LIGHT MANAGEMENT IS VIVARES

Application guide

REPEATER DALI-2

Status: November 2025 | LEDVANCE

Application guide
DALI-2 Repeater

REPEATER DALI-2 RM

EAN: 4099854709111

REPEATER DALI-2 CM

EAN: 4099854709098

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Application guide
DALI-2 Repeater

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Repeater DALI-2 RM – Features & benefits

Product Features

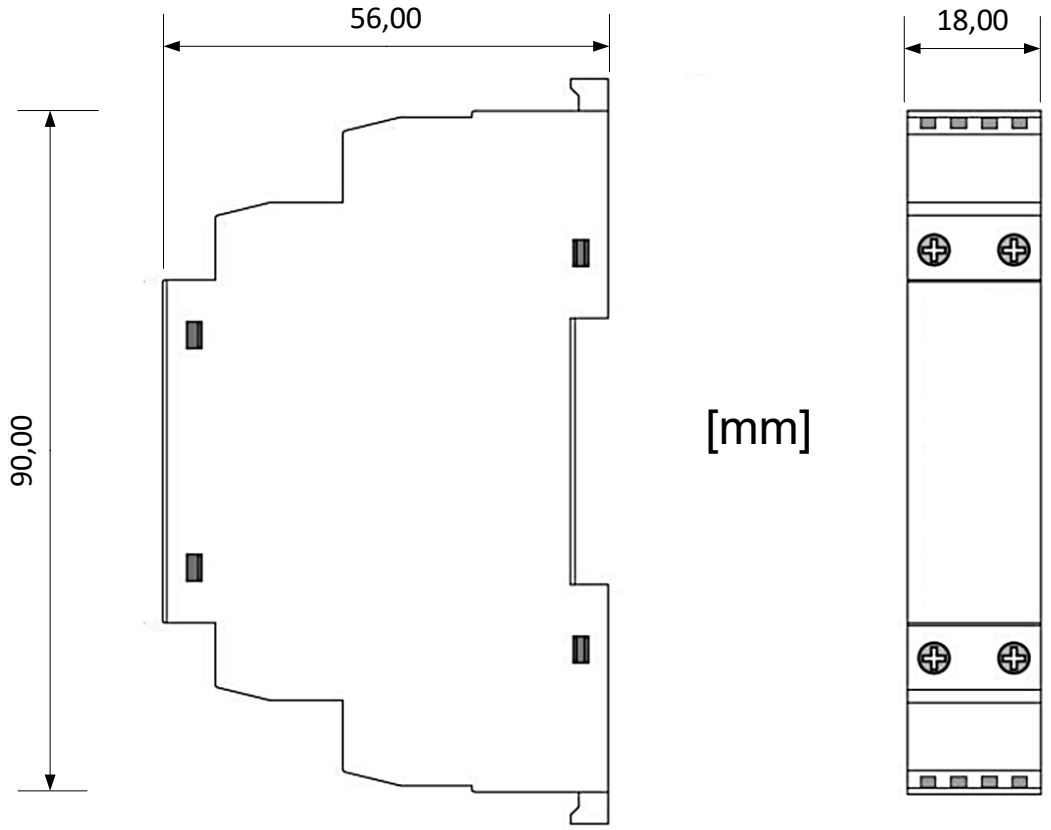
- **Integrated DALI** Power **supply for** up to **90 DALI drivers***
- **Housing for DIN rail mounting** (1TE / 1 division)
- **Supports DT6 and DT8 devices**

Product Benefits

- **Plug & Play** for DT6 and DT8 tunable white applications
- Allows simple **increase of number of DALI control gears**
- Enables simple **extension of DALI wire length**
- **Integrated Push DIM** control function
- **Configurable additional functional features** (e.g. repeating group commands)
- **Reversible over temperature, overload and short cut protection**
- **Wide ambient temperature range**
- **Standard Circuit Breaker housing** suitable for 35mm DIN rails

Application areas

- **DALI installations with more than 64 drivers and/or more than 300m cable length** in office- / shop-/ hospitality- and industry applications



* devices with 3-byte communication such as DALI sensors are **not** supported

Application guide
Repeater DALI-2 CM – Features & benefits

Product Features

- **Integrated DALI** Power **supply for** up to **90 DALI drivers***
- Housing for **independent mounting and luminaire integration**
- **Supports DT6 and DT8 devices**

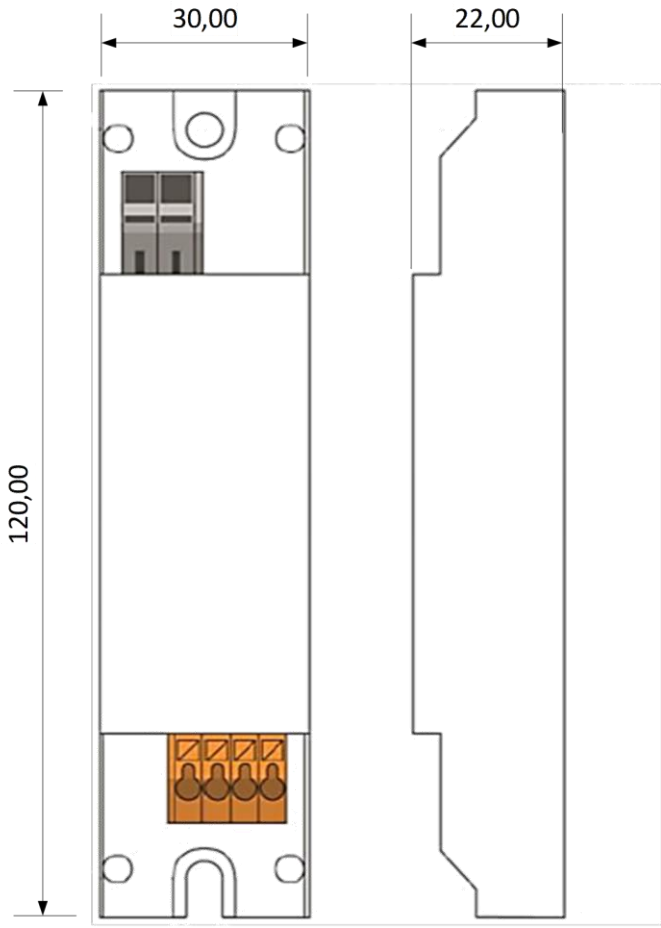
Product Benefits

- **Plug & Play** for DT6 and DT8 tunable white applications
- Allows simple **increase of number of DALI control gears**
- Enables simple **extension of DALI wire length**
- **Integrated Push DIM** control function
- **Configurable additional functional features** (e.g. transmission of group commands)
- **Reversible over temperature, overload and short cut protection**
- **Wide ambient temperature range**
- Housing with **Small cross section**

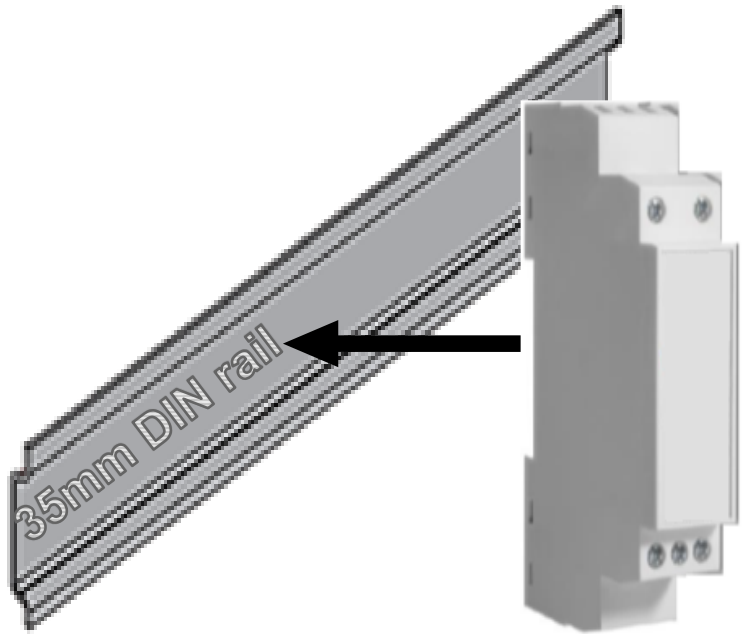
Application areas

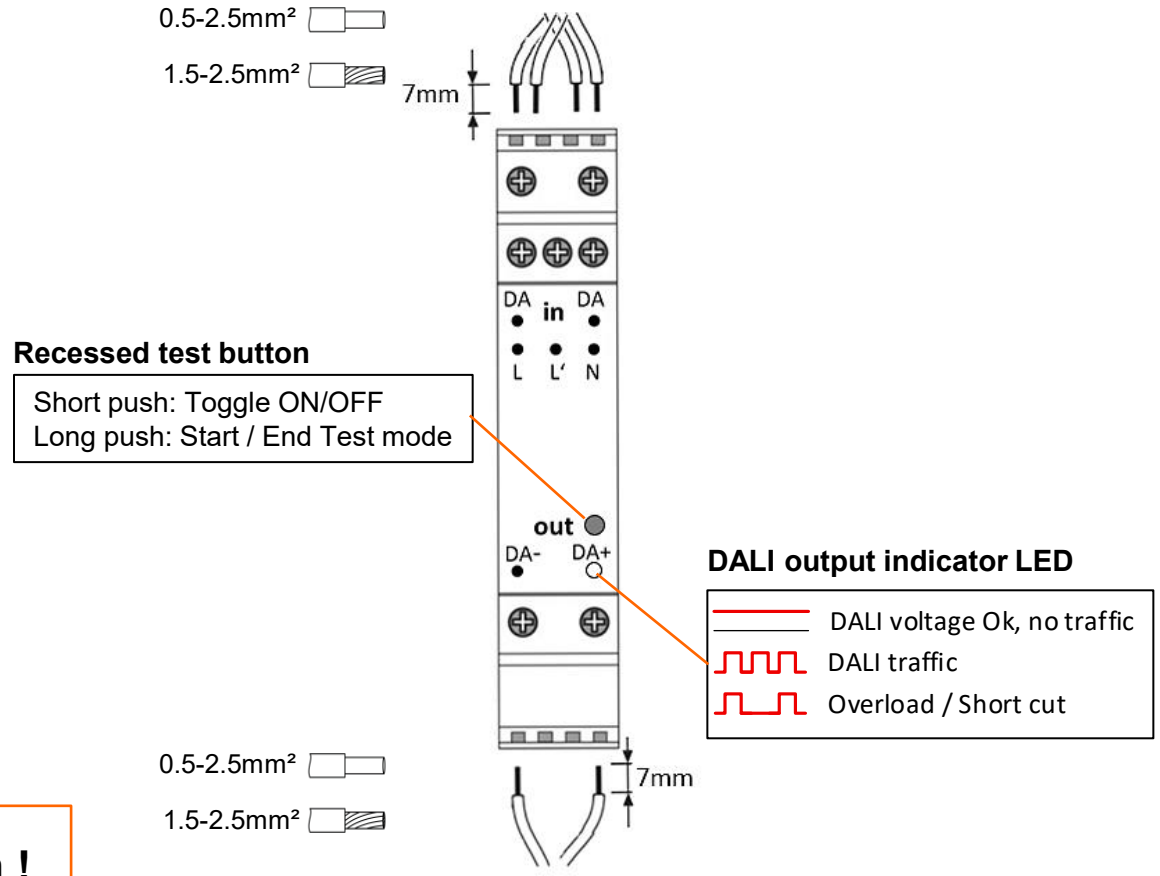
- **DALI installations with more than 64 drivers and/or more than 300m cable length** in office- / shop-/ hospitality- and industry applications

* devices with 3-byte communication such as DALI sensors are **not** supported



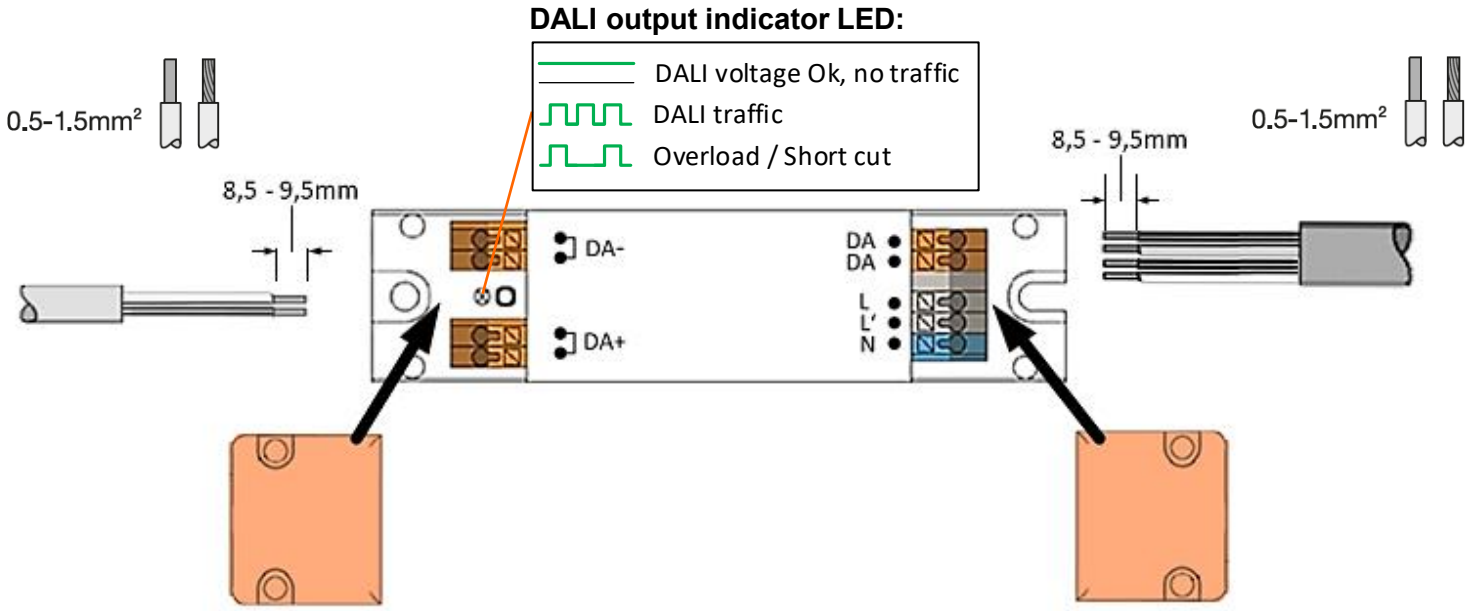
Application guide
Repeater DALI-2 RM– DIN rail mounting / wire connection

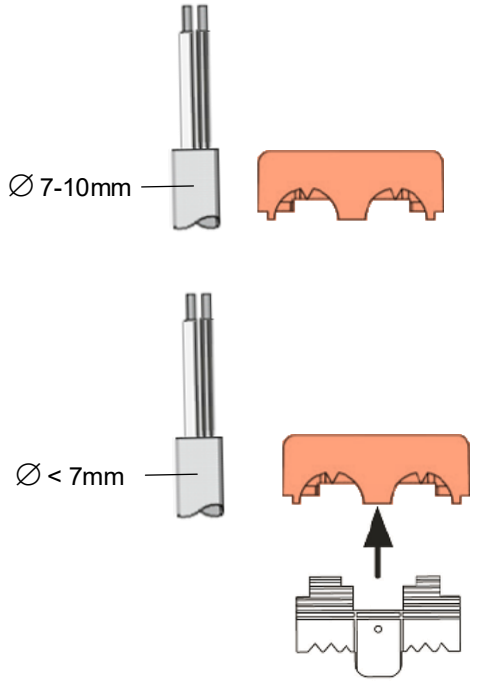




Switch off mains <u>and</u> DALI supply during installation !

Application guide
Repeater DALI-2 CM – Mounting / cable connection





For smaller cable diameters please insert the clamping part into the end caps

Switch off mains <u>and</u> DALI supply during installation !

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Application guide
Repeater DALI-2 CM – Application example 1: DALI control of more than 64 devices

Description

FUNCTIONALITY

- Depending on the selected control unit repeaters can be addressed as individual devices, grouped or broadcast controlled
- All luminaires connected to the same Repeater are broadcast controlled and act like a group
- Lamp failures of connected luminaires can be reported if periodically queried by the control unit

PRINCIPLE SETUP

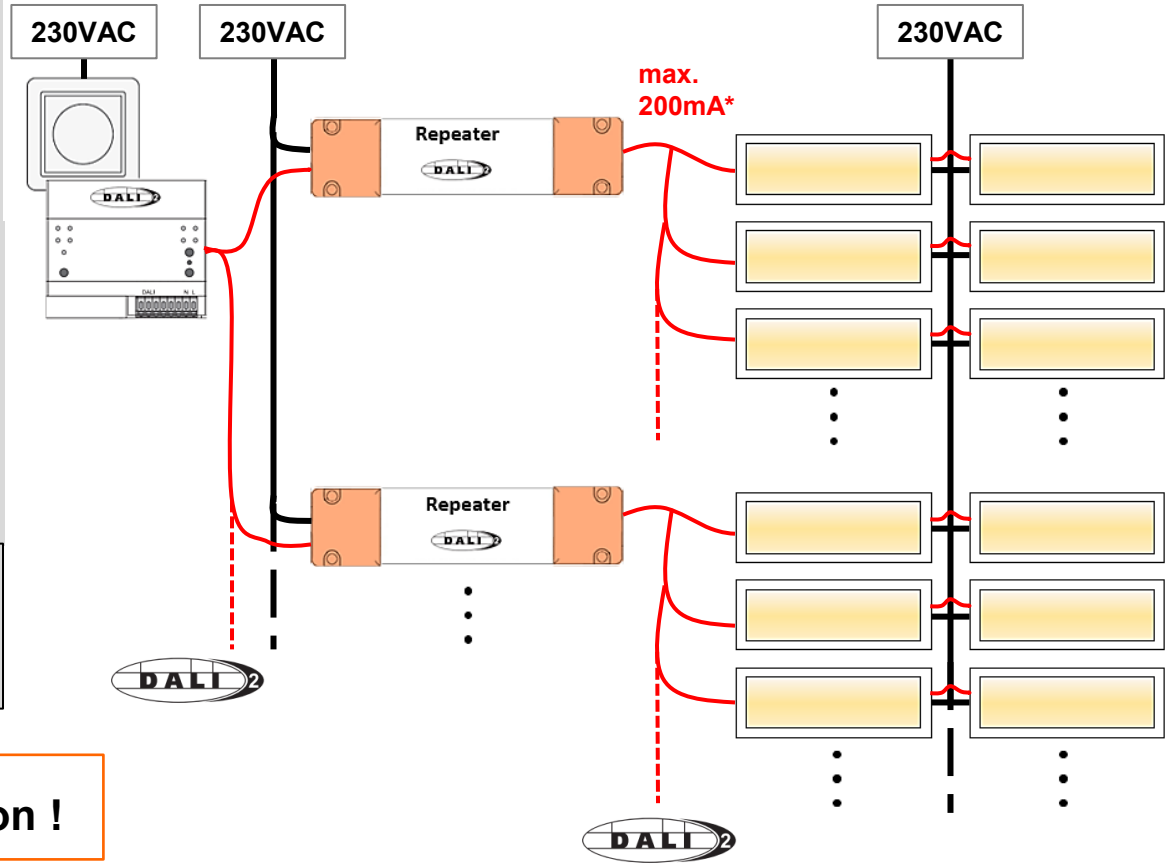
- The inputs of all Repeaters are connected to the control unit;
- The luminaires are connected on the galvanically separated DALI output side of the Repeater
- Control unit, Repeater and luminaires are connected to the mains supply
- During a DALI commissioning the Repeater appears as an DT8 ECG and a short or group address(es) can be assigned to it.
- All configuration settings such as Fade times, MIN/MAX Levels and Scene Levels are transferred to the luminaires and automatically repeated every 8-10 minutes.

