

basicDIM ILD G2 FSL 5DPI

Compact control module with ambient light sensor and motion sensor

Product description

- For up to 20 DALI drivers, expandable with DALI-2 Input Devices (see data sheet 3.1 Wiring)
- Integrated application controller
- Flexible configuration via companionSUITE
- 2 independently controllable DALI groups
- Supports Tunable White and SWARM module
- Monitoring of ambient light and motion detection
- Infrared remote control for configuration and operation
- Power supply via DALI line
- Shutter for preventing movement detection in one direction included
- Small dimensions allowing easy and inconspicuous integration in luminaires
- For luminaires of protection class I and protection class II
- Wide range of accessories allowing extended application range
- 5 years guarantee (conditions at www.tridonic.com)

Housing properties

- Casing: PC polycarbonate, white or black
- Type of protection IP20



Standards, page 6

Wiring diagrams and installation examples, page 7



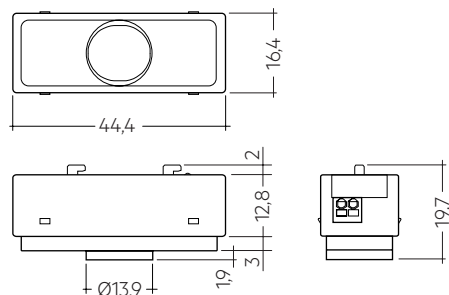


basicDIM ILD G2 FSL 5DPI

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Technical data

Supply via	DALI
Supply voltage ^①	11.5 – 20.5 V
Current consumption (no status LED)	max. 11 mA
Current consumption (with status LED)	max. 12 mA
Mounting height	5 m
Mounting hole diameter	14.1 mm
Detection angle for PIR detection	84°
Detection angle for light measurement	30°
Detection range for light measurement ^②	2 – 2,000 lx
Min. temperature difference between ambient temperature and detected object	± 4 °C
Ambient temperature t_a	-20 ... +50 °C
t_c	60 °C
Storage temperature	-25 ... +60 °C
Housing material body	PC polycarbonate
Housing material lens	PE polyethylene
Housing colour body	White (similar to RAL 9010)
Housing colour lens	White
Type of installation	Luminaire installation
Type of protection	IP20
Guarantee (conditions at www.tridonic.com)	5 years



Ordering data

Type [®]	Article number	Colour	Dimension L x W x H	Packaging carton	Weight per pc.
basicDIM ILD G2 FSL SFI 30 5DPI WH	28004413	White	44.4 x 16.4 x 18.7 mm	40 pc(s)	0.010 kg
basicDIM ILD G2 FSL SFI 30 5DPI BK	28004414	Black	44.4 x 16.4 x 18.7 mm	40 pc(s)	0.010 kg

^① 14 – 20.5 V if use PBI1.

^② The measured value at the sensor head corresponds to approx. 10 to 10,000 lux on the surface measured.

ACCESSORIES

REMOTECONTROL IR6+

Product description

- Optional infra-red remote control
- Switching on and off (On/Off button for group 1 and 2)
- Dimming (Up/Down button for group 1 and 2)
- Tunable White (warmer or colder) and Sensor pairing
- Activation of automatic lighting control
- Setting the threshold control point (Set button)
- IR range typical 5 m
- Link to manual: <http://www.tridonic.com/qrIR6plus>



Ordering data

Type	Article number	Dimensions L x W x H	Packaging carton	Weight per pc.
REMOTECONTROL IR6+	28004415	86.5 x 40.5 x 7.2 mm	500 pc(s).	0.019 kg

ACCESSORIES

basicDIM ILD G2 FSL Programmer

Product description

- Optional infra-red programming unit for basicDIM ILD G2 FSL
- Setting of predefined parameter values
- Programmable functions such as light level, time delay, P.I.R., bright-out, power up, grouping and SWARM function
- IR range up to 20 m
- Link to manual: <http://www.tridonic.com/qrILD2ProgFSL>



Ordering data

Type	Article number	Dimensions L x W x H	Packaging carton	Weight per pc.
basicDIM ILD G2 FSL Programmer	28004416	130 x 56 x 15 mm	150 pc(s).	0.02 kg

ACCES-
SORIES

5DPI 14f Mounting Kit

Product description

- Mounting frame for attaching all 5DPI 14f sensor directly to the luminaire housing
- Shutter for preventing movement detection in one direction
- Glow wire test with 750 °C according to EN 61347-1



