Controls & Sensors

basicDIM DGC

Manual

TRIDONIC

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Scope of documentation

1. Scope of documentation

These operating instructions are valid for the basicDIM DGC.

NOTICE

The basicDIM DGC is configured in the masterCONFIGURATOR software (V2.12. or later) and basicDIM DGC Programmer (see Reference list, p. 49).

TRIDONIC GmbH & Co KG is constantly striving to develop all its products. This means that there may be changes in form, equipment and technology.
Claims cannot therefore be made on the basis of information, diagrams or descriptions in these instructions.

The latest version of these operating instructions is available on our home page.

1.1. Copyright

We are always open to comments, corrections and requests. Please send them to info@tridonic.com.

1.2. Imprint

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2. Safety instructions

The instructions in this section have been compiled to ensure that operators and users of the basicDIM DGC from Tridonic are able to detect potential risks in good time and take the necessary preventative measures.
The operator must ensure that all users fully understand these instructions and adhere to them. This device may only be installed and configured by suitably qualified personnel.

2.1. Intended use

2.1.1. Proper use

Control module for the operation of DALI/DSI compatible luminaires. The device may only be used for this intended purpose.

2.1.2. Improper use

Outdoor use. Extensions and modifications to the product.

⚠ WARNING!

Improper use could result in injury, malfunction or damage to property.
It must be ensured that the operator informs every user of existing hazards.

2.2. Dangers associated with the operation of the system

⚠ DANGER!

Danger of electrocution
Disconnect the power to the entire lighting system before working on the lighting system!

⚠ CAUTION!

Risk of damage caused by condensation
Prior to commissioning the system, wait until the control device is at room temperature and completely dry!

⚠ CAUTION!

Risk of damage caused by humidity
Only use the control device in dry rooms and protect it against humidity!

Version history

CAUTION!

Electromagnetic compatibility (EMC)
Although the Tridonic control device meets the stringent requirements of the appropriate directives and standards on electromagnetic compatibility, it could potentially interfere with other devices under certain circumstances!

3. Version history

3.1. Changes from version 1.0 to 1.2

NOTICE

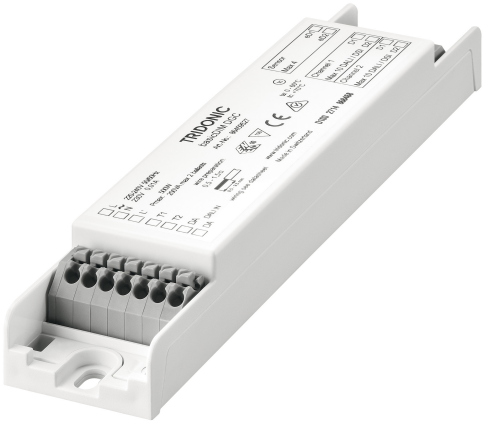
Please note:
It is not possible to update a basicDIM DGC with an old software to a newer version.

The software update from version 1.0 to version 1.2 brings the following changes and improvements:

- Dead time and run-on time are no longer restarted if a scene is called for the appropriate output channel or relay with MASK.
- A DALI OFF command on the DALI IN interface forces the relay to switch off if the operating mode of the relay channel is configured to relay output.
- Output channel 2 automatically detects if control gear or other basicDIM DGCs are connected and switches to the appropriate operation mode.
- The wrong behavior in the form of flashing in the transition from presence to absence value has been fixed.
- Neighbourhood function also works now if bright-out is disabled.
- The fade rate of the basicDIM DGC now has a fixed value of 8. In the old software version it was possible to program a different fade rate without affecting the dimming behaviour. In the new version, the basicDIM DGC will not accept a fade rate change anymore.
- The dimming of basicDIM DGC and control gear on the same DALI line with a fade rate set to 8 on the control gear is now very similar.

Product description

4. Product description



4.1. General information

The basicDIM DGC is a digital controller in the basicDIM product range that can be used to control the control gear of a DALI group collectively.

The basicDIM DGC provides the basis for an easy-to-use and cost-effective lighting system with motion detection. When the sensor detects movement it triggers an individually adjusted table 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.

The DALI IN interface allows integration of the basicDIM DGC module also into a comfortDIM system.

The basicDIM DGC module has 5 preprogrammed profiles which can be selected using the basicDIM DGC Programmer. The profiles can be adjusted to your application via the masterCONFIGURATOR (V2.12 or later) software (see Reference list, p. 49).

If the basicDIM DGC module is used in the basic application, the CH2 can be used as control channel for controlling subordinate basicDIM DGC modules (basic connection), so that the controlling and the subordinate basicDIM DGC modules can be programmed and allocated to groups using the masterCONFIGURATOR software. Every single basicDIM DGC module can be allocated to only one group and respond to the presence of up to five groups. For more detailed information please refer to the masterCONFIGURATOR documentation (see Reference list, p. 49).