Hints

- A Repeater is a load equal to one DALI driver; the max. number of connectible Repeaters depends on the load capacity of the control unit.
- Recommended max. load at a Repeater output: 90 drivers*

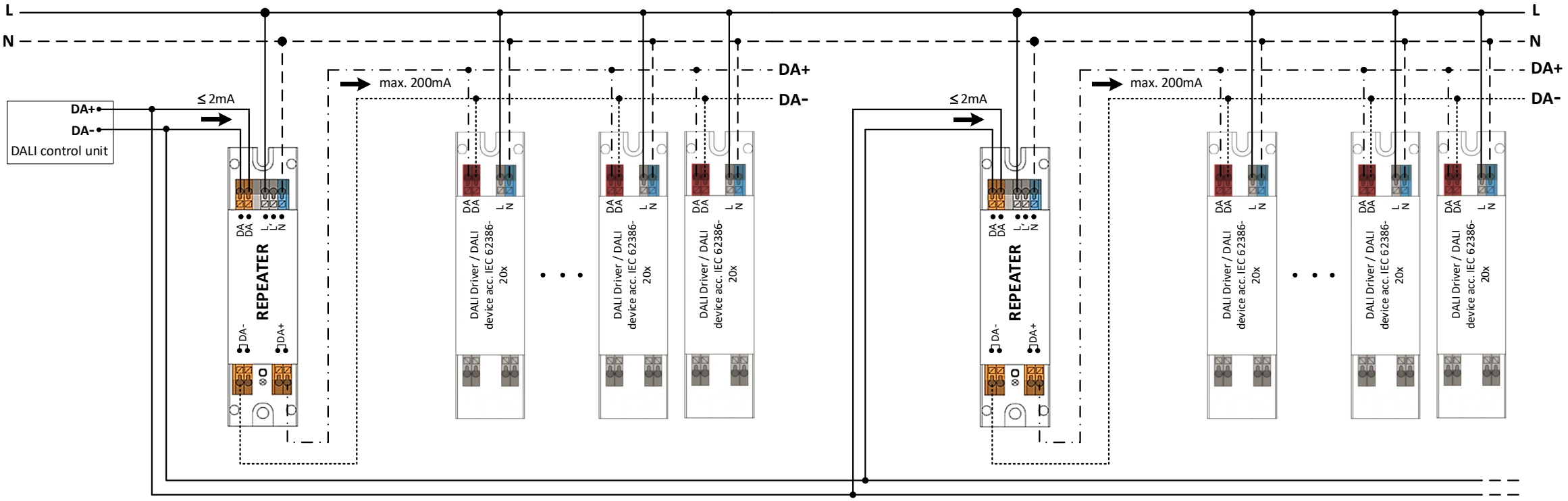
Switch off mains and DALI supply during installation !

Installation scheme



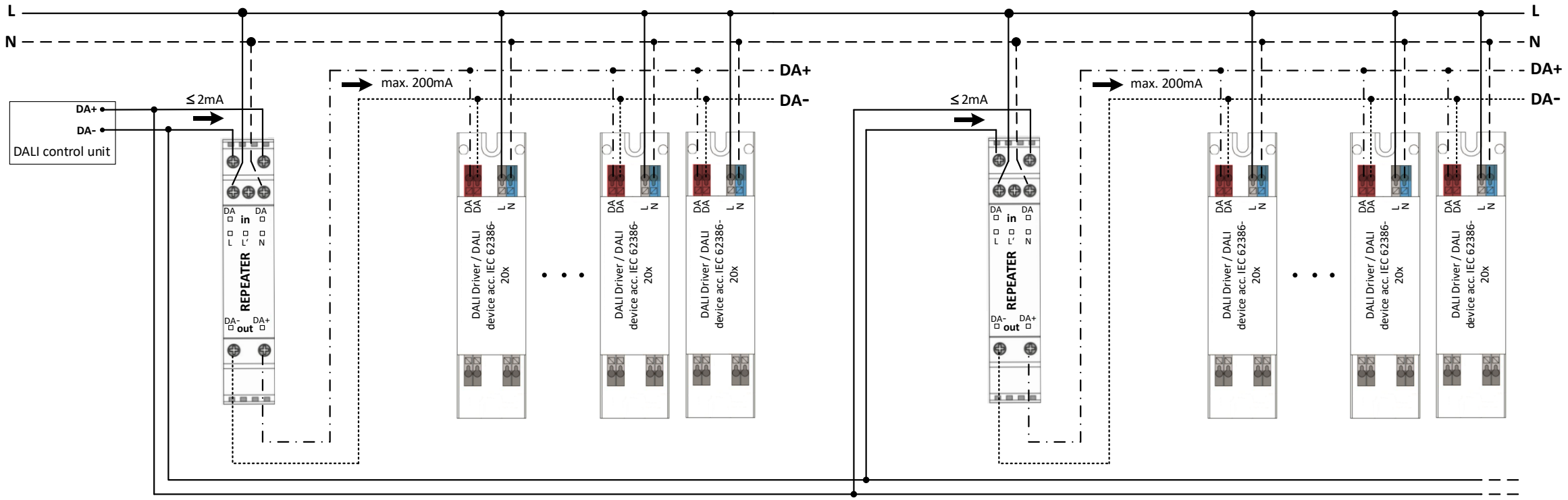
Application guide
Repeater DALI-2 CM – Application example 1: DALI control of more than 64 devices

Wiring diagram 1a:



Application guide
Repeater DALI-2 RM – Application example 1: DALI control of more than 64 devices

Wiring diagram 1b:



Application guide
Repeater DALI-2 CM – Application example 2: Extension of DALI wire > 300m

Description

FUNCTIONALITY

- The first Repeater is connected to the control unit and sends received commands to the Daisy chain connected second Repeater which repeats commands to the connected luminaires
- With every Repeater in the Daisy chain the distance/cable from the control unit can be extended by up 300m (e.g. 1200m by using 4 Repeaters in daisy chain)

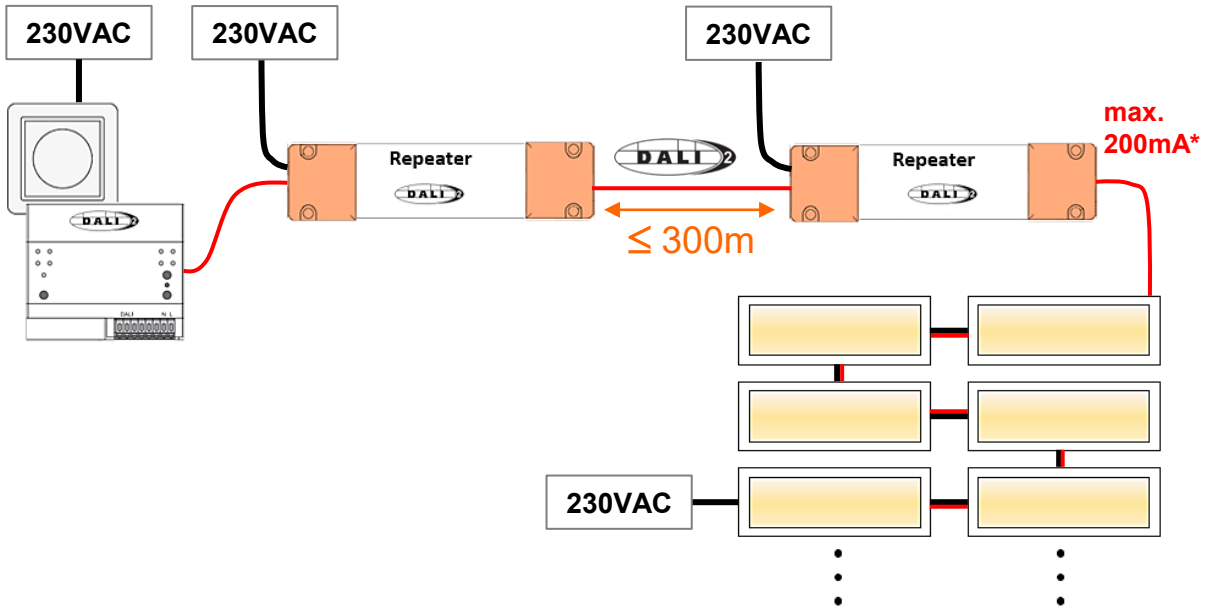
PRINCIPLE SETUP

- The input of the first Repeater is connected to the control unit;
- The luminaires are connected to the DALI output side of the last Repeater
- Control unit, Repeater and luminaires are connected to the mains supply
- During a DALI commissioning the first Repeater appears as an DT8 ECG and a short or group address(es) can be assigned to it.
- Configuration settings (e.g. Fade times, MIN/MAX Levels, Scene Levels) are transferred thru the Daisy chain to the luminaires and automatically repeated every 8-10 minutes.

Hints

- With respect to the max. 300m total wire length and 200mA max. output current at a Repeater's secondary side, DALI luminaires may be added at any point of the Daisy chain.
- Each Repeater causes a time delay of ~ 20ms in command transmission (e.g. command output after a daisy chain of 5 Repeaters will be delayed by ~ 100ms)

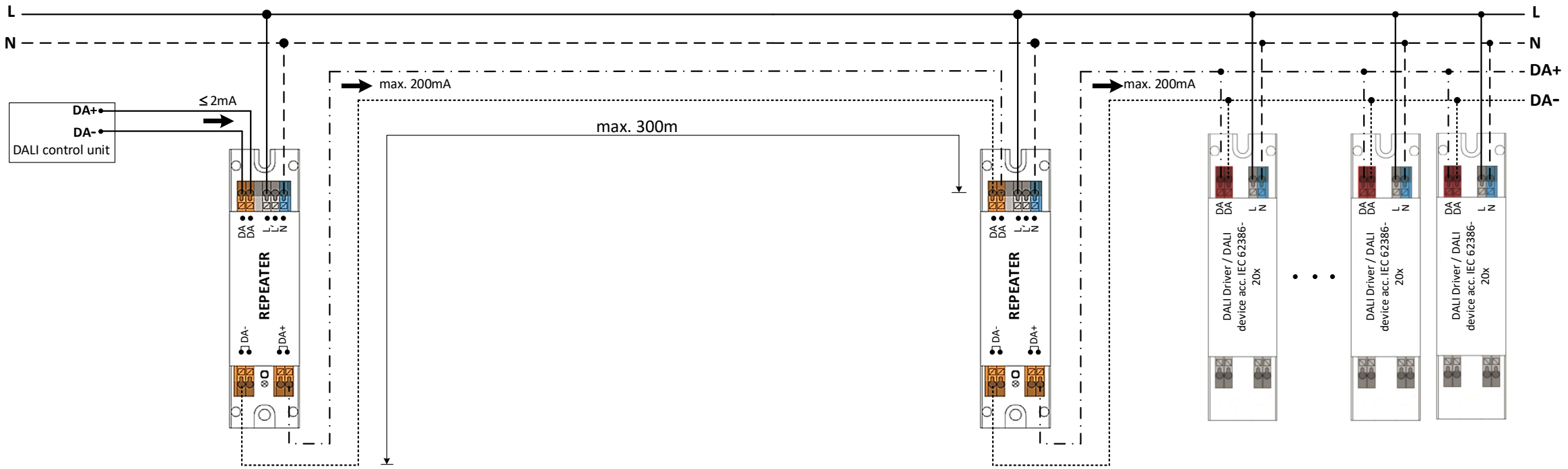
Installation scheme



Switch off mains and DALI supply during installation !

