LINE-4CC

Device Manual

Made in Italy

FEATURES

- LED DIMMER
- Power Input: 12-24-48 Vdc
- Constant Current Output for dimmable spotlights and LED modules
- WHITE, SINGLE COLOUR, TUNABLE WHITE, RGB, and RGB+W Light Control
- Local Control: Up to two Normally Open (N.O.) buttons
- Device configuration via Dalcnet LightApp© mobile application
- Constant current outputs for R-L-C loads
- PWM modulation can be set from 300 to 3400 Hz
- Parameters that can be set by APP:
  - PWM Frequency
  - Fade Time
  - Power-ON levels
  - Push-ON levels
  - Dimming speed
- Input Protection
- Soft ON/OFF
- Soft brightness dimming
- Extended temperature range
- 100% Functional test

PRODUCT DESCRIPTION

LINE-4CC is a PWM (Pulse With Modulation) Constant Current (CC) LED dimmer with 4 output channels and controllable locally by Normally Open (N.O.) buttons. It can be connected to a constant voltage (12 ÷ 48) Vdc SELV power supply and is suitable for driving loads such as Spotlight and white, single-colour, Tunable White, RGB and RGB+W constant current LED modules.
LINE-4CC can deliver a maximum output current of 900 mA per channel and has the following protections: over-power protections, reverse polarity protection, and input fuse protection.
Through the Dalcnet LightApp© mobile application and smartphone equipped with Near Field Communication (NFC) technology, it is possible to configure (with the device switched OFF) multiple parameters including modulation frequency, adjustment curve and maximum/minimum brightness levels. Dalcnet LightApp© can be downloaded free of charge from the Apple APP Store and Google Play Store.

⇢ For the up-to-date manual, please consult our website www.dalcnet.com or QR Code.

PRODUCT CODE

CODE	SUPPLY VOLTAGE	LED OUTPUT	N° OF CHANNELS	REMOTE CONTROL (BUS)	APP CONFIG.
LINE-4CC	12-24-48 VDC	4 x 0.9 A (tot. max 3.6 A) [1]	4	DMX512-RDM	LightApp©

Table 1: Product code

PROTECTIONS

The following table shows the types of incoming protections present on the device.

ACRONYM	DESCRIPTION	TERMINAL	PRESENT
IFP	Input Fuse Protection[2]	DC IN	✓
OVP	Over Voltage Protection[2]	DC IN	✓
UVP	Under Voltage Protection	DC IN	✓
RVP	Reverse Voltage Polarity[2]	DC-IN	✓

Table 2: Protection & Detection Features

REFERENCE STANDARDS

LINE-4CC complies with the regulations shown in the table below.

STANDARD	TITLE
EN 55015	Limits and methods of measurement of radio disturbance characteristics of electrical lighting and similar equipment
EN 61547	Equipment for general lighting purposes – EMC immunity requirement
EN 61347-1	Lamp Controlgear – Part 1: General and safety requirement
EN 61347-2-13	Lamp controlgear - Part 2-13: Particular requirement for d.c. or a.c. supplied electronic Controlgear for LED modules

Table 3: Reference standards

[1] The maximum total output current depends on the operating conditions and ambient temperature of the system. For the correct configuration, check the maximum power that can be delivered in the §Technical Specifications section and in the §Thermal Characterization.
[2] Protections refer to the control logic of the board.

TECHNICAL SPECIFICATIONS

Parameter	Symbol	Values			Unit of Measure	Note
		Min		Max		
INPUT (Power Supply DC IN)						
Nominal Supply Voltage	V_{IN}	12	24	48	Vdc	-
Supply Voltage range	V_{IN-RNG}	10.8	÷	52.8	Vdc	-
Efficiency at full load	E_{FF}		> 95		%	-
Standby power absorption	P_{STBY}		< 0.5		W	-
Input Current (max)	I_{IN}	-	-	3.2	A	-
OUTPUT (Channels L1, L2, L3, L4)						
Output Current (per channel)	I_{OUT-CH}	150	÷	900	mA	Choice via Dalcnet LightApp©
Output Current (total)	$I_{OUT-TOT}$	-	-	3.6	A	-
Output Voltage	V_{OUT}	@12V	@24V	@48V	V	-
		3÷11.1	6÷23.1	12÷43		
Rated Power Output	P_{OUT}		See Table 5		W	Rated @T_A<35 °C
Load type	L_{TYPE}		R-L-C		-	Defined by design
DIMMING						
Dimming Curve	C_{DIM}		Linear		-	-
Dimming Method	M_{DIM}		Pulse Width Modulation (PWM)		-	-
Dimming Frequency	f_{DIM}		307, 667, 1333, 2000, 3400		Hz	-
Dimming Resolution	Res_{DIM}		16		bit	Defined by design
Dimming Range [3]	RNG_{DIM}	1	÷	100	%	-
ENVIRONMENTAL						
Storage temperature	T_{STORE}	-40	÷	+60	°C	Minimum values defined by design
Temp. ambiente di lavoro	$T_{A\ -\ I\leq 700mA}$	-10	÷	+60	°C	For output currents ≤ 700 mA
	$T_{A\ -\ I>700mA}$	-10	÷	+45	°C	For output currents > 700 mA
Max Temperature @T_c point	T_C	-	-	+80	°C	-
Connector Type	C_{TYPE}		Push-in terminals		-	-
Wiring Section	WS_{SOLID}	0.2	÷	1.5	mm^2	Defined by design
	WS_{STRAND}	24	÷	16	AWG	
Strip length	WS_{STRIP}		10		mm	-
Protection class	IP_{CODE}		IP20		-	-
Casing Material	MC		Plastic		-	-
Packaging units (piece/units)	PU		1		pc	-
Mechanical Dimensions	MD	L	H	D	mm	-
		186	29	21		
Packaging Dimensions	PD	197	34	29	mm	-
Weight	W		80		g	Packaging included

Table 4: Technical specifications

[3] Measured on a 3.4 kHz linear dimming curve. Value dependent on the type of load connected.

Channel Rated Power Output (P_{OUT-CH})	**Current [mA]±5%**	**150**	**200**	**250**	**300**	**350**	**400**	**450**	**500**
	@12 Vdc	1.6 W	2.2 W	2.7 W	3.3 W	3.8 W	4.4 W	4.9 W	5.5 W
	@24 Vdc	3.4 W	4.6 W	5.7 W	6.9 W	8 W	9.2 W	10.3 W	11.5 W
	@48 Vdc	6.4 W	8.6 W	10.7 W	12.9 W	15 W	17.2 W	19.3 W	21.5 W
	Current [mA]±5%	**550**	**600**	**650**	**700**	**750**	**800**	**850**	**900**
	@12 Vdc	6.1 W	6.6 W	7.2 W	7.7 W	8.3 W	8.8 W	9.4 W	9.9 W
	@24 Vdc	12.7 W	13.8 W	15 W	16.1 W	17.3 W	18.4 W	19.6 W	20.7 W
	@48 Vdc	23.6 W	25.8 W	27.9 W	30.1 W	32.2 W	34.4 W	36.5 W	38.7 W
Total Rated Power Output ($P_{OUT-TOT}$)	**Current [mA] ± 5%**	**150**	**200**	**250**	**300**	**350**	**400**	**450**	**500**
	@12 Vdc	6.6 W	8.8 W	11.1 W	13.3 W	15.5 W	17.7 W	19.9 W	22.2 W
	@24 Vdc	13.8 W	18.4 W	23.1 W	27.7 W	32.3 W	36.9 W	41.5 W	46.2 W
	@48 Vdc	25.8 W	34.4 W	43 W	51.6 W	60.2 W	68.8 W	77.4 W	86 W
	Current [mA] ± 5%	**550**	**600**	**650**	**700**	**750**	**800**	**850**	**900**
	@12 Vdc	24.4 W	26.6 W	28.8 W	31 W	33.3 W	35.5 W	37.7 W	39.9 W
	@24 Vdc	50.8 W	55.4 W	60 W	64.6 W	69.3 W	73.9 W	78.5 W	83.1 W
	@48 Vdc	94.6 W	103.2 W	111.8 W	120.4 W	129 W	137.6 W	146.2 W	154.8 W
Note: rated values at TA<35°C ambient working temperature.									

