

**Description**

CBU-PWM4-4 is a Bluetooth controllable, Casambi enabled four channel PWM dimmer for constant voltage LED loads, such as LED strips and constant voltage LED modules. It is connected between a 12-24 VDC Class 2 power supply and a constant voltage LED load.

CBU-PWM4-4 can control up to four channels making it an ideal partner for RGBW and tunable white (TW) applications. The maximum combined output current is 4 A which can be freely divided between 1 -4 channels. CBU-PWM4-4 is protected against overvoltage, overcurrent and short circuit situations.

CBU-PWM4-4 can be controlled with Casambi app which can be downloaded free of charge from Apple App Store and Google Play Store.

Different Casambi enabled products can be used from a simple one luminaire direct control to a complete and full featured light control system where up to 127 units form automatically an intelligent mesh network.

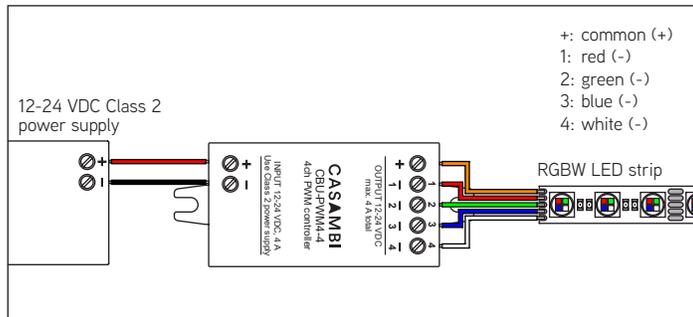


Compatible devices:

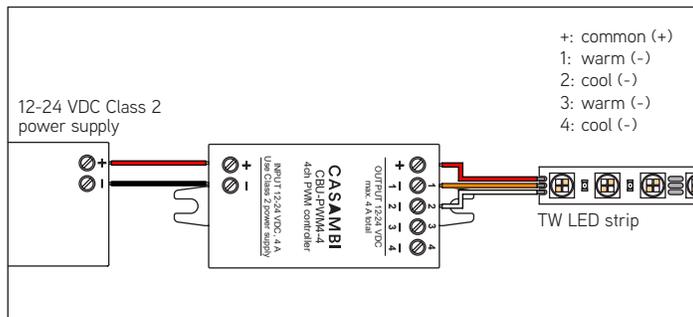
- iPhone 4S or later
- iPad 3 or later
- iPod Touch 5th gen or later

