CHROMOFLEX   Barthelme
LED Solutions

CE

Full-Spectrum-White-Control

Chromoflex-Module V1.5 (Model „Controlled White")

Overview

ChromoFlex RC Controlled White is an excellent control unit for different shades of white and was designed for use with modern High-Power LEDs. ChromoFlex is able to generate 25 different shades of white ranging from warm white to cool white. Various shades of white can be attained or changed according to mood or requirements of daily life. Best performance can be achieved with Bartheleme LEDlight flex 14 Controlled White.

ChromoFlex RC CW is an enhancement of ChromoFlex RC RGB. ChromoFlex RC CW receives all commands by radio control. Therefore, for controlling and alignment, either the ChromoFlex Remote Control or USB-Dongle is needed.

The ChromoFlex RC Controlled White was designed so that sophisticated illuminations of daily life can be attained even without programming. The unit is equipped with 25 miscellaneous shades of white, ranging from cold white to calming dusky warm white.

Some of these shades can be edited with Remote Control or PC and can be stored as a ´standard shade of white´.

Several ChromoFlex modules can be linked in a network by radio control. Up to 8 different nets can be operated simultaneously. Within one net all shades of white will run synchronous automatically. Therefore sophisticated illuminations can be attained without much effort. Operating range depends on room conditions. Operation of up to 300 metres should be possible outdoors. Indoors an operating range of 20- 50 metres should be unproblematic.

Usage

The modules were designed for indoor use in dry places. The LEDs might also be used in wet environments or outdoors, if suited for that purpose.

Important: The modules must be operated with a power supply that is matched to the used LEDs! Non-LED loads (especially inductive loads like motors, coils, etc) might destroy or damage the

module.

ChromoFlex RC CW operates on a frequency of 868.3 Mhz (license free in EC, Switzerland, Norway and Iceland.

Safety Instructions

The modules might produce some heat. Care must be taken to provide unrestricted air ventilation.

The ChromoFlex is equipped with a built-in protection against reverse polarity. Connecting the power in reverse polarity can destroy the module, even if connected for a short time only.

We decline any liability, loss, or damage caused by improperly used modules! Guarantee is also lost in such cases.

Important: Electronics must not be modified. Observe the official regulations for electrical devices (like DIN, VDE, EN), especially when LEDs are used in wet areas!

This product is not a toy, keep away from children!

LEDs can get quite hot. We strongly recommend ensuring maximum operating temperature is not exceeded, because this might reduce the expected life time of the LEDs significantly.

WARNING #1: LED light may have very high intensity even when dimmed. Some modern LEDs are classified by the lasers marking obligation. Particularly in connection with optics also weak LEDs may be very dangerous. Staring into LEDs may cause irreparable damage to the eye's retina. Hence: NEVER STARE INTO THE BEAM. Use diffusers to spread the intensity!

WARNING #2: Please be aware that LED light may cause side effects. This light changes intensity very fast! Changing light may affect the perception and is also known to trigger epileptic seizures in persons who are photosensitive.

Contents

Each ChromoFlex is shipped with this short manual and connectors for power supply and LEDs.

The remote control (Part No: **66000062**) and the USB Dongle (Part No: **66000063**) are optional accessories.

Software / further information

For programming the software ´ChromoFlex Color Editor´ is free for download from our website (address at the end of manual). It will run on any PC available with Windows 98SE, Windows XP and Vista (all trademarks of Microsoft Corp.).

Connecting the LEDs / Power Supply

Important: The module must be operated with a power supply, that is suitable for the used LEDs!

Important: Improper power supplies may lead to malfunctions and unwanted flickering effects or overheating. We strongly recommend using high-quality (stabilised) switching power supplies!

One power supply can be used for several ChromoFlex modules in parallel, if the maximum output power of the supply is observed.

The minimum voltage for correct operation is 7.5 Volts; maximum voltage is 26 Volts (+ 5%).

