Newlab
Electronic Solutions

user manual

dimmer

DALI2-CV-UL

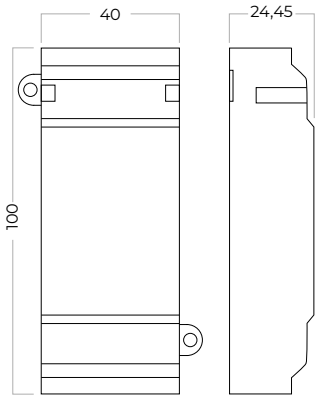
www.newlablight.com

version update:
7/2026c

DALI2-CV-UL

DALI2 Input
Constant-voltage PWM output

40x100x24,45 mm
con KIT-COVER 40x100x24,45 mm



TECHNICAL CHARACTERISTICS

- Power interface conductor diameter 14-30 AWG (0.05-2.08 mm²)
- Control interface conductor diameter 15-30 AWG (0.05-1.65 mm²)
- Control inputs: Isolated button, DALI2, Linear potentiometer 100K, 0-10V Passive (non-isolated), 1-10V Passive (non-isolated)
  For versions with FW earlier than V5.3 only the DALI2 input is present
- Dimmer with active output short-circuit protection*
- Sync outputs: PWM x1
- PWM frequency: 390 Hz
- UL Printed Circuit Board
- Protection class: IP20
- Protection against: reverse polarity, open circuit, voltage surges, overtemperature

SAFETY WARNINGS

- Thermal cut-off: 150° C on uC
- Storage temperature min: -40° C, max: 60° C
- Operating temperature min: -20, max: 50° C
- The device has no earth connection
- Protection against accidental contact is ensured by the enclosure
- Note on 0-10V(1-10V): this control circuit is not isolated, use only an isolated 0-10V(1-10V) signal generator
- To power the device, a SELV power supply must be used in order to maintain the required level of electrical safety
- All connections must be made with de-energized equipment and carried out by qualified personnel
- If the control voltage of the PUSH input exceeds the SELV voltage, use of the OPTIONAL terminal cover/cable gland is required to keep the product in CLASS II
- Use only in dry environments
- To set the fade and the logarithmic/linear output curve and short-circuit protection* the SETUPPER interface (sold separately) is required; the operating modes are recognized and set automatically by the device without the need for an external interface

* From firmware version 5.5 the short-circuit protection is disabled. To enable it, the SETUPPER interface (sold separately) is required (see page 7 of the manual).

CODE	SUPPLY RANGE	CURRENT	POWER PER OUTPUT	OUTPUTS	CONTROL	LOAD TYPE	PART NUMBER
DALI2-CV-UL	8-53 V DC	12A	576W at 48V 288W at 24V 144W at 12V	1	**DALI2** / 0-10V / 1-10V / POT / PUSH	single-color	L400MA04T1A10-UL

Manutenzione: l'apparecchio è privo di manutenzione.
Per la sua pulizia adoperare un panno asciutto.
È assolutamente da evitare l'utilizzo di solventi o altre sostanze aggressive.

Smaltimento: Il prodotto descritto nella presente scheda tecnica al termine della sua vita utile è classificato come rifiuto proveniente da apparecchiature elettroniche secondo la Direttiva Europea 2012/19/UE (rifusione RAEE), recepita in Italia con il D.Lgs. n.49 del 14 marzo 2014, e non può essere conferito tra i rifiuti solidi urbani indifferenziati. Importante: Lo smaltimento non corretto del prodotto può causare gravi danni all'ambiente e alla salute umana. Per il corretto smaltimento informarsi sulle modalità di raccolta e trattamento previste dalle autorità locali.

Device power supply and connection to the led module

The DALI2-CV-UL dimmers must be powered with the polarity shown in FIG. 1 through the DC IN terminals (+ and -).
If the supply polarity is reversed, the device is not damaged.
The onboard LED (LED PWR) indicates the presence of power supply. The LED (LED DIM) indicates the dimming state of the output.

The LED load connection must be made using the OUT terminals (L+ and L-).