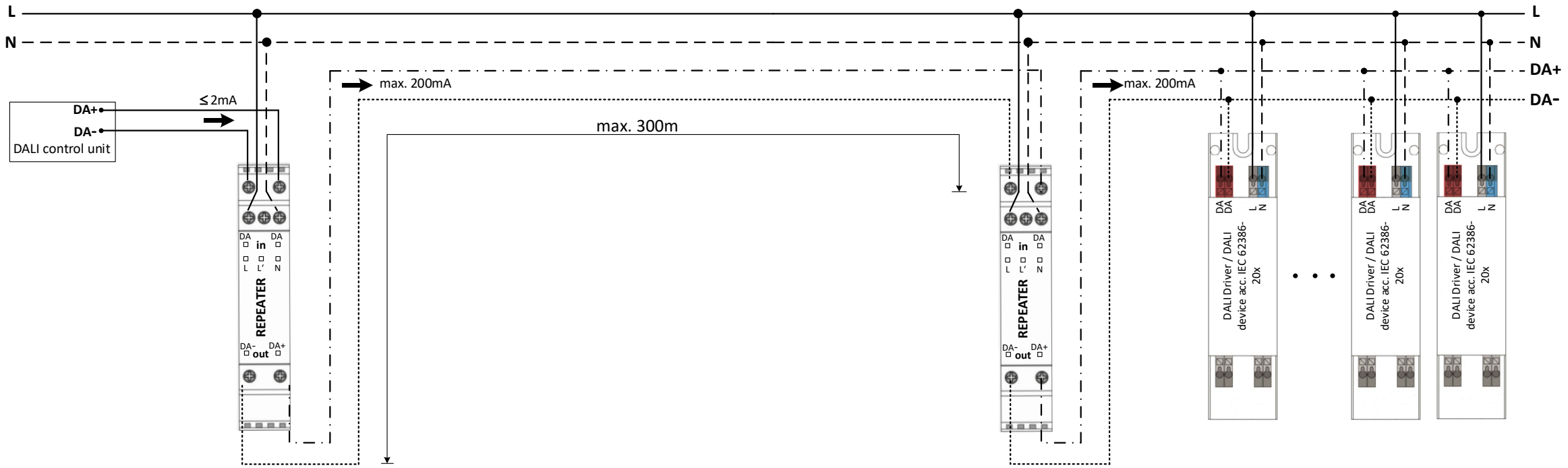
Application guide
Repeater DALI-2 CM – Application example 2: Extension of DALI wire > 300m

Wiring diagram 2a:



Application guide
Repeater DALI-2 RM – Application example 2: Extension of DALI wire > 300m

Wiring diagram 2b:



Application guide
Repeater DALI-2 CM/RM – Application example 3: Push DIM control for ≤ 90 DALI drivers

Description

FUNCTIONALITY

- The Repeater translates the push button operation into DALI commands and transmits it to the connected luminaires.
- The connected luminaires can be switched ON/OFF by a short push or dimmed synchronously by long pushes to the button
- The last light level before off will be used as short push switch on level automatically

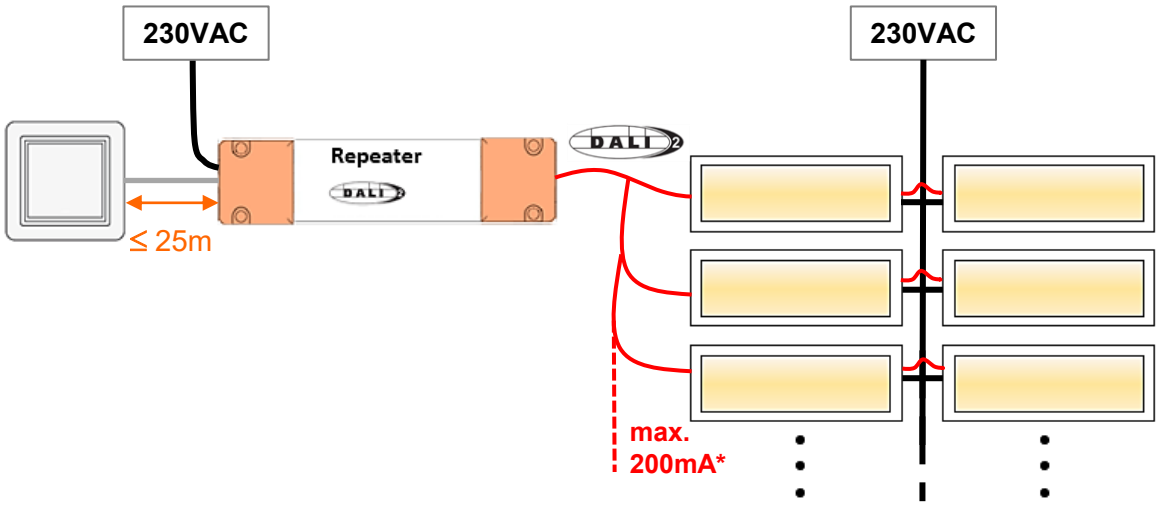
PRINCIPLE SETUP

- The L' / Push DIM input of the Repeater is connected to the Push Button ;
- The DALI luminaires are connected to the output of the Repeater
- The Repeater and all luminaires are connected to the mains supply

Hints

- The Repeater does <u>not</u> send light level commands after mains interruption. To achieve a specific state of the luminaires after mains interruption (On / Off / Last state) the Power ON Level in the drivers must be programmed accordingly.
- To avoid disturbances on the push button input, wire connection to the push button should be in a separate cable.
- With respect to the max. total wire length of 25m, several points of operation can be realized by parallel wiring of push buttons

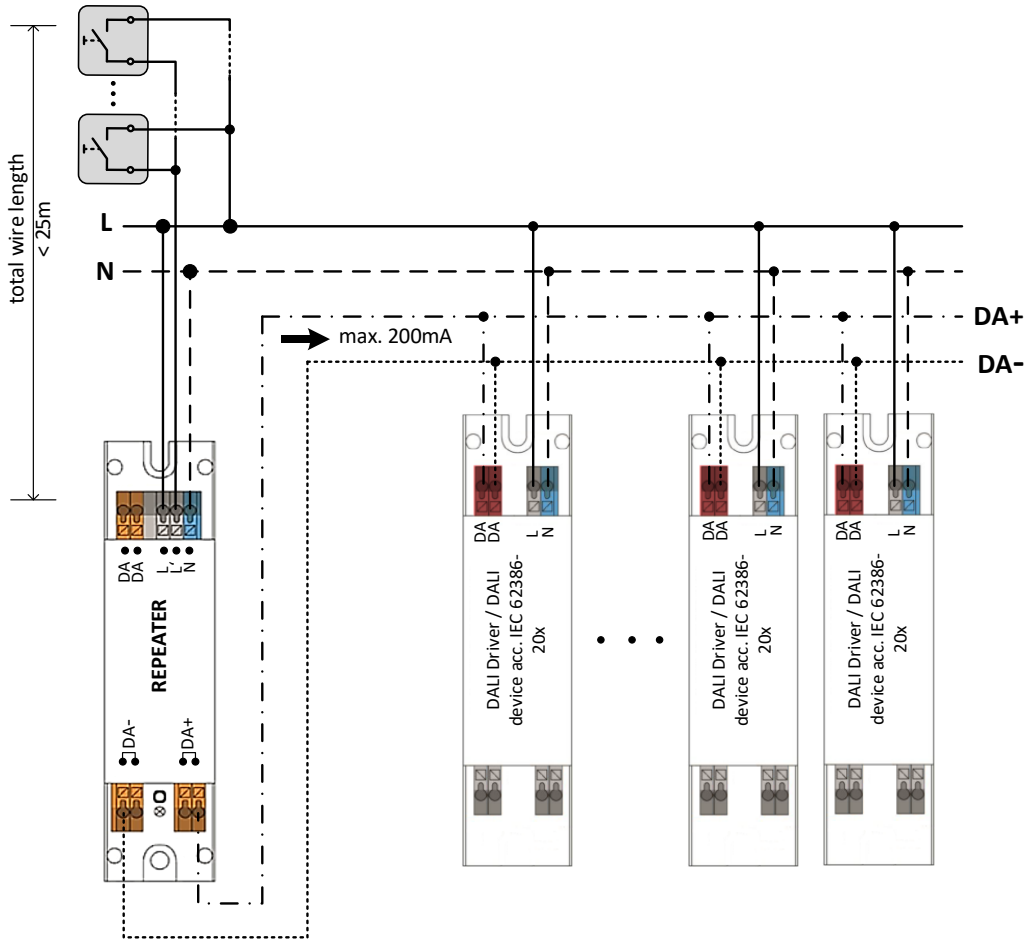
Installation scheme



Switch off mains <u>and</u> DALI supply during installation !

