SETIIDS _ SHIFT LIGHTS	Revision	
	Date	

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).

Shift Lights	
1 2	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	CDU 7.0 Shift Lights	
2	Description	Example Shift Light Pattern for User Guide	
3	Number of LEDs	10 🗢	
4	Flash if all LEDs are lit		

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 us	ed 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	Ger	eral											
		Nam	ame Example Pattern 1											
	CDU 7.0 Shift Lights	Desc	riptic	n Examp	le Pattern fo	or User Gui	de		3					
	Define the prioritized list of patterns for the selected shift light.	Enat	Enabled 🗸											
) Thr	sho	ds and Pa	attorns									
1	Example Pattern 1	Con	ioure	the thresh	olds above	which each	LED natter	n configura	tion should	illuminate				
	Example Pattern 2	Din	Dimensions 10 Columns × 7 Rows 5											
	Example Pattern 3	Ð	⊕											
			LED	Pattern C	onfiguratio	on 🕀 (đ							
				0	1	2	3	4	5	6	7	8	9	
		Ð	0	4500	4750	5000	5250	5500	5750	6000	6000	6000	6000	
		W	1	5500	5666	5832	5998	6164	6330	6496	6662	6828	6994	
			2	5500	5666	5832	5998	6164	6330	6496	6662	6828	6994	
		4	з	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	



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.

-		0	1	2	3	4	5	6	7	8	9
シ	0	4500	4750	5000	5250	5500	5750	6000	6000	6000	6000
D)	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	1 6465	6598	6731	6864	6997
	6	5800	5933	6066	6199	6332	6465	6598	6731	6864	6997

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

6864 6997

- LED Pattern Configuration 🕀 🍿 1 2 3 4 5 6 7 8 9 \oplus 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 (+) (1) 0 1 2 3 4 5 6 7 8 \oplus
- Left to right increment



Missing LEDs

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).

5 5800 5933 6066 6199 6332 6465 6598

6 5800 5933 6066 6199 6332 6465 6598 6731 6864 6997

LED Pattern

•

~		0	1	2	3	4	5	6	7	8	9
(†) (†)	0	4500	4750	5000	5250	5500	5750	6000	6000	6000	600
1	1	5500	5666	5832	5998	6164	6330	6496	6662	6828	699
	2	5500	5666	5832	5998	6164	6330	6496	6662	6828	699
	3	5650	5800	5950	6100	6250	6400	6550	6700	6850	700
	4	5750	5885	6020	6155	6290	6425	6560	6695	6830	696
	5	5800	5933	6066	6199	6332	6465	6598	6731	6864	699
	6	5800	5933	6066	6199	6332	6465	6598	6731	6864	699



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
CDU 7.0 Shift Lights	Description	Example Shift Light Pattern for User Guide
Define the prioritized list of patterns for the selected shift light.	Number of LEDs	10 🗢
(+) $(+)$ $(+)$ $(+)$	Flash if all LEDs are lit	\checkmark
✓ Example Pattern 1		
Example Pattern 2	Inputs	
Fxample Pattern 3	Row Selector Channel	Gear
	Threshold Channel	RPM ····
	Threshold values in:	angular velocity v rpm v
	Pattern Selector	
	If multiple patterns are e	nabled select the bit-field channel, strategy or switch used to select the active pattern configuration.
	Strategy	Moving
	Bit-field Channel Strategy	3
	Switch	
L	2	

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

	Shift Lights	Gen	General										
	$\oplus $	Nam	2	Example	e Pattern 1]				
	CDU 7.0 Shift Lights	Desc	riptio	n Example	e Pattern fo	or User Gui	Jide						
	Define the prioritized list of patterns for the selected shift light.	Enab	led	✓									
	$\oplus $	Condition Moving											
1	Example Pattern 1	Thre	shol	Station Moving	ary		2						
	Example Pattern 2	Confi	gure	the thresho	olds above	which each	n LED patter	n configura	tion should	illuminate.			
	Example Pattern 3	Dimensions 10 Columns × 7 Rows											
			٢										
			LED	Pattern Co	onfiguratio	on 🕀 (1						
				0	1	2	3	4	5	6	7	8	9
		(+)	0	4500	4750	5000	5250	5500	5750	6000	6000	6000	6000
		0	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



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).

	Displays		Ø
	Configure the display names of these displa Device names on the	rs that will be driven by the device. N.B. the ays must match the corresponding Auxiliary Devices tab.	
1)	1
	CCW Mk2		
	CCW Mk3		
2	CDU 10.3		
	CDU 4.3		
	CDU 7.0		

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

Displays	${}^{\hspace{-1.5pt}}$	General
Configure the displays that will be driven by the device. N.B. the names of these displays must match the corresponding Auxiliary	v	Name CDU 7.0
Device names on the Devices tab.		Enabled
$\oplus $	٢	Type CDU 7.0 V
CDU 7.0		Auto Log 🔹 Automatically log display channels
		Hot Swappable 🗌 This allows the display to be changed without needing re-sending the setup. Note: This will increase the time taken to send the setup to the device (requires display application version 4.0 or above).
		Display
		Click on the LEDs below to configure them.
		CCOSSISMODELLIH
		Click to Configure Display

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

Displays	Ð	General					Shift Lights Control (Shift Lights) Properties (X
Configure the displays that will be driven by the device. N.B. th names of these displays must match the corresponding Auxilian Device names on the Devices tab.	ne 197	Name	CDU 7.0				Shift Lights	
A A A	۲	Enabled					Select the Shift Lights channel.	
		Туре	CDU 7.0	×			Shift Lights CDU 7.0 Shift Lights	1 1
CDU 7.0		Auto Log	Automatically log display chan	nels			Unit agric boo no unit agric	4'
		Hot Swappab	le 📋 This allows the display to be ch	anged without needing re	e-sending the setup. Note: This will increase	e the time taken to send the	LEDs	
		Display					Configure the LED colors	
		Click on the LE	Ds below to configure them.		Index Color Source Color			
							4 ● Channel ■ ▼	
					COSTVO	RUTH	5 Ochannel Color	
							6 Ochannel Color	
							7 Ochannel V	
							8 Ochannel V	4
							9 Ochannel Ochannel	
							10 Ochannel Color	
					Click to Configur	e Display	11 O Channel Color	
							12 O Channel Color	
							13 Ochannel Color	
								1

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.

Index	Color Source	Color
	ChannelColor	
5	○ Channel● Color	Standard Advanced
6	○ Channel● Color	
7	○ Channel● Color	
8	○ Channel● Color	÷003000
9	○ Channel● Color	
10	○ Channel● Color	
11	○ Channel● Color	
12	○ Channel● Color	•
13	 Channel Color 	•

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.

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