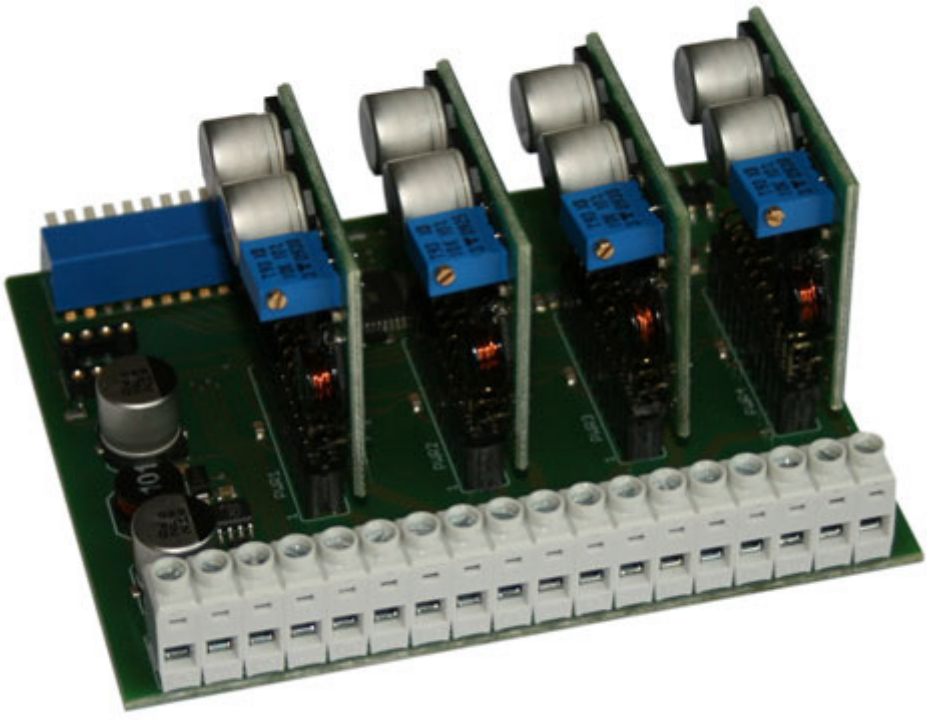
DMX-LED-Dimmer

BB4

4x 330mA - 1500mA

User Manual



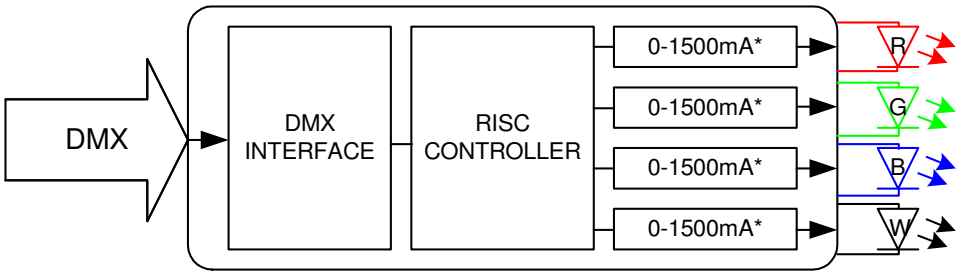
DMX4ALL

WWW.DMX4ALL.EU

Description

The DMX-LED-Dimmer BB4 has 4 Outputs to those LED's can be worked with the power supply from 0 up to 330mA-1500mA. The height of the output current can be adjusted via DMX.
Another DMX Channel can be added and driven as MASTER.

Each output driver comes with a resolution of 1024 steps which regulates the output power. The special driver construction allows a constant power, which is not modulated by the PWM (pulse width modulation).



* max. output current adjustable between 330mA and 1500mA

For operating with 1024 steps per output there are two operation modes available:

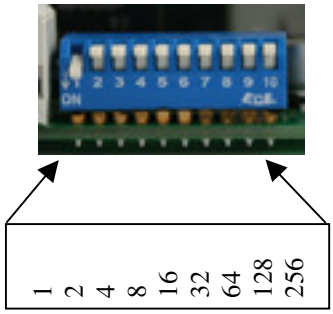
- Controlling with 2 DMX-channels, thereby the first DMX-channel allows the rough tuning an the second allows the subtle tuning;
- Controlling with only one DMX-channel per output, thereby an internal table will be used for assigning the 256 DMX-values to the 1024 output steps. This table is individually adjustable for every output and can be generated with a PC-tool. For transferring a connction cable is needed and available as equipment.