Model ´Controlled White Stripe´

This model does not have any internal current regulator. Supply voltage is passed through and the voltage of the power supply must match the voltage of the LED stripe.
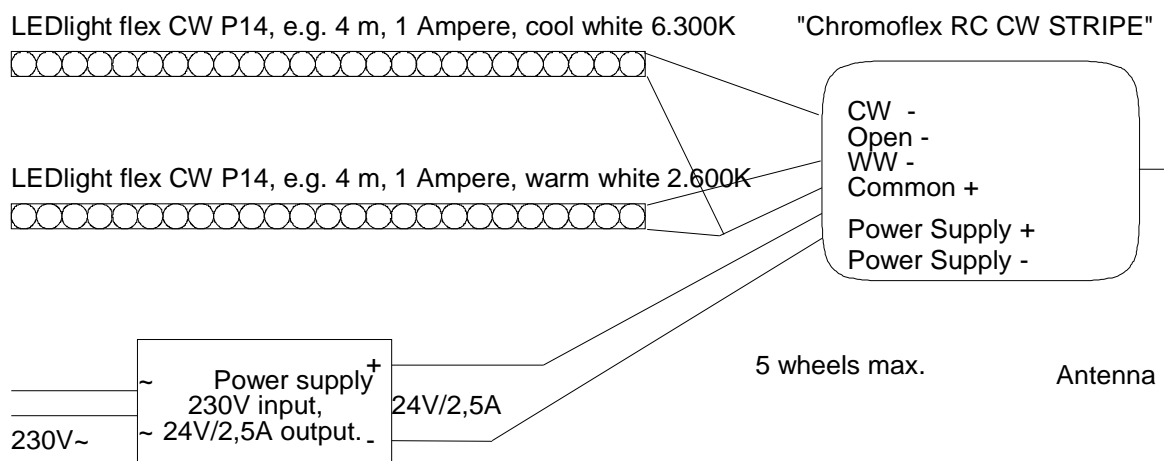
Note: LED stripes of 10 Volts, 12 Volts and 24 Volts are offered on the market. Depending on the cable length used LEDs might need very high currents.

LEDlight flex P14 controlled white LED stripe was exclusively developed for ChromoFlex RC CW. Note: It is available in length of 4.03 metres on wheels.

Example:

ChromoFlex RC CW is able to switch up to 5 Amperes per channel, 10 Amperes in total.

LEDlight flex CW P14, e.g. 4 m, 1 Ampere, cool white 6.300K   "Chromoflex RC CW STRIPE"

LEDlight flex CW P14, e.g. 4 m, 1 Ampere, warm white 2.600K

CW -
Open -
WW -
Common +

Power Supply +
Power Supply -

Power supply +
230V input,
24V/2,5A output. -

230V~   24V/2,5A

5 wheels max.   Antenna

First Test

Installation is very simple when using the connectors enclosed.
At first a test is performed on the module showing warm white and cold white standing for 5 sec each. Then a change through all shades of white is performed repeating every 30 sec.

Diagnostic LED: The modules are equipped with a small red LED. For regular operation this LED will change every 2 seconds and flickers when data is transmitted over the bus.

User Programmes/Shades of White

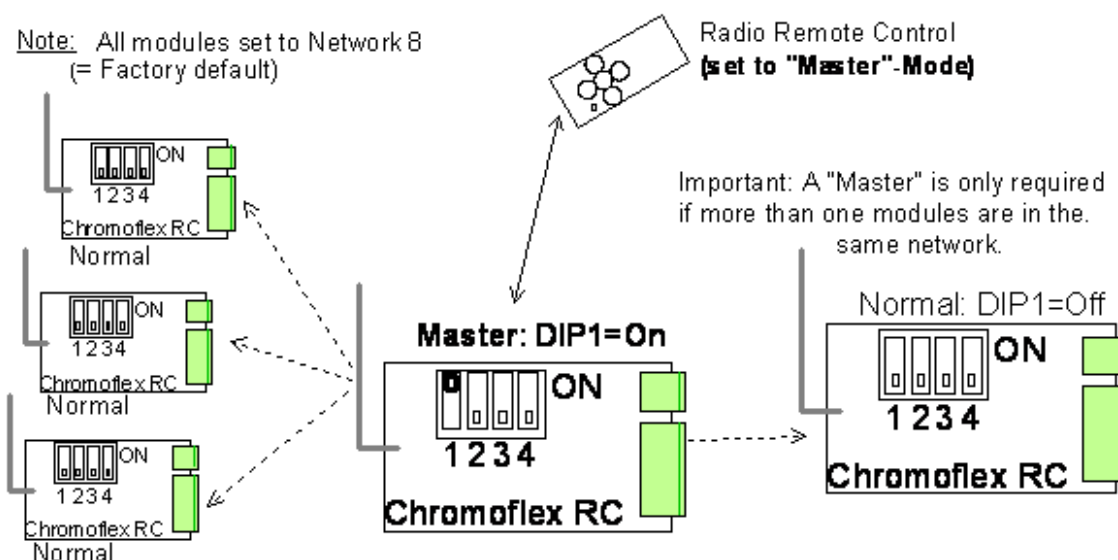ChromoFlex RC CW is equipped with 25 different shades of white. In addition there are 2 programmes existing. The first programme will begin with a change from warm white to cool white and back in 30 sec. The other programme changes from cool white to warm white. For more details see the manual for the Remote Control and the manual for the software of USB-Dongle

Subject due to technical changes

Networking

The ChromoFlex RC CW is working on a radio frequency of 868.3 Mhz. This frequency is often used for other radio controls and wireless sensors. Very strict regulations ensure that operation, free from interference, is possible. Therefore ChromoFlex RC CW uses a bidirectional communication to ensure reliable operation, meaning the Remote Control or the USB-Dongle requires an acknowledgement from the ChromoFlex RC CW.

