



DALI Bluetooth

Datasheet Interface



DALI Bluetooth Low Energy Interface
for controlling DALI-systems by
mobile devices

Art. Nr. 89453584

JUMiTECH

DALI Daylight

Datasheet Interface



DALI-Bluetooth Interface for setting
up Lunatone DALI-systems

Art. Nr. 89453863

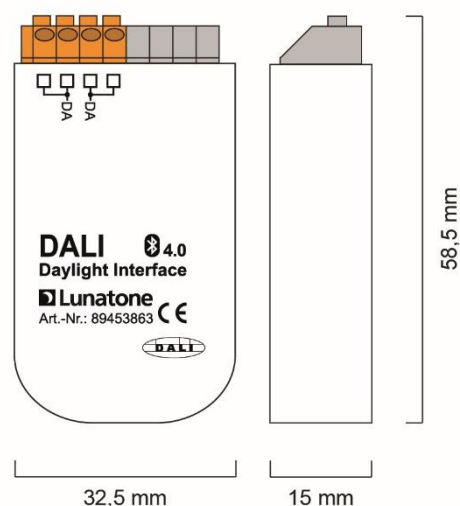
DALI Daylight Interface

Overview

- Interface for changing system parameters of DALI-Systems via mobile device
- Android and IOS App available
- all modules in the Bluetooth range are shown in the app
- suitable for the configuration of:
 - light level (manual and auto)
 - circadian curve of DALI CDC
 - motion detectors
 - RTC-timers
- DALI LS: change between manual and automatic control of the light level, setup reference light level
- DALI CDC: Setup the circadian curve (Start/Peak/Stop)
- DALI RTC Timer: 2 on-intervals per weekday
- Motion detector: setup of light level and hold time
- pin protected access
- The DALI Daylight module is configured with the help of the DALI-Cockpit, there the devices, which can be accessed by the app, have to be defined
- Multimaster capable, several modules and other control devices can be installed on the same DALI-line
- The module is supplied directly by the DALI signal line
- suitable for the integration in smart luminaires

Specification, Characteristics

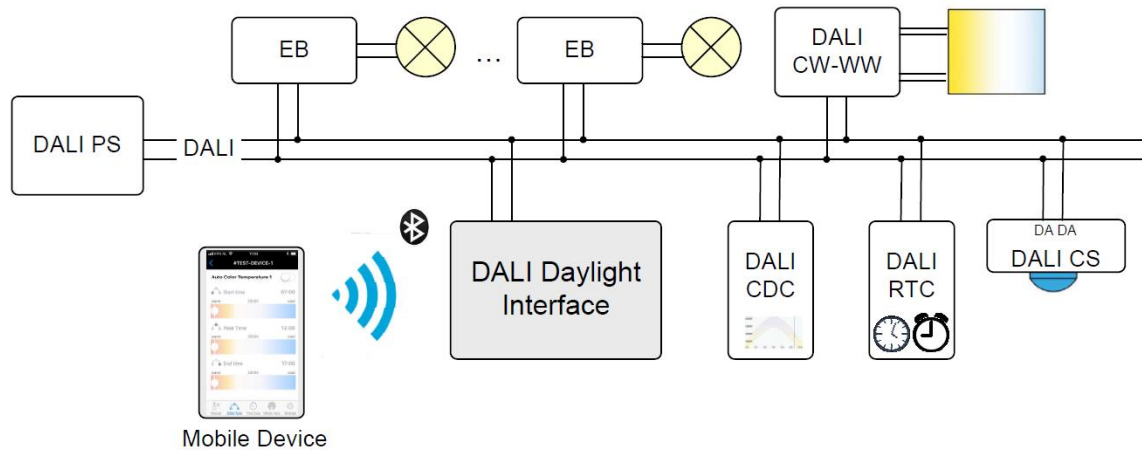
Type	DALI Daylight Interface
article number	89453863
supply	aus DALI-Bus
typ. current consumption	4 mA
output	DALI
storage temperature	-20°C ... +75°C
operating temperature	-20°C ... +75°C
protection class	IP20
connecting wires cross section	0.5-1.5 mm ²
dimensions (lxwxh)	59x33x15 mm
max. number of areas	5
max. number of devices per type (sensor, CDC, RTC)	5



Abmessungen

Bluetooth 4.0: Low Energy





Installation

- The DALI Daylight module is supplied directly by the DALI-line (current consumption <4 mA)
- The connection to the DALI-line is polarity free and is protected against overvoltage (mains voltage)
- The smart module is suitable for back box mounting
- Wiring with solid or fine wire with conductor cross section of 0.5-1.5 mm²

(once a device is assigned the status can be changed with the app).

For luminaires manual or sensor based control can be selected. Dependent on this selection either a luminaire / group of luminaires or a sensor address can be selected. If a sensor is selected the luminaire address will be copied directly from the sensor settings.

Addressing and Configuration

The DALI Daylight module is detected by the PC-Software DALI-Cockpit during the addressing procedure. Afterwards the device can be configured.

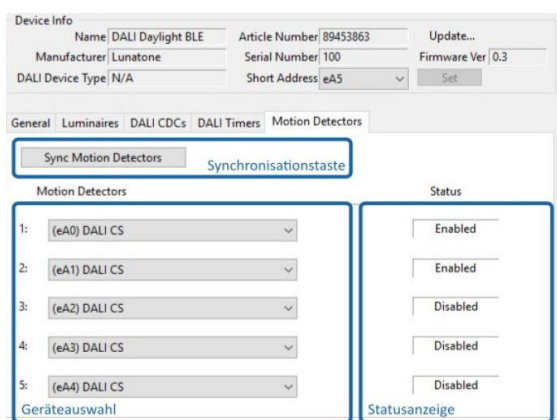
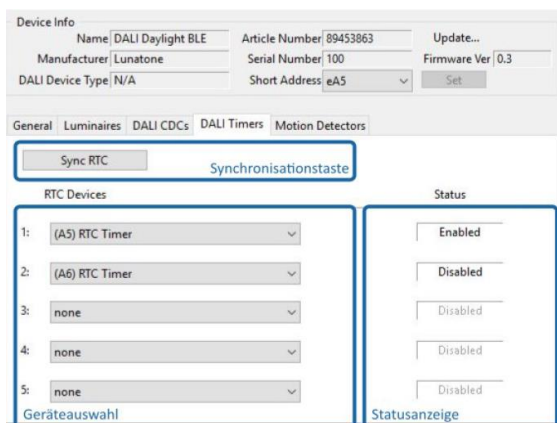
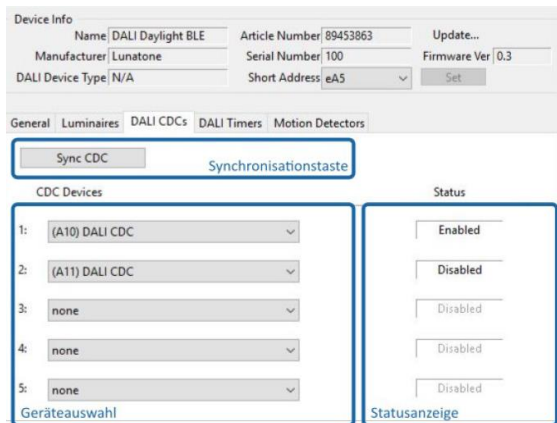
DALI-Cockpit and DALI-USB interface are used only for the configuration and can be removed afterwards.

For each device category (luminaires, DALI CDC, DALI RTC Timer, motion detectors) up to 5 devices, that have previously been found during the addressing procedure, can be assigned to the DALI Daylight module. Beside each device the status of the device is shown

Control	Address	Auto Bright
1: <input type="radio"/> Manual Control Only <input checked="" type="radio"/> Sensor Control	Group (G0) Group 0 (eA0) DALI CS	Off
2: <input type="radio"/> Manual Control Only <input checked="" type="radio"/> Sensor Control	Group (G1) Group 1 (eA1) DALI CS	Off
3: <input checked="" type="radio"/> Manual Control Only <input type="radio"/> Sensor Control	Single Address (A0) DALI CW-WW LED Dim	Off
4: <input checked="" type="radio"/> Manual Control Only <input type="radio"/> Sensor Control	none	Off
5: <input checked="" type="radio"/> Manual Control Only <input type="radio"/> Sensor Control	none	Off

Steuerungsvariante: Wirkbereich / Sensorauswahl Status

In the same way DALI CDCs, DALI RTC timers and motion detectors can be set up for app access in the corresponding tab:



Control via App

The parameters of the assigned DALI devices can be changed with an IOS or Android mobile device and the DALI Daylight app. System parameters can be adapted easily at any time without the need for additional interfaces and tools (like DALI-Cockpit or DALI USB interface).

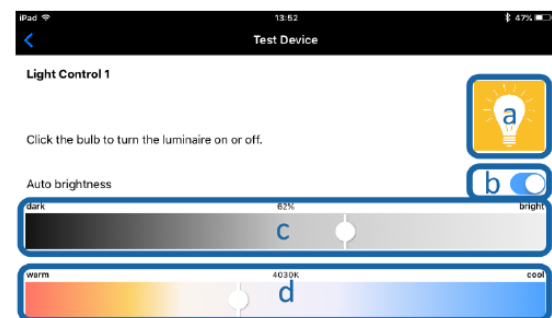
The range of the bluetooth-connection is approximately 10m.

All DALI-Daylight modules in the detection range are shown in the app and can be

accessed. For each category of devices the app offers a tab at which the assigned devices can be configured and/or controlled.

