Lunatone

DALI RM 8/16

Datasheet
DT7 Relay Module

Relay Module for the integration of non-dimmable ballasts in DALI lighting systems (DT7)

Art. Nr. 86458629 (RM16)
Art. Nr. 86458675 (RM8)
Art. Nr. 86458629-DE (RM16-DE)
Art. Nr. 86458629-CEL (RM16-CEL)
Art.Nr. 86458629-HS (RM16 HS)
Art.Nr. 86458675-HS (RM8 HS)

# DALI RM 8/16   DT7 Relay Module

Overview

- Compact relay module for the direct control of 230V AC loads via DALI

- Ballasts without DALI-input can be simply integrated in a DALI lighting control system. The loads can then be switched ON and OFF by DALI commands.

- The DALI RM8/16 module fulfills the requirements for DALI Device Type 7 - switching function (firmware 2.0 and higher)

- Configurable Power-Up and System-Failure behaviour

- Free DALI-Cockpit software package for configuration of DALI-systems and Lunatone DALI components

- The DALI RM 8/16 is supplied directly by the DALI signal line

- RM16 type for high inrush currents up to 160A

- RM16 types for ceiling throw-in (RM16-DE) , DIN-rail mounting (RM16-HS) and with Wieland connectors (RM16-CEL) are suitable for loads up to 2000VA

- The DALI RM 8/16 module acts like any conventional DALI ballast. Hence it can be addressed and configured.

Specification, Characteristics

| type	DALI RM16	DALI RM16-DE	DALI RM16-CEL	DALI RM16 HS	DALI RM8	DALI RM8 HS
article number	86458629	86458629-DE	86458629-CEL	86458629-HS	86458675	86458675-HS
supply	via DALI-line					
typ. current consumption	2.7 mA					
input	DALI					
number of used DALI addresses	1					
relay output switch on/off voltage	250Vac/400Vac					
max. nominal load	1000VA	2000VA	2000VA	2000VA	1000VA	1000VA
max. switching current	8A	16A	16A	16A	8A	8A
max. inrush current	160A				80A	
type of relay contact	1 change-over	1 changeover	1 normally open	1 changeover	1 normally open	
switching opera-tions at nominal load, resistive	$3x10^4$				$1x10^5$	
maximum switching frequency	1Hz					
temperature	0°C-45°C					
protection class	IP20					
connecting wire cross section	up to 1,5 mm^2	up to 2*1,5 mm^2	-	up to 2,5 mm^2	up to 1,5 mm^2	up to 2,5 mm^2

Back box type:
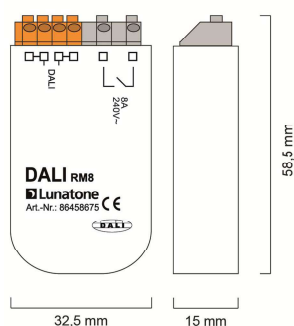
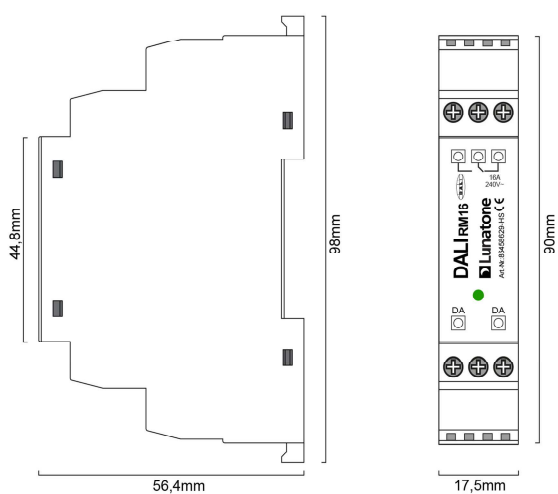geometry RM8/RM16
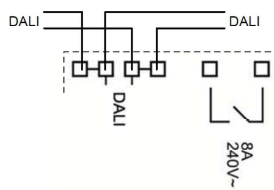
connection plan RM8
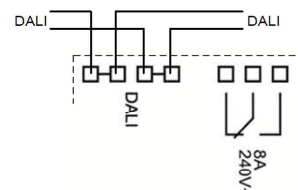
connection plan RM16
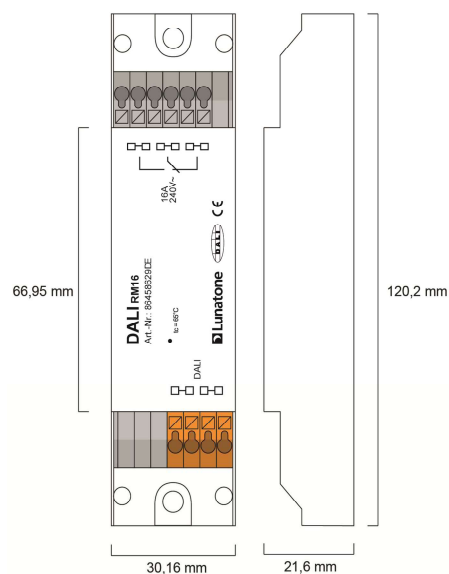
Din Rail Mounting type:
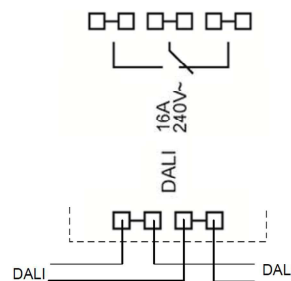

geometry RM8/RM16 HS

connection plan RM8 HS

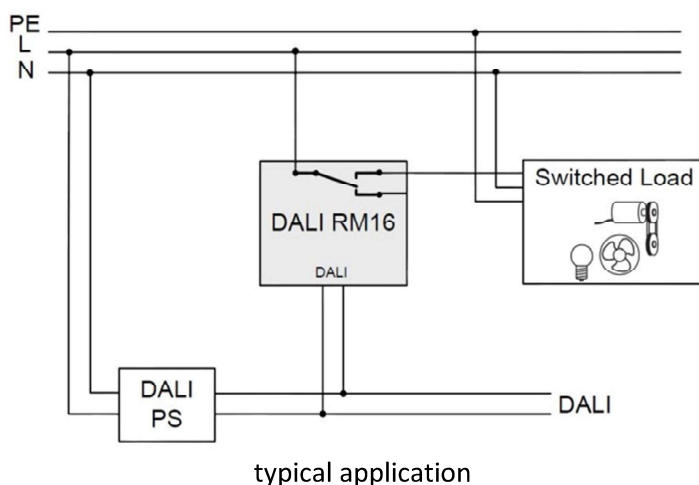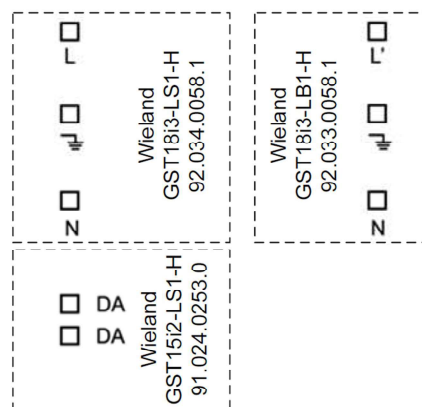connection plan RM16 HS

Remote Ceiling type:

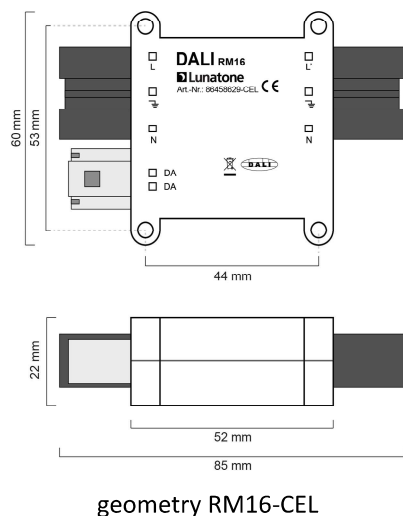geometry RM16DE

connection plan RM16DE

DALI RM 8/16, Datasheet   © 2016/11/09, Lunatone Industrielle Elektronik GmbH

Type with Wieland connectors:

geometry RM16-CEL

connection plan RM16-CEL

typical application

Hint: In order to ensure that the load current does not exceed the maximum switching current, the installation must be secured with a suitable automatic circuit breaker.

Connection

The relay module is supplied directly by the DALI-line. It must NOT be connected to the mains. A typical value of current consumption is 2.7mA. In order to supply components on a DALI line the installation of a DALI power supply (DALI PS) is necessary. The connection to the DALI line is polarity free. The DALI input is protected against overvoltage up to 250VAC. For RM8/16 and RM16-DE types internally the DALI-terminals are connected through as visualized on the housing (see connection plan).

The relay output of the RM8/16 supports loads up to 2000VA and switching currents up to 16A (type dependent, check specification for details). In order to ensure that the load current does not exceed the maximum switching current of the relay a suitable automatic circuit breaker has to be installed. The RM16 modules are suitable for high inrush currents up to 160A.

DALI Functions and Instruction Set

The DALI RM 8/16 acts as a DALI-controlled relay contact. Hence ballasts can be integrated in a DALI-system and switched on and off by DALI commands.

The DALI RM8/16 acts like a standard DALI ballast for non-dimmable loads. It is based on the DALI specification for control gear (IEC 62386-102) and the device type 7 extension (IEC 62386-208). Therefore the switching characteristic is determined by the comparison of the virtual direct arc power level (VDAP) with 4 thresholds.

The virtual dim level (VDAP) is like the dim level of DALI-ballasts and is therefore limited by MINLEVEL and MAXLEVEL and influenced by fade-time and fade-rate.

For each dim direction 2 thresholds can be defined. They are compared with the virtual dim level and as a result the output is switched on or off:

virtual dim direction	comparison of virtual dim level and thresholds	output
UP	VDAP>= UP SwitchOn Threshold	ON
UP	VDAP>= UP SwitchOff Threshold	OFF
DOWN	VDAP<= DOWN SwitchOn Threshold	ON
DOWN	VDAP<= DOWN SwitchOff Threshold	OFF

If a threshold value is set to "MASK" the threshold is inactive and does not influence the relay output.

Find some examples of switching characteristics below:
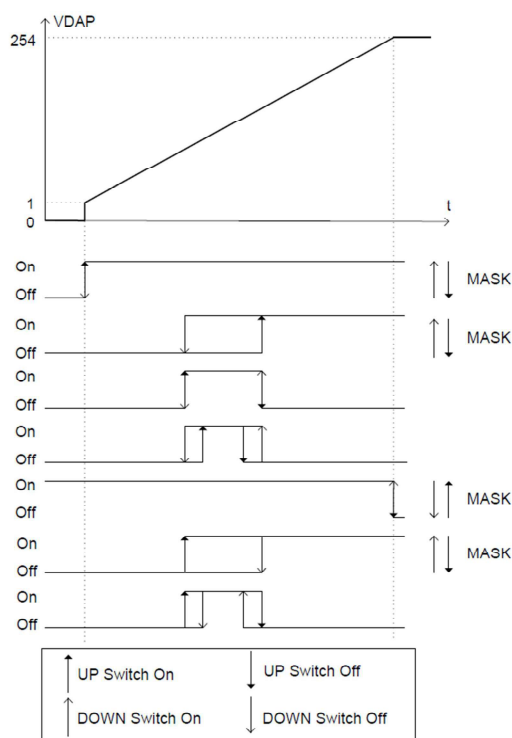
With the help of the fade time switch on and switch off delays can be realized.

The DALI RM8/16 is bus-powered. The reaction on a system failure can be configured (keep relay state, on or off, factory default: on). In case of switching on the DALI-line supply voltage the Power On level is applied.

Addressing and Configuration

The DALI RM 8/16 can be addressed (random addressing) and configured with the help of the DALI-Cockpit, a software tool, that can be downloaded from the Lunatone website.

Purchase Information

Art. Nr. 86458629: DALI RM16, 1000VA/8A/160A, 1 changeover, back box

Art. Nr. 86458629-DE: DALI RM16, 2000VA/16A/160A, 1 changeover, remote ceiling

Art. Nr. 86458629-CEL: DALI RM16, 2000VA/16A/160A, 1 normally open, fast commissioning (plug)

Art.Nr. 86458629-HS: DALI RM16, 2000VA/16A/160A, 1 changeover, din rail

Art. Nr. 86458675: DALI RM8, 1000VA/8A/80A, 1 normally open, back box

Art.Nr. 86458675-HS: DALI RM8, 1000VA/8A/80A, 1 normally open, din rail

Additional Information and Equipment

DALI-Cockpit – free configuration tool from Lunatone for DALI systems
http://lunatone.at/en/downloads/Lunatone_DALI-Cockpit.zip

Lunatone DALI products
http://www.lunatone.at/en/

Lunatone datasheets and manuals
http://lunatone.at/en/downloads/

Contact

Technical Support: support@lunatone.com

Requests: sales@lunatone.com
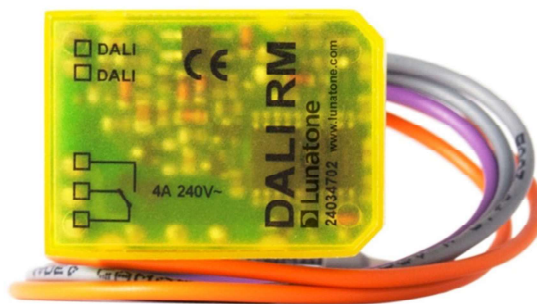
www.lunatone.com

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.

