

DGOZ-DM-400W-01 – DALI-2 Adaptive Phase Dimmer

Suitable for LED lighting and traditional light sources

Product Summary and Capabilities

This DALI Adaptive Phase Dimmer can dim up to 400W of connected lighting using DALI commands issued on a connected DALI line.

Load types supported include modern LED loads as well as traditional incandescent and dimmable CFL.

The product includes a large area for terminating 1.5 mm² or 2.5 mm² double insulated cables (220 - 240 V ac Line cable, switched load cable and DALI cables).

The dimmer is not suitable for use with Ceiling Sweep Fans, Exhaust Fans or any motor loads.

A Load Bypass Device accessory is available separately to assist with flickering issues associated with some LED or CFL loads.

This product is DALI-2 Certified.

Product Features

- Phase dimming of lighting loads by received DALI commands.
- Capable of dimming lighting loads up to 400W (500W in low ambient temperature environments).
- DALI Line powered – draws only 3 mA from a DALI Line.
- Two wire dimming device – No Neutral required: only 220 - 240 V ac Line and Load conductors.
- Suitable for mounting in a ceiling void or using a separately available DIN rail mounting bracket.
- DALI compliant (IEC Standard 62386-205 Ed 2, DALI Device Type 4).
- The phase dimmed output can be linked to a DALI Short Address.
- The phase dimmed output can be allocated to up to 16 DALI Group Addresses and/or up to 16 DALI Scenes.
- Short Address, Group Addresses and DALI Scenes can be configured using the **RAPIX Integrator** software, or any other DALI commissioning software that supports Device Type 4.
- The RAPIX Integrator software package is available at no charge from ozuno.com.

Important Notes and Safety Information



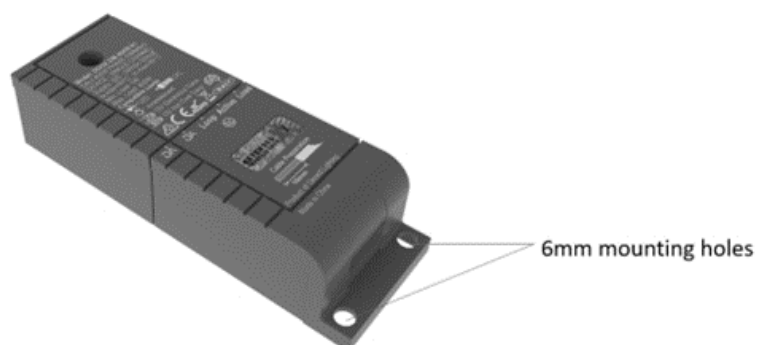
WARNING – Electric shock may result in serious injury or death. Follow all warnings in this guide and on the product. Work in accordance with the latest electrical safety practices.

- This DALI Dimmer is powered only from DALI.
- DALI system wiring is only single insulated from mains. Treat DALI wiring the same as mains wiring.
- There are **no user serviceable parts** inside the DALI Dimmer. Do not attempt to disassemble or operate the device with any covers removed.
- This DALI Dimmer is intended for **indoor use only**.

Mounting

Surface mounting

Two 6mm mounting holes are provided for mounting the product.



DIN rail mounting

The device can be mounted on standard DIN rail using the optional DIN Rail mounting bracket, Item Number **DGOZ-SML-DINBKT** (available separately), as shown below:



1. Mount the bracket onto DIN rail at the required location.

2. Lock into place by pushing up the black locking pin at the bottom of the bracket.



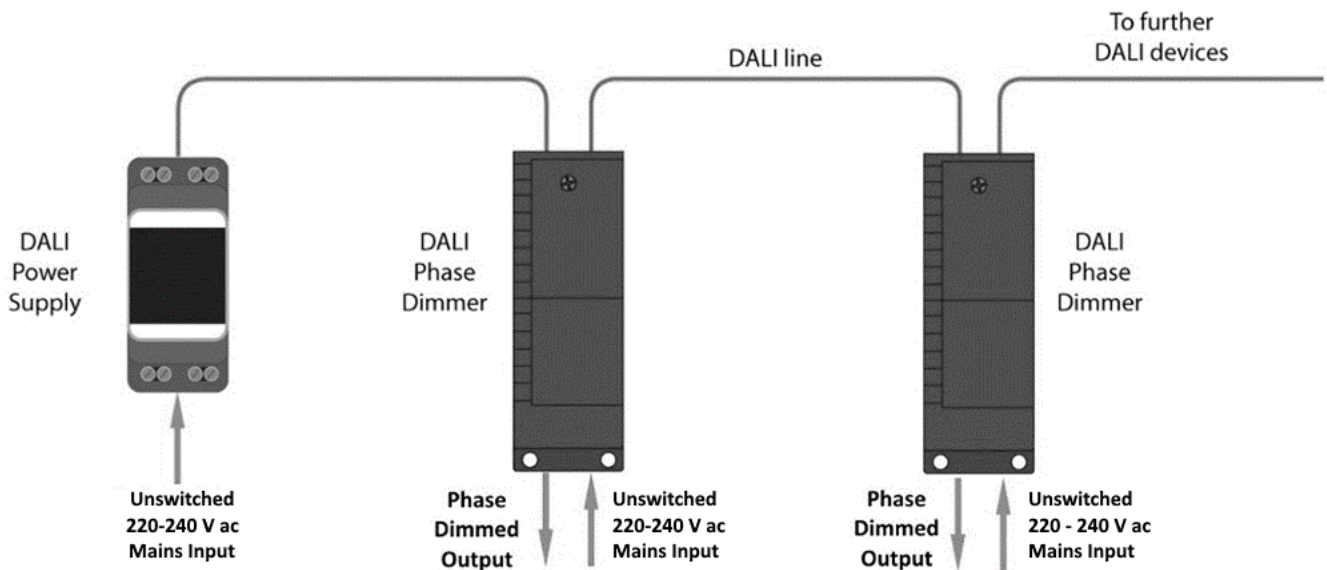
3. Locate the dimmer onto the two pins at the bottom mounting bracket.



4. Push the top on the dimmer onto the mounting bracket and clip into place.

Connecting to a DALI Line

To operate correctly, the Dimmer must be connected to both mains power (220 – 240 V ac) and a DALI Line. The DALI line must be powered by a DALI Power Supply, which must meet DALI standards. The RAPIX DALI Power Supply, Item Number **DGLMPS01** (available separately) is recommended.

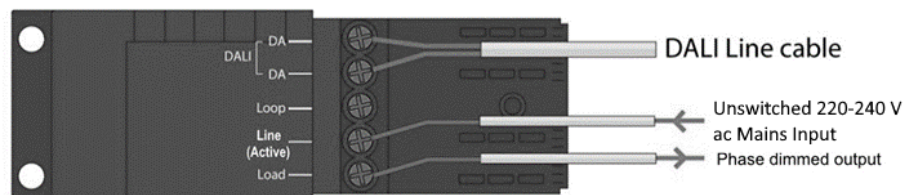


Wiring the Device

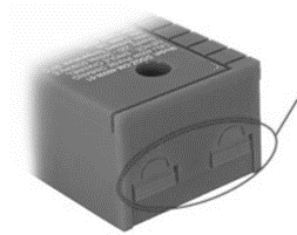
Connections

The dimmed load output is internally connected to the mains supply (Line) through the dimming circuitry.

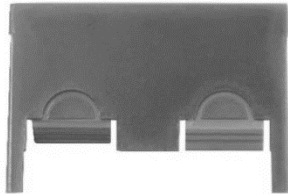
The Loop terminal is not connected internally and can be used to loop unused conductors, such as a Neutral.



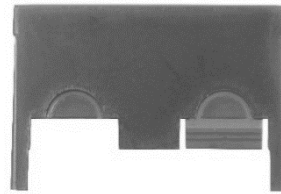
Cable entry tabs/knockouts for 1.5 mm² and 2.5 mm² cables



The terminal cover includes cable entry tabs/knockouts for use with typical 1.5mm² and 2.5 mm² flat and round TPS/building cable.