Table 5: Power output as a function of set current

Positioning of the Tc Point

The figure below shows the positioning of the maximum temperature point (*Tc point*, highlighted in red) reached by the electronics inside the enclosure. It is located on the front side (Top) near the LED output connector.

Figure 1: T_c point positioning

INSTALLATION

ATTENTION! *Installation and maintenance must always be carried out in the absence of voltage. Before proceeding with the connection of the device to the power supply, make sure that the voltage of the power source is disconnected from the system.*

The device should only be connected and installed by qualified personnel. All applicable regulations, legislation, standards, and building codes must be adhered to. Incorrect installation of the device may cause irreparable damage to the device and connected loads.

The following paragraphs show the diagrams of the dimmer's connection to the remote control, the load and the supply voltage. It is recommended to follow these steps to install the product safely:

1. Load connection: Connect the LED load positive to the "L" terminal with the "+" symbol, while the LED load negatives to the "L1", "L2", "L3" and "L4" terminals with the "-" symbol.
2. Local command connection: connect the N.O. buttons to the terminals "INPUT 1" and "INPUT 2" with the "⌐¬" symbol. Make sure not to connect any live parts to the "INPUT" terminals.
3. Power connection: Connect a 12-24-48 Vdc constant voltage SELV power supply (depending on the nameplate data of the LED load) to the "+" and "-" terminals of the DC IN terminal.

Load Connection

LINE-4CC has 4 output channels that can be driven independently (e.g. for single-colour LED spotlights) or depending on the RGB value or white light temperature (e.g. for RGB, RGB+W and Tunable-White LED modules).

Diagram for White or Single-Colour LED Loads

The following connection diagram (Figure 2) is suitable for driving up to 4 white or single-colour LED loads.

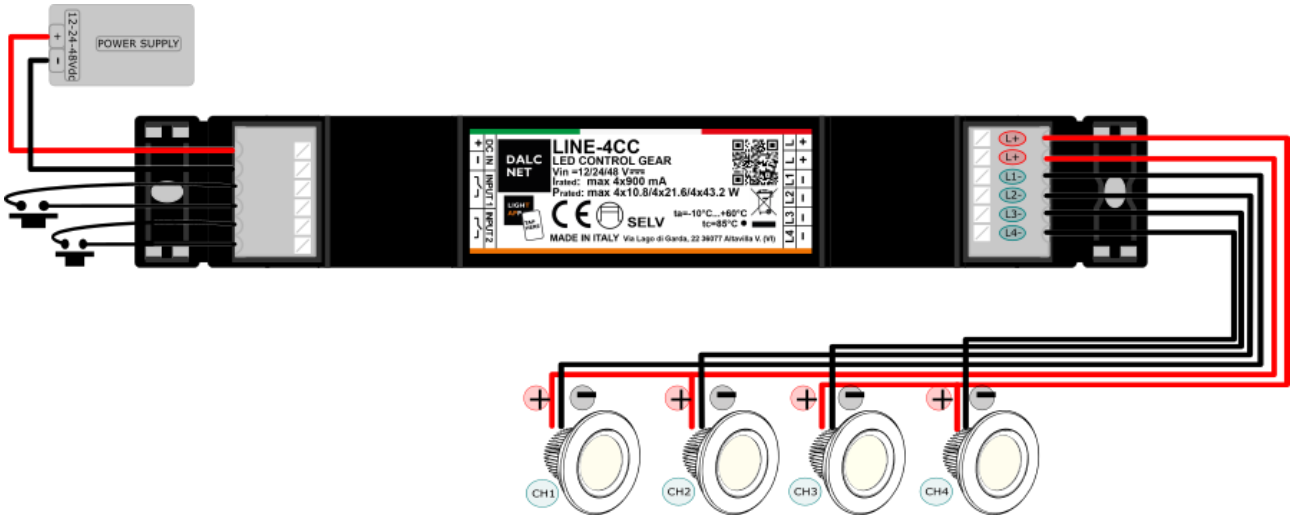


Figure 2: Wiring diagram for White or Monochrome LED loads

Diagram for Tunable-White + Tunable-White LED Loads

This connection diagram is suitable for driving up to 2 Tunable-White LED loads[4].

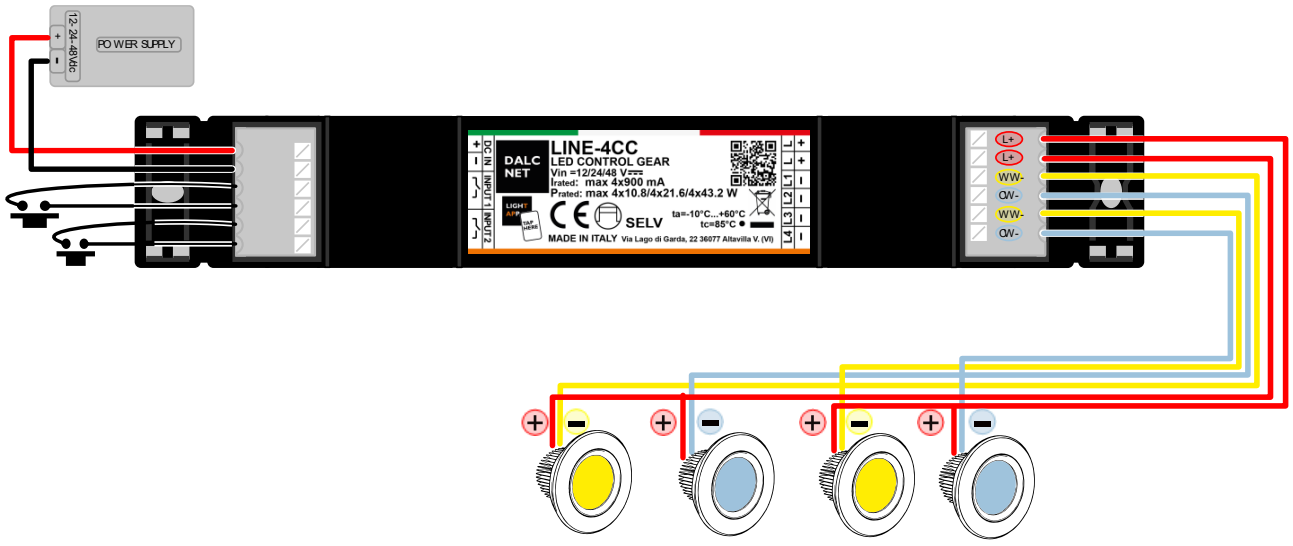


Figure 3: Wiring Diagram for Tunable-White LED Loads

[4] "Tunable-White" refers to the ability of a lighting fixture to vary the colour temperature of white independently of its light intensity.

DIAGRAM FOR RGB LED LOADS

Figure 4 shows the connection diagram suitable for driving a single RGB LED load.