Ordering data

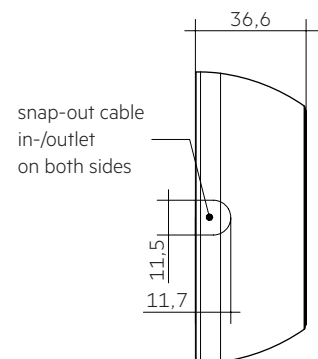
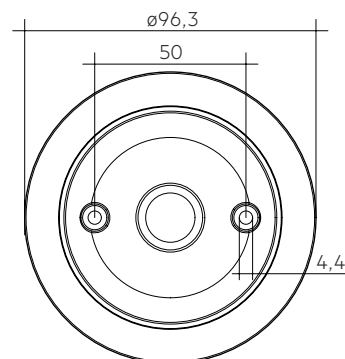
Type	Article number	Packaging carton	Weight per pc.
5DPI 14f mounting kit	28001558	100 pc(s).	0.004 kg
5DPI 14f mounting kit black	28001575	100 pc(s).	0.004 kg

ACCES-
SORIES

ACU Sensor Housing 14rs IP20

Product description

- Mounting frame for wired 5DP 14f sensors allowing direct mounting to the ceiling
- Easy „click in“ installation of the sensor
- IP20
- Casing: plastic, white (relatd to RAL 9010)
- UV stabilized plastic
- Optional shutter for reduction of movement detection area allowing to decrease the movement detection area from 360° to 240°
- Mounting kit with screws and cover
- 0.5 mm wiring for the sensor
- Two 3 x 1.5 mm² clamps with cable management (2 entry points on oppsite sides)
- Glow wire test with 750 °C according to EN 61347-1



Ordering data

Type	Article number	Packaging carton	Weight per pc.
ACU Sensor Housing 14rs IP20	28001872	57 pc(s).	0.054 kg

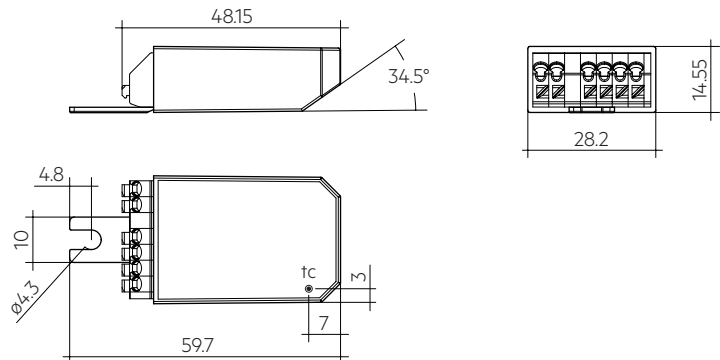
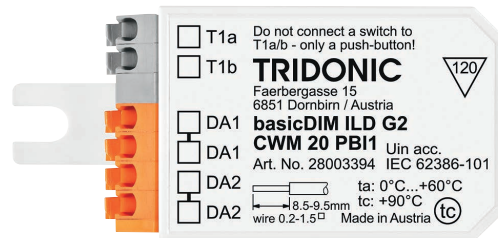
basicDIM ILD G2 CWM 20 PBI

Product description

- Push Button Interface (PBI) for ILD G2 and ILD G2 FSL system
- Flexible configuration via the ILD G2 and ILD G2 FSL in combination with the companionSUITE
- Short push button action: automatic / fade off (factory default)
- Long push button action: dim up / dim down (factory default)
- Double push button action: set new target value for light regulation (factory default)
- Through-wiring DA1 / DA2 possible
- Detachable mounting flaps, allow installation in flush-mounted boxes and luminaires

Note

- A permanent short circuit between T1a and T1b results in limited function
- Only push buttons can be used



Ordering data

Type	Article number	Packaging carton	Weight per pc.
basicDIM ILD G2 CWM 20 PBI1	28003394	15 pc(s).	0.012 kg

1. Standards

EN/IEC 61347-2-11
EN 55015
EN 61000-3-2
EN 61000-3-3
EN 61547

1.1 DALI standard

The basicDIM ILD G2 FSL is designed to control control gear with DALI standard IEC 60929 (DALI V0), IEC 62386 (DALI V1/DALI-2).

1.2 Glow wire test

according to EN 61347-2-11 passed for temperatures up to 850°C.

2. Common

The basicDIM ILD G2 FSL provides the basis for an easy-to-use and cost-effective lighting system with motion detection. When the sensor detects movement it triggers a individual adjustable motion detection profile in the control unit.

As the amount of natural ambient light changes the illuminance from the artificial lighting system is adjusted.

The connected luminaires can be switched on and off via momentary-action switch or remote control possible.

