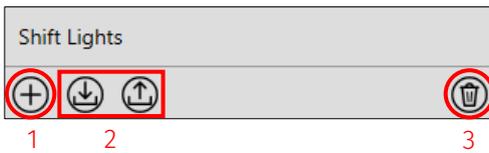


Shift light overview

The **Shift Lights** node is used to configure the shift lights on display devices such as the CDU range and the CCW Mk2 and CCW Mk3.

Add a new shift light pattern

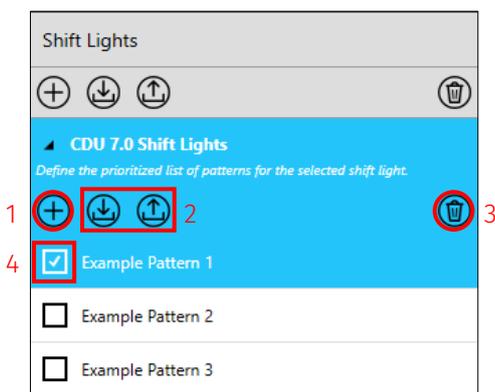
The first step to add a new shift light configuration is to add a new shift light pattern group. Use the + tool to add a new shift light pattern group (1). You can import and export shift light pattern groups between existing setups (2). Use the 'bin' tool to delete an unwanted shift light pattern group (3).



You can enter a name for the new group (1) and add an optional comment about the group (2). The number of LEDs for the pattern group must be set (3). For example, a pattern group for CDU 7.0 with 10 shift lights is set to 10 LEDs. You can select an option to **Flash if all LEDs are lit** (4). This is useful for alerting the driver to shift gear.

General	
1	Name <input type="text" value="CDU 7.0 Shift Lights"/>
2	Description <input type="text" value="Example Shift Light Pattern for User Guide"/>
3	Number of LEDs <input type="text" value="10"/>
4	Flash if all LEDs are lit <input checked="" type="checkbox"/>

You can then add shift light patterns. Click the + tool within the pattern group to add a new pattern (1). You can import and export patterns between existing setups (2). Use the 'bin' tool to delete a pattern (3). Enable or disable patterns from the setup using the 'Enable' check box (4).



Configure shift light patterns

To configure a shift light pattern, click the shift light pattern group to select the input channels to drive the shift light pattern.

Two channels are required for the 'Row Selector Channel' and 'Threshold Channel'. The 'Row Selector' channel is most likely to be the 'Gear' channel (1) and the 'Threshold' channel is most likely to be RPM (2). Click on the 'browse' buttons to select another channel. You must configure the units for the Threshold Channel value (3).

Inputs

Configure the channels used to drive the shift lights.

1 Row Selector Channel Gear

2 Threshold Channel RPM

3 Threshold values in: angular velocity rpm

To configure the shift light pattern, select the new pattern from the menu (1). You can name the pattern (2) and add an optional comment (3).

The pattern is configured using the pattern table (4). Configure the table with the required number of rows (for example, gears) and thresholds/columns (for example, RPM breakpoints) (5). You can add rows and thresholds and delete them with the + and 'bin' tools (6). You can import and export Pattern tables between existing setups (7).

Note: You can create shift light pattern tables in Excel and copy and paste them into Toolset. This allows you to create complex tables that require calculations to define the thresholds, saving time and simplifying the process.

Shift Lights

CDU 7.0 Shift Lights

Define the prioritized list of patterns for the selected shift light.

1 Example Pattern 1

Example Pattern 2

Example Pattern 3

General

Name Example Pattern 1 2

Description Example Pattern for User Guide 3

Enabled

Thresholds and Patterns

Configure the thresholds above which each LED pattern configuration should illuminate.

Dimensions 10 Columns × 7 Rows 5

7

6

LED Pattern Configuration

	0	1	2	3	4	5	6	7	8	9
0	4500	4750	5000	5250	5500	5750	6000	6000	6000	6000
1	5500	5666	5832	5998	6164	6330	6496	6662	6828	6994
2	5500	5666	5832	5998	6164	6330	6496	6662	6828	6994
3	5650	5800	5950	6100	6250	6400	6550	6700	6850	7000
4	5750	5885	6020	6155	6290	6425	6560	6695	6830	6965
5	5800	5933	6066	6199	6332	6465	6598	6731	6864	6997
6	5800	5933	6066	6199	6332	6465	6598	6731	6864	6997

4

Click a cell in the table to configure the LED pattern (1). Select which LEDs are on for the cell by clicking LEDs within the LED strip (2). The LED strip shows a preview of how LEDs light up based on the thresholds. Green circles indicate LEDs that will be lit. Click them to toggle them on/off.

