LIGHT MANAGEMENT IS VIVARES

Application guide

MCU GROUP DALI-2 control unit

Status: Juli 2026| LEDVANCE
Subject to change without and notes. Errors and omission excepted.

Application guide
MCU GROUP DALI-2 TW



MCU GROUP DALI-2 TW

EAN: 4099854748691

Application guide
MCU GROUP DALI-2 TW

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Application guide
MCU GROUP DALI-2 TW – General

Product description

The MCU GROUP is designed to allow an easy control of up to 4 groups of dimmable and/or tunable white DALI luminaires. Groups can be defined direct via the MCU by a simple setup process without need of a programming tool or software.

The MCU GROUP supports two different operation modes:
An out of the box plug & control ***broadcast only mode.***
After assigning luminaires to an individual group, an additional ***group control mode*** can be enabled.
The group assignment is done via the MCU GROUP directly and does not require any additional tool or software.
Replacement of faulty luminaires or adding new luminaires is possible at any time without significant effort.

With the integrated DALI power supply up to 25 drivers can be controlled by each mains powered unit. Parallel connection of up to 4 units enables a flexible system extension for bigger rooms with multiple points of control or partitionable rooms.

The illuminated central rotary knob allows dimming and switching or color temperature tuning of the whole lighting or individual groups. For recurring usage scenarios, up to 4 light scenes can be stored and recalled by touch sensitive elements.

On demand or for energy saving the luminaires can be automatically switched off or on by standard motion detectors, timer switches or classic light switches via a trigger to the powerless L' input of the MCU:
Positive edge→ trigger power ON command (settable via turnkey (B) ; Negative edge→ trigger central OFF command

The MCU Group fits into a standard flush box or can be surface mounted using the optional surface frame accessory.

Application guide
MCU GROUP DALI-2 TW – General

Product Features

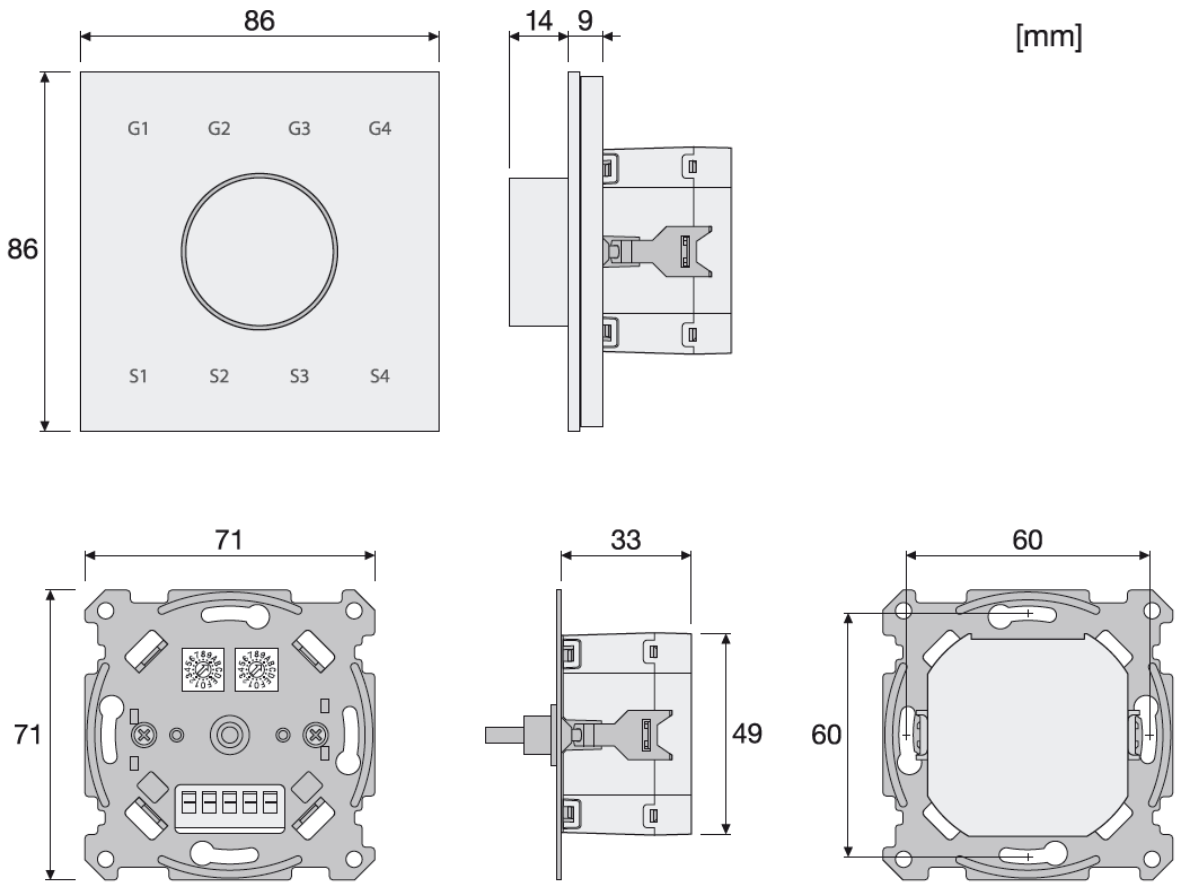
- **Dimming and switching of up to 4 groups of DALI fixtures** by a digital rotary
- **Change of color temperature** in combination with DALI DT8 drivers
- **Scene storage** and recall of **up to 4 scenes** via touch sensitive glass surface
- Control **up to 25 DALI LED drivers per** active **control unit****

Product Benefits

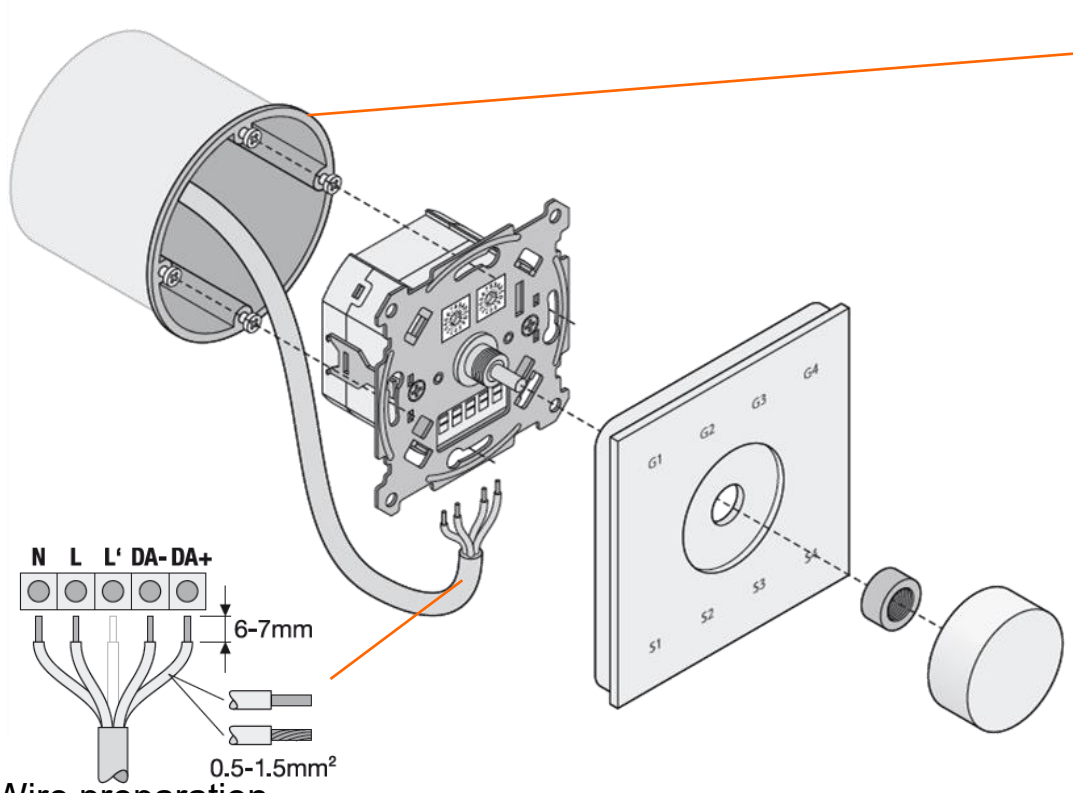
- **All in one solution with integrated DALI power supply**
- **Plug and control ready, no commissioning tool or software necessary**
- **Integrated orientation light**
- **Interconnection of up to 4 MCU's** with **automatic synchronization** via DALI
- **Suitable for rooms with separation walls**
- Possibility of **connecting standard mains powered motion detectors or timer switches**
- **Fits into standard flush device boxes** with > 40mm depth
- **Works in active**** (= mains powered) **or passive mode** (= without mains power)
- Automatic or manual **memory of switch on level**
- Individual **setting of lowest and maximum dimming level**
- **Configuration of power on state** after mains interruption by rotary switch

Application areas

- **Conference rooms**
- Residential / Shop/ Hospitality areas / hotel rooms



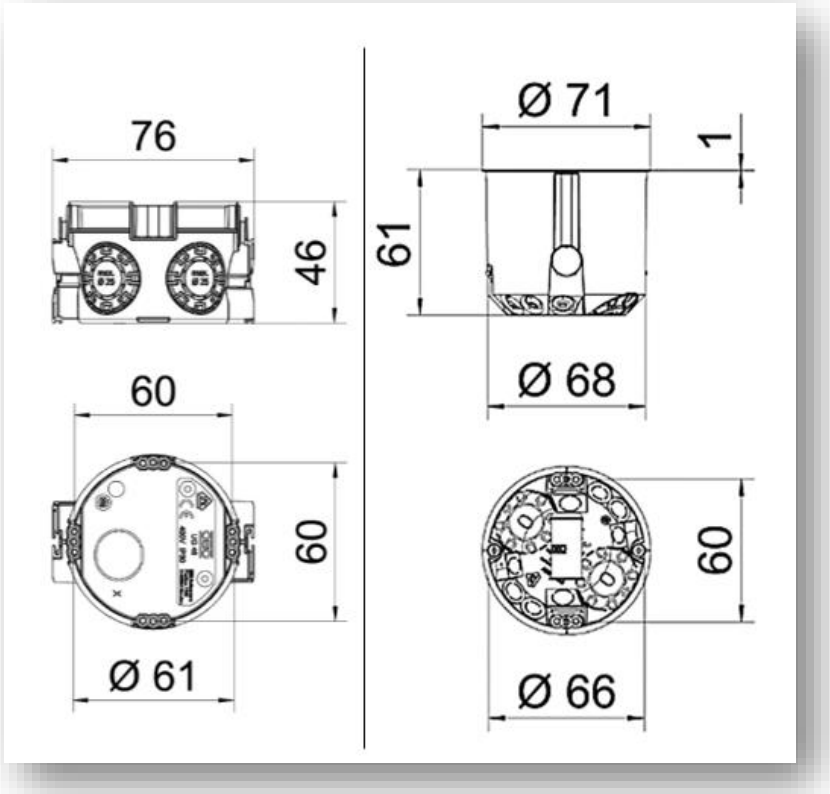
Application guide
MCU GROUP DALI-2 TW – Flush mounting



Wire preparation

Suitable flush boxes

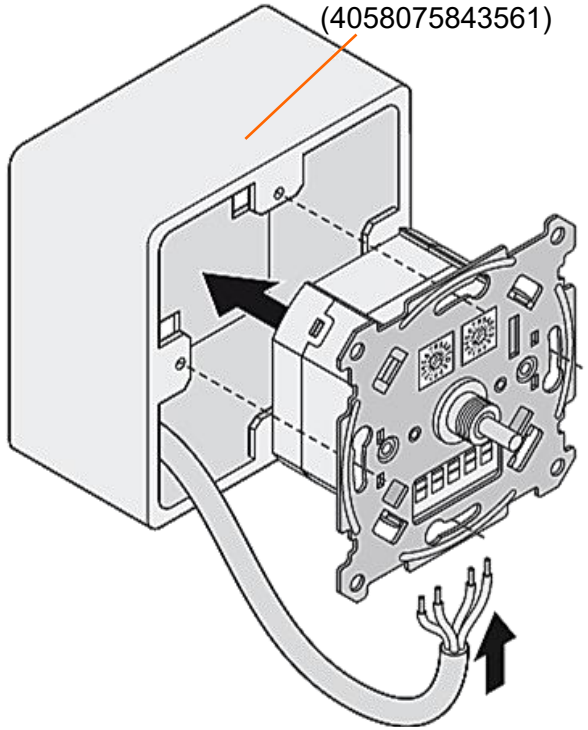
For concrete walls / for hollow walls



Switch off mains and DALI supply before installation !

