

Colour Theme Controller 2 User Manual



Control any RGB colour mixing LED installation via the simple user interface. Select from a range of 200 static colour setting, or up to 200 subtle and dynamic colour sequences, each dimmable down to 10%



Specifications

Digilin Stock Code	LCTHM2-DMX
Mounting	Clipsal Saturn Series Wall Panel
Dimensions (mm)	75 x 116 x 11
	Knob extend 12mm from faceplate
Weight	100g
Input Power	12 to 24VDC
Communications	3 channels of DMX data (starting channel adjustable)
	Serial Port @ 9600 Baud through RJ45 connector
Maximum DMX Load	32 standard devices



Safety Notes

12-24VDC operation only
Install in a dry sheltered position.

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At The Forefront of LED & Fibre Optic Lighting Technologies

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Introduction

The Colour Theme Controller is a DMX show generator with a simple and intuitive user interface, designed for use with Digilin's range of LED power controllers. It can have up to 400 pre-programmed shows¹ stored in its memory, each dimmable down to 10%, ranging from static colours, to smooth flowing colour changes though to dynamic bold shows, all of which make full use of the intense, vibrant lighting effects achievable with LED lighting.

Additionally, the Colour Theme Controller has a serial interface which provides an interface to PC or any number of lighting control networks.

¹ Shows are hard coded into the device and not user configurable. Should you have specific requirements that are not met by the default shows, please contact Digilin.

Installation

Wiring

The Colour Theme has a single 4 way screw terminal block, as shown in Figure 1. This provides connections for the power and data. The positive voltage input should be between +12V and +24V. This cable can be secured to the cable mount point using a cable tie.

If using the serial interface, connect the unit using a null modem cable (refer to Appendix A. RS232 Null Modem Cables Using RJ45 Connectors to see how these cables are constructed) to the chosen host.

Mounting

The Colour Theme Controller is housed in a standard Clipsal plate, and as such is compatible with any standard mounting boxes or clips. There is also a mounting frame (Clipsal Part number 4000VH1) available in 5 colours that can be used to cover the black base and compliment wall colour.

To install the Colour Theme Controller

1. Remove the knob by gently pulling it straight back
2. Remove the fascia by inserting a small flat blade screwdriver into the slots on the top and bottom of the plate and lever it off.
3. Mount to wall using appropriate hardware.
4. Re-attach fascia by pushing it into place at the top then at the bottom.
5. Re-install the knob by gently sliding it onto the shaft.

Operation

Software Version

On power up, the Colour Theme Controller will display a software version code on the 3 digit display for 3 seconds. Following this the show number is shown on the display.

Selecting Shows

The identifier of the currently running show is displayed on the 3 digit display of the Colour Theme Controller Panel. To change the show simply turn the knob, clockwise to increase the show and anti-clockwise to decrease it. The Colour Theme Controller will skip over un-programmed show identifiers, and will loop between the highest and lowest programmed shows.

Dimming

Each show on the Colour Theme Controller can be dimmed in 10% steps down to 10%. To alter the dimming level, press the knob for 0.5 seconds. The display will then show a 'd' followed by a 2 digit number representing the 10 dim levels (1 = 10%, 10 = 100%). This can now be altered by turning the knob (clockwise to

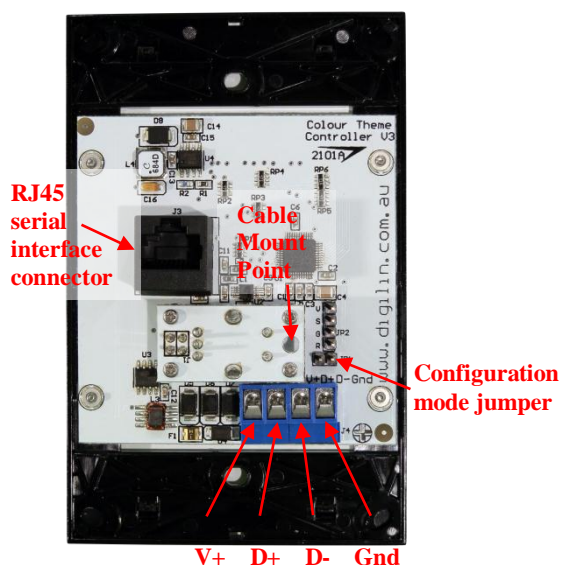


Figure 1 Connections on the Colour Theme Controller

increase dim level, anti-clockwise to decrease it). The Colour Theme Controller will exit dimming control if nothing is changed for a period of 2 seconds.

Note that, depending on the LED driver, dimming may alter the dynamics of Colour Theme Controller shows.

Switching Drivers Off

In order to turn off the LED light fittings, simply give a short press to the knob (less than 0.5 seconds). The unit will then display OFF for a period of 10 seconds before the display goes blank.

While the Colour Theme Controller is off, any show running is paused. To turn the light fittings back on, simply press the knob again.

Storing Default Setting

Storing a default setting will set which show and dim level the Colour Theme Controller will load when first power on (the factory default is show 001). To change this, with the unit turned on, select the desired show and dim level. Next press and hold the knob for a period of 2.5 seconds. The display will cycle to the dim setting, and then the unit will briefly flash to off. Once the unit is back on, the setting is saved.

