

# Stand-Alone DALI Broadcast Module (QDBC02SA)



QDBC02SA

## 1. Product description

This DALI Broadcast Module can work either as a Stand-Alone (WITHOUT the Qbus controller and WITHOUT external power and WITHOUT configuration) or be connected to a Qbus controller to form part of a complete Qbus home automation system.

The QDBC02SA is suitable for controlling up to 64 DALI devices. The 1 to 64 DALI lighting units can be divided among one or two DALI buses. (all combinations from 0 devices on one circuit and 64 on the second to 32 units on both circuits are possible). All DALI units that are connected to the same buses will dim in the same manner. The power supply for the two DALI buses is integrated into the QDBC02SA module. The 230V permanent power supply for the DALI fixtures is direct and does not need to be connected to the QDBC02SA (see diagram).

If the dimmer is used as a stand-alone module, a minimum dimming level of 0% or 10% can be selected for each DALI bus or a memory function can be activated. These settings can be selected by using the buttons on the module. Refer to "Manual Control" later in this technical data sheet. When using this dimmer in a Qbus installation, you will have access to all settings available in Systemmanager III. If another minimum dimming level is set in Systemmanager III, the module will remember this set percentage in stand-alone mode.

The DALI buses are short-circuit proof and are protected against overload (too many fixtures). If the dimmer enters the security mode due to a short circuit or overload, the LED below the output will flash rapidly. The DALI buses recover once the short circuit or overload is resolved. In case of short circuiting or an overload, the bus is cyclically tested every 3 seconds. Starting at firmware version 3.0 and when used with a Qbus controller in a full home automation installation, the module also has a bistable error address to enable further actions. This module addresses the connected DALI units automatically and is aware of the actual number of connected devices. However, the individual addresses cannot be addressed. Commands are only sent out at Broadcast level.

The module also has 3 potential-free inputs for connecting standard buttons (N.O.). Inputs 1 to 2 control outputs 1 to 2, input A is a mood

input which carries out an EVERYTHING OFF mood when hold (and released) for 0.7 seconds, and carries out a PANIC MOOD (Everything On) when hold for 3 seconds. The inputs for the controls of the dimmer are only suitable for regular open buttons. If the QDBC02SA is connected to a controller, the function of input A can be adjusted to default open or default closed using the Qbus configuration software.

The module contains 2 LED outputs for feedback on the switches. An external DC power supply between 5V and 24V must be installed for the operating voltage of the LED feedback.

The dimmer outputs can only be programmed in a single-push-button dimmer in stand-alone mode. A 1-push-button dimmer must always complete the cycle: from 0% to 100% and back to 0%. A short pulse (< 0.3 seconds) returns the dimmer from zero to maximum in 2.5 seconds. When using a Qbus controller, the following additional functions can be used: The dimmer start value can be set between 5% and 100%. When using the built-in astronomical clock in the Qbus Controller, you can set a dimmer start percentage at daytime and a second dimmer start percentage at night. The dimmer can also be dimmed automatically after a configured time of 1 second to 255 minutes (TimeOff) when started using a short pulse.

If dimmers are controlled using a mood or TimeOff, the ascending time and the descending time can be set independently between 0.3 seconds and 20 minutes.

Each module has a unique serial number (6 to 10 digits). The module can be programmed using the Qbus software based on this serial number.

Each QDBC02SA is internally protected with a self-repairing fuse. Ensure that there is adequate ventilation in the distribution cabinet. A two-pole automatic fuse with a maximum of 16A must be connected to the power supply module.

## 2. Safety rules

Read the entire manual before installing the module and activating the system.

### NOTE

- The module must be installed, started and maintained by a qualified electrician in accordance with the applicable national legal regulations.
- This module is only suitable for DIN-rail installation EN50022. The module must be installed in a fireproof, closed distribution cabinet with ventilation grilles.
- The power must be switched off before working on the QDBC02SA.
- Never connect external voltages (e.g. 230V~) to the DALI, Qbus bus or the inputs! This will cause irreparable damage to the module or connected devices.
- Only use in combination with certified DALI lighting equipment.
- A single DALI device may absorb up to 2mA bus load to ensure the maximum of 64 devices can be reached.
- The module may not be opened. The warranty will expire once the module is opened!

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- Never use the power supply of the Qbus Controller for the LED feedback on stand-alone modules!

## 3. Installation and wiring

The QDBC02SA can be used in different ways. The following properties remain the same for each cabling method:

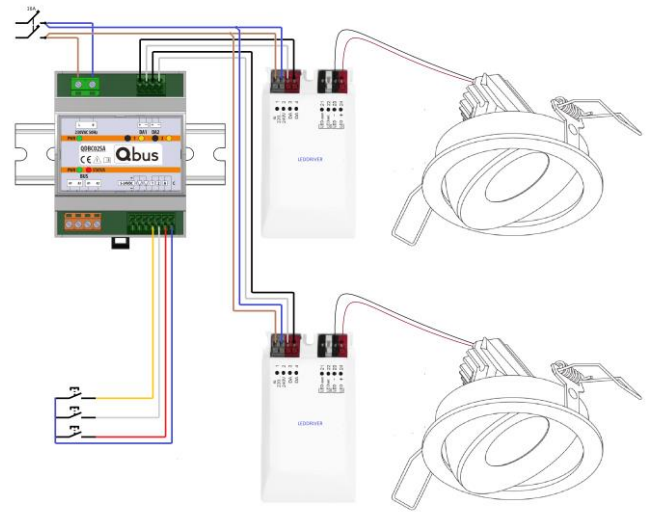
**Placement:** Click the module on a DIN rail DIN EN50022.