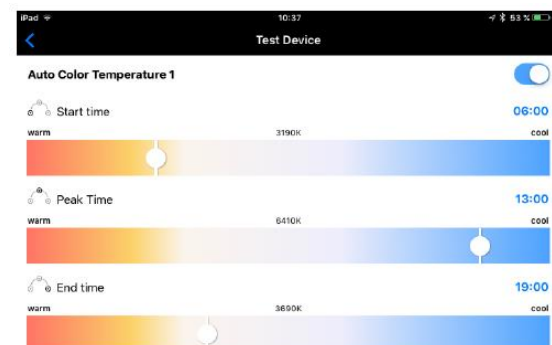
Luminaires:

- a: On/Off
- b: Automatic/Manual lighting control
- c: light level reference
- d: colour temp slider (for DT8-Tc capable luminaires)



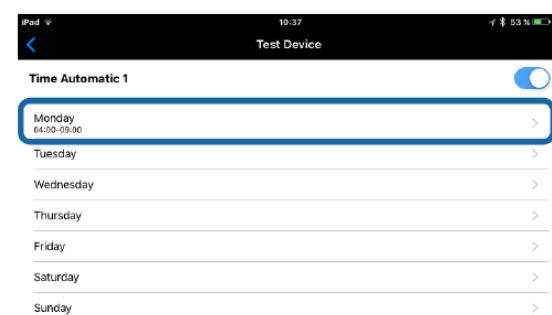
Colour Auto:

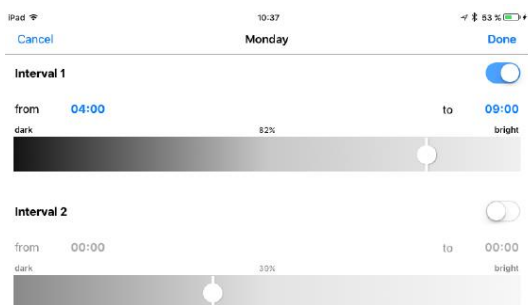
Set up of Start/Peak/Stop-time and colour temperature



Timer Auto:

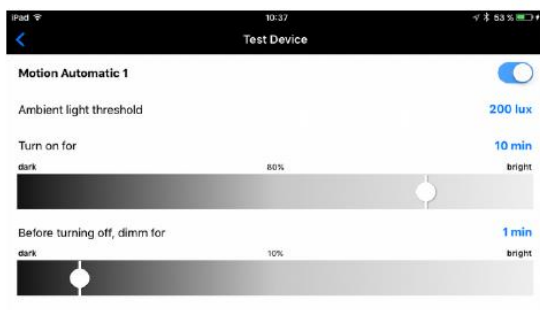
Setup of 2 intervals per weekday





Motion Auto:

- Activate/Deactivate sensor
- Setup ambient light threshold
- Light-level and holdtime
- Second light level and holdtime



Purchase Order Information

Art.Nr. 89453863, DALI-Daylight interface for setting up important parameters of DALI-systems with IOS or Android mobile device

Additional Information

Datasheets and manuals

<https://jumitech/produkter>

DALI-Cockpit – free configuration tool from Lunatone for DALI systems

<http://lunatone.at/en/downloads/Lunatone-DALI-Cockpit.zip>

Contact

Technical Support: support@jumitech.dk

Requests: valg@jumitech.dk

www.jumitech.dk

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Disclaimer

Subject to change. Information provided without guarantee.
The datasheet refers to the current delivery.

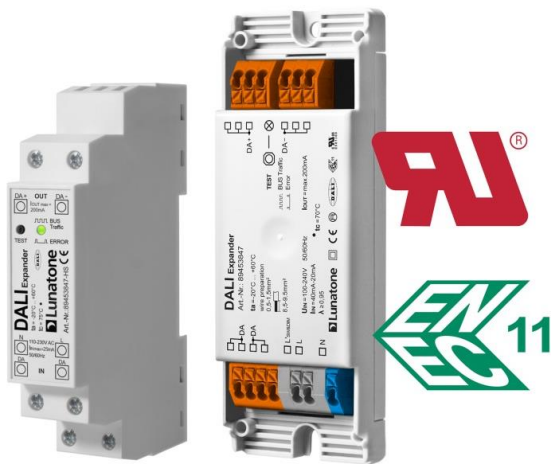
The compatibility with other devices must be tested in advance to the installation.

DALI Expander

Datasheet

DALI System Extension

device for simple DALI circuit
expansion with integrated Bus
power supply



Art. Nr. 89453847
Art. Nr. 89453847-HS

DALI Expander

DALI System Extension

Overview

- Device for simple DALI circuit expansion
- Control of several DALI-devices via one DALI-address
- For the superordinate DALI circuit the DALI expander acts as a DALI EVG (DALI IN) with a single address
- Output (DALI OUT) with DALI power supply (200mA) for the supply of DALI EVG's and DALI control modules
- Forwarding commands received at the input (DALI IN) to the output (DALI OUT) broadcast
- Alternative control options of the DALI-output circuit via Switch&Dim-input (Broadcast)
- Galvanic separation between DALI-circuits
- Available for dinrail mouning (for integration in protection class II devices) or as independent control gear (for remote ceiling or integration in luminaires)



Specification, Characteristics

type	DALI Expander	
article number	89453847	89453847-HS
input: L, N		
input type	supply, mains-voltage	
marking terminals	L, N	
input voltage range	100Vac ... 240Vac	110Vac ... 230Vac
max. input supply current	40mA (@120Vac), 20mA (@240Vac)	
input supply frequency	50Hz / 60Hz	
max. power consumption	5,3W	
startup time	250ms	
input: DA, DA		
input type	DALI control input	
marking terminals	DA, DA	
input voltage range	9,5V ... 22,5V	
max. current consumption DALI	2mA	
input: L', N		
input type	SwitchDim - control input	-
marking terminals	L', N	-
input voltage range	230Vac	-
input supply frequency	50Hz/60Hz	-
control impulse length min.	40ms	-
control impulse length long press	500ms	-

output: DA+, DA-

output type	DALI supply
marking terminals	DA+, DA-
input voltage range	12Vdc ... 20,5Vdc
guaranteed DALI supply current	200mA
open circuit proof	yes
short circuit proof	yes

insulation data:

impulse voltage category	II
pollution degree	2
rated insulation voltage	250V
insulation DALI-output (DA+,DA-) / supply (L,N) DALI-input / DALI output(DA+, DA-) DALI-input / supply (L,N)	reinforced isolation
insulation test voltage DALI-output/mains	3000Vac

environmental conditions:

storing and transportation temperature	-20°C ... +75°C
operational ambient temperature	-20°C ... +60°C
rel. humidity, none condensing	15% ... 90%

general data:

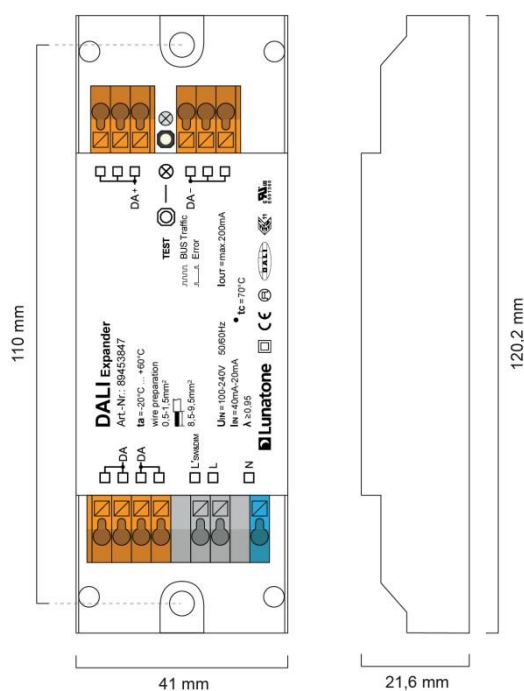
dimensions (l x w x h)	120mm x 41mm x 22mm	98mm x 17,5mm x 56mm
mounting	remote ceiling integration in class II devices	dinrail integration in class II devices
rated max. temperature tc	70°C	75°C
expected life time @tc	50.000 h	
protection class	II in intended use	
protection degree housing	IP40	IP40
protection degree terminals	IP20	IP20

terminals:

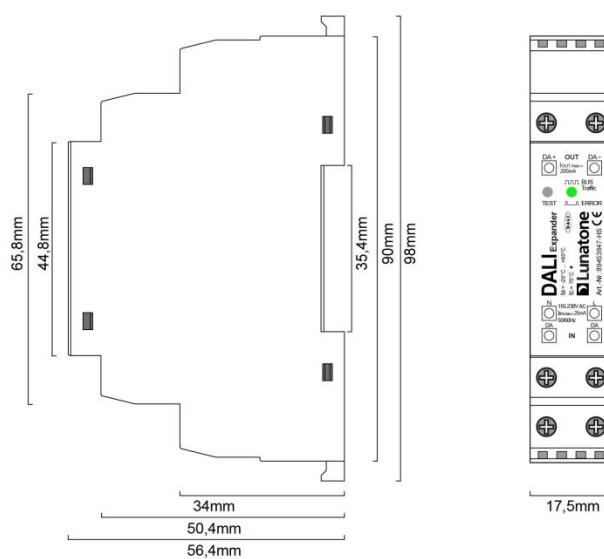
connection type	spring terminal connector	screw connector
wire size solid core	0,5 ... 1,5 mm ² (AWG20 ... AWG16)	0,5 ... 2,5 mm ² (AWG20 ... AWG14)
wire size fine wired	0,5 ... 1,5 mm ² (AWG20 ... AWG16)	0,5 ... 2,5 mm ² (AWG20 ... AWG14)
wire size using wire end ferrule	0,25 ... 1 mm ²	0,25 ... 1,5 mm ²
stripping length	8,5 ... 9,5mm / 0,33 ... 0,37inch	7 mm / 0,27 inch
locking torque	-	0,5Nm
release of wire	push button	open screw

standards:

DALI	EN 62386-101	
EMC	EN 61547 EN 50015 / IEC CISPR15	
safety	EN 61347-2-11 EN 61347-1	
markings	ENEC-11, cURus, CE	CE
UL file number	E501360	-





dimensions DALI Expander




dimensions DALI-Expander (HS-type)