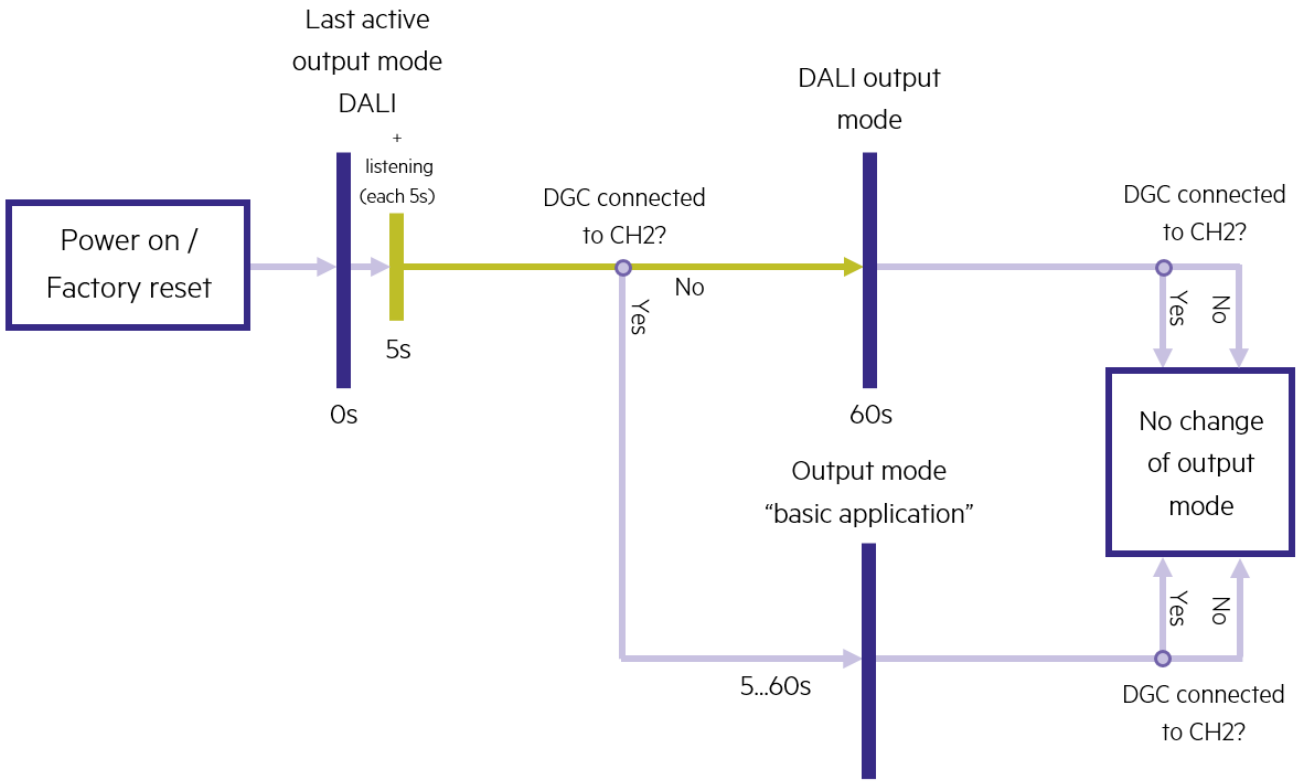
Product description

NOTICE

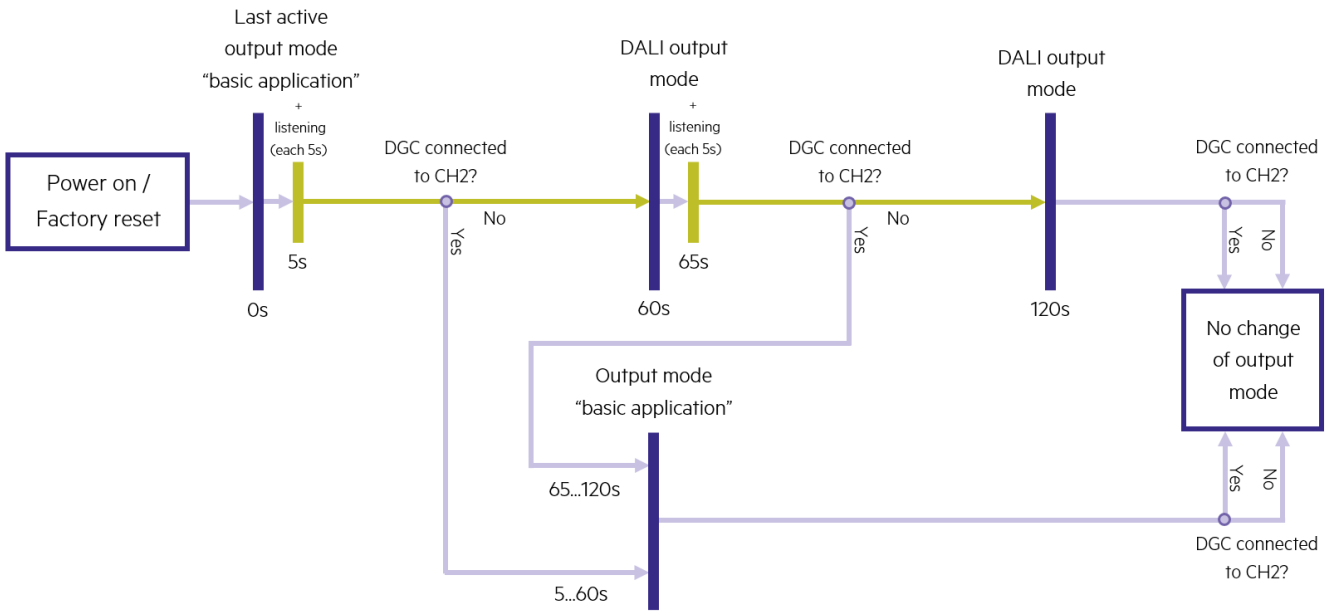
The following descriptions and images ONLY apply to the firmware version 1.2 of the basicDIM DGC:
If controlling and subordinate basicDIM DGCs are connected to different fuses / power sources, there is a risk that the controlling basicDIM DGC does not recognize the subordinate basicDIM DGC modules anymore.
This is the case, if the subordinate basicDIM DGCs are powered on more than one or two minutes (depending on the last active output mode) after the controlling basicDIM DGC.
To avoid this behaviour (i.e. after a maintenance), it is recommended to always connect all basicDIM DGCs of an installation to the same fuse.
The power on behaviour of the controlling basicDIM DGC, which depends on the different output modes, is illustrated in the following graphs.

Product description

Flow chart when last active output mode was "DALI":



Flow chart when last active output mode was "basic application":



Product description

4.2. Main applications

The DALI basicDIM DGC is designed for the following principal applications:

_ Individual offices

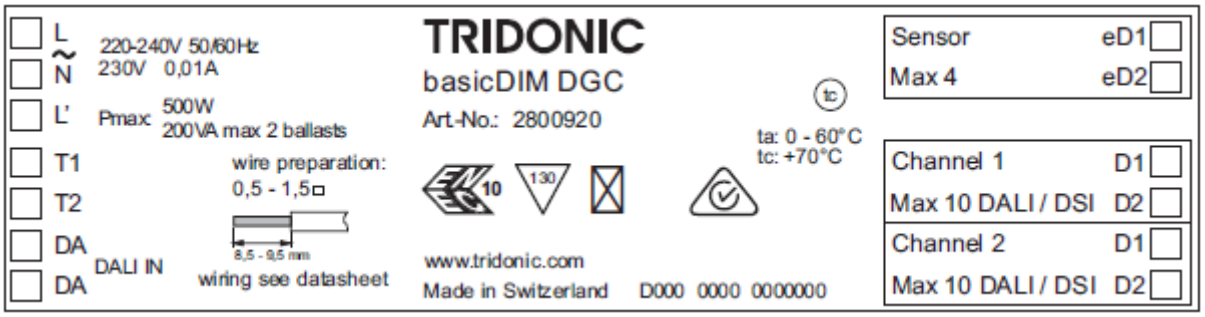
_ Open-plan offices

_ Training/presentation rooms

_ Corridors, passage ways and garages

The basicDIM DGC either controls all the units on the DALI circuit or a DALI group. The basicDIM DGC is Multi-master compatible, i.e. it can be used in conjunction with other DALI controllers in the comfortDIM product range. This allows the basicDIM DGC to be addressed and grouped in the same way as DALI control gear and makes it easy to configure the system. The basicDIM DGC is configured in the masterCONFIGURATOR software (V2.12 or later) or with the basicDIM DGC Programmer (see Reference list, p. 49).

4.3. Hardware / Connections / Specifications



_ Supply: 230 V AC 50/60 Hz

_ 1 relay output L' (max. 500W/200VA)

_ Terminals T1, T2 for the connection of two local 230 V keys

_ DALI IN input

_ Sensor connection for up to 4 basicDIM DGC sensors

_ For up to 20 DSI or DALI ballasts (max. 10 per output channel)

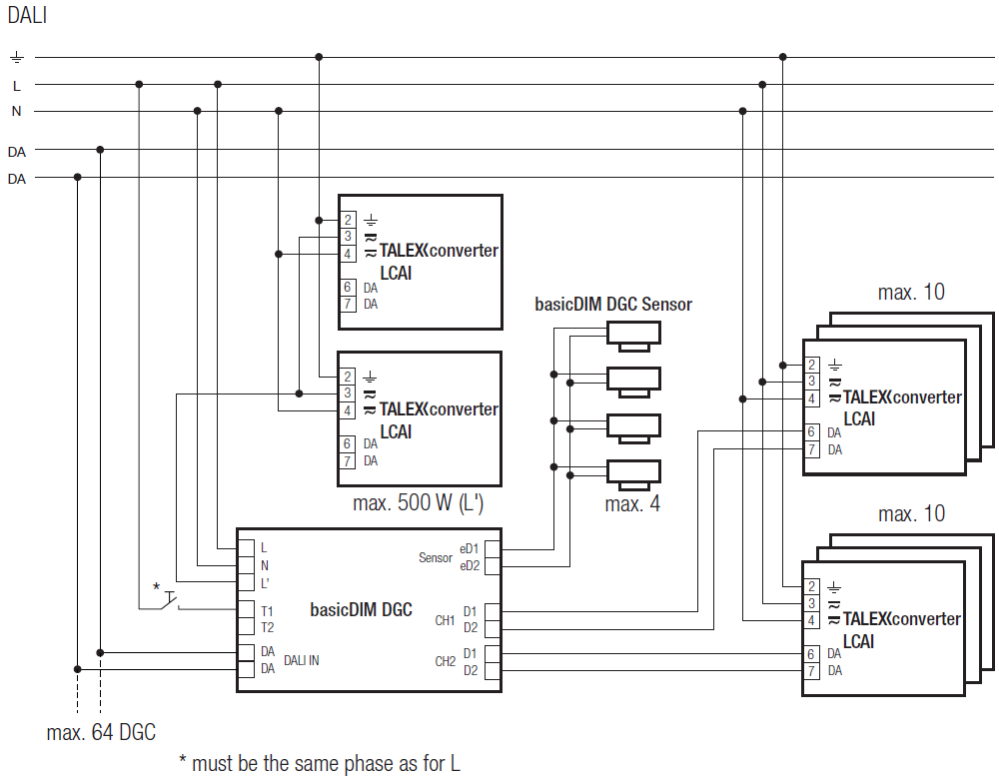
Installation

4.4. System description

The DALI basicDIM DGC can be used as a single unit or in combination with basicDIM DGC 5DPI_14 sensors:

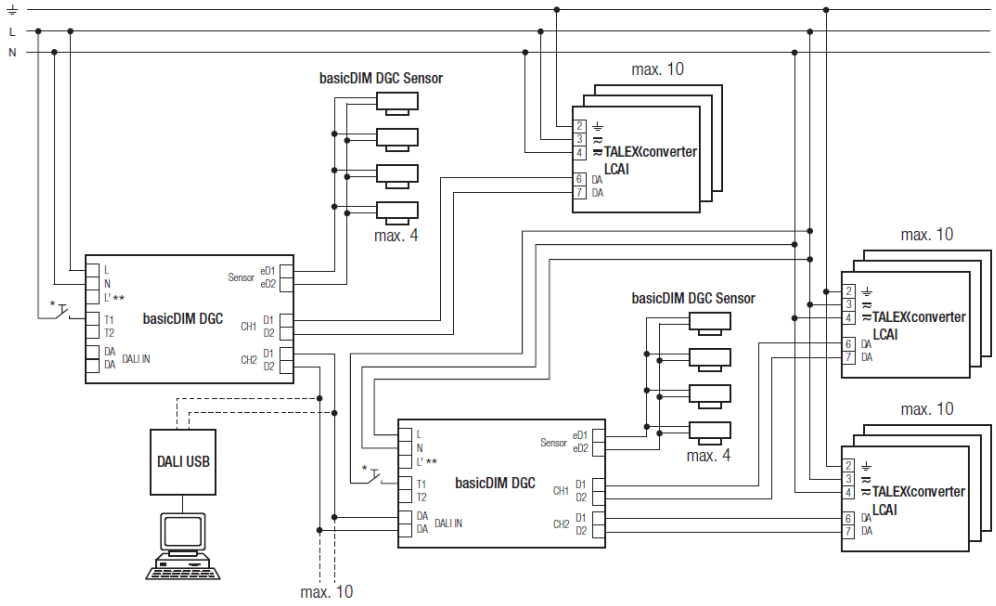
Digital controller	+	Sensor	/	Sensor	+	Remote control	/	Remote control
								