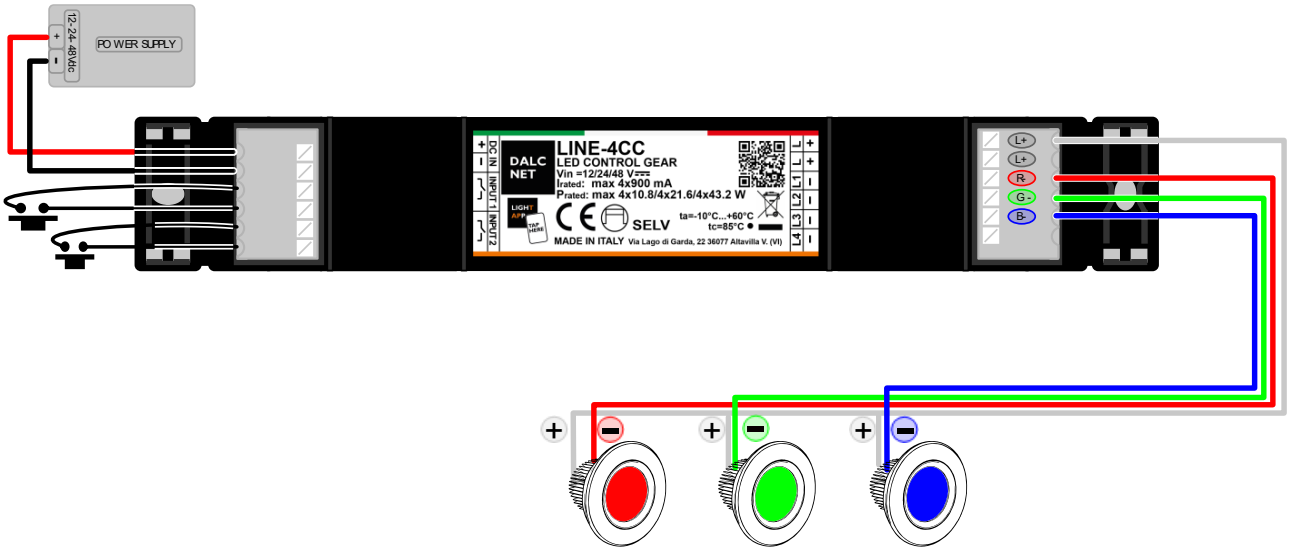


Figure 4: Wiring diagram for RGB load

DIAGRAM FOR RGBW LED LOADS

Figure 5 shows the connection diagram indicated to drive a single RGBW LED load.

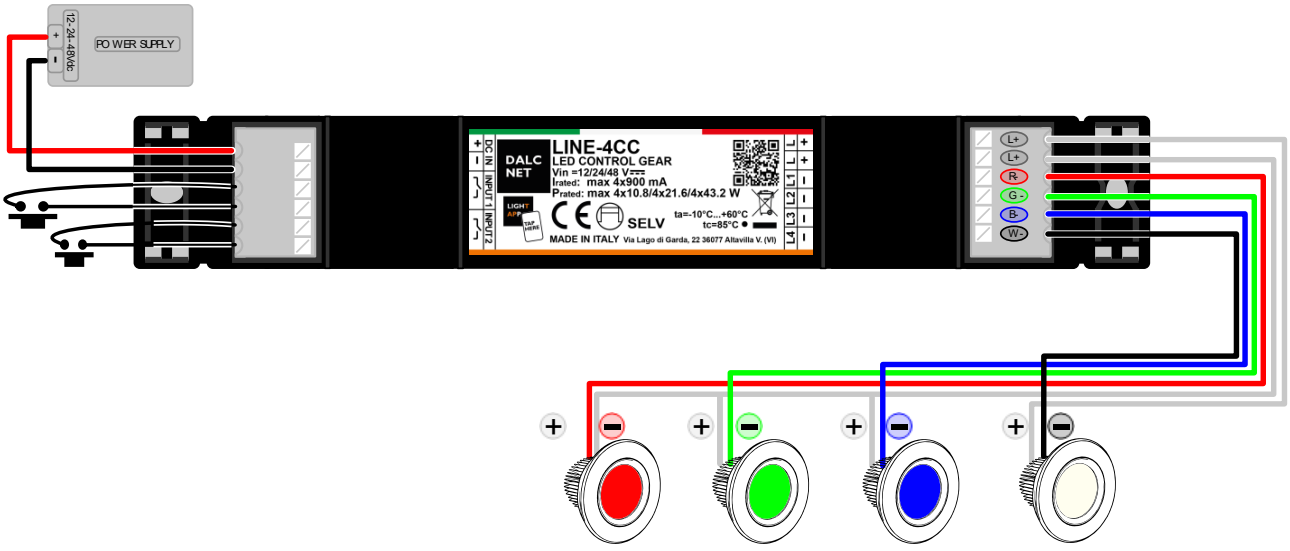


Figure 5: Wiring diagram for RGBW LED load

Local Command Connection

LINE-4CC can be controlled via Local Control via Normally Open (N.O.) buttons or voltage-free dry contact.

To connect LINE-4CC to local controls, simply connect the buttons to the INPUT1 and INPUT2 terminals. The following image shows the indicated connection diagram for short distances (<10 m).

Figure 6: Local Control connection

For longer distances (>10 m), it is recommended to use an N.O. dry contact relay module, connected between the "Input" input of the LINE-4CC and the power source (e.g. mains voltage 230 Vac). Figure 7 shows an example of a Local Command connection recommended for long distances.

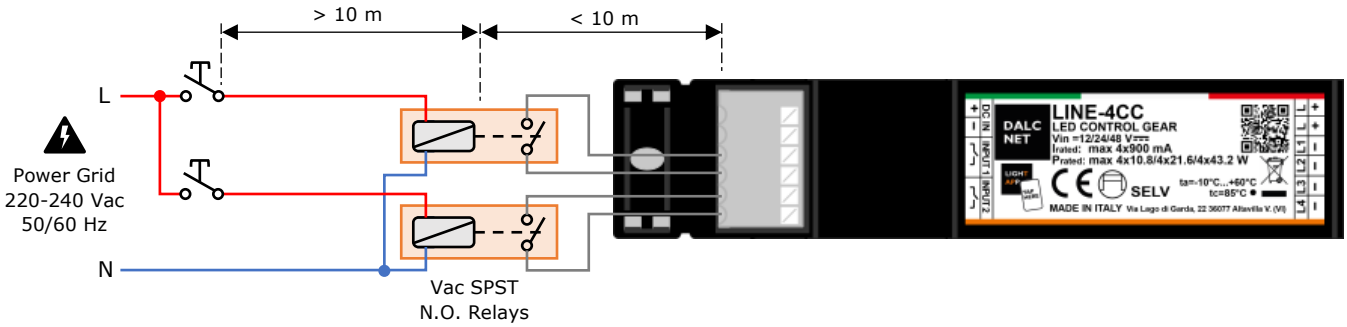


Figure 7: Connecting the Local Command for Long Distances

Power Supply Connection

LINE-4CC can be powered by a constant voltage SELV power supply at 12 Vdc, 24 Vdc or 48 Vdc, depending on the operating voltage of the LED load. Once the load and remote control (DMX bus) are connected, connect the power supply to the "+" and "-" terminals of the DC IN terminal.

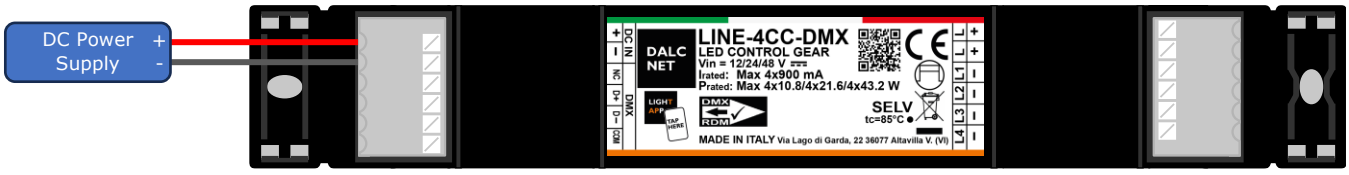


Figure 8: Power Supply Connection Diagram

LOCAL CONTROL: PUSHBUTTONS

LINE-4CC has two dry contacts inputs for N.O. pushbuttons, through which different operating parameters can be managed. Each action on the pushbuttons activates a specific function for the type of control selected via LightApp© (see the §Control Types section of this manual).

PUSHBUTTON FUNCTIONALITY FOR "INDEPENDENT CHANNELS"

In *Independent Channels* mode, both connected buttons take over control, adjustment, and channel change functions. Refer to the connection diagram in Figure 2. For the parameters that can be set by application, see the §Independent Channels section of the LightApp© section.

ACTION	INPUT #	LOAD	FUNCTION
Quick press	Input 1, 2	-	ON/OFF of the selected channel (of LED module connected)
Double quick press	Input 1, 2	-	Channel selection (of LED load connected). The selection will follow the following channel sequence: L1 → L2 → L3 → L4
Long press	Input 1, 2	-	Brightness adjustment (Dimming)

Table 1: Pushbutton functionality for "Independent Channels"

PUSHBUTTON FUNCTIONALITY FOR "2 PUSH - RGB/RGBW"

In *RGB-RGBW Push 2* mode, the pushbuttons take on control functions dedicated to RGB parameters and white light adjustment. Refer to the connection diagrams in Figure 4 and Figure 5. For the parameters that can be set by application, see paragraph §2 Push - RGB/RGBW in the LightApp© section.