Color control commands are always sent as broadcast commands and are only supported for manual control.

IR is always active.

SWARM control enables the FSL luminaires to communicate with each other wirelessly via IR, for this functionality a SWARM module is required. If a luminaire detects presence, it assumes the role of a Detecting FSL in the SWARM system and sends IR commands to the surrounding neighbour luminaires. Depending on the distance from the detecting FSL luminaire, the neighbour luminaires can assume 2 distinct roles: Direct or indirect neighbours and the luminaires switch on with a reduced light level according to their role.

The SWARM control system is plug and play (no configuration required) it just has to be activated with the basicDIM ILD G2 FSL Programmer. SWARM function does not support color control.

Detecting FSL:

The detecting FSL is the free standing luminaire that detects presence, goes to presence light level and sends a presence event to the surrounding luminaires (direct neighbour FSL). If presence is no longer detected the luminaire will slowly dim to the direct neighbour level than to the absence level before it turns off.

Direct neighbour FSL:

The direct neighbour free standing luminaires are the luminaires that get a IR signal directly from the detecting FSL. The luminaire will go to the direct neighbour level and send a presence event to surrounding luminaires, if a luminaire already received a presence event from the detecting FSL the event will be ignored. If presence is no longer detected the luminaire will slowly dim to the absence level before it turns off.

Indirect neighbour FSL: The indirect neighbour free standing luminaires are the luminaires that only get an IR signal from the direct neighbour luminaire and haven't received a signal before. These luminaires will go to the absence level. If presence is no longer detected the luminaire will slowly dim to off.

This sensor provides measurement of ambient light, motion detection via PIR sensor and IR remote control input as well as a LED output for signalisation. basicDIM ILD G2 FSL is created for following main applications:

- Free standing luminaires



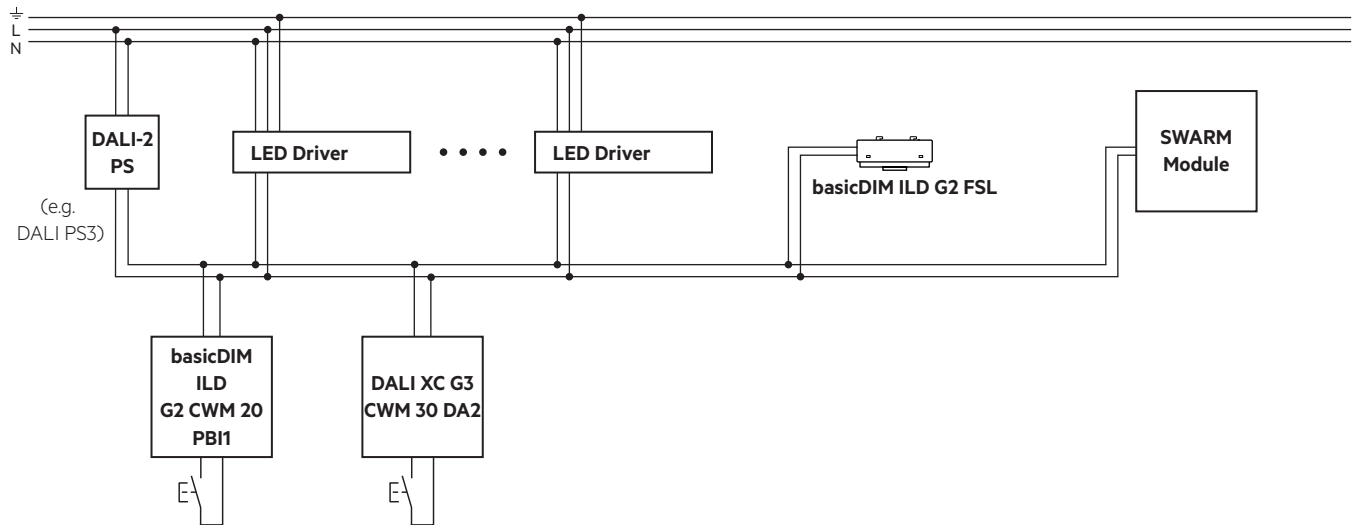
The basicDIM ILD G2 FSL was developed and tested exclusively for Tridonic SWARM Module, XC G3 and PBI1. The use of other sensors and push button modules can lead to errors.

