Newlab
Electronic Solutions

user guide

dimmer

DALI-CV

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update:
3/2026

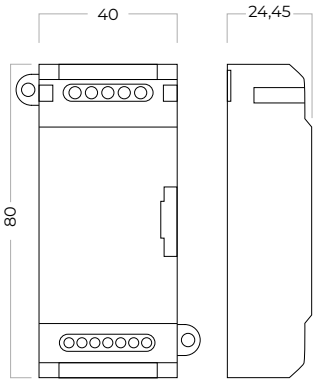
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DALI-CV

DALI input
PWM constant voltage output



40x80x24,45 mm
with KIT-COVER 40x100x24,45 mm



TECHNICAL FEATURES

- Power interface wire diameter 14÷30 AWG (0.05÷2.08 mmq)
- Control interface wire diameter 15÷30 AWG (0.05÷1.65 mmq)
- Control inputs: Isolated button x1, DALI x1, 100K Linear Potentiometer x1, 0-10V Passive (not isolated) x1, 1-10V Passive (not isolated) x1
- Synchronization outputs: PWM x1
- PWM frequency: 390 Hz
- UL printed circuit board
- Protection class: IP20
- Protection against: polarity reversal, open circuit, voltage peaks, overtemperature

SAFETY WARNINGS

- The device is not grounded
- Protection from accidental contact is guaranteed by the enclosure
- Note on 0-10V(1-10V): this control circuit is not isolated, use only a generator 0-10V(1-10V) isolated signal generator
- A SELV power supply must be used to power the device in order to maintain the required level of electrical safety
- All connections must be made with non-energized equipment and carried out by specialized personnel
- If the control voltage of the PUSH input is higher than the SELV voltage, the use of the OPTIONAL terminal cover/cable clamp is required to keep the product in CLASS II
- Use only in dry environments

- To set the fade and the logarithmic/linear output curve you need the interface **SETUPPER** sold separately; the operating modes are automatically recognized and set by the device without the need for an external interface. See user manual.

CODE	VOLTAGE RANGE	CURRENT	POWER	OUTPUT	INPUT	LOAD TYPE	PART NUMBER
DALI-CV	8÷53 V DC	12A	576W a 48V 288W a 24V 144W a 12V	1	**DALI** / 0-10V / 1-10V / PUSH / POT	monochrome	L400MA04T1A01

Maintenance: The appliance is maintenance-free.
Use a dry cloth to clean it.
The use of solvents or other aggressive substances should be avoided at all costs.

Disposal: at the end of its useful life, the product described in this data sheet is classified as waste from electronic equipment according to the European Directive 2012/19/EU (WEEE recast), implemented in Italy with Legislative Decree no. 49 of 14 March 2014, and cannot be disposed of as unsorted municipal solid waste. **Important**: Improper disposal of the product may cause serious harm to the environment and human health. For proper disposal, inquire about the collection and treatment methods provided by the local authorities.

Device power supply and connection to the LED module

The **DALI-CV** dimmers must be powered according to the polarity indicated in **FIG. 1** through the DC IN terminals (+ and -).

If the power supply polarity is reversed, the device does not suffer any damage. The LED (PWR LED) on the board indicates the presence of power. The LED (DIM LED) indicates the dimming status of the output.

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

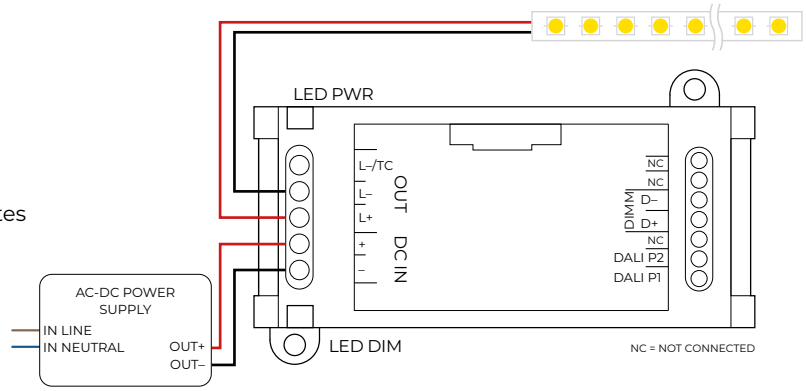


FIG. 1 - power supply and LED connection diagram

Mode of operation

100KOHM linear potentiometer mode

In order to activate this control/operation mode, simply connect a 100Kohm linear potentiometer between input D+ and D- and disconnect the remaining inputs.
The dimming curve follows a linear trend in proportion to the set resistance value.

A resistance value lower than 5 Kohm is interpreted as a 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 zero (for firmware versions higher than 4.15 the dimmer sets the output to the maximum level).

At the first start in this mode it may be necessary to set the input with a value higher than 50% (55K or higher on D- D+ input) in order to configure the dimmer in potentiometer mode.

