



SMART Sensor 5DPI 19fe

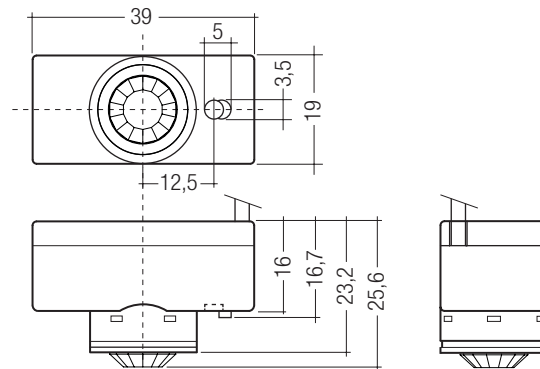
Ambient light sensor and presence detector for lighting control

Product description

- Optional ambient light sensor and presence detector for PCA EXCEL one4all devices from the x!tec II generation
- Can be remote controlled
- Compact dimensions for luminaire installation
- Simple cable connection to the ballast via SMART interface
- Power supply via ballast
- Lighting control and presence detection can be deactivated
- Individual adjustment of the parameters with configuration software
- Optional with corridorFUNCTION profile
- Optional connection with second ballast possible via accessory cable
- Max. installation height 5 m

Technical data

| | |
|----------------------------|---------------------------|
| Power supply via | SMART interface |
| Current draw | 1 mA from SMART interface |
| Operating temperature | 0 ... +60 °C |
| Storage temperature | -20 ... +65 °C |
| Type of protection | IP20 |
| Max. casing temperature tc | 63 °C |



Standards, page 5

Wiring diagrams and installation examples, page 6, 7

Ordering data

| Type | Article number | Packaging, carton |
|--------------------------------|----------------|-------------------|
| SMART Sensor 5DPI 19fe | 86459545 | 20 pc(s). |
| SMART Sensor 5DPI 19fe cF n.o. | 86459552 | 20 pc(s). |
| SMART Sensor 5DPI 19fe cF 01 | 86459550 | 20 pc(s). |
| SMART Sensor 5DPI 19fe cF 30 | 86459551 | 20 pc(s). |

Specific technical data

| Type | Detection | | | | Max. cable length | Control output (devices) | corridorFUNCTION profile |
|--------------------------------|----------------------------------|--|---|----------------------------------|-------------------|--------------------------|--------------------------|
| | Light detection angle asymmetric | Light measurement at the sensor head ¹⁾ | Illuminance (factory default) ²⁾ | Motion detection angle symmetric | | | |
| SMART Sensor 5DPI 19fe | 31° | 40 – 1,000 lx | 500 lx | 92° | 0.8 m | 2 | – |
| SMART Sensor 5DPI 19fe cF n.o. | 31° | 40 – 1,000 lx | 500 lx | 92° | 0.8 m | 2 | never off |
| SMART Sensor 5DPI 19fe cF 01 | 31° | 40 – 1,000 lx | 500 lx | 92° | 0.8 m | 2 | switch-off 1 minute |
| SMART Sensor 5DPI 19fe cF 30 | 31° | 40 – 1,000 lx | 500 lx | 92° | 0.8 m | 2 | switch-off 30 minutes |

¹⁾ The measured value at the sensor head corresponds to approx. 60 to 3000 lux on the surface measured.

²⁾ The illuminance is set for a room defined by Tridonic. Depending on the actual room (reflectance) the measured illuminance may deviate from this value. The illuminance should therefore be checked in the installation and adjusted if necessary.

SMART Sensor T5 Clip + Cap

Product description

- Clip for mounting the sensor directly to the lamp and cover to protect against indirect light



Ordering data

| Type | Article number | Packaging, bag | Packaging, carton |
|----------------------------|----------------|----------------|-------------------|
| SMART Sensor T5 Clip + Cap | 86459499 | 10 pc(s). | 200 pc(s). |

SMART Sensor T8 Clip + Cap

Product description

- Clip for mounting the sensor directly to the lamp and cover to protect against indirect light



Ordering data

| Type | Article number | Packaging, bag | Packaging, carton |
|----------------------------|----------------|----------------|-------------------|
| SMART Sensor T8 Clip + Cap | 86459500 | 10 pc(s). | 200 pc(s). |