3. Installation

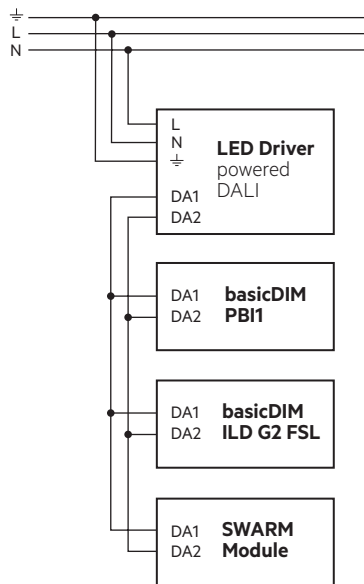
- The basicDIM ILD G2 FSL must not be connected to the mains. It is supplied directly via the DALI power supply.
- basicDIM ILD FSL is intended for 1-head luminaires only.
- When using a luminaire with direct / indirect lighting, the system has to be commissioned. Group 1 is intended for the direct lighting only and Group 2 for the indirect lighting.
- DALI is not SELV. The installation instructions for mains voltage therefore apply.
- The detection range of the sensor must be within the lighting range of the controlled luminaires.
- The detection range of the sensor must be within the lighting area of the controlled luminaires.
- To avoid deviating characteristics, install the presence detector at the recommended height. If the installation is higher than recommended, the sensitivity is reduced. If the installation is lower than recommended, the detection range is reduced.
- Incorrect presence detection occurs if heaters, fans, printers or copiers are in the detection area.
- Avoid direct illumination of the light source (luminaires) on the sensor including housing.
- Additional IR sources can disturb the sensor.
- The maximum permissible current consumption of all components on the bus must not exceed the maximum permissible current of the connected DALI Power Supply.
- Double addressing is possible with pre-addressed DALI components. Press the reset button on the basicDIM ILD G2 FSL programmer to correct the error. Be sure to carry out the commissioning again.

3.1 Wiring

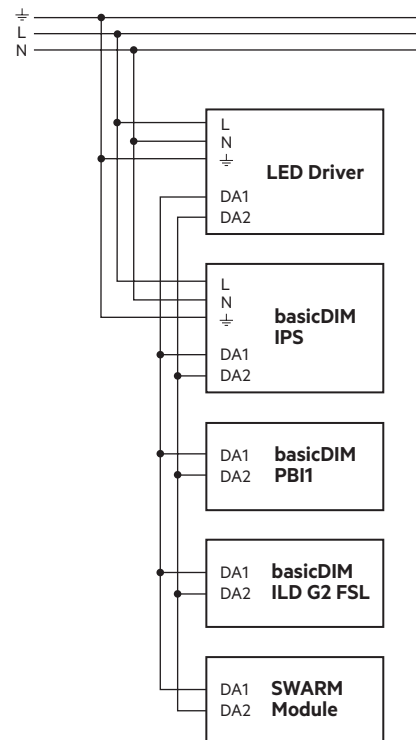
Room application:



Single / free-standing luminaires, driver with integrated power supply (DALI):



Single / free-standing luminaires, driver with separate power supply (DALI):



Maximum number of connected devices:

Devices	Number
ILD G2	1 pc.
DALI PS	2 pc. (max. 250 mA)
LED driver	20 pcs.
Input devices (XC G3)	4 pcs.
Input devices (SWARM Module)	1 pcs.
PBI1	4 pcs.

DALI repeater must not be used.

Compatible accessories:

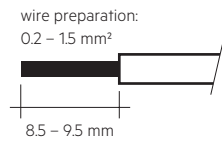
- XC G3 as multi channel push button interface

Factory settings for DALI XC G3:

Button	Action	Factory settings
PBI	Short press	Automatic / Fade off (Broadcast)
	Long press	Dim up / Dim down (Broadcast)
	Double click	SET (Broadcast)
T1	Short press	Automatic / Fade off (Broadcast)
	Long press	Dim up / Dim down (G1)
	Double click	SET (Broadcast)
T2	Short press	Automatic / Fade off (Broadcast)
	Long press	Dim up / Dim down (G2)
	Double click	not used
T3	Short press	Automatic / Fade off (Broadcast)
	Long press	Tune warm / cool (Broadcast)
	Double click	not used
T4	Short press	Automatic (Broadcast)
	Long press	not used
	Double click	SET (Broadcast)

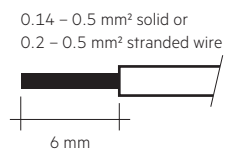
3.2 Wiring type and cross section for rc version

For wiring use stranded wire with ferrules or solid wire from 0.2 to 1.5 mm².