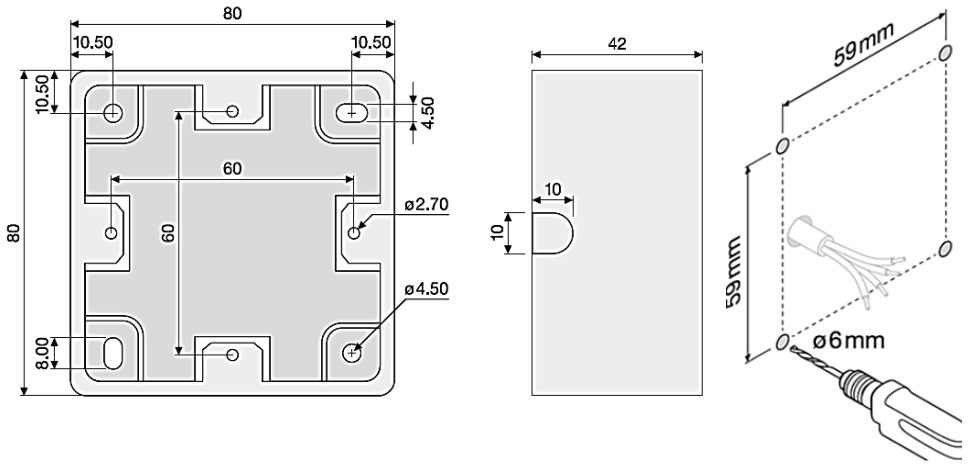
Application guide
MCU GROUP DALI-2 TW– Surface mounting

Mounting principle



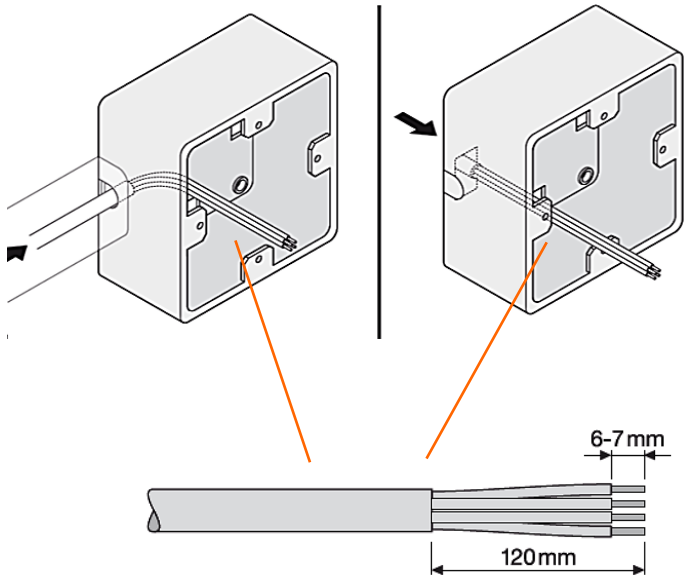
Hint:
Remove fixing claws for flush boxes when using a surface mount frame

Dimensions and fixation hole pattern



Side cable entry

Rear cable entry

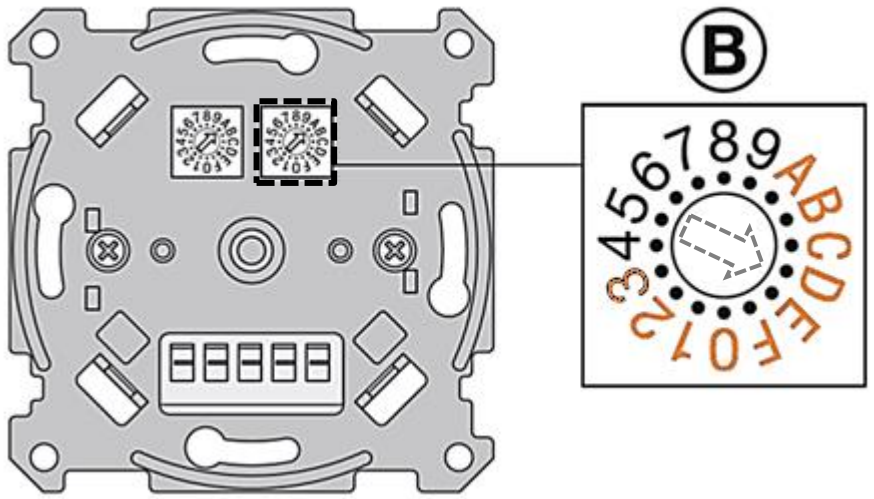


Cable / wire preparation

Switch off mains and DALI supply before installation !

Application guide
MCU GROUP DALI-2 TW – Configuration: Behaviour after mains interruption

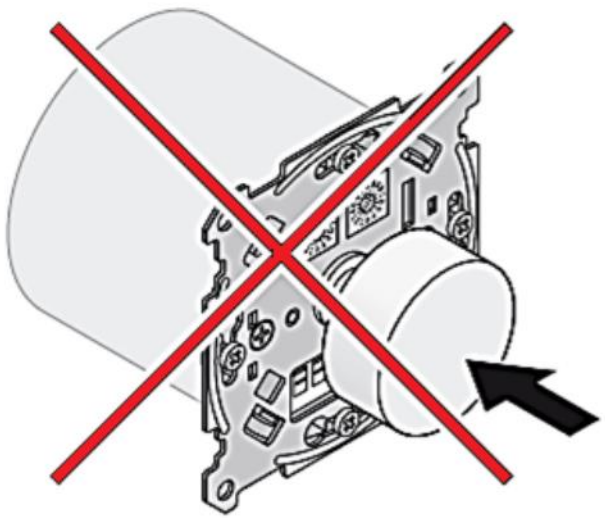
State of the lighting after mains interruption can be set by the rotary switch Ⓑ of the MCU

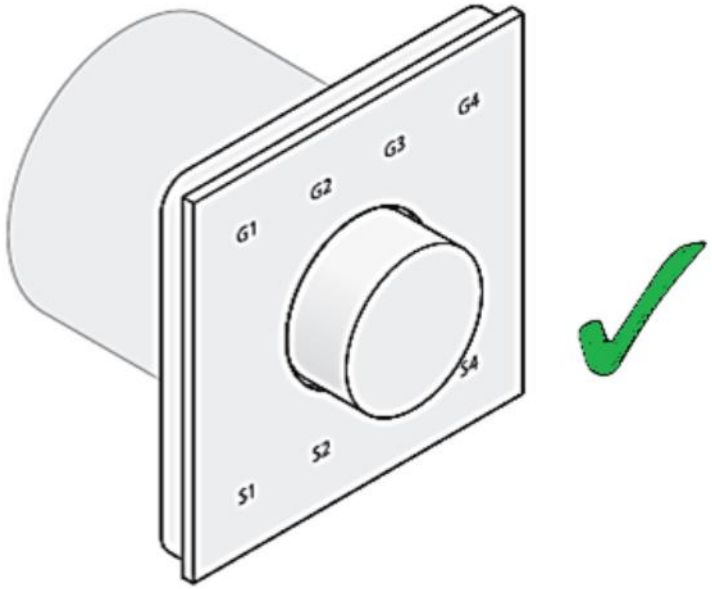


Setting	Meaning
A	Last dimming level and switching state before mains interruption will be re-established
B	Dimming level stored as Scene 1 (S1)
C	10% brightness
D	20% brightness
E	30% brightness
F	50% brightness
0	80% brightness
1	100% brightness
2	OFF (Light level 0%)
3	No command send after Power up

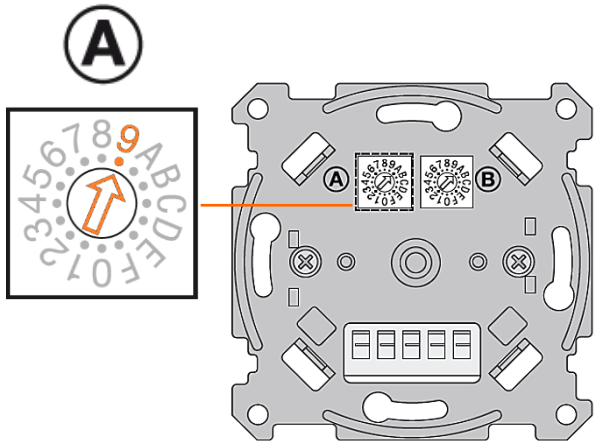
Application guide
MCU GROUP DALI-2 TW – Configuration: ***! Important hint !***

After setting the rotary switches to the correct position, always refit glass plate and knob first before starting a configuration. Otherwise, a proper function of the MCU group can not be guaranteed!





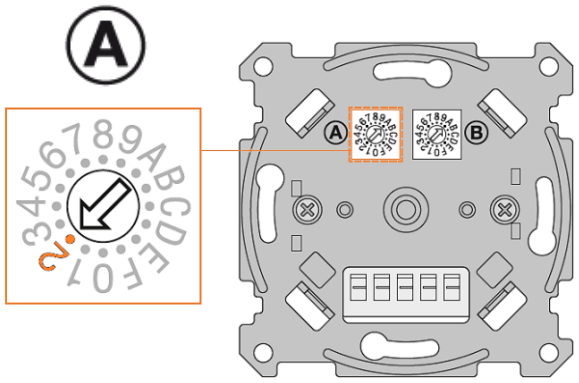
Application guide
MCU GROUP DALI-2 TW – Configuration: *RESET*



RESET MCU and the connected DALI drivers		Remark
Step 1:	Remove knob and glass plate, note actual position of rotary then **set rotary Ⓐ to position 9**	Note down original position of rotary
Step 2:	**Refit glass plate and knob**	Glass plate needed for proper function
Step 3:	If light is ON, **Switch Off lights** via a Short Push to the MCU knob	
Step 4:	**Press the MCU knob for >5s** until light switches to 100%	A DALI RESET command is sent to all connected drivers, the Min level is reset to 1%, Max level to 100%, all groups and scenes are deleted. If multiple MCU are interconnected and powered up, RESET is performed by all MCU.
Step 5:	Remove knob and glass plate, **set rotary Ⓐ back to original position**	
Step 6:	**Refit glass plate and knob**	

Application guide
MCU GROUP DALI-2 TW – Configuration: Orientation light setting

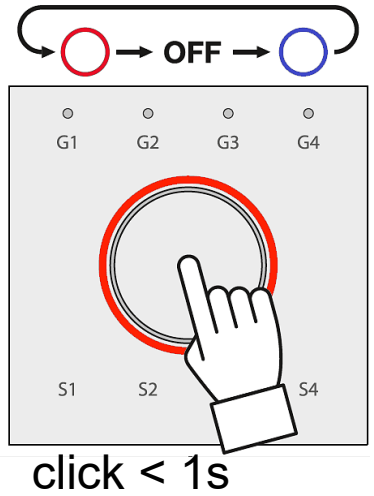
The orientation backlight of the knob is switched on if all luminaires are switched off, by that the MCU knob stays visible in the dark



Step 1:

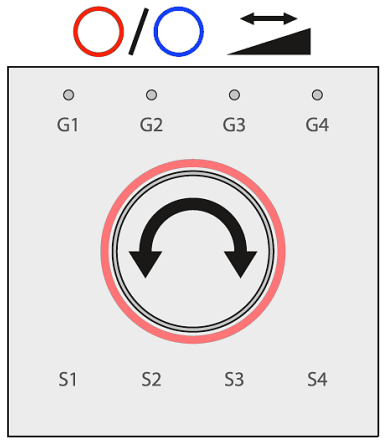
1. Remove knob and glass plate
2. Note actual position of rotary Ⓐ
3. Set rotary Ⓐ to position 2

→ actual orientation light setting is displayed



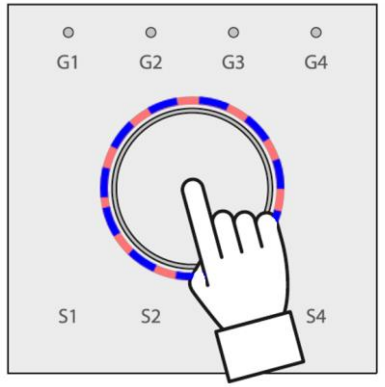
Step 2:

1. Refit glass plate and knob
2. Select orientation backlight colour red / blue or orientation light off by short pushes to the knob



Step 3:

1. If red or blue is selected, adjust brightness by knob rotation
2. If “off” is selected continue with step 4



Step 4:

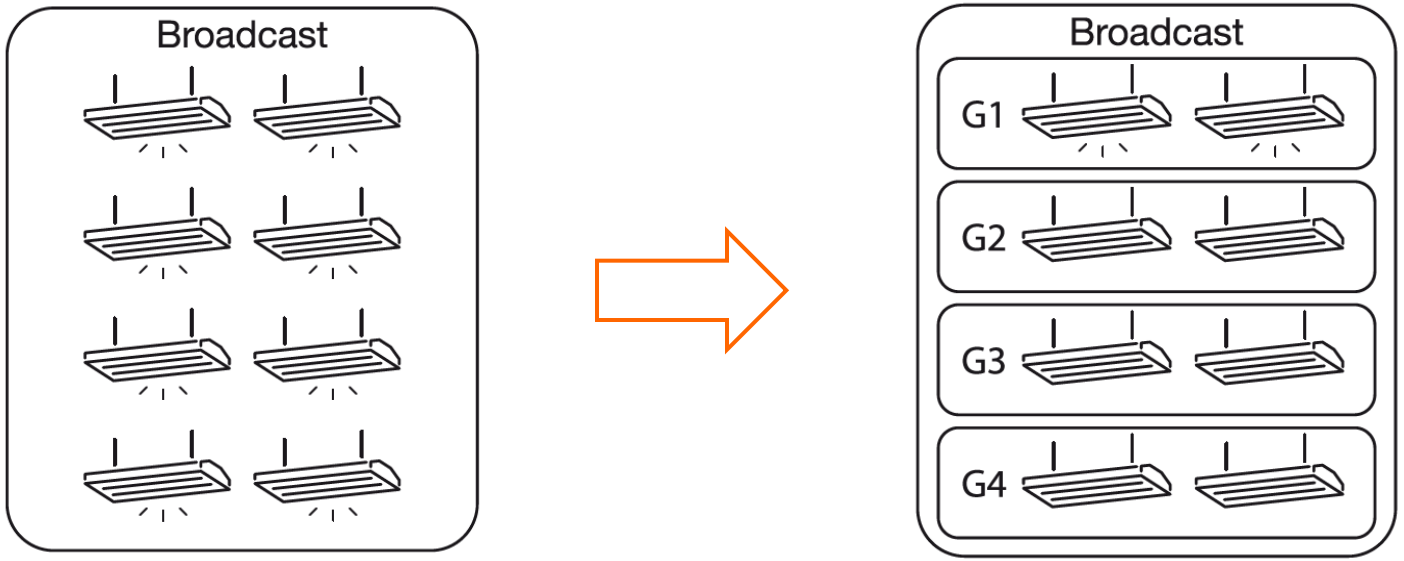
1. Store actual setting by pressing the knob > 5s
   → LED Backlight will blink
2. Remove knob and glass plate
3. Set back rotary Ⓐ to original position
4. Refit glass plate and knob

Remark: Orientation light setting is individual for each MCU.
Ex-factory / RESET setting: Red;10%

Application guide
MCU GROUP DALI-2 TW – Configuration: *Group assignment*

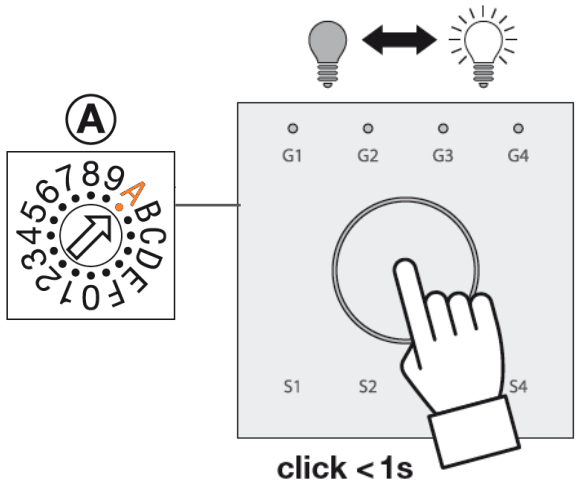
General: Group assignment

In addition to the Plug & Play broadcast control of all luminaires, a control of 4 individual groups can be activated. To enable a groupwise control each luminaire must first be added to one of four groups (G1, G2, G3, G4). The required addressing process is handled by the MCU GROUP itself and does not need a special programming tool or software. After grouping is done, the group control operation mode can be activated by setting the rotary switch Ⓐ to position **C** or **D**.