LED Pattern Configuration

	0	1	2	3	4	5	6	7	8	9
0	4500	4750	5000	5250	5500	5750	6000	6000	6000	6000
1	5500	5666	5832	5998	6164	6330	6496	6662	6828	6994
2	5500	5666	5832	5998	6164	6330	6496	6662	6828	6994
3	5650	5800	5950	6100	6250	6400	6550	6700	6850	7000
4	5750	5885	6020	6155	6290	6425	6560	6695	6830	6965
5	5800	5933	6066	6199	6332	6465	6598	6731	6864	6997
6	5800	5933	6066	6199	6332	6465	6598	6731	6864	6997

The LEDs will be lit as below for the selected threshold and pattern.
Click an LED to switch it On/Off. (On = green, Off = black).

LED Pattern 2

This allows you to configure various LED patterns. For example:

- Left to right increment

LED Pattern Configuration

	0	1	2	3	4	5	6	7	8	9
0	4500	4750	5000	5250	5500	5750	6000	6000	6000	6000
1	5500	5666	5832	5998	6164	6330	6496	6662	6828	6994
2	5500	5666	5832	5998	6164	6330	6496	6662	6828	6994
3	5650	5800	5950	6100	6250	6400	6550	6700	6850	7000
4	5750	5885	6020	6155	6290	6425	6560	6695	6830	6965
5	5800	5933	6066	6199	6332	6465	6598	6731	6864	6997
6	5800	5933	6066	6199	6332	6465	6598	6731	6864	6997

The LEDs will be lit as below for the selected threshold and pattern.
Click an LED to switch it On/Off. (On = green, Off = black).

LED Pattern

- Increment to centre

LED Pattern Configuration

	0	1	2	3	4	5	6	7	8	9
0	4500	4750	5000	5250	5500	5750	6000	6000	6000	6000
1	5500	5666	5832	5998	6164	6330	6496	6662	6828	6994
2	5500	5666	5832	5998	6164	6330	6496	6662	6828	6994
3	5650	5800	5950	6100	6250	6400	6550	6700	6850	7000
4	5750	5885	6020	6155	6290	6425	6560	6695	6830	6965
5	5800	5933	6066	6199	6332	6465	6598	6731	6864	6997
6	5800	5933	6066	6199	6332	6465	6598	6731	6864	6997

The LEDs will be lit as below for the selected threshold and pattern.
Click an LED to switch it On/Off. (On = green, Off = black).

LED Pattern

- Missing LEDs

LED Pattern Configuration

	0	1	2	3	4	5	6	7	8	9
0	4500	4750	5000	5250	5500	5750	6000	6000	6000	6000
1	5500	5666	5832	5998	6164	6330	6496	6662	6828	6994
2	5500	5666	5832	5998	6164	6330	6496	6662	6828	6994
3	5650	5800	5950	6100	6250	6400	6550	6700	6850	7000
4	5750	5885	6020	6155	6290	6425	6560	6695	6830	6965
5	5800	5933	6066	6199	6332	6465	6598	6731	6864	6997
6	5800	5933	6066	6199	6332	6465	6598	6731	6864	6997

The LEDs will be lit as below for the selected threshold and pattern.
Click an LED to switch it On/Off. (On = green, Off = black).

LED Pattern

Multiple shift light patterns

You can add multiple shift light patterns to a shift light pattern group. If you add multiple shift light patterns, then you must configure the shift light pattern selector on the **Shift Lights** pattern group page. Click the shift light pattern group (1), select whether a Bit-field Channel, Strategy, or Switch is used to select the pattern (2), and the select an available channel from the 'browse' menu (3).

Shift Lights

General

Name: CDU 7.0 Shift Lights

Description: Example Shift Light Pattern for User Guide

Number of LEDs: 10

Flash if all LEDs are lit:

Inputs

Configure the channels used to drive the shift lights.

Row Selector Channel: Gear

Threshold Channel: RPM

Threshold values in: angular velocity rpm

Pattern Selector

If multiple patterns are enabled select the bit-field channel, strategy or switch used to select the active pattern configuration.

Strategy Moving

Bit-field Channel

Strategy

Switch

1

2

3

When you configure the pattern selector, the **Condition** box is displayed on the **Shift Lights** pattern page. You can select the condition that triggers the shift light pattern.

