

## Introduction

Within the Pharos System, there are various ways to control white, dynamic white and RGB White fixtures.

This AppNote will show the Generic fixtures to download from the Online Fixture library to allow the control type. Most specific fixtures will use the standard or balanced mode.

## White

### White

There are two fixture profile options for White control, LED - White and Conventional. These both allow direct control of the level of the single white channel, but are rendered differently on the Layout for Simulation.

Fixtures:

- LED - White 8 bit
- LED - White 16 bit
- Conventional 8 bit
- Conventional 16 bit

### RGBW

The standard RGBW profile will control the white channel as the inverse of the saturation of the chosen colour. The RGB levels will decrease to match the saturation. This produces the best colour output, though doesn't allow all 4 channels to be active at once.

Fixtures:

- LED - RGBW 8 bit
- LED - RGBW 16 bit

### RGBW Split

The RGBW Split profile will create a fixture with an RGB element and a White element. This allows direct control of the RGB levels and the White level, meaning that you could set all 4 channels to full. The fixture on the plan does, however, show two separate elements.

To set the levels individually, in Timeline Mode, select the fixture in the fixture browser on the left hand side and expand it using the plus (+) button. This will give you access to the RGB and White elements.

Fixtures:

- LED - RGBW 8 bit Split
- LED - RGBW 16 bit Split

### RGBW Additive

The RGBW Additive profile will perform the same as the standard RGBW profile, but the RGB levels are not reduced by the saturation, meaning when White is selected for the fixture, all 4 channels will be on at full.

Fixtures:

- LED - RGBW 8 bit Additive
- LED - RGBW 16 bit Additive

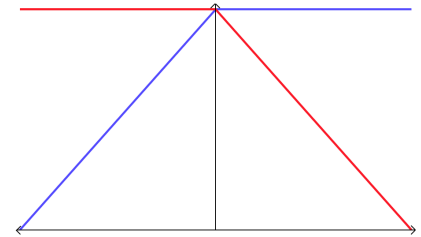
## Dynamic White

### 2-White

When working with a 2 white fixture (Warm White, Cool White or Cool White, Warm White), the default behaviour is to have both channels at full at a colour temperature setting of 128, and have one colour fade out towards 0 or 255.

Fixtures:

- LED - Warm/Cool White 8 bit
- LED - Warm/Cool White 16 bit
- LED - WwCwl 8 bit
- LED - WwCwl 16 bit
- LED - IWwCw 8 bit
- LED - IWwCw 16 bit
- LED - ICwWw 8 bit
- LED - ICwWw 16 bit
- LED - CwWw 8 bit
- LED - CwWw 16 bit
- LED - CwWwl 8 bit
- LED - CwWwl 16 bit



### 3-White

Three channel dynamic white fixtures have a Warm White, Neutral White and Cool White channel, which are generally arranged as wWnWcW or cWnWwW.

There are three ways to adjust the output levels based upon the colour temperature setting:

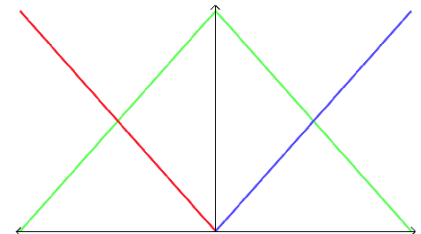
- Balanced
- Additive
- Subtractive

#### Balanced

The balanced option ensures that only one channel is ever on in full, and the Colour Temperature changing will transition between the three channels.

Fixtures:

- LED - WwNwCw 8 bit balanced
- LED - WwNwCw 16 bit balanced
- LED - WwNwCwl 8 bit balanced
- LED - WwNwCwl 16 bit balanced
- LED - IWwNwCw 8 bit balanced
- LED - IWwNwCw 16 bit balanced
- LED - ICwNwWw 8 bit balanced
- LED - ICwNwWw 16 bit balanced
- LED - CwNwWw 8 bit balanced
- LED - CwNwWw 16 bit balanced
- LED - CwNwWwl 8 bit balanced
- LED - CwNwWwl 16 bit balanced

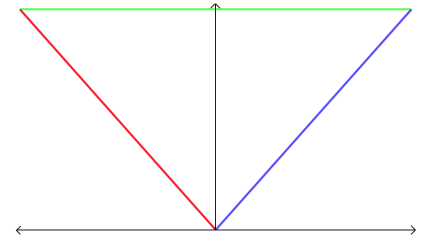


## Additive

The Additive option sets the Neutral White to full, and adds the Warm White or Cool White according to the Colour Temperature level.