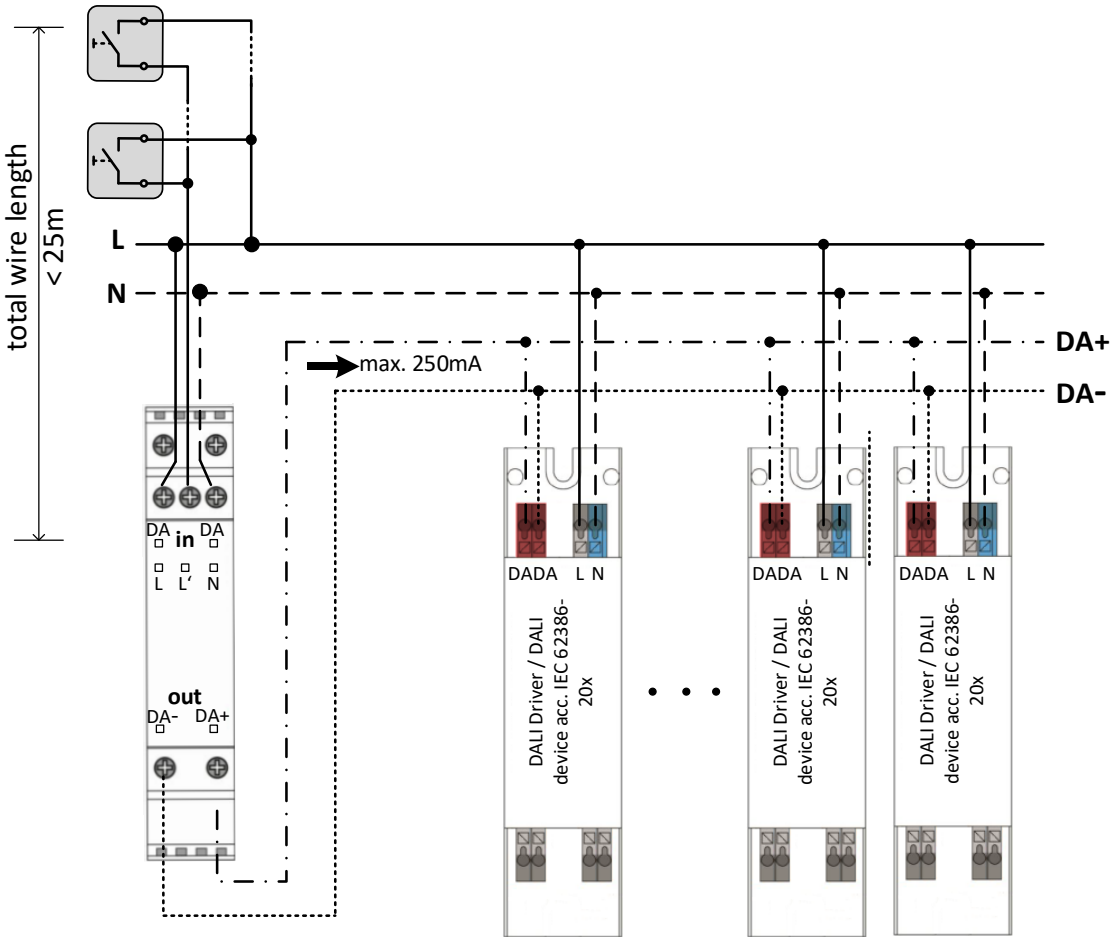
Application guide
Repeater DALI-2 CM – Application example 3: Push DIM control for ≤ 90 DALI drivers

Wiring diagram 3a:



Application guide
Repeater DALI-2 RM – Application example 3: Push DIM control for ≤ 90 DALI drivers

Wiring diagram 3b:



Application guide
Repeater DALI-2 CM/RM – Application example 4: Push DIM control for > 90 DALI drivers

Description

FUNCTIONALITY

- The first Repeater is connected to a push button and translates the push button operation into DALI commands. The Repeaters at its output receive that commands and transmit them to the connected DALI luminaires.
- With every Repeater connected to the first one additional 90 DALI drivers / 200mA DALI current can be Push DIM controlled. Each Repeater allows a DALI cable length of up to 300m at its output.

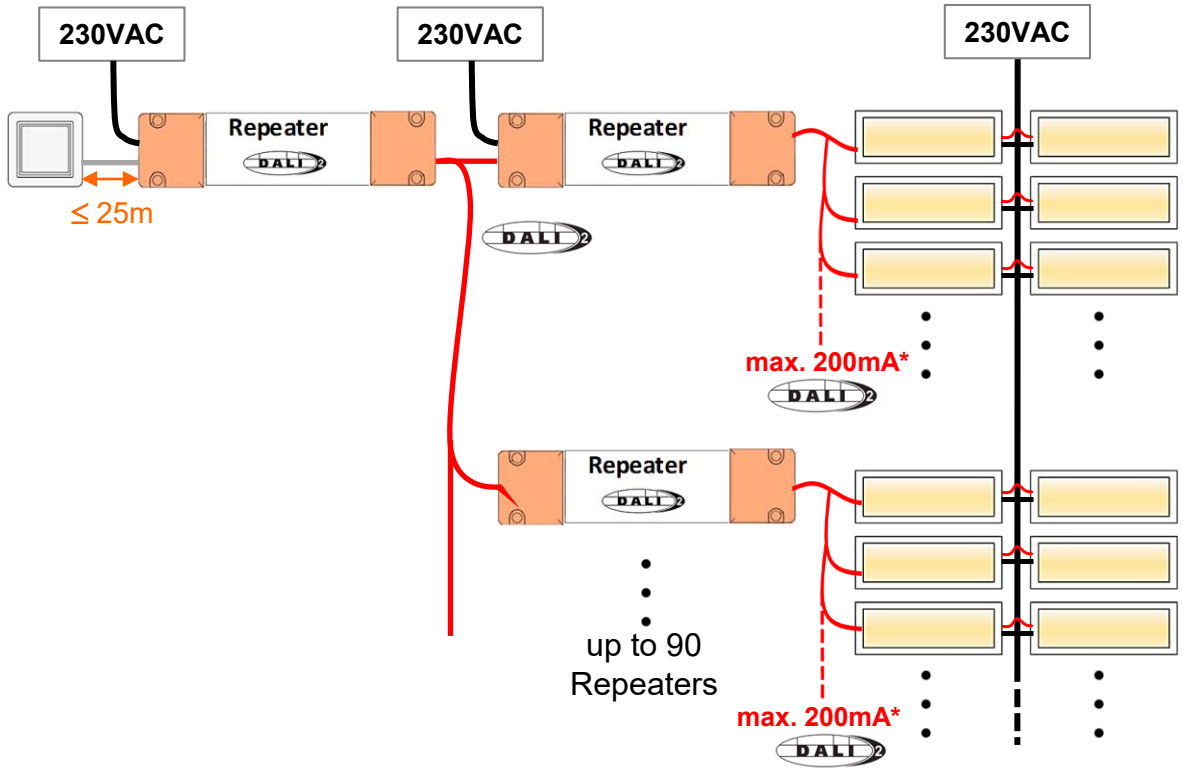
PRINCIPLE SETUP

- The L' / Push DIM input of the first Repeater is connected to the Push Button ;
- The DALI inputs of the remaining "secondary" Repeaters are connected to the DALI output of the first Repeater.
- The DALI luminaires are connected to the outputs of the "secondary" Repeaters
- All Repeaters and luminaires are connected to the mains supply

Hints

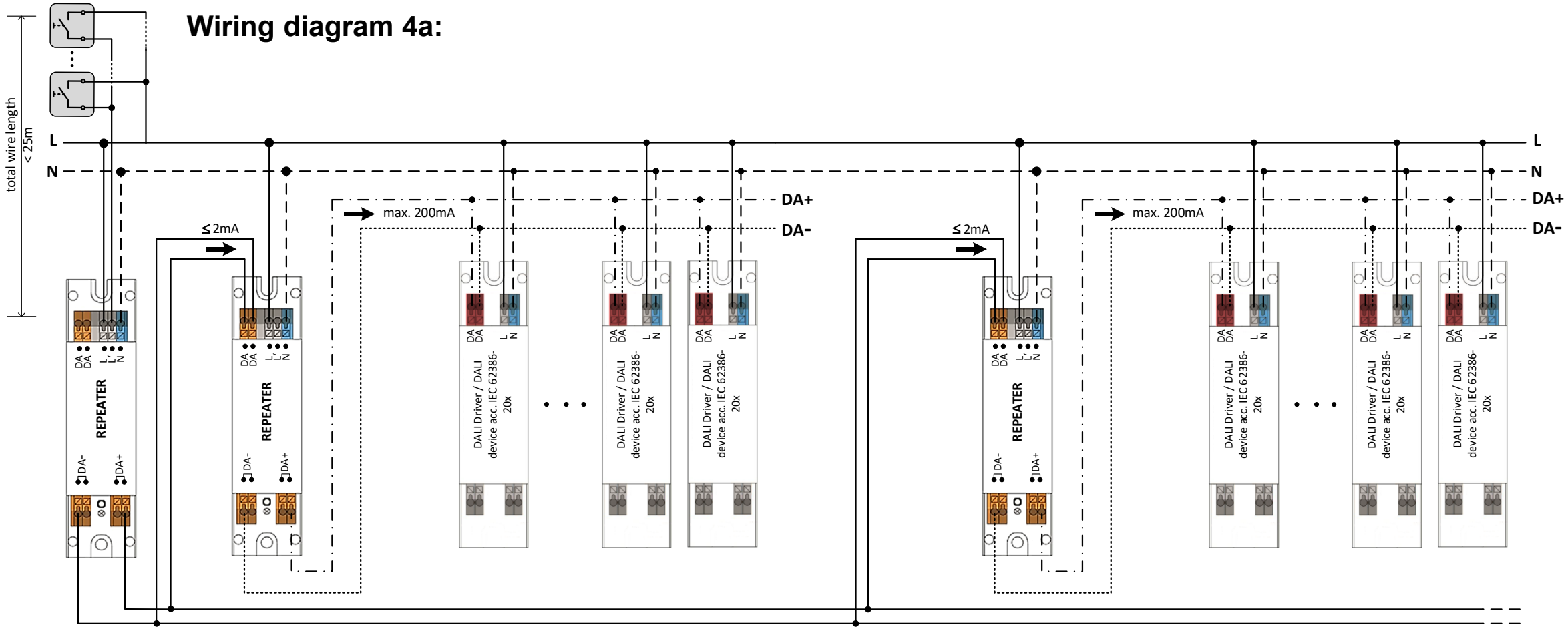
- Luminaires connected directly at the first Repeater's output, may react differently (e.g. after mains interruption) than the rest and is therefore not recommended for a uniform behavior.
- With respect to a cable length of max. 25m several push buttons can be connected in parallel to the Push DIM input of the first Repeater, to build up multiple points of control.