Installation

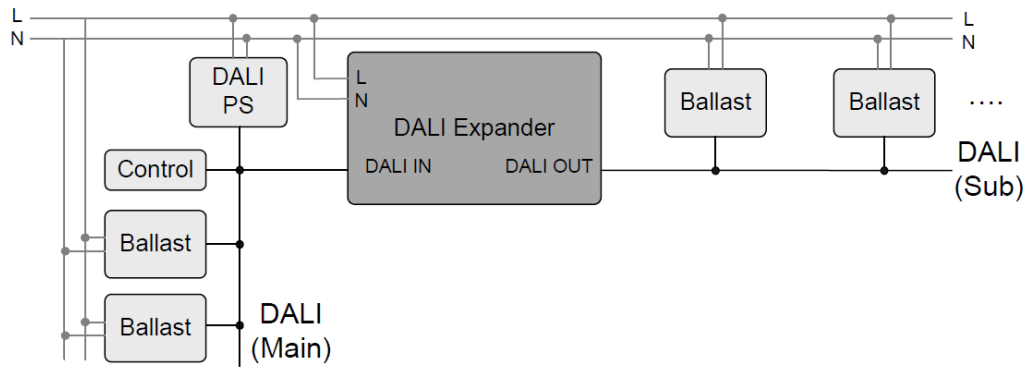
- The DALI Expander is intended for remote installation in the ceiling or in an enclosure, ensure proper cable relief for installation in protection class II devices
 - The DALI Expander (HS-type) is suited for dinrail mounting, ensure protection against electric shock by an appropriate enclosure
 - Wiring as fixed installation in a dry and clean environment
 - Installation only by qualified person when no voltage is applied
 - Attend regulations regarding electrical installations of national authorities
 - connect power supply terminals L and N to mains voltage
 - the polarity of the output voltage is marked on the housing (DA+, DA-)
 - The DALI-line may be installed within the same cable or as single conductors within the same tube as mains supply
 - The DALI-line must not be connected to the mains or other extra low voltage systems
 - DALI-line wiring with standard low voltage installation material
 - Wiring topology of the DALI-line: Line, Tree, Star
 - Wiring check by pressing the test button: the led is flashing and all luminaires connected to the DALI system will be controlled by a test sequence (on, off, dimming). To quit the test mode press the test button again.
 - Connect only one wire on each terminal, if twin ferrules are used take care to the maximum wire size
- 

HINT: The DALI-signal is not classified as SELV circuit. Therefore the standards for installation in low voltage system apply.
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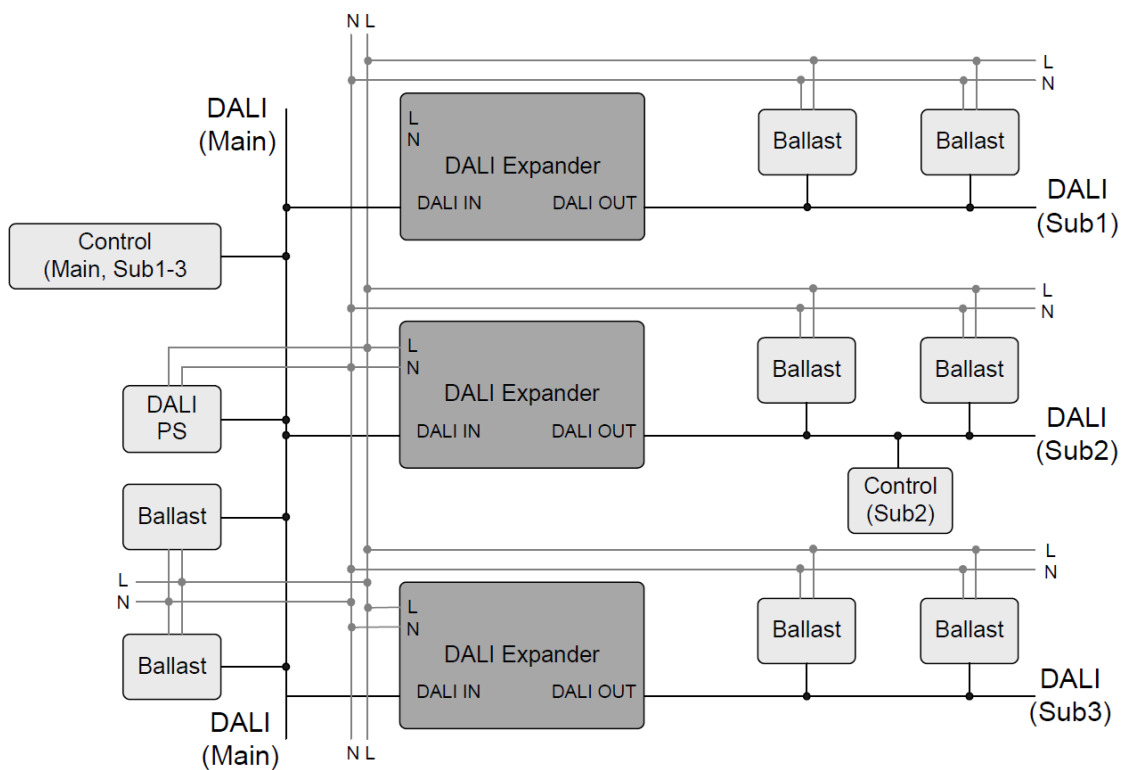
The voltage drop on the DALI-line shall not exceed 2V.
- Don't use standard DC power supplies on the DALI-line, since they do not meet the requirements for DALI communication



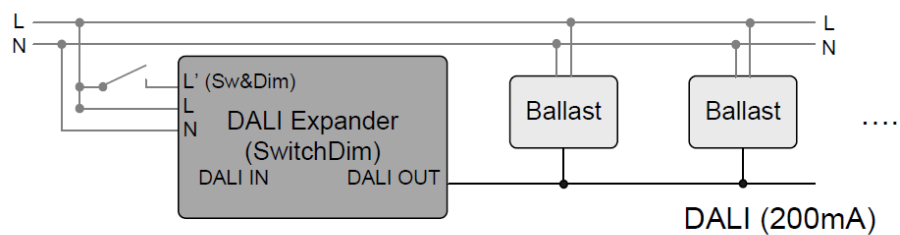
HINT: an improper DALI power supply can cause damage on DALI devices!



Expansion of a DALI circuit (Main) with a DALI subordinate circuit (all control commands sent to the DALI Expander are sent Broadcast to the DALI sub-circuit.)



Expansion of a DALI circuit (Main) with multiple broadcast controllable DALI sub-circuits. The additional control module in DALI (Sub2) enables the specific control of the sub-circuit.



Control of DALI-ballasts via SwDim (DALI-Expander only)

Commissioning

- The DALI Expander is ready for use
- Make sure that the guaranteed supply current exceeds the current consumption of all bus devices
- The SwitchDim input and DALI-Broadcast commands can be used to control the device immediately
- After assigning an address with the help of the DALI-Cockpit - scene values, groups and other settings can be configured
- Status-LED:
 - flashing 5Hz, 50% on: test mode
 - flashing 2Hz, 5% on : error
 - flashing 2Hz, 90% on: activity

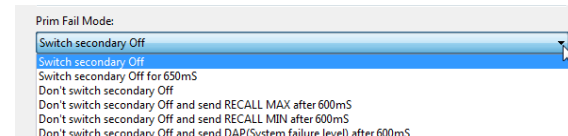
Function

With the DALI-Expander the number of DALI control gear can be extended. On the input the DALI-Expander represents one device (DALI IN) by its address and can be handled like a DALI-ballast. All commands received by the device are forwarded broadcast to the sub circuit (DALI OUT). Hence control gear connected to DALI OUT can be controlled via the DALI address of the expander. The power supply for the DALI sub circuit is provided by the expander itself (200mA). For command forwarding there are no device type specific restrictions. Up from firmware version 1.3 even the DALI-2 command "Goto Last Active Level" is supported.

The test button can be used to start and stop a test sequence for testing the DALI subline.

Up from firmware version 1.4 a system failure on the input results in a system failure on the output. The power supply of the subline can be reactivated by pressing the test button.

However, this behaviour has been changed in version 1.8. From then on the behaviour on the DALI output in case of a system failure can be configured:



If SwitchDim operation is detected, the bus supply is always switched on.

In firmware version 1.9 and higher DAP commands can repeated with a defined period (default=5s). This feature ensures that after a phase fault and voltage return the luminaires return to the desired light level and do not keep staying at the power-on level.

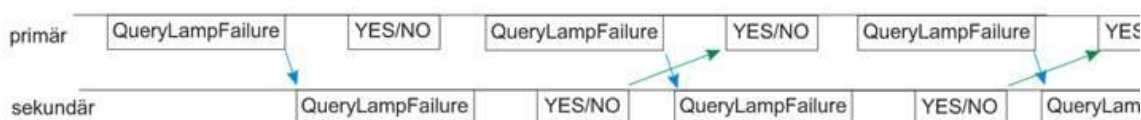
A LAMP FAILURE of the DALI sub circuit can be queried as well (supported by firmware version 1.2 and higher). Because of the standardized DALI-Timing the answer from the sub-circuit cannot be sent immediately to the host. The answer sent to the host from the expander always is the answer from the last query. Hence the query command has to be sent twice.

DALI commands:

Query Actual Level (=255 on Lamp Failure)

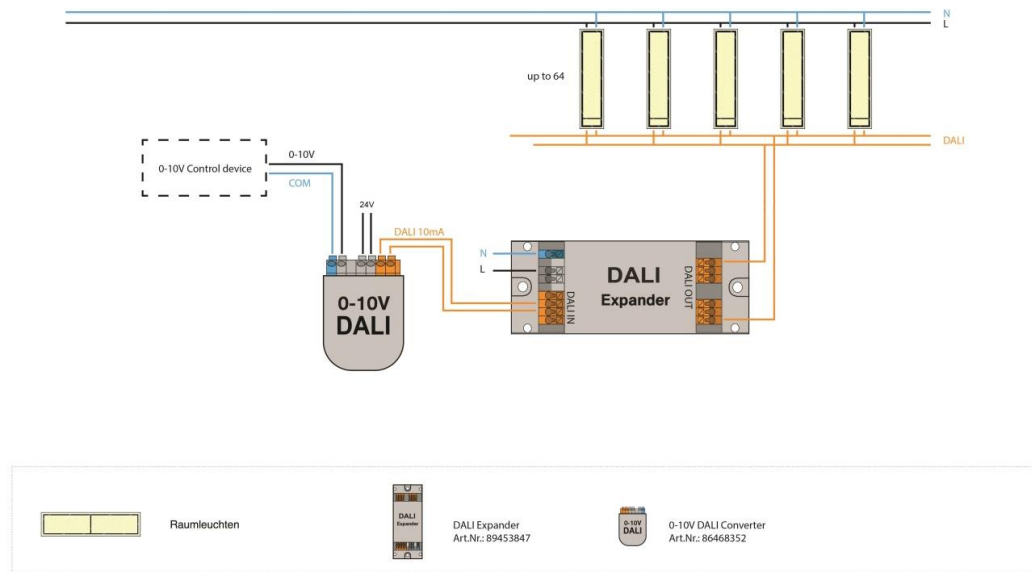
Query Status (Bit[1]=1 on Lamp Failure)

Query LampFailure (answer = YES on LampFailure)



DALI-Timing: Query Lamp Failure

Application Example



Control of 64 DALI luminaires with a 0-10V control device and a 0-10V to DALI converter (Art.Nr.: 86458352)

Purchase Information

Art.Nr. 89453847: DALI Expander with integrated bus power supply, remote ceiling

Art.Nr. 89453847-HS: DALI Expander with integrated bus power supply, din rail

Contact

Technical Support: support@jumitech.dk

Requests: salg@jumitech.dk

www.jumitech.dk

Additional Information

Datasheets and manuals

<https://jumitech/produkter>

DALI-Cockpit – free configuration tool from Lunatone for DALI systems

<http://lunatone.at/en/downloads/Lunatone-DALI-Cockpit.zip>

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The compatibility with other devices must be tested in advance to the installation.