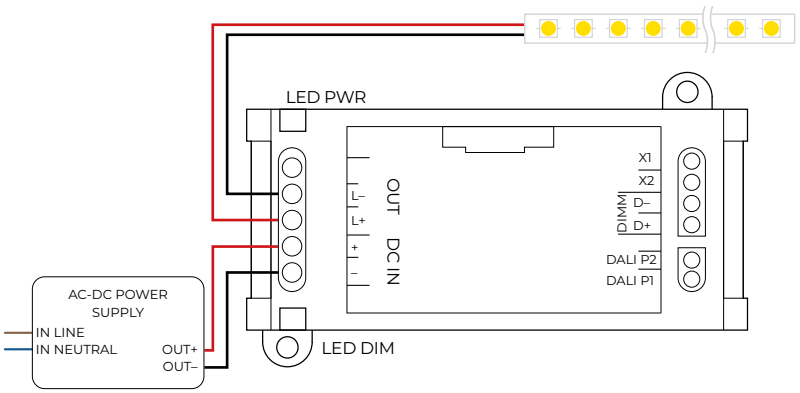


FIG. 1 - Power and led connection diagram DALI2-CV-UL

Operating mode
100KOHM linear potentiometer mode

To activate this control/operating mode, simply connect a 100Kohm linear potentiometer between the D+ and D- input and disconnect the remaining inputs.
By default the dimming curve follows a linear trend proportional to the resistance value set by the potentiometer.

A resistance value lower than 5 Kohm is interpreted as load off. The maximum brightness value is reached when the value of 95 Kohm is exceeded.
If the potentiometer is disconnected, the dimmer sets the output to level 255 (maximum brightness).

On first startup in this mode, it may be necessary to set the input to a value above 50% (55K or higher on the D- D+ input) in order to configure the dimmer in potentiometer mode.

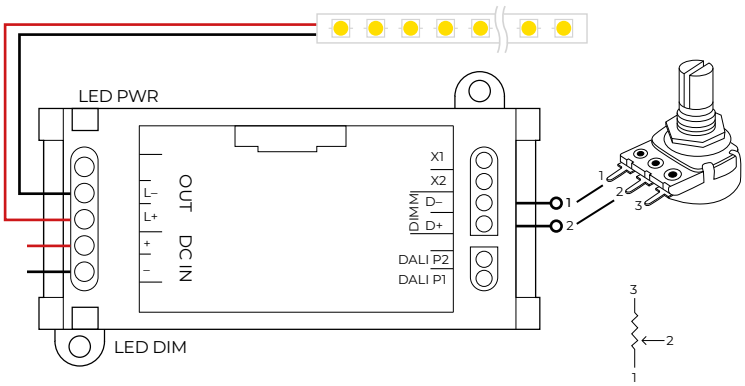


FIG. 2 - DALI2-CV-UL potentiometer connection

Operating mode
0-10V/1-10V mode controlled by active actuator (non-isolated)

To activate this control/operating mode, simply connect the active 0-10V/1-10V signal coming from a master or active actuator (sourcing controller) between the D+ and D- input (taking care to observe the correct polarity) and disconnect the remaining control signals.
The maximum current drawn by the dimmer from the 0-10V interface is 0.1 mA.
By default the dimming curve follows a linear trend proportional to the control voltage. A voltage value lower than 1V is interpreted as load off.

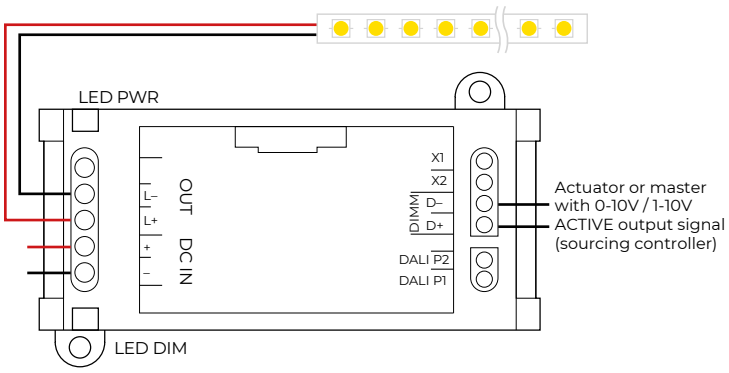


FIG. 3 - DALI2-CV-UL 0-10V connection

If the 0-10V/1-10V signal is disconnected, the dimmer sets the output to the maximum level, Compliant IEC/EN60929.
On first startup in this mode, it may be necessary to set the input to a value above 50% (5V or higher on the D- D+ input) in order to configure the dimmer in 0-10V/1-10V mode.

