# SURFACE FLAT SENSOR

**Settings in detail**
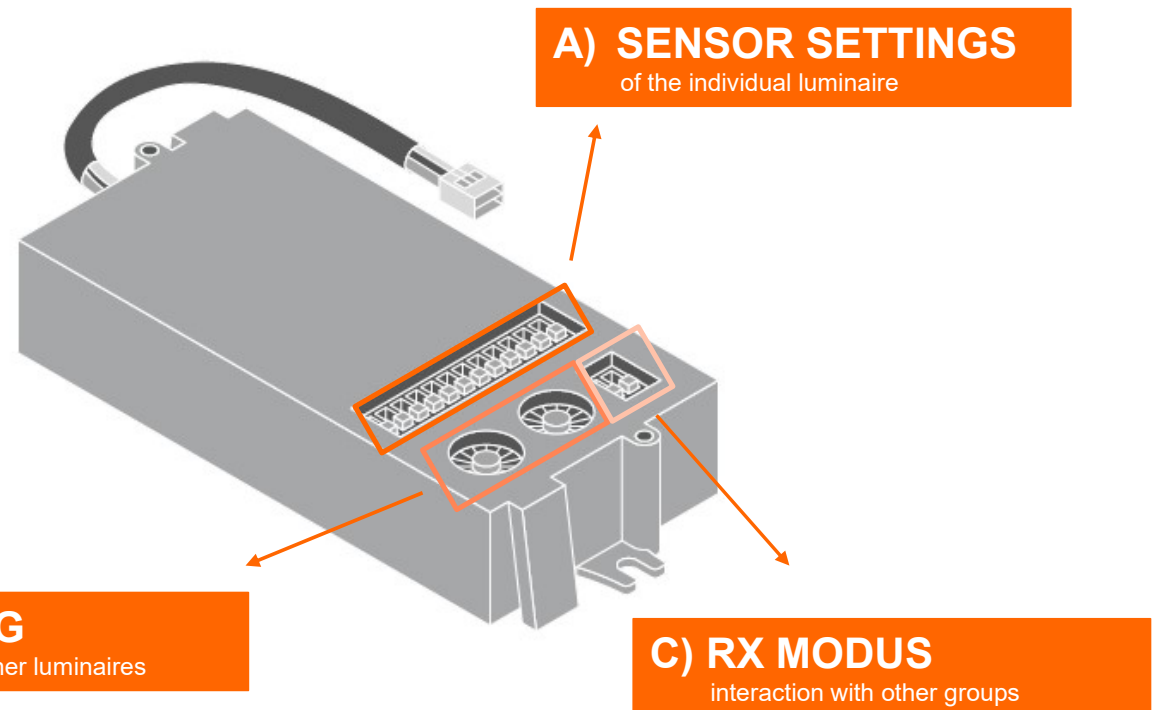
# SURFACE FLAT SENSOR
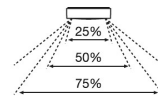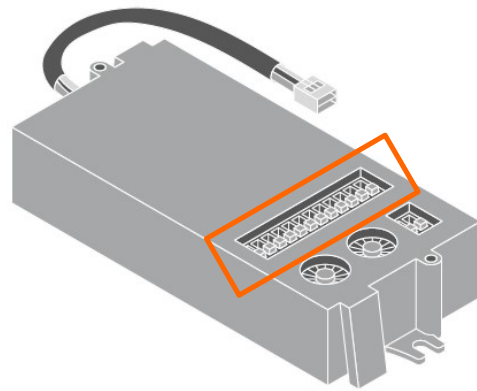# Overview Setting Areas

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| Product Name | GTIN (EAN) |
|---|---|
| SF FLAT RD SEN 330 P 19W CPS | 4099854292699 |
| SF FLAT SQ SEN 330 P 19W CPS | 4099854292712 |
| SF FLAT RD SEN 500 P 27W CPS | 4099854292736 |
| SF FLAT SQ SEN 500 P 27W CPS | 4099854292750 |
| SEN SF FLAT LEADER FOLLOWER | 4099854292897 |

**A) SENSOR SETTINGS**
of the individual luminaire

**B) GROUPING**
interaction with other luminaires

**C) RX MODUS**
interaction with other groups

# A) SENSOR SETTINGS

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**Detection Area**

| 1 | 2 | |
|----|----|------|
| ON | ON | 100% |
| – | ON | 75% |
| ON | – | 50% |
| – | – | 25% |

**Hold Time**

| 3 | 4 | 5 | |
|----|----|----|-------|
| ON | ON | ON | 5s |
| – | ON | ON | 30s |
| ON | – | ON | 1min |
| ON | ON | – | 3min |
| – | ON | – | 10min |
| – | – | ON | 20min |