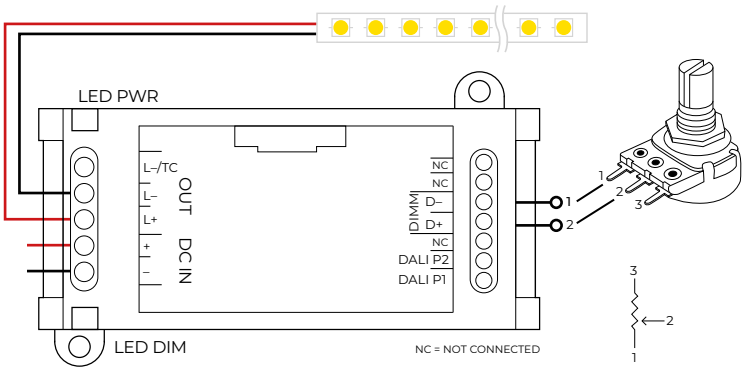


FIG. 2 - DALI-CV potentiometer connection

Mode of operation
0-10V/1-10V passive (non-isolated) mode

In order to activate this control/operation mode, simply connect the active 0-10V/1-10V control signal between the D+ and D- inputs (taking care to respect the correct polarity) and disconnect the remaining control signals.
The maximum current absorbed by the interface is 0.1 mA.
The dimming curve follows a linear trend in proportion to the 0-10V/1-10V input value.

If the 0-10V/1-10V signal is disconnected, the dimmer sets the output to zero (for firmware versions above 4.15, the dimmer sets the output to the maximum level).
The preset value is zero by default.
When first starting in this mode, it may be necessary to set the input with a value higher than 50% (5V or higher on input D- D+) in order to configure the dimmer in the 0-10V/1-10V mode.

In this mode it is possible to set the type of curve (logarithmic or linear) and enable or disable the fade using the external SETUPPER programmer.

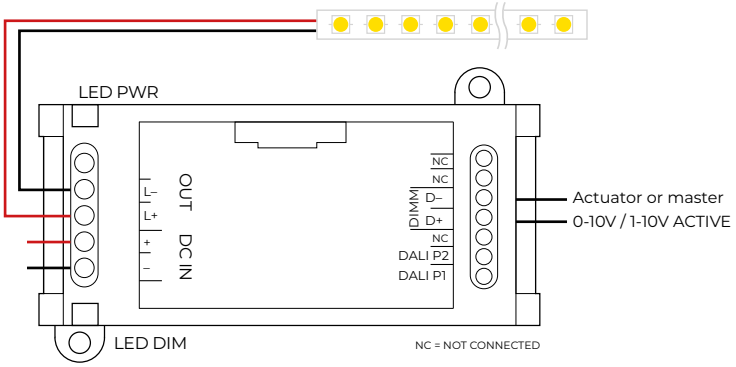
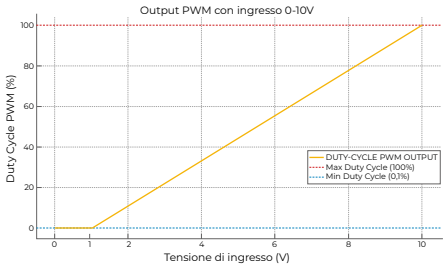


FIG. 3 - 0-10V DALI-CV connection



Mode of operation
DALI mode

In order to activate this control/operation mode it is necessary to short-circuit the D+ and D- inputs and connect the DALI bus between the DALI/P1 and DALI/P2 inputs.

Upon first receiving 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 max current absorbed by the DALI bus is approximately 2mA.

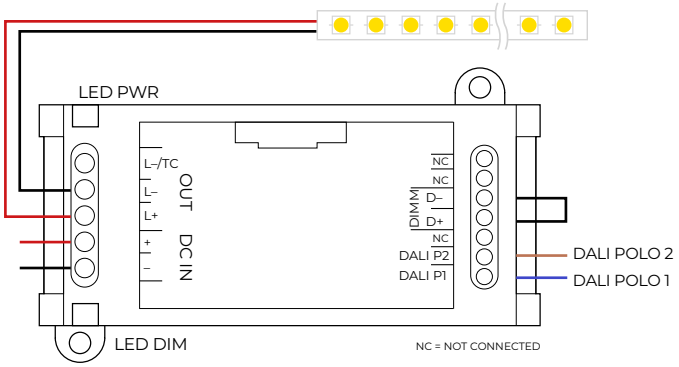


FIG. 4 - DALI DALI-CV connection

Standard commands implemented

DIRECT ARC POWER
OFF
UP
DOWN
STEP UP
STEP DOWN
RECALL MAX LEVEL
RECALL MIN LEVEL
STEP DOWN AND OFF
ON AND STEP UP
GO TO SCENE (0-15)
RESET

STORE ACTUAL LEVEL IN THE DTR
STORE THE DTR AS MAX LEVEL
STORE THE DTR AS MIN LEVEL
STORE THE DTR AS SYSTEM FAILURE LEVEL
STORE THE DTR AS POWER ON LEVEL
STORE THE DTR AS FADE TIME
STORE THE DTR AS FADE RATE
STORE THE DTR AS SCENE (0-15)
REMOVE FROM SCENE (0-15)
ADD TO GROUP (0-15)
REMOVE FROM GROUP (0-15)
STORE DTR AS SHORT ADDRESS