DALI basicDIM DGC		basicDIM DGC Sensor 5DPI 14f inbuilt		basicDIM DGC Sensor 5DPI 14 rc remote		basicDIM DGC Programmer		REMOTE-CONTROL IR6
(28000920)		(28000933)		(28000934)		(28000646)		(28000647)

5. Installation



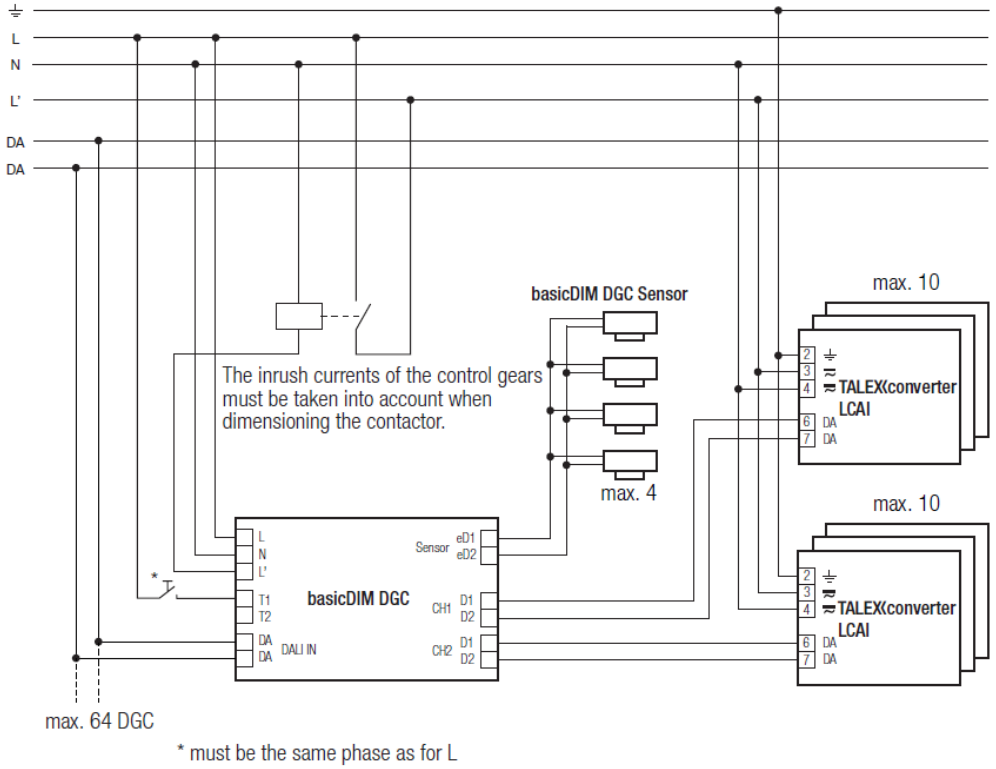
Installation

basic



* must to be the same phase as for L
** can be connect with loads up to 500 W, as shown in the wiring for DALI

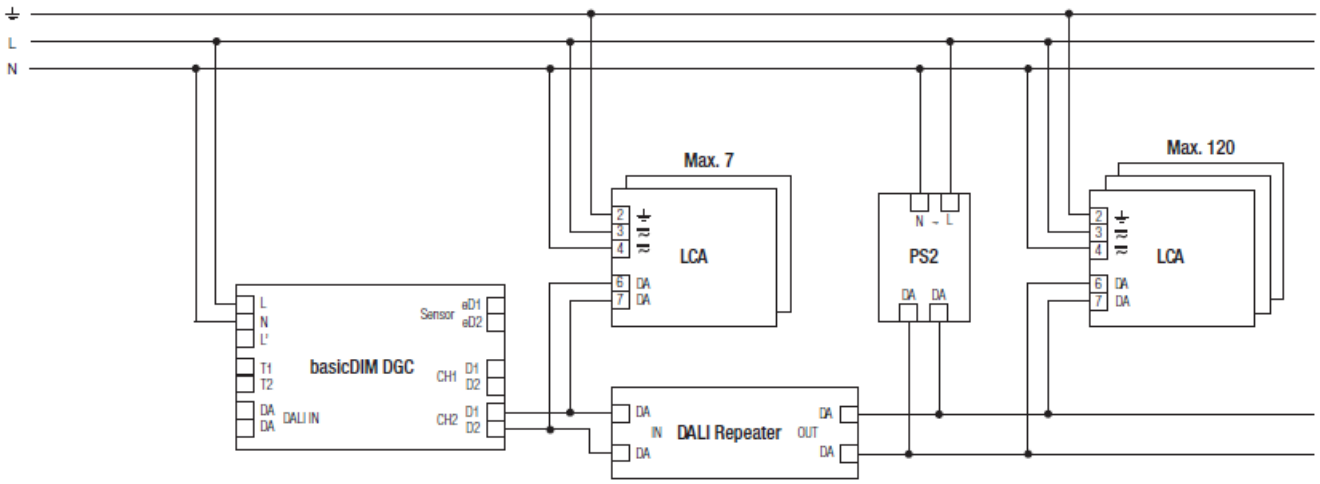
Relais in standby



* must be the same phase as for L

Wiring diagram basicDIM DGC with DALI PS1(2):

Installation



Use only in combination with DALI Repeater (86458401) and one of the following DALI supplies:

_ DALI PS1 (24034323), 200 mA, max. 100 additional devices

_ DALI PS2 (28000876), 240 mA, max. 120 additional devices

_ DALI PS3 (87500873), 70 mA, max. 35 additional devices

This combination can be used on CH1 and CH2.

NOTICE

Installation:

_ DSI/DALI is not SELV. The installation instructions for mains voltage therefore apply.

_ The maximum cable length between the external switch and basicDIM DGC is 100 m.

_ The maximum cable length between the sensor and basicDIM DGC is 10 m.

_ A synchronous operation of DALI and DSI ballasts at the same control gear is not possible.

_ The output channels (for a cable cross-section of 1.5 m^2) must not exceed 100 m.

_ If CH2 is used as link line, the maximum cable length must not exceed 100 m (at 1.5 mm^2).

_ Any number of push to make switches may be connected in parallel to the inputs.

_ Do not connect standard switches to the input.

_ Please ensure that the detection range of the sensor lies in the lighting area of the controlled luminaires.

_ 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.

_ 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.

Installation

5.1. Operation without sensor

It is possible to operate the basicDIM DGC without a sensor. In this case, it is important to switch off the motion sensor. This can be done via the masterCONFIGURATOR software in the tab "Motion sensor" or with the basicDIM DGC Programmer. For deactivation with the basicDIM DGC Programmer, a basicDIM DGC Sensor must be temporarily connected to the basicDIM DGC.
If the motion sensor is active and no sensor is connected, the basicDIM DGC will switch off after a run-on time of 10 minutes (factory default: profile 5 free standing luminaire). This time can, depending on the selected profile, vary.

6. Functions

The DALI basicDIM DGC has the following functions and user interfaces:

_ Basic functions

_ Constant light control by means of ambient light sensor

_ Presence-based control by means of PIR motion sensor or presence detector

_ Remote control via an infrared input for two different IR remote controls

6.1. Basic functions

6.1.1. PowerOn behaviour

The PowerOn behaviour determines the behaviour of the basicDIM DGC when it is switched on and off. The following commands are transferred at PowerOn.

	CH1 DALI	CH1 eD	CH2 DALI	CH2 eD
PowerON	_ DTR0 _ SET POWER ON LEVEL _ SET SYSTEM FAILURE LEVEL _ SET MIN LEVEL (adjustable) _ SET MAX LEVEL (adjustable) _ SET FADE TIME	-	_ DTR0 _ SET POWER ON LEVEL _ SET SYSTEM FAILURE LEVEL _ SET MIN LEVEL (adjustable) _ SET MAX LEVEL (adjustable) _ SET FADE TIME	-

The adjustable parameters MIN LEVEL SET, SET MAX LEVEL are taken from the settings of the basicDIM DGC.

6.1.2. Behaviour in normal operation

In normal operation the following parameters are transferred:

	CH1 DALI	CH1 eD	CH2 DALI	CH2 eD
Normal operation	_ DAP _ QUERY LAMP FAILURE	-	_ DAP _ QUERY LAMP FAILURE	_ QUERY CONTROL TYPE NUMBER

The eD-parameter QUERY TYPE CONTROL NUMBER checks whether an additional basicDIM DGC is connected to CH2 (which corresponds to basic configuration).
If this is the case, the DALI IN port will be disabled.