**Daylight Sensor**

| 6 | 7 | 8 | |
|----|----|----|---------|
| ON | ON | ON | 15 LUX |
| – | ON | ON | 30 LUX |
| ON | – | ON | 50 LUX |
| ON | ON | – | 100 LUX |
| – | ON | – | 150 LUX |
| – | – | – | Disable |

**DIM Period**

| 9 | 10 | 11 | |
|----|----|----|--------|
| ON | ON | ON | 0s |
| – | ON | ON | 30s |
| ON | – | ON | 1min |
| ON | ON | – | 3min |
| – | ON | – | 10min |
| ON | – | – | 30min |
| – | – | – | +∞ |

**DIM Level ***

| 12 | |
|----|------|
| ON | 50% |
| – | 20% |

1 2 3 4 5 6 7 8 9 10 11 12

*preset delivery setting

**Dectecion Area:** High Frequency Sensor / Sensor distance measured in % of maximum detection distance (see schematic next slide)

**Hold Time:** Duration of ON-status of the luminaire after last detection. Restarts after each detection.

**Daylight Sensor:** Measurement of avaialble light, once set lux-level will be undercut the motion sensor is activated. Daylight sensing can be disabled, then only movement will be detected without considerung the lux-level.

**DIM Period:** After the set hold time (100% light) the luminaire will go over into a dimmed mode for the set time (0s/disable is preset). It has several time levels and also can be set to endless. After detection the luminaire goes to 100% light again. After the DIM period the luminaire will go to OFF-status.

**DIM Level:** Setting of Dim Level in % based on 100% light of the luminaire (100% = chosen „lumen select" level of the luminaire). Premise is that a DIM Period setting of more than 0s. Lumen Levels can be found in the SF Flat User instruction.

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# A) SENSOR SETTINGS – DETECTION AREA
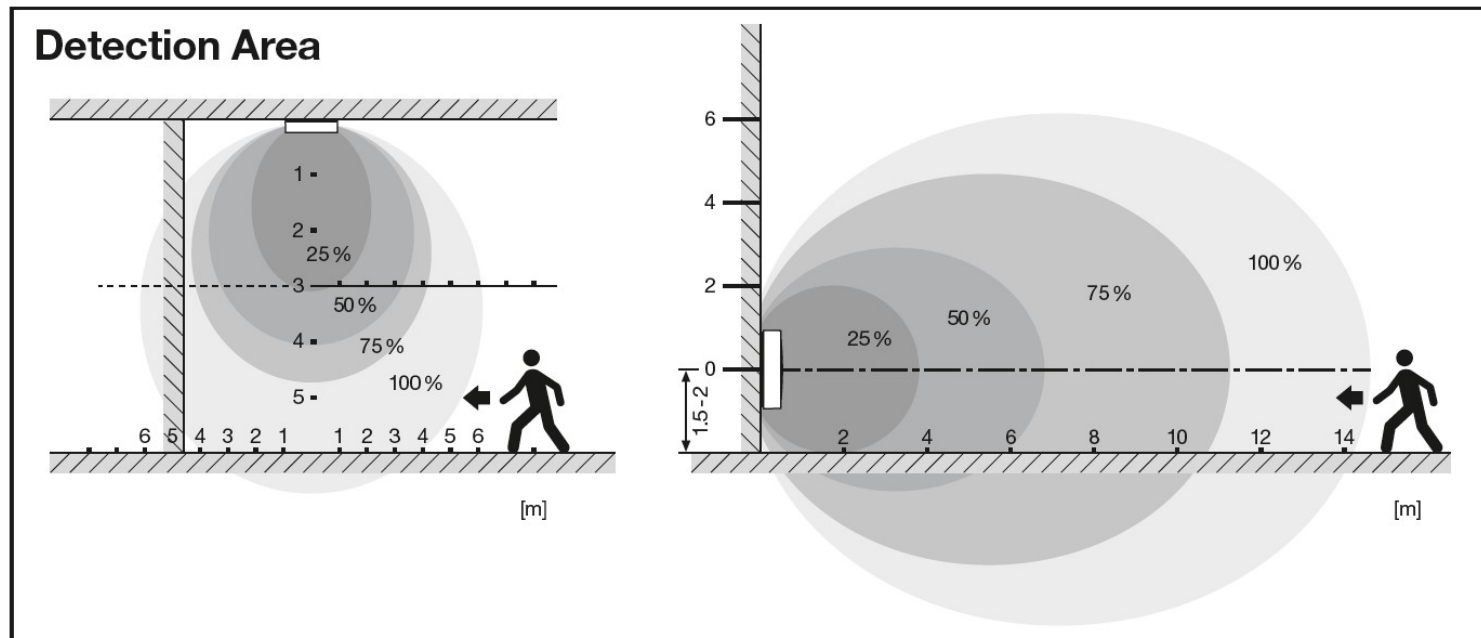