QUERY STATUS
QUERY BALLAST
QUERY LAMP POWER ON
QUERY LIMIT ERROR
QUERY RESET STATE
QUERY MISSING SHORT ADDRESS
QUERY VERSION NUMBER
QUERY DEVICE TYPE
QUERY PHISICAL MINIMUM LEVEL
QUERY POWER FAILURE
QUERY CONTENT DTR1
QUERY CONTENT DTR2

QUERY ACTUAL LEVEL
QUERY MAX LEVEL
QUERY MIN LEVEL
QUERY POWER ON LEVEL
QUERY SYSTEM FAILURE LEVEL
QUERY FADE TIME/FADE RATE
QUERY SCENE LEVEL (0-15)
QUERY GROUPS (0-7)
QUERY GROUPS (8-15)
QUERY RANDOM ADDRESS H
QUERY RANDOM ADDRESS M
QUERY RANDOM ADDRESS L

Mode of operation
PUSH mode

In order to activate this control/operation mode it is necessary to remove any control signals from the D+ and D inputs and connect a direct or alternating voltage signal between the DALI/P1 and DALI/P2 inputs (DC voltage range: 10÷ 265V, AC 12÷ 265Vac 50÷65Hz) interrupted by a normally open button (N.O.).

The input signal does not require polarization.
The max current absorbed by the PUSH interface is approximately 2mA.
The dimmer saves the output state in order to restore the set level in the event of a power failure (preset). In this mode it is possible to set the type of curve (logarithmic or linear) and enable or disable the fade using the external SETUPPER programmer.

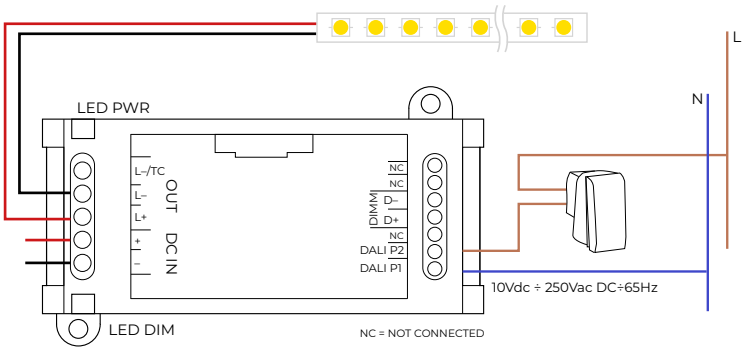


FIG. 5 - DALI-CV button connection

PUSH interface operation

Single Click (rapid pressure <1sec)
- Switches the output on or off (ON/OFF).

Double Click (rapid pressure <1sec)
- Set maximum brightness (output = 100%).

Long Press (prolonged pressure >1sec)
- If the dimmer is in the OFF state, set the output to the minimum value (default= 1%).
- If the dimmer is in the ON state, prolonged pressure allows the output to be dimmed (up/down).

Wiring of the physical button in the event of faults

ATTENTION!
To ensure the dimmer works properly, it is important to keep the connecting cable between the switch and the dimmer as short as possible.

If malfunctions are detected, particularly when using very long cables on the button or in systems subject to interference, we recommend installing a monostable relay connected locally to the dimmer (FIG. 6).

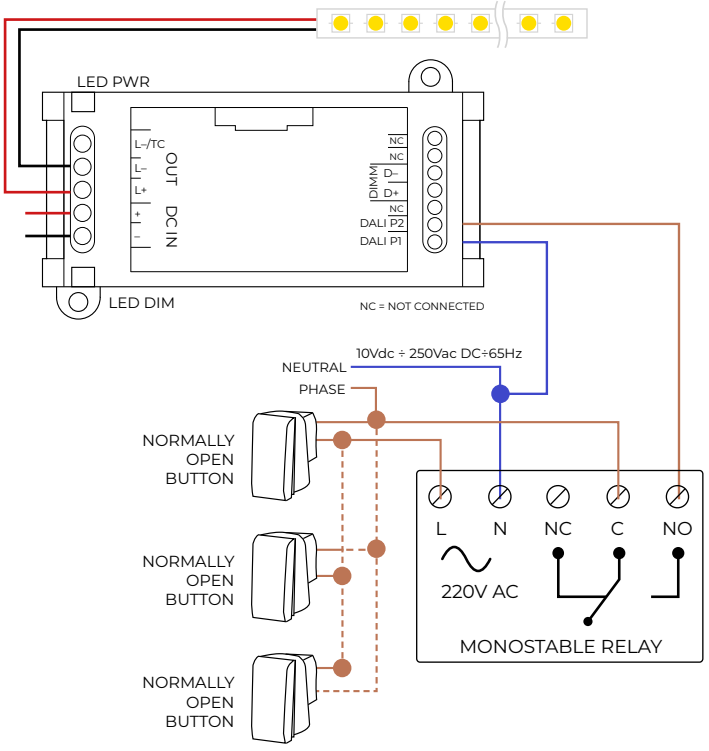


FIG. 6 - DALI-CV push-button connection with support relay

Parameter configuration

Click on the desired configuration to view the image of the programmer

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

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