Installation scheme



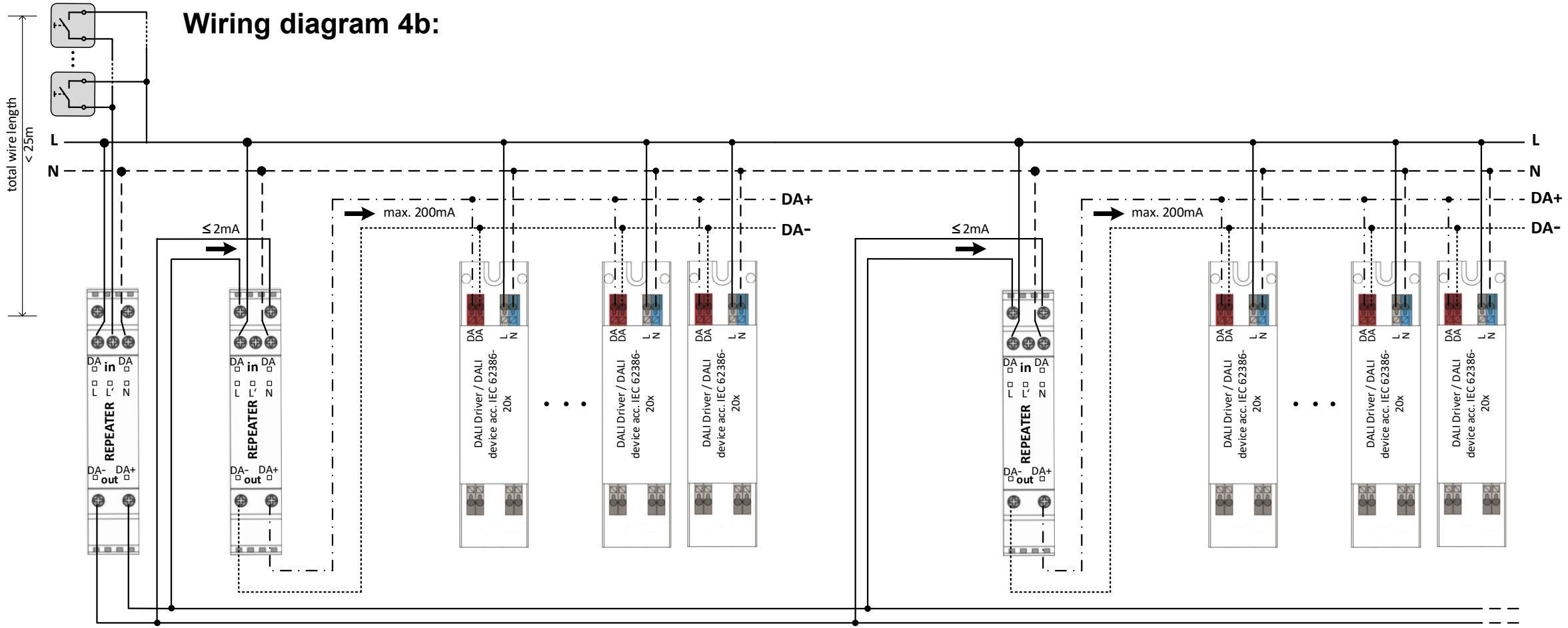
Application guide
Repeater DALI-2 CM – Application example 4: Push DIM control for > 90 DALI drivers

Wiring diagram 4a:



Application guide
Repeater DALI-2 RM – Application example 4: Push DIM control for > 90 DALI drivers

Wiring diagram 4b:



Application guide

REPEATER DALI-2 CM / REPEATER DALI-2 RM

Questions and Answers

Q1: Does the repeater support sensors or button couplers on the secondary side?
A1: The repeater does not transmit 3-byte telegrams; therefore, integrating sensors and couplers connected to the repeater is not possible.

Q2: How many repeaters can be connected to a DALI control device?
A2: A repeater, like a driver, requires 2mA of DALI current and occupies one DALI address in addressable systems.
Therefore, the maximum number of repeaters depends on the available DALI current and, in addressable systems, the number of free short addresses.

Application guide

REPEATER DALI-2 CM / REPEATER DALI-2 RM

Troubleshooting

Q3: What can I do if some luminaires have a different dimming behavior than the rest ?
A3: Most probably not all DALI drivers have the same parameter settings. Please perform a RESET e.g. to set back the dimming range of all drivers to their standard values.

Q4: The Repeater is not working, and lights stay always at 100%, what is the possible root cause?
A4: Most probably the DALI bus voltage is missing, and the luminaires are at System failure level. Please check the indicator LED of the Repeater
Possible root causes:
- The Repeater has no mains supply
- The number of drivers at the output is too high or the total required DALI current is higher than 200mA

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Application guide
REPEATER DALI-2 CM / REPEATER DALI-2 RM

Technical data

	REPEATER DALI-2 CM	REPEATER DALI-2 RM
Input voltage (AC) / Input current	230V (50/60Hz) / 40mA	230V (50/60Hz) / 40mA
Power consumption	5,3W	5,3W
Allowed wire diameter	Stranded and solid wires: 0.5-1.5mm² (AWG20…AWG16)	Stranded wires: 0.5-1.5mm² (AWG20…AWG16) Solid wires: 0.5-2.5mm² (AWG20…AWG14)
Protection class	II	II
Protection type	IP 20	IP 20
Ambient temperature range	-20…+60°C	-20…+55°C
Humidity range	15-90%	15-90%
Max. total DALI wire length at the output	100m@0.5mm² / 200m@1.0mm² / 300m@1.5mm²	100m@0.5mm² / 200m@1.0mm² / 300m@1.5mm²
Max. permanent DALI output current*	200mA	200mA
DALI input current	2 mA	2mA
Dimming range	0,1-100%	0,1-100%
CCT setting range	2000-10000K	2000-10000K
Dimensions (l x w x h)	120x30x22mm	90x18x56mm
Net weight	42g	50g
Lifetime	50.000h	50.000h

*limited to 250mA

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APPLICATION GUIDE
DALI-2 REPEATER

Information for EXPERT USERS

Application guide
Repeater DALI-2 CM/RM – Functional principle

Basic DALI functionality (ex-factory setting)

- The Repeater receives DALI commands at its input and filters it in an intelligent way. Control and configuration commands that are received by the Repeater as broadcast or with matching short or group address and that contain necessary information for the devices on the output are repeated as **broadcast** signals with a delay of less than 20ms. Information that is only relevant for the Repeater is filtered out and not visible at the output. Most Queries are answered by the Repeater directly and not repeated at its output.
- From the control unit point of view the Repeater appears as generic control gear (device type 254) that consumes 2mA DALI current and that is fully addressable
- The Repeater is connected to mains, the integrated DALI Power supply offers a galvanic separation between DALI input and Output and provides up to 200mA DALI output current (e.g. to control up to 90 DALI LED drivers) with an enhanced signal quality and allows an additional cable length of up to 300m with each Repeater
- 24bit telegrams commands dedicated for communication between control devices are ignored and not repeated

Application guide
Repeater DALI-2 CM/RM – Functional principle

DALI command handling overview

Commands repeated at the output

a) Light level relevant DALI commands:
DIRECT ARC POWER, OFF, UP, DOWN, STEP UP, STEP DOWN, RECALL MAX LEVEL, RECALL MIN LEVEL, STEP DOWN AND OFF, ON AND STEP UP, ENABLE DAPC SEQUENCE, GOTO LAST ACTIVE LEVEL, GOTO SCENE X

b) Configuration relevant DALI commands:
RESET, STORE ACTUAL LEVEL IN THE DTR, SAVE PERSISTENT VARIABLES, IDENTIFY DEVICE, STORE THE DTR AS MAX LEVEL, STORE THE DTR AS MIN LEVEL, STORE THE DTR AS SYS FAIL LEVEL, STORE THE DTR AS PWR ON LEVEL, STORE THE DTR AS FADE TIME, STORE THE DTR AS FADE RATE, SET EXTENDED FADE TIME, STORE THE DTR AS SCENE X, REMOVE FROM SCENE X, DATA TRANSFER REGISTER, DATA TRANSFER REGISTER 1, DATA TRANSFER REGISTER 2, ENABLE DEVICE TYPE X

c) Queries*:
QUERY LAMP FAILURE; QUERY LIMIT ERROR, QUERY EXTENDED VERSION NUMBER

d) Device Type specific / Application extended commands
Generally repeated at the output

* When the repeater receives a query, it first sends it to the devices connected to the output and stores the response received.
Only when the same query is received again can it be answered correctly.

Application guide
Repeater DALI-2 CM/RM – Functional principle

DALI command handling overview

Commands / Queries <u>not</u> repeated the output (handled by the Repeater directly)

a) <u>Addressing relevant DALI commands</u>:
ADD TO GROUP X, REMOVE FROM GROUP X, STORE DTR AS SHORT ADDRESS, TERMINATE, INITIALIZE, RANDOMIZE, COMPARE, WITHDRAW,SEARCHADDRH, SEARCHADDRM, SEARCHADDRL, PROGRAM SHORT ADDRESS, VERIFY SHORT ADDRESS, QUERY SHORT ADDRESS, PHYSICAL SELECTION

b) <u>Queries:</u>
QUERY STATUS**, QUERY CONTROL GEAR, QUERY LAMP POWER ON, QUERY RESET STATE, QUERY MISSING SHORT ADDRESS, QUERY VERSION NUMBER, QUERY CONTENT DTR, QUERY DEVICE TYPE[1)], QUERY PHYSICAL MINIMUM LEVEL[2)], QUERY POWER FAILURE, QUERY CONTENT DTR1, QUERY CONTENT DTR2, QUERY OPERATING MODE, QUERY LIGHT SOURCE TYPE[3)], QUERY ACTUAL LEVEL**, QUERY MAX LEVEL, QUERY MIN LEVEL, QUERY POWER ON LEVEL, QUERY SYSTEM FAILURE LEVEL, QUERY FADE TIME / FADE RATE, QUERY MANUFACTURER SPECIFIC MODE[4)], QUERY NEXT DEVICETYPE[5)], QUERY EXTENDED FADE TIME, QUERY CONTROL GEAR FAILURE, QUERY SCENE X LEVEL, QUERY GROUPS 0-7, QUERY GROUPS 8-15, QUERY RANDOM ADDRESS (H), QUERY RANDOM ADDRESS (M), QUERY RANDOM ADDRESS (L), READ MEMORY LOCATION

Application guide
Repeater DALI-2 CM/RM – Functional principle

Push DIM function

In Push DIM mode the Repeater translates Push button operation at its L' Input to DALI Broadcast commands at its output as follows:

1. Short Push: Toggles between ON and OFF.
   → For Switching ON the Repeater sends a Direct Arc Power command with the last light level before off using the set Fade time
   → For Switching OFF, the Repeater sends a DALI OFF command (hard off without fading)
2. Long Push: Toggles between Dimming up and Dimming down using the set Fade Rate
   → For Dimming up, the Repeater sends DALI UP commands as long as the button is pressed
   → For Dimming down, the Repeater sends DALI DOWN commands as long as the button is pressed
3. Extended Long Push: Allows synchronization in case of Repeaters connected to the same Push button got unsynchronous
   → After ~ 18s of permanent button press, the Repeater sends Direct Arc Power 229 (51%)

Behavior after Mains interruption

After mains supply is switched on the Repeater does not send a light level command, the Light level after mains interruption is defined by the DALI POWER ON LEVEL programmed in the connected drivers.

