighting Controller is designed to drive two LED channels from a single PoE++ input up to 90W. Two MICROSENS NeuronGrid Smart Sensors can be connected to capture and process environmental data like ambient light level, motion, temperature and humidity. The Smart Lighting Controller offers maximum performance and flexibility in a compact design. Robust and designed for highest reliability, it is the first-choice for intelligent lighting applications in offices, hotels, hospitals etc.

As a part of the MICROSENS Smart Building Solution, the Smart Lighting Controller is an IP networking device, which complies with highest IT network security requirements. For secure communication between devices, MQTT over TLS1.2 is implemented.

Multiple Smart Lighting Controllers can be managed by the Smart Director App running on MICROSENS Switches, which provides enhanced functions like energy management, Human Centric Lighting (HCL) and Follow-Me lighting. For local monitoring and control a graphical user interface is implemented in the Smart Director App. Optionally, depending on application, a standard PLC program can be deployed through MICROSENS switches upon request.

The PC-based software *Smart Config Tool* simplifies the commissioning process for quick configuration and calibration of the system.

Features

- 90W PoE++ (802.3bt) total power input
- Two integrated LED drivers up to 1A (50W) per channel with independent dimming function and real time power measurement
- MQTT over TLS1.2 for secure communication
- PC-based Smart Config Tool for simplified system configuration
- Up to 6x NeuronGrid Smart Sensors for ambient sensing
- Full integrated into MICROSENS Smart Building System

Specifications

Smart Lighting Controller

- Dimming of LED light from 0 to 100%
- Connection of up to six NeuronGrid Smart Sensors
- Measurement of LED power consumption
- Software assisted calibration of maximum power for the connected LED light
- Firmware update via network
- Powered by PoE++ via Twisted-Pair cable within standard IT infrastructure
- Supports IPv6
- MQTT over TLS1.2 for secure communication

Signal LEDs (RJ45 Ports)

- Network Port
  - Yellow: Heartbeat
  - Green: Link and traffic
- Smart Sensor Port
  - Yellow: Sent Packet to Sensor
  - Green: Receive Packet from Sensor

Connectors

Uplink

- 1x 10/100Base-TX (RJ-45, shielded)

LED Light Interface

- 2x 2-pole-clamp connector

Smart Sensor Interface

- RJ-45 (shielded)
- MICROSENS NeuronGrid

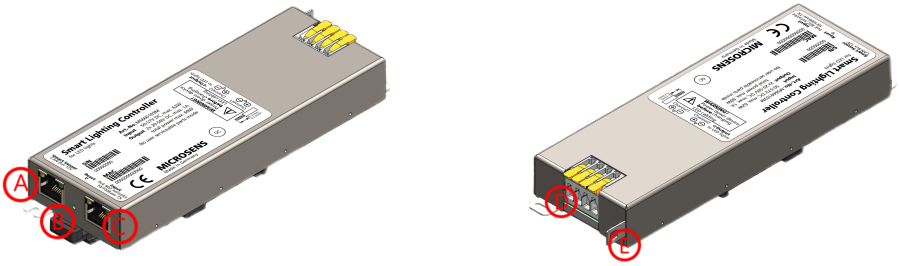
Mounting

- Flat metal housing with 2 mounting lugs for 3 mm screws
- Strain relief lug for connector cable to LED light

Power Supply

- PoE++ 802.3bt type 4 class Powered Device (PD), max. 90W

Interfaces



A	Smart Sensor port
B	Reset button
C	Network uplink port
D	LED light connector
E	Strain relief lug

Technical Specifications

Power Supply

Input

- PoE++ (PD), 41.2 to 57 V

Power consumption

- min.: 2 W, max.: 90 W

Connector

- Network port (RJ-45)

Delivery / Contents

Package unit

- 1 pc.

Contents

- 1x Smart Lighting Controller

Above described is the standard packaging. This can be adjusted on customer request.