SMART Sensor Cap

Product description

- Cover to protect against indirect light



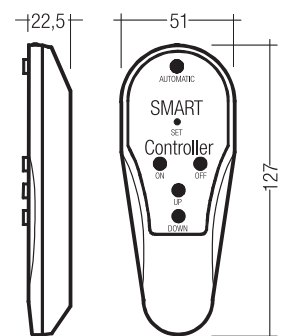
Ordering data

| Type | Article number | Packaging, bag | Packaging, carton |
|------------------|----------------|----------------|-------------------|
| SMART Sensor Cap | 86459501 | 50 pc(s). | 500 pc(s). |

IR-SMART Controller

Product description

- Optional infra-red remote control
- Switching on and off (On/Off button)
- Dimming (Up/Down button)
- Activation of automatic lighting control (Automatic button)
- Setting the threshold control point (Set button)



Ordering data

| Type | Article number | Packaging, carton | Weight per pc. |
|----------------------|----------------|-------------------|----------------|
| DSI-SMART Controller | 86451922 | 1 pc(s). | 0.075 kg |

SMART Sensor Extension Cable

Product description

- Cable for optional connection of the sensor with a second ballast
- Only use with SMART Sensor 19fe



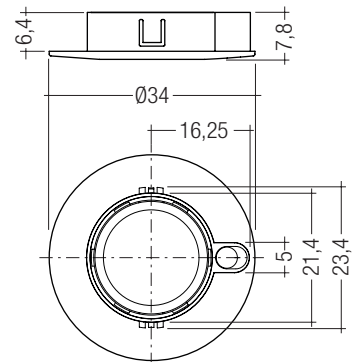
Ordering Data

| Type | Article number | Length | Packaging, carton |
|------------------------------|----------------|--------|-------------------|
| SMART Sensor Extension Cable | 86459176 | 0.8 m | 1,500 pc(s). |

SMART Sensor Cover Frame

Product description

- Cover frame for attaching the sensor directly to the luminaire casing



Ordering data

| Type | Article number | Packaging, bag | Packaging, carton |
|--------------------------|----------------|----------------|-------------------|
| SMART Mounting Ring 5DPI | 86459428 | 50 pc(s). | 200 pc(s). |

SMART Sensor 5DPI 19fe

In combination with the PCA EXCEL one4all based on the xtec-II platform, SMART Sensor 5DPI 19fe provides the basis for an easy-to-use and cost-effective lighting system.

When the sensor detects movement it triggers a predefined motion detection profile in the ballast.

Constant lighting control acts exclusively on the "presence value".

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

With a SMART Sensor 5DPI 19fe installed, PCA EXCEL one4all based on the xtec II platform, can be switched on and off via DSI or DALI signals, switchDIM or the mains.

With the sensor installed the setpoint value (dimming) can be temporarily changed by means of DALI or switchDIM.

Set point can be changed and set via IR-SMART Controller on the sensor.

The configuration of the sensors is done via masterCONFIGURATOR software tool (version 2.02 or higher).

For further information please refer to the xtec II documentation.

Standards

- EN 61547
- EN 61347-1
- EN 61347-2-11
- EN 55015

Installation



- Before connecting / disconnecting the sensor to / from the SMART interface the power supply has to be switched off
- Only for the use of ballasts with xtec II label
- The SMART sensors have to be connected only to the SMART interface of PCA EXCEL one4all based on the xtec II range
- The SMART interface is not SELV
The installation instructions for mains voltage therefore apply
- Please ensure that the detection range of the sensor lies in the lighting area of the controlled luminaires.
- Please ensure that the detection ranges of the sensors do not overlap. This may have influence to the lighting control.
- Heaters, fans, printers and copiers located in the detection zone may cause incorrect presence detection.
- To avoid false readings, the sensor should be installed so there is no direct light from the lamp in the detection zone.

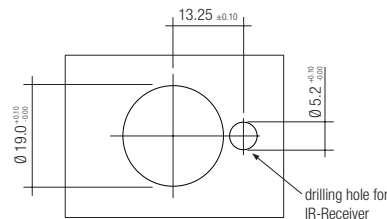
- The back side of the sensor should not be exposed to the light output of the lamp as this can negatively influence the operation of the sensor.
To avoid any malfunction we strongly recommend:
 - Use the SMART sensor cap (which can be ordered as accessories) or
 - Alternatively: Mount the sensor away from light exposure from behind
- To avoid false measurements caused by the light from other luminaires we recommend that the sensor should be located centrally in the luminaire.
- Sensor wires must be routed separately from the lamp wires and mains cables otherwise the lighting control system may malfunction.
If separate routing is not possible (for reasons of space) shielded lamp wires and mains cables must be used
- Application wiring and functionality see separate user manual smartSENSOR.