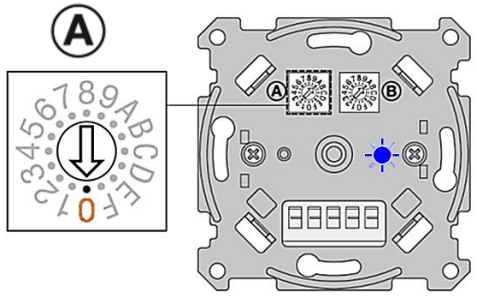
Application guide
MCU GROUP DALI-2 TW – Configuration: *Group assignment*

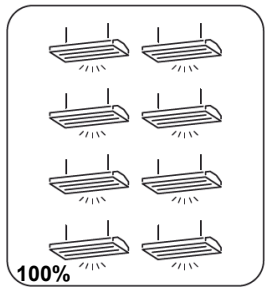
Step 0: Set rotary (A) to position "**A**" and test if **all** connected luminaires react to central ON/OFF via short Push to the rotary knob of the MCU



Step 1: Remove knob / glass plate and set rotary (A) to position "0"

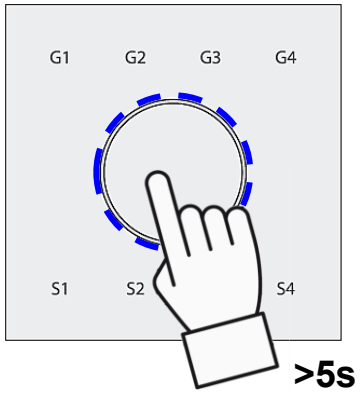
→ Blue backlight LED will start to blink
→ All luminaires are set to 100%

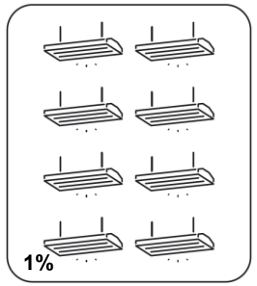




Step 2: Refit glass plate and rotary knob, press rotary knob for >5s

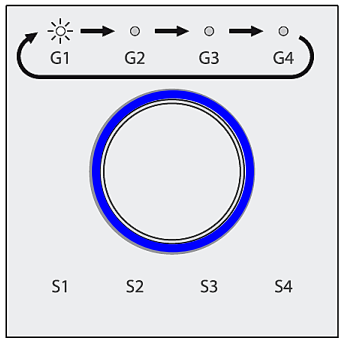
→ Blue backlight LED stops blinking
→ All luminaires are set to 1%

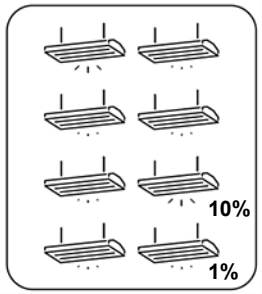




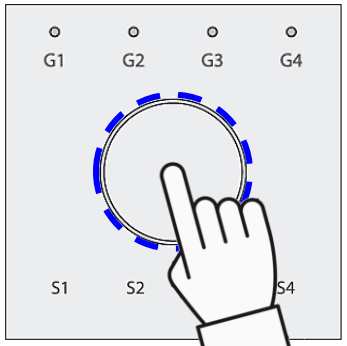
Application guide
MCU GROUP DALI-2 TW – Configuration: *Group assignment*

Step 4: Wait while search is running indicated by daisy chain blink of G1-G4 LEDs
→ Found Luminaires are switched to 10%

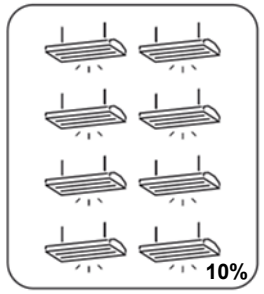




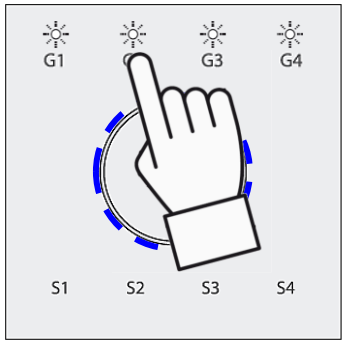
Step 5: When search is complete all luminaires are at 10% and the rotary backlight blinks again
→ Click on rotary knob to continue

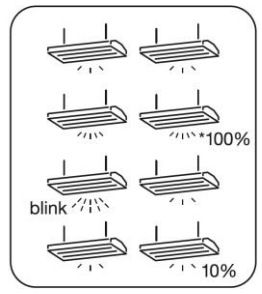


click <1s



Step 6: Luminaire waiting for group assignment and Group selector LEDs are blinking
→ Select group number by touching G1-G4
→ Already existing members* of this group are switched to 100%





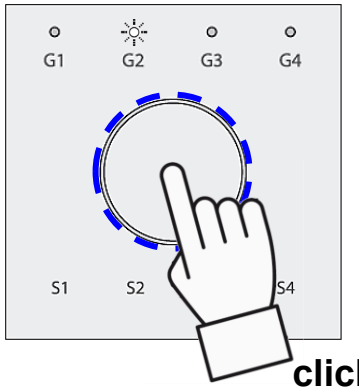
Application guide
MCU GROUP DALI-2 TW – Configuration: *Group assignment*

Step 7: a) Confirm assignment by a short push to the rotary knob
→ Next luminaire starts to blink

OR

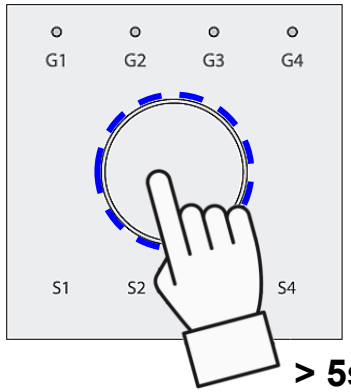
b) Abort assignment process by pushing the rotary knob for >5s

a)



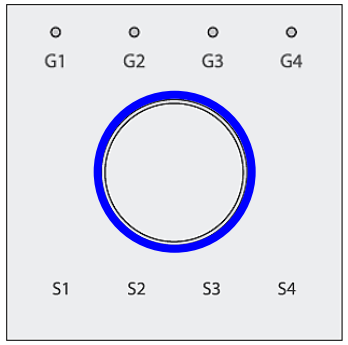
click <1s

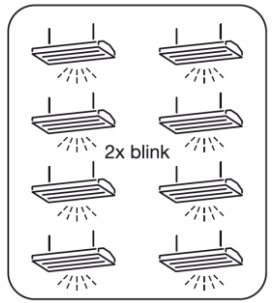
b)



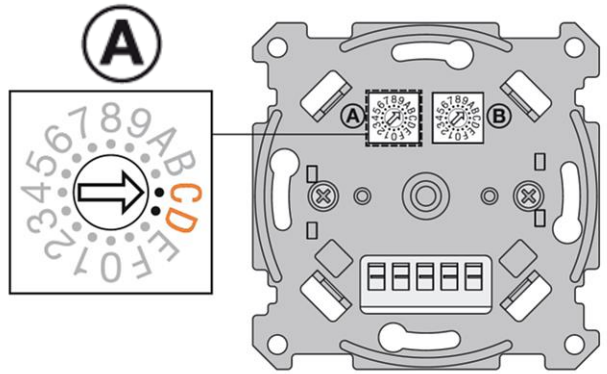
> 5s

Step 8: Assignment completed
→ Rotary backlight stops blinking
→ All luminaires flash 2 times





Step 9: Remove knob / glass plate and set rotary Ⓐ to position “C” or “D”.
Afterwards refit glass plate and knob



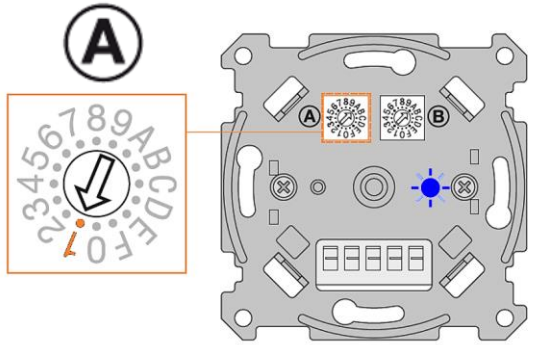
Hint

Position “C”:
Scene storage and Double click enabled
Position “D”:
Scene storage and Double click disabled

Application guide
MCU GROUP DALI-2 TW – Configuration: *Change an existing grouping*

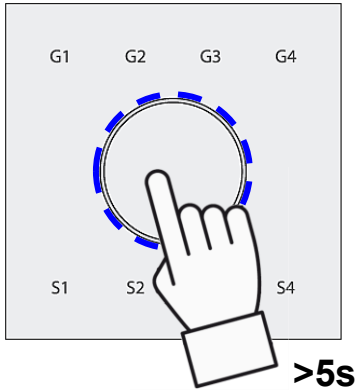
Step 1: Remove knob / glass plate, note the current position of rotary Ⓐ and set rotary Ⓐ to position “1”

→ Blue backlight LED will start to blink
→ All luminaires are set to 100%



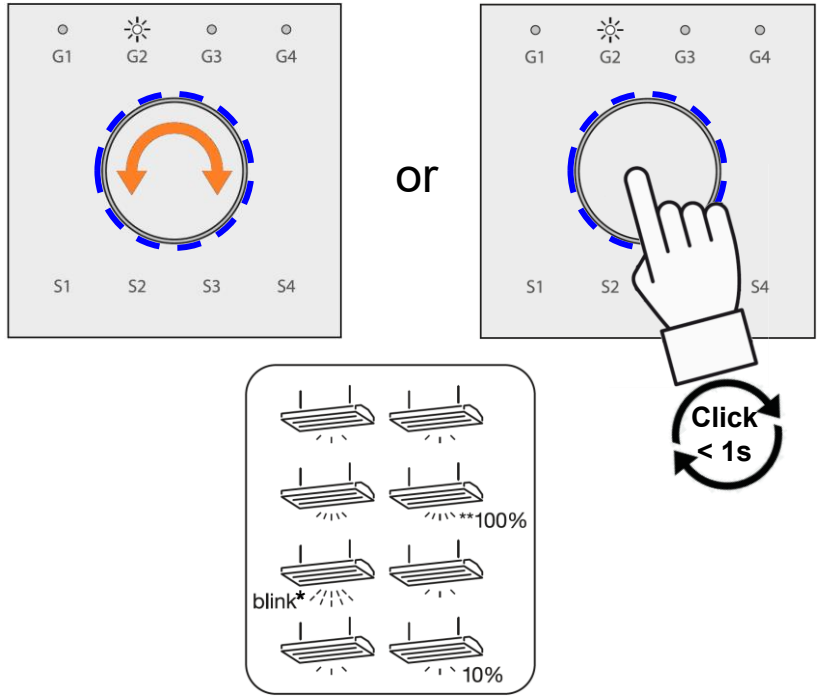
Step 2: Refit glass plate and rotary knob, press rotary knob for >5s

→ All luminaires are set to 10%
→ First luminaire starts to blink



Step 3: Select fixture to be changed* either by rotating the knob or by subsequent short pushes to the knob

→ Corresponding luminaire blinks and its Group G1-G4 is indicated by the corresponding LED
→ Existing group members of the same group are set to 100%



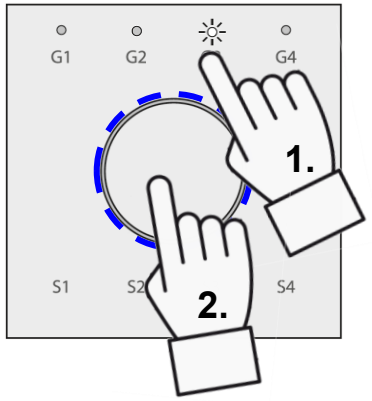
** existing members within group G2

Application guide
MCU GROUP DALI-2 TW – Configuration: *Change an existing grouping*

Step 4: Select new group by touching the corresponding G1-G4 element and confirm by short push to the knob

→ Next luminaire blinks and its Group G1-G4 is indicated by the corresponding LED

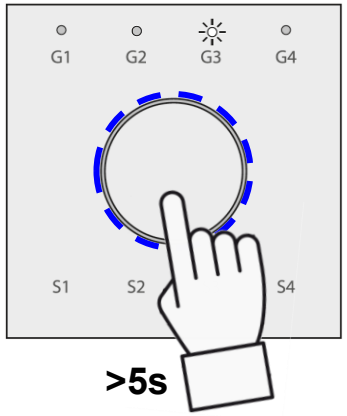
→ Existing group members of the same group are set to 100%

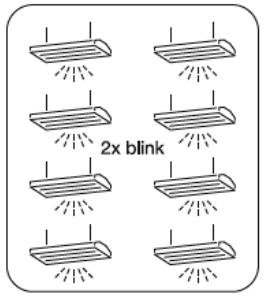


Step 5: End the group change process by pressing the knob > 5s

→ Rotary backlight is set to permanent blue

→ All luminaires blink 2 times

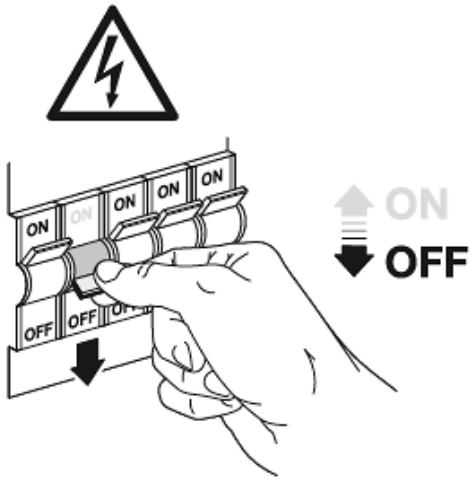




Step 6: Remove knob / glass plate and set back rotary Ⓐ to its original position and refit glass plate and knob

** existing members within group G2

Application guide
MCU GROUP DALI-2 TW – Maintenance: Exchange a faulty luminaire / add a new luminaire



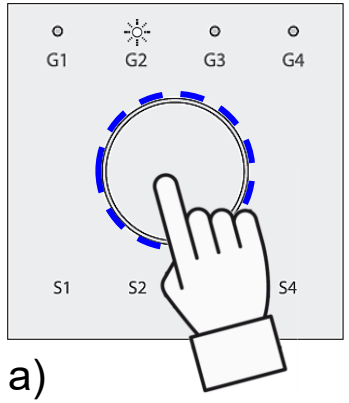
Step 0:

1. Switch off mains supply
2. Replace faulty luminaire(s) and/or add the new lum.
3. Switch on mains supply

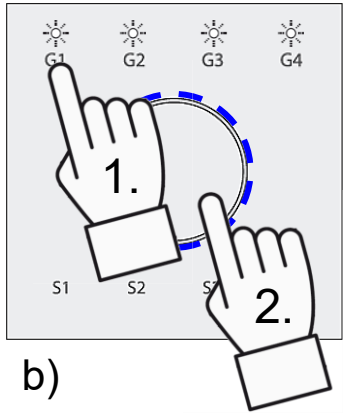
a. Broadcast system
(Rotary Ⓐ in pos. A or B)
No setup of new luminaire(s) required

b. System with Group control
(Rotary Ⓐ in pos. C or D)
New luminaire(s) must be added to one of the four groups as described in the following steps

Follow Steps 1-5 of chapter "group assignment"



a)



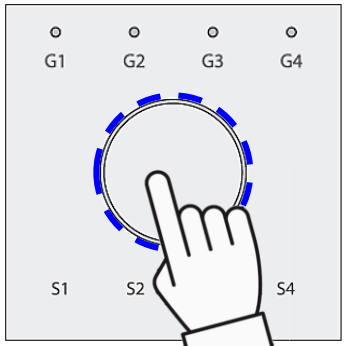
b)

click <1s

Step 6:

a) Confirm grouping of <u>existing luminaires</u> by a short push to the rotary knob

b) <u>New luminaire</u> and all group selector LEDs are blinking:
1. Select group by touching G1-G4
→ Already existing members of this group are switched to 100%
2. Confirm assignment by a short push to the rotary knob



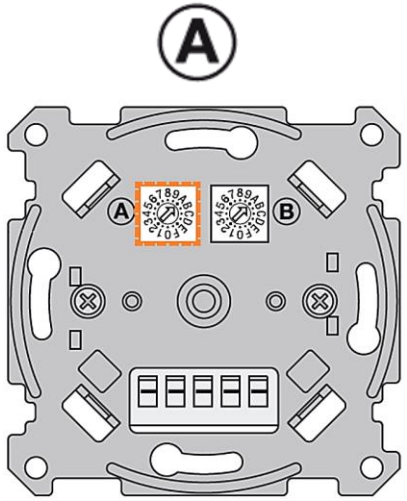
click >5s

Step 7:

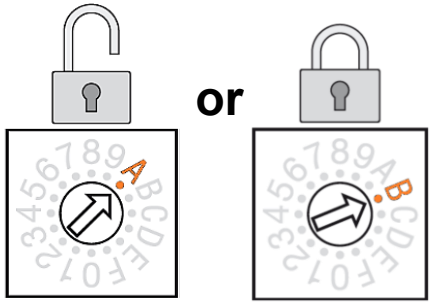
End process after last new luminaire has been assigned by a long push to the rotary button >5s

→ all luminaires will flash two times
→ Set back rotary Ⓐ to its original position

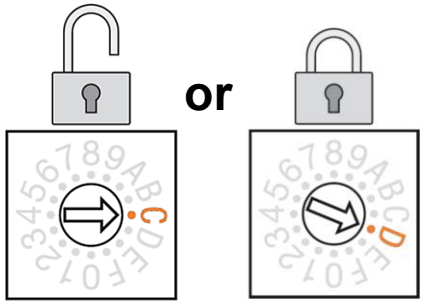
Application guide
MCU GROUP DALI-2 TW – Configuration: *Broadcast and group control operation modes*



Broadcast control mode (Rotary switch Ⓐ in position A or B)	Remark
Enable Scene Storage (S1-S4) & memory function: Set rotary switch Ⓐ to position **A**	If multiple MCU are installed in a room, scene storage and memory function can be enabled / disabled for each MCU individually
Disable Scene Storage (S1-S4) & memory function: Set rotary switch Ⓐ to position **B**	

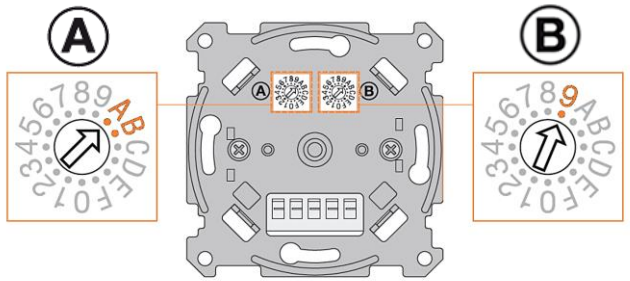


Group control mode (Rotary switch Ⓐ in position C or D)	Remark
Enable Scene Storage (S1-S4) & memory function: Set rotary switch Ⓐ to position **C**	If multiple MCU are installed in a room, scene storage and memory function can be enabled / disabled for each MCU individually
Disable Scene Storage (S1-S4) & memory function: Set rotary switch Ⓐ to position **D**	



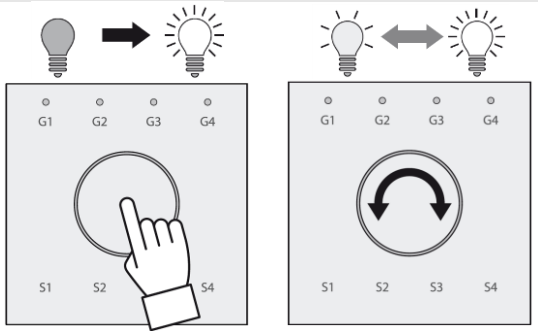
Application guide
MCU GROUP DALI-2 TW – Configuration: Set Minimum dimming level

Broadcast operation mode (Rotary switch Ⓐ in position A or B)



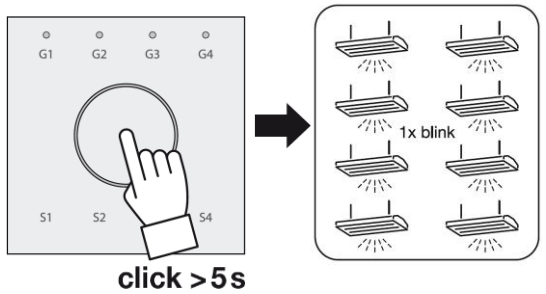
Step 1:

1. Remove knob and glass plate
2. Note actual position of rotary Ⓑ
3. Set rotary Ⓑ to position 9



Step 2:

1. Refit glass plate and knob
2. If off, switch on the lights via short push to the knob
3. Dim lights to the desired minimum level



Step 3:

1. Store level as new minimum by pushing the knob >5s
2. Lights will blink to confirm storage

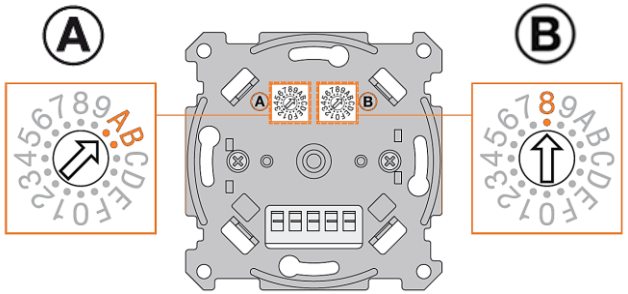
Remark: Min level is stored by all interconnected MCUs

Step 4:

1. Remove knob and glass plate
2. Set back rotary Ⓑ to original position
3. Refit glass plate and knob

Application guide
MCU GROUP DALI-2 TW – Configuration: Set Maximum dimming level

Broadcast operation mode (Rotary switch Ⓐ in position A or B)

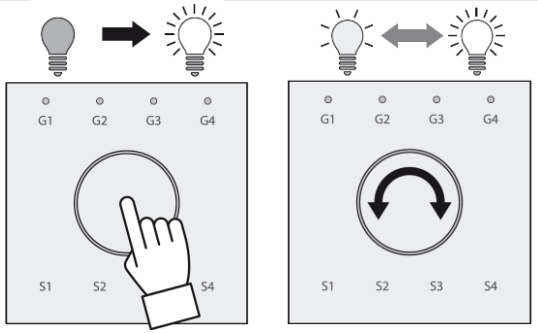


Step 1:

1. Remove knob and glass plate
2. Note actual position of rotary Ⓑ
3. Set rotary Ⓑ to position 8

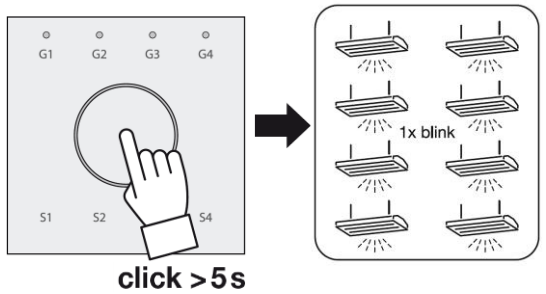
→ Backlight switches to 100% red

→ All groups are switched to their current maximum level



Step 2:

1. Refit glass plate and knob
2. If off, switch on the lights via short push to the knob
3. Dim lights to the desired maximum level



Step 3:

1. Store level as new maximum by pushing the knob >5s
2. Lights will blink to confirm storage

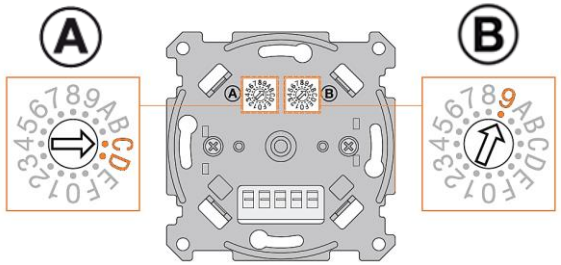
Remark: Max level is stored by all interconnected MCUs

Step 4:

1. Remove knob and glass plate
2. Set back rotary Ⓑ to original position
3. Refit glass plate and knob

Application guide
MCU GROUP DALI-2 TW – Configuration: Set Minimum dimming level

Group control mode (Rotary switch Ⓐ in position C or D)

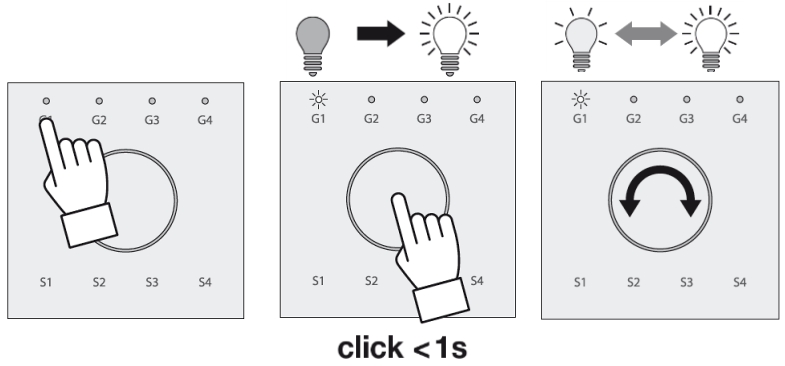


Step 1:

1. Remove knob and glass plate
2. Note actual position of rotary Ⓑ
3. Set rotary Ⓑ to position 9

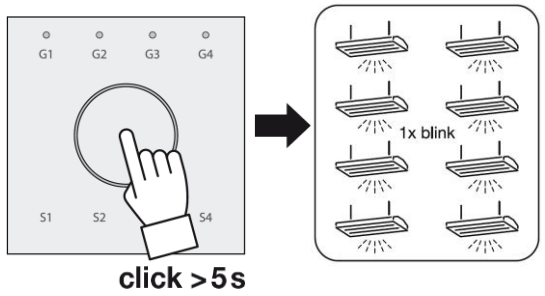
→ Backlight switches to 100% red

→ All groups are switched to their current minimum level



Step 2:

1. Refit glass plate and knob
2. Select group
3. If off, switch on group by a short push to the knob
4. Dim group to the desired minimum level



Step 3:

1. Store level as new minimum for the selected group by pushing the knob >5s
2. Lights will blink to confirm storage

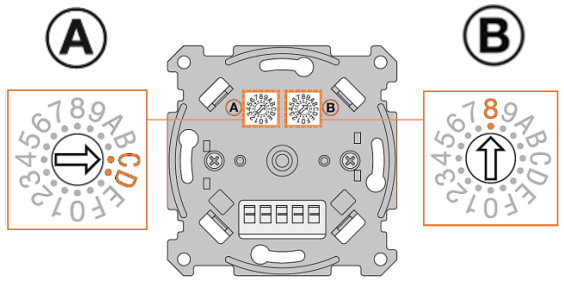
Remark: Group Min level is stored by all interconnected MCUs

Step 4:

1. Remove knob and glass plate
2. Set back rotary Ⓑ to original position
3. Refit glass plate and knob

Application guide
MCU GROUP DALI-2 TW – Configuration: Set Maximum dimming level

Group control mode (Rotary switch Ⓐ in position C or D)

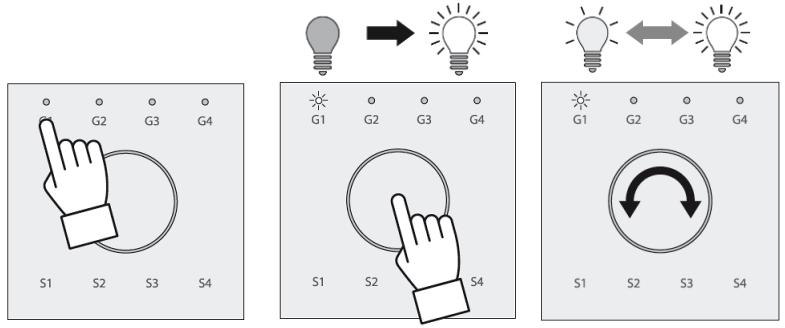


Step 1:

1. Remove knob and glass plate
2. Note actual position of rotary Ⓑ
3. Set rotary Ⓑ to position 8

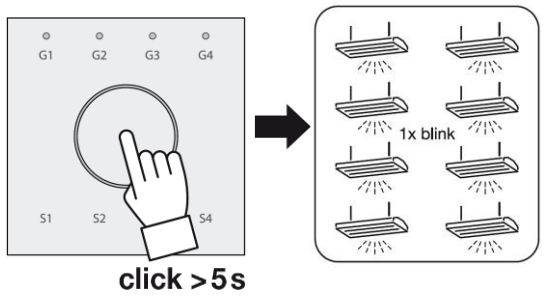
→ Backlight switches to 100% red

→ All groups are switched to their current maximum level



Step 2:

1. Refit glass plate and knob
2. Select group
3. If off, switch on group by a short push to the knob
4. Dim group to the desired maximum level



Step 3:

1. Store level as new maximum for the selected group by pushing the knob >5s
2. Lights will blink to confirm storage

Remark: Group Max level is stored by all interconnected MCUs

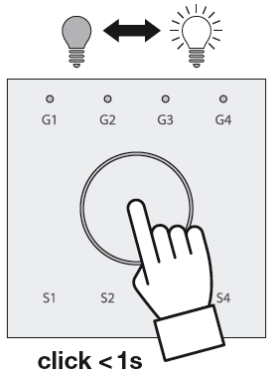
Step 4:

1. Remove knob and glass plate
2. Set back rotary Ⓑ to original position
3. Refit glass plate and knob

Application guide
MCU GROUP DALI-2 TW – *User operation*

Broadcast operation mode (Rotary switch Ⓐ in position A or B)

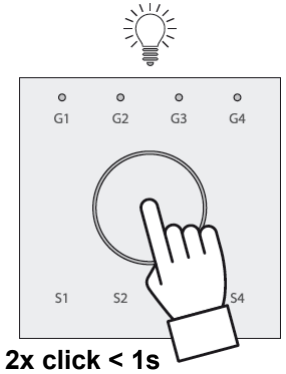
Switch ON / OFF



click < 1s

- To switch on / off briefly press the rotary knob of the MCU.
- Switching direction toggles with each press.
  (Note: If light is switched on the backlight will be illuminate in blue, when switched off the illumination will be set to orientation light as described in the chapter "Configuration" of this guide ; ex-factory setting: Red /10%)

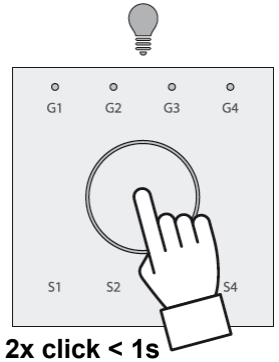
Define manual Switch ON behaviour



2x click < 1s

Store memory value

- To save a specific brightness and CCT setting for Switch ON, set the desired brightness and CCT values, then store them by double-clicking the knob.
  (Note: In broadcast operation mode, double-click storage is only available in turnkey position A)
- Confirmation of storage is shown by the lights blinking twice.