ACTION	INPUT #	LOAD	FUNCTION
Quick press	Input 1	RGB	RGB LED module ON/OFF
	Input 2	WHITE	White LED module ON/OFF
Double quick press	Input 1	RGB	Start Colour Rotation[5] (a quick press to stop rotation)
Long press	Input 1	RGB	Brightness adjustment (Dimming) of the selected colour light
	Input 2	WHITE	Brightness adjustment (Dimming) of the White light

Table 2: Pushbutton functionality for "2 Push - RGB/RGBW"

PUSHBUTTON FUNCTIONALITY FOR "2 PUSH - CCT"

In 2 *Push CCT* mode, both buttons take on the same functions of controlling and adjusting warm and cool white light. Refer to the connection diagram in Figure 3. For the parameters that can be set by the application, see the paragraph §2 Push - CCT in the LightApp© section.

[5] Rotation time can be set from LightApp©.

ACTION	INPUT #	LOAD	FUNCTION
 Quick press	Input 1, 2	TUNABLE WHITE	Tunable White LED module ON/OFF
 Double quick press	Input 1, 2	TUNABLE WHITE	Start White Temperature Rotation (a quick press to stop rotation)
 Long press	Input 1, 2	TUNABLE WHITE	Brightness adjustment (Dimming) of the White light

Table 3: Pushbutton functionality for "2 Push - CCT"

PUSHBUTTON FUNCTIONALITY FOR "2 PUSH - CCT+CCT"

In *2 Push CCT* mode, the buttons take on control and adjustment functions dedicated to the connected Dynamic White LED modules. Refer to the connection diagram in Figure 3. For the parameters that can be set by application, see paragraph §2 Push - CCT+CCT in the LightApp© section.

ACTION	INPUT #	LOAD	FUNCTION
 Quick press	Input 1	TUNABLE WHITE 1	ON/OFF of the Tunable White LED module N° 1 (channel outputs L1 and L2)
	Input 2	TUNABLE WHITE 2	ON/OFF of the Tunable White LED module N° 2 (channel outputs L3 and L4)
 Double quick press	Input 1	TUNABLE WHITE 1	Start White Temperature Rotation (a quick press to stop rotation) on LED module N° 1 (channel outputs L1 and L2)
	Input 2	TUNABLE WHITE 2	Start White Temperature Rotation (a quick press to stop rotation) on LED module N° 2 (channel outputs L3 and L4)
 Long press	Input 1	TUNABLE WHITE 1	Brightness adjustment (Dimming) of the White light on LED module N° 1 (channel outputs L1 and L2)
	Input 2	TUNABLE WHITE 2	Brightness adjustment (Dimming) of the White light on LED module N° 2 (channel outputs L3 and L4)

Table 4: Pushbutton functionality for "2 Push - CCT+CCT"

PUSHBUTTON FUNCTIONALITY FOR "PUSH ANIMATION"

In *Push Animation* mode, the buttons take over the functions of controlling the animation programmed via LightApp©. The connection diagrams shown for these features are shown in Figure 4 e Figure 5. For the parameters that can be set by application, see the §Push Animation paragraph of the LightApp© section.

ACTION	INPUT #	LOAD	FUNCTION	ACTION
 Quick press	Input 1, 2	-	START	Start Animation[6] (a subsequent quick press restarts the animation from the beginning)
			START & STOP	Start Animation[6] (a subsequent quick press pauses the animation)
 Double quick press	Input 1, 2	-	START, START & STOP	Return to the Power-ON level and stop the animation

Table 5: Pushbutton functionality for "Push Animation"

PUSHBUTTON FUNCTIONALITY FOR "PUSH SEQUENCE"

In *Push Sequence* mode, the buttons take over brightness adjustment and selection of the programmed scenario via LightApp©. The connection diagrams shown for these features are shown in Figure 4 e Figure 5. For the parameters that can be set by application, see the §Push Sequence paragraph of the LightApp© section.

ACTION	INPUT #	LOAD	FUNCTION
 Quick press	Input 1, 2	-	Select[6] next Scenario
 Double quick press	Input 1, 2	-	Select the first scenario
 Long press	Input 1, 2	-	Brightness adjustment (Dimming)[7]

Table 6: Pushbutton functionality for "Push Sequence"

[6] With intensity set via LightApp©.
[7] If you change scenery, the brightness you manually set for the scenario will be lost. The next time you select the same scenario, the brightness set via LightApp© will be restored.

FLICKER PERFORMANCE

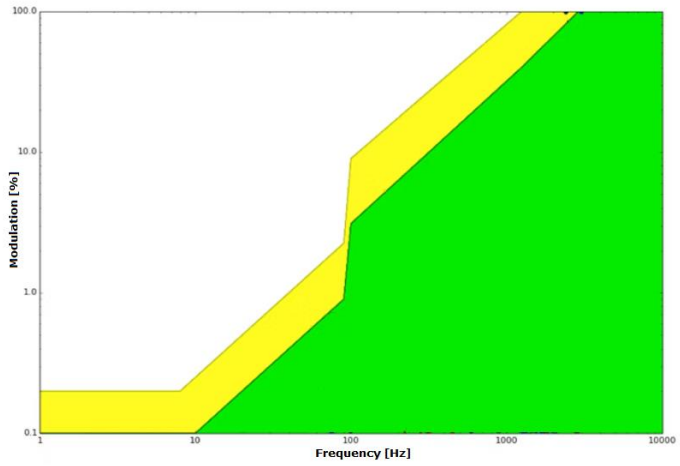


Figure 9: Flickering Perception Threshold

LINE-4CC, thanks to the dimming frequency of 3.4kHz, allows to reduce the phenomenon of flickering (Flicker). Depending on eye sensitivity and the type of activity, flickering can affect a person's well-being even if the fluctuations in luminance are beyond the threshold perceptible to the human eye.

The graph shows the phenomenon of flickering as a function of frequency, measured over the entire dimming range.
The reported results highlight the low-risk zone (yellow) and the no-observable zone (green), defined by the IEEE 1789-2015 standard[8].

THERMAL CHARACTERIZATION

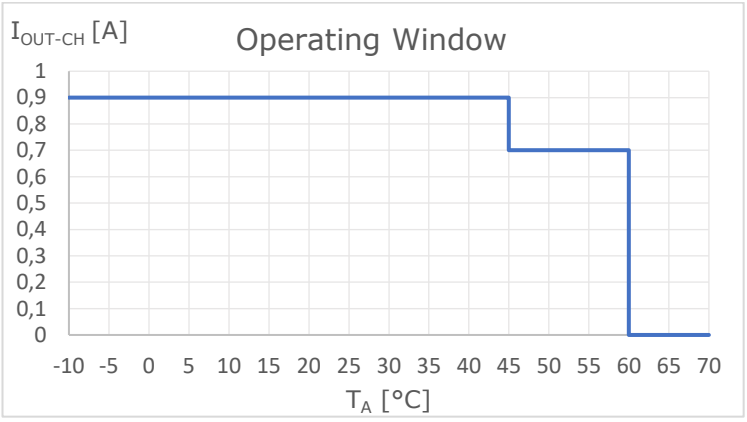


Figure 10: Operating Temperature Window

Figure 10 shows the maximum output current values that can be provided by the LINE-4CC as a function of the operating temperature[9] (or ambient temperature, TA) of the work, summarized below:

- T_A = (-10 ÷ +60) °C ⇢ $I_{OUT-CH} \leq 0.7$ A
- T_A = (-10 ÷ +45) °C ⇢ $I_{OUT-CH} > 0.7$ A

These maximum current values can only be applied under suitable ventilation conditions.