Datasheet

Device for DALI-line expansion with
integrated bus power supply for 3
DALI sub-circuits

2019/01/21

DALI Expander 3 DALI System Extension

Overview

- Device for DALI-line expansion
- Control of several DALI-devices via 3 DALI-addresses
- 3 DALI outputs (DALI A,B,C) with integrated DALI power supply (50mA each) for powering control gear and control devices
- For the superordinate DALI circuit the DALI expander acts like 3 separate DALI control gear – 3 DALI addresses, one for each subnet (A, B, C)
- Forwarding commands received at the input (DALI IN) to the corresponding output (DALI A, B, C) broadcast
- Alternative control options of the DALI-output circuits via Switch&Dim-inputs (Broadcast).
- Group commands are passed from one to the other output circuits (cross function)
- Galvanic isolation between DALI-input and DALI-outputs
- Independent control gear for remote ceiling an integration in luminaires



Specification, Characteristics

type	DALI Expander3
article number	89453847-3
input: L, N	
input type	supply, mains-voltage
marking terminals	L, N
input voltage range	100Vac ... 240Vac
max. input supply current	40mA (@120Vac), 20mA (@240Vac)
input supply frequency	50Hz / 60Hz
max. power consumption	5,3W
startup time	250ms
input: DA, DA	
input type	DALI control input
marking terminals	DA, DA
input voltage range	9,5V ... 22,5V
max. current consumption DALI	2mA
input: L'A, L'B, L'C, N	
input type	SwitchDim - control input
marking terminals	L'A, L'B, L'C, N
input voltage range	230Vac

input supply frequency	50Hz/60Hz
control impulse length min.	40ms
control impulse length long press	500ms

output: DA+, DA-A, DA-B, DA-C

output type	3x DALI supply
marking terminals	DA+, DA-A, DA-B, DA-C
input voltage range	12Vdc ... 20,5Vdc
guaranteed DALI supply current	3x50mA
open circuit proof	yes
short circuit proof	yes

insulation data:

impulse voltage category	II
pollution degree	2
rated insulation voltage	250V
insulation DALI-output (DA+,DA-A,B,C) / supply (L,N) DALI-input / DALI output (DA+,DA-A,B,C) DALI-input / supply (L,N)	reinforced isolation
insulation test voltage DALI-output/mains	3000Vac

environmental conditions:

storing and transportation temperature	-20°C ... +75°C
operational ambient temperature	-20°C ... +60°C
rel. humidity, none condensing	15% ... 90%

general data:

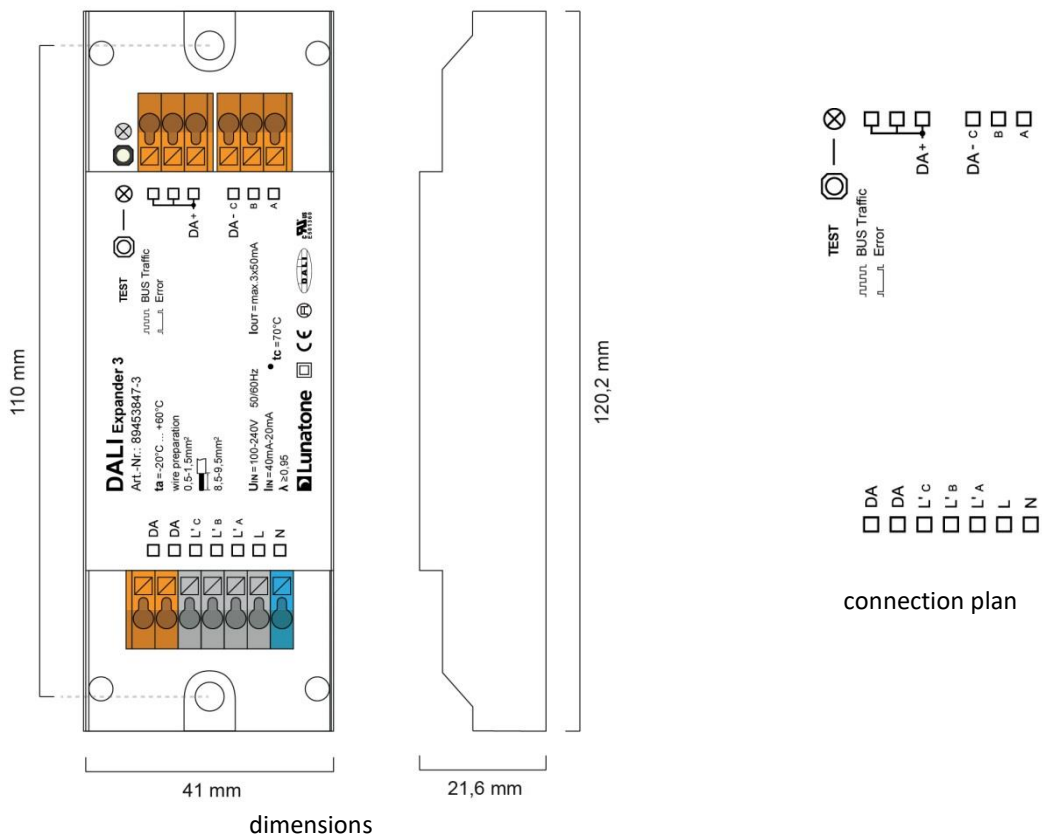
dimensions (l x w x h)	120mm x 41mm x 22mm
mounting	remote ceiling integration in class II devices
rated max. temperature tc	70°C
expected life time @tc	50.000 h
protection class	II in intended use
protection degree housing	IP40
protection degree terminals	IP20

terminals:

connection type	spring terminal connector
wire size solid core	0,5 ... 1,5 mm ² (AWG20 ... AWG16)
wire size fine wired	0,5 ... 1,5 mm ² (AWG20 ... AWG16)
wire size using wire end ferrule	0,25 ... 1 mm ²
stripping length	8,5 ... 9,5mm / 0,33 ... 0,37inch
release of wire	push button

standards:

DALI	EN 62386-101
EMC	EN 61547 EN 50015 / IEC CISPR15
safety	EN 61347-2-11 EN 61347-1
markings	cURus, CE
UL file number	E501360



Installation

- The DALI Expander-3 is intended for remote installation in the ceiling or in an enclosure, ensure proper cable relief for installation in protection class II devices
- Wiring as fixed installation in a dry and clean environment
- Installation only by qualified person when no voltage is applied
- Attend regulations regarding electrical installations of national authorities
- connect power supply terminals L and N to mains voltage
- the polarity of the output voltage is marked on the housing (DA+, DA- (A,B,C))
- The DALI-line may be installed within the same cable or as single conductors within the same tube as mains supply
- The DALI-line must not be connected to the mains or other extra low voltage systems

- DALI-line wiring with standard low voltage installation material
- Wiring topology of the DALI-line: Line, Tree, Star
- Wiring check by pressing the test button: the led is flashing and all luminaires connected to the DALI system will be controlled by a test sequence (on, off, dimming). To quit the test mode press the test button again.



HINT: The DALI-signal is not classified as SELV circuit. Therefore the standards for installation in low voltage system apply.

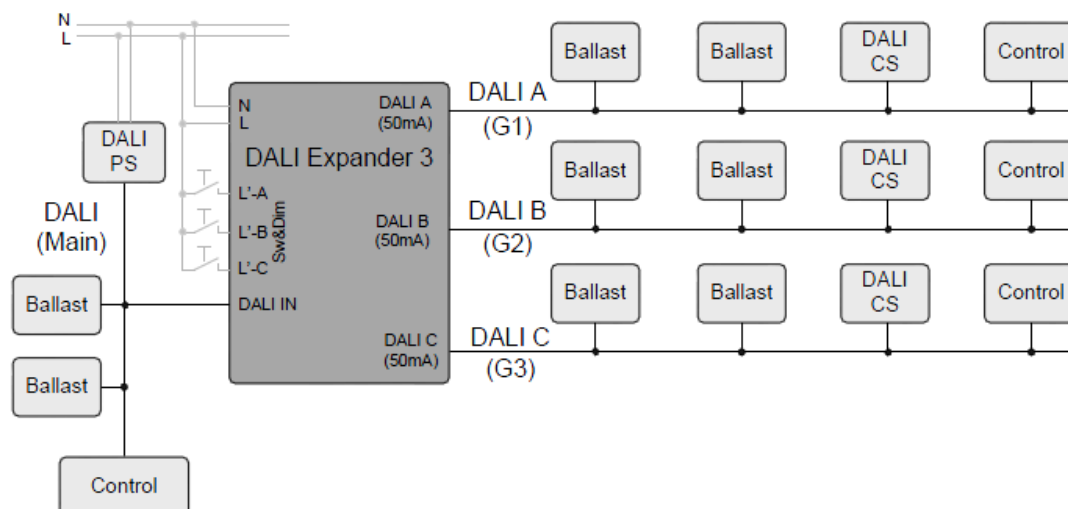


The voltage drop on the DALI-line shall not exceed 2V.

- Don't use standard DC power supplies on the DALI-line, since they do not meet the requirements for DALI communication



HINT: an improper DALI power supply can cause damage on DALI devices!



Expansion of a DALI-circuit (Main) with up to three DALI-sub-circuits

Commissioning

- The DALI Expander-3 is ready for use
- Make sure that the guaranteed supply current (3x50mA) exceeds the current consumption of all bus devices
- The SwitchDim inputs and DALI-Broadcast commands can be used to control the device immediately
- After assigning an address with the help of the DALI-Cockpit - scene values, groups and other settings can be configured
- Status-LED:
 - flashing 5Hz, 50% on: test mode
 - flashing 2Hz, 5% on : error
 - flashing 2Hz, 90% on: activity

Function

The DALI-Expander 3 can be used for DALI-line expansion. For each of the three DALI-outputs the device provides an integrated DALI power supply (50mA).

Each of the 3 DALI subnets is represented by a DALI short address at the input and commands sent to these addresses are forwarded to the corresponding output broadcast. Hence all connected ballasts on an output-circuit can be controlled simultaneously via a single short address.

An alternative for control of the output circuits are the Switch&Dim inputs (short press: On/Off, long press: Dim), as a result the device can be used as stand-alone solution without DALI-circuit on the input.

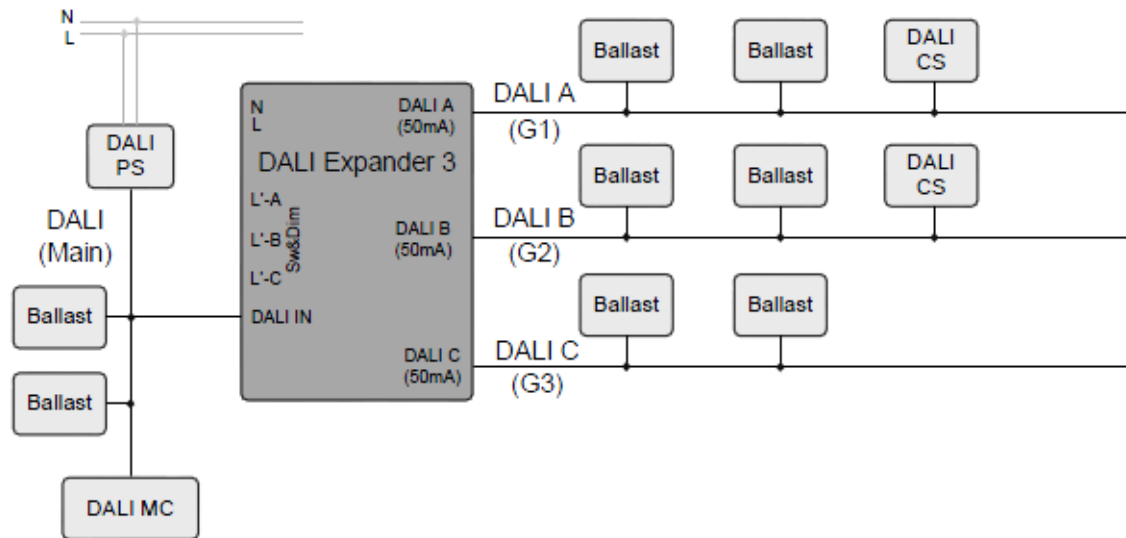
For the transmission of DALI commands between the output lines (e.g. for controlling 2 of the output lines with one DALI CS sensor only), group commands can be used.

By factory default a group command is forwarded broadcast as listed below:

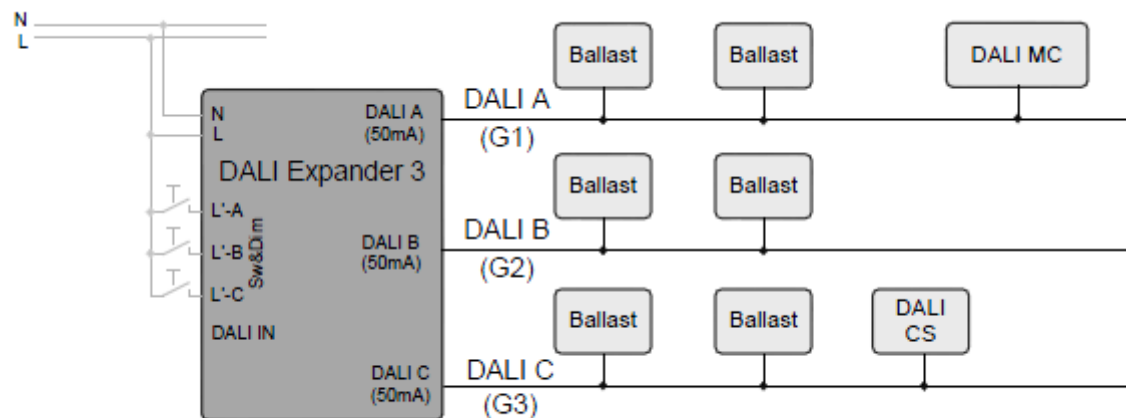
G1 -> DALI A
 G2 -> DALI B
 G3 -> DALI C
 G4 -> DALI A + DALI B
 G5 -> DALI A + DALI C
 G6 -> DALI B + DALI C
 G7 -> DALI A + DALI B + DALI C

With the help of the test button a test sequence for testing the sub circuits can be started and stopped.

Typical Application



DALI input circuit available (separate DALI PS required). Control of DALI-sublines via short addresses from the DALI-Main-circuit or with the help of controls (e.g. DALI CS) in the output circuits



Stand Alone solution without DALI-circuit at the input. Control of the DALI output lines with Switch&Dim inputs or with controls in the output circuits (e.g. DALI MC or DALI CS) – if the DALI CS sends control commands to Group 5, per factory default line A and line C will receive this command broadcast

Purchase Order Information

ArtNr. 89453847-3: DALI Expander 3, device for DALI-line expansions with 3 subnets and integrated 50mA bus power supply for each line

Additional Information

Datasheets and manuals

<https://jumitech/produkter>

DALI-Cockpit – free configuration tool from Lunatone for DALI systems

<http://lunatone.at/en/downloads/Lunatone-DALI-Cockpit.zip>

Contact

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Requests: salg@jumitech.dk

www.jumitech.dk

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DALI Repeater

Datasheet

Amplifier

Device to enhance the maximum
DALI cable length

Art. Nr. 86458401

Art. Nr. 86458401-PS



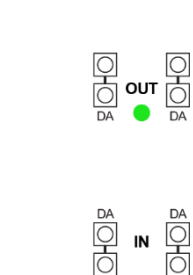
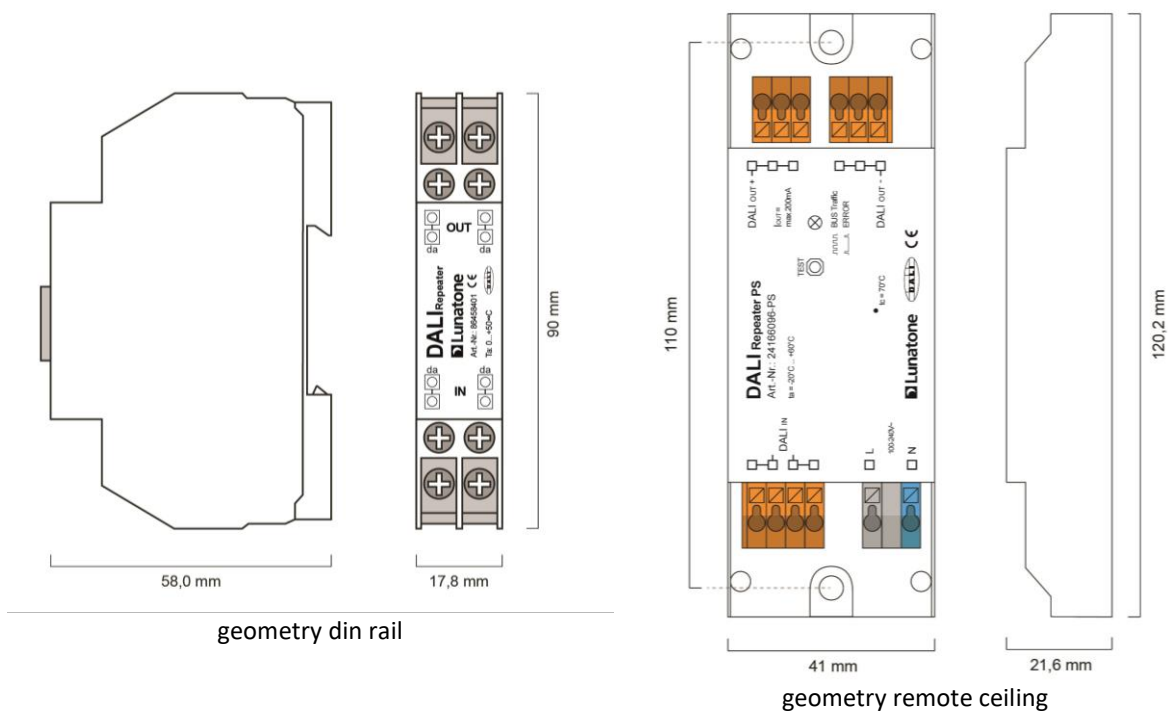
DALI Repeater Amplifier

Overview

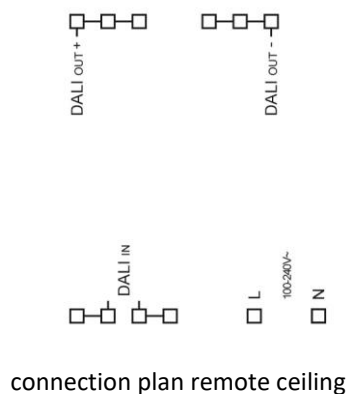
- Device to enhance the maximum DALI cable length from 300m up to 600m.
- Enhancement and Transmission of the DALI-signals (bidirectional).
- Galvanic separation between DALI-circuits.
- Either radially arranged network layout or cascaded system mounting operated with single master.
- restricted cascading (Series wiring) of multiple repeaters in multi-master operating mode
- The maximum amount of DALI-devices in the total network is limited to 64, the devices can be divided on the sub-circuits at will.
- For each subordinate DALI circuits a separate power supply is needed. (DALI PS)
- Type with integrated power supply available
- Suitable for Din-Rail mounting.