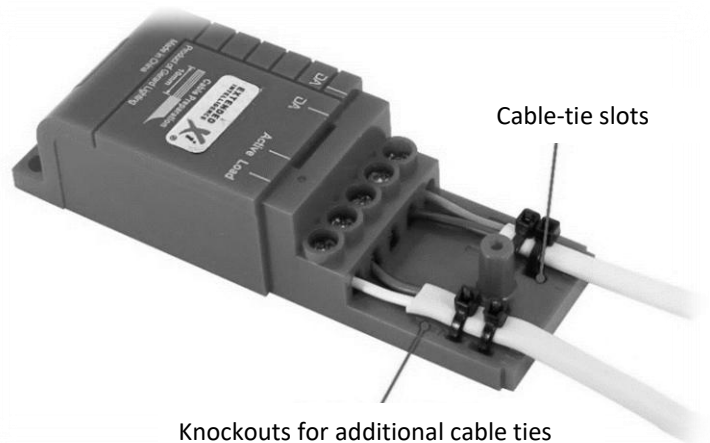
Tab pushed backwards to accommodate 1.5 mm² cable



Tab removed to accommodate 2.5 mm² cable

Using cable ties to secure cables

The base of the cable termination area includes slots for cable tying cables. Knockouts for additional cable ties are also provided. Four suitable cable ties are included with the product.



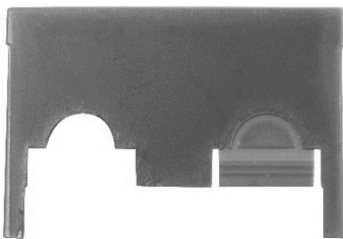
Cable-tie slots

Knockouts for additional cable ties

Round cables and 5-core modular wiring

This dimmer is suitable for round mains cable and 5-core modular mains + DALI cable.

Knockouts in the terminal cover allow circular and 5-core modular cables.



Circular knockout removed to accommodate 5-core modular wiring cable



DALI Adaptive Phase Dimmer connected to a 5-core cable and modular wiring connector

Configuring the RAPIX DALI-2 Adaptive Phase Dimmer

To operate correctly, the Dimmer must be programmed with appropriate DALI addresses. Depending on the application, the following parameters may need to be configured.

- DALI Short Address
- DALI Group Address(s)
- DALI Scene Address(s)
- Minimum Level and Maximum Level
- Power On Level
- Fade Time and Fade Rate

These parameters can be configured using the **RAPIX Integrator** software, or any other DALI software which allows these standard DALI parameters to be configured in DALI Type 4 Phase Dimmer products.

Compatible Load Types

Load Symbol	Load Type	Maximum Load	Notes
	Dimmable LED Lamps / Drivers	400W	The LED driver must be dimmable. Maximum permitted number of drivers is 400W divided by driver nameplate power rating. Due to variety of LED lamp designs, maximum number of LED lamps is further dependent on power-factor result when connected to dimmer.
	Electronic Transformers	400W	
	Standard Iron-Core Transformers	250W	Due to variety of transformer designs, maximum LV lighting load is further dependent on transformer efficiency.
	Toroidal Iron-Core Transformers	300W	
	Incandescent	350W	
	Dimmable CFLs	400W	Due to variety of CFL designs, maximum number of CFL lamps is dependent on particular CFL make/model.

