LiCS INDOOR

MultiSensors

MultiSensors

Daylight and motion sensors both enable greater energy savings to be made and increase the convenience factor. For this reason, we have developed a new MultiSensor that can capture light levels and detect motion.

The MultiSensors were specifically designed for use with LiCS Light Controllers and were optimised in terms of dimensions. They are one of the smallest DALI-compatible sensor series on the market.
To achieve this, these new MultiSensors do not include an external power supply, which means they are fully powered via the DALI bus.

And with the aim of serving a wide variety of applications, the sensors are available in four different casings, suitable for in-ceiling installation, surface mounting on ceilings, for integration into luminaires and for high-bay lighting purposes. The MultiSensors can be fully configured using Light Controllers.

Areas of Use
Thanks to differing casing versions (MultiSensor SM, FM, IL), the sensor is ideal for all indoor applications using different LiCS Light Controllers.

NEW
The tried-and-tested MultiSensor is now also available in a high-bay version that is suitable for ceiling heights of up to 12 m.

Advantages MultiSensors

■ **LOW POWER CONSUMPTION: ONLY 4 mA**

■ **VERY COMPACT DESIGN**

Overview of the LiCS Indoor System

Product Matrix	Light Controller IP/DALI	Light Controller IP/DALI W
MultiSensors	MultiSensors (Motion and Brightness)	
High-bay Sensors	Industrial Sensors (**Motion or Constant Light Control**)	
Extender*		
Input Devices	8 key inputs (mains-voltage-compatible) DALI key (4-channel)	8 key inputs (mains-voltage-compatible), EnOcean wireless modules DALI key (4-channel)

* It is possible this may restrict the functionality of the system; please observe information contained in the controller operating manuals.

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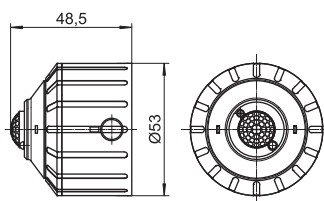
MultiSensors

To supplement the LiCS Indoor System

Integrating daylight and motion sensors not only enables greater energy savings to be made, but also increases the convenience factor.

VS MultiSensors detect light levels and motion. These MultiSensors, which were specifically developed for use with VS Light Controllers, have been optimised with regard to the dimensions of their design. No external power supply is required. The sensors are solely powered via the DALI bus.
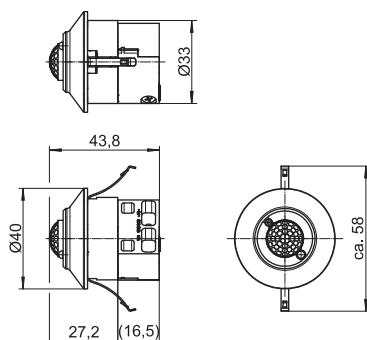
MultiSensor SM-E
For surface mounting
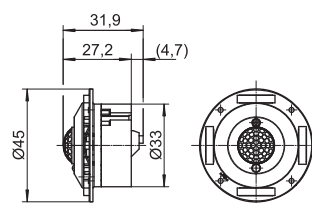Dimensions (Ø x H): 53 x 48.5 mm
Weight: 30 g
Ref. No.: 186320

MultiSensor FM-E
For ceiling installation
With a cord grip
Dimensions (Ø x H): 40 x 43.8 mm
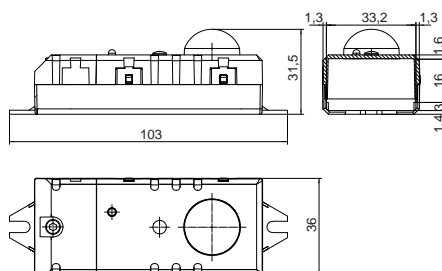Weight: 30 g
Ref. No.: 186321

MultiSensor IL-E
For in-luminaire installation
Dimensions (Ø x H): 45 x 31.9 mm
Weight: 30 g
Ref. No.: 186322

MultiSensor SM-HB
For surface mounting
Dimensions (Ø x H): 36 x 84.5 mm
Weight: 37 g
Ref. No.: 186668

Technical Specifications

Configuration interface: via the light controller's
ambient temperature ta: 0 to 50 °C
Screw terminal: 0.75–2.5 mm²
Current consumption from DALI: 4 mA

Functions

Detecting motion and measuring light levels.
With integrated LED (red): this flashes when in configuration mode if the sensor is selected.