3.3 Wiring type and cross section for f version

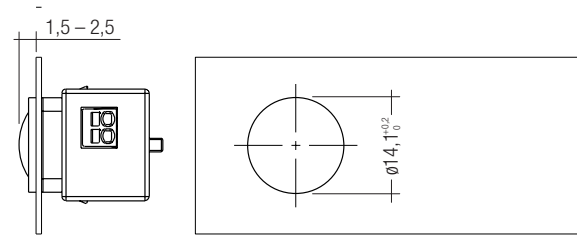
For wiring use stranded wire with ferrules from 0.2 to 0.5 mm² or solid wire from 0.14 to 0.5 mm².



3.4 Mounting variants luminaire installation sensor:

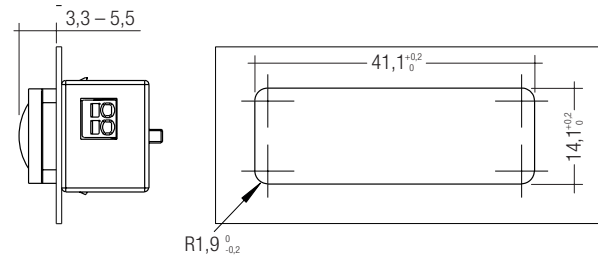
Variant 1:

Size of the sheet: 0.8 – 1.8 mm



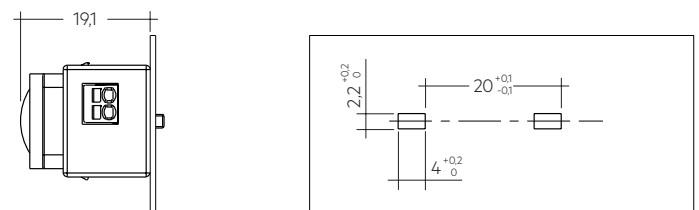
Variant 2:

Size of the sheet: 0.8 – 3.0 mm



Variant 3:

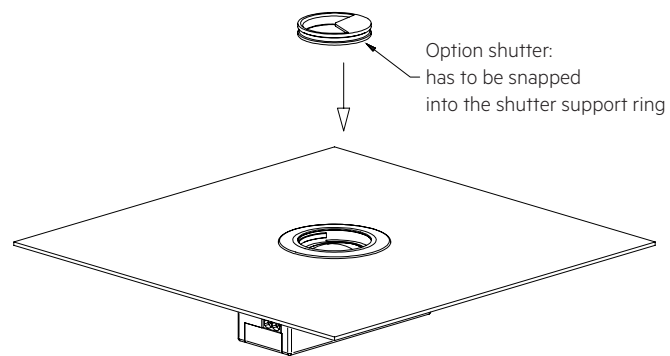
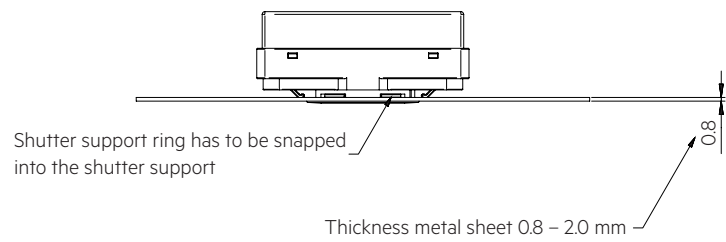
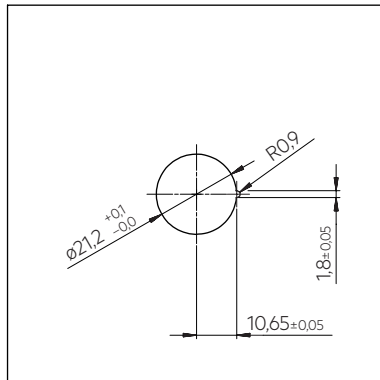
Size of the sheet: 0.6 – 0.8 mm