Fixtures:

- LED - WwNwCw 8 bit additive
- LED - WwNwCw 16 bit additive
- LED - WwNwCwl 8 bit additive
- LED - WwNwCwl 16 bit additive
- LED - IWwNwCw 8 bit additive
- LED - IWwNwCw 16 bit additive
- LED - ICwNwWw 8 bit additive
- LED - ICwNwWw 16 bit additive
- LED - CwNwWw 8 bit additive
- LED - CwNwWw 16 bit additive
- LED - CwNwWwl 8 bit additive
- LED - CwNwWwl 16 bit additive

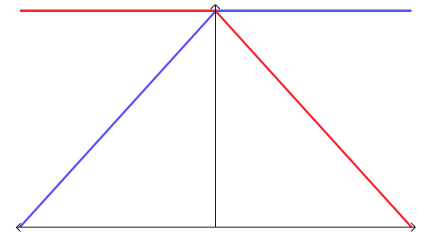


## Subtractive

The Subtractive option sets all channels to full and reduces the Cool White as the Colour Temperature gets warmer and reduces the Warm White as the Colour Temperature gets cooler.

Fixtures:

- LED - WwNwCw 8 bit subtractive
- LED - WwNwCw 16 bit subtractive
- LED - WwNwCwl 8 bit subtractive
- LED - WwNwCwl 16 bit subtractive
- LED - IWwNwCw 8 bit subtractive
- LED - IWwNwCw 16 bit subtractive
- LED - ICwNwWw 8 bit subtractive
- LED - ICwNwWw 16 bit subtractive
- LED - CwNwWw 8 bit subtractive
- LED - CwNwWw 16 bit subtractive
- LED - CwNwWwl 8 bit subtractive
- LED - CwNwWwl 16 bit subtractive



## RGB with Dynamic White

### 2-White

When a 2-White fixture is combined with an RGB fixture to get an RGBwWcW or RGBcWwW, by default the fixture will use Balanced mode, Additive mode is available as well.

#### Balanced

If the white mode is not set, the White will be set by the inverse of the saturation of the RGB colour (as with the RGBW fixture), and the relative levels of the Whites is set by the Colour Temperature setting.

Fixtures:

- LED - RGBWwCw 8 bit - balanced
- LED - RGBWwCw 16 bit - balanced
- LED - RGBCwWw 8 bit - balanced
- LED - RGBCwWw 16 bit - balanced

**Additive**

The Additive option will combine the 2-White functionality with the RGBW Additive functionality. Adjusting the saturation of the RGB colour will change the brightness of the White, but not adjust the RGB levels. The Colour Temperature setting will adjust the relative levels of the White channels in the same way.

Fixtures:

- LED - RGBWwCw 8 bit - additive
- LED - RGBWwCw 16 bit - additive
- LED - RGBCwWw 8 bit - additive
- LED - RGBCwWw 16 bit - additive

**3-White****Balanced**

In Balanced Mode, the White will be scaled up as the Saturation of the RGB colour is decreased, and the RGB levels will be reduced accordingly.

Fixtures:

- LED - RGBWwNwCw 8 bit - balanced
- LED - RGBWwNwCw 16 bit - balanced
- LED - RGBCwNwWw 8 bit - balanced
- LED - RGBCwNwWw 16 bit - balanced

**Additive**

In Additive Mode, the White will be scaled up as the Saturation of the RGB colour is decreased.

Fixtures:

- LED - RGBWwNwCw 8 bit - additive
- LED - RGBWwNwCw 16 bit - additive
- LED - RGBCwNwWw 8 bit - additive
- LED - RGBCwNwWw 16 bit - additive

**Subtractive**

In Subtractive mode, the White will be scaled up as the Saturation of the RGB colour is decreased, and the RGB levels will be reduced accordingly.

Fixtures:

- LED - RGBWwNwCw 8 bit - subtractive
- LED - RGBWwNwCw 16 bit - subtractive
- LED - RGBCwNwWw 8 bit - subtractive
- LED - RGBCwNwWw 16 bit - subtractive

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## Further Information

For more information about custom fixture personalities, please see the Creating Custom Fixtures AppNote. If you need any further information, please contact Pharos Support.