2x click < 1s

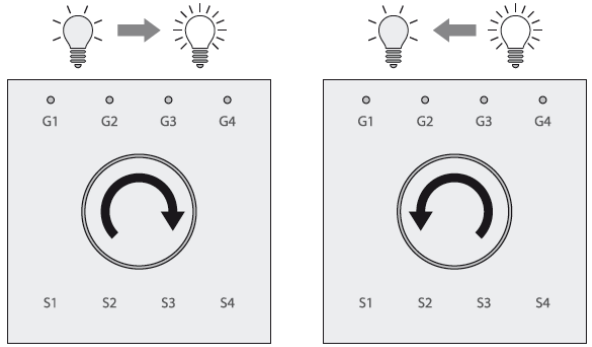
Delete memory value

- To remove a fixed brightness and CCT setting for Switch ON, turn off the light and double-click the knob.
  (Note: double-click functionality in broadcast operation mode is available only in turnkey position A)
- Successful deletion is confirmed when the lights turn ON to 100% brightness and 4000K. After deleting fixed levels, the Switch ON will revert to the last values used before manual OFF.

Application guide
MCU GROUP DALI-2 TW – *User operation*

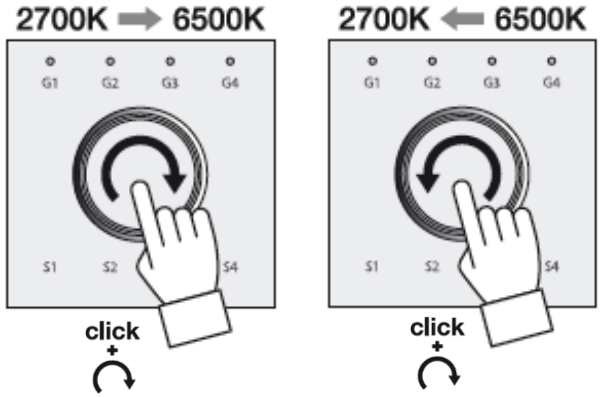
Broadcast operation mode (Rotary switch Ⓐ in position A or B)

Dimming



- <u>If light is switched on:</u> light level can be increased by clockwise rotation of the knob and decreased rotating the knob counterclockwise.
- The minimum and the maximum dimming level can be restricted as described in the chapter “Configuration” of this guide

Set colour temperature



- <u>If light is switched on:</u> CCT can be increased be increased by clockwise rotation of the pressed knob and decreased rotating the pressed knob counterclockwise. (*Note: CCT control requires DT8 compliant DALI TW drivers)*
- As long as the knob is illuminated in red / blue the MCU is in CCT change mode and a CCT change is possible by knob rotation without need to keep the knob pressed. The CCT change mode can be terminated by a short push to the knob at any time and is terminated automatically 5s after last rotation action

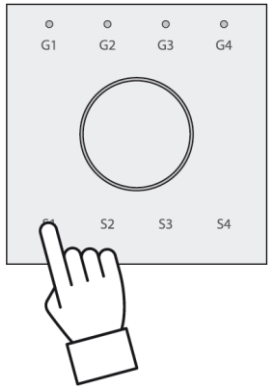
<u>Note:</u>

- *CCT control requires DT8 compliant DALI TW drivers*

Application guide
MCU GROUP DALI-2 TW – *User operation*

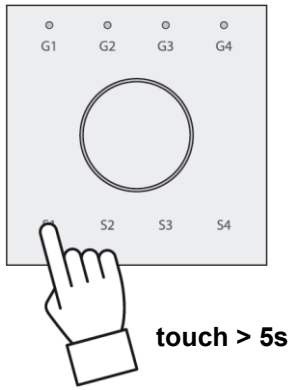
Broadcast or group control operation mode (Rotary switch Ⓐ in position A, B or C,D)

Recall a light scene



- To recall a stored light level and colour temperature briefly touch one of the elements S1-S4

Store a light scene



- To store a preferred light level and colour temperature touch one of the S1-S4 elements for more than 5s until the light flashes.

Note:

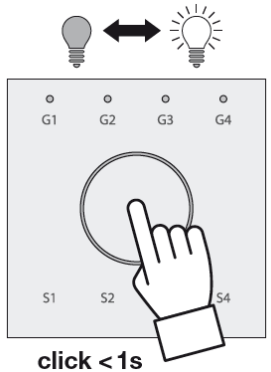
*a) In Broadcast operation mode scene storage is enabled in position **A** of Rotary switch Ⓐ and disabled in position **B**.*
*In Group control operation mode scene storage is enabled in position **C** of Rotary switch Ⓐ and disabled in position D.*
If scenes should be protected from accidental change by users, please set the turnkey to Ⓐ pos. B or C after scene storage.

b) Scene values are stored in the non-volatile memory each MCU.
If individual scene values are to be used on an MCU, set the rotary switch Ⓐ of the respective MCU to position B or D before saving to prevent the previously stored values from being overwritten.

Application guide
MCU GROUP DALI-2 TW – *User operation*

Group control operation mode (enabled if Rotary switch Ⓐ is in position C or D)

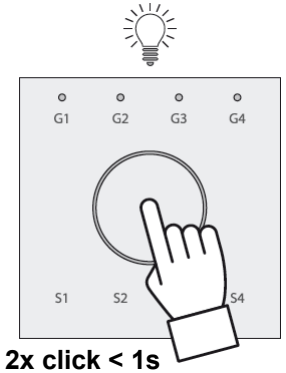
Switch ON / OFF



click < 1s

- To switch on / off briefly press the rotary knob of the MCU.
- Switching direction toggles with each press.
- **Important hint:**
  If a memory value is stored with individual groups switched off, these groups will not be switched on by a short push.
  These groups either must be switched on individually or a memory value where the corresponding groups are switched on must be stored.

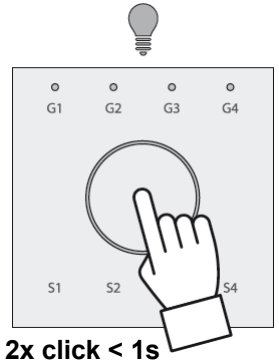
Define manual Switch ON behaviour



2x click < 1s

Store memory value

- To save a specific individual brightness/CCT level or switching state of a group at Switch ON, set the desired brightness / CCT value or switching state for each group, then store them by double-clicking the knob.
  (Note: In group operation mode, double-click storage is only available in turnkey position C, setting can be locked in position D)
- Confirmation of storage is shown by the lights blinking twice.



2x click < 1s

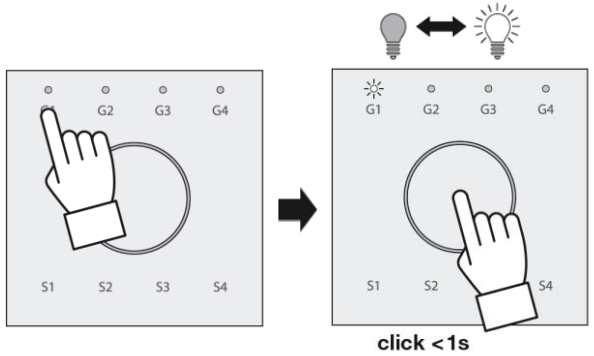
Delete memory value

- To remove a fixed brightness / CCT setting and switching state of the groups for Switch ON, turn off the light and double-click the knob.
  (Note: double-click functionality in group control operation mode is available only in turnkey position C)
- Successful deletion is confirmed by the lights switching ON to 100% brightness and 4000K. After deleting fixed levels, the Switch ON will revert to the last individual values and switching state of each group set before manual OFF.

Application guide
MCU GROUP DALI-2 TW – *User operation*

Group control operation mode (enabled if Rotary switch Ⓐ is in position C or D)

Switch ON / OFF a group

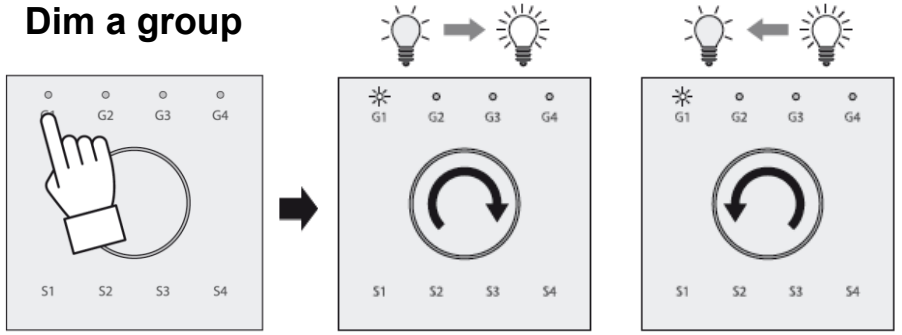


- Select group by touching one of the elements G1-G4 → corresponding group indicator is lit if group control is active
- To switch on / off this group, briefly press the rotary knob of the MCU.
- Switching direction toggles with each press.

Remarks:

- *If at least one group is switched on the backlight will be illuminate in blue, when the is group switched off the illumination will be set to orientation light as described in the chapter "Configuration" of this guide*
- *As long as a group indicator LED is lit, group control is active*
- *to change from group to broadcast control touch again the group element, group control is terminated automatically 5s after last user action*

Dim a group



- Select group by touching one of the elements G1-G4 → corresponding group indicator is lit while group control is active
- Dim up the light by clockwise rotation of the knob / dim down by counterclockwise rotation.

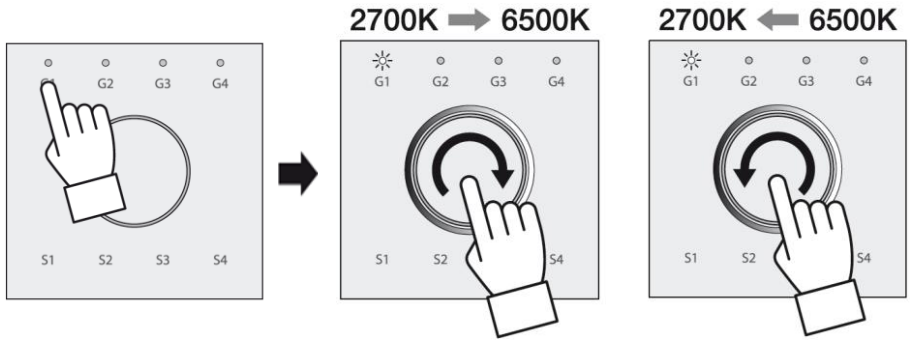
Remarks:

- *Dimming requires the group to be switched ON before (no switch ON by dimming)*
- *to change from group to broadcast control touch again the group element, group control is terminated automatically 5s after last user action*

Application guide
MCU GROUP DALI-2 TW – *User operation*

Group control operation mode (Rotary switch Ⓐ in position C or D)

Set colour temperature of a group



- Select group by touching one of the elements G1-G4 → corresponding group indicator is lit → group control is active
- <u>If group is switched off, switch on the group</u> by a short push to the rotary knob
- CCT can be increased be by clockwise rotation of the pressed knob and decreased rotating the pressed knob counterclockwise.
- As long as the knob is illuminated in red / blue the MCU is in CCT change mode and a CCT change is possible by knob rotation without need to keep the knob pressed. The CCT change mode can be terminated by a short push to the knob at any time and is terminated automatically 5s after last rotation action

<u>Note:</u>

- *CCT control requires DALI DT8 compliant TW drivers*
- *To change from group to broadcast control touch again the group element or wait until group control is terminated automatically 5s after last user action*

Application guide
MCU GROUP – Application example 1a: *Meeting room with two entrance doors*