Lunatone

DALI RM

Datasheet
Relay Module

Relay Module with DALI Input

Art. Nr. 24034702

subject to change, information provided without guarantee
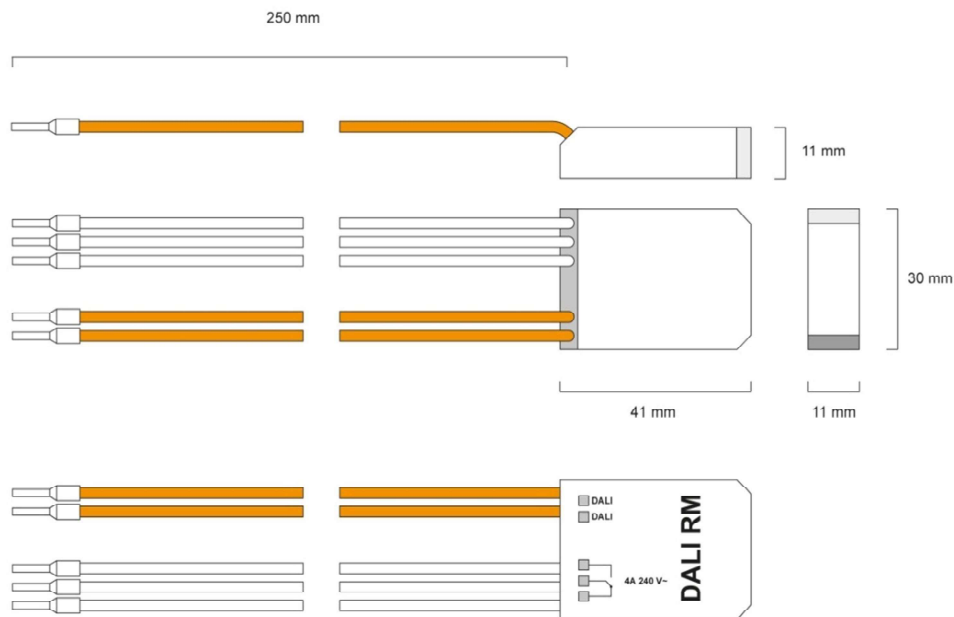
DALI RM Relay Module

Overwiew

- Compact relay module for controlling a standard contactor or load via DALI

- Loads without DALI input can therefore be easily integrated in a DALI circuit. The loads can be switched on and off via DALI.

- Switch On and Switch Off points can be configured by using the parameters MIN LEVEL, MAX LEVEL, FADE RATE and FADE TIME

- Configuration via DALI USB interface and free software DALI-Cockpit

- The DALI RM is supplied directly via the DALI line

- Loads must not be connected directly to the DALI RM if their inrush current exceeds 6A. The load must then always be switched via an external contactor. For higher inrush currents we recommend to use the DALI RM8 (up to inrush currents of 80A) or DALI RM16 (up to inrush currents of 160A).

- For contactor selection check the inrush current (6A max.)

- When using DC contactor coils appropriate free-wheeling diodes have to be used.

Specification, Characteristics

type	DALI RM
article number	24034702
supply	via DALI line
typ. current consumption	10 mA
input	DALI
DALI address	1
max. switching voltage AC/DC	250Vac/35Vdc
max. switching current	4A
max. inrush current of load	6A
contact type	1 changeover
mech. life, switching operations	1×10^{7}
elec. life, switching operations (4A/250VAC, resistive)	6×10^{4}
temperature	0°C-50°C
protection class	IP20
connecting wire cross section	0.75 mm^{2}
connecting wire length	250 mm

4A 240 V~

DALI DALI
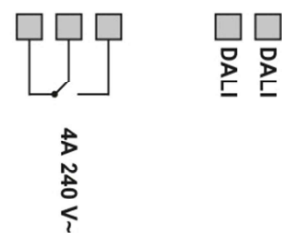
connection diagram

geometry

Connection

The relay module is supplied directly by the DALI-line. It must NOT be connected to the mains. A typical value of current consumption is 10mA. In order to supply components on a DALI line the installation of a DALI power supply (DALI PS) is necessary. The connection to the DALI line is polarity free and protected against overvoltage (230V).

The relay output of the DALI RM supports loads up to 1000VA and switching currents up to 4A. For contactor or load selection always check if the inrush current of the load is below 6A. When using DC contactor coils appropriate free-wheeling diodes have to be used.

For higher loads or loads with higher inrush current we recommend the usage of DALI RM8 (Art. Nr. 86458675) or DALI RM16 (Lunatone Art.Nr. 86458629) module. Both use a bistable relay capable for switching currents up to 8A/16A and inrush currents up to 80A/160A.

