

World of perfect coloured light



Tailor-made control units for mixing colours with LEDs

OPTOTRONIC for perfect, coloured LED light

Light emitting diodes can make the most of their advantages for colour applications when used with tailor-made OPTOTRONIC control units for colour mixing.

The greatest strengths of LEDs in this context are their compact dimensions, robustness, long service life, low power consumption, electronic controllability, variable emission angle and low maintenance requirement. With the latest product generation of LED modules and control units, OSRAM adds a fascinating variety of colours to these features.

The youngest member of the family, the LINEARlight Colormix, is based on PowerTOP-LED with high luminous intensity. The unique feature is that three semiconductor chips in red, green and blue are accommodated in one LED SMT housing. This makes this module ideally suited to lighting solutions involving colour mixing.

Optimum combination: control gear and LED modules

Like lamps, the OSRAM LED modules are designed for specific voltages of 10 V or 24 V and are operated on specially adapted OPTOTRONIC power supply units.

For instance, the LINEARlight Colormix modules perform at their best on a 24 V OPTOTRONIC power supply with an appropriate controller.



Innovative RGB technology

The magic word in this context is RGB technology, which permits an impressive array of colours. This means that the electronically controlled interplay of red, green and blue LEDs can, in theory, produce all the 16.7 million colours of the visible spectrum.

OSRAM exploits the field of RGB technology even more effectively with the recently

developed OT RGB 3-Channel DIM and OT RGB Sequencer control modules. These devices for dimming LEDs compliment what was already an extensive range of OSRAM products.

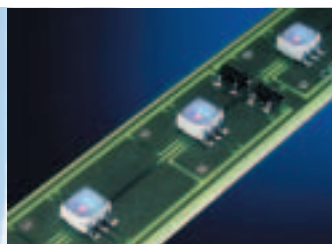
Individual control

The OT RGB 3-Channel DIM control unit for 1...10 V permits the individual mixing of the colours of LED modules by pulse width modulation. The PWM signal with a frequency of 350 Hz is generated from the 1...10 V control voltage and applied to the input DC voltage of 10 V or 24 V.

There are three, independent control circuits per device. As in 1...10 V technology, their control inputs provide the necessary control voltage themselves and are thus also suitable for direct operation with a current-sink potentiometer (100 kW linear), commercially available controllers, computers and complex light management systems, such as DMX.

Built-in dynamics

The OT RGB Sequencer is a 3-channel PWM sequencer that targets the dynamic change of colour of RGB LED modules by pulse width modulation. The PWM signal is generated for each channel by a sequence profile preset at the factory and likewise



LED module for RGB colour mixing

The LINEARlight Colormix module family based on RGB technology stands for optimised (variable) colour mixing. Two versions are available, the LINEARlight Colormix OS-LM 01M-RGB and the LINEARlight Colormix Flex:

- LINEARlight Colormix OS-LM 01M-RGB comes in a length of 450 mm and a width of 11.5 mm and consists of 30 three-colour LEDs
- LINEARlight Colormix Flex comes on flexible circuit board material, has a length of 4,200 mm, a width of 11.5 mm and is equipped with 280 three-colour LEDs

Characteristic features of the module range:

- For 24 V DC supply voltage
- Colour mixing of red, green and blue
- 3-chip LED with high luminous efficacy thanks to the latest opto-semiconductor technologies
- Emission of variable colour light from a single LED
- Optimum uniformity of the colours and the luminous parameters
- Simple control using OSRAM OPTOTRONIC control gear



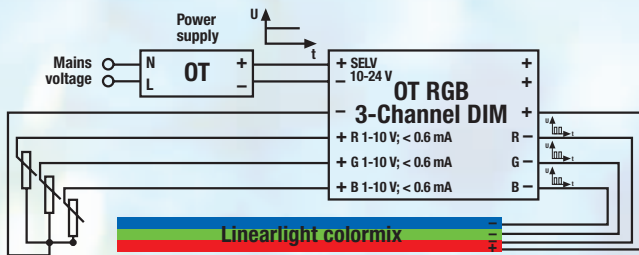


Fig. 1. Wiring of the OT RGB 3-Channel DIM control unit

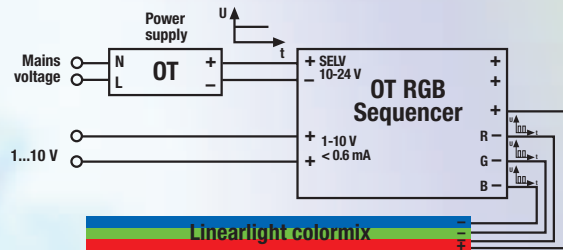


Fig. 2. Wiring of the OT RGB Sequencer control unit

applied to the input DC voltage of 10 V or 24 V. The speed of the sequence can be regulated via the 1...10 V control input. If necessary, one particular colour can also be specifically defined in this way.

The two control units are used on the secondary side of the power supply units, meaning that they are connected between the OPTOTRONIC control gear and the LED modules (Figs. 1 and 2). Integrated in the common positive pole on the secondary side is a device for protection against transient spikes and overvoltage, as well as reverse voltage protection.

The OT RGB 3-Channel DIM and OT RGB Sequencer control units and their capabilities in conjunction with LED modules

- Parallel connection of several LED modules
- Optimised for individual colour control of 10 V and 24 V LED modules
- Low power loss
- Operation at ambient temperatures from $-25\text{ }^{\circ}\text{C}$ to $+50\text{ }^{\circ}\text{C}$
- Compliance with all the relevant Standards for CE marking
- Slim, low-profile housing and with cable clamp which allows for separate installation
- Max. operating current of 2 A per channel/colour, i.e. max. connected load 3 x 20 W for 10 V LED modules and 3 x 48 W for 24 V LED modules
- Output terminals with common positive pole
- Electronic reversible overload, overheating and short-circuit protection
- For controllers with SELV control signal



The OT RGB 3-Channel DIM control unit in detail

- For selecting any colour within the chromaticity triangle
- Three, independent 1...10 V dimming circuits for individual colour control: control inputs suitable for operation with commercially available controllers, linear potentiometers or complex light control systems, e.g. DMX
- The 3-channel 1...10 V control unit can be used to dim LED modules by pulse width modulation at a frequency of 350 Hz

The OT RGB Sequencer in detail

- For dynamic colour changing
- The speed of the preset colour sequence profile can be controlled via a 1...10 V control input
- Functions dependent on the voltage at the control input:
 - ON threshold: 1.3 V
 - Between 1.3 V and 9.8 V: sequence speed between 5 s and 10 min
 - Above 9.8 V: retention of the current colour

The complete system

OT RGB 3-Channel DIM controller and OT RGB Sequencer complete the LED system from OSRAM. Thus, colour control units are now available in addition to LED modules,

OPTOTRONIC power supply units and OT DIM dimming units.

Presenting the market with a system, comprising control gear, dimmer, controllers and lamps, offers advantages not only for the customer. It also opens up new fields of application for LEDs in general

lighting. Whatever the case, the new controllers make it easy and convenient to realise a wide variety of coloured light schemes.

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