Technical Data

Power supply:	max. 26V DC
Drop-voltage:	max. 2V
Output current:	4x 0 – adjusted output current (330mA – 1500mA) Permanent Short-circuit safe/ 1024 steps per output
Operating modes:	1 DMX-Channel with internal table 2 DMX-Channels for 10-Bit Controlling
DMX-Channels:	4-8 channels depending on configuration Channel 1 / Channel 1+2 = Output current 1 Channel 2 / Channel 3+4 = Output current 2 Channel 3 / Channel 5+6 = Output current 3 Channel 4 / Channel 7+8 = Output current 4 Channel 5 = Masterdimmer (activable)
Dimensions:	99mm x 82mm
Operating temperature:	0°C up to +60°C Shut down temperature Mode per output

Setting the DMX-Starting address

The starting address is adjustable with the DIP-switches. Switch 1 has the valency 2^0 (=1), Switch 2 has the valency 2^1 (=2) and so on… finally Switch 9 has the valency 2^8 (=256). Each Switch, which is moved to ON position, represents the starting address. Switch 10 is reserved for special functions and has to move on OFF via DMX in the normal mode.

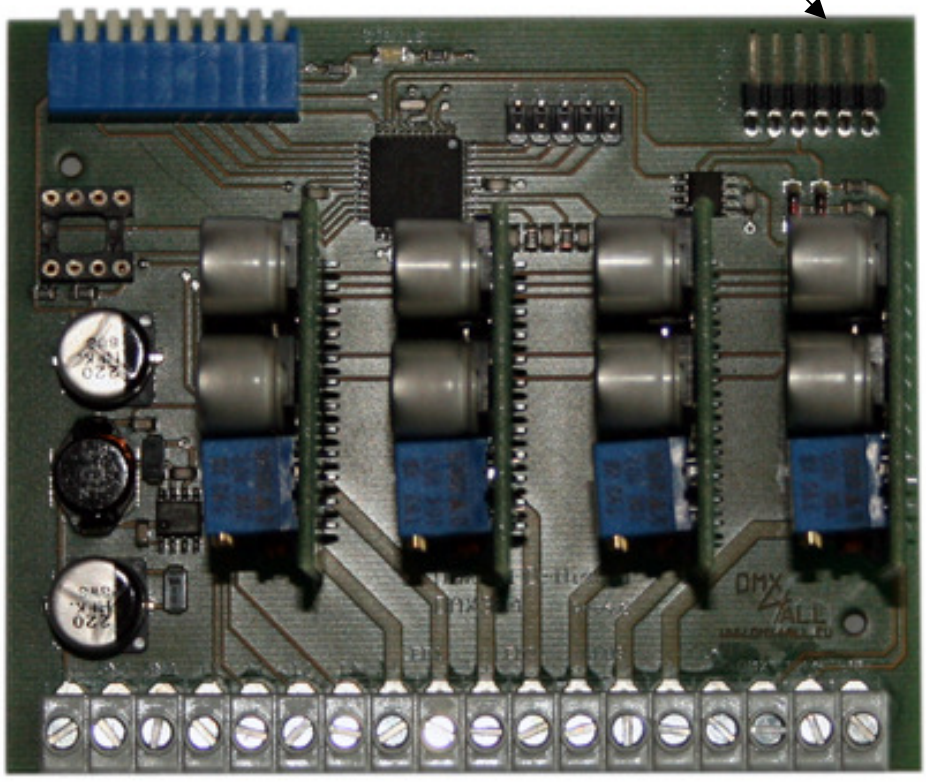


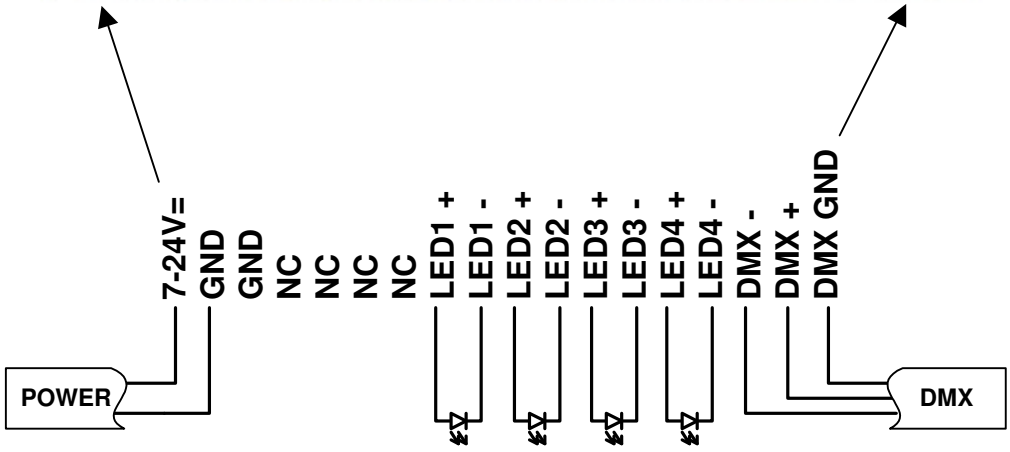
Connections

Warning:
Don't connect the clamps among each other, e.g. V_{IN}- (input) and the clamp LED (output) or the several LED-clamps !!!

Don't connect the single negative outputs to the LED's among each other !!! Not only the LED's will be destroyed but also the drivers.

PC-CTRL
Connection for the PC-Connecting cable (available as equipment)