**Detection Area**

Microwave sensors technical wise can detect through thin walls/windows and other materials, therefore the range can be set in several distances to avoid unwished detections. In narrow corridors/rooms choose a rather short detection distance and combine it with the grouping function if possible.

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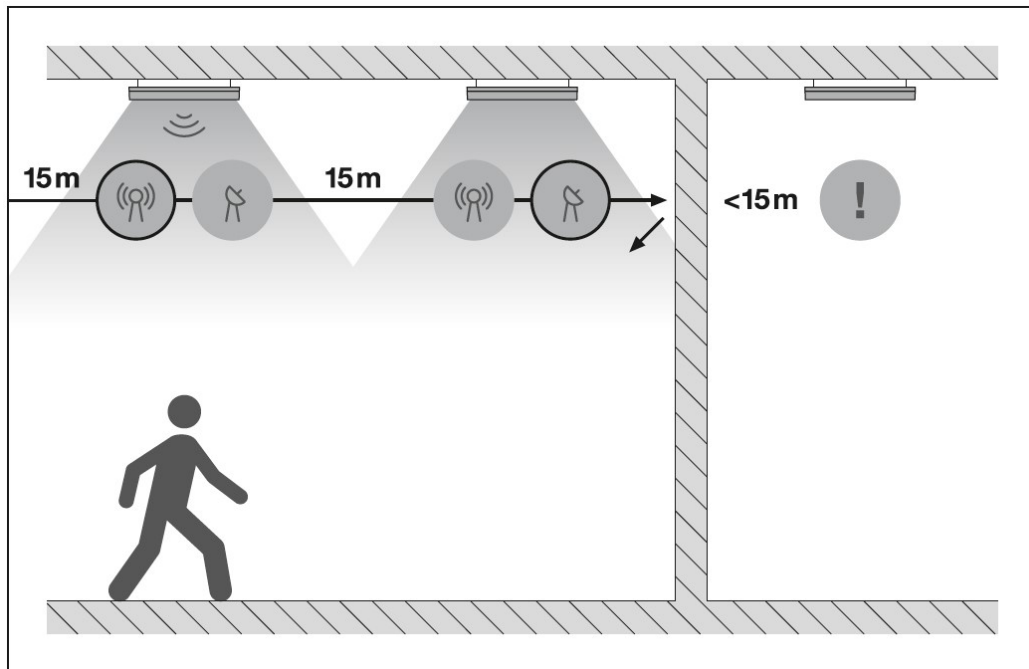
# B) GROUPING



The sensor has a integrated transmitting and receiving module with 2.4G technique (Bluetooth). By selecting same group, individual luminaires can interact.