DIMMING CURVES

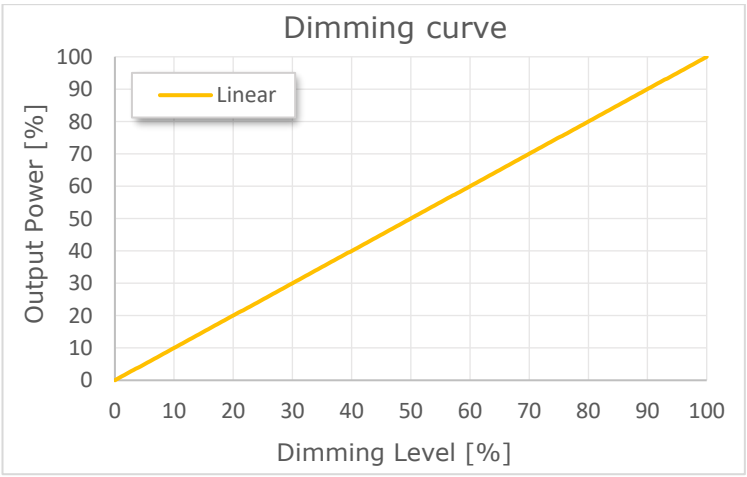


Figure 11: Dimming Curves

The LINE-4CC only supports the Linear dimming curve shown in Figure 11. No other dimming curves are available.

MECHANICAL DIMENSIONS

Figure 12 details the mechanical measurements and the overall dimensions [mm] of the outer casing.

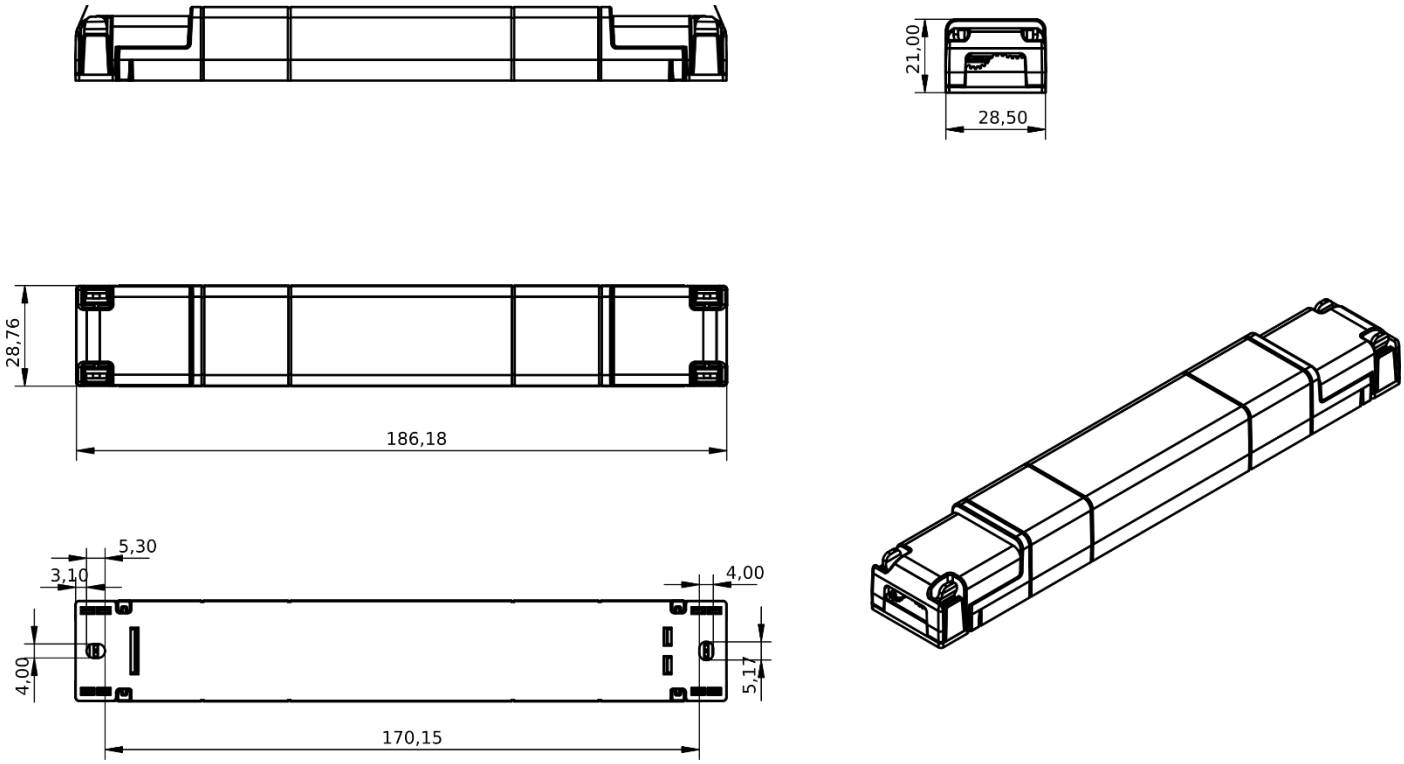


Figure 12: Dimensions and mechanical dimensions

[8] Institute of Electrical and Electronics Engineers (IEEE). IEEE std 1789: Recommended Practices for Current Modulation in High-Brightness LEDs to Mitigate Spectator Health Risks.
[9] In the event that the product is installed inside an electrical panel and/or junction box, TA refers to the temperature inside the panel/box.

TECNICHAL NOTES

INSTALLATION

WARNING! Installation and maintenance should always be carried out in the absence of DC voltage.
Before proceeding with the installation, adjustment and connection of the device to the power supply, make sure that the voltage is disconnected from the system.

The device should only be connected and installed by qualified personnel. All applicable regulations, legislation, standards, and building codes in force in the respective countries must be adhered to. Incorrect installation of the device may cause irreparable damage to the device and connected loads.

Maintenance must only be carried out by qualified personnel in compliance with current regulations.

The product must be installed inside an electrical panel and/or junction box that is protected against overvoltage.

The external power supply must be protected. The product must be protected by a properly sized circuit breaker with overcurrent protection.

Keep 230Vac (LV) circuits and non-SELV circuits separate from SELV safety ultra-low voltage circuits and any product connections. It is absolutely forbidden to connect, for any reason, directly or indirectly, the 230Vac mains voltage to the product (BUS terminals included).

The product must be installed in a vertical or horizontal position, i.e. with the faceplate/label/top cover facing up or vertically. No other positions are allowed. The bottom position, i.e. with the faceplate/label/top cover facing downwards, is not allowed.

During installation, it is recommended to reserve adequate space around the device to facilitate its accessibility in case of future maintenance or updates (e.g. via smartphone, NFC).

Use in thermally harsh environments may limit the output power of the product.

For devices embedded within luminaires, the TA ambient temperature range is a guideline to be carefully observed for the optimal operating environment. However, the integration of the device within the luminaire must always ensure proper thermal management (e.g. correct mounting of the device, proper ventilation, etc.) so that the temperature at the T_C point does not exceed its maximum limit under any circumstances. Proper operation and durability are only guaranteed if the maximum temperature of the T_C point is not exceeded under the conditions of use.

POWER AND LOAD

The device must be powered only with SELV type power supplies with limited current at constant voltage, short-circuit protection and suitably sized power according to the specifications indicated in the product data sheet. No other types of power supply are permitted.

Size the power of the power supply with reference to the load connected to the device. If the power supply is oversized compared to the maximum current drawn, insert an overcurrent protection between the power supply and the device.

Connecting to an unsuitable power supply may cause the device to operate outside of the specified design limits, voiding its warranty.

In the case of power supplies equipped with earth terminals, it is mandatory to connect ALL the protection earth points (PE= Protection Earth) to a state-of-the-art and certified earthing system.

The power cables of the device must be correctly sized with reference to the connected load and must be isolated from any wiring or equal to non-SELV voltage. It is recommended not to exceed 10m of connection between the power source and the product. Use double-insulated cables. If you want to use connection cables between the power source and the product longer than 10m, the installer must ensure the correct operation of the system. In any case, the connection between the power supply and the product must not exceed 30m.

The device has been designed to work with LED loads only. Connecting and powering unsuitable loads may cause the device to operate outside of the specified design limits, voiding its warranty. In general, the operating conditions of the device should never exceed the specifications indicated in the product data sheet.