Specification, Characteristics

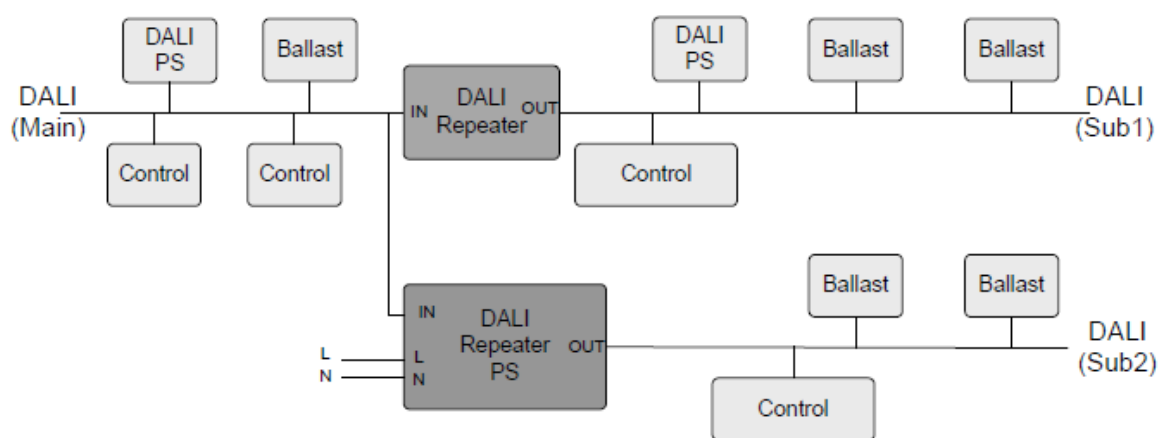
type	DALI Repeater	DALI Repeater PS
article number	86458401	86458401-PS
electrical data:		
power supply	via DALI-line	via DALI-line / 100V-240V AC
typ. current consumption DALI IN	6 mA	2mA
typ. current consumption DALI OUT	4 mA	integrated DALI PS: up to 200mA
input/output	DALI / DALI DALI/DALI	
technical data:		
storing and transportation temperature	-20°C ... +75°C	
operational ambient temperature	-20°C ... +75°C	-20°C ... +60°C
protection class	IP20	
dimensions	90mm x 17.5mm x 56mm	120mm x 41mm x 22mm
mounting	din rail	remote ceiling



connection plan din rail



connection plan remote ceiling



typical application: Dali commands from any control are transmitted in all DALI-lines, on the output of a DALI Repeater with integrated PS no DALI PS is needed

Purchase Information

Art. Nr. 86458401: DALI Repeater, din rail

Art. Nr. 86458401-PS: DALI Repeater,
integrated power supply (200mA), remote
ceiling

Additional Information

Datasheets and manuals

<https://jumitech/produkter>

DALI-Cockpit – free configuration tool from
Lunatone for DALI systems

<http://lunatone.at/en/downloads/Lunatone-DALI-Cockpit.zip>

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DALI SCI RS232

Datasheet

DALI RS232 Interface

Communication interface between a
PC (or PLC) and modules in a DALI
lighting system

Art. Nr. 22176438-HS

Replaces:

Art. Nr. 86458525 (DIN-Rail)

Art. Nr. 22176438 (DIN-Rail RJ45)

Art. Nr. 24166096 (Mouse)

DALI SCI RS232 Interface

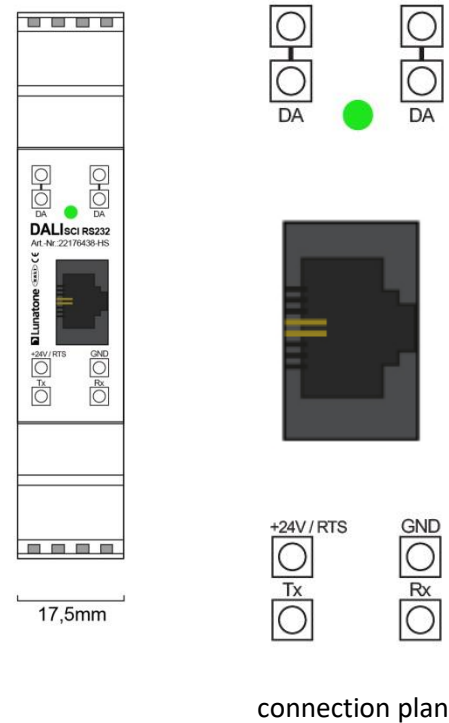
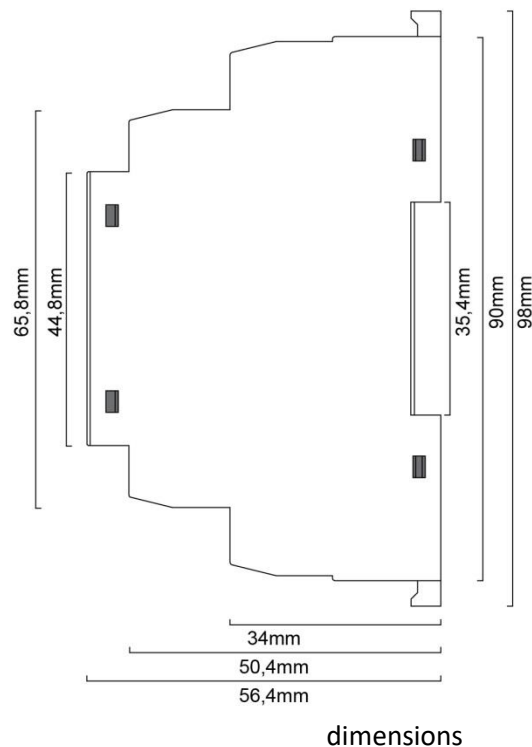
Overview

- Module with a serial interface to communicate with components in a DALI-line via RS232
- A simple way to connect a PC or PLC to a DALI network.
- bidirectional data transfer
- Addressing, configuration, status requests and monitoring
- collision detection
- Support for several proprietary DALI-protocol extensions.
- Electrical isolation
- supply via DALI-line and serial interface
- Double DALI-terminals



Specification, Characteristics

type	DALI SCI RS232
article number	22176438-HS
GTIN	9010342010187
electrical data:	
typ. current consumption DALI	10mA
max. current consumption DALI	10mA
SCI-protocol	RS232 38400Baud, 8databits, no parity, 1 stopbit (38400,8,n,1)
supply	6-24V DC
typ. supply current	5mA
max. startup time	150ms
technical data:	
storage and transportation temperature	-20°C ... +75°C
operational ambient temperature	-20°C ... +75°C
protection class	IP20
connectors RS232	screw terminals (max. 2.5 mm ²) RJ45 female
connectors DALI	screw terminals, max. 2,5mm ²
dimensions	90mm x 17.5mm x 18mm
mounting	dinrail



Connection, Installation

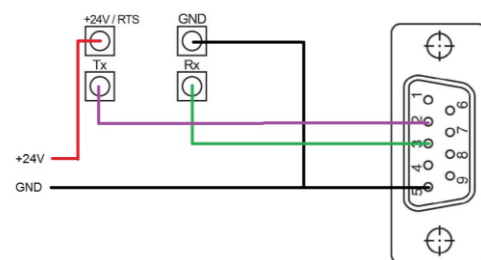
The DALI SCI RS232 is connected to the DALI-line. A typical value for the current consumption is 10mA.

The connection to the DALI-line is polarity free. For easy installation each DALI-terminal is executed as doubleclamp (linked contacts are marked on the housing).

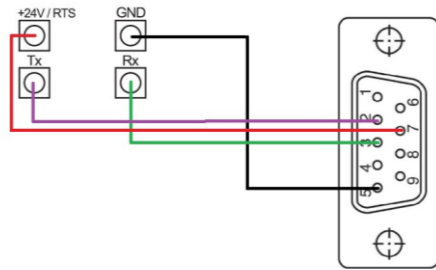
The DALI-line and the RS232 are electrically isolated.

The RS232 can be accessed either via a RJ45 connector or via screw terminals. Beside the communication signals (RxD, TxD, GND) a supply is required (6V-24V, GND). Instead of connecting 24V the RTS-Pin of the RS232 connector can be used. A typical value of the current consumption is 5mA.

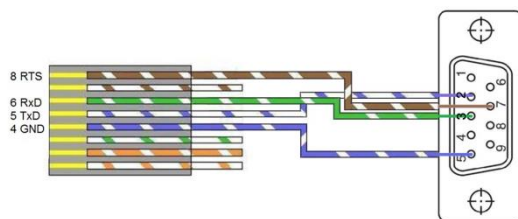
Installation with external 24V supply, connected via screw terminals (SubD to RS232 of a PC):



Installation with supply via RTS-Pin:



Connection diagram of a cable from RJ45 -> SubD (for direct connection to the RS232 of a PC, supply via RTS-Pin):



SubD	RJ45	Signal description
Pin5	Pin4	GND
Pin2	Pin5	TxD
Pin3	Pin6	RxD
Pin7	Pin8	RTS

Interface Configuration

In order to ensure asynchronous communication with the interface the settings of the transmission channel should be configured as followed (38400,8,n,1).

transfer rate	38400 Baud
number of data bits	8
parity bit	no
stop bit	1
directionality	half duplex

DALI Specifications and Operating Modes

The DALI SCI RS232 interface supports the transmission of Standard DALI commands (8 and 16bit) as well as several proprietary protocol extensions:

- standard DALI (16Bit)
- standard DALI (8Bit), backchannel
- standard DALI (24Bit, DALI-2) for control devices and event messages
- eDALI, special proprietary 25bit protocol (24bit data)
- 17bit DALI, special DALI frame by Helvar
- DSI on DALI-line (16bit and 8bit), DALI-line will be held LOW for 10ms before and after sending a DSI-frame

The DALI RS232 offers sending and receiving of commands as well as the ability to monitor and observe the DALI-line communication. In monitoring mode each message will be transmitted to a PC if it corresponds to one of the supported protocols.

Transmission Protocol

The communication protocol between PC and DALI SCI RS232 is implemented as followed.

Both forward and backward data frame between PC and DALI RS232 consist of 5 bytes.

