

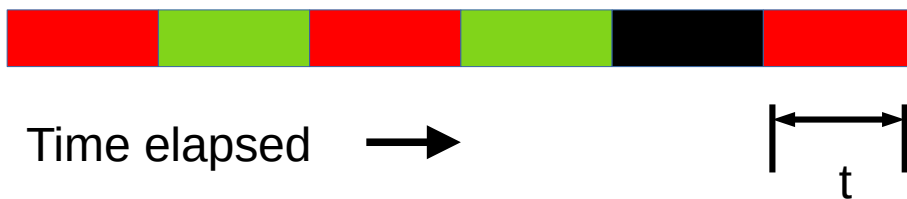
**Tokyo bizchanexpo
Exhibition
Materials**

Under Technology

Diffusion Control Technology

What is Diffusion Control?

Simultaneous light emission is limited to a single color, and the light emission color is changed at a fixed time to achieve the desired composite color.



Advantage

* High and stable luminescent color gradation

Absorbs LED luminance differences by monochromatic light emission. And Fixed time switching eliminates unstable drive due to transient characteristics.

* Increase the purity of white

White, which is emitted by rotating each color, has no increase in brightness and is suitable for adjusting saturation.

* Save power

Since it does not emit light at the same time, it is easy to design the power supply.

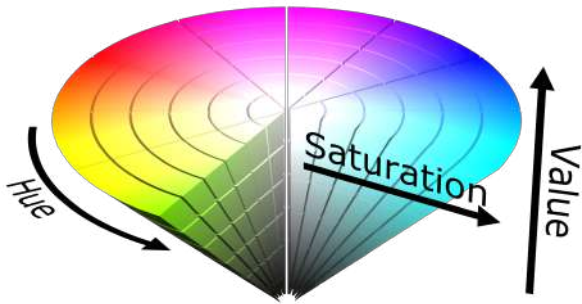
* Support HSV dimming

No numerical conversion is performed.

HSV color space

What is HSV color space?

A color expression method consisting of three components: Hue, Saturation, and Value. It has Expanded the color gamut.



The concept of Value is particularly characteristic and was proposed by *Mr. Munsell*. And Value, which is an abstract expression, is not Lightness.

Advantages over RGB color space

* Close to human senses

The adjustment method for each component is easy to understand, and it is easy to adjust the light to the desired color. Color harmony adopts aesthetic measure in *Moon-Spencer theory*.

* Wide color gamut

By treating saturation as the amount of white mixed and value as the amount of black mixed, it becomes equivalent to the *Ostwald color system*.

Important: For accurate color reproduction, surround the LED with a milky white dome and make the base black.



Ciel&Lune

Introducing typical dimming modes using diffusion control. Installed in the dimming chip "Ciel & Lune mini".

Ciel Mode **Manipulate light and shadow. Sun-like**

Control items: HUE, SATURATION, VALUE

HUE determines the pure color by the mixing ratio of two colors, SATURATION determines the white mixing ratio by rotation, and VALUE determines the black mixing ratio by turning off all lights.

Lune Mode **Manipulate the changing light. Moon-like**

Control items: COLOR, DEPTH, SPEED

COLOR decides the central hue, DEPTH decides the range of hue change and whether or not to blink, and SPEED decides the speed of change.

Motor Effect

Each element changes smoothly when the color changes.

Fade Effect

Slowly turn off and then slowly turn on with a new color.

Random hue

Randomly determine the Hue value when the sequence is executed.



Lighting Composer

Remote Communication control from host

The dimming chip is controlled by serial communication from a computer. Multiple dimming chips can be supported by cascade connect. Since it is a dotnet environment, it is compatible with multiple OS.

```
Ciel&Lune remote 1.0.0 on COM1
Type QUIT to exit, HELP to display commands
$ bank basic.bnk
# basic color
Read 64 bytes 16 colors
$
```

Bank color control

Specify a color that corresponds to both Ciel and Lune. Colors can be easily changed by collectively describing them.