If movement (setting detection range / lux level) is measured, the individual luminaire will turn on. Once the optional grouping function is enabled, the detecting luminaire will also transmit it's group signal in a radius of 15m.
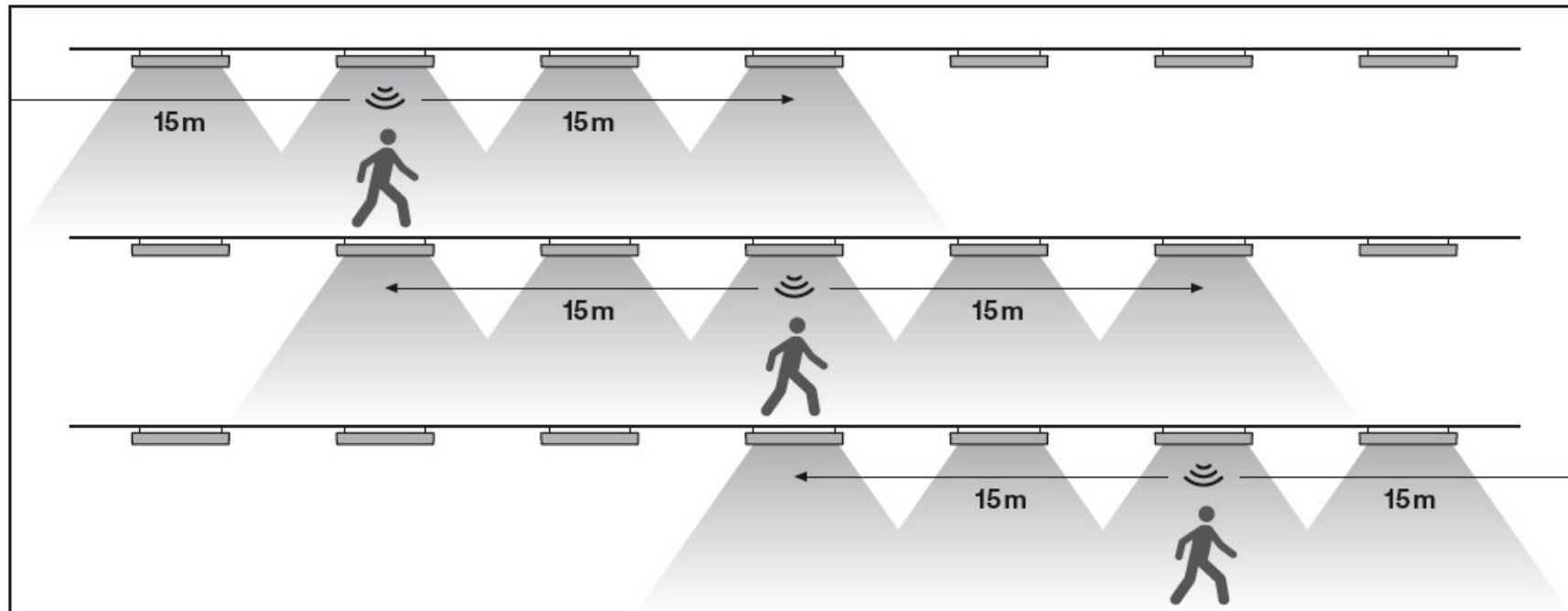
Luminaires of the same group in this distance will turn on as well, but will not send out the signal again. As soon as the next luminaire will detect movement it will send the signal out again (see picture next slide).

When installing SF Flat Sensor luminaires please keep in mind that walls or other barriers can limit the transmitting distance. More close installation layout should be used instead in this case.

Individual sensor settings (see Sensor settings section) won't be transmitted in grouping mode, those need to be individually set on each sensor. To have a homogene acting of the whole group please make sure that those settings are syncronised.

Please note that even if the luminaires are grouped the receiving luminaire still does a lux level check according to it's setting and turns on only it is undercut.

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# B) GROUPING – SHOWCASE APPLICATION



Only the luminaire which detects movement will turn on and send out the group signal in a 15m radius. Luminaires of the same group in signal distance will turn on as well. As soon as the next luminaire will detect movement it will send out the signal as well.
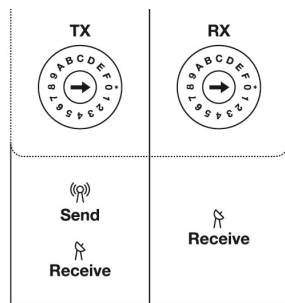
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# B) GROUPING - SETTINGS
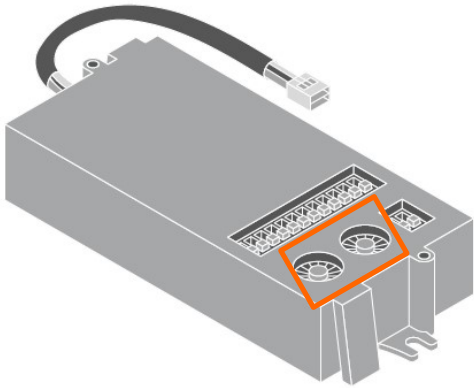


There are two rotary controllers beneath the sensor setting dip switches to select the group:

**TX (left):     Group which will be transmitted / group which will be received (combined)**

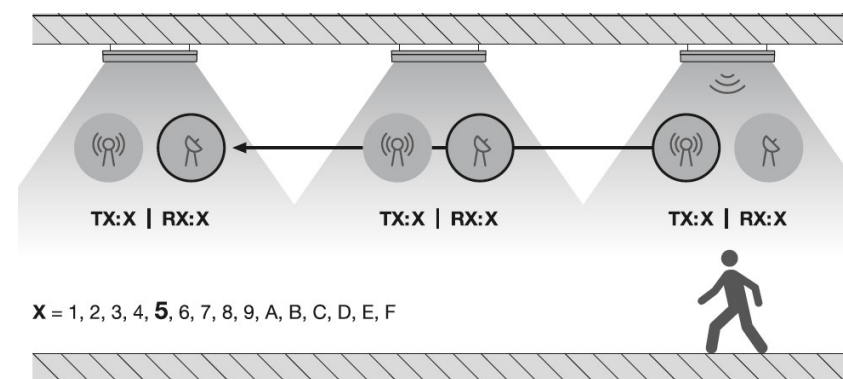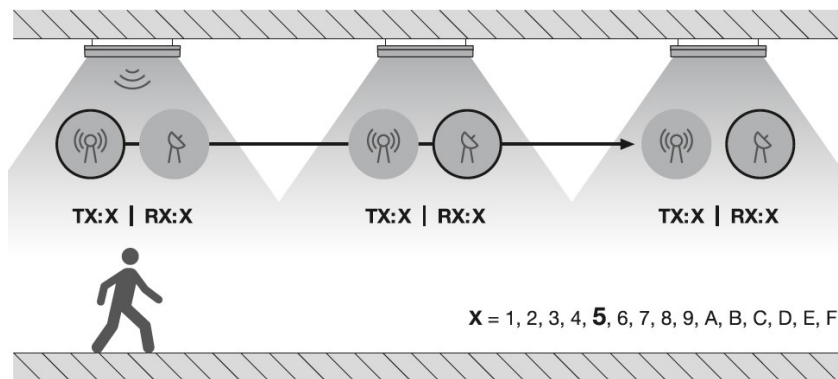**RX (right):  Group which will be received**

Up to 15 groups can be selected (1,2,3,4...9,A,...,F). To create a group same alphanumeric digit (in upcoming slides marked as random group „X") needs to be selected. To select a digit the arrow needs to point at the individual digit.

By creating different groups, areas/rooms can be seperated depending on the need of the indidvidual application usecase and helps limiting energy consumption.

To simplify the setting we recommend to choose same group for TX and RX (exception is the leader follower function which will be explained in one of the next slides)

Choosing „group" 0 means that the function is disabled (Transmitting / Recveiving off) which is the preset delivery status.

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# B) GROUPING – ACTING SHOWCASE



X = 1, 2, 3, 4, **5**, 6, 7, 8, 9, A, B, C, D, E, F

X = 1, 2, 3, 4, **5**, 6, 7, 8, 9, A, B, C, D, E, F

**Group Setting:** All luminaires which should be grouped do have the same group number (X) set on TX and RX, in this case group 5.

**Working process:** Person will be detected by the first luminaire which turns on and sends out the group signal which is set on TX (5). Luminaires which have set the same group in TX or RX will receive the signal within the 15m distance and turn on as well. If next luminaire in walking direction detects movement it will send out the signal as well.

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# B) GROUPING – LEADER FOLLOWER OPTION
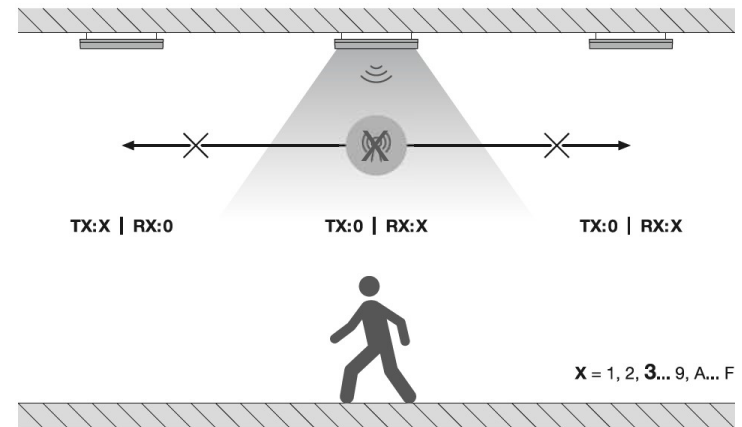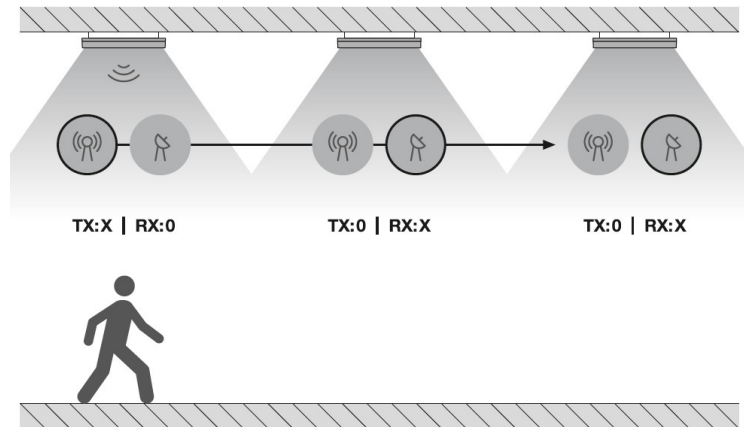