Operating mode
DALI2 mode

To activate this control/operating mode, short-circuit the D+ and D- inputs and connect the DALI bus between the DALI/P1 and DALI/P2 inputs.

On first reception of a correctly formatted DALI packet, the dimmer configures itself in DALI mode. Once configured in DALI mode and disconnected from the DALI bus, the dimmer switches to the POWER ON LEVEL state set via the DALI bus.

The maximum current drawn by the DALI bus is about 2mA.
The device has active short-circuit protection with feedback on the dali bus.
To enable OPEN LOAD management, short-circuit the X1 and X2 poles on the terminal*.

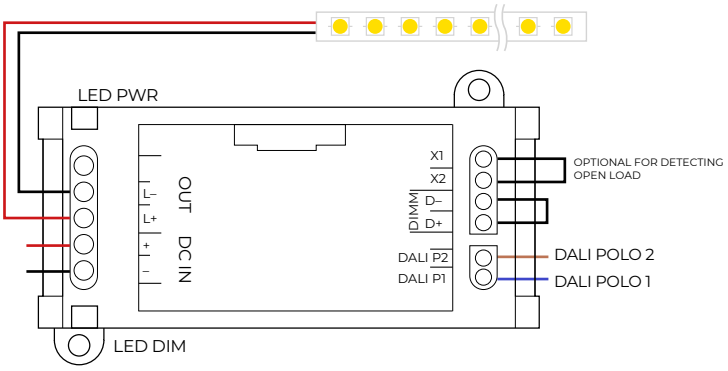


FIG. 4 - DALI connection DALI2-CV-UL dimmer

Implemented standard commands

DIRECT ARC POWER	STORE ACTUAL LEVEL IN THE DTR	QUERY STATUS	QUERY ACTUAL LEVEL
OFF	STORE THE DTR AS MAX LEVEL	QUERY BALLAST	QUERY MAX LEVEL
UP	STORE THE DTR AS MIN LEVEL	QUERY LAMP POWER ON	QUERY MIN LEVEL
DOWN	STORE THE DTR AS SYSTEM FAILURE LEVEL	QUERY LIMIT ERROR	QUERY POWER ON LEVEL
STEP UP	STORE THE DTR AS POWER ON LEVEL	QUERY RESET STATE	QUERY SYSTEM FAILURE LEVEL
STEP DOWN	STORE THE DTR AS FADE TIME	QUERY MISSING SHORT ADDRESS	QUERY FADE TIME/FADE RATE
RECALL MAX LEVEL	STORE THE DTR AS FADE RATE	QUERY VERSION NUMBER	QUERY SCENE LEVEL (0-15)
RECALL MIN LEVEL	STORE THE DTR AS SCENE (0-15)	QUERY DEVICE TYPE	QUERY GROUPS (0-7)
STEP DOWN AND OFF	REMOVE FROM SCENE (0-15)	QUERY PHISICAL MINIMUM LEVEL	QUERY GROUPS (8-15)
ON AND STEP UP	ADD TO GROUP (0-15)	QUERY POWER FAILURE	QUERY RANDOM ADDRESS H
GO TO SCENE (0-15)	REMOVE FROM GROUP (0-15)	QUERY CONTENT DTR1	QUERY RANDOM ADDRESS M
RESET	STORE DTR AS SHORT ADDRESS	QUERY CONTENT DTR2	QUERY RANDOM ADDRESS L

*Open Load detection is optional and provided only for loads above 2A (100% output). This function can be enabled by short-circuiting the X1 and X2 poles of the terminal on the dimmer. Given the different nature of LED loads, it is recommended to enable this function only after appropriate bench testing with the final load. Note that, in compliance with the DALI standard, open load management is handled from 100% down to a minimum of 5%. It is therefore recommended to also carry out the test at brightness levels set down to 5%

Operating mode
PUSH mode

To activate this control/operating mode, remove any control signals from the D+ and D- inputs and connect between the DALI/P1 and DALI/P2 inputs a DC or AC voltage signal (voltage range DC: 10-265V, AC 12-265Vac 50-65Hz) interrupted by a normally open (N.O.) button.