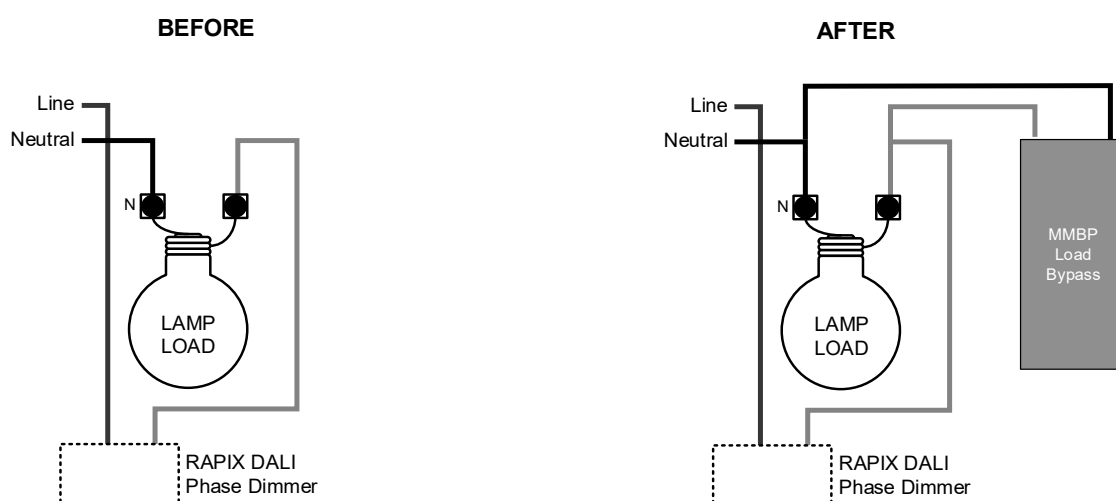
Load Bypass Device

An MMBP Load Bypass Device is available for purchase separately for use with the DALI Phase Dimmer. The Load Bypass Device provides improved dimming performance of some LED's and CFL's when used in conjunction with 2-wire dimmer/timer/switch devices. The load bypass overcomes the following issues seen when controlling some LED or CFL light sources:

- When switched off, the LED/CFL lights flicker, pulse on/off or do not switch off completely;
- When switching on, the LED/CFL lights have difficulty turning on.

If these issues are not experienced with an installation, the Load Bypass Device does not have to be installed. If there are doubts about performance, a Load Bypass Device should be installed – it will not harm lamps or the dimmer.

The Load Bypass Device is installed across the Switched Line and Neutral in parallel with the load, as shown below.



Do not connect the Load Bypass Device across the dimmer terminals. This configuration has no useful behaviour.

Specifications

DALI-2 Phase Dimmer	
Number of outputs	1
Nominal Mains Supply Voltage	220 – 240 V ac
Mains Frequency Range(s)	47 – 53 Hz
Electrical Isolation	4 kV DALI to Mains
Load Brightness Control Range	0% to 100% (Typical for LED loads)
Minimum Load	1 W
Load Rating	See 'Compatible Load Types' table
Mains Standby Power	< 100 mW
Mains Terminals	2 x 2.5 mm ² maximum per terminal or 3 x 1.5 mm ² maximum per terminal
DALI Terminals	2 x 2.5 mm ² maximum per terminal or 3 x 1.5 mm ² maximum per terminal
Ambient operating temperature	0 to 50° C
Ambient storage temperature	-10 to 70° C
Humidity	10% - 95% RH non-condensing
Ingress protection	IP20
Housing Material Type	Flame retardant Polycarbonate
Mounting Arrangement	Surface mount (6mm mounting holes) DIN rail mounting (A DIN rail mounting bracket is available separately, order code DGOZ-SML-DINBKT)
Weight	100 g
Compatibility	DALI-2 Certified, suitable for use in DALI and DALI-2 systems
Max. Number of Units on a single DALI line	64
Current drawn from DALI Line	3 mA
DALI Device Type	Type 4
Approvals	     

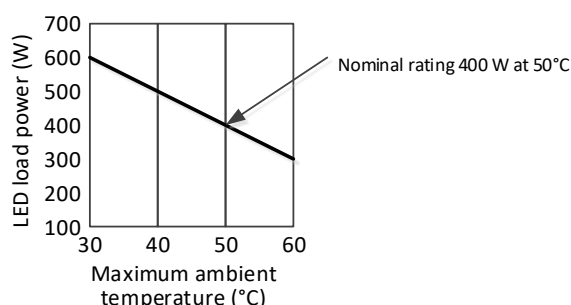
MMBP Load Bypass Device (Available separately)	
Operating Voltage	220 – 250 V ac 50/60 Hz
Power Dissipation	10 mW (Note: The device power dissipation is independent of the connected lighting load power)
Max. Ambient Temperature	t _a max = 70°C
Operating Humidity	10% - 95% RH, non-condensing
Standards Compliance	AS/NZS CISPR15:2011 AS/NZS 61347-2-11:2003 IEC 61347-2-11
Dimensions	49mm x 15mm x 11mm
Connection Lead Type	Two core, double insulated, crimped ends Switched Active and Neutral connections
Connection Lead Length	300mm
Part Number	MMBP (available separately)

Incompatible Load Types

Ceiling Sweep Fans, Exhaust fans and any other motor loads.

Ratings and Temperature

This product is rated for operation up to a 50°C ambient temperature. A higher rating can be achieved if the product is used in a lower ambient temperature environment. Use the following load power rating graph for LED loads:



Output State on Power-up

This Dimmer is powered from the DALI line, and according to DALI-2 requirements for bus-powered devices, the System Failure Level is not used.

The behaviour when mains and DALI power is not present is:

Condition	Result
Mains power is not present.	The load will not operate. If DALI is connected and powered, then Lamp Failure is presented as an error condition on DALI.
The DALI line has no power. Mains power is then applied.	The load will be OFF.
Mains power is present. DALI power is present. The DALI line is then powered down.	The dimming level of the load will not change.
Mains power is present. DALI power is not present. The DALI line is then powered up.	The load will be set to the <i>Power On Level</i> .

Power On Level can be changed using the **RAPIX Integrator** software or other DALI commissioning software that allows changing the DALI *Power On Level* parameter. **RAPIX Integrator** software allows setting the *Power On Level* to ON, Off, some other level, or restore to previous level.

Optional: The *System Failure Level* and *Power On Level* behaviour can be changed by setting the Operating Mode to 128 (0x80). In this Operating Mode:

Condition	Result
Mains power is not present.	The load will not operate. If DALI is connected and powered, then Lamp Failure is presented as an error condition on DALI.
The DALI line has no power. Mains power is then applied.	The load will be change to <i>Power On Level</i> .
Mains power is present. DALI power is present. The DALI line is then powered down.	The load will be change to <i>System Failure Level</i> .
Mains power is present. DALI power is not present. The DALI line is then powered up.	The load will be change to <i>Power On Level</i> .
DALI line has power. Mains power is removed and later re-applied.	The load will be change to <i>Power On Level</i> .

In this operating mode, the System Failure Level can be set to 255 (MASK), which means “no change”.

Level scaling: (Only applicable to firmware 2.2 and later) In Operating Mode 128 (0x80), dead bands can be removed by programming the DALI *Minimum Level* to a value greater than 1 and the DALI *Maximum Level* to a value less than 254. When a control device transmits levels 1 to 254, the RAPIX DALI-2 Phase Dimmer will scale the DALI levels (1 .. 254) into the *Minimum* .. *Maximum* range instead of clipping.

Standards and Compliance

This product is designed to meet/exceed the following Australian and International standards.

EMC and Electrical Safety Frameworks and Standards

EN 55015, AS/NZS CISPR 15

IEC 60669-2-1, EN 60669-2-1, AS/NZS 60669.2.1

IEC 61000-3-2, -3, EN 61000-3-2, -3, AS/NZS 61000-3-2, -3

IEC 61000-4-2, -3, -4, -5, -6, -8, -11, EN 61547:2009

IEC 60669-1, EN 60669-1, AS/NZS 60669.1

IEC 60669-2-1, EN 60669-2-1, AS/NZS 60669.2.1

DALI Standards and Compliance

IEC 62386-101 Ed 2 (DALI-2)

IEC 62386-102 Ed 2 (DALI-2)