Setting output current

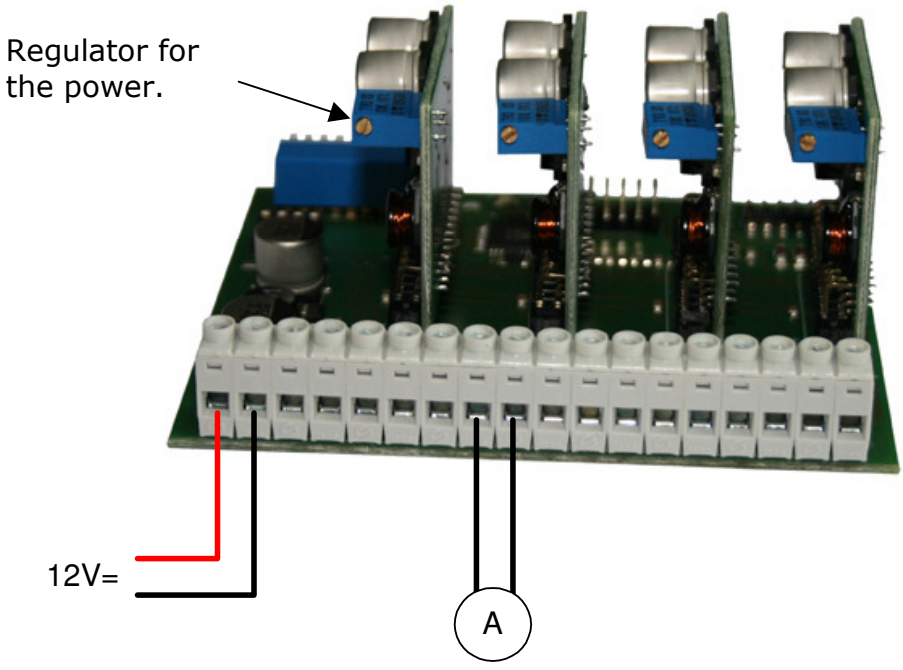
Every output has a regulator for settings adjusting the maximal output current.

The output current is in the range from 330mA up to 1500mA.

⚠ Before connecting a LED to an output please adjust the suitable operating current for the LED !!!
Bevor Sie eine LED an einen Ausgang des LED-Dimmers anschließen, stellen Sie den für dieses LED angegebenen Betriebsstrom ein !!! Only in this case a safety use can be guaranteed.

For adjusting the output current, please proceed as follows:

- Set up the DIP-switch 1 – 5 and 10 to ON
- Connect the power supply
- Now connect a current measurement device to the LED-outputs. The measure range should not be chosen higher than 2A.
- Please adjust now the LED-operating current with help of the regulator for settings.
- Please repeat this measuring and adjusting for every channel.



Note:
To reach an optimal result please adjust a power supply to 12V. If you use a higher power supply it is recommendable to use LED in series to the measure instrument.

Setting operation mode

The DMX-LED-Dimmer BB4 has 2 operation modes which are adjustable with Jumper 3:

Jumper 3 open: Controlling the outputs about a single DMX-channel

The output resolution of 1024 steps will be adjusted to the 256 steps of the DMX-values with a LookUp-table. This LookUp-table is linear programmable for every single output.