Serial Interface

The Colour Theme Controller features an RS232 serial interface with the following data format:

- 9600 baud
- 8 bit data
- 1 stop bit
- No parity
- No flow control

The pin-out for the RJ45 connector is covered in Appendix A RS232 Null Modem Cables using RJ45 Connectors.

User Configuration

Configuration mode allows the user to change various settings (as listed in Table 1). To use this mode, the Colour Theme Controller will need to be connected to a computer running a terminal program² (configured with the settings from above), via the RJ45 serial connection. Before power up, place a jumper on the pins of JP1 (refer to Figure 1).

Once the Colour Theme Controller is power up, it should print a menu similar to that shown in Figure 2 in the terminal program window. To alter settings, simply follow the instructions in the menu (settings are saved automatically as they are altered). To exit configuration mode, power off the Colour Theme Controller and remove the jumper on JP1.

² Up until Windows Vista, the terminal program HyperTerminal was installed as part of a windows installation. A simple web search will turn up a number of free alternatives for use with newer operating systems.

Setting	Description	Valid Range	Default Value
DMX Start Address	Channel to start the RGB triplet (all address before this will transmit as 0)	1 – 510	1
Channel Repeat	Number of times to repeat the RGB triplet	1 - 170	1
Echo enabled	Controls if commands are sent back (echoed) to the user when sending serial commands	On/Off	Yes

Table 1 Settings in User Configuration.

Digilin Colour Theme Controller V3

Software Version 2.1

User Configuration

1. Set DMX Start Address

2. Set Times to repeat Channel

3. Enable/Disable Echo in PC Interface Mode

Enter your Selection

Figure 2 Starting menu in configuration mode.

Serial Commands

This mode provides a simple method to control the Colour Theme Controller via a PC (or any device in which the serial data output can be formatted correctly, which includes a number of home automation/lighting control systems.). If echo is enabled, characters sent will be echoed back, unless an incorrect character is detected (i.e. not a number), in which case all characters will be ignored until the carriage return character is detected.

The command to set the currently running show is simply a 1 to 3 digit number (transmitted in ASCII) representing the desired show followed by the carriage return character. If a value of 0 is entered, the unit will turn off. It can be turned on again by entering any number, if the number is an unimplemented show, the Colour Theme Controller will resume the previous show. Entering an unimplemented show when already on will have no effect.

The command to dim is the '-' character followed by a single ASCII digit, with 0 represent dim level 10 (ie 100%). A dim command can directly follow a show command.

Refer to Appendix B. Serial Command Examples for further explanation.

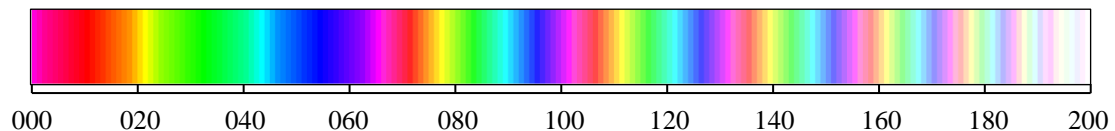
Shows

The show space is broken into 3 groups

1. 001 – 200 are static colours
2. 201 – 300 are subtle shows
3. 301 – 400 are dynamic shows

Static Colours

There are 200 unique saturated colours (colours made from at least 1 channel being at 100%) in the static colour range. The range is broken up as shown in the image below.



Essentially the sequence of colours from 0 to 66 are repeated, slowly increasing the levels of the non-saturated channels until it reaches white at 200. Colours that may be of particular interest are given in Table 2, and there is a complete listing of the static colours (along with their RGB values) in Appendix C. Full Static Colour Listing

Show	Colour	Show	Colour
011	Red	033	Green
055	Blue	200	White
022	Yellow	044	Cyan
066	Magenta	019	Orange
175	Pink	024	Lime

Table 2 Important colours in the static colour range.

Subtle Shows

Subtle Shows feature colour transitions that may not necessarily be noticeable, allowing the colours to shift and dance in the background.

Show 201



RGB colour cycle 1 with fade
Total Show Length: 12 minutes

Show 202



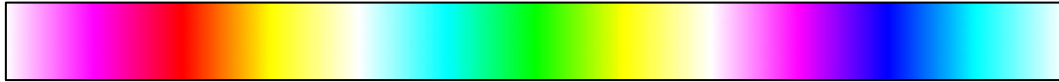
RGB colour cycle 1 with fade
Total Show Length: 6 minutes

Show 203



RGB colour cycle 1 with fade and 30 second hold on each colour
Total Show Length: 12 minutes

Show 204



RGB colour cycle 1 with fade
Total Show Length: 24 minutes

Show 205



RGB colour cycle 1 with fade
Total Show Length: 1 hour

Show 206



RGB colour cycle 1 with fade
Total Show Length: 2 hours

Show 207



RGB colour cycle 1 with fade
Total Show Length: 4 hours

Show 208



RGB colour cycle 2 with fade
Total Show Length: 50 seconds

Show 209



RGB colour cycle 2 with fade
Total Show Length: 100 seconds

Show 210



RGB colour cycle 2 with fade
Total Show Length: 2 minutes, 24 seconds

Show 211



RGB colour cycle 2 with fade
Total Show Length: 16 minutes

Show 212



RGB colour cycle 2 with fade and 5 second hold on each colour
Total Show Length: 16 minutes, 40 seconds

Show 213



RGB colour cycle 2 with fade and 30 second hold on each colour
Total Show Length: 20 minutes

Show 214



Aqua Colour Cycