User manual

document version 2.0

for DALImiw30 since versions: firmware 1.6 and hardware 4.0

DALImiw30

	Microwave sensor up to 2,6 meters height
	Illuminance sensor
	Regulation to constant level
	Range 0-1000 lx
	Powered from DALI bus or 230V
	Can power DALI bus

Technical specification

Bus	DALI	
Number of regulated groups	1	
Power supply from DALI bus (connected ~230V)	1	mA
Power supply from DALI bus (without ~230V)	15	mA
Maximal wires cross section	2,5	mm^2
Ingress protection	IP20	
Ambient working temperature	5 ÷ 50	°C
Storage temperature	-10 ÷ 50	°C
Weight	100	g

Function

DALImiw30 is microwave combined motion and illumination sensor. It can regulate one group of lights on the DALI bus. This group is controlled directly by DALImiw30 – no other master is required. Based on movement the lights can be regulated to various lux levels.

Addressing and setup is done by software DALIconfig, which is downloadable for free on the web of manufacturer.
Start or stop of the regulation or setting the desired illuminance level is done by standard DALI messages from any DALI controller.
Control of the DALImiw30 is done by commands to regulated light group or to address of the sensor or to broadcast. Regulated group of lights is the same as the group in which the sensor is located. If the sensor is in no group all the lights on DALI bus are being regulated (broadcast).

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Control of DALImiw30 is done by standard DALI messages. Their meaning for DALImiw30 is shown in following table:

DALI command	Meaning to illuminance sensor DALImiw30
Direct arc power control, Off, Up, Down, Step up, Step down, Recall max level, Recall min level, Step down and off, On and step up	Stop of the regulation
GoToScene 0 – 15	Function is dependent on the setting Light sensor → Advanced settitng → Set response to scene recall **Automatic** – Start of the regulation **OFF** – stop of the regulation, regulated lights are switched off **Actual-auto** – Start of the regulation. Current illuminance level is set as desired level. **MASK** – no function (stop of the regulation)
STORE DTR AS MIN LEVEL	Set of the desired illuminance level[1]
QUERY MIN LEVEL	Read of the desired illuminance level [1]
QUERY ACTUAL LEVEL	Actual illuminance level [1] Illuminance range is 0-1000lx.

[1] Data format is stated in the following table.

Illuminance data format

Data - 1byte (binary notation)	Illuminance level [lx]
0000xxxx	0 – 15lx (step 1lx)
0001xxxx	16 – 46lx (step 2lx)
0010xxxx	48 – 108lx (step 4lx)
0011xxxx	112 – 232lx (step 8lx)
0100xxxx	240 – 480lx (step 16lx)
0101xxxx	496 – 976lx (step 32lx)
0110xxxx	1008 – 1968lx (step 64lx)

Illuminance level is set and read as an 8bit number in format

0	E	E	E	M	M	M	M

And its value is given according to the relation $2^{4+E} - 16 + 2^E * M$

Example
65 = 0x41 = 01000001b ~ 256lx
50 = 0x32 = 00110010b ~ 128lx

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luminance sensor

DALImiw30 allows direct control of luminaires to a constant level of illumination.If the motion sensor is also on, it is possible to set various illumination values for the presence and absence value. The light sensor can be deactivated and the motion sensor will light the luminaire to a constant preset value instead of the ambient light control. The illumination sensor measures 0-1000lx.