Forward frame:

8bit	8bit	8bit	8bit	8bit
Control	Data_HI	Data_MI	Data_LO	Checksum

Control

bit7	bit6	bit5	bit4	bit3	bit2	bit1	bit0
ME	identify /nDALI	Echo	0	0	MS		

bit 7:	monitor enable (ME)	1: enable monitoring (if enabled all received DALI data will be transmitted to PC)
bit 6:	identify /nDALI	1: no data on DALI-line, communication only between PC and SCI2 0: DALI output enabled (data on DALI-line)
bit5:	Echo	1: immediate response (no wait for an answer from the DALI-system) 0: Wait for DALI response (max. 10ms, if no DALI-answer within this period, "NO" will be sent)
bit4:	Send Twice	the command is a twice command (thus to be sent 2x in 100ms)
Bit3-0:	mode selection (MS)	0: not used, reserved 1: not used, reserved 2: send DALI (8bit) in Data_LO 3: send DALI (16bit), data in Data_MI, Data_LO 4: send eDALI (24bit), data in Data_HI, Data_MI, Data_LO 5: send DSI on DALI-line; 8 bit data in Data_LO, 16bit data in Data_MI, Data_LO 6: Send 17bit DALI, 16bit in Data_MI, Data_LO; 17. bit in LSB of Data_HI (=last bit after DALI-frame) 7: not used, reserved 8: send DALI-2 24bit forward frame, data in Data_HI, Data_MI, Data_LO 9-15 reserved

Data_HI, Data_MI, Data_LO

The data are transmitted within these bytes.
For detailed information check the selected mode (control byte, bit 3-0).

Checksum

XOR-ing the previously submitted 4 bytes.

Backward frame (Response from SCI2):

8bit	8bit	8bit	8bit	8bit
Status	Data_HI	Data_MI	Data_LO	Checksum

Status

bit7	bit6	bit5	bit4	bit3	bit2	bit1	bit0
identifier				0	status		

bit7-4:	identifier	6: DALI SCI ID
Bit3-0:	status	0: OK 1: DALI answer "NO" 2: DALI 8bit in Data_LO 3: DALI 16bit in Data_MI, Data_LO 4: eDALI 25bit in Data_HI, Data_MI, Data_LO 5: DSI on DALI data (8bit if Data_MI=0; else 16bit in Data_MI, Data_LO) 6: 17bit DALI (16bit in Data_MI, Data_LO, 17. bit in Data_HI) 7: error: checksum: data=1; DALI-Bus short circuit: data=2; DALI receive error: data=3 unknown command: data=4 Collision detected: data=5 8: DALI2 24bit in Data_HI, Data_MI, Data_LO 9-15: not used

Data_HI, Data_MI, Data_LO and CheckSum comply with the rules of the forward frame.

We recommend checking the backward frame anyway to ensure that the DALI RS232 has processed the DALI command and is ready to receive a new one. The DALI SCI RS232 does not have a buffer for commands.

Please note that DALI-2 24bit forward frames, sending twice command and detailed info about errors in backward frame is supported only by the last recent DALI-2 certified version. In older version the corresponding bits and functions are not used.

Configuration Tool & Monitoring

Lunatone offers a configuration and monitoring software, called the "DALI-Cockpit". With the help of the DALI-Cockpit the entire functional range of the DALI SCI RS232 interface can be used without having to implement the transmission protocol by yourself.

Alternatively the data transfer can be processed by any program that supports the protocols described in this datasheet.

Additional Information

Datasheets and manuals

<https://jumitech/produkter>

DALI-Cockpit – free configuration tool from Lunatone for DALI systems

<http://lunatone.at/en/downloads/Lunatone-DALI-Cockpit.zip>

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DALI USB

Datasheet

DALI USB Interface

Communication interface between
PC and modules in a DALI lighting
system



Art. Nr. 24138923 (USB)

Art. Nr. 24138923DO (USB-Mini)

Art. Nr. 24138923-30 (USB 30mA)

Art. Nr. 24138923-HS (USB HS)

Art. Nr. 24138923-wD (wDALI-USB)

DALI USB Interface

Overview

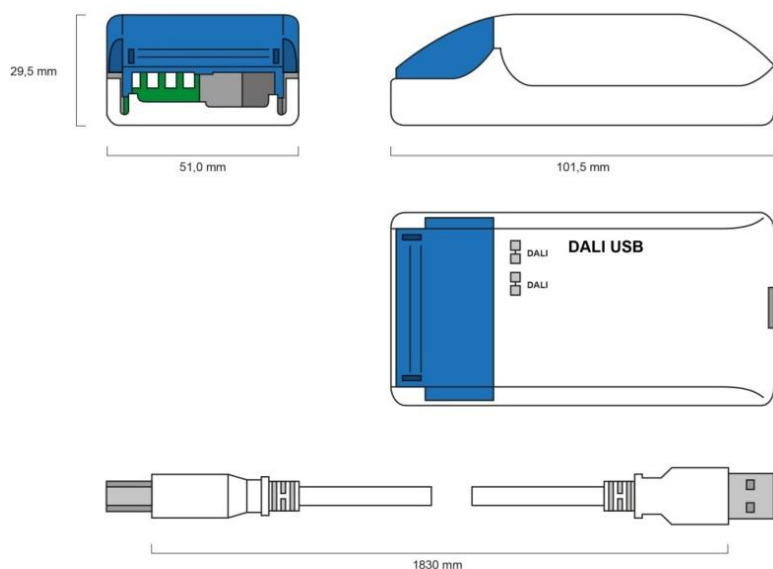
- Communication interface between DALI systems and PC applications
- bidirectional data transfer
- The DALI USB is generally applicable to address and configure DALI components. It can be used for status requests and parameter setting as well.
- Standard DALI protocol and various extended DALI protocols are supported
- monitoring of DALI-communication
- USB and DALI-line are electrically isolated
- supply via DALI-line and USB interface
- configuration and monitoring tool DALI-Cockpit (PC software)
- 5 types available:
 - standard
 - mini
 - with integrated 30mA bus power supply
 - for din rail mounting
 - wireless
- Double DALI terminals – the DALI signal line is connected through

Specification, Characteristics

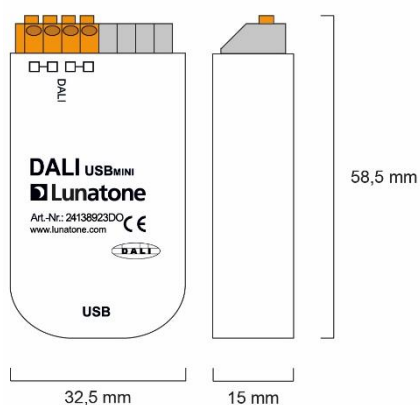
Type	DALI USB	DALI USB Mini	DALI USB 30mA
article number	24138923	24138923DO	24138923-30
geometry LxWxH	102x51x30mm	59x33x15mm	59x33x15mm
housing, installation	Mouse	back box	back box
typ. current consumption	DALI: 6mA, USB: 10mA	DALI: 6mA, USB: 10mA	USB: 40mA
USB connection	1,8m cable	Cable Mini	Cable Mini
RF connection	-	-	-
storage and transportation temperature	-20°C ... +75°C	-20°C ... +75°C	-20°C ... +75°C
operational ambient temperature	-20°C ... +75°C	-20°C ... +75°C	-20°C ... +60°C
protection class	IP20	IP20	IP20

Type	DALI USB HS	wDALI USB
article number	24138923-HS	24138923-wD
geometry LxWxH	98x17.5x56mm	59x33x15mm
housing, installation	din rail	back box
typ. current consumption	DALI: 6mA, USB: 10mA	DALI: 9mA , USB: 40mA
USB connection	Cable Mini	USB Stick
RF connection	-	2.4Ghz / up to 300m
storage and transportation temperature	-20°C ... +75°C	-20°C ... +75°C
operational ambient temperature	-20°C ... +75°C	-20°C ... +75°C
protection class	IP20	IP20

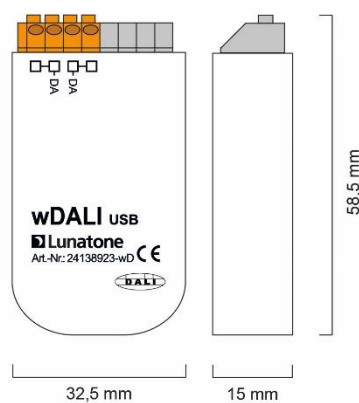
DALI USB :



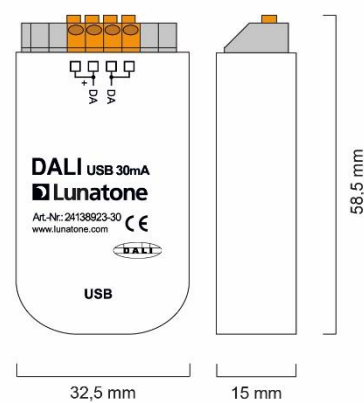
DALI USB Mini:



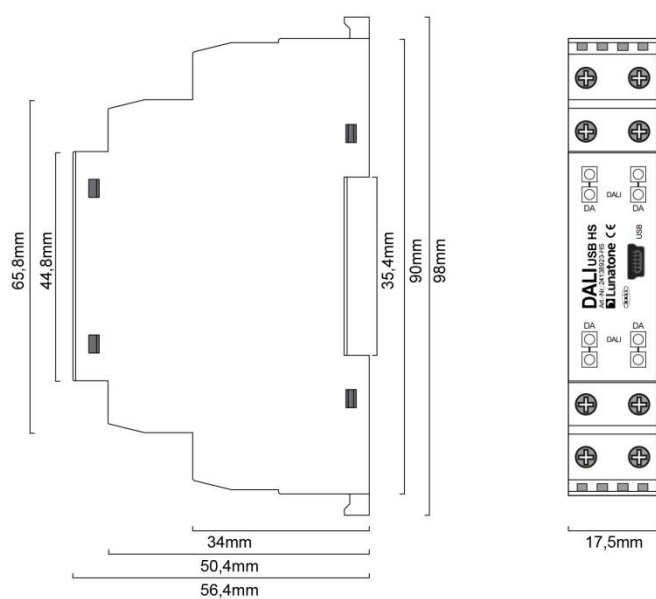
wDALI USB:



DALI USB 30mA:



DALI USB HS:



Connection and Electrical Specification

The DALI-line and the USB are electrically isolated. Therefore the DALI USB has to be supplied by the DALI-line (current consumption ~6mA) as well as by USB (current consumption 10mA max). The connection to the DALI-line is polarity free and protected against overvoltage of up to 270Vac.