By disabling one of the functions (0 at TX and/or RX) a single sided dependency (Leader / Follower) can be created. The leader luminaire sends (and receives) the group signal, but follower only can receive it. Still follower luminaires will turn on once they detect movement by themselves but don't send out any group signal.

**Group setting:** First luminaire will be defined as the leader (TX:3 in this case). Only this luminaire sends out the group signal, other luminaires can only receive the signal (RX: 3) but not send it once they detect movement (TX: 0 = disable)

**Working process:** Left picture: First luminaire detects movement, turns on and sends out the signal (Leader). Other luminaires will turn as well. Right picture: In the other walking direction the Follower luminaires will turn on when detecting but not send out the signal.

# C) RX MODE
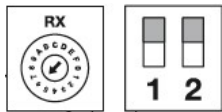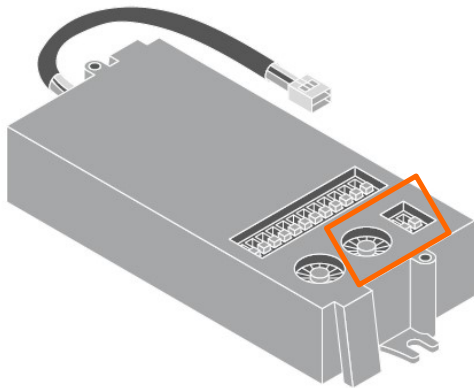
There are two more dip switches next to the RX rotary controller where the RX mode can be set.

**General description of the „RX mode":**

**In combination with the set receiving group (RX X) it can be defined if also the alphanumeric next group (RX X +1) and/or the group before (RX X -1) can be received. For example if with set RX 5 the luminaire should also turn on when group 6 and 4 will be received.**

**RX: X (without RX Mode)**

**RX** = 1, 2, 3, 4, 5, 6, 7, 8, 9, A, B, C, D, E, F

**RX: X / RX: X-1 / RX: X+1**

**RX** = 1, 2, 3, 4, 5, 6, 7, 8, 9, A, B, C, D, E, F

The idea behind is that the moving person is always surrounded by light and does not need to walk in dark areas waiting until the next groups luminaire detects movement. This is anyway given within one defined group, but with the       RX mode it also interacts with luminaires outside of the same group.

Premise is that the groups will be selected in the same sequence they are located next to each other on the rotary RX controller. This mode is beneficial in areas where many groups need to be set and should interact, for example staircases.

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# C) RX MODE - SETTINGS

**The RX mode dip switches allow 4 options to select:**

| | | | |
|---|---|---|---|
| **OFF / OFF** | **RX X** | **Only set group (RX) can be received (RX-Mode off / preset)** | **group 5** |
| ON / OFF | RX X / RX X -1 | additionally to set group also the group before can be received | group 5 und 4 |
| OFF / ON | RX X / RX X +1 | additionally to set group also the group after can be received | group 5 und 6 |
| **ON / ON** | **RX X / RX X +1 und -1** | **additionally to set group also the group before and after can be received** | **group 5, 4 and 6** |

**According to the Surface Flat standard applications main settings are OFF / OFF and ON / ON. The optional in-between settings are to fine-tune specific application needs.**

In below table you can find an exemplary comparison of the 4 RX mode options in a 15 floor building, having a luminaire istalled on each floor and showcase on what groups signal (TX) they would act when received. Each luminaire has set the TX/RX group of its floor, RX mode is set to all luminaires according to the shown options column..