Mounting with cams at the sensor housing:

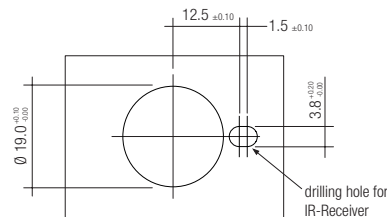


On the housing of the sensor are fixing cams integrated. With this cams the sensor can be mounted directly in the luminaire housing.

Size of the sheet: 0.8 – 1.2 mm



variant 1



variant 2

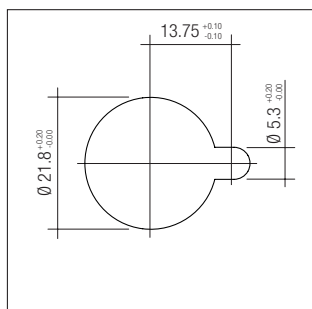
Note:

By the installation is to be paid attention to the fact that the IR sensor and the light sensor is visible.

Mounting with cover frame in luminair housing:

SMART Mounting Ring 5DPI (art.no. 86459428)

Size of the sheet: 0.8 – 1.2 mm



Mounting with SMART Sensor Mounting Flange (art.no. 86459328):



The sensor can be clipped onto the luminaire housing with the SMART Sensor Mounting Flange (art.no. 86459328).

Set-up

Note: To ensure that the sensor is recognised by the ballast it must be connected to the SMART interface of the ballast before input voltage is applied to the ballast.

A) corridorFUNCTION with integrated motion sensor

Soft start of PCA EXCEL one4all is followed by activation of motion detection and constant light control.

B) corridorFUNCTION with external motion sensor

The corridorFUNCTION is activated when a standard motion sensor is connected to the central interface (D1, D2). If movement is detected by the motion sensor the PCA EXCEL one4all ballasts switch on; if no movement is detected they switch to the "absence value" after the delay time on the motion sensor. Only the "presence value" is constant light controlled. For the corridorFUNCTION profile there will be used the profile of the sensor. **The motion detector integrated in the SMART sensor is inactive in this mode.**

C) Compatibility with the controllers must be checked before a PCA EXCEL one4all with connected SMART Sensor 5DPI is integrated in a DSI or DALI light management system.

DSI
Switch ON/OFF via DSI command. DSI command = 0 zero-power switch OFF, DSI commands > 0 switch ON.
ON means activation of the motion detector by sensor.

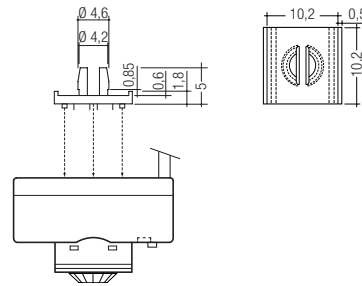
DALI
Switch ON/OFF via DALI commands.
Control possible via DALI commands.
For more information see the xitec II documentation.

Extension via SMART Sensor Extension Cable
If DALI is used both ballasts must be in the same group and controlled via group commands.