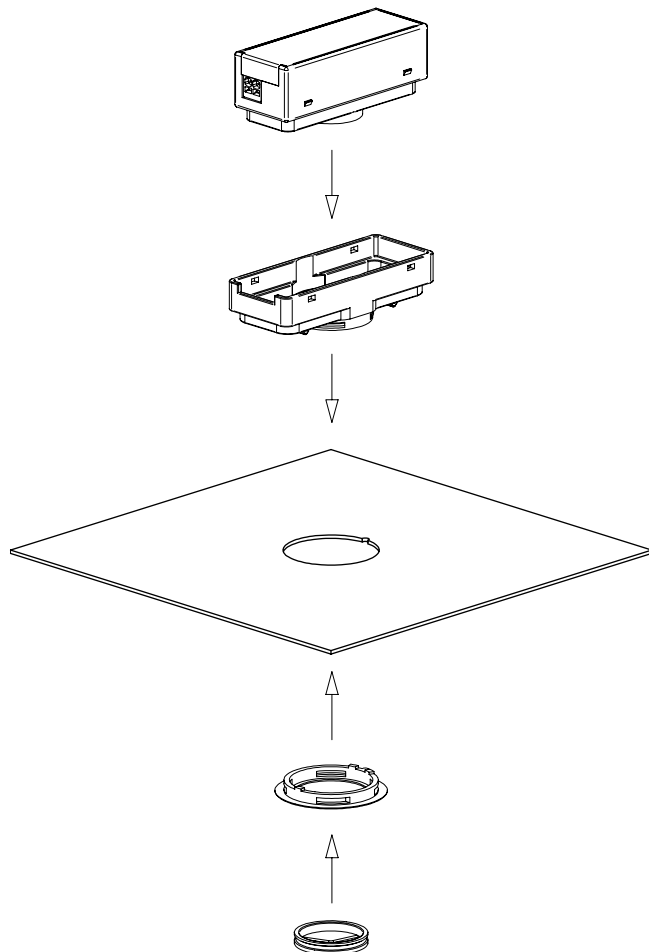
3.5 Mounting in luminaire housing with Mounting Kit:

Size of the sheet: 0.8 – 2.0 mm

Dimension drawing for needed
mounting opening

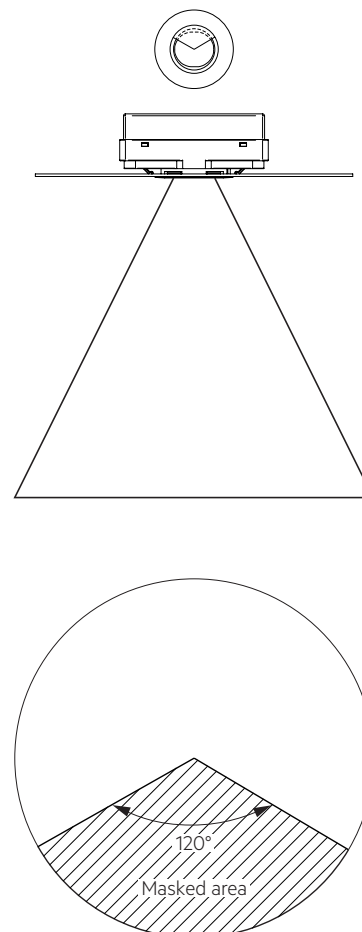


3.6 Mounting Kit mounting

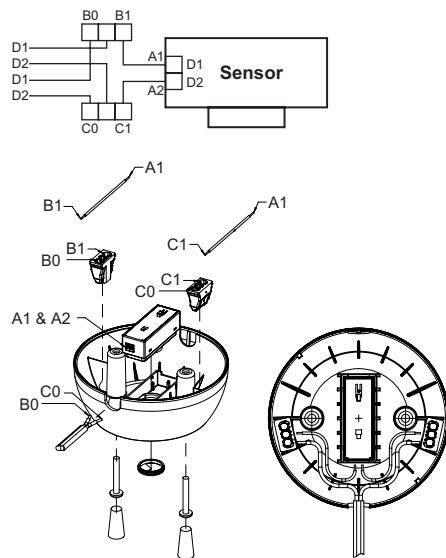


3.7 Mounting Kit Shutter

Area which is masked by the shutter.



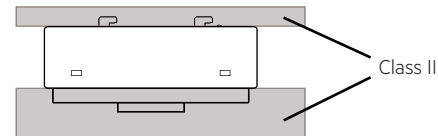
3.8 Wiring and mounting ACU Sensor Housing 14rs IP20



3.9 Mounting in class II luminaire

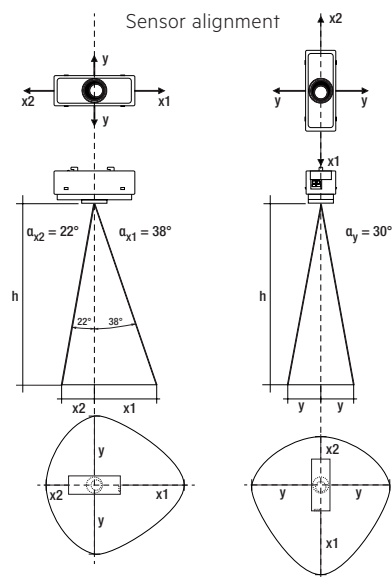
The Sensor provides basic insulation as required by IEC 62386-101 and defined in IEC 61347-1.