Standards

CE: 2014/35/EU (EMC Directive), 2011/65/EU (RoHS Directive)
REACH: 1907/2006/EC
Safety: EN 62368-1
EMC Emissions: EN IEC 55015
EMC Immunity: EN 61547

Buttons

Reset button

- Short press (<2 sec.) = reset
- Long press (>2 sec.) = Update mode,
- if no update file is received within 20 seconds device starts normally.

LED Interface

Type

- Controlled current output

Output

- Max. 87 W total power delivery to the LEDs, max. 1 A (50 W) per channel, 20 to 50 VDC

Connector

- 2x 2 pole-clamps, 0.2 – 2 mm² (14 – 24 AWG)

Cable length

- Max. 3 m between LED and devices connector

Isolation

Any connected LED must be electrically isolated from other voltages, especially from ground and from LEDs connected to other driver outputs

Installation

The Smart Lighting Controller must be disconnected from its power source before connecting the LEDs. Otherwise the LED may be damaged

The maximum output power available at the LED interface may be decreased by an increasing number of attached MICROSENS sensors; typical 1 W/sensor

The Smart Lighting Controller must be disconnected from its source before connecting the lamp. Otherwise the lamp can be harmed.

Environmental Conditions

Temperature

- Typical: 25 °C
- Operation range: 0..+60 °C
- Storage: -20..+85 °C

Humidity

- 10..80%, non-condensing

Mounting

- The device must be mounted so that air convection is not restricted

Twisted-Pair Port

Type

- Fast Ethernet, Dual Speed 10/100Base-TX

Connector

- 1 x RJ-45 port, shielded

Cable

- Twisted-Pair cable, Category 5e, impedance 100 Ohm

Power-Over-Ethernet

- Powered Device (PD), IEEE 802.3bt Type 4 Class 8, Max. 90 W

Cable length

- <10 m AWG 26 <100 m AWG 24 (recommended)

Accuracy of Power Measurement

Range

- 0..50 Watt

Failure

- 4% of End of Scale Failure (up to 2 Watt)

Smart Sensor Port (NeuronGrid)

Type

- MICROSENS NeuronGrid Smart Sensor compatible

Connector

- 1 x RJ-45 port, shielded, Bus-termination required

Limit

- up to 6 Sensors

Mechanical

Dimensions

- 184 x 58 x 23 mm (L x W x H)