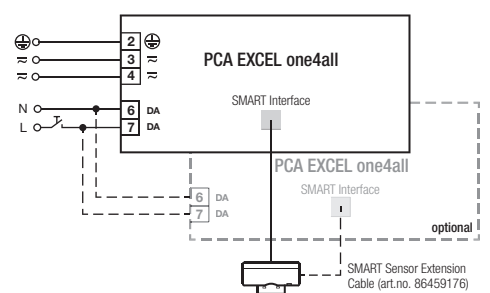
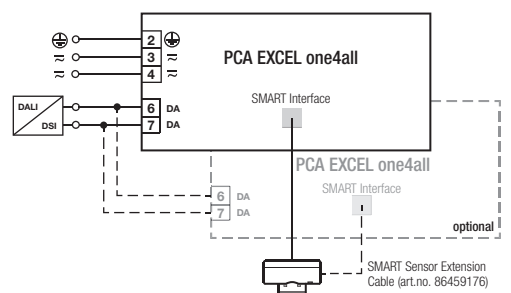
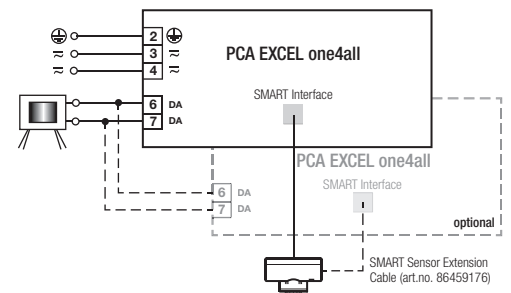
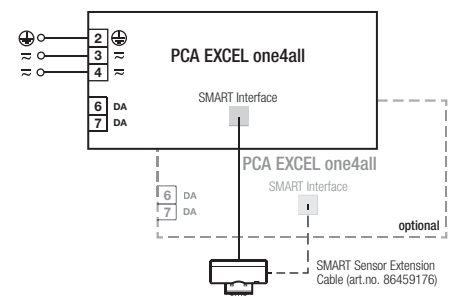
D) switchDIM
PCA EXCEL one4all with switchDIM function can be switched ON/OFF by a short key press. By dimming up and down with a long press the set-point of the light control can be changed temporarily. After switching OFF and ON again the previous setted value will be activated again.

If presence control and switchDIM are used in combination there may be loss of synchronism if several ballasts are connected to the same momentary-action switch and the ballasts or the sensors connected to them are large distances apart.

required drilling diameter: \varnothing 4.3 mm
max. size of the sheet: 0.8 mm

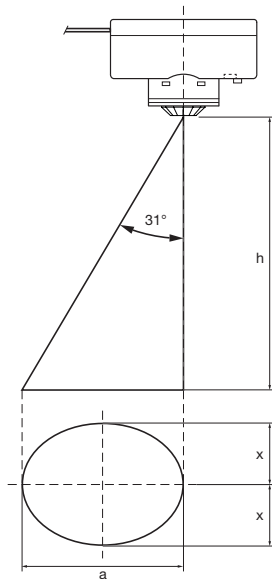


If a second ballast is added by means of a SMART Sensor Extension Cable the control inputs of both ballasts must be connected together (DALI, DSI, switchDIM or corridorFUNCTION).



Light regulation

Precise light measurement via photo diodes.



| h | a | x |
|--------|--------|--------|
| 1.50 m | 0.90 m | 0.22 m |
| 2.00 m | 1.20 m | 0.30 m |
| 2.50 m | 1.50 m | 0.37 m |
| 3.00 m | 1.80 m | 0.45 m |
| 3.50 m | 2.10 m | 0.52 m |
| 4.00 m | 2.40 m | 0.60 m |
| 4.50 m | 2.70 m | 0.67 m |
| 5.00 m | 3.00 m | 0.75 m |

1 m = 1.094 yd

The sensor detection zone is dimensioned so that the entire work area is covered and evaluated, not just a single point.

This ensures that false readings are not made as a result of moving objects across the work surface such as white paper, which would otherwise lead to a sudden change in the brightness level.

The absolute value depends on the luminaire used and the reflectance in the room. The rate at which the dimming value is changed is dynamically linked to the overall lighting level.

The following operating modes can be set for lighting control via the masterCONFIGURATOR configuration software (version 2.02 or higher):

| | |
|----------|---|
| Active | Constant light control is active. |
| Inactive | Constant light control is deactivated. The lighting switches to a defineable value. |

Permanent change of light control set point

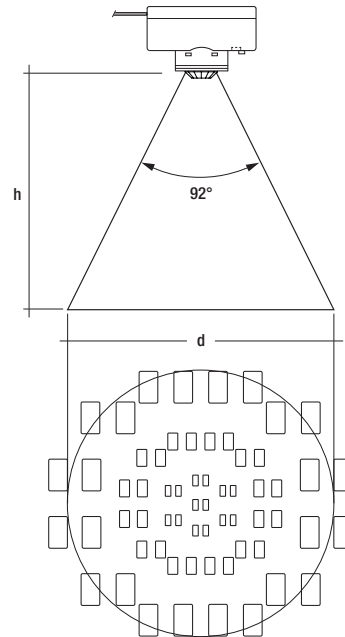
The Up/Down button on the remote control enables the setpoint value to be changed temporarily. Pressing the Set button on the remote control stores the setpoint value permanently. The light source indicates that the value has been stored successfully by flashing twice.

In DALI operation the setpoint can be adjusted also with the masterCONFIGURATOR (version 2.02 or higher). The DALI "RESET" command restores the default value set at the factory.