Shift Lights

General

Name: Example Pattern 1

Description: Example Pattern for User Guide

Enabled:

Condition: Moving

Stationary

Moving

Thresholds and Patterns

Configure the thresholds above which each LED pattern configuration should illuminate.

Dimensions: 10 Columns × 7 Rows

LED Pattern Configuration

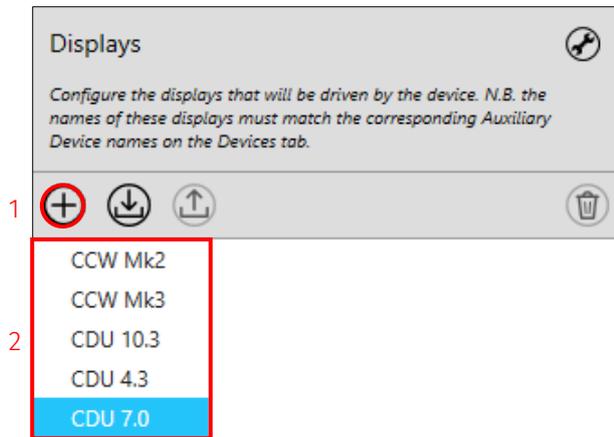
	0	1	2	3	4	5	6	7	8	9
0	4500	4750	5000	5250	5500	5750	6000	6000	6000	6000
1	5500	5666	5832	5998	6164	6330	6496	6662	6828	6994
2	5500	5666	5832	5998	6164	6330	6496	6662	6828	6994
3	5650	5800	5950	6100	6250	6400	6550	6700	6850	7000
4	5750	5885	6020	6155	6290	6425	6560	6695	6830	6965
5	5800	5933	6066	6199	6332	6465	6598	6731	6864	6997
6	5800	5933	6066	6199	6332	6465	6598	6731	6864	6997