A basic application is using one ChromoFlex RC CW and either remote control or USB-Dongle. Both units have to be set on the same net. This is also the default factory setup mode (default: network 8).

With several ChromoFlex RC CW modules in one net, the shades of white and the two programmes will run synchronous. Within this net a Master Mode can be set for a single module by using dip switches. It will forward it´s settings (and time base) periodically to all modules in the same net.

Even if other modules, non-masters, are switched on later, they will receive the settings from the Master only a few seconds later.
 The communication of the Radio Remote Control or the PC Dongle with the master is 2-way. The master itself sends signals to the other modules only unidirectional. The data transmission protocol is based on a mathematical algorithm that is very robust against transmission errors. Communication between the modules is safe, because if any packet is lost, the next packet will follow after a few seconds. Even if many packets are lost, the network will still work synchronous.

It proved efficiently in practice to set a module as master in the middle of the network. If one of the other modules is too far from the master, it will not follow reliably to the master's commands.

Note about the range: The Radio Remote Control has a less stronger antenna than the Chromoflex RC modules or the USB Dongle. Normally the range of the Radio Remote Control is below the range of the master to the other modules. To achieve a good performance, we recommend justifing that the antenna of the Chromoflex RC modules is straight ´into the air´. However, dense materials like stone, concrete and metal parts may reduce the range significantly, especially when close to the antenna. In case of weak signal, it is quite enough to move the modules only a few centimetres next to each other.

Subject due to technical changes

DIP-Switches

The selected Network and the Master mode are set with a small 4-DIP switch inside of the module. The top of the cover can be easily removed.

Important: Please do not touch any of the electronic components, because of the risk of damage by electrostatic discharge. We recommend using a small non-conductive tool to change the DIP switches.

Important: Any change of the DIP switches become active after a reset or power on only !

Technical Data:

Operating Voltage: 7 - 26 Volt (+ 5%), stabilised.

Important: The power supply used must be able to bear pulsed loads. Unstabilised or too weak power supplies can cause unwanted flickering effects, especially during colour changes!

Module current (without LED lamps): ca. 20 mA

Operating temperature: 0°C - max. +50°C (recommended: <= 30°C) (Use only in dry places with sufficient air ventilation)

Modulation system: The Chromoflex modules are based on a digital System, called „Vector-Fractal-Modulation" or „VFM". This modulation system was optimised for minimising load on power supplies and has considerable advantages compared to traditional systems. The modulation frequency is in the range from 120 Hz up to (max.) 240 Hz. Patent pending.

´ChromoFlex RC CW`:

Pulsed constant voltage, maximum current 5 Ampere per channel (2 channels).

Contact / Internet:

Download of PC-Software, data sheets , technical support:

www.chromoflex.com , *www.barthelme.eu*

Contact (technical support by Internet / Email only!):

technik@barthelme.eu

Manufacturing, Distribution and Sales:

www.barthelme.eu

Attachment - Module Configuration:

DIP-Switch				Net	Mode
1	2	3	4		
Off	Off	Off	Off	8	Normal**
Off	**On**	Off	Off	7	Normal
Off	Off	**On**	Off	6	Normal
Off	**On**	**On**	Off	5	Normal
Off	Off	Off	**On**	4	Normal
Off	**On**	Off	**On**	3	Normal
Off	Off	**On**	**On**	2	Normal
Off	**On**	**On**	**On**	1	Normal
On	Off	Off	Off	8	Master
On	**On**	Off	Off	7	Master
On	Off	**On**	Off	6	Master
On	**On**	**On**	Off	5	Master
On	Off	Off	**On**	4	Master
On	**On**	Off	**On**	3	Master
On	Off	**On**	**On**	2	Master
On	**On**	**On**	**On**	1	Master

(**: Default / Werkseinstellung)

ON

1 2 3 4

DIP-Switch

Antenna GND

Antenna

Indicator LED

Power Supply
- PWR. -
+ PWR. +

to RGB LEDs
+ ALL +
- WW -
NA
- CW -