The input signal does not require polarization.

The maximum current drawn by the PUSH interface is about 2mA.
The dimmer saves the output state so as to restore the set level in the event of power loss (preset).

By default the dimming curve follows a logarithmic trend proportional to the control voltage and applies a fade on switch-on and switch-off*.

*This setting is configurable via the SETUPPER interface cod. (See page 5)

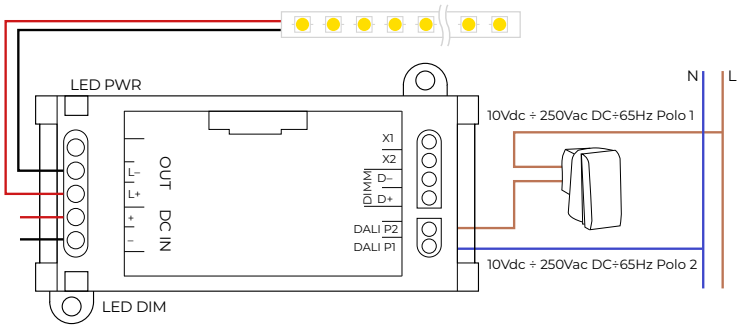


FIG. 5 - DALI2-CV-UL button connection

PUSH interface operation

Single Click (quick press <1sec)
- Turns the output on or off (ON/OFF).
Double Click (quick press <1sec)
- Sets maximum brightness (output= 100%)

Long Press (prolonged press >1sec)
- If the dimmer is OFF, sets the output to the minimum value (default= 1%)
- If the dimmer is ON, the prolonged press allows dimming of the output (up/down).

Parameter/mode change
Setupper

Newlab Dimmers can be configured in different operating modes or with different functional parameters.
Programming of the operating mode, as well as other operating parameters (e.g. DMX-512 address, fade, etc.), must be done using the optional SETUPPER programmer.

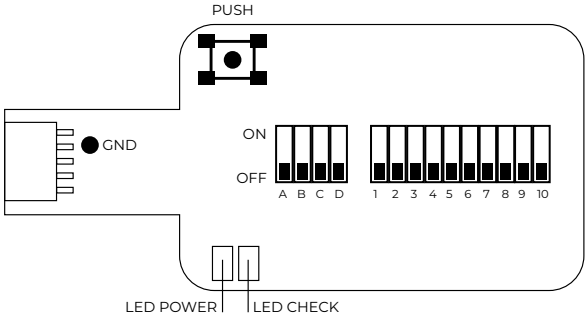
The following pages indicate the modes supported by the dimmer and the parameters that can be set.

The SETUPPER parameter programmer is a programming interface, purchasable separately, that allows parameters and configurations to be passed to Newlab dimmers.
The SETUPPER has two blocks of Dip Switches. The first block, marked with the letters A, B, C and D identifies the "Parameter" command. The second block, marked with numbers from 1 to 10, identifies the parameter value.
The onboard button is used to start the programming procedure.

The LED POWER indicates the correct power supply of the SETUPPER; the LED CHECK confirms that the command/parameter has been programmed.

The SETUPPER can be powered by AAA batteries or with the dimmer powered (it is recommended to remove the batteries when used with powered dimmers).