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General Safety Instructions
- LiCS products may be installed and commissioned only by authorised and suitably trained staff.
- Please read these instructions with care prior to installing and commissioning the system since this is the only way to ensure safe and correct operation.
- Any work performed on the devices must be carried out only after disconnecting the device from its power source.
- All valid safety and accident prevention directives must be observed.
- Never attempt to open the device yourself since this involves danger to life by electrocution (voltage). Repairs must be carried out only by the manufacturer.
- On no account may mains voltage or any other external voltage be applied to the DALI control line as this can destroy individual system components.

MultiSensors

Mounting

SM-E (Surface Mounted)
After suitably preparing the cable, thread it – from the side or from behind – through the underside of the sensor. Attach the underside with the two supplied screws at the chosen position and connect the cable to the sensor. Gently compress the spring-mounted levers on the sensor cover using two fingers and let them snap into place in the corresponding grooves on the inside of the sensor's underside (see Fig. 1).

FM-E (Flush Mounted), with or without a cord grip.
Prepare the cable, then connect to the sensor and attach a cord grip, if present. Gently compress the spring-mounted levers on the sensor cover using two fingers and let them snap into place in the pre-drilled hole (35 mm) at the selected position (see Fig. 2).

IL-E (In-luminaire)
In order to insert the sensor in the 0.5–1-mm thick metal plate, the dimensions of the drilling template must be observed. Let the sensor snap into place in the precisely pre-drilled hole in the metal plate. Then let the sensor anti-glare ring snap into place from the other side in the recesses intended for this purpose (see Fig. 3).

SM-HB (High-bay)
Please use the provided mounting lugs.

Fig. 1 «click»

Fig. 2

«click» Fig. 3

Installation Instructions
- Conductor cross-section for all terminals: 0.5–1.5 mm² for rigid or flexible conductors
- Preparing the sensor cables (see right)
- In its standard version, the DALI bus is not SELV, for which reason cables must be mains voltage-proof.
- It is possible to lay the DALI bus line alongside the mains voltage line within a single cable up to a maximum of 100 m, e.g. with NYM 5 x 1.5 m². During installation, please ensure the maximum length of the DALI bus is not exceeded:

0.5–1.5 mm²
8.5–9.5

	1.5 mm²	1 mm²	0.75 mm²	0.5 mm²
6.2 Ω max.	300 m	180 m	130 m	80 m
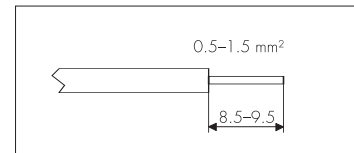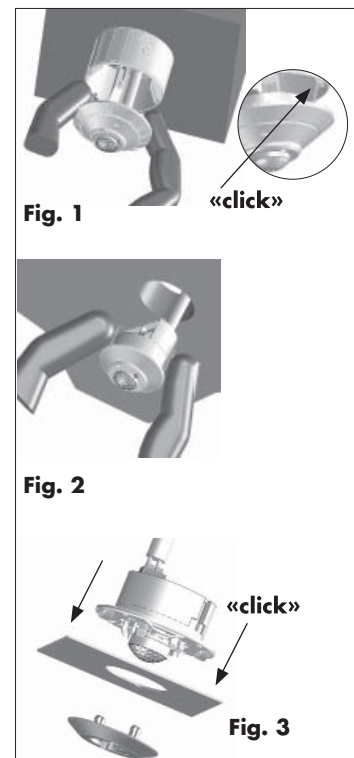
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Light Management System for Indoor Use

Further Instructions

- VS MultiSensors can be used only in combination with a VS Light Controller from the LiCS Indoor series.
- The exact sensor system configuration procedure can be found in the manual available at www.vossloh-schwabe.com.
- To ensure safe operation of the sensor, the maximum permissible ambient temperature must not be exceeded.
- When positioning the sensor, please ensure its capture range is not obstructed by objects, furniture, etc..
- Capture range of the MultiSensor, see Fig. 4.
  The height specified in Fig. 4 is to be understood as a reference value.
- Capture range of of the SM-HB version totals 12 m in height (Fig. 5).
  At a height of 10 m, the detectable field covers an area of approximately 15x15 m (Fig. 5a).
- Capture range in general: For other heights it may be advisable to test the sensitivity of the sensor on site as the sensitivity of the motion sensor decreases with increasing height.