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Application guide
Repeater DALI-2 CM/RM – extended feature configuration

Switch off mains and DALI supply when connecting the device!

Hard and Software requirements

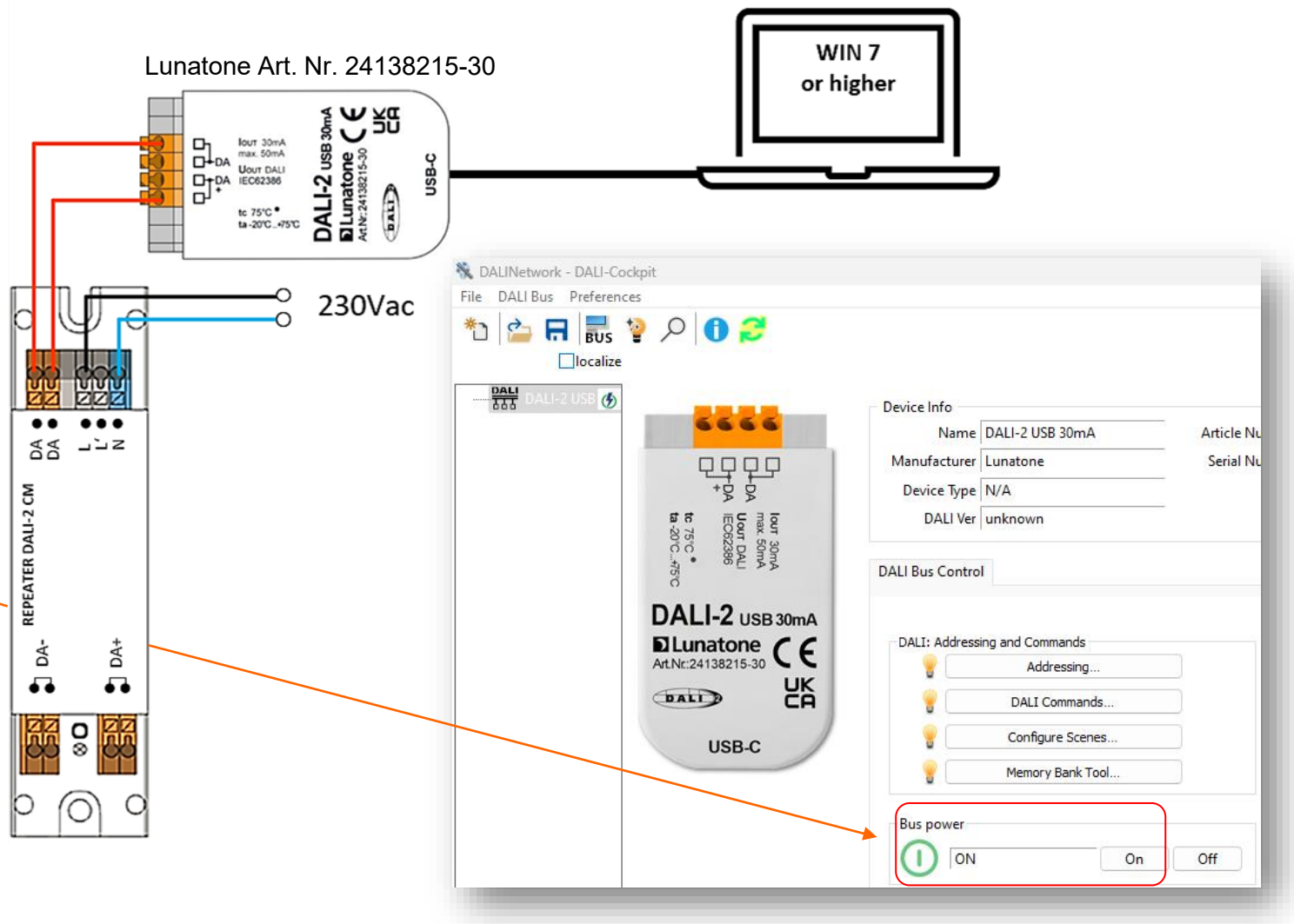
For configuration of extended features of the Repeater via the DALI line, a Lunatone DALI USB device and a Windows PC with Lunatone DALI Cockpit software installed is required. DALI Cockpit can be downloaded free of charge via following link:
https://www.lunatone.com/en/product/dali-cockpit/

Recommended setup preparation:

1. If already connected to a DALI system, switch off mains and DALI supply, then disconnect Repeater from the DALI line
2. Connect the DALI input of the Repeater with the DALI-2 USB Adapter
3. Switch ON the Bus power of the USB adapter
4. Switch on mains supply of the Repeater

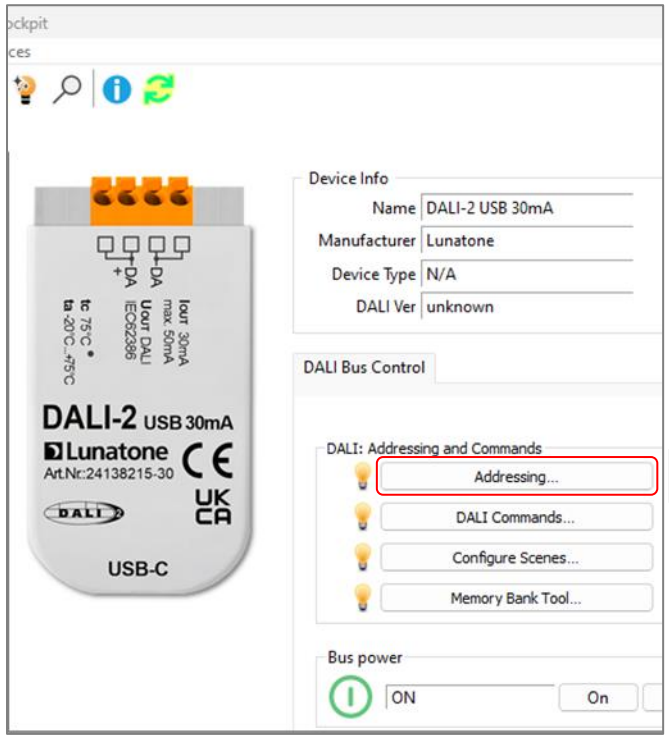
Hints:

- Ensure that DALI connection to the installation is disconnected before switching on the DALI Bus Power of USB adapter
- Polarity of DALI connection between DALI USB Adapter and Repeater is not relevant

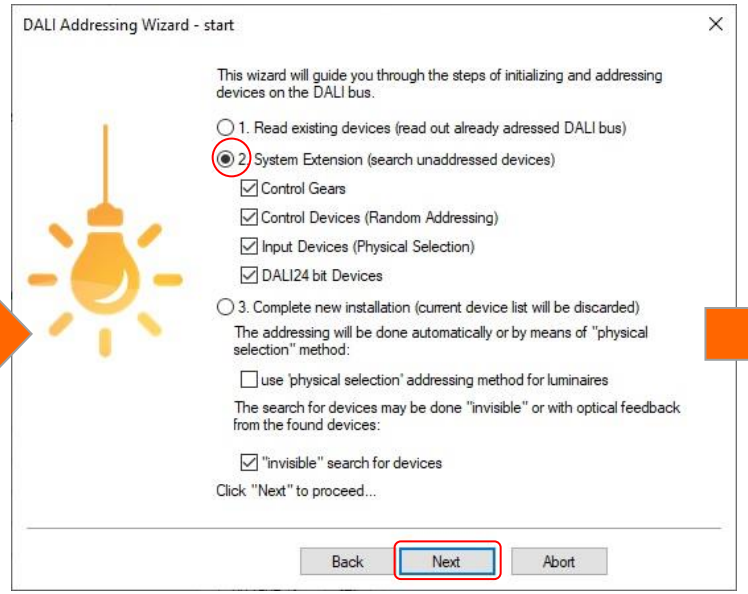


Application guide
Repeater DALI-2 CM/RM – extended feature configuration

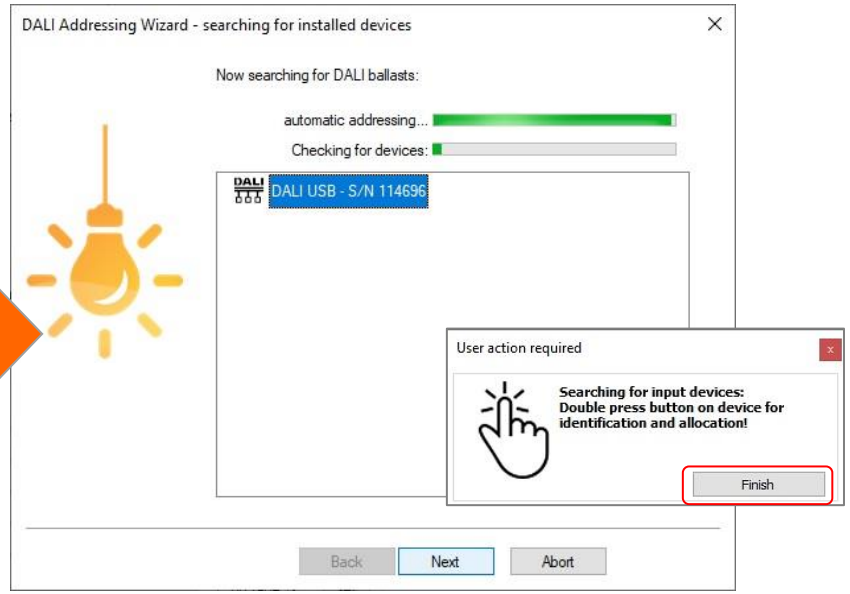
Setup steps: Accessing the Repeater



Step 1
- Click on “Addressing”