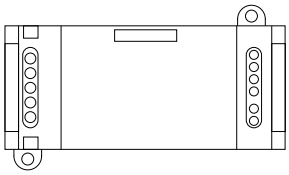
PARAMETER/COMMAND SETTING PROCEDURE



1) Set the SETUPPER Dip Switches as indicated in the product manual.
2) Insert the SETUPPER into the 5-pole strip on the product, observing the polarity.
3) If powered via DIMMER (without AAA batteries), check that the LED POWER is on.
4) Press and hold the PUSH button:
- if powered via dimmer, wait until the LED CHECK turns on. Both LEDs on confirm that the parameter has been programmed.
- if powered by battery, the LED POWER turns on and after a few seconds the LED CHECK also turns on. Both LEDs on confirm that the parameter has been programmed.
5) Switch the dimmer off and on again.

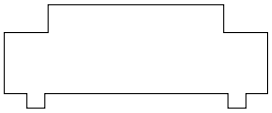
Repeat the operations described for each parameter you want to set on the dimmer.

DIMMER



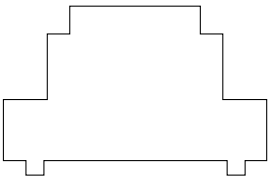
1) Use a screwdriver to remove the programming cover on the top side of the box.
2) Insert the programmer.
3) Program the mode or parameters.
4) Remove the SETUPPER and close the cover.

DIMMER

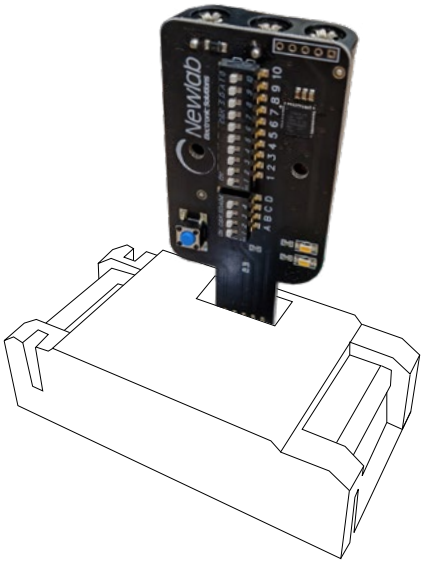


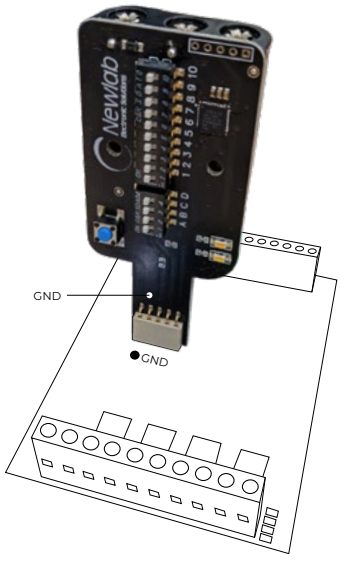
1) Use a screwdriver to remove the bottom base of the box.
2) Remove the board from the box.
3) Insert the SETUPPER into the 5-pole strip on the dimmer, observing the polarity.
4) Program the mode or parameters.
5) Remove the SETUPPER, put the board back inside the box and close it, observing the box rotation direction and its label.

DIMMER -DIN



1) Use a screwdriver to remove the top panel.
2) Insert the SETUPPER into the 5-pole strip on the dimmer, observing the polarity.
3) Program the mode or parameters.
4) Remove the SETUPPER and close the top panel again, observing the panel rotation direction and its label.





nb: Make sure the two GND points are on the same side

Parameter configuration

Click the desired configuration to view the programmer image

RESET														
CONFIGURATIONS	A	B	C	D	1	2	3	4	5	6	7	8	9	10
RESET	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON

DIMMING CURVE														
CONFIGURATIONS	A	B	C	D	1	2	3	4	5	6	7	8	9	10
LOGARITHMIC	OFF	OFF	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
LINEAR	OFF	OFF	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	ON

FADE														
CONFIGURATIONS	A	B	C	D	1	2	3	4	5	6	7	8	9	10
FADE OFF	OFF	OFF	ON	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
FADE ON	OFF	OFF	ON	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	ON

DIGITAL SHORT-CIRCUIT PROTECTION														
CONFIGURATIONS	A	B	C	D	1	2	3	4	5	6	7	8	9	10
OFF	OFF	ON	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
ON	OFF	ON	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	ON