Jumper 3 closed: Controlling the outputs about two DMX-channels.

Every output has a resolution of 10 Bit. For a direct responds 2 DMX-Channels per output are needed. The second DMX-channel is a fine adjustment.

Service / Software-Reset

For service you can turn on and off the outputs permanently. Please adjust the switches 5 and 10 on ON. Via switches 1-4 the outputs will be switched on and off.

A RESET of the DMX-LED-Dimmer BB4 into the delivery configuration is possible if you adjust the switch 1, 3, 5, 7, 9 and 10 on ON and than switching on the power supply. After executed reset the DMX-LED lights up.

LED-Display-Codes

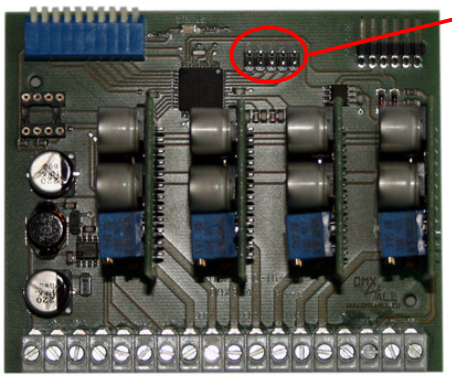
The integrated DMX-LED is a multifunctional display. In the normal operation the LED lights permanently. In this case the device is working.

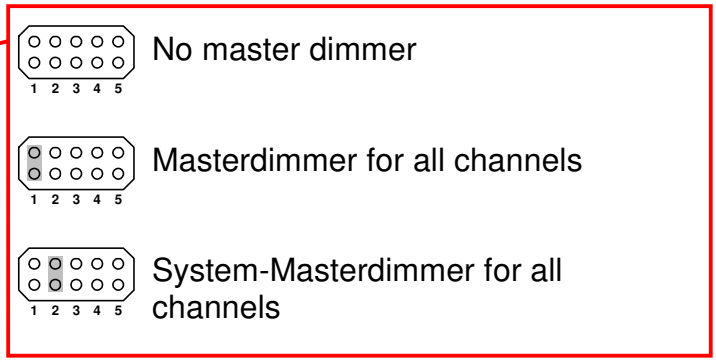
Furthermore the LED signals the events. In this case the LED lights up in short pitches and turning off for al longer period. The Number of flashing signals is equal to the Number of the error status:

Error Status	Error	Description
1	No DMX-signal	There was no DMX-signal recognized
2	Address error	Please check if there is an valid DMX-starting address via DIP-switch adjusted.
3	DMX-signal error	An invalid DMX-Input signal is detected. Please swap the signalling line at the pins 2 and 3 or use a twisted connection cable.

DMX-Master-Dimmer

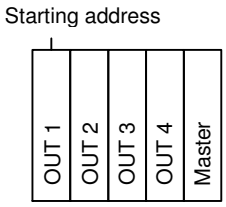
The DMX-LED-Dimmer BB4 has different master dimmer. These ones can be activated about the Jumper 1 and 2 (Jumper 3, 4, and 5 for further functions):



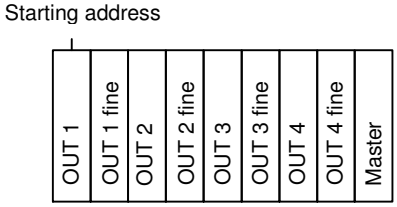


Masterdimmer for all channels

The DMX-channel will be adjusted for the starting address and as master dimmer for all outputs. The assignment of the DMX-addresses is as follows:



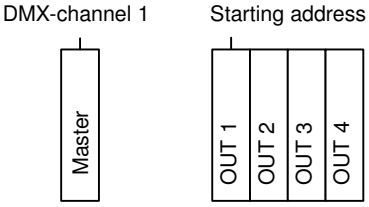
Jumper 3 open



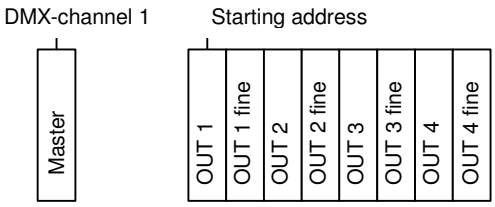
Jumper 3 closed

System-Masterdimmer for all channels

The value for the master dimmer depends on the DMX-channel 1 which is used as master dimmer for all outputs. The DMX-starting address shows the DMX-channel where the DMX-values for the outputs begin. The DMX-address assignment takes place as follows:



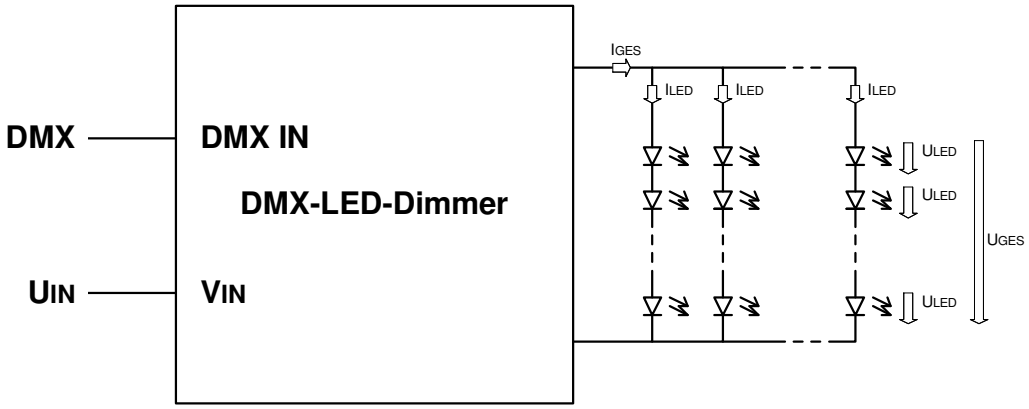
Jumper 3 open



Jumper 3 closed

LED's Connection

The LED's can be connected in different ways, serial and parallel or as mix.



Please keep and note the following introductions:

- Only use the same LED`s to output
- Each LED line must have an equal number of LEDs.
- U_{GES} has to be lower 2V than U_{IN}.
- $I_{GES} = \Sigma I_{LED}$ must comply with the output electric current of the DMX-Dimmer, because the outputs are power regulated.

Example: 24 white 1W LED`s to an output

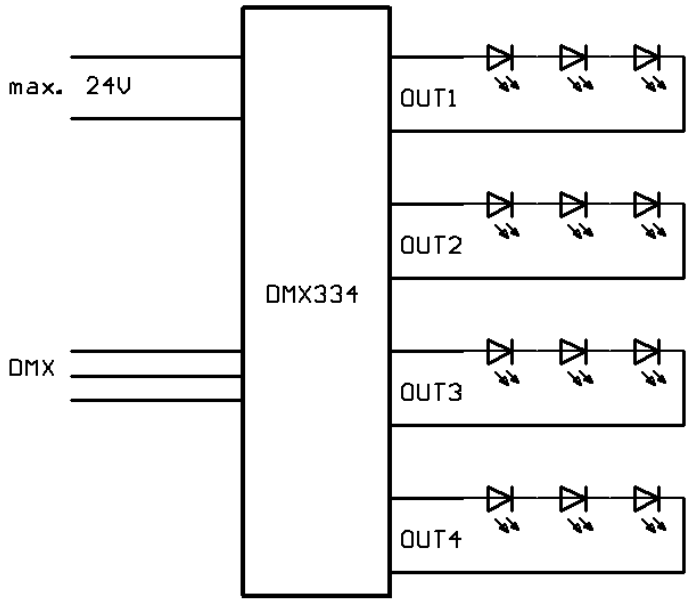
LED-Data: U_{LED} = 3,42V ; I_{LED} = 350mA
Power supply: 24V DC

The connection takes place in 4 paths with each 6 LED's in series

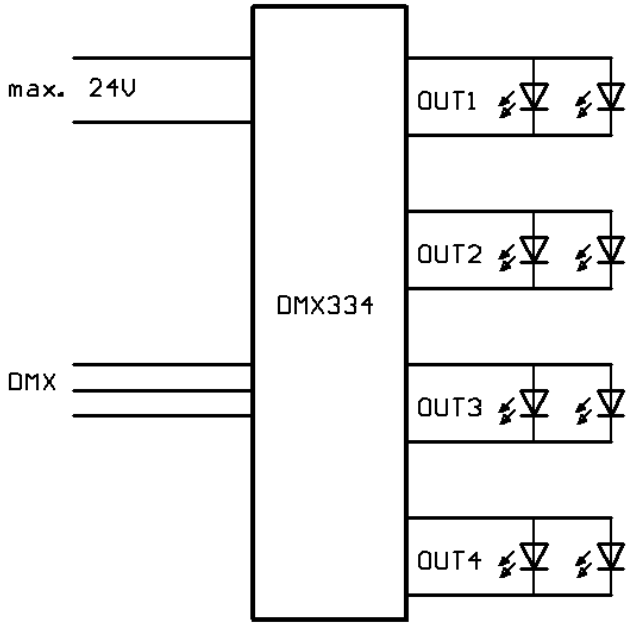
U_{GES} = 6 * 3,42V = 20,52V ✓
I_{GES} = 4 * 350mA = 1400mA ✓