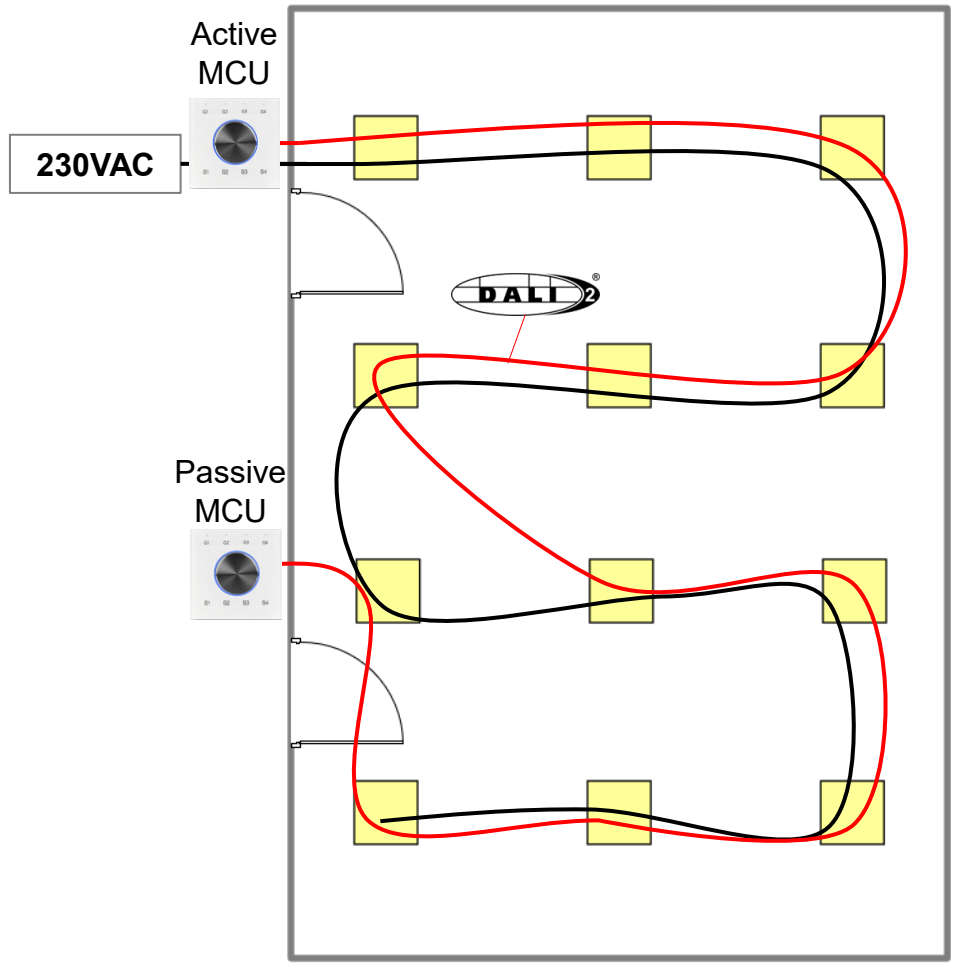
Description

FUNCTIONALITY
- Up to 25 luminaires shall be controlled by a DALI signal in broadcast or in up to 4 individual groups at each of two entry doors
- Dimming and switching of all luminaires shall be possible at both entry doors of the room

PRINCIPLE SETUP
- A MCU GROUP is installed at both entry doors
- The MCU at one door is connected to mains and acts as central DALI bus power supply (= active MCU)
- The second MCU is connected to DALI only and is supplied from the DALI bus (= passive MCU)
- All luminaires are connected to mains and the DALI bus

OPTIONS
- If number of luminaires is > 25, please connect second MCU also to mains

Installation scheme



Application guide
MCU GROUP– Application example 1a: *Meeting room with two entrance doors*

Installation

Safety
- Switch off mains and DALI supply during installation !
- DALI must be treated like mains voltage

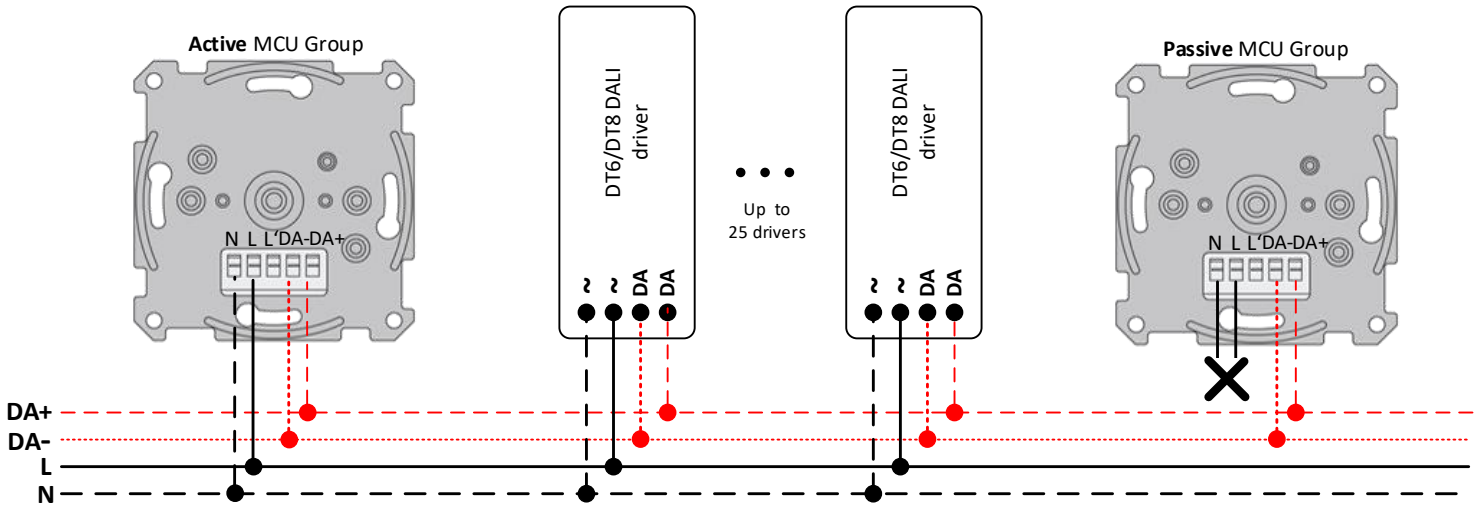
Wiring
- Max. total DALI wire length: 300m
- Recommended DALI wire diameter 1,5mm²
- DALI and mains voltage may be routed in the same cable (e.g. NYM 5x1,5mm²)

Hints:
- *Ensure correct polarity DA+/DA- when connecting the second MCU*
- *Respect the max. number of luminaires per circuit breaker*

Commissioning hint
- To avoid that lights are switched on after a temporary mains interruption please set turnkey Ⓑ of all MCU to identical position **A** (=last state) or position **2** (=OFF)

Possible system size
- Max. 25 DALI drivers per active DALI MCU / Max. 64 drivers in total
- Max. 4 DALI MCU per system
- Each Active MCU can power 1 passive MCU via DALI bus

Wiring diagram 1:



Application guide
MCU GROUP – Application example 1b: *Meeting room with automatic switch off*

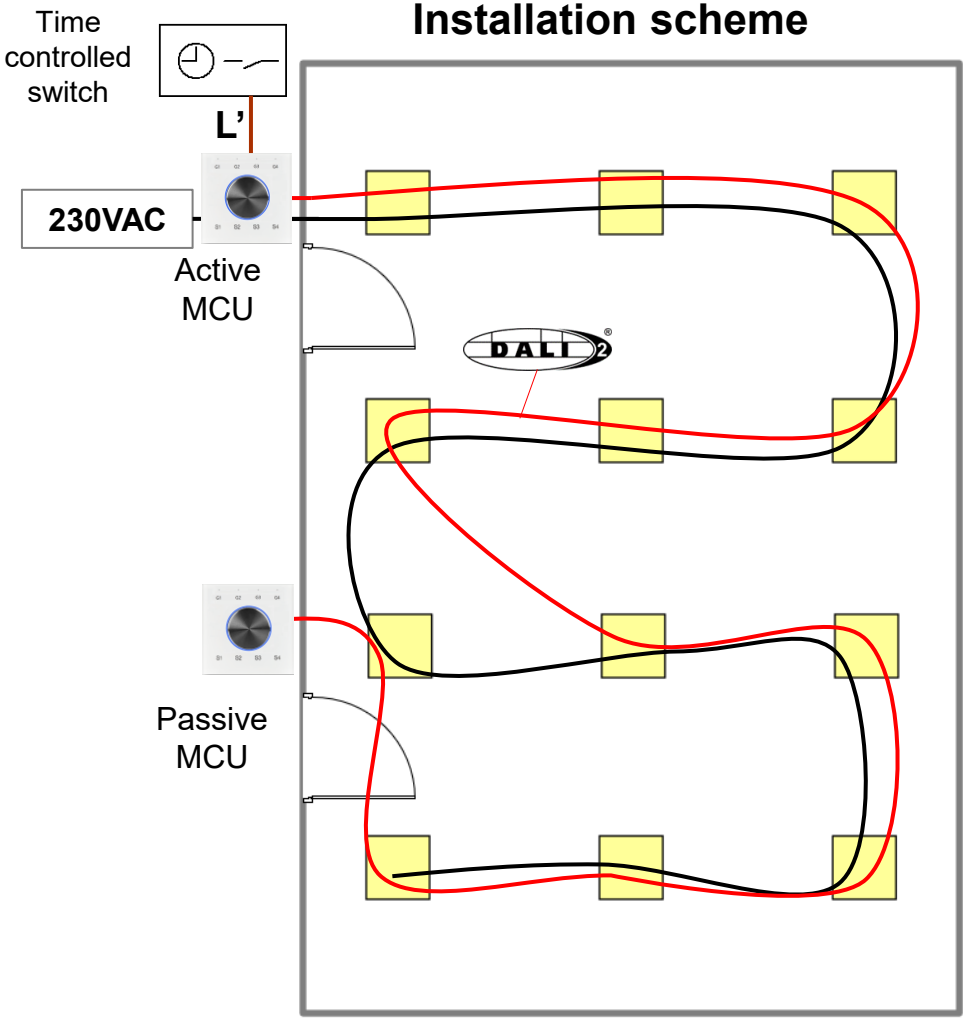
Description

FUNCTIONALITY
- Up to 25 luminaires shall be controlled by a DALI signal in broadcast or in up to 4 individual groups at each of two entry doors
- Dimming and switching of all luminaires shall be possible at both entry doors of the room
- Light shall be switched off after the office hours automatically, when a time-controlled switch contact opens

PRINCIPLE SETUP
- A MCU GROUP is installed at both entry doors
- The MCU at one door is connected to mains and acts as central DALI bus power supply (= active MCU)
- The L' input of the active MCU is connected to a time-controlled switch
- The second MCU is connected to DALI only and is supplied from the DALI bus (= passive MCU)
- All luminaires are connected to mains and the DALI bus

OPTIONS
- If number of luminaires is > 25, please connect second MCU also to mains

Installation scheme



Application guide
MCU GROUP– Application example 1b: *Meeting room with automatic switch off*

Installation

Safety
- Switch off mains and DALI supply during installation !
- DALI must be treated like mains voltage

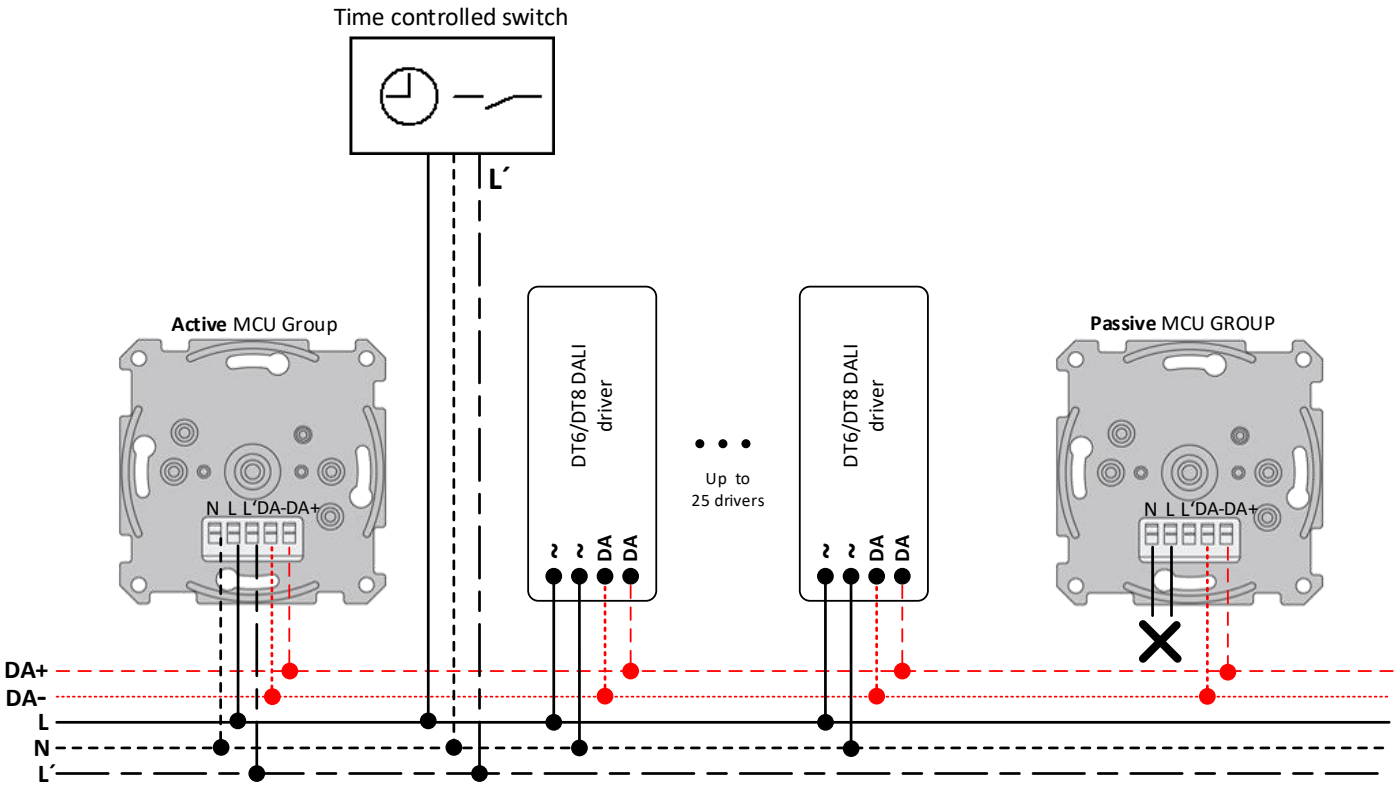
Wiring
- Max. total DALI wire length: 300m
- Recommended DALI wire diameter 1,5mm²
- DALI and mains voltage may be routed in the same cable (e.g. NYM 5x1,5mm²)

Hints:
- *Ensure correct polarity DA+/DA- when connecting the second MCU*
- *Respect the max. number of luminaires per circuit breaker*
- *Time switch output and MCU supply must use same phase!*

Commissioning
- To avoid automatic switch On by the time switch contact set turnkey Ⓑ of all MCU to identical position **3**

Possible system size
- Max. 25 DALI drivers per active DALI MCU / Max. 64 drivers in total
- Max. 4 DALI MCU per system
- Each Active MCU can power 1 passive MCU via DALI bus

Wiring diagram 1b:



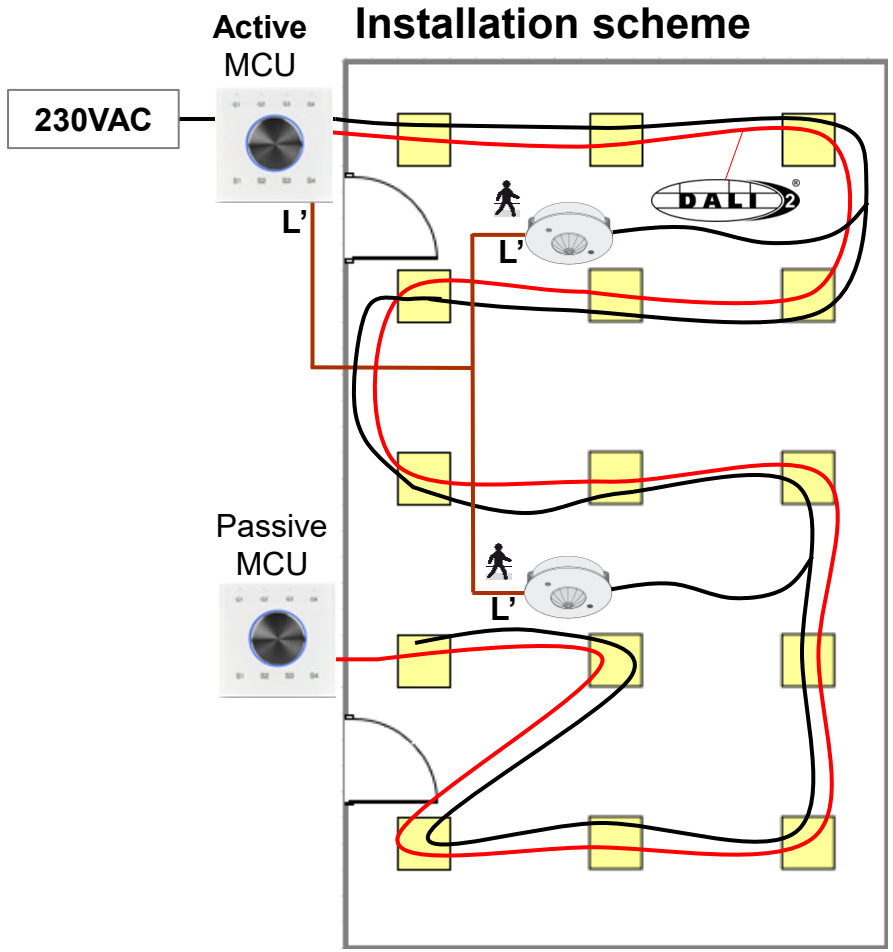
Application guide
MCU GROUP– Application example 1c: *Meeting room with motion detectors*

Description

FUNCTIONALITY
- Up to 25 luminaires shall be switched on / off by standard motion detectors
- Dimming and switching of all luminaires shall be possible at both entry doors of the room if persons are present

PRINCIPLE SETUP
- A MCU GROUP is installed at both entry doors
- The MCU at one door is connected to mains and acts as central DALI bus power supply (= active MCU)
- The second MCU is connected to DALI only and is supplied from the DALI bus (= passive MCU)
  All luminaires are connected to the DALI bus
- The load contacts (L') of the motion detectors are connected to the L' input of the active MCU

Installation scheme



Application guide
MCU GROUP– Application example 1c: *Meeting room with motion detectors*

Installation

Safety
- Switch off mains and DALI supply during installation !
- DALI must be treated like mains voltage

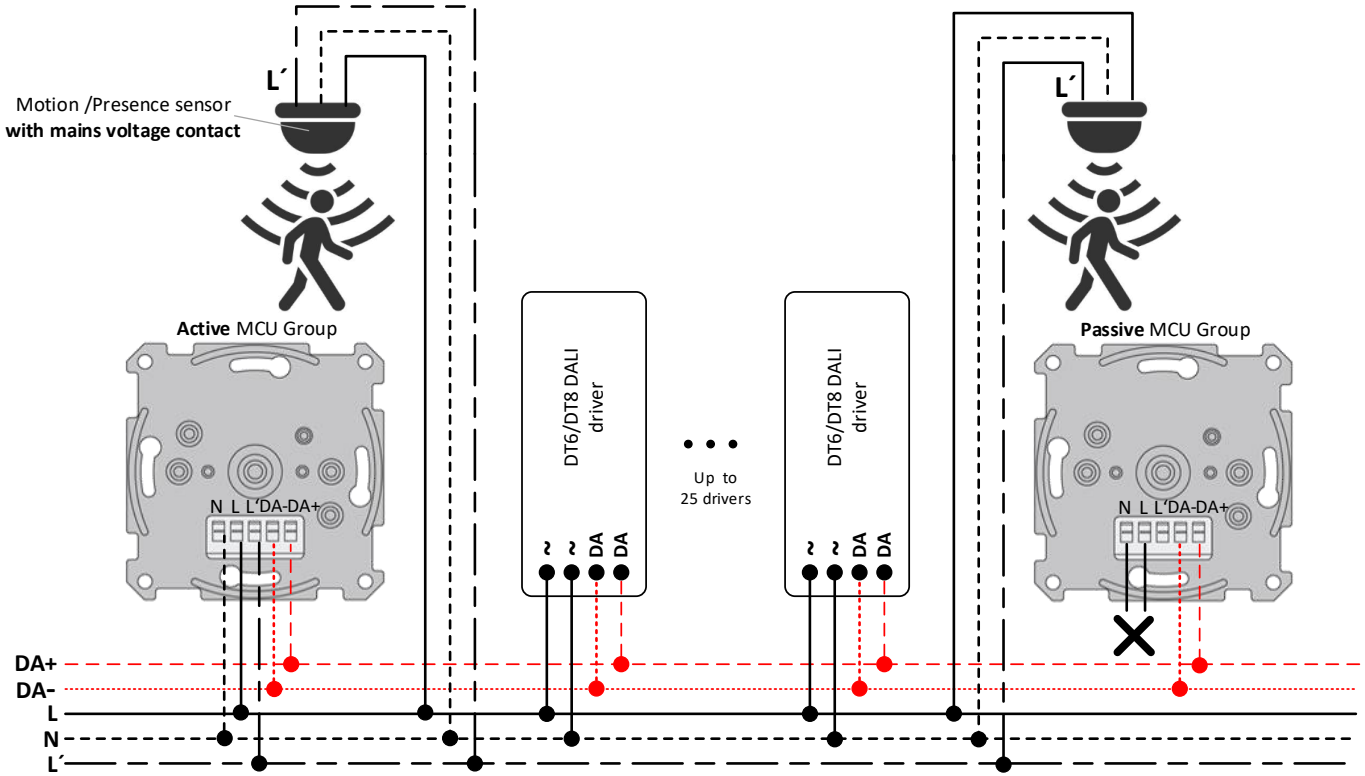
Wiring
- Max. total DALI wire length: 300m
- Recommended DALI wire diameter 1,5mm²
- DALI and mains voltage may be routed in the same cable (e.g. NYM 5x1,5mm²)

Hints:
- *Ensure correct polarity DA+/DA- when connecting the second MCU*
- *Respect the max. number of luminaires per circuit breaker*
- *Motion detector outputs and MCU supply must use same phase!*

Commissioning hint
- Fully automatic ON/OFF by motion detection: Set turnkey Ⓑ of all MCU to identical position B*-F or 0,1
- Semi automatic (= Manual ON via MCU and automatic OFF via Motion detector): Set turnkey Ⓑ of all MCU to pos. 3

Possible system size
- Max. 25 DALI drivers per active DALI MCU / Max. 64 drivers in total
- Max. 4 DALI MCU per system
- Each Active MCU can power 1 passive MCU via DALI bus

Wiring diagram 1c:



* If turnkey Ⓑ pos. B is used, disable scene storage by setting turnkey Ⓐ to pos. B or D

Application guide
MCU GROUP– Application example 2a: *Meeting room with partition walls*

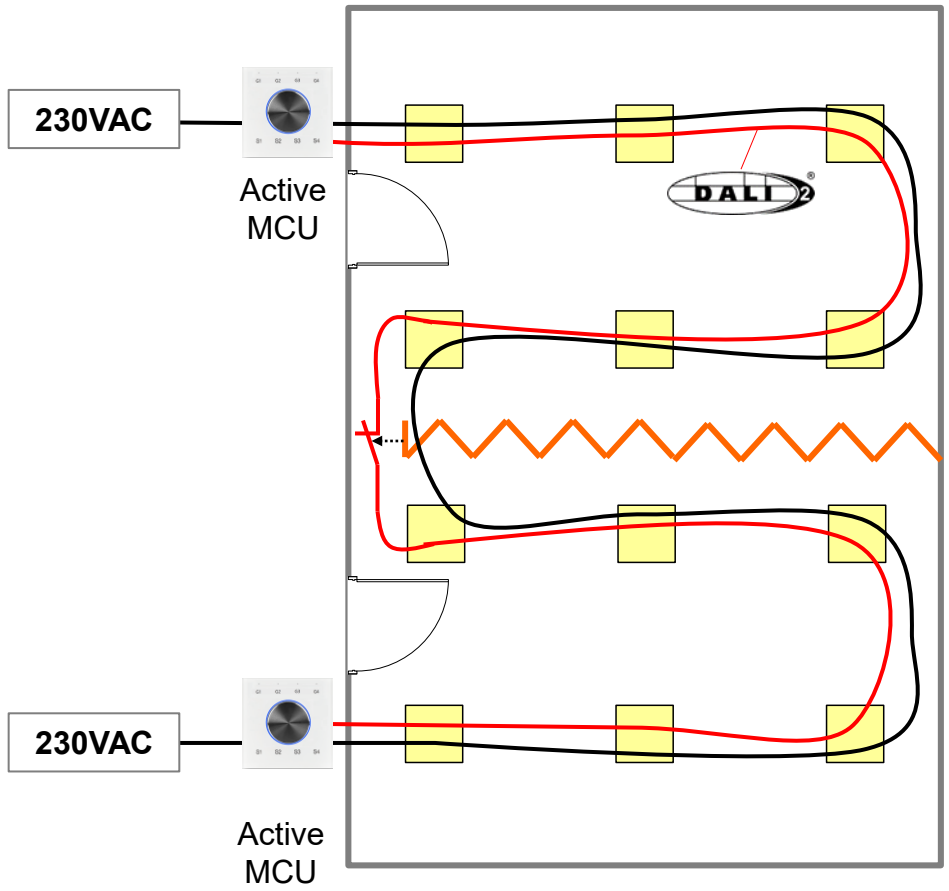
Description

FUNCTIONALITY
- Central and group wise dimming and switching of all luminaires shall be possible at both entry doors of the room when separation wall is open
- Independent control of each part room shall be possible as soon as soon as the room is split in two separate rooms by closing the wall

PRINCIPLE SETUP
- A MCU GROUP is installed at both entry doors
- Both MCU at are connected to mains and act as DALI bus power supply (= active MCUs)
- While the DALI wires of both part rooms are interconnected when the wall is open, the DALI connection between both parts is interrupted at one pole when the wall is closed
- All luminaires are connected to mains and the DALI bus of the DALI MCU of the corresponding part room.

OPTIONS
- By using 4 active MCU control of up to 4 part rooms can be realised

Installation scheme



Application guide
MCU GROUP – Application example 2a: Meeting *room with partition walls*

Installation hints

Safety
- Switch off mains and DALI supply during installation !
- DALI must be treated like mains voltage

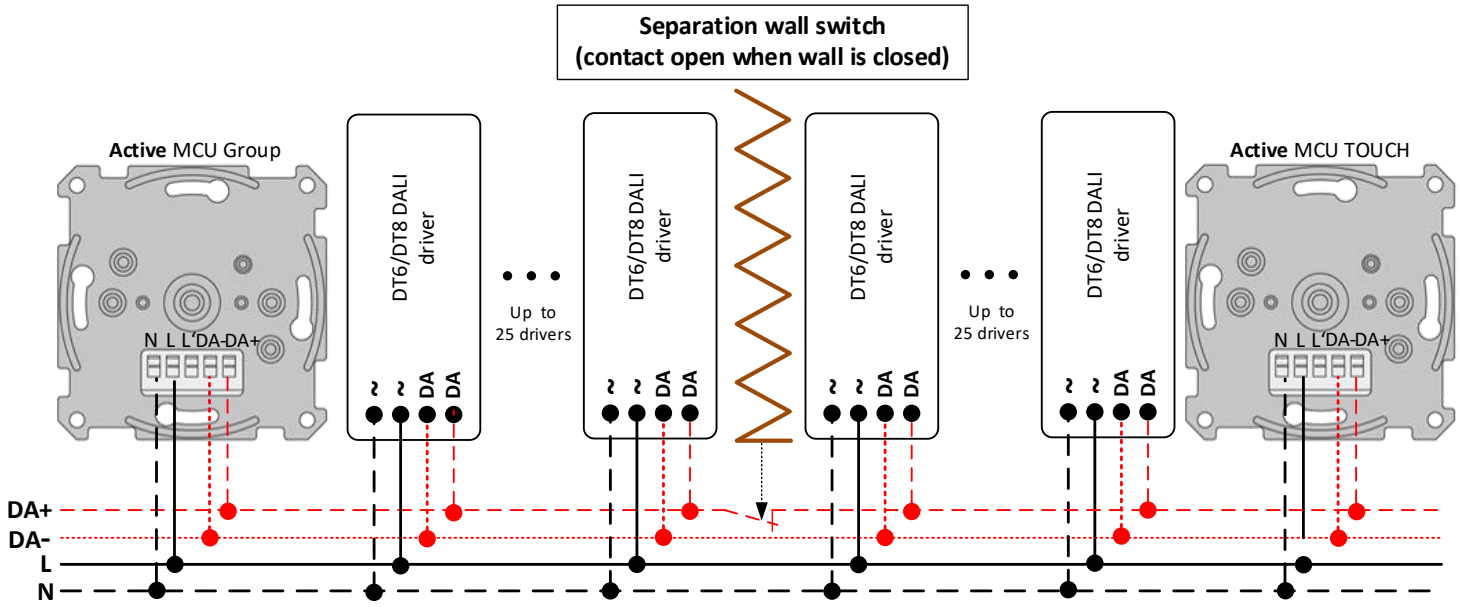
Wiring
- Max. total DALI wire length: 300m
- Recommended DALI wire diameter 1,5mm²
- DALI and mains voltage may be routed in the same cable (e.g. NYM 5x1,5mm²)

  Hints:
  - *Ensure correct polarity DA+/DA- when connecting the second MCU*
  - *Respect the max. number of luminaires per circuit breaker*

Commissioning
- To avoid that lights are switched on after a temporary mains interruption please set turnkey Ⓑ of all MCU to identical position **A** (=last state) or position **2** (=OFF)

Possible system size
- Max. 25 DALI drivers per active DALI MCU / Max. 64 drivers total
- Max. 4 DALI MCU in total
- Each Active MCU can power 1 passive MCU via DALI bus

Wiring diagram 2a:



Application guide
MCU GROUP– Application example 2b: *Meeting room with partition walls and motion detectors*