Configuration

|	
Ambient light control	Turn on the ambient light control. In the case that ambient light control is off, the luminaires are switched to the preset constant level. (Presence/Absence value)
Desired level	Desired level in the case of presence mode. Possible setup range is 5-1000lx.
Desired level in absence mode	Desired level in the case of absence mode. Possible setup range is 5-1000lx. Value 0 lx means that it will be dimmed to absolute Absence value.
Control speed	Regulation speed. The most common setting is 3. Lower values mean faster regulation, higher values mean slower regulation.
Switch-on level	First value send at the beginning of the regulation. **Minimum level** sends the command Recall min level **Maximum level** sends the command Recall max level **Calculated** will compute the value dependent on the surrounding illuminance. **Flying** – flying start
Enable dimming off	If there is enough illuminance, it allows luminaires to switch off. If this function is disabled luminaires remain at a minimum level.
Treshold (Enable dimming off)	Percent excess light to activate the function „Enable dimming off". Example: 150% means 50% excess.
Delay time (Enable dimming off)	Time which must be excess illuminance before the ligts are switched off.
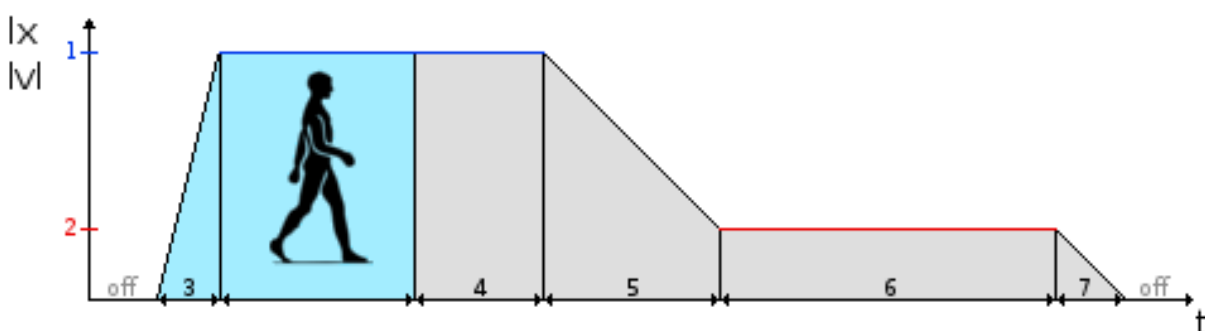
Motion sensor

The motion sensor serves for automatically dimming/switching off the lights dependent on the presence/absence of people in detected area. Luminaires can be light up to a defined value or they can be controlled by a light sensor.

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Operating mode	**Enable** – Motion detection is on. When movement lights are turned on, in absence lights are dimmed or switched off. **Enable (only off)** – Lights must be turned on manually, if absence lights are dimmed or switched off and must be switched on manually again. **Disable** – Motion detection is off.
Power on behaviour	Possibility to send command when the power supply is connected to DALImiw30. **No action** – Power on function is off. **Maximum level** – Command Recall Max Level is sent **Off** – Off command is sent
1: Presence value	Absolute level at which are luminaires switched on in presence mode. Setting range is 0-100%. In the case of ambient light control is this parameter not used.
2: Absence value	Absolute level at which are luminaires dimmed in the case of absence. Setting range is 0-100%. In the case of ambient light control is this parameter not used.
3: Fade time (on)	Dimming speed to „1: Presence value"
4: Run-on time	The time without any movement, after which is activated absence mode.
5: fade time (to absence)	Dimming speed to „2: Absence value"
6: Switch-off delay	Absence time, after which are luminaires dimmed or switched off. If the function "never off" is activated luminaires remain on level „2: Absence value".
7: fade time (to off)	Dimming speed to off „6: Switch-off delay".
Dead time (manual off)	The time after manual "OFF" in which is the sensor inactive.
Sensitivity	Sensitivity of the sensor to movement. Setting range 0-250. Lower number means higher sensitivity. For values lower than 70 there might be problems with false movement detections.
LED function	**Auto** – Light signalization in the sensor is on when detecting movement. When ambient light control is on the signalization is off. **Off** – Light signalization is off. **On** – Light signalization is on.
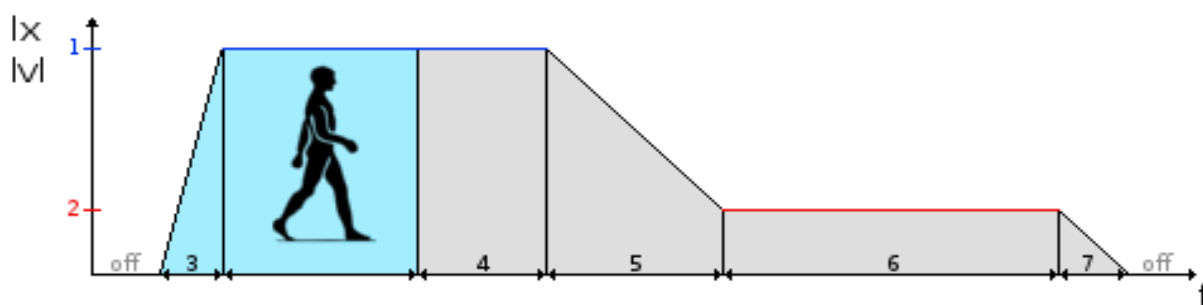
Dead time – Time after manual "OFF" (for example from a push button) in which the sensor does not react on any movement. It allows to leave a room without switching luminaires on.