Examples for the LED-connection

Example 1:
Series Connection for LED's gets the same operation current per LED. The sum of the LED tensions at the output has to lay 2V lower to the operation current.

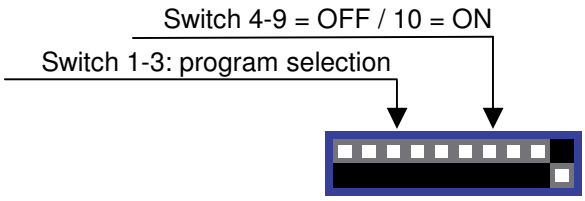


Examle 2:
Parallel connection for LED's the power supply will be shared to the single LED's. The sum of the LED operation flows has to be in accordance to the LED-dimmer!



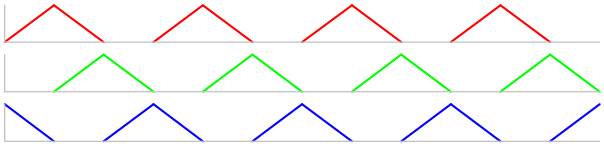
Calling the internal colour changes

You can call the internal colour change by turning switch 10 on ON. Now you can adjust the colour change programs via the switches 1 up to 3.

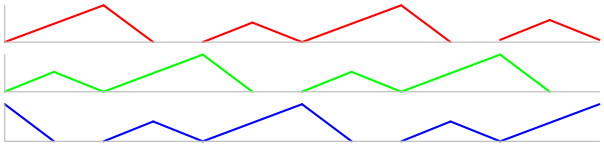


The following colour changes are possible:

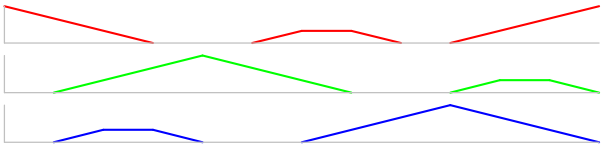
Colour change 1:



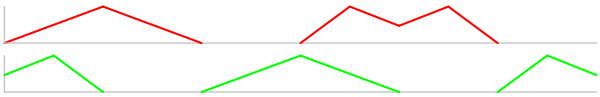
Colour change 2:



Colour change 3:

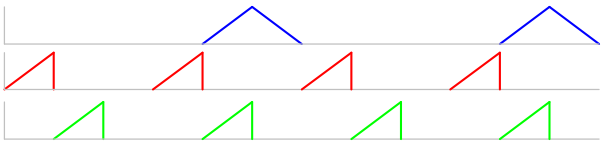


Colour change 4:

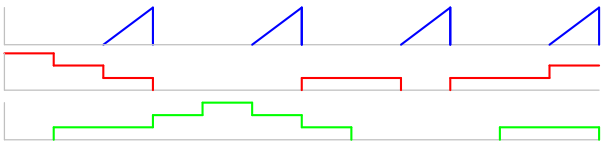


Colour change 5:

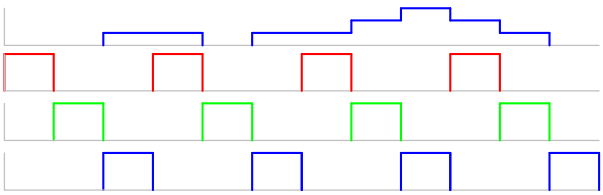
Colour change 6:



Colour change 7:

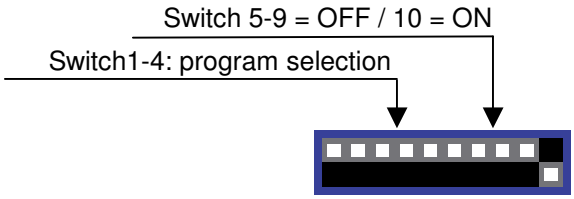


Colour change 8:



Userdefined colour change

The DMX-LED-Dimmer BB4 provides an option to program up to 16 colour changes by using an EERPOM. This can be used if an EEPROM Type 24C64, 24C128 or 24C256 is installed at the IC-socket. Switch 1-4 offers a menu selection for light samples. Move switches 5-9 to OFF and switch 10 to ON to use a user-defined colour change.