If the sensor is built in to a class II luminaire which has to provide double or reinforced insulation it has to be considered that the Sensor is not a class II device. Still the Sensor can be used for such projects as the front and the back of the sensor is tested to fulfill the class II requirements for double or reinforced insulation.



4. Light level recognition area

The measurement range is between 2 and 2,000 lx.
Measured at the sensor head.



h *	x1	x2	y	d
1.7 m	1.3 m	0.7 m	1.0 m	3.0 m
2.0 m	1.6 m	0.8 m	1.2 m	3.6 m
2.3 m	1.8 m	0.9 m	1.3 m	4.1 m
2.5 m	2.0 m	1.0 m	1.4 m	4.5 m
2.7 m	2.1 m	1.1 m	1.6 m	4.9 m
3.0 m	2.3 m	1.2 m	1.7 m	5.4 m
3.5 m	2.7 m	1.4 m	2.0 m	6.3 m
4.0 m	3.1 m	1.6 m	2.3 m	7.2 m

* The recommended maximum room height for office applications is 3 m and for corridor applications for example 4 m. Up to 2 m mounting height presence is detected and over 2 m motion is detected.

Calculation of the diameter (light area):

$$x1 = \tan(\alpha_{x1}) \times h$$

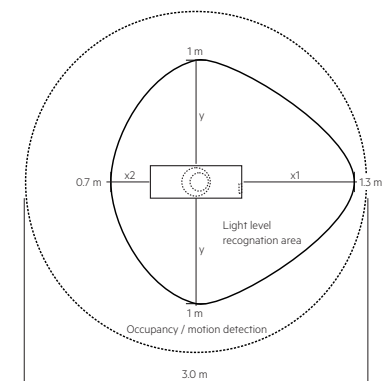
$$x2 = \tan(\alpha_{x2}) \times h$$

$$y = \tan(\alpha_y) \times h$$

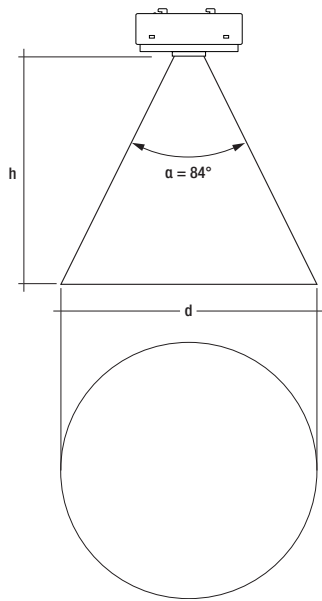
Calculation of the diameter (motion area):

$$d = 2 \times \tan(0.5 \times \alpha) \times h$$

Example for light and motion detection area at height of 1.7 m:



4.1 Presence / motion detection



4.2 Motion detection

For motion detection PIR technology is used. PIR Lens is made to detect moving people in working areas such as corridors, passages, garages, office buildings or educational institutions with the following performance criteria:

- Ceiling height from up to 5 m
- Movement of human body:
 - up to 2 m mounting height: detection of slight motion.
 - above 2 m mounting height: no slight motion (no sitting person) detection.
- Movement ≥ 1.0 m/s for mounting heights up to 5 m

4.3 Status LED's

The status LED is deactivated by default.

There is a LED built in to indicate different status information to the user.

This LED is controlled from the sensor itself.



To avoid any influence from status LED to the light measurement, LED is disabled while light sensor is measuring by default.

Status	Pattern	Incident
–	–	Normal operation
Single red flash	0.2 s on. all 6 s	Motion has been detected
Permanent red flashing	0.2 s on. all 1 s	System error: - Second basicDIM ILD G2 FSL available - Stuck button time out
Long green flashing	1 s on. all 6 s	Bright-out active
Orange flashing	0.5 s on. all 0.5 s	Start-up, Grouping, Test mode, Reset active
Short blue flashing	0.2 s	Receive infrared command from basicDIM ILD G2 FSL Programmer or IR6