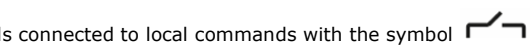
Observe the intended polarity between the LED module and the device. Any polarity reversal results in no light emission and can often damage the LED modules.

It is recommended that the connection cables between the product and the LED module be less than 3m long. Cables must be properly sized and should be insulated from any non-SELV wiring or parts. It is recommended to use double-insulated cables. If you want to use connection cables between the product and the LED module longer than 3m, the installer must ensure the correct operation of the system. In any case, the connection between the product and the LED module must not exceed 30m.

It is not allowed to connect different types of loads in the same output channel.

LOCAL COMMAND

The length of the connection cables between the local controls (N.O. buttons or other) and the product must be less than 10m. For longer lengths, we recommend the use of an N.O. Dry Contact Relay module, connected between the "Input" terminal of the device (dry contact side of the relay) and the power source (coil side of the relay) as shown in the connection example in Figure 7. The cables must be sized correctly. Depending on the connection used, they must be isolated from any wiring or non-SELV voltage parts. It is recommended to use double-insulated cables, if deemed appropriate, also shielded.

All devices and control signals connected to local commands with the symbol  , must not supply any type of voltage.

NFC (Near Field Communication) Warnings

The NFC antenna is located inside the device, the contact surface of which is indicated with the symbol

Position your smartphone so that its NFC antenna is in contact with the symbol on the device.

The location of the NFC sensor on the smartphone is dependent on the make and model of the smartphone itself. Therefore, it is recommended to refer to your smartphone's manual or the manufacturer's website to accurately determine where the NFC sensor is located. In most cases, the NFC reader is located on the back side near the top of the smartphone.

NFC technology works optimally with non-metallic materials. Therefore, it is not recommended to place the device near metal objects or reflective surfaces when using NFC.

For reliable communication, make sure that the contact surface is not covered or that it is free of metal objects, wiring, or other electronic devices. Any impediments could affect the quality of communication.

NFC technology works at a short distance, generally within a few centimetres. Make sure your device and smartphone are close enough to allow communication.

During firmware update and configuration, you should maintain stable contact (possibly without movement) between your smartphone and the device for the entire duration of the process (typically between 3 and 60 seconds). This ensures that the update goes smoothly, and that the device is ready to use after the process is complete.

LEGAL NOTES

Terms of Use

Dalcnet Srl (hereinafter referred to as "the Company") reserves the right to make changes to this device, in whole or in part, without prior notice to the customer. Such changes may affect technical aspects, functionality, design, or any other element of the device. The company is not required to notify you of such changes and that your continued use of the device will constitute your acceptance of the changes.

The company is committed to ensuring that any changes do not compromise the essential functionality of the device and that they comply with applicable laws and regulations. In the event of substantial changes, the company undertakes to provide clear and timely information on the same.

The customer is advised to periodically consult the www.dalcnet.com website or other official sources to check for any updates or changes to the device.

SYMBOLS

CE	All products are manufactured in compliance with European Regulations, as reported in the Declaration of Conformity.
	Independent Power Supply Unit: Lamp power supply unit, consisting of one or more separate elements, designed so that they can be mounted separately on the outside of a luminaire, with protection in accordance with the marking and without the use of additional enclosures.
SELV	"Very Low Safety Voltage" in a circuit isolated from the mains supply by insulation not less than that between the primary and secondary circuits of a safety isolation transformer according to IEC 61558-2-6.
	At the end of its useful life, the product described in this data sheet is classified as waste from electronic equipment and cannot be disposed of as unsorted municipal solid waste. **Warning!** 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.

LIGHTAPP

LightApp© is the official Dalcnet application through which it is possible to configure, in addition to the functions of the LINE-4CC, also all the different Dalcnet products equipped with NFC technology.

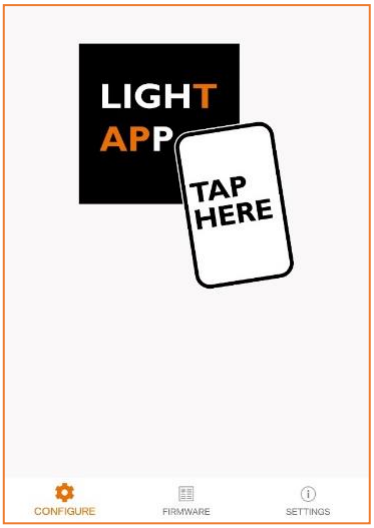
Dalcnet LightApp© can be downloaded free of charge from the Apple App Store and Google Play Store.

GET IT ON Google Play

Available on the App Store

START-UP AND FIRST INSTALLATION

START SCREEN - CONFIGURE

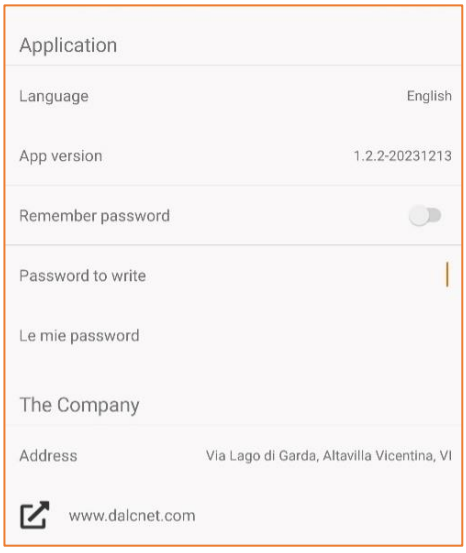


On this screen, the app waits for the device parameters to be read.

To read the parameters, simply bring the back of the smartphone close to the device's label. The read-sensitive zone of the smartphone may vary depending on the model.
Once the connection is established, a quick loading screen will appear. You must remain in position with your smartphone until the parameters are fully loaded.

iOS variant: To read the parameters, you need to press the SCAN button at the top right. A pop-up will appear indicating when your smartphone is ready to scan. Move the smartphone closer to the device and remain in place until the parameters are fully loaded.

SETTINGS



On the Settings page, you can:

- Setting the language of the app (Italian or English)
- View the app version
- Enable password saving on your smartphone
- Setting the Password for Writing Parameters
- View your saved passwords
- View the references of the distribution company (Dalcnet Srl)

FIRMWARE

On the firmware page, you can update the firmware of your device.

The requested file must be of type *.bin*.

Once the file has been uploaded, simply follow the on-screen instructions.

ATTENTION:

- **The upload procedure is irrevocable. Once the upload has started, it will not be possible to pause it.**
- **If the procedure is interrupted, the firmware will be corrupted, and you will need to repeat the loading procedure.**
- **At the end of the firmware load, all previously set parameters will be reset to factory defaults.**

If the update is successful and the loaded version is different from the previous one, the device will flash 10 times on the connected load.

LOADING PARAMETERS

IMPORTANT: The parameters must be written when the device is switched OFF (without input power).

READ

With the app in READ mode, the smartphone will scan the device and show its current configuration on the screen.

WRITE

In WRITE mode, the smartphone will write the parameter configuration set on the screen to the device.

In normal mode (*Write All* switched OFF) the app writes only the parameters that have changed since the previous read. In this mode, the write will only be successful if the serial number of the device matches the one previously read.

In *Write All* mode, all parameters are written. In this mode, the write will only be successful if the device model matches the one previously read.
It is recommended to activate the *Write All* mode only when you need to replicate the same configuration on many examples of the same model.

WRITE PROTECTION

By means of the padlock button it is possible to set a lock when writing parameters. A screen will appear for entering a 4-character password. Once this password has been written into the device, all subsequent parameter changes can only be made if the correct password is written on the app's Settings page.

To remove the password lock, simply press the lock key and leave the Password field blank.