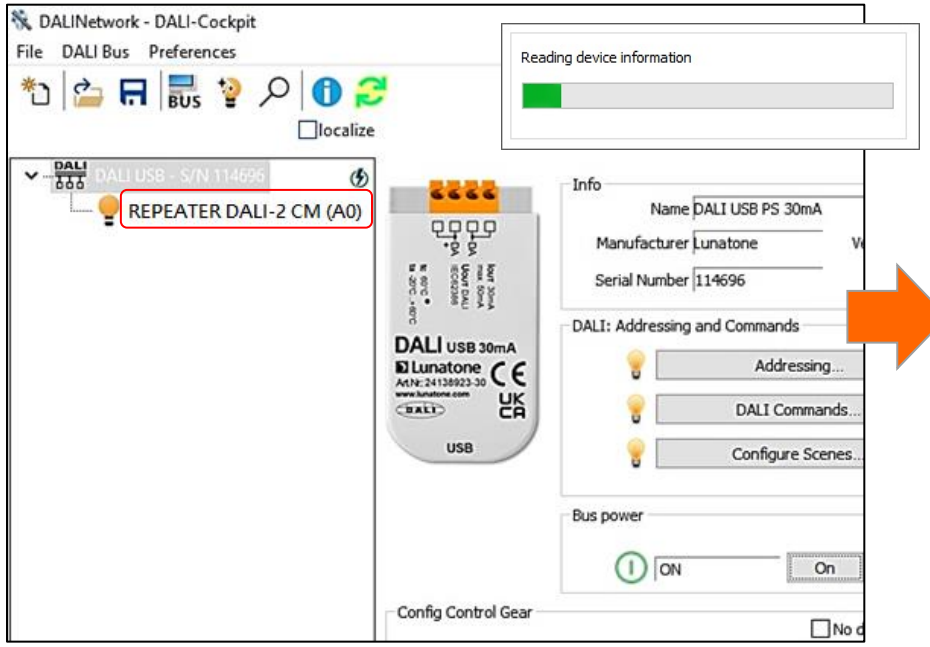
Step 2
Select “2. System Extension” and click on “Next”
(In this step an un-addressed Repeater will get a temporary short address which should be removed when configuration was done (see Step 6)



Step 3
- Wait until device search process is completed and then click on “Finish”

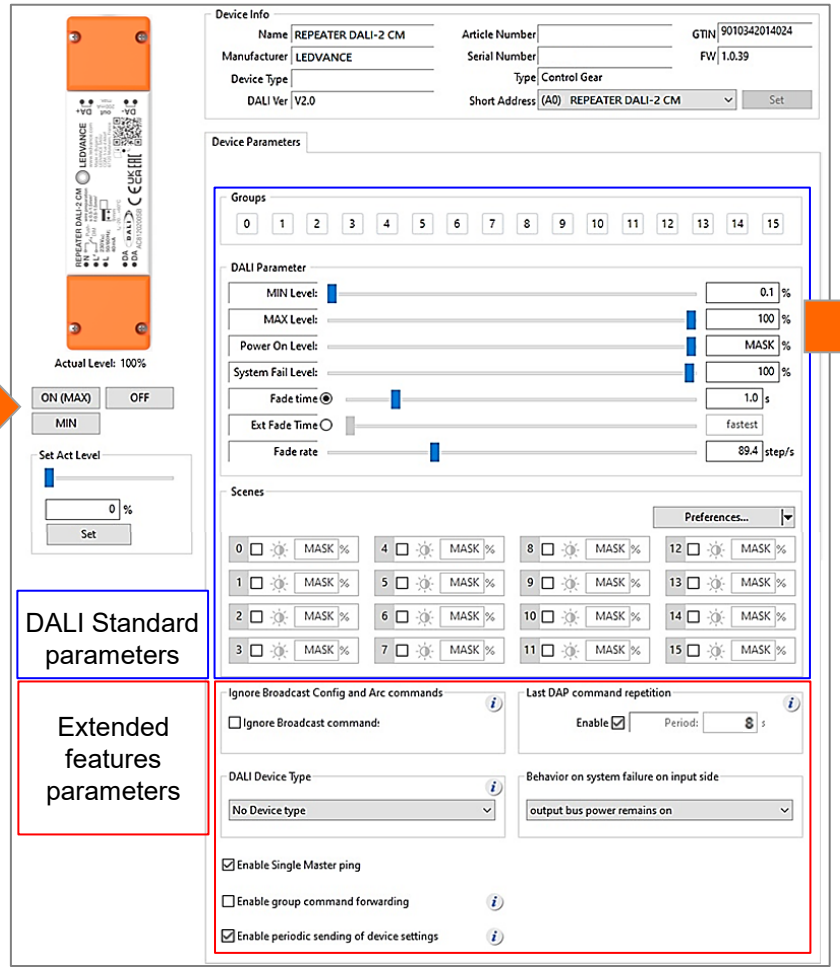
Application guide
Repeater DALI-2 CM/RM – extended feature configuration

Setup steps: Accessing the Repeater

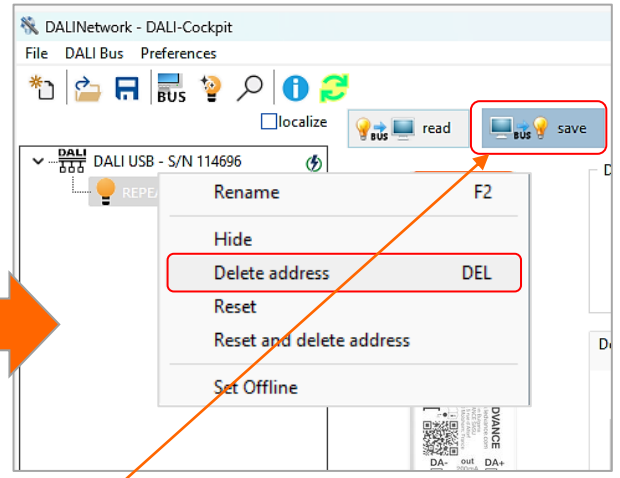


Step 4:

- Click on the device entry ”REPEATER DALI-2” to start device readout
- After readout is completed, the device parameter settings will be displayed



Step 5: Change DALI Standard parameter and/or Extended parameter settings as desired

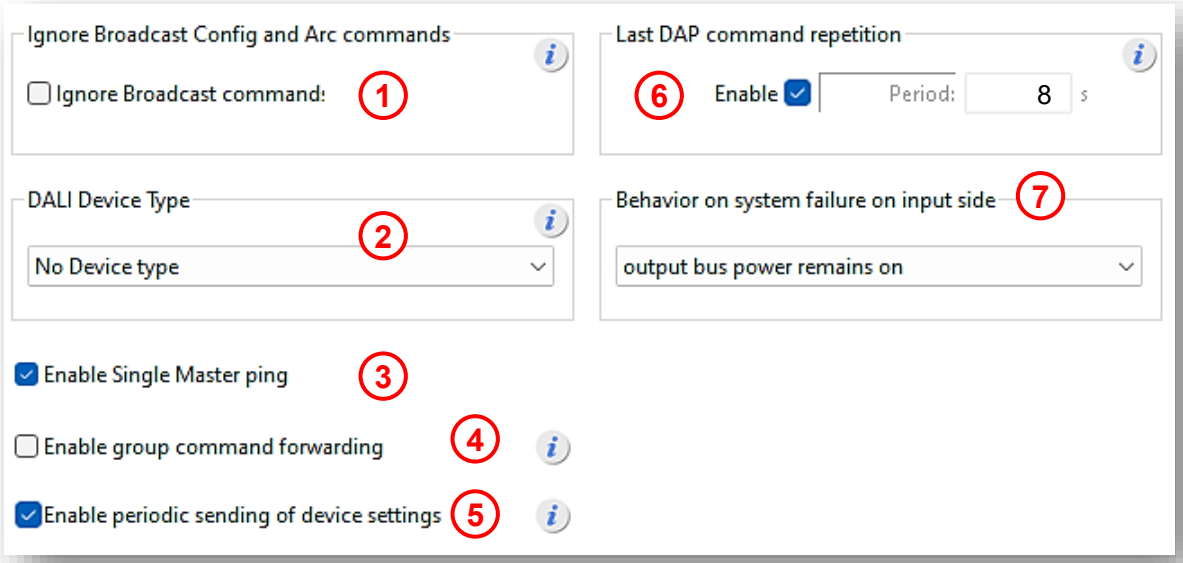


Step 6:
Save parameter settings to the Repeater

Step 7:
(only for new / not commissioned devices)
If Repeater was **not** already commissioned / addressed in the DALI installation before, remove the device address by a right click on the device entry ”REPEATER DALI-2” and select “Delete address”

Hint:
a new / not yet commissioned device typically has the address “(A0)” behind the device name

Application guide
Repeater DALI-2 CM/RM – Extended features



DALI cockpit screenshot: Extended features setting for Repeaters

(1) If enabled, the Repeater will ignore received broadcast addressed Light level relevant commands and broadcast addressed configuration commands
(LEDVANCE default setting: Disabled)

(2) Device type number that the Repeater will send as answer to a received "QUERY DEVICE TYPE"
(LEDVANCE default setting: No device type (= Type 254 / manufacturer specific type)

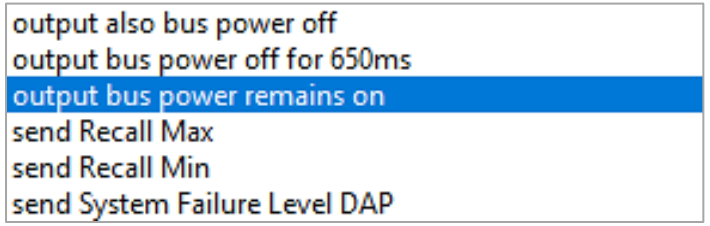
(3) If enabled, the Repeater sends out a PING message on the output as identification/still alive information periodically every xxs
(LEDVANCE default setting: Enabled)

(4) If enabled, group addressed commands received at its input will be repeated at the Repeaters output, if the Repeater is assigned to the corresponding group
(LEDVANCE default setting: Disabled)

(5) If enabled, the latest values for SCENES; MIN LEVEL; MAX LEVEL; POWER-ON LEVEL; SYSTEM FAILURE LEVEL; FADE TIME; FADE RATE are repeated periodically every 10min at the Repeater output
(LEDVANCE default setting: Enabled)

(6) If enabled, the last light level is repeated with the set period
(LEDVANCE default setting: Enabled; Period: 8s)

(7) Reaction to a SYSTEM FAILURE on the DALI Input side of the Repeater
Possible settings ***(LEDVANCE default setting marked in blue):***



LEDVANCE

THANK YOU