For proper operation of the relay module a supply voltage of 13V or higher has to be guaranteed at the DALI-input (the supply voltage may be reduced due to long lines and resulting voltage drops).

DALI functions and instruction set

The DALI RM acts as DALI controlled relay contact. Hence ballasts can be integrated in a DALI system and switched on and off by DALI commands.

The DALI RM works like a standard DALI ballast for non-dimmable loads. It is based on the DALI specification 34C/738/NP Part 102. Although the main characteristic is identical to standard DALI ballasts, it differs in some properties mentioned in the following:

- relay switches on when ACTUAL LEVEL is above the MAX-LEVEL
- relay switches off when ACUTAL LEVEL is below the MIN-LEVEL
- The DALI RM is powered directly by the DALI line, hence in case of missing supply the relay-contact opens. Therefore the SYSTEM FAILURE LEVEL is meaningless.
- It is not possible to receive information about the state of the loads. Hence error messages do not make sense in this application and

QUERY LAMP FAILURE will always send NO as an answer. The QUERY STATUS bits 0&1 are not implemented

- The physical selection method is not implemented
- When storing a scene level, besides the ACTUAL LEVEL, the relay state will be stored as well. When storing scenes it is important that the relay is in the required state.

All the implemented standard DALI dimming commands are listed in the table below (the relevant parameters are mentioned as well).

Befehls nummer	Befehls- name	Funktion
-	DIRECT ARC POWER	Direct setting of the ACTUAL LEVEL in % , FADE TIME
0	OFF	Off
1	UP	Increases ACTUAL LEVEL using FADE RATE
2	DOWN	reduces the ACTUAL LEVEL using FADE RATE
3	STEP UP	increases ACTUAL LEVEL by 1 increment
4	STEP DOWN	reducesACTUAL by one increment
5	RECALL MAX	recalls MAX value
6	RECALL MIN	recalls MIN value
7	STEP DOWN AND OFF	Reduces ACTUAL LEVEL by one increment, if ACTUAL LEVEL is MIN then switch off
8	ON AND STEP UP	If OFF switch to MIN, in any other case increase ACTUAL LEVEL by one increment
16-31	GO TO SCENE	recalls scene 0-15 by using FADETIME

Function

The DALI RM acts like a default DALI ballast. The output is switched if the ACTUAL LEVEL reaches the MIN or the MAX level. The influence of the actual level is implemented like it is determined in the DALI standard.
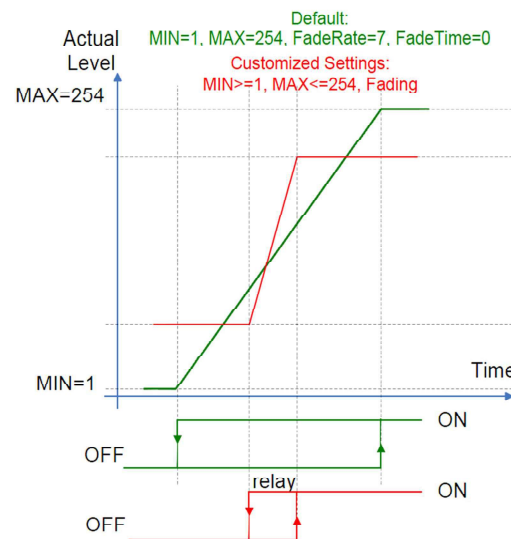
Addressing and Configuration

Addressing of the DALI RM can be initiated by a DALI control device or a DALI configuration tool (only the random addressing mode is supported). Furthermore the parameters (MIN, MAX, FADERATE, FADETIME) can be set and the DALI RM can be added to groups and scenes like standard DALI ballasts.

The DALI RM can be addressed and configured by using the DALI USB interface and the DALI-Cockpit, a free software package supplied on the Lunatone website.

Additional Information and Equipment

DALI-Cockpit – free configuration tool from Lunatone for DALI systems
http://lunatone.at/en/downloads/Lunatone_DALI-Cockpit.zip

DALI-Manual http://www.dali-ag.org/c/manual_gb.pdf

DALI USB – PC interface for DALI system. The DALI-Cockpit can access DALI components using the DALI USB
http://lunatone.at/en/downloads/Lunatone_Art24138923_DALI_USB_Datasheet_EN.pdf

DALI RM8/16 – relay module for high inrush currents
http://lunatone.at/en/downloads/Lunatone_Art86458629_DALI_RM16_Datasheet_EN.pdf

DALI PS – power supply for a DALI line
http://lunatone.at/en/downloads/Lunatone_Art24033444_DALI_PS_Datasheet_EN.pdf

Contact

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