Score sequence control

Describe color information and lighting time in order. Various effects and repeat can also be specified. The data compiled together with the bank is built into the chip.

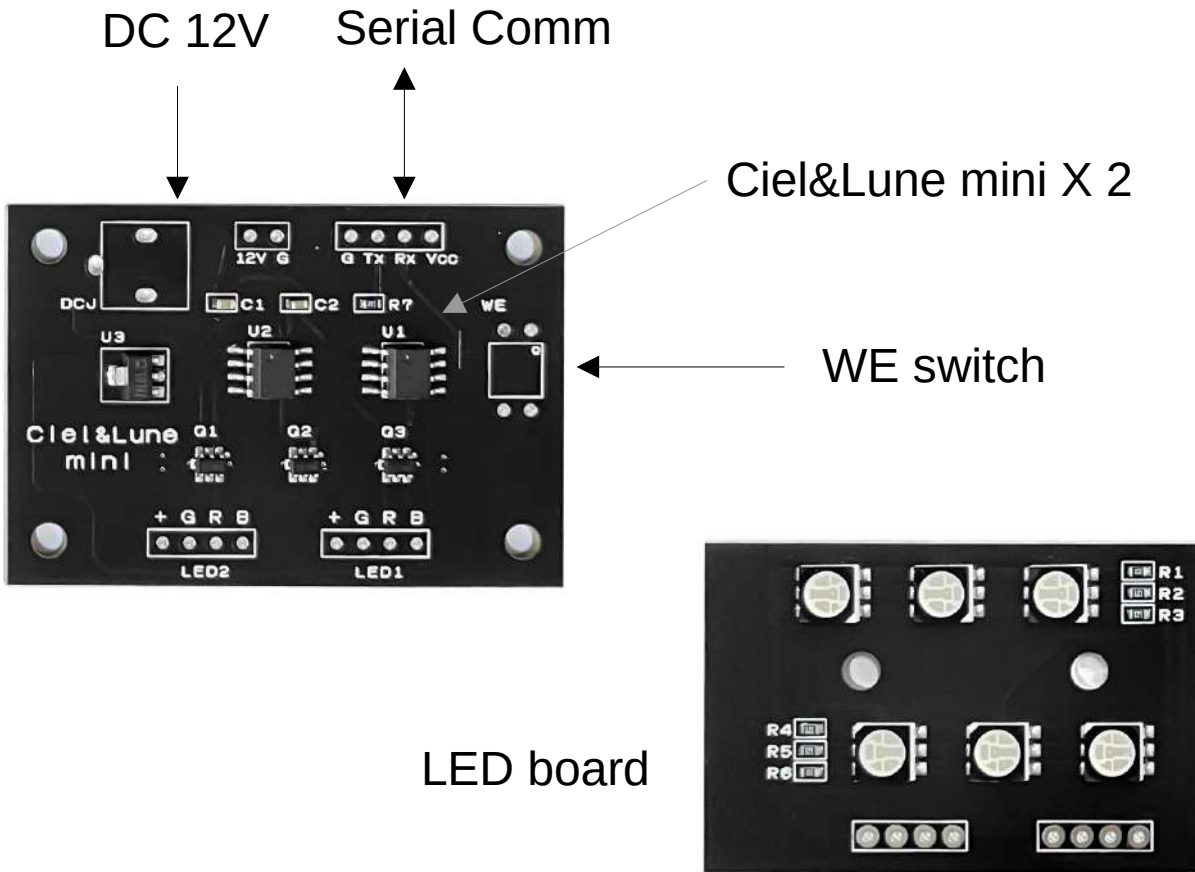
```
# basic color
00-00-00-00 red
00-80-00-00 blue
00-40-00-00 green
00-00-FF-00 white
00-20-00-00 yellow
00-60-00-00 cyan
00-A0-00-00 magenta
```

Bank Sample

```
bank basic
start:
blue      5
green     6
rep1      start
yellow    7
cyan      8
jmp       start
```

Score Sample

Dimming chip evaluation board



Daisy chain connection