Bright-out

If the nominal illuminance (e.g. 500 lux) is exceeded by more than 150 % (e.g. 750 lux), the lighting is switched off even if motion is detected. The lighting is switched on again when the measured light value falls below the setpoint. This function can be adjusted via the masterCONFIGURATOR (version 2.02 or higher).

Presence detection



Detection area:
46°
Scope:
2.5 m presence detection
5 m motion detection

| h* | d |
|--------|---------|
| 1.50 m | 3.10 m |
| 2.00 m | 4.10 m |
| 2.50 m | 5.20 m |
| 3.00 m | 6.20 m |
| 3.50 m | 7.20 m |
| 4.00 m | 8.30 m |
| 4.50 m | 9.30 m |
| 5.00 m | 10.40 m |

* The recommended maximum room height for office applications is 3 m and for corridor applications for example 4 m.

Calculation of the diameter:
 $d = 2 \times \tan(0,5 \times \alpha) \times h$

The following operating modes can be set for the motion detector via the masterCONFIGURATOR configuration software (version 2.02 or higher):

| | |
|-----------|---|
| Active | The light is switched on or off automatically depending on whether or not there is a person in the room. |
| Only Off | The motion detector only switches the connected lighting off. The luminaires are switched on manually via the connected external switch or infra-red control. |
| Never Off | If it has not detected any movement the sensor dims to the "Absence value" parameter and remains at this value |
| Inactive | The motion sensor is deactivated. The light must be switched on or off manually. |

Run-on time

The time that starts as soon as the presence of a person is no longer detected. If the presence of a person is detected again during the run-on time the run-on time is restarted from zero. If no presence is detected during the run-on time the fade time is started as soon as the run-on time expires.

Fade time

The time during which the luminous intensity is faded from the presence value to the absence value.

Switch off delay

The time during which the absence value is held before the lighting is switched off. Depending on the profile selected the switch-off delay may have different values or may not be defined.

Absence value

The luminous intensity when there is no person present.

Presence value

The luminous intensity when persons are present.

Dead time "Manual-off"

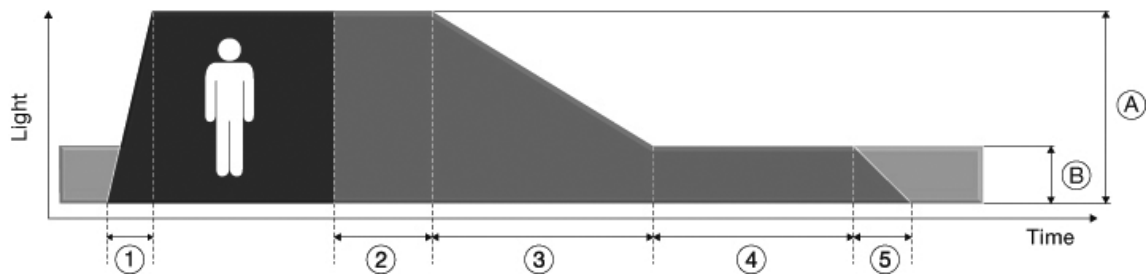
If the system is switched off manually via the switch or IR_SMART Controller the motion sensor is deactivated. At the end of a delay time if motion has not been detected the motion sensor is activated again. If the sensor detects motion during the "Manual-off" delay, the time will be reset to the start.

General settings

| Parameter | Default Values |
|---------------------------|-------------------|
| Motion Detector | enabled, on/off |
| Light Regulation | enabled |
| Setpoint Light Regulation | 500 lx |
| Bright-out timeout | 0 min |
| Bright-out threshold | 150 % |
| Switch On Value | auto (calculated) |

Default Parameter Motion Detector

| Parameter | Default Values | Adjustable range |
|--------------------|----------------------------|-----------------------------|
| 1 Fade-in time | < 0.7 s | – |
| A Presence value | controlled | Absence value to 100 % |
| 2 Run-on time | 20 min | 10 s to 42.4 min |
| 3 Fade time | 32 s | 0 – 90.5 s |
| B Absence value | 10 % | 0 % to presence value |
| 4 Switch-off delay | never off / 1 min / 30 min | 0 s to 42.3 min / never off |
| 5 Fade-off time | < 0.7 s | – |
| Manual-off | 20 min | 3 s to 42.5 min |



IR-SMART Controller