IEC 62386-205

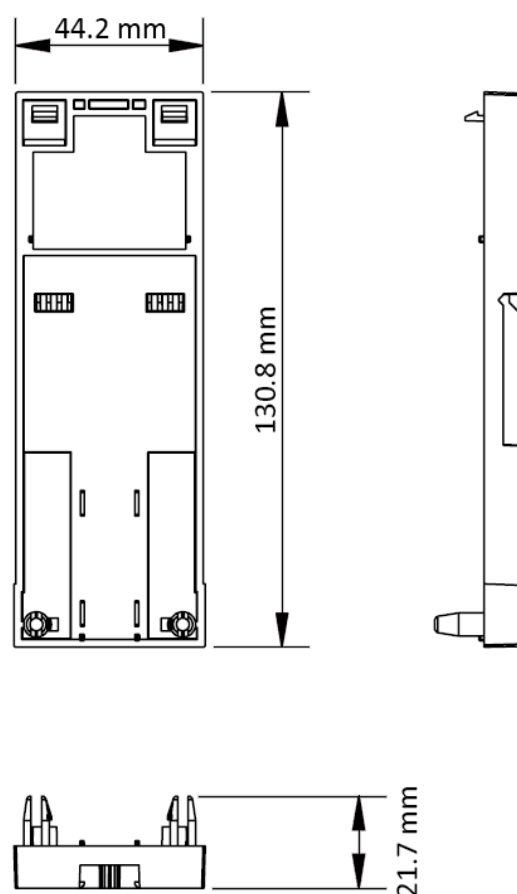
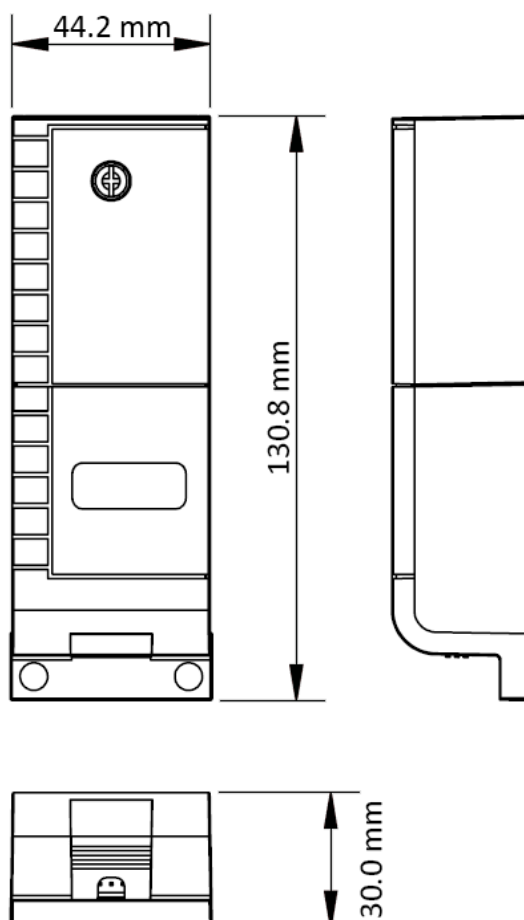
EU Directives

2014/35/EU Low Voltage

2014/30/EU Electromagnetic Compatibility (EMC)

2015/863 Restriction of Hazardous Substances (RoHS) in Electrical and Electronic Equipment

Dimensions



Warranty

This product has a TWO YEAR warranty against manufacturing defects. The warranty applies from the date of purchase.

Refer to ozuno.com for the full conditions for warranty and returns process. A summary of the process:

1. Contact the seller of the goods, or in their absence contact Ozuno to request a return goods authorisation.
2. When a return is authorised, the goods must be returned to Ozuno at the owners expense for technical evaluation.
3. The warranty claim will be evaluated by Ozuno and accepted if the goods are found to be faulty, or rejected if the fault was caused by conditions beyond the responsibility of Ozuno. Considerations of installation, removal, return, freight and testing are not the responsibility of Ozuno.

The Australian Consumer Law requires the inclusion of the following statement with this Warranty:

Our goods come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and for compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure.



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