Functions

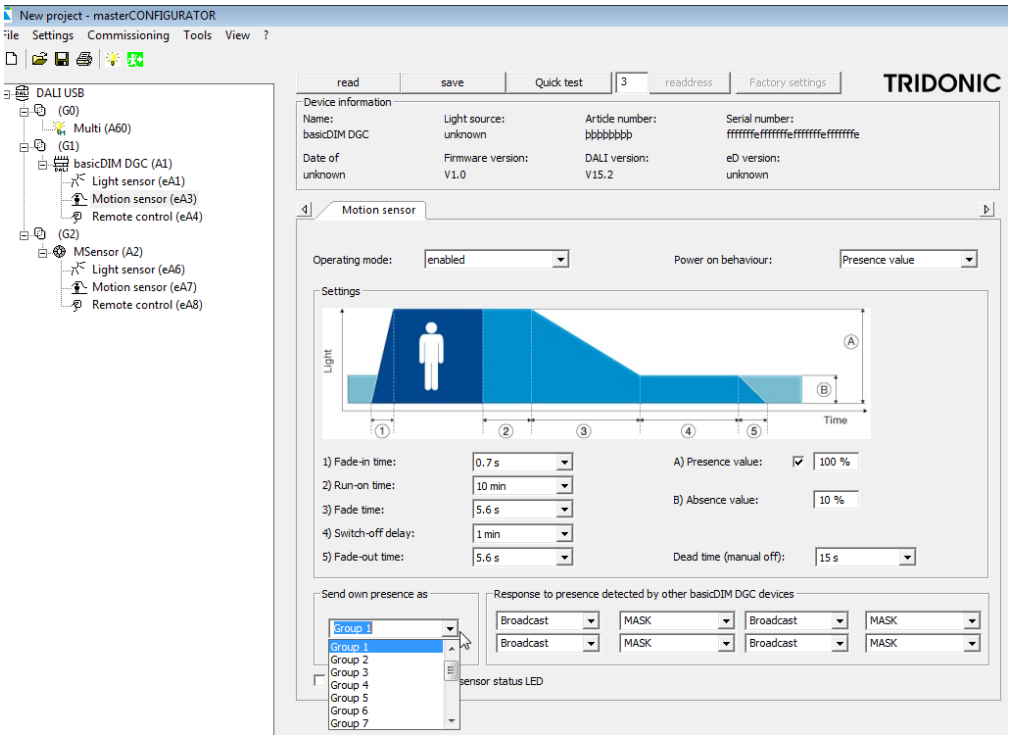
6.1.3. Mixed installation with DGC and MSensor

⚠ CAUTION!

Note the following, if you are using a mixed installation with DGCs and MSensors:

If the DGC is moved to group 1 (for example), it will still send its own presence as Broadcast by default.
If there is an MSensor in the same installation (for example in group 2), then group 2 will be triggered by the Broadcast signal sent from the DGC.

To avoid this behaviour, make sure that the DGC is programmed to send its presence to the group that it is assigned to (in this example group 1).



Functions

6.1.4. DALI IN interface

⚠ CAUTION!

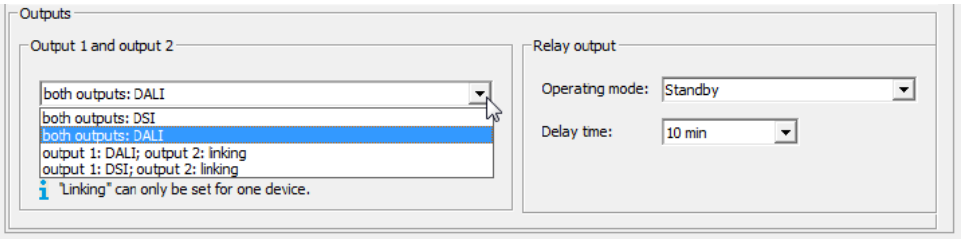
By using the DGC in basic configuration (additional DGCs connected to CH2) the DALI IN interface will be deactivated. The checking methods, if there are other DGCs connected to CH2, differ from firmware version 1.0 to 1.2:

_ In firmware V1.0, CH2 will be continously checked for connected DGCs.

_ In V1.2 the checking will be only done in a specific time period after the start of the basicDIM DGC. For more details please refer to General information, p. 7.

To activate the DALI IN interface DALI for both versions (V1.0 & V1.2) again, proceed as followed:

1. Disconnect all DGCs connected to CH2
2. Connect DALI USB to CH2
3. Switch configuration mode of CH2
   -> DALI IN interface is activated



In version 1.2 it is also possible, to disconnect all DGCs connected to CH2 and switch OFF/ON the device. This will restart the basicDIM DGC and the checking period is started. If no further DGCs are recognized on CH2, the operating mode of the channel will be automatically changed to DALI.

Functions

The DALI IN interface allows integration of the basicDIM DGC module also into a comfortDIM or other Building Management Systems (BMS). The following DALI commands are supported.

Supported DALI configuration commands	
_ RESET	_ RANDOMISE
_ STOREACTUALLEVELINTHEDTR	_ COMPARE
_ STORETHEDTRASMAXLEVEL	_ WITHDRAW
_ STORETHEDTRASMINLEVEL	_ SEARCHADDRH
_ STORETHEDTRASFADETIME	_ SEARCHADDRM
_ ADDTOGROUP	_ SEARCHADDRL
_ REMOVEFROMGROUP	_ PROGRAMSHORTADDRESS
_ STOREDTRASSHORTADDRESS	_ VERIFYSHORTADDRESS
_ ENABLEWRITEMEMORY	_ DATATRANSFERREGISTER1(DTR1)
_ TERMINATE	_ DATATRANSFERREGISTER2(DTR2)
_ DATATRANSFERREGISTER(DTR)	_ WRITEMEMORYLOCATION
_ INITIALISE	

Reaction to DALI control commands at the DALI IN interface
_ DIRECT ARC POWER CONTROL (DAP)
_ OFF
_ UP / Down
_ RECALL MAX LEVEL
_ RECALL MIN LEVEL
_ ON AND STEP UP
_ GO TO SCENE

NOTICE

The relay only responds to the DALI commands OFF and GO TO SCENE. The remaining DALI commands will be ignored. A particularity is represented by the "Standby" operating mode. A detailed description is available at Relais, p. 20.

Functions

Response to DALI query commands at the DALI IN interface

Command	Reaction basicDIM DGC
QUERY STATUS	According to DALI
QUERY CONTROL GEAR	Response is always "Yes" (0xFF), independent of what control gear is connected to CH1/CH2
QUERY LAMP FAILURE	Error bit is set if at least one connected device reports an error
QUERY LAMP POWER ON	Answer is "yes" if at least one output channel is on
QUERY LIMIT ERROR	According to DALI
QUERY RESET STATE	According to DALI
QUERY MISSING SHORT ADDRESS	According to DALI
QUERY VERSION NUMBER	According to DALI
QUERY CONTENT DTR	According to DALI
QUERY DEVICE TYPE	According to DALI
QUERY PHYSICAL MINIMUM LEVEL	According to DALI
QUERY CONTENT DTR1	According to DALI
QUERY CONTENT DTR2	According to DALI
QUERY ACTUAL LEVEL	Current nominal value of output channel 1 is answered (even if output channel 1 is 0% and output channel 2 is > 0%).
QUERY MAX LEVEL	According to DALI
QUERY MIN LEVEL	According to DALI
QUERY FADE TIME / FADE RATE	Fade Time according to DALI Fade Rate always "8".
QUERY GROUPS 0-7	According to DALI
QUERY GROUPS 8-15	According to DALI
QUERY RANDOM ADDRESS (H)	According to DALI
QUERY RANDOM ADDRESS (M)	According to DALI
QUERY RANDOM ADDRESS (L)	According to DALI
READ MEMORY LOCATION	According to DALI
QUERY SHORT ADDRESS	According to DALI

Functions

6.1.5. Switch

basicDIM DGC has two inputs (T1 and T2) for two external switches. Any number of switches can be connected in parallel to the inputs (parallel connection of T1 and T2 possible).

Action	Reaction
Short press (< 500 ms)	ON/OFF (a short press activates lighting control, with this the switch like the AUTO key of the basicDIM remote control). If the lighting control is deactivated, the set presence value of the motion sensor is called. If the presence value is programmed as MASK, the last saved light level will be called.
Long press (> 500 ms)	Dim up/down A change in light value deactivates the lighting control temporarily. Lighting control is reactivated if the luminaire switches on again automatically (when motion is detected) or if it is switched off and on manually. The function can be edited with the basicDIM DGC Programmer or the masterCONFIGURATOR software (see Reference list, p. 49).
2 x short press	Stores the currently measured light value as new setpoint of the lighting control (luminaire acknowledges by flashing twice). Depending on the profile selected, this function can be activated or deactivated. The function can be edited with the basicDIM DGC Programmer or the masterCONFIGURATOR software (see Reference list, p. 49). NOTICE If the lighting control is deactivated, this function is not available.