Android 4.4 or later devices produced after 2013 with full BT 4.0 support

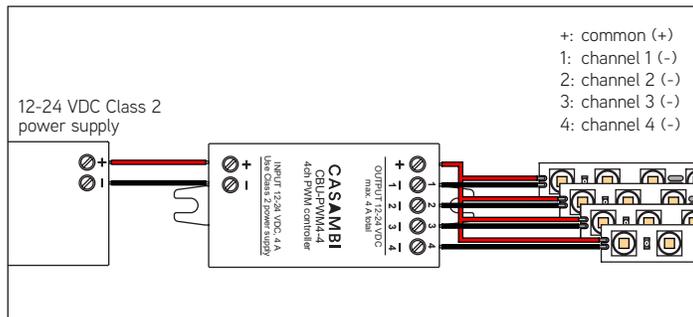
**Wiring diagram, RGBW**



**Wiring diagram, tunable white**



**Wiring diagram, 1-4 separate channels**



**Technical data**

<b>Input</b>	
Voltage range:	12-24 VDC, Class 2
Max. input current:	4 A
No-load standby power:	< 0,3 W
<b>Output</b>	
Output voltage:	same as input voltage
Max. output power:	96 W @ 24 VDC 48 W @ 12 VDC
Max. output current:	4 A (can be freely divided between the channels)
Min. load requirement:	0 W
Dimming method:	Pulse Width Modulation (PWM)
<b>Radio transceiver</b>	
Operating frequencies:	2,4-2,483 Ghz
Maximum output power:	+4 dBm
<b>Operating conditions</b>	
Ambient temperature, ta:	-13...+113°F (-25...+45°C)
Max. case temperature, tc:	+167°F (+75°C)
Storage temperature:	-13...+167°F (-25...+75°C)
Max. relative humidity:	0...80%, non-cond.
<b>Connectors</b>	
Wire range, solid & stranded:	0,5 - 1,5 mm <sup>2</sup> 14 - 22 AWG
Wire strip length:	.25" (6 - 7 mm)
Tightening force:	0,4 Nm / 2,6 Lb-in
<b>Mechanical data</b>	
Dimensions:	2,2 x 1,2 x 0,7 inch 72,6 x 30,0 x 18,0 mm
Weight:	0,8 oz (23 g)
FCC ID:	2ALA3-CBUPWM4
IC:	22496-CBUPWM4
UL:	UL Listed UL Plenum Rated (UL 2043)

Length 2.2 in  
Width 1.2 in  
Height 0.7 in

Dimensions are in mm. \* Tc point is on bottom side

## Installation

Connect a Class 2 power supply with 12-24 VDC output voltage to the input connector of CBU-PWM4-4. Make sure not to use a constant current LED driver and make sure that the cable polarity is correct.

The product has one shared positive output connector (+) and each of the four channels have its own negative connector (-). This is the most typical case with multichannel LED strips. Connect the LED load wires accordingly.

CBU-PWM4-4 can be configured having different types of outputs, such as 4 channel RGBW, 3 channel RGB and 2 channel TW. Also, it is possible to configure 1-4 jointly and individually dimmable channels. These configurations can be made by the end user from Casambi App. As default, CBU-PWM4 is delivered with RGBW configuration.

CBU-PWM4-4, as any other Casambi product, should not be placed in a metal enclosure, such as metal junction boxes. Metal will attenuate radio signals which are crucial to the operation of the product. If the product will have to be installed into a junction box, make sure to use a plastic junction box.

CBU-PWM4-4 is a UL Listed Open-Type device which means that it will have to be used together with a Class 2 power supply with maximum output power of 100 VA. The product can be installed outside of junction box. Make sure to comply with National Electric Code in installation and when selecting installation wires.

## Range

The range between two CBU-PWM4-4s or between a CBU-PWM4-4 and a smart phone can vary a lot depending on obstacles and surrounding material. In open air the range between two CBU-PWM4-4s can be in excess of 200 ft, but if the unit is encapsulated into a metal structure, the range can be only few feet. Therefore, thorough testing is highly suggested.

Casambi uses mesh network technology so each CBU-PWM4-4 acts also as a repeater. When testing the network, it is important to test that each unit can be controlled from any point of the network covered area.

## Compliance Statement

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
- (2) this device must accept any interference received, including interference that may cause undesired operation.

## Radiation Exposure Statement for FCC

This device complies with FCC radiation exposure limits for an uncontrolled environment. This device shall be installed and operated with a minimum distance of 0.8" (2cm) between users or bystanders and the device.

## Warning

Changes or modifications not expressly approved by Casambi Technologies Oy could void the user's authority to operate the equipment.

## FCC Interference Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

## Radiation Exposure Statement for Canada

This device complies with Industry Canada's licence-exempt RSSs. Operation is subject to the following two conditions:

- (1) This device may not cause interference
- (2) This device must accept any interference, including interference that may cause undesired operation of the device.

This equipment is exempt from the routine RF exposure evaluation requirements of RSS-102. This equipment should be installed and operated with a minimum distance of 20 cm between the antenna and the user or bystanders.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes:

- (1) l'appareil ne doit pas produire de brouillage;
- (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Ce matériel n'est pas sujet à l'évaluation habituelle d'exposition RF selon RSS102. Ce matériel devrait être installé et exploité en gardant une distance minimale de 20 cm entre l'antenne et l'utilisateur ou les spectateurs.