Weight

- Approx. 280 g

Protection class

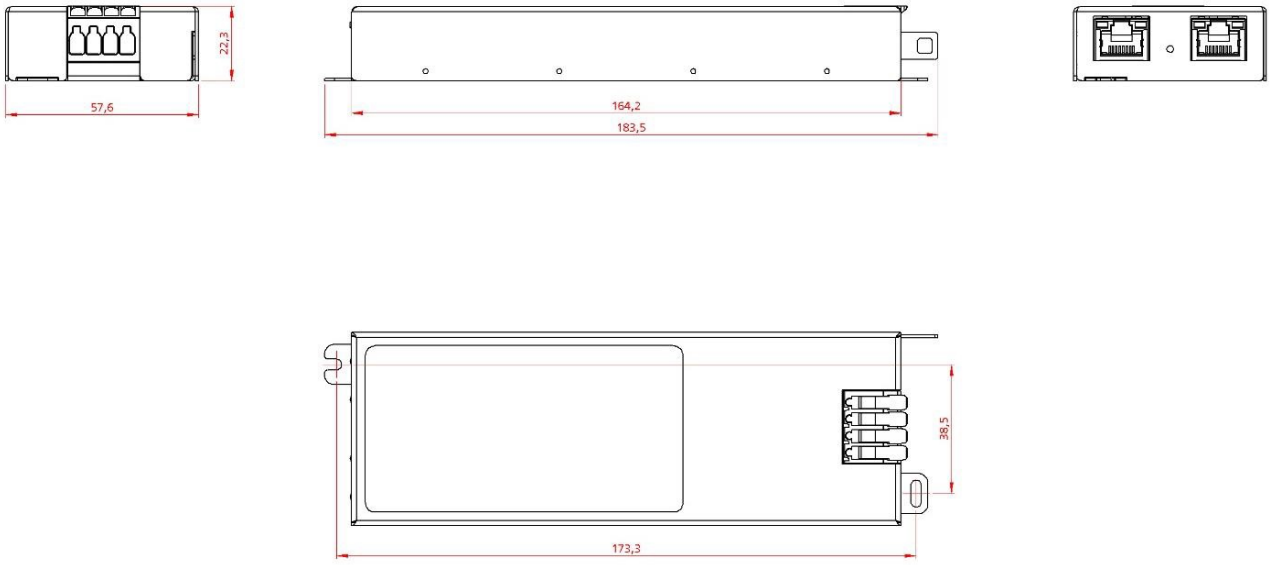
- IP30

The Smart Device uses IPv6 protocol for communication, IPv4 protocol is not supported.

The supply voltage has to be above the needed Led voltage.

We recommend grounding the positive power supply conductor for maximum electrical protection as described below. In case of a short circuit of the LED output to other voltages, the risk of a permanent damage of the Device is reduced. Not following this recommendation increases the risk of a irreparable damage in such cases.

Dimensions (mm)

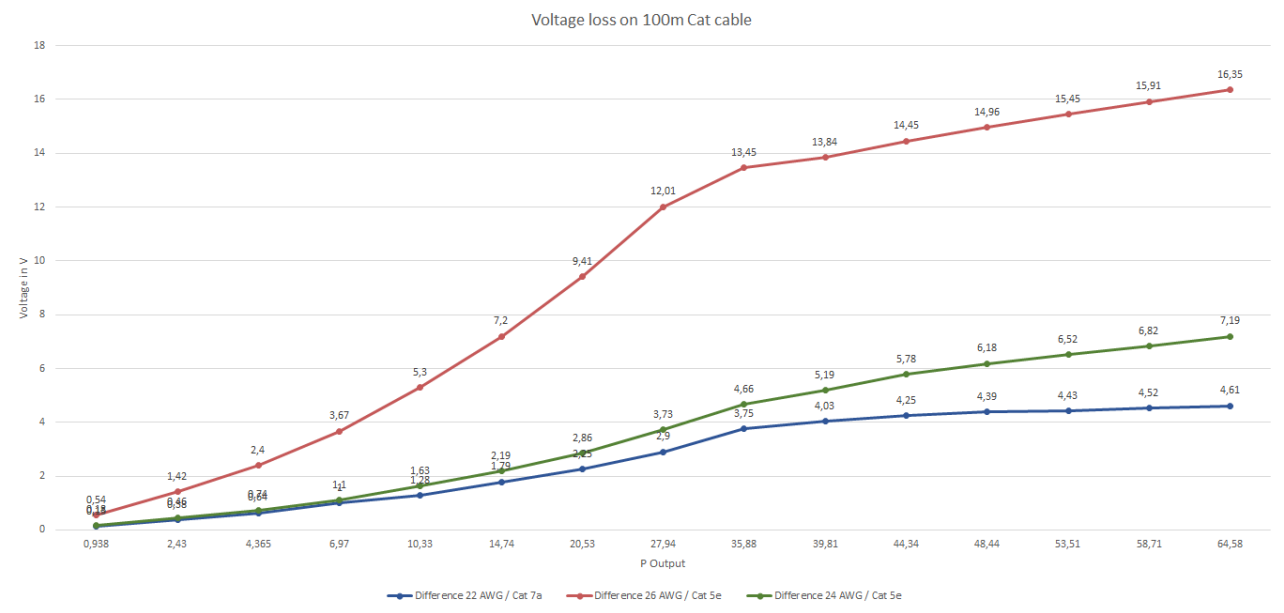


TLS Certificate

To implement a secured MQTT communication between the MICROSENS smart devices and other network nodes, a TLS certificate is used. If there is no user-specific certificate provided, the pre-installed MICROSENS standard certificate is used.