Different output channels are controlled, depending on the profile selected.

Functions

6.1.6. Relais

The relay can be used in four different operating modes. It must be considered that the relays only reacts to OFF and GO TO SCENE commands.

Symbol	Operating mode	Description
	Standby	Energy saving mode: If the basicDIM DGC module is switched off (e.g. via switch / OFF command at the DALI IN interface), the relay will switch off after a certain time. This time can be configured in the masterCONFIGURATOR. The default value is 10 minutes. If the basicDIM DGC is switched on, the relay will switch on immediately. If the relay is in the open state, then - for example when motion is detected - the fade-in time of the corridor function is ignored. The luminaires start directly with the presence value. The fade-in time is only applied when the relay is already closed. Circuit: relay in Standby mode
	Only OFF	The relay must be switched on using the momentary-action switch, but is switched off by the presence detector or by a DALI OFF command.
	ON/OFF	The relay is switched on or off via the presence detector. However, there exists the possibility to switch OFF the relay with a DALI OFF command.
	Relay output	The relay must be switched on and off using the momentary-action switch. The switching-off of the relay is possible with a DALI OFF command.

Depending on the profile used, the relay will respond differently. For the 5 main profiles (individual room, classroom, corridor, WC, free-standing luminaire) the relay operating modes Standby and Only OFF are used. The masterCONFIGURATOR software allows to enable or disable the relay profiles as well (see Reference list, p. 49).

6.1.7. Presence detector

Depending on the profile used, different operating modes are preprogrammed for the presence detector. These can be changed using the basicDIM DGC Programmer or the masterCONFIGURATOR software (see Reference list, p. 49).

Symbol	Name	Description
	ON/OFF	The light is switched on and off automatically based on the presence/absence of people.

Functions

	Only OFF	The presence detector just switches the connected luminaires off. The luminaires are switched on manually via the connected external momentary-action switch or the remote control.
	neverOFF	If no presence is detected, the sensor dims down to the “second light level” parameter and maintains this setting.
	OFF	Presence detector disabled. The light must be switched on and off manually.

6.1.8. Run-on time

A time starting from the last detected movement in the room; when the run-on time expires, the fade time begins.
If further movement is detected during the run-on time, it starts over again.

You can choose whether you want the basicDIM DGC module to switch off the light completely or to dim it down to the second light level after the run-on time.

The run-on time may vary depending on the profile used. It can be changed using the basicDIM DGC Programmer or the masterCONFIGURATOR software (see Reference list, p. 49).

Response to commands via DALI IN:
For a DAP command > 0, Recall Max, Recall Min the Run-on time is started.

Response to neighbourhood function:
If as response to the neighbourhood function the presence value was set the run-on time is started

Response to scene commands:
Responses to scene commands are described at Scenes, p. 27.

6.1.9. Switch-off delay

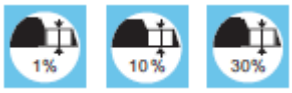
Time for which the absence value is maintained if no movement is detected.

The switch-off delay and the absence level differ depending on the profile used; these parameters may be changed using the basicDIM DGC Programmer or the masterCONFIGURATOR software (see Reference list, p. 49).

Functions

Response to neighbourhood function:
If as response to the neighbourhood function the absence value was set the switch-off delay time is started

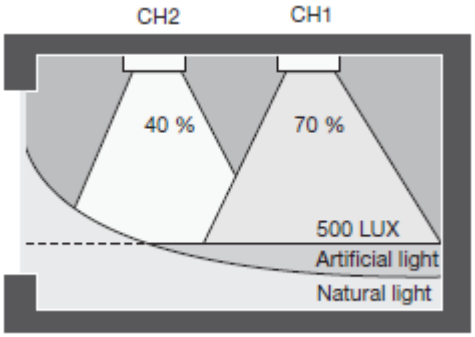
6.1.10. Absence level



Level to which the luminaire group switches during the switch-off delay.

6.1.11. Offset

Depending on the profile used, a negative offset may be enabled between CH2 and CH1. Using the basicDIM DGC Programmer and the masterCONFIGURATOR software, this parameter may be changed, a positive offset is also possible (see Reference list, p. 49).



6.1.12. Manual-off delay

If the light is switched off manually via momentary-action switch or remote control, the presence detector is disabled. After a period of delay without any presence detected, the presence detector is enabled again. If the sensor detects presence during the “manual-off” delay, the delay time will start all over again.

The manual-off delay can only be changed using the masterCONFIGURATOR software (see Reference list, p. 49).

Functions

6.1.13. Lighting control

Lighting control is started via the Auto key of the basicDIM Programmer or REMOTECONTROL IR6.

> **NOTICE**
>
> If the basicDIM DGC module has been switched on via the ON key, lighting control is disabled. If you want to use lighting control, you need to start the DGC module via the Auto key.

Lighting control can also be disabled using the masterCONFIGURATOR software (see Reference list, p. 49).

6.1.14. Set target value

The target value can be set with one of the following:

_ REMOTECONTROL IR6 (press the key for > 3 s)
_ basicDIM DGC Programmer (press the key for > 3 s)
_ masterCONFIGURATOR software
_ external momentary-action switch:

By briefly pressing the momentary-action switch twice the currently measured light level is saved as new target value. Depending on the profile used, this function is enabled or disabled, but it can be changed using the basicDIM DGC Programmer or the masterCONFIGURATOR software (see Reference list, p. 49).

6.1.15. Bright-out

If the nominal illuminance level (e.g. 500 lx) is exceeded for 10 minutes at over 150 % (e.g. 750 lx), the light is switched off, even if presence is detected. The light is switched on again as soon as the measured light level falls below the target value.

Functions

⚠ CAUTION!

If motion detection is deactivated, the light will not be automatically switched on again.

Depending on the profile used, this function is either enabled or disabled and can be changed using the basicDIM DGC Programmer or the masterCONFIGURATOR software (see Reference list, p. 49).
The bright-out status can be indicated on the sensor by a slowly flashing green status LED.

By default this function is disabled, but it can be enabled using the masterCONFIGURATOR software (see Reference list, p. 49).

Light control incl. bright-out activated for CH1. CH2 is not illuminated controlled.

Functions

6.1.16. Neighbourhood function

The neighbourhood function determines how the motion sensor responds when presence is detected in another group.

Depending on the profile used, the basicDIM DGC can respond differently to presence detected in other groups. The settings can be changed using the basicDIM DGC Programmer or the masterCONFIGURATOR software (see Reference list, p. 49).

⚠ CAUTION!

By default the basicDIM DGC will send information about its own presence as Broadcast command.
If you program the neighbourhood function via the DGC programmer, this behaviour changes:
The basicDIM DGC will start sending its own presence as Group 0 command and will only respond to presence detected in Group 0.

Symbol	Name	Description
	Switched off	No response to presence detected in other groups. Default setting for all profiles!
	Switched on	If presence is reported by other groups, the light level will switch to presence value
	Switched on	If presence is reported by other groups, the light level will switch to absence value

6.1.17. Momentary-action switch inputs

Depending on the profile used, the momentary-action switch inputs control different functions.

Symbol	Description
	Momentary-action switch 1
	Momentary-action switch 2
	Display of outputs controlled by momentary-action switch (CH1 and CH2, or just CH1 or CH2)

Functions

6.1.18. Basic functions

Symbol	Description
	Switching on If the DGC module has been switched on via ON, lighting control is disabled.
	Switching off
	Dimming up
	Dimming down

6.1.19. Behaviour after return of power

The basicDIM DGC module features two different types of starting behaviour after mains failure.

Symbol	Description
	Power ON behaviour OFF (luminaires remain switched off)
	Power ON behaviour ON (the luminaires are switched on after return of power). Default setting for all profiles!

6.1.20. Scenes

Up to 16 scenes can be saved on basicDIM DGC. It is possible to choose different values for CH1, CH2 and the relay.

To call up a scene, the basicDIM DGC must be integrated into a DALI line via DALI IN (wiring DALI). CH1 and CH2 respond differently to scene commands than the relay. Because of this, output channels and the relay must be considered separately.

Response of CH1/CH2 to scene commands

If a scene is called, the saved state after the scene command is decisive:

- If one of the output channels (CH1/CH2) is programmed with a value > 0, the run-on time is started.
- If both channels are programmed with a value = 0, the dead time is started.

Functions

If CH1 & CH2 are programmed with MASK in a scene, it should be noted, that the basicDIM DGC software versions 1.0 and 1.2 are behave differently:

In **version 1.0**, the state of CH1 or CH2 before the scene command is decisive:

_ A switched on channel (value >0) reacts to MASK with a restart of the run-onä time.

_ A switched off channel (value =0) reacts to MASK with a restart of the dead time.

In **version 1.2**, MASK will be ignored from both channels.

Response of the relay to scene commands

The relay does not respond to scene commands if it is in standby mode:

If the relay is programmed with ON, the run-on time is started.

If the relay is programmed with OFF, the dead time is started.