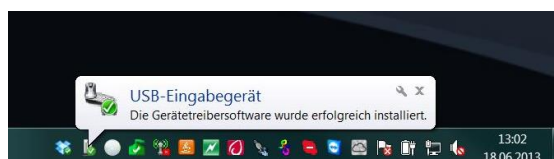
USB, Firmware Update and Windows-Installation

The USB-interface has the following properties:

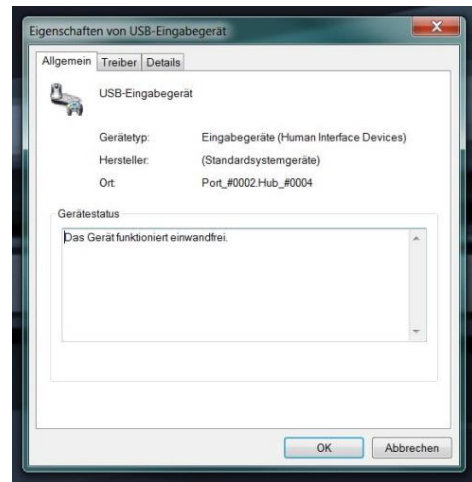
vendor ID	17B5h (Lunatone Industrielle Elektronik GmbH)
product ID	0020h
USB current consumption	10mA max.
speed	full speed USB device (12MBit/s max.)

The DALI-USB firmware will be updated automatically via USB by the DALIBusServer.exe. This program is part of the „DALI-Cockpit“-software-package.

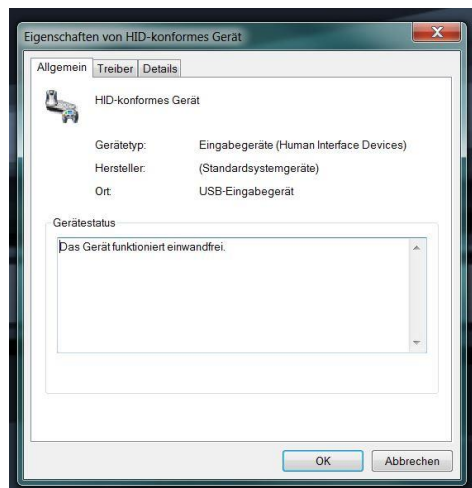
The DALI USB is implemented as USB HID (Human Interface Device).



A driver installation is not necessary due to the windows-integrated built-in support for human interface devices. The DALI USB will be detected by the operating system and all required drivers will be installed automatically.



After the installation process is finished successfully you can find the entry under the node HID (Human Interface Devices) in the device manager.



Supported DALI Specifications and Operating Modes

The DALI USB module supports the following protocols:

- standard DALI (16bit)
- standard DALI (8bit), backchannel
- eDALI, special 25bit Tridonic protocol (24bit data)
- DALI (24Bit) forward frame according IEC 62386-103 and NEMA DALI, 24bit

corresponding to NEMA standard publication 243-2005

- 17bit DALI, special DALI-frame used by Helvar
- DSI on DALI Bus (16bit and 8bit), signal on DALI-line is low 10ms before and after sending a DSI-frame

The DALI USB-interface supports the transmission of DALI-commands as well as monitoring functions for DALI-communication. During monitoring mode each DALI-command on the DALI-line that corresponds to the supported protocols will be transmitted to the PC.

Application

The „DALI-Cockpit“ software package from Lunatone is a configuration and monitoring tool for DALI-systems.

For more details check the instruction manuals of DALI USB, DALI-Cockpit and the Lunatone DALI-Tutorial.

A Windows developer kit for DALI USB access is available for software development.

Purchase Information

Art.Nr. 24138923: DALI USB, Mouse

Art.Nr. 24138923-DO: DALI USB Mini

Art.Nr. 24138923-30: DALI USB, integrated bus power supply 30mA

Art.Nr. 24138923-HS: DALI USB, dinrail

Art.Nr. 24138923-wD: wDALI USB

Additional Information

Datasheets and manuals

<https://jumitech/produkter>

DALI-Cockpit – free configuration tool from Lunatone for DALI systems

<http://lunatone.at/en/downloads/Lunatone-DALI-Cockpit.zip>

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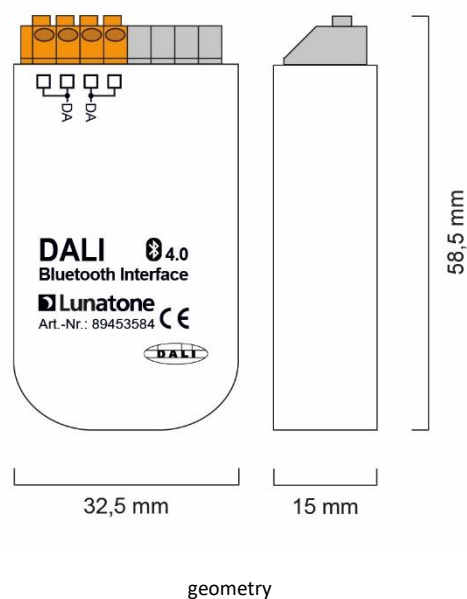
DALI Bluetooth 4.0 Interface

Overview

- DALI Bluetooth 4.0 interface
- DALI-System control via Panel or via Android or IOS mobile device
- App for IOS and Android available
- all bluetooth moduls within the reception area will be listed for selection
- up to 32 layouts configurable
- 5 preset designs available for color and colortemperature control as well as for switching and dimming with free configurable buttons
- Pin-code protection
- Configuration of the DALI Bluetooth module with DALI-Cockpit software tool und DALI-USB Interface
- Individual layout configuration: button arrangement and configuration of functions
- As function a link to another layout or a DALI-command can be assigned to each button
- A short address, a group address or broadcast can be defined as effective range for each DALI command
- Multi master capable, more than one module can be installed on a DALI-line
- The module is supplied by the DALI-line

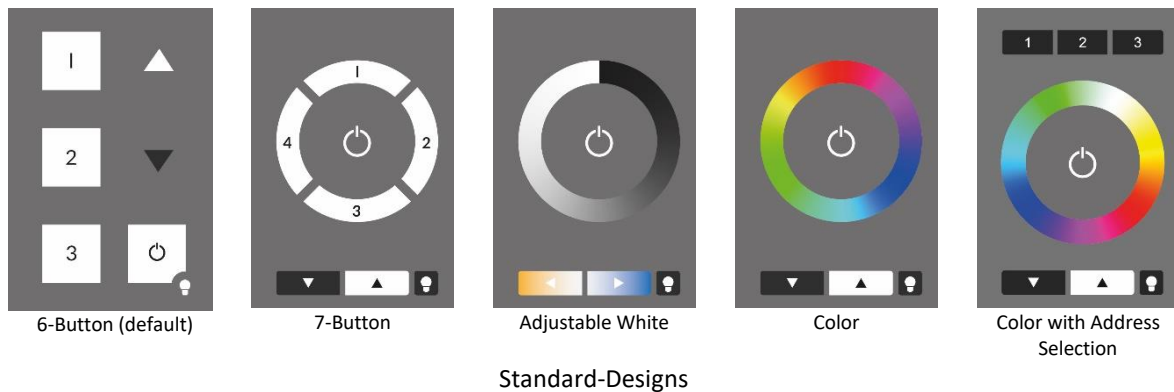
Specification, Characteristics

type	DALI Bluetooth Interface
article number	89453584
power supply	via DALI-line
typ. current consumption	4 mA
output	DALI
layout	selectable
function	configurable
storing temperature	-20°C ... +75°C
operational ambient temperature	-20°C ... +75°C
protection class	IP20
connecting wire cross section	0.5-1.5 mm ²
geometry (LxBxH)	59x33x15 mm



Bluetooth 4.0: Low Energy





Installation

The DALI Bluetooth interface is supplied directly via the DALI signal line by the DALI-line power supply (current consumption <4 mA). The connection is polarity-free and protected against overvoltage.

The DALI Bluetooth module can be installed easily in an installation box.

Addressing and Configuration

With the help of a DALI USB interface and the DALI-Cockpit software tool the module can be configured easily.

During addressing the module is detected and listed in the component tree. The free DALI Cockpit software tool can be downloaded from the Lunatone website and can be used for commissioning for DALI ballasts as well as for the DALI BT control device. DALI-Cockpit and DALI-USB interface are not required for standard operation and can be removed after installation is finished.

Adjustable Settings

The DALI circuit is controlled via an IOS or Android mobile device.

The app allows access to all DALI Bluetooth modules in the reception area.

While only one layout can be controlled on the panel itself, the app offers the possibility to switch between different layouts.

These layouts are defined using the DALI cockpit. Up to 32 layouts can be created, one of them must be defined as startup layout.

Up to 12 keys can be defined in each layout. The position and size of each button is as configurable as the function.

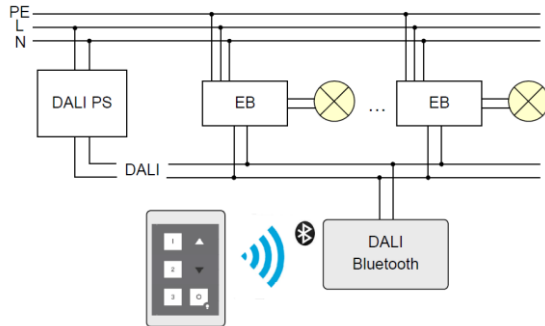
The function basically distinguishes between switching to a different layout ("Link" function) and a control action for the DALI circuit.

For an action for the DALI circuit the effective range (single address, group address, broadcast) and the corresponding DALI command or a predefined or self-defined DALI command sequence (macro) has to be defined.

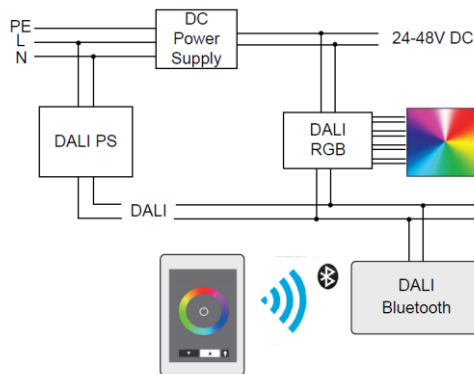
An additional feature is the pin-code protection.

By changing app images the layouts can be customized by each user.

Due to the reception radius of the Bluetooth connection (about 10 m), the module is preferably suitable for controlling individual rooms or zones.



typical structure: scene and group control



typical structure: color and colortemperature control

Purchase Information

Art.Nr. 89453584, DALI-Bluetooth Interface for controlling DALI-systems by IOS or Android mobile devices

Additional Information

Datasheets and manuals

<https://jumitech/produkter>

DALI-Cockpit – free configuration tool from Lunatone for DALI systems

<http://lunatone.at/en/downloads/Lunatone-DALI-Cockpit.zip>

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