1

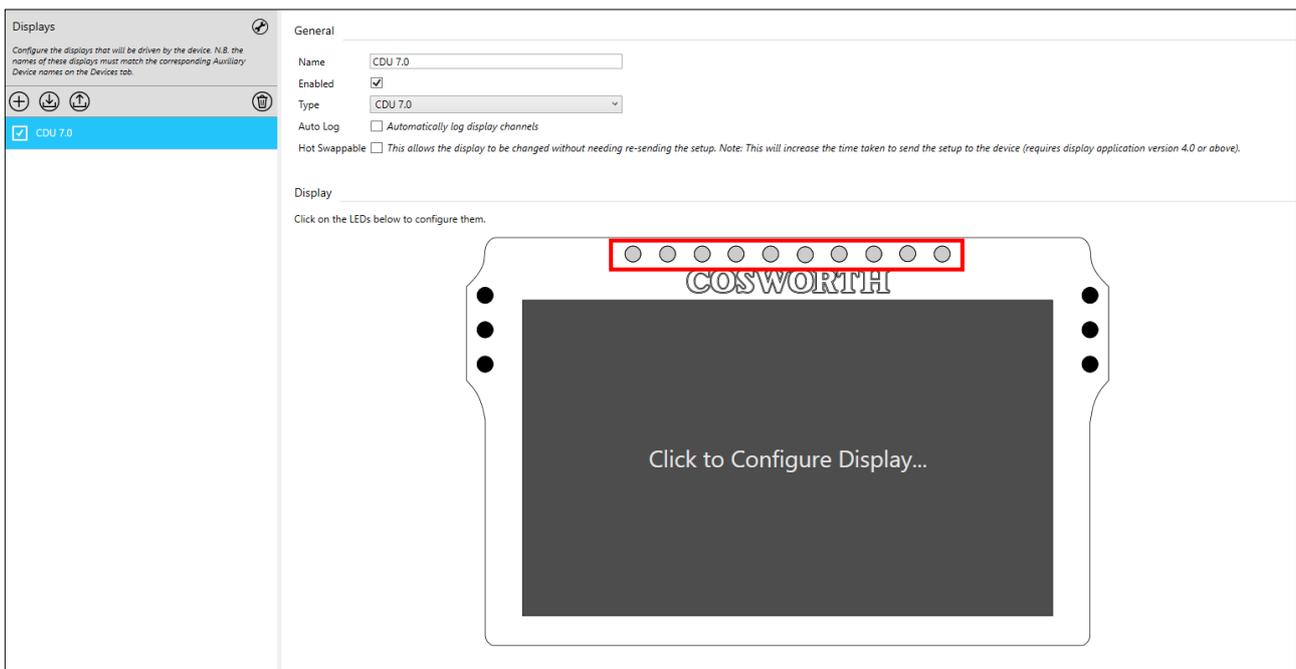
2

Apply shift lights to a display device

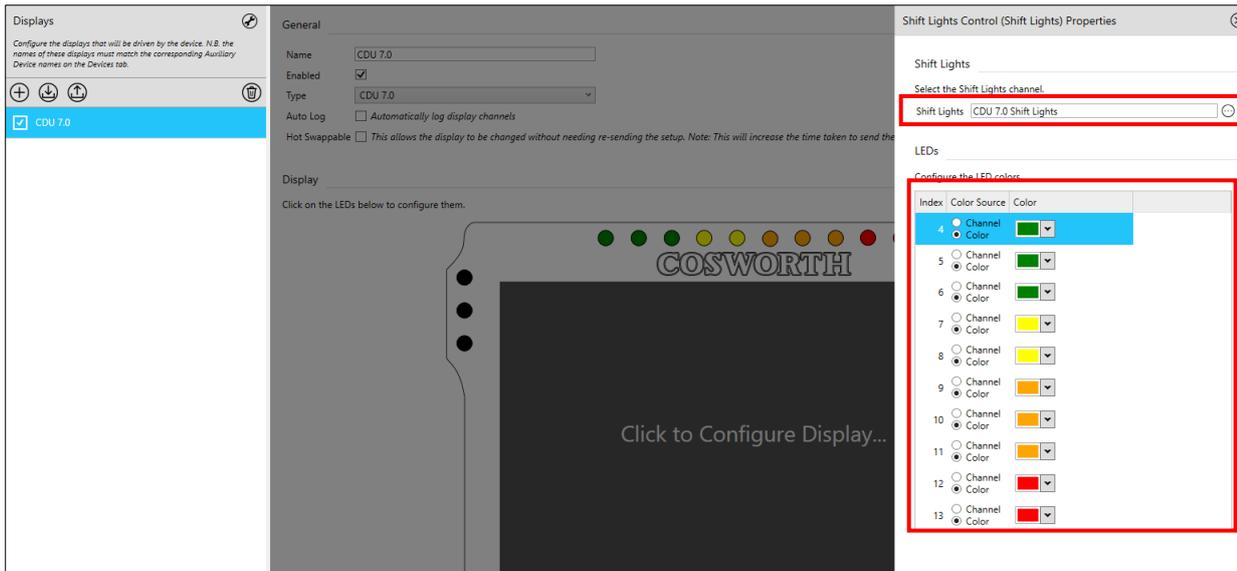
Once you configure a shift light pattern you can apply it to the display device. On the Displays node, use the + tool to add a display (1), and then select the required device from the menu (2).



Click the shift lights at the top of the display to open the **Shift Lights Control Properties** menu.

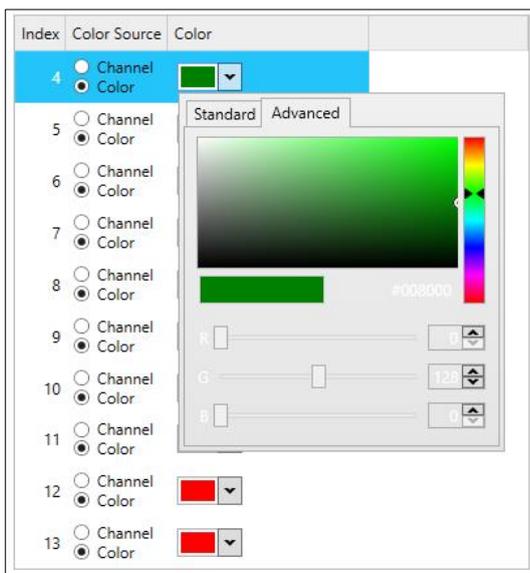


Select the shift light pattern from the menu (1) and configure the colour for each shift light (2)



Shift light colours (static and dynamic)

You can select the colour of a shift light to be a static colour. Select the source as 'Color' and select the required colour from the **Standard** or **Advanced** colour menus.



You can also set a dynamic shift light colour where the colour changes according to one or more condition(s). Select 'Channel' as the source and a configured colour channel (see **Maths Channels – Color Control** for more information).

For example, the following maths channel sets a shift light to cyan if 'Wet Mode' is active, and yellow if 'Wet Mode' is not active.

```
Equation
Edit the equation that determines the value of this math channel.
1 Choose([Wet Mode] == 1, color(cyan), color(yellow))
```