If the relay is programmed with MASK, then the state of the relay before the scene command is decisive, for example, if the relay is programmed with MASK:

If the relay was switched off before the scene command, the dead time is started.

If the relay was switched on before the scene command, the run-on time is started.

6.2. Constant light control

6.2.1. Description

⚠ CAUTION!

Constant light control makes it possible to match the lighting in a room to the naturally available ambient light. To do this, the ambient light sensor monitors the illuminance in the room, compares it to the previously set brightness setpoint and dims the light until the received illuminance matches the desired setpoint. If several basicDIM DGC sensors are used, constant light control is linked to the sensor with the highest address (last connected sensor).

In order to change this and use another sensor for the constant light control, do the following:

_ Go to the desired sensor with the basicDIM DGC Programmer or the REMOTECONTROL IR6

_ Hold down SET for longer than 3 seconds, luminaire flashes two times

_ Configuration completed

Where ambient light values are high, this can result in ambient light-based bright-out and bright-in. If the measured illuminance exceeds a specified threshold value for a period of time that is longer than the specified delay time, the luminaire group is switched off by the DALI basicDIM DGC. This also applies in cases where motion is detected in the room. The luminaire group is switched on again as soon as the measured illuminance falls below the brightness setpoint.

⚠ CAUTION!

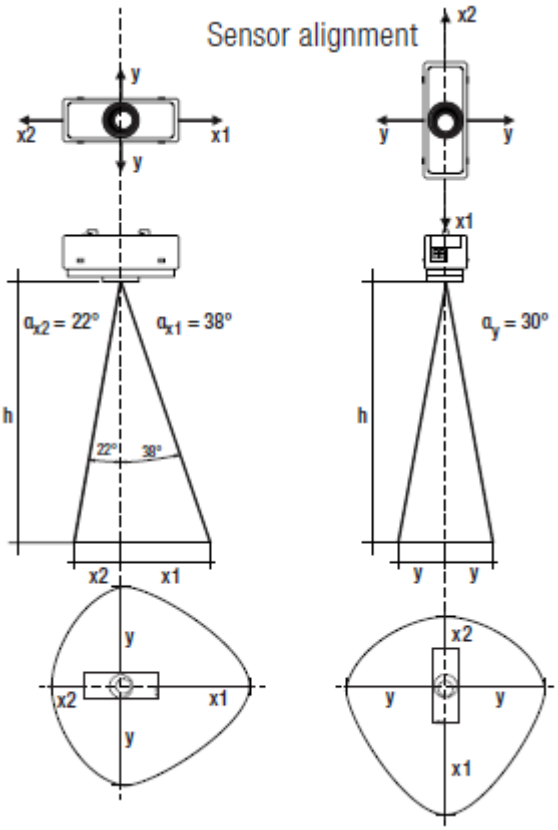
If motion detection is deactivated, the light will not be automatically switched on again.

The Constant light control function ensures that the illuminance in the room remains constant and changes due to variable amounts of ambient light in the room are compensated for. This produces greater comfort, illumination is always properly adjusted, and it also saves energy.

Detection area of the ambient light sensor

The detection area of the sensor is sized so that a relatively large area, rather than just an individual location on the task area, is covered and assessed. This ensures that objects being moved around cannot cause incorrect measurements.

Functions



The diameter of the detection area depends on the detection angle of the sensor and the height at which it is mounted.

Calculating the diameter:

x1 = tan(αx1) × h

x2 = tanα(x2) × h

y = tan(αy) × h

Typical example values of detection area:

Height h (m)	ø x1 (m)	ø x2 (m)	ø y (m)
1.7	1.3	0.7	1.0
2.0	1.6	0.8	1.2
2.3	1.8	0.9	1.3
2.5	2.0	1.0	1.4
2.7	2.1	1.1	1.6
3.0	2.3	1.2	1.7
3.5	2.7	1.4	2.0

4.0	3.1	1.6	2.3

6.2.2. Tricks and hints

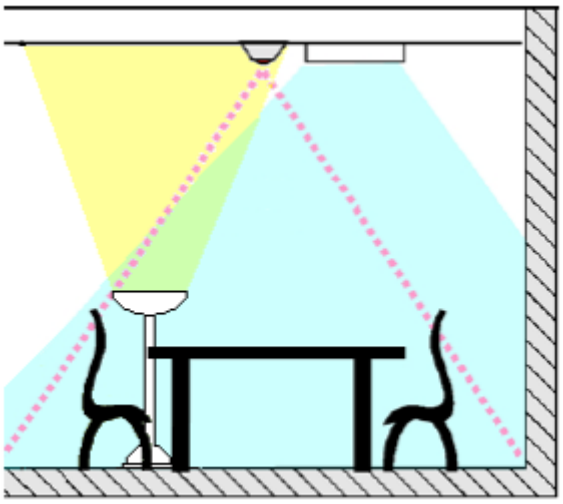
Position the ambient light sensor correctly

Ambient light control is based on measuring reflected artificial light and daylight. This light must be detected correctly and completely. Prevent measurements being falsified by other light sources. Positioning the ambient light sensor correctly is crucial:

1. In order to be able to control ambient lighting properly, the sensor must be able to detect the light from the controlled luminaires completely.

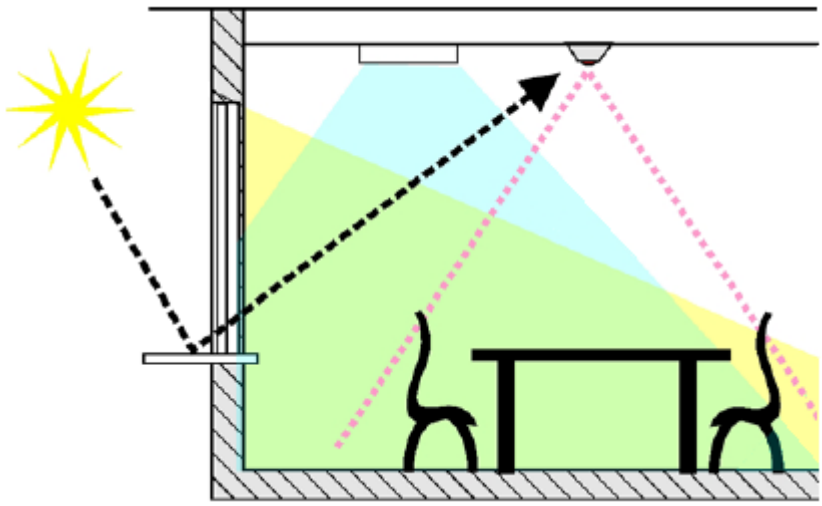
_ Position the sensor so that the sensor's detection area lies within the area that is lit by the controlled luminaires.

2. If the sensor is directly exposed to other light sources, this falsifies the results obtained and the reflected artificial light and daylight can no longer be detected correctly.



_ Position the sensor so that it is not directly exposed to other artificial light sources (e.g. free-standing luminaires in the room).

Functions



_ Position the sensor so that it is not directly exposed to sunlight:
  _ Make sure that the detection area of the sensor lies within the room.
  _ Make sure that the sensor is far enough away from any window area.
  _ Make sure that any glare or sunlight reflected by shiny glass or metal surfaces cannot hit the sensor.

3. If more than one control gear is used in a room, it is possible that the detection areas of the sensors may overlap. Overlapping detection areas may cause the different control circuits to affect one another and this may lead to false results.

_ Position the sensors so that their detection areas do not overlap.

6.3. Presence control

6.3.1. Description

Presence-based control makes it possible to link illuminance to the presence or absence of people. The light is switched on as soon as a person enters a room. When the person leaves, the light is set to a predefined light value after a certain time lapse. Presence-based control offers the benefits of saving energy as well as the convenience of automatic lighting control.

NOTICE

The presence-based control of the basicDIM DGC sensors reacts to moving thermal radiation from people. Other heat sources (e.g. photocopiers, radiators, etc.) may have an adverse effect on presence-based control. Make sure that there are no other heat sources in the immediate vicinity of the sensor.

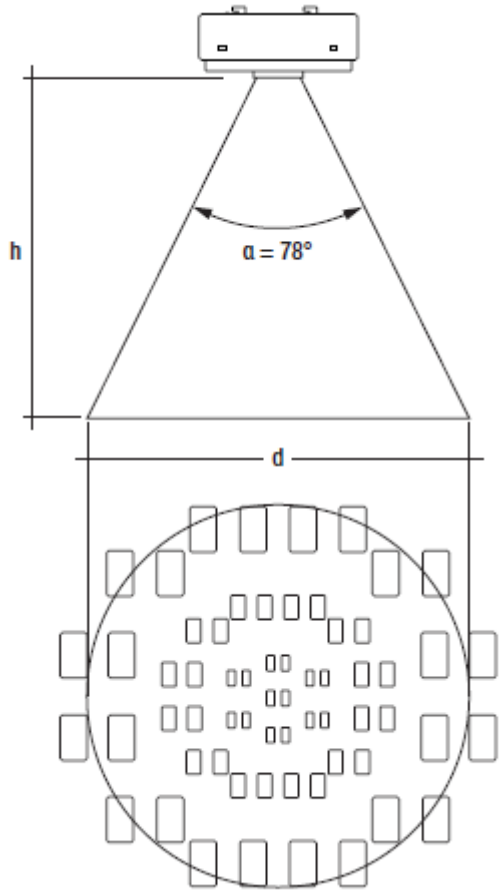
Detection area of the motion sensor

The detection area of the motion sensor consists of a pattern of various measurement fields. The following conditions must be met in order for an object to be detected reliably:

_ The object must move from one measurement field to another

_ The temperature of the object must be different from the background temperature

Functions



The diameter of the detection area depends on the detection angle of the sensor and the height at which it is mounted. The mounting height also has an effect on the sensor's accuracy.
The position and mounting height produce two different detection areas:

_ Up to 2 m mounting height presence is detected and over 2 m motion is detected.