Fig. 4

Fig. 5a

Fig. 5
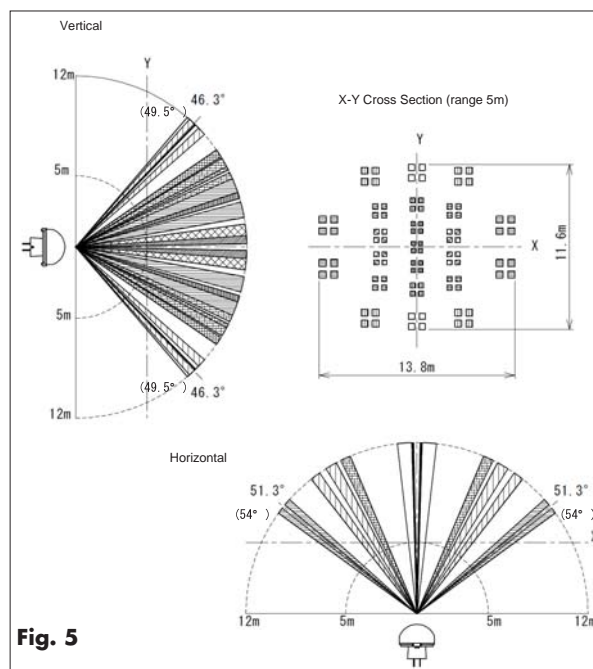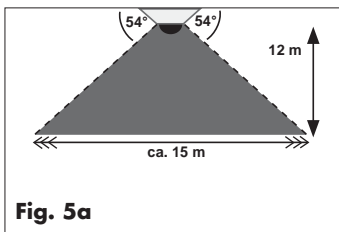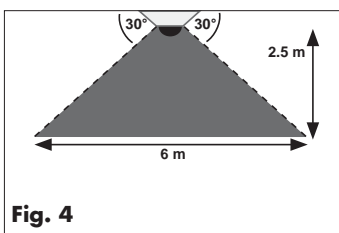
IMPORTANT

PIR sensors detect changes in heat radiation. All range information refers to a room temperature of 20 ° C. Objects that are colder or warmer, in conjunction with high or low temperatures, usually lead to altered detection ranges. For example, the range decreases in winter, or increases in the summer. Please check, therefore, whether these sensors are suitable for the intended application.
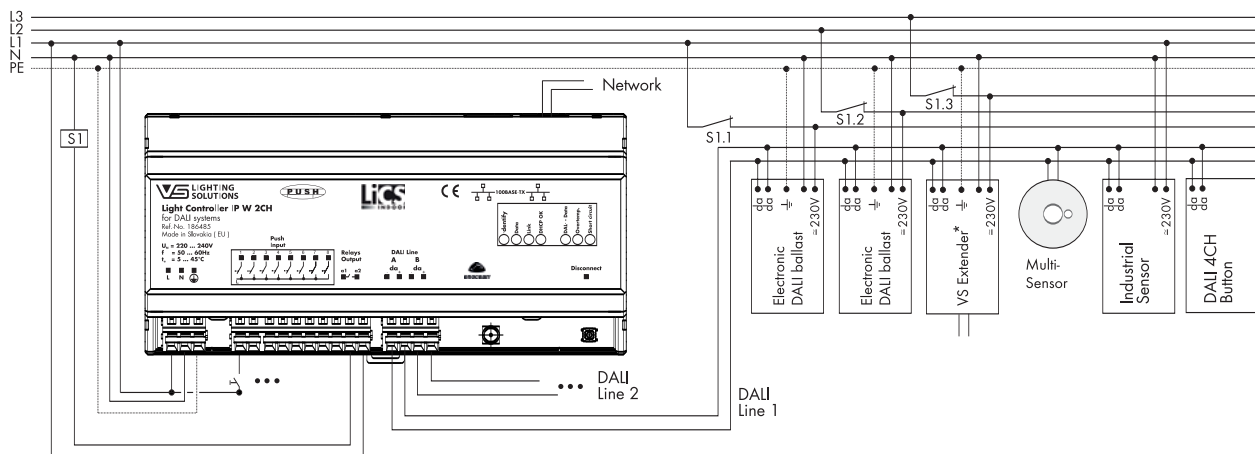
Circuit Diagram for Sensors