| Floor TX / RX | RX Mode / Receive from | | | |
|---|---|---|---|---|
| | Regular | | Optional | |
| | OFF \| OFF | ON \| ON | OFF \| ON | ON \| OFF |
| 1 | 1 | 1 \| 2 | 1 \| 2 | 1 |
| 2 | 2 | 1 \| 2 \| 3 | 2 \| 3 | 1 \| 2 |
| 3 | 3 | 2 \| 3 \| 4 | 3 \| 4 | 2 \| 3 |
| 4 | 4 | 3 \| 4 \| 5 | 4 \| 5 | 3 \| 4 |
| 5 | 5 | 4 \| 5 \| 6 | 5 \| 6 | 4 \| 5 |
| 6 | 6 | 5 \| 6 \| 7 | 6 \| 7 | 5 \| 6 |
| ... | ... | ... | ... | ... |
| 10 (A) | A | 9 \| A \| B | A \| B | 9 \| A |
| ... | ... | ... | ... | ... |
| 15 (F) | F | E \| F | F | E \| F |
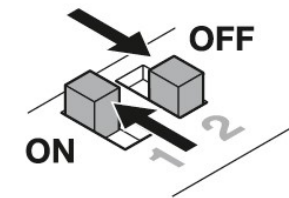


**Note:** The sequence of groups is linear according to the position on the rotary conroller. Setting 0 is the deactivation and no group. This results in limitations of group 1 and F as those either have no group before or after, see consequences correspondingly in the table.

# C) RX MODE - ACTING SHOWCASE
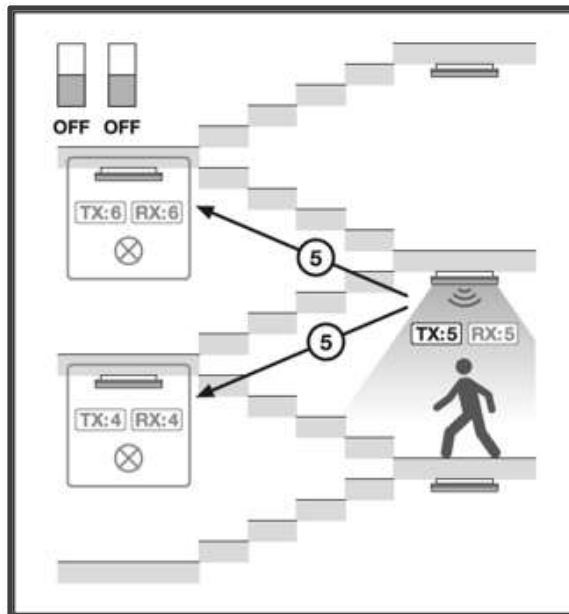


Setting the RX Mode to OFF/OFF will result in that the luminaire will only act according to it's set group on RX. In above scenario luminaires with set group 4 / 6 will not turn on as group 5 signal was sent out.
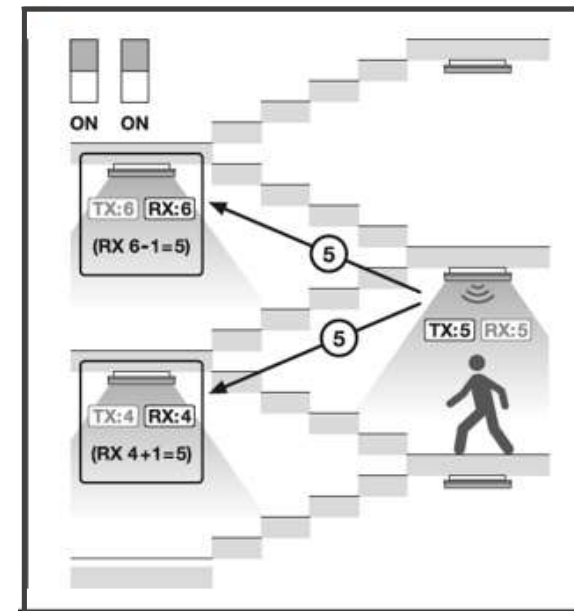
Setting RX mode to ON/ON means that the luminaire will act on it's set group as well as on the group before and after. In above scenario the luminaires with set group 4 / 6 will turn on as well when group 5 signal was sent out.