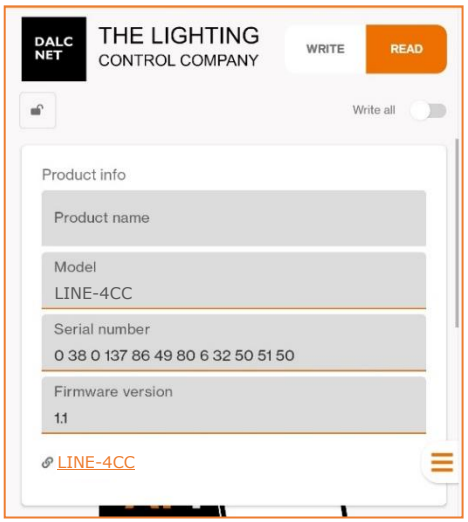
WRITE ERROR

After writing the parameters, if the load connected to the device flashes continuously at a frequency of 2 times per second when it is turned ON again, it means that the writing was not successful. Therefore, you will need to perform the following steps:

1. Turn OFF the device.
2. Perform a parameter rewrite.
3. Wait for the write to be successful or for no error messages to appear.
4. Turn the device back ON.

If that doesn't work, you can perform a factory reset by quickly turning the device OFF and ON 6 times.

PRODUCT INFORMATION



On the *Product Information* screen, you can view a variety of information about the product you are about to configure.

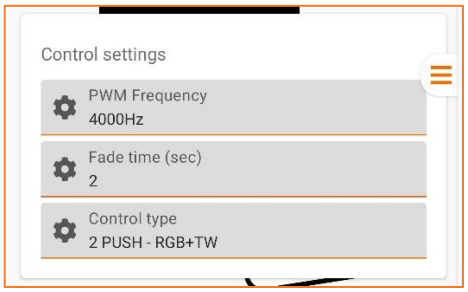
Product Name: User-settable field for easy identification (e.g. Office, Meeting Room, Lobby, etc.). By default, the product name is the same as the Model field.

Model: the model of the device (non-editable field).

Serial Number: uniquely identifies the device (non-editable field).

Firmware Version: identifies the firmware version currently loaded on the device (non-editable field).

CONTROL SETTINGS



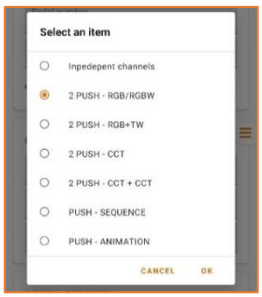
On the *Control Settings screen,* you can configure the different parameters for the driver's operation mode.

PWM Frequency: Sets the frequency[10] of the PWM modulation of the output.

Fade Time: Select the fade time values from 0s to 5min.

Control type: allows you to select the type of control to be assigned to the device (see next paragraph).

CONTROL TYPES



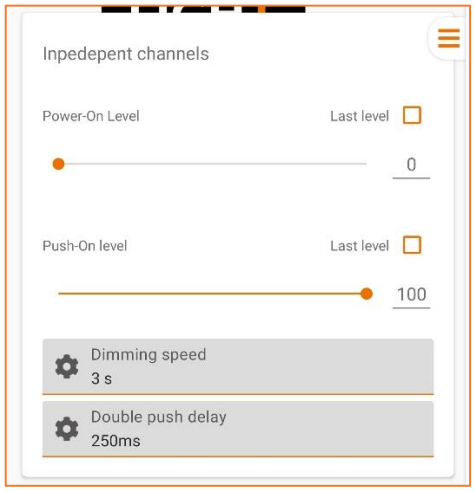
Within the "Control Type" configuration it is possible to select from 7 types of controls available for LINE-4CC

- Independent Channels
- 2 push - RGB/RGBW
- 2 push - CCT
- 2 push - CCT+CCT
- Push - Sequence
- Push - Animation

The parameters that can be set for each type of control are shown in the following paragraphs.

[10] In the case of applications under severe thermal conditions, it is advisable to lower the PWM frequency to a minimum (307 Hz).

INDEPENDENT CHANNELS



Power-On Level: this is the intensity value to which the output is brought as soon as the device is powered.

Last Level: Enable the memory function. The Power On level will correspond to the last level assumed before the power supply was removed.

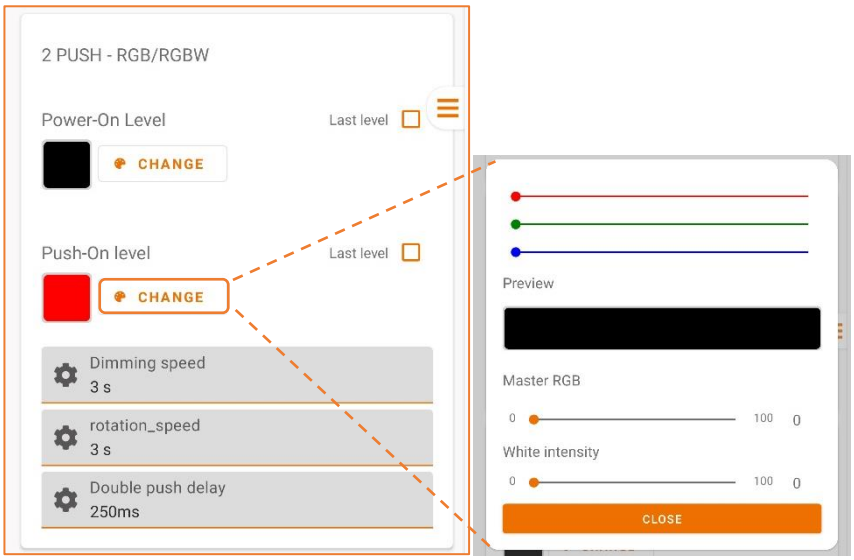
Push-On Level: This is the intensity value to which the output is brought when a quick press on the buttons is performed.

Last Level: Enable the memory function. The power level will correspond to the last level taken before the device was switched off by the button.

Dimming speed: This is the time it takes to adjust the light from 100% to 0% and vice versa.

Double-Push Delay: Allows you to set the speed at which the quick double press should be performed. For assigned button functions, refer to the §Pushbutton Functionality for "Independent Channels".

2 PUSH - RGB/RGBW



Power-On Level: Sets the RGB and white light levels to which the output is brought as soon as the device is powered. The RGB and intensity parameters can be set via the "Change" submenu.

Last Level: Enable the memory function. The Power On level will correspond to the last level taken before the power failure.

Power Level: Sets the RGB and white light levels to which the output is taken when a quick press on the buttons is performed. The RGB and intensity parameters can be set via the "Change" submenu.

Last Level: Enable the memory function. The switch-on level will correspond to the last level taken before switching off by the button.

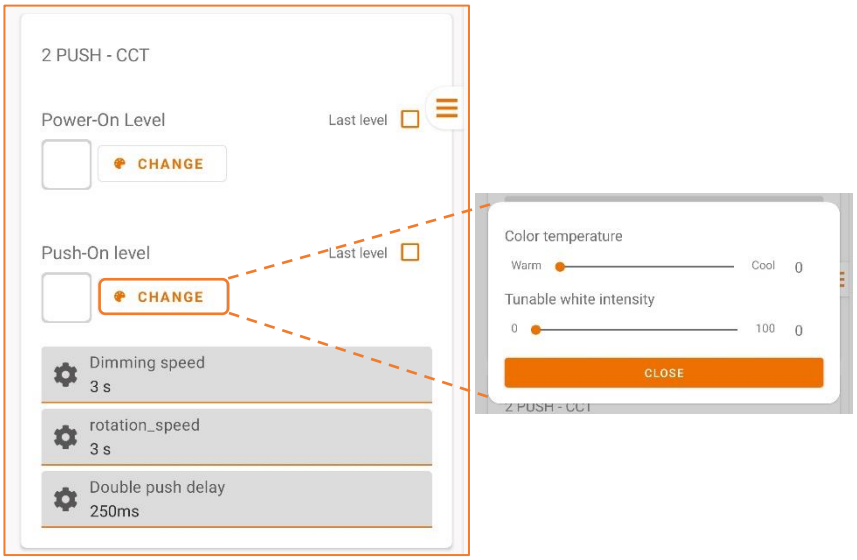
Dimming speed: This is the time it takes to adjust the light from 100% to 0% and vice versa.

Rotation speed: This is the time that a certain colour is maintained during rotation mode.

Double-Push Delay: Allows you to set the speed at which the quick double press should be performed. For assigned button functions, refer to the §Pushbutton Functionality for "2 Push - RGB/RGBW" section.