Terminals connection

Terminal designation	description
DA	DALI bus, two interchangeable conductors
OUT+ / OUT-	Output for DALI bus power
N	Neutral
L	Live
Lex	Input from external sensor (live)

Power supply

DALIpir20 has optional power of a DALI bus. DALI bus power is on the terminals OUT+ and OUT-. If there is a need to power DALI bus from DALIpir20 it is necessary to connect one DA terminal with OUT+ terminal and the other DA terminal with OUT- terminal. DA terminals are interchangeable. Power supply of DALI bus can provide current up to 50mA which allows to power up to 25 DALI ballasts. For this function the DALIpir20 must be powered from ~230V. If the DALI bus is powered by any other supply, terminals OUT+ and OUT- are not connected.

External input

Lex is external input to which can be external sensor connected (which is not connected to DALI bus). Using those external sensors the detection range of DALImiw30 can be extended.
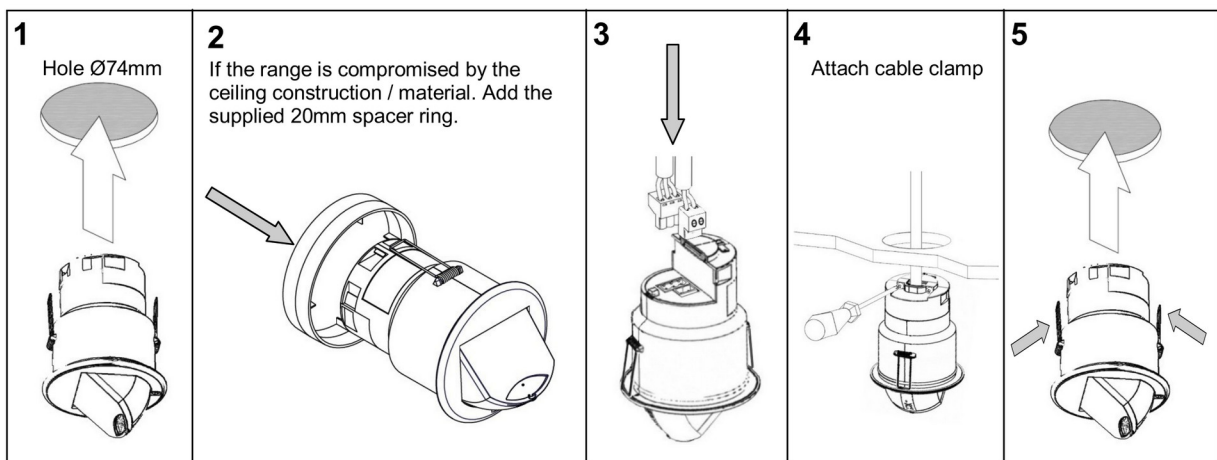
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Installation

Sensor DALImiw30 has two basic installation possibilities:
1) Cavity ceiling installation
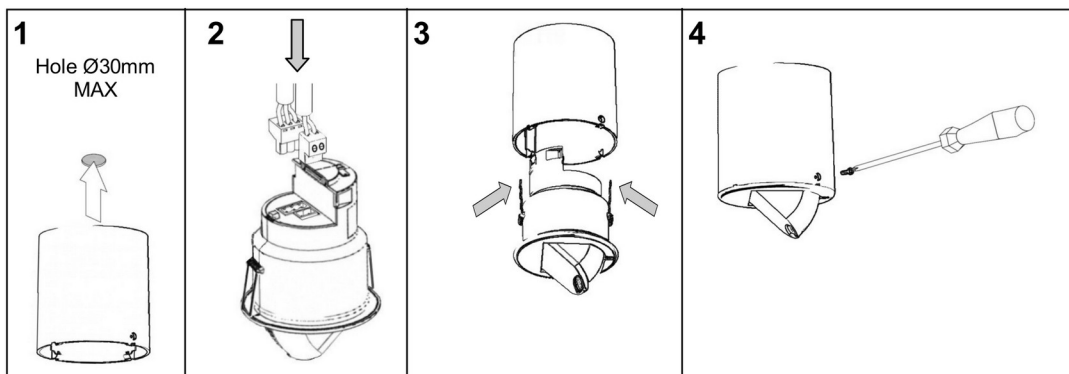2) Surface installation using special mounting kit