If you want to use your own certificate, it can be transferred via the MICROSENS Smart Config Tool. For this purpose, the certificate must be available in PEM or DER format.

Line Losses

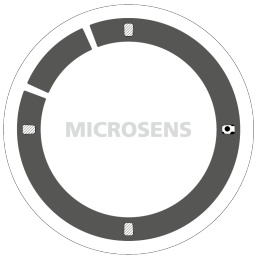
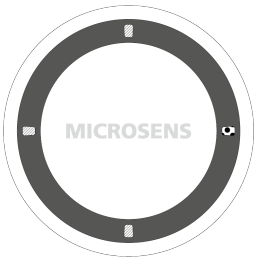


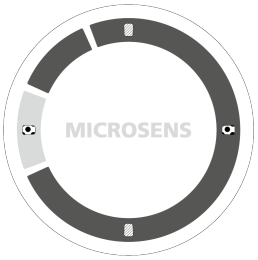
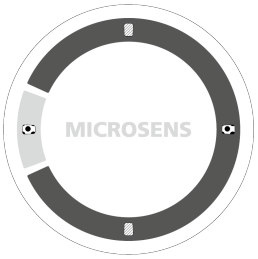
When thinner cables are used over longer distances, higher levels of loss are observed.

Ordering Infortmation

	Description	Article-No.
	**Smart Lighting Controller** (compatible with MICROSENS Smart Sensor Neurongrid) Smart Lighting Controller 90W with 2 LED Channels PoE++ network powered controller for LED lighting, 2x driver outputs for LED lights, slim-format, 1x RJ-45 jack for 10/100Base-TX, PoE++ PD input, max. 90W, 1x RJ-45 jack for MICROSENS NeuronGrid Smart Sensor (up to 6 Sensors)	**MS660103M**

Accessories

	Description	Article-No.
	**Smart Sensor NeuronGrid** Integrated Sensor for Light Level, Motion, Temperature and Humidity; supply via bus, 2x RJ-45 jack for bus (NeuronGrid interface compatible) compatible with MS660301M-V4, MS660103M and MS660104M.	**MS660222**
	Smart Radar Sensor for CSLC and SLC's (compatible with MICROSENS Central Smart Lighting Controller MS660301M-V4, Smart Lighting Controller MS660103M and MS660104M)	
	**Smart Radar Sensor (Bluetooth Beacon)** Integrated Sensor for Light Level, Motion, Temperature and Humidity, incl. Bluetooth Beacon; supply via bus, 2x RJ-45 jack for bus; compatible with MS660301M-V4, MS660103M and MS660104M	**MS660230**
	**Smart Radar Sensor** Integrated Sensor for Light Level, Motion, Temperature and Humidity; supply via bus, 2x RJ-45 jack for bus; compatible with MS660301M-V4, MS660103M and MS660104M	**MS660230-1**

	Description	Article-No.
	**Smart Radar Sensor (AQI + BLE Beacon)** Integrated Sensor for Light Level, Motion, Temperature and Humidity, incl. VOC Sensor and Bluetooth Beacon; supply via bus, 2x RJ-45 jack for bus; compatible with MS660301M-V4, MS660103M and MS660104M	**MS660230-2**
	**Smart Radar Sensor (AQI)** Integrated Sensor for Light Level, Motion, Temperature and Humidity, incl. VOC Sensor; supply via bus, 2x RJ-45 jack for bus; compatible with MS660301M-V4, MS660103M and MS660104M	**MS660230-3**
	**Smart Matrix Sensor** Integrated infrared matrix sensor for room temperature measurement. Additional sensors for ambient light level and humidity. RGB LED indicator. 2x RJ-45 connector (MICROSENS NeuronGrid bus compatible)	**MS660240**
	Smart Sensor Bus Termination plug Termination resistor for Smart Sensor Bus, 100 Ohm, RJ-45 plug	**MS660309**

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Document ID: DAT-EN-MS660103M-Smart_Lighting_Controller_v1.1

Date of Issue: 2025-04-08