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Light Management System for Indoor Use

Technical Specifications for MultiSensors

MultiSensors	SM-E	FM-E	IL-E	SM-HB
Ref. No.:	186320	186321	186322	186668
Control Input	DALI in acc. with IEC 62386			
Power consumption from DALI	4 mA			
Ambient temperature t_a	0 to 50 °C			
Casing temperature t_c	max. 50 °C			
Degree of Protection	IP20			
Protection Class	II			
Weight	30 g			37 g
CE requirement	Safety in accordance with EN 61347-2-11			

Sales text for – MultiSensors (Measured Value Logger)

Developed for detecting motion/presence and measuring light levels. After pairing with the lighting system,
the functions can be independently activated or deactivated in the Light Controller. By default, though, both functions are set to "inactive".
As a motion sensor, the sensor can be activated in two different modes (automatic = ON/OFF or semi-automatic = OFF).
If the sensor detects motion when in automatic mode, lighting will be switched on at 100% and a countdown will start. Every new detection within the countdown period will then start this countdown anew. After the countdown has run down (time can be set between 10 seconds and 90 minutes), lighting will be switched off. In semi-automatic mode, lighting must be manually activated, e.g. by pressing a button.
Following this, the sensor must detect motion to start a countdown. Every further detection within the countdown period will begin the countdown anew. Once the countdown has run down, (time can be set between 10 seconds and 90 minutes), lighting will be switched off.
Light levels are measured with the help of a light sensor. This enables light levels to be kept constant in a room or at a place of work. To this end, light intensity is measured and if a lack of or insufficient natural light is detected, artificial light levels will be adjusted accordingly. The limits are prescribed by the maximum and minimum light levels of a system. Switching off luminaires is not possible via the light sensor. The required light level is checked at relevant spots within a room using a lux meter. Dimming up or down artificial lighting serves to achieve the desired lighting levels (consisting of natural and artificial light).

Text for Tendering Purposes: – MultiSensors (Measured Value Loggers)

Type of measured value logger:	surface mounting / in-luminaire installation / ceiling installation for motion and/or light level detection in offices, schools and industrial facilities. The transmitted measured values are used by light controllers connected upstream to address electronic control gear units as well as for constant light control purposes. The light controller clearly defines the measured values. Both the transfer of measured values and the supply of power are enabled by the bus system. The circular capture range encompasses 6 m in diameter at an installation height of 2.5 m. Installation height can vary between 0.1 m and 5.7 m. The light controller sets the parameters of the MultiSensor. Parameters cannot be set on the sensor itself.
Interface:	voltage supply and transfer of measured values to the DALI bus.
Light controller types:	installation in a distribution board with an antennae jack for self-sufficient installation with MultiSensors / Installation in a distribution board for self-sufficient installation with MultiSensors /with a cord grip for self-sufficient installation with MultiSensors / integration in luminaires for self-sufficient installation with MultiSensors by Vossloh-Schwabe Deutschland GmbH or comparable.
Motion sensor:	2-element PIR (Passive Infrared), feedback if motion is detected. Retrieval of defined specifications by a light regulator.
Light sensor:	0…1 kLux, ultra-compact surface-mounted IC with integrated photo-diode for brightness measurements and IC current booster in a single chip.
Sensitivity:	close to human vision (600 nm)
Ambient temperature:	0°C…50°C
Dimensions (Ø x H):	SM-E: 53 x 48.5 mm | FM-E: 40 x 43.8 mm | IL-E: 45 x 31.9 mm
Casing material:	PC, white
Supply voltage of the DALI bus in acc. with EN 62386: 9.5–22.5 V	
Power consumption:	Type 0.1W
Connection terminals:	push-in connectors, max. 1.5 mm²
Degree of protection:	IP20

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