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# C) RX MODE – SHOWCASE STAIRCASE APPLICATION
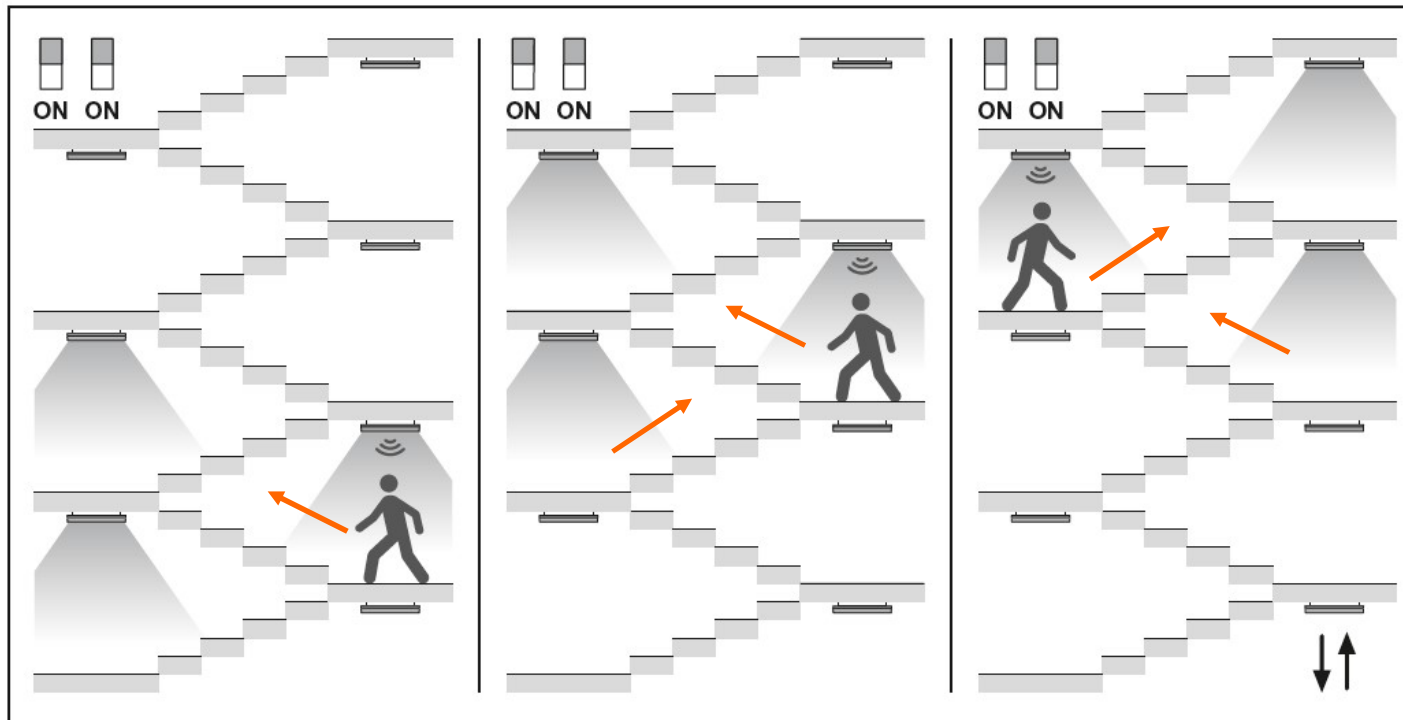


Setting the RX mode to ON/ON allows that the luminaire ahead to the person are lighting up as well (swarm function).The benefit of this method compared to only using one group for the whole staircase is that the end users comfort is the same but more energy can be saved instead.

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# TROUBLE SHOOTING

**If luminaires will not be triggered when grouped, please consider following:**

➢ Check light planning according to transmission distance limitations and add luminaires to reduce distances

➢ Try to group luminaires within same unblocked areas (rooms). If interaction should be done throughout rooms/walls/windows/doors/corridor corners and other barriers please test sensor functionality before final installation and rather use shorter distances

➢ Check TX / RX setting as the distances on the rotary wheel between groups are rather small or try a different group

➢ Check if luminaires work in another area, maybe signal gets interfered by another devices signal. Try to place the intefering device in another location.

➢ Green blinking light appears if sensor is in work (visible on the sensor when luminaire is open). If not check if connectors (between cables and the frontend) which are connected to the driver are plugged in correctly.

➢ Switch sensor with another sensor to identify if the sensor is broken and exchange with a new one if necessary.

➢ If luminaires work not simultaniously please also check the individual sensor settings like hold times / dim periods if it is set the same way, or RX mode is set and it interacts with another group. Please also note that the individual set lx level overrules the grouping signal.

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# DISCLAIMER

**Please note:**

• For further informations please refer to the user instruction, data sheet and guarantee conditions which also can be found in the dowonload section of this product on www.ledvance.com
• Installing and setting of the luminaire / sensor requires to be done by a professional electrician
• Turn off mains before mounting / wiring and do settings on the luminaire / installed sensor
• Shown products are ment to be operated only in the manufacturers realeased way
• Subject to change without notice
• Errors and omissions expected
• Always make sure to use the most recent release

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