**Inputs:** Remove approximately 7 mm of insulation from the cable and place the cable in terminals 1 to A. Both fixed and flexible wire between 0.5 to 1.5 mm<sup>2</sup> can be used. Push down on the terminal with a screwdriver when inserting a flexible wire. Inputs 1 and 2 control outputs 1 and 2. Input A is by default set as a mood input. By holding the push-button linked to the input for 0.7 seconds, all outputs will be set to off. If you hold this push-button longer than 3 seconds, all outputs will be set to on. The wires can be removed from the terminals by using a screwdriver to push at the top of the terminals.

**LED feedback:** An external 5-24V power supply can be connected to the QDBC02SA to provide LED feedback for 2 push-buttons using the LED outputs.

**Load:** The QDBC02SA only has two DALI broadcast buses. The voltage for the lighting equipment is supplied outside of the QDBC02SA. No external voltage or 230V may be connected to the DALI buses! Connect the two wires intended for the DALI bus to the terminals of DA1 or DA2. Remove approximately 7 mm of insulation from the cable and place the cables in the terminals. Both fixed and flexible wires between 0.5 and 1.5 mm<sup>2</sup> can be used. Push down on the terminal with a screwdriver when inserting a flexible wire. Up to 64 DALI lighting units can be connected to the two DALI broadcast buses.

**Power supply:** A two-pole automatic fuse with a maximum of 16A must be connected to the 230Vac power supply module. Cross-section of the conductor: minimum of 1.5 mm<sup>2</sup>. Remove approximately 7 mm on insulation from the conductor and screw it into connector L-N.  
NOTE: DISRUPT THE POWER SUPPLY TO THE MODULE BEFORE CARRYING OUT WORK TO THE MODULE.



### LED indication on the module:

- Green: Power OK (top) / Bus OK (bottom)
- Red: Status LED flashes for 2 seconds when booting and during programming. This LED will also flash when selecting the settings (see below under "Manual controls").
- Orange: Output active; flashing = error (overload, short circuit).

**Manual controls and settings:** The buttons on the module are used to directly control the output of the module or to set the minimum dimming level or memory function of a dimmer output. This can be done as follows:

- 1) Ensure that all outputs are OFF (= all orange LEDs are off).
- 2) Hold buttons 1 and 2 simultaneously for five seconds.
- 3) The red STATUS LED on the module will flash rapidly for 5 seconds and then start to flash slower.
- 4) Once the STATUS LED has started to flash slowly, release 1 of the buttons, and 2 seconds later release the other button. The red STATUS LED will now continue to flash: the module is in configuration mode.
- 5) The outputs are by **default set to a minimum dimming level of 10% and no memory function**. If you want to dim to 0% or use a memory function (whereby the dimlevel will be the same as the latest dimlevel before the circuit has been turned off), you can configure this by repeatedly pressing the button of the relevant output. The orange LED will light up at each press of the button. Refer to the table below. The number of times the button needs to be pressed is shown next to the setting.

Setting	X times
No minimum dimming level	1
<b>Minimum dimming level 10% (default)</b>	2
<b>Memory function OFF</b>	3
Memory function if last dimming level >20%	4

If one of the buttons is held for 5 seconds during set-up, the channel will be set to DEFAULT (see bold text in the table above). A successful RESET will be indicated by 10 RAPID flashes of the LED of the channel. The set-up mode will remain active.

### Cabling methods:

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## Option 1: Stand-Alone

Multiple Stand-Alone modules can be connected to each other.

## Option 2: with controller

## 4. Technical data

### General specifications:

- Power supply: 110Vac - 240 - +-15%, 50/60Hz - maximum protection 16A/2P
- Surge voltage: tested at 3 kVac
- Usage: 1.15VA unloaded. + 0.032VA per connected DALI unit.
- Operating temperature: 10°C to 70°C Temperature in storage room: -10°C to 70°C.
- Maximum humidity: 93%, no condensation.
- Bus load: 20mA (peak) at nominal voltage 13.8V.
- Maximum installation height: 2,000 metres.

### Outputs:

- DA1 & DA2 provide power to the DALI bus and each DALI bus has an own broadcast.

### Physical specifications:

- Housing: plastic, self-extinguishing in accordance with UL94-V0
- Protection grade: IP20, EN 60529
- Installation: rapid installation on DIN rail, width 4 modules
- Dimensions (h x w x l): 62 mm x 90 mm x 72 mm
- Weight: approximately 0.145 kg

### Electrical security:

- Bus: 13.8 VDC low voltage.
- In accordance with EN60950 – 1: 2006
- Surge voltage: module is tested and approved at 3kVac. (50 Hz, 1 min)
- Non-toxic, in accordance with WEEE/RoHS
- Class II equipment. CE
- In accordance with EMC and low voltage regulations. The module complies with HBES – EN50090-2-2 and EN60950 – 1: 2006 +A11:2009 + A1:2010 + A12:2011 + A2:2013.

## 5. Dimension diagram