Description

FUNCTIONALITY

- Central and group wise dimming and switching of all luminaires shall be possible at both entry doors of the room when separation wall is open
- Independent control of each part room shall be possible as soon as soon as the room is split in two separate rooms by closing the wall
- Motion detectors should switch on the light when a person enters and switch off after room is unoccupied either in the part rooms (partition wall closed) or in the whole room (partition wall open)

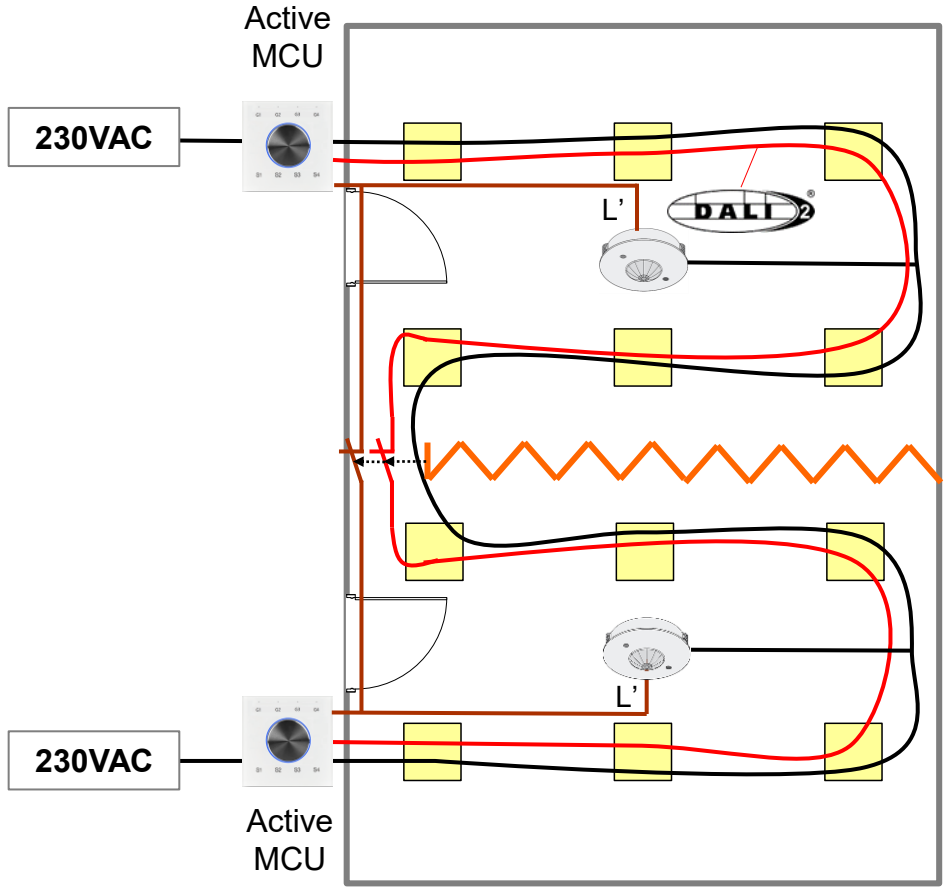
PRINCIPLE SETUP

- A MCU GROUP is installed at both entry doors
- Both MCU at are connected to mains and act as DALI bus power supply (= active MCUs)
- While the DALI wires of both part rooms are interconnected as well as the the L' output of all motion detectors when the wall is open. When the wall is closed L' connection and DALI connection between both parts is interrupted.
- All luminaires are connected to mains and the DALI bus of the DALI MCU of the corresponding part room.

OPTIONS

- By using 4 active MCU control of up to 4 part rooms can be realised

Installation scheme



Application guide
MCU GROUP– Application example 2b: Meeting room with partition walls and motion detectors

Installation hints

Safety
- Switch off mains and DALI supply during installation !
- DALI must be treated like mains voltage

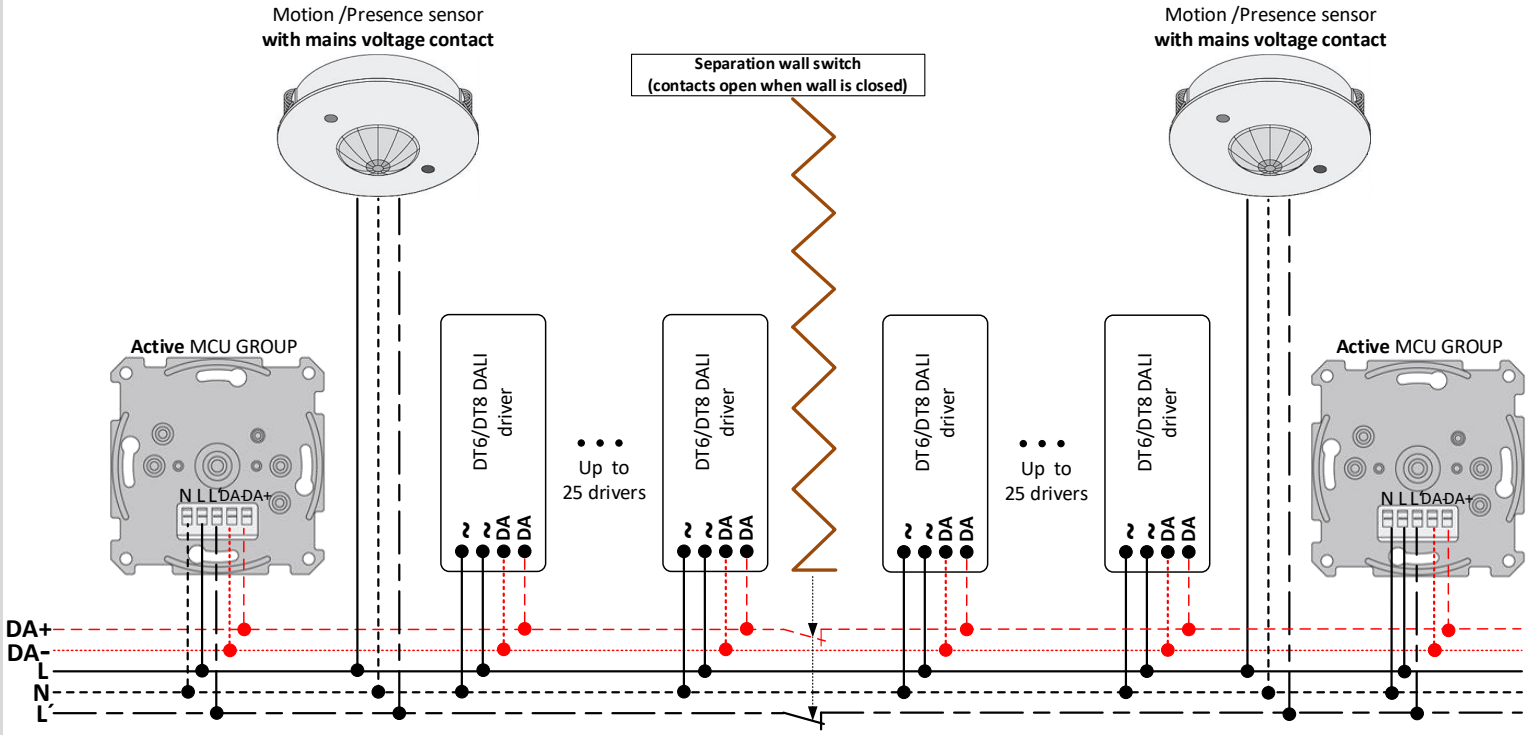
Wiring
- Max. DALI wire length (total for all room parts): 300m
- Recommended DALI wire diameter 1,5mm²
- DALI and mains voltage may be routed in the same cable (e.g. NYM 5x1,5mm²)

Hints:
- *Ensure correct polarity DA+/DA- when connecting several MCU*
- *Respect the max. number of luminaires per circuit breaker*
- *Motion detector outputs and MCU supply must use same phase!*

Commissioning
- Fully automatic ON/OFF by motion detection: Set rotary switch (B) of all MCU to identical position **B*-F**, or **0,1**
- Semi automatic (= Manual ON via MCU and automatic OFF via Motion detector): Set rotary switch (B) of all MCU to position **2**

Possible system size
- Max. 25 DALI drivers per room part
- Max. 4 room parts with one active DALI MCU each

Wiring diagram 2b :



* If rotary switch (B) pos. B is used, disable scene storage by setting rotary switch (A) to pos. B or D

Application guide
MCU GROUP

Questions and Answers

Q1: How can I set an individual level / a individual CCT for automatic switch on when motion is detected?
A1: In group control operation temporarily set the turnkey (B) of all MCU to position C; in broadcast operation mode, set the turnkey (B) of all MCU to position A ensure that all MCU are powered up and interconnected via DALI . Then adjust the brightness and the CCT of all groups to the desired levels and store this level individually by touch >5s to S1 element at all individual MCUs . Finally set the turnkey (B) of all MCU to position B

Q2: As the of room parts are bigger, they can not be covered by the detection area of a single motion detector, how can I increase the number of detectors?
A2: If you need multiple detectors in one part room just interconnect the Outputs with switched phase (L') of the detectors

Q3: What if the high number of drivers per part room exceeds the load capacity of the switching contact of the motion detector?
A3: The L' input of the MCU allows powerless switching and the load capacity of the motion detectors do not matter.

Q4: Can I use also daylight dependent control?
A4: If the selected motion detectors have an integrated light sensor, it is possible to set a brightness threshold directly at the sensors. That avoids an unnecessary switch on if sufficient daylight is available. A closed loop / daylight harvesting control is not possible

Q5: Can I use DALI sensors instead of the standard motion detectors?
A5: No, the MCU does not support other DALI control devices such as DALI Sensors or DALI Push button couplers.

Q6: Can I connect a MCU to another DALI control system or a BMS solution?
A6: No, the MCU is a standalone control solution

Q7: Is it possible to control more than 25 drivers with one single MCU ?
A7: Yes. If you need to control more luminaires, please use an external DALI power supply. The MCU should not be connected to mains but supplied out of DALI (=passive MCU). Consider 10mA as DALI current consumption of the MCU and 2mA for each driver. Limit for a group control solution is 64 drivers max. in total over all 4 groups.

Q8: Can I mix/interconnect MCU GROUP with MCU TOUCH / MCU SELECT in the same installation?
A8: No this is not possible.

Application guide
MCU GROUP

Troubleshooting

QT1: What can I do if some luminaires have a different dimming behavior than the rest ?
AT1: Most probably not all DALI drivers have ex-factory settings. Please perform a RESET as described at the beginning of this application guide

QT2: I have installed two MCU, why do the lights behave differently depending which MCU I use?
AT2: To ensure a complete synchronization, the MCU must be interconnected and powered when configuration settings such as storing a Switch On level or a Min level are done. In addition, it is recommended to use identical settings for the turnkey switches of all interconnected MCU.

QT3: The MCU is not working, and lights stay always at 100%, what is the possible root cause?
AT3: Most probably the DALI bus voltage is missing, and the luminaires are at System failure level. Please check DALI voltage with a multimeter (typically: ~16V DC).
Possible root cause: The MCU has no mains supply or the DA+/DA- wires of interconnected are mixed up at one MCU or the number of drivers / passive MCU is too high

QT4: Why do some luminaires not react to ON /OFF or dimming commands?
AT4: If you are in group control operation mode (turnkey (A) set to “C” or “D”), all luminaires must be assigned to a group otherwise they can’t be controlled.
1. Check a correct DALI connection, temporarily set turnkey (A) to pos. “A” and check if all luminaires can be switched ON/OFF via Short push to the rotary knob
2. If 1. works fine, restart group assignment as described in chapter 4 otherwise check DALI connection of affected luminaires.

QT5: Why do group selectors G1…G4 not work ?
AT5: If the rotary knob backlight blinks red when touching G1…G4, the MCU is in broadcast operation mode, please check turnkey (A) setting, group control is only enabled in pos. “C” and “D”.

QT6: Why is it not possible to store scenes?
AT6: If rotary knob backlight blinks red after a 5s Touch to S1…S4, storage is disabled. Scene storage is enabled if turnkey (A) is set to Pos. “A” or “C”

QT7: Why is the rotary backlight blinking permanently in red?
AT7: You have chosen a “reserved” position for turnkey (A) and/or (B)

Application guide
MCU GROUP

Troubleshooting

QT8: In Group control mode, why not always all groups switch On when I short push the knob in OFF state?

AT8: If the Memory value is deleted, the MCU will reestablish the individual level and switching states of each group as stored by double click.
If a group is off when storage is triggered by double-click, it will not be switched on by next short push to the rotary knob (What you see is what you get principle).
To avoid that groups stay off, please store a memory value where all groups have a level >0 by double click to the knob
(Hint: lock this setting by switching the rotary switch (A) to position D afterwards)

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Application guide
MCU GROUP

Technical data / Setting option overview

	MCU GROUP DALI-2 TW
Input voltage range (AC)	100-240V (50/60Hz)
Power consumption	0.7-2.7W
Allowed wire diameter	0.5-1.5mm²
Protection class	II
Protection type	IP 20
Ambient temperature range	-25…+50°C
Humidity range	10-95%
Max. total DALI wire length	100m@0.5mm² / 200m@1.0mm² / 300m@1.5mm²
Max. DALI output current*	65mA
DALI input current**	10mA
Dimming range	1-100%
CCT setting range	2700-6500K
Dimensions (l x w x h)	86x86x56mm
Net weight	176g
Lifetime	> 50.000h

*Mains supplied MCU (=active MCU) / **DALI supplied MCU (= passive MCU)

A Rotary switch position	Meaning
A*	Scene storage and Double Click enabled; Group addressed control disabled
B	Scene storage and Double Click disabled; Group addressed control disabled
C	Scene storage and Double Click enabled; Group addressed control enabled
D	Scene storage and Double Click disabled; Group addressed control enabled
E-F	Reserved
0	Group assignment mode enabled
1	Group change mode enabled
2	Orientation light setting enabled
3-8	Reserved
9	RESET enabled

B Rotary switch position	Meaning
A*	POWER ON: LAST LEVEL and LAST CCT of all groups
B	POWER ON: SCENE 1
C	POWER ON: 10%; CCT: 4000K (all groups)
D	POWER ON: 20%; CCT: 4000K (all groups)
E	POWER ON: 30%; CCT: 4000K (all groups)
F	POWER ON: 50%; CCT: 4000K (all groups)
0	POWER ON: 80%; CCT: 4000K (all groups)
1	POWER ON: 100%; CCT: 4000K (all groups)
2	POWER ON: OFF (all groups)
3	POWER ON LEVEL: No DALI command send after Power On
4-7	Reserved
8	MAX LEVEL setting
9	MIN LEVEL setting

*Ex-factory setting

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THANK YOU