It is necessary to choose sensor position with respect to following conditions:
- No light source (controlled / not controlled by sensor) should point directly to sensor
- Sensed area should not point towards the windows
- In sensed area should not be any shiny objects which reflection affects the sensor
- In case of installation multiple sensors in one room their sensed area should not overlap
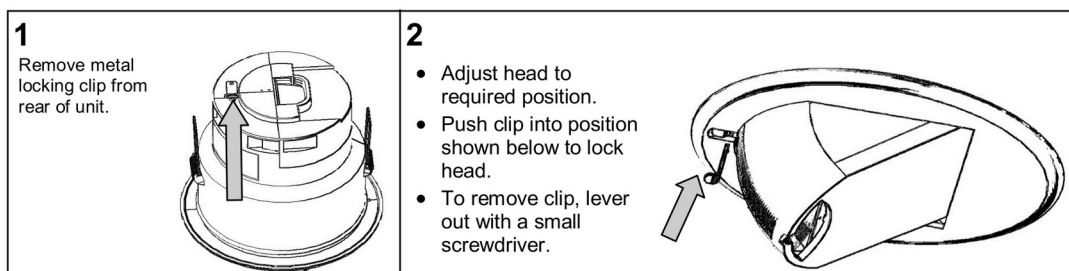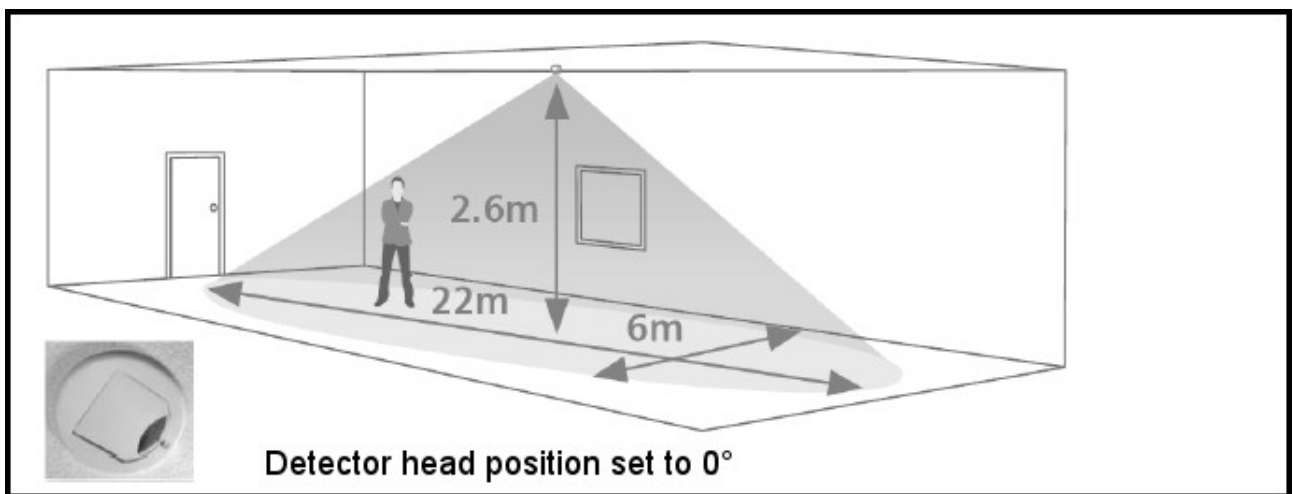- Maximal mounting height is 2.6 meters

Flush fixing

1 Hole Ø74mm

2 If the range is compromised by the ceiling construction / material. Add the supplied 20mm spacer ring.

3

4 Attach cable clamp

5

Surface fixing

1 Hole Ø30mm MAX

2

3

4

Head locking

1 Remove metal locking clip from rear of unit.

2
- Adjust head to required position.
- Push clip into position shown below to lock head.
- To remove clip, lever out with a small screwdriver.

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Detection diagrams

2.6m

6m

30m

Detector head position set to 80°

2.6m

22m

6m

Detector head position set to 0°

Dimensions [mm]

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