Creating a colour change

The colour change will be generated with the help of the DMX-Configurator. The adjustable DMX-channels 1-4 are in accordance to the outputs 1-4. The assignment of the programmable scenes to the selectable light pattern is equal. So, the first scene is equal to the first light pattern (all switches OFF).

Generating the light pattern with the DMX-Configurator is described detailed in the user manual for the program.

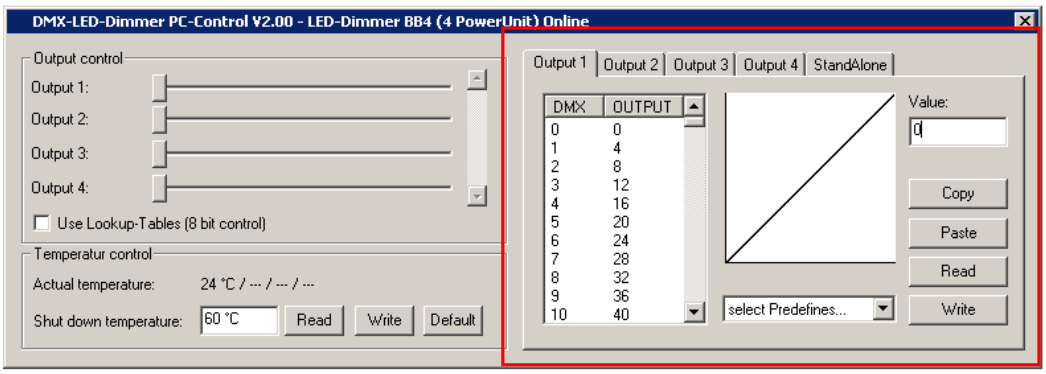
NOTE:
The time units specified by creating the light patterns can differ by replaying. These are only standard values.

Are the desired light patterns created you must generate a programming file for the EEPROM under *File→Export HEX-Datei.* This file must be written into the EEPROM with a customary programming device or with the help of a PC-cable the file must be written directly into the DMX-LED-Dimmer.

Configurating the LookUp-table

The DMX-LED-Dimmer BB4 has a LookUp-table for every output. The received DMX-channel has values between 0-255. The DMX-LED-dimmers output driver offers 1024 steps (0 up to 1023) which will be assigned to the DMX-values.
So, it is possible to effect small steps in the output currents (in the bottom brightness range) for lower brightness changings. On the other hand in the higher brightness range it is possible to program bigger steps in the output current.

The definition for the LookUp-table takes place via PC-control-program. There is a table with DMX-values 0-255 and the associated output values for every output. A graphically representation illustrates the output characteristic.



For transferring the table into the DMX-LED-Dimmer BB4 a connecting cable and a USB-connection is necessary. Please connect the cable with the PC and the PC-CTRL-connection from the DMX-LED-Dimmer BB4. Adjust the switch 1-8 on OFF and switch 9 and 10 on ON to get into the PC-mode.

Select ***Write*** to transfer the table for the displayed output.

⚠ During an activated PC-mode there must be no DMX-signal !

Equipment

Synthetic housing
for top-hat rail mounting, ventilated

LED-Dimmer configuration cable

CE-conformity

This assembly (board) is controlled by a microprocessor and uses high frequency (8MHz). To get the characteristics of the assembly in relation to the CE-conformity, an installation in a compact metal casing is necessary.

Risk-Notes

You purchased a technical product. Conformable to the best available technology the following risks should not excluded:

Failure risk: The device can drop out partially or completely at any time without warning. To reduce the probability of a failure a redundant system structure is necessary.

Initiation risk: For the installation of the board, the board must be connected and adjusted to foreign components according to the device paperwork. This work can only be done by qualified personnel, which read the full device paperwork and understand it.

Operating risk: The Change or the operation under special conditions of the installed systems/components could as well as hidden defects cause to breakdown within the running time.

Misusage risk: Any nonstandard use could cause incalculable risks and is not allowed.

Warning: It is not allowed to use the device in an operation, where the safety of persons depend on this device

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