Calculating the diameter:
d2 = 2 × tan(0,5 × α) × h

Typical example values of detection area:

Height h (m)	ø d (m)
1.7	3
2.0	3.6
2.3	4.1
2.5	4.5
2.7	4.9

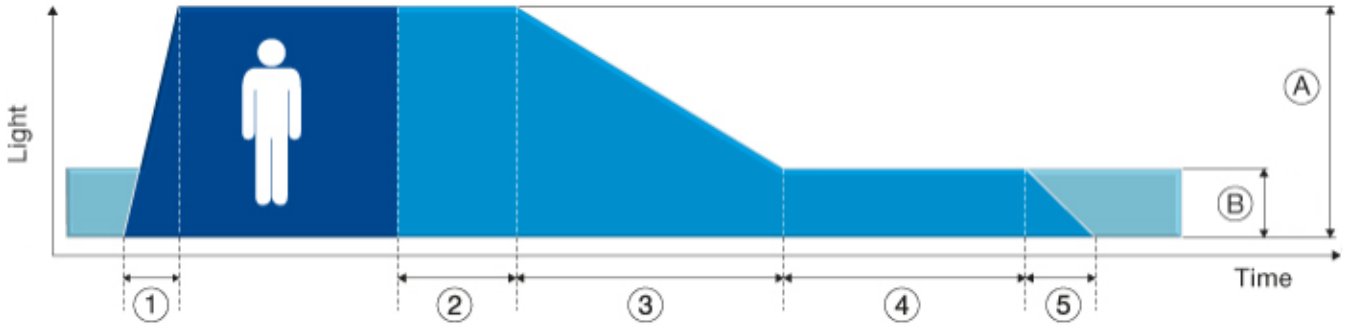
Functions

3.0	5.4
3.5	6.3
4.0	7.2

NOTICE

The recommended maximum room height is 3 m for office applications and 4 m for corridor applications.
For presence detection, it is vital that arm movements, etc. can be detected. Position the sensor on the ceiling so that the room user's hands are located in the centre of the detection area and are not concealed by display screens, backs, etc.

6.3.2. Presence detection process



Functions

Nr.	Name	Range of values	Description	Adjustments via...
(1)	Fade-in time	0.7 - 90.5 s (default: 0.7 s)	Time that starts as soon as the presence of a person is detected. During the fade-in time the luminous intensity is faded up to the presence value.	mC[1]
(2)	Run-on time 	30 s - 60 min (default: depending on profile)	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.	mC[1] and Pr[2]
(3)	Fade time	0.7 - 90.5 s (default: 5.6 s)	Time during which the luminous intensity is faded from the presence value to the absence value.	mC[1]
(4)	Switch-off delay 	0 s - infinite (default: depending on profile)	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.	mC[1] and Pr[2]
(5)	Fade-out time	0.7 - 90.5 s (default: 5.6 s)	During the fade-out time the luminous intensity is faded out from absence value to shutdown.	mC[1]
(A)	Presence value	1 - 100 % (default: depending on profile)	Luminous intensity when persons are present. **NOTICE** If the light regulation is active, the light will first switch to the presence value, but then the light regulation starts and dims the light up or down, depending on the measured lux level.	mC[1] and Pr[2]
(B)	Absence value	1 - 100 % (default: depending on profile)	Luminous intensity when there is no person present.	mC[1] and Pr[2]

mC[1] => masterCONFIGURATOR, Pr[2] => basicDIM DGC Programmer

Functions

6.4. Remote control

If the basicDIM DGC is used in combination with a basicDIM DGC sensor, it can be controlled with the following remote controls. To get more information about these remote controls, follow the link beside the product image.

basicDIM DGC PROGRAMMER (28000646)

www.tridonic.com/qrDGCProg

REMOTECONTROL IR6 (28000647)

www.tridonic.com/qrIR6

Room profiles

7. Room profiles

7.1. Room profile 1 Individual room

7.1.1. Brief description

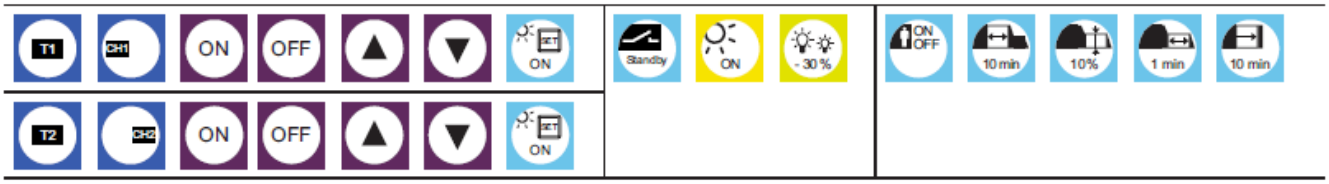
Typical setting

Two illumination areas (e.g. CH2 = windows area, CH1 = rest of the room), two switches (T1, T2), motion sensor(s).

Control

Switch 2 (T2) controls the lighting of the windows area (CH2), switch 1 (T1) controls the lighting of the rest of the room (CH1).

7.1.2. Available commands



7.1.3. Table of functions

Function	Description
PowerOn behaviour	= Presence state
T1 effective range	= Only Output 1
T1 short press	= ON and OFF
T1 long press	= dimming
T1 double click	= Saving enabled => Luminaires at both outputs flash twice (pause for 5 s between double clicks)

Room profiles

T2 effective range	= Only Output 2
T2 short press	= ON and OFF
T2 long press	= dimming
T2 double click	= Saving enabled => Luminaires at both outputs flash twice (pause for 5 s between double clicks)
Relays	= standby
Constant light control BrightOUT	= enabled, dimming out after 10 minutes
Constant light control output 1	= automatic
Constant light control output 2	= automatic with offset of -30% (compared to CH1)
Presence control mode	= ON / OFF
Presence control run-on time	= 10 min
Presence control absence value	= 10 %
Presence control switch-off delay	= 1 min
Presence control Fadetime	= 5.7 sec
Presence control manual OFF delay	= 10 min
Presence control signal exchange	= disabled (no response to presence of other devices)
Output 1 (operating mode)	= DALI
Output 2 (operating mode)	= DALI, no network master

Room profiles

7.2. Room profile 2 Classroom

7.2.1. Brief description

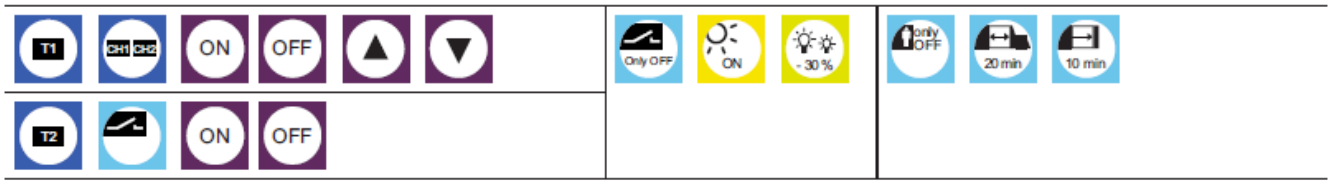
Typical setting

Three illumination areas (windows area, rest of the room, separate presentation area), two switches, motion sensor(s)

Control

Switch 1 controls the lighting of the windows area and the rest room of the room together (ratio of the two dimming levels remains the same), button 2 controls the presentation area.