4.4 User-definable parameters

Parameter (Multi parameter)	Range (Factory Settings)	Description
power-up behavior	on / off (on)	If the parameter is set to "on", the luminaire switches on after a mains break. If the parameter is set to "off", the luminaire does not switch on after a mains break.
presence level (G1, G2, SWARM)	1 to 100 % (100 %)	Brightness value that the ILD G2 FSL occupies as soon as presence has been detected.
absence level (G1, G2, SWARM)	1 to 100 % (1 %)	Brightness value that the ILD G2 FSL occupies while the switch-off delay is running.
fade-in time (G1, G2)	0 to 15 (1)	Period of time starting as soon as presence is detected. During fade-in time, the luminous intensity fades to the presence value. 1 = 0.7 s 2 = 1 s 3 = 14 s 4 = 2 s 5 = 2.8 s 6 = 4 s 7 = 5.7 s 8 = 8 s 9 = 11.3 s 10 = 16 s 11 = 22.6 s 12 = 32 s 13 = 45.3 s 14 = 64 s 15 = 90.5 s
fade time (G1, G2)	0 to 15 (8)	Period of time during which the luminous intensity fades from the presence value to the absence value. 1 = 0.7 s 2 = 1 s 3 = 14 s 4 = 2 s 5 = 2.8 s 6 = 4 s 7 = 5.7 s 8 = 8 s 9 = 11.3 s 10 = 16 s 11 = 22.6 s 12 = 32 s 13 = 45.3 s 14 = 64 s 15 = 90.5 s
run-on time (G1, G2)	15 s to 60 min (20 min)	Time that begins to run from the last moment that presence was detected. After the run-on time the fade-off time is started. If another presence is detected in the room during run-on time, the run-on time is started again.
switch-off delay (G1, G2)	off / 15 s to 60 min / never OFF (off)	Time in which the absence value is held. After expiration, the luminaire is either switched off or the absence value is held (never OFF).
fade-off time (G1, G2)	0 to 15 (2)	Period of time starting after the run-on time. During the fade-off time, the luminous intensity fades to off. 1 = 0.7 s 2 = 1 s 3 = 14 s 4 = 2 s 5 = 2.8 s 6 = 4 s 7 = 5.7 s 8 = 8 s 9 = 11.3 s 10 = 16 s 11 = 22.6 s 12 = 32 s 13 = 45.3 s 14 = 64 s 15 = 90.5 s
constant light control	enabled (G1+G2) / enabled (only G1) / disabled (enabled (G1+G2))	Enables or disables the constant light control
bright-out	on / off (on)	If the parameter is set to "on", the luminaire switches off as soon as the light level exceeds the bright-out threshold of the set point for longer than 10 minutes. This could be the case if, for instance, the room is adequately illuminated by sunlight. If the bright-out threshold falls below 100 % of the set point, the luminaire switches back on again.
bright-out threshold	110 to 400 % (150 %)	Bright-out threshold used by the bright-out function
bright-out-off delay time	0 to 3,600 s (600 s)	Period of time that the light level must exceed the bright-out threshold to activate bright-out.
PIR mode	off / only off / on and off (on and off)	off = In this mode movement detection is deactivated. only off = The movement sensor (local or SWARM) only switches Off the light automatically. In this mode the light can only be switched On manually, which then starts the automation according the configured profile settings in presence state. on and off = The movement sensor (local or SWARM) switches On and Off the light automatically according the configured profile settings.
motion sequence selector	0 to 3 (0)	0 = automatic detection (SWARM profile will be applied if SWARM event is received). 1 = standard profile (disable SWARM function). 2 = SWARM profile with direct neighbor level (SWARM function enabled). 3 = SWARM profile without direct neighbor level (SWARM function enabled).
direct neighbour level	1 to 100 % (50 %)	Brightness value that the ILD G2 FSL occupies as a direct neighbor.
SWARM run-on time	15 s to 60 min (20 min)	Time that begins to run from the last moment that presence was detected by a neighbouring basicDIM ILD FSL.
SWARM switch-off delay	15 s to 60 min / never off (10 min)	Time in which the absence value is held. After expiration, the luminaire is either switched off or the absence value is held (never OFF).

The following parameters are shared between Group 1 and the SWARM profile:

- presence level
- absence level
- fade-in time
- fade time

4.5 Possible push button configuration

Short Press	Long Press	Double Press
Automatic mode	Dimming up	Set target value
Recall max. level	Dimming down	No function
Off	Dimming up / dimming down	
Recall max. level / off	No function	
On with fade	Increase colour temperature	
Off with fade	Decrease colour temperature	
Automatic mode / off with fade	Increase / decrease colour temperature	
No function		

All buttons can be configured to target only Group 1 or only Group 2, or target both Groups at the same time (broadcast).

5. Miscellaneous

5.1 Disposal of equipment



Return old devices in accordance with the WEEE directive to suitable recycling facilities.

5.2 Additional information

Additional technical information at www.tridonic.com → Technical Data

Guarantee conditions at www.tridonic.com → Services

Lifetime declarations are informative and represent no warranty claim.
No warranty if device was opened.