CHANGE submenu: you can set the RGB colour values in its Red-Green-Blue components, the light intensity of the RGB part (Master RGB) and the white light intensity (only for RGBW LEDs).

2 PUSH - CCT



Power-On Level: Sets the white light levels to which the output is brought as soon as the device is powered. The intensity and colour temperature parameters can be set using the "Change" submenu.

Last Level: Enable the memory function. The Power On level will correspond to the last level taken before the power failure.

Power Level: Sets the white light levels to which the output is taken when a quick press on the buttons is performed. Intensity and colour temperature can be set via the "Change" submenu.

Last Level: Enable the memory function. The switch-on level will correspond to the last level taken before switching off by the button.

Dimming speed: This is the time it takes to adjust the light from 100% to 0% and vice versa.

Rotation speed: This is the time that a certain colour is maintained during rotation mode.

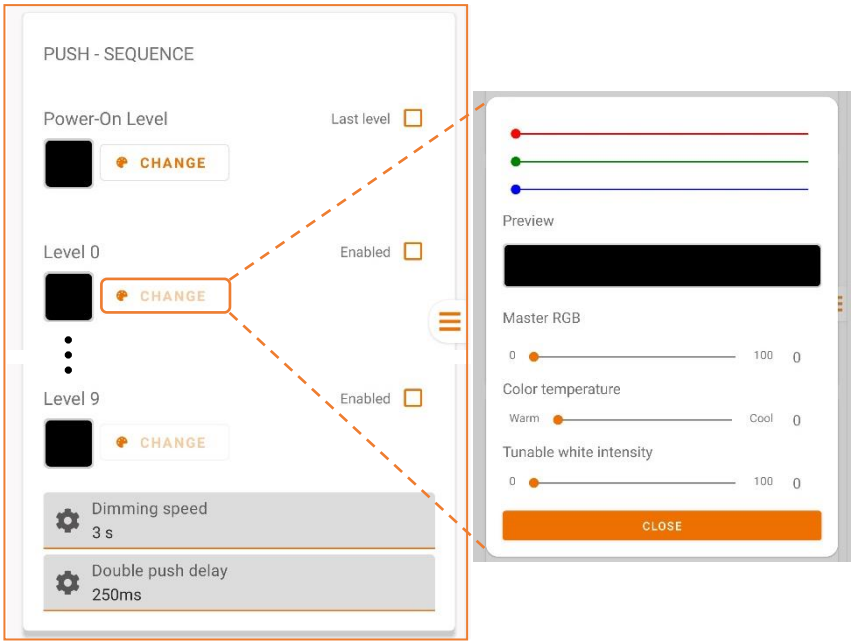
Double-Push Delay: Allows you to set the speed at which the quick double press should be performed. For assigned button functions, refer to the §Pushbutton Functionality for "2 Push - CCT" section.

CHANGE submenu: You can set the temperature and white light intensity values.

2 PUSH - CCT+CCT

The parameters that can be set in *mode 2 Push - CCT+CCT* are identical to those set in mode *2 Push - CCT* (refer to the previous paragraph). For assigned button functions, refer to the §Pushbutton Functionality for "2 Push - CCT+CCT" section.

PUSH SEQUENCE



Power-On Level: Sets the RGB and white light levels to which the output is brought as soon as the device is powered. The RGB and intensity parameters can be set via the "Change" submenu.

Last Level: Enable the memory function. The Power On level will correspond to the last level taken before the power failure.

Level 0 ÷ 9: Sets the RGB and white light levels to which the output is taken when the sequence is started. The RGB and intensity parameters can be set via the "Change" submenu.

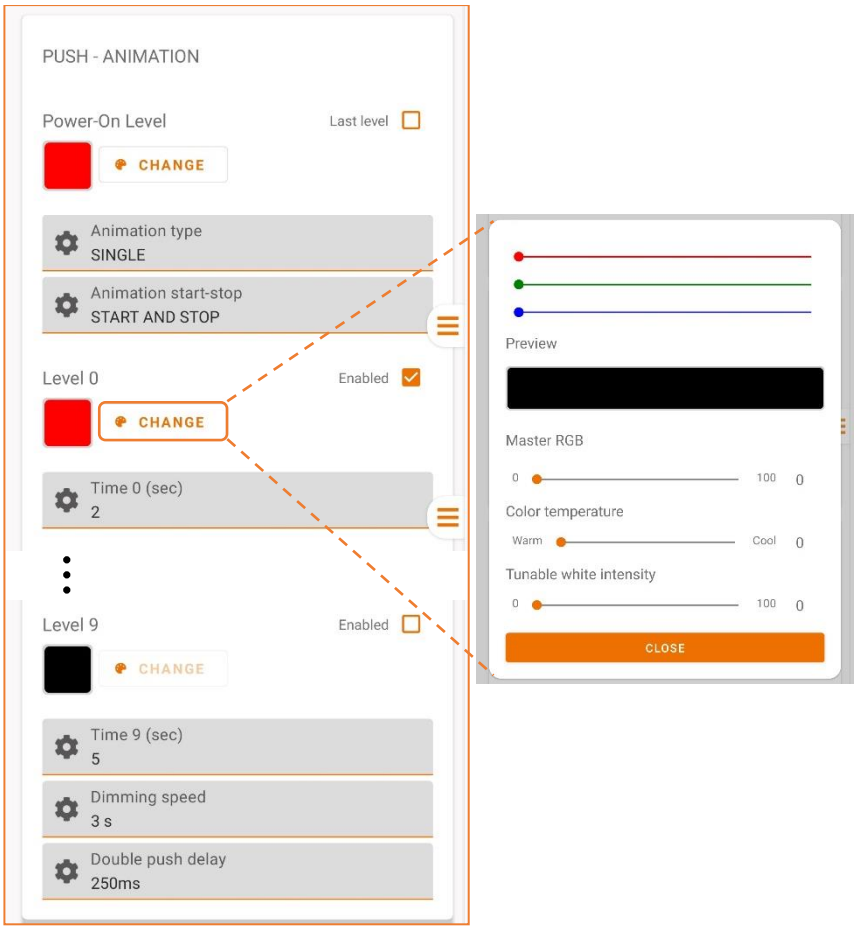
Enabled: Enables the layer within the sequence.

Dimming speed: This is the time it takes to adjust the light from 100% to 0% and vice versa.

Double-Push Delay: Allows you to set the speed at which the quick double press should be performed. For assigned button functions, refer to the §Pushbutton Functionality for "Push Sequence" section.

CHANGE submenu: you can set the RGB colour values in its Red-Green-Blue components, the light intensity of the RGB part (Master RGB), the colour temperature and the white light intensity.

PUSH ANIMATION



Power-On Level: Sets the RGB and white light levels to which the output is brought as soon as the device is powered. The RGB and intensity parameters can be set via the "Change" submenu.

Last Level: Enable the memory function. The Power On level will correspond to the last level taken before the power failure.

Animation Type: Set the animation type between "Single" or "Continuous".

In Single mode, once the animation is finished, the device returns to the initial level (Level 0) and waits for the next button start.

In Continuous mode, the animation is cyclical: once it ends, the device returns to Level 0 and continues the set animation indefinitely.

Start-Stop Animation: Sets the behaviour of the button when the animation starts. In Start mode, after a quick press, the animation returns to Level 0. In Start&Stop mode, a quick press with the animation stopped will start the set light sequence starting from the last level reached, the next button press will stop the animation. For more information on button behaviour, refer to §Pushbutton Functionality for "Push Animation" section.

Level 0 ÷ 9: Sets the RGB and white light levels to which the output is taken when the sequence is started. The RGB and intensity parameters can be set via the "Change" submenu.

Enabled: Enables the layer within the sequence.

Dimming speed: This is the time it takes to adjust the light from 100% to 0% and vice versa.

Double-Push Delay: Allows you to set the speed at which the quick double press should be performed. For assigned button functions, refer to the §Pushbutton Functionality for "Push Animation" section.

CHANGE submenu: you can set the RGB colour values in its Red-Green-Blue components, the light intensity of the RGB part (Master RGB), the colour temperature and the white light intensity.