7.2.2. Available commands



7.2.3. Table of functions

Function	Description
PowerON behaviour	= Presence state
T1 effective range	= Output 1 and Output 2
T1 short press	= ON and OFF
T1 long press	= dimming
T1 double click	= Saving is blocked

Room profiles

T2 effective range	Relay
T2 short press	= ON and OFF => only possible, if Output 1 is ON !
T2 long press	= disabled
T2 double click	= Saving is blocked
Relays	only OFF
Constant light control BrightOUT	= enabled, dimming out after 10 minutes
Constant light control output 1	= automatic
Constant light control output 2	= automatic, with offset (-30%)
Presence control mode	= only OFF
Presence control run-on time	= 20 min
Presence control absence value	= 0 %
Presence control switch-off delay	= 0 min
Presence control Fadetime	= 5.7 sec
Presence control manual OFF delay	= 10 min
Presence control signal exchange	= disabled (no response to presence of other devices)
Output 1 (operating mode)	= DALI
Output 2 (operating mode)	= DALI, no network master

Room profiles

7.3. Room profile 3 Corridor

7.3.1. Brief description

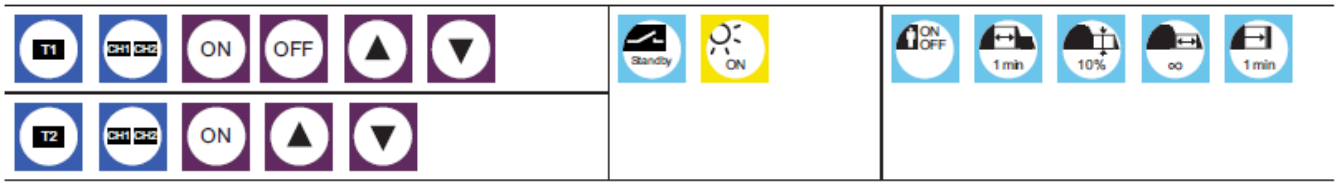
Typical setting

One illumination areas, switches, motion sensor(s)

Control

Switches control the lighting of all the luminaires. Different dimming levels can be defined for presence detection in another room (neighbourhood function), for presence detection in the corridor itself and for the absence of any presence detection.

7.3.2. Available commands



7.3.3. Table of functions

Function	Description
PowerOn behaviour	= Presence state
T1 effective range	= Output 1 and Output 2
T1 short press	= ON and OFF
T1 long press	= dimming

Room profiles

T1 double click	= Saving disabled
T2 effective range	= Output 1 and Output 2
T2 short press	= Only ON
T2 long press	= dimming
T2 double click	= Saving enabled
Relays	= standby
Constant light control BrightOUT	= enabled, dimming out after 10 minutes
Constant light control output 1	= automatic
Constant light control output 2	= automatic, no offset (0%)
Presence control mode	= ON / OFF
Presence control run-on time	= 1 min
Presence control absence value	= 10 %
Presence control switch-off delay	= "never OFF"
Presence control Fadetime	= 5.7 sec
Presence control manual OFF delay	= 1 min
Presence control signal exchange	= disabled (no response to presence of other devices)
Output 1 (operating mode)	= DALI
Output 2 (operating mode)	= DALI, no network master

Room profiles

7.4. Room profile 4 Restroom

7.4.1. Brief description

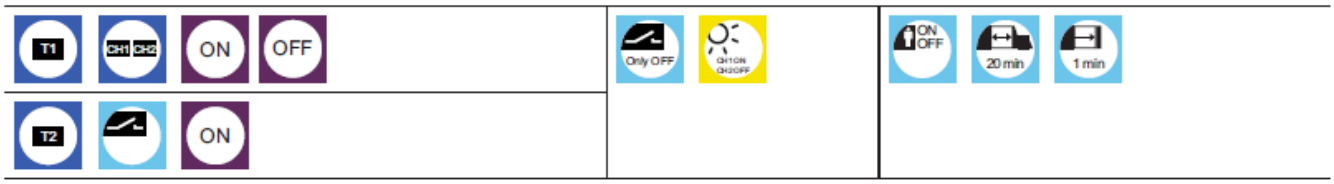
Typical setting

Two illumination areas (sink and mirror area, toilet area), two switches, motion sensor(s)

Control

Switch 1 controls the lighting of the sink and mirror area, switch 2 controls the lighting of the toilet area.
In connection with presence detection different dimming levels can be defined for the two lighting areas.

7.4.2. Available commands



7.4.3. Table of functions

Function	Description
PowerOn behaviour	= Presence state
T1 effective range	= Output 1 and Output 2
T1 short press	= ON and OFF
T1 long press	= disabled

Room profiles

T1 double click	= Saving is blocked
T2 effective range	= Relay
T2 short press	= Only ON => only possible, if Output 1 is ON !
T2 long press	= disabled
T2 double click	= Saving is blocked
Relays	= only OFF
Constant light control BrightOUT	= enabled, dimming out after 10 minutes
Constant light control output 1	= automatic
Constant light control output 2	= manual
Presence control mode	= ON / OFF
Presence control run-on time	= 20 min
Presence control absence value	= 0 %
Presence control switch-off delay	= 0 min
Presence control Fadetime	= 5.7 sec
Presence control manual OFF delay	= 1 min
Presence control signal exchange	= disabled (no response to presence of other devices)
Output 1 (operating mode)	= DALI
Output 2 (operating mode)	= DALI, no network master

Room profiles

7.5. Room profile 5 Free-standing luminaire (default)

7.5.1. Brief description

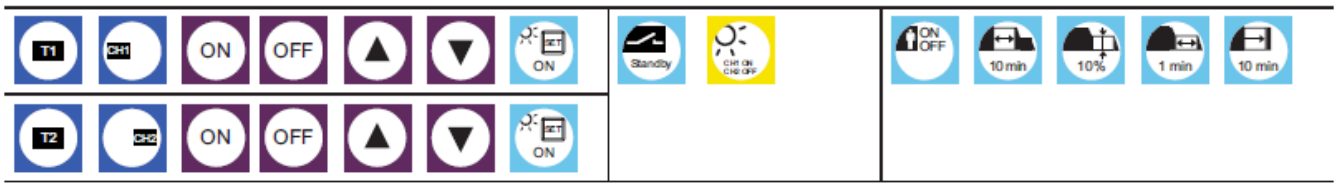
Typical setting

Two illumination areas (direct and indirect lighting), two switches, motion sensor(s)

Control

Switch 1 controls direct lighting, switch 2 controls indirect lighting.
If no presence is detected the free-standing luminaire is switched off completely to avoid stand by losses.

7.5.2. Available commands



7.5.3. Table of functions

Function	Description
PowerOn behaviour	= Presence state
T1 effective range	= Output 1
T1 short press	= ON and OFF
T1 long press	= dimming
T1 double click	= Saving enabled => Luminaires from output 1 will flash twice

Room profiles

T2 effective range	= Output 2
T2 short press	= ON and OFF
T2 long press	= dimming
T2 double click	= Saving enabled => Luminaires from output 1 will flash twice
Relays	= standby
Constant light control BrightOUT	= enabled, dimming out after 10 minutes
Constant light control output 1	= automatic
Constant light control output 2	= manual
Presence control mode	= ON / OFF
Presence control run-on time	= 10 min
Presence control absence value	= 10 %
Presence control switch-off delay	= 1 min
Presence control Fadetime	= 5.7 sec
Presence control manual OFF delay	= 10 min
Presence control signal exchange	= disabled (no response to presence of other devices)
Output 1 (operating mode)	= DALI
Output 2 (operating mode)	= DALI, no network master

Status information

8. Status information

A sensor mounted LED provides a status information about the device's operation:

8.1. Green light: Normal operation

Status indicator	Meaning
3 x flashing	PowerOn
1 x short impulse	Presence detected
2 x short impulse	Confirmation of infrared reception

8.2. Orange light: Maintenance

Status indicator	Meaning
Normal flashing	Addressing, initialization or identification in progress
Slow flashing	Firmware update in progress

8.3. Red light: Error

Status indicator	Meaning
Cyclic rapid flashing with pause	Short circuit on output 1 or output 2
Rapid flashing	Jammed hardware switch (230 V)

Reference list

9. Reference list

9.1. Related documents

_ Documentation masterCONFIGURATOR:
http://www.tridonic.com/com/en/download/Manual_masterConfigurator_en.pdf

_ Data sheet DALI basicDIM DGC:
http://www.tridonic.com/com/en/download/data_sheets/basicDIM_DGC_en.pdf

_ Declarations of conformity:
http://www.tridonic.com/com/en/declarations-of-conformity.asp

_ Certificates:
http://www.tridonic.com/com/en/certificates-controls.asp

_ Parameter settings basicDIM DGC PROGRAMMER:
http://www.tridonic.com/com/en/download/technical/basicDIM_DGC_PROGRAMMER_en.pdf

_ Parameter settings REMOTECONTROL IR6:
http://www.tridonic.com/com/en/download/technical/REMOTECONTROL_IR6_en.pdf

9.2. Downloads

_ Tridonic software: http://www.tridonic.com/com/en/software.asp

_ Download masterCONFIGURATOR: http://www.tridonic.com/com/en/software-masterconfigurator.asp

9.3. Additional information

_ DALI manual: http://www.tridonic.com/com/en/download/technical/DALI-manual_en.pdf

_ Guarantee conditions: http://www.tridonic.com/com/en/guarantee.asp

_ Data sheets: http://www.tridonic.com/com/en/data-sheets.asp

_ Environmental declarations: http://www.tridonic.com/com/en/environmental-declarations.asp

_ Product specifications: http://www.tridonic.com/com/en/product-specifications.asp

_ Other technical documents: http://www.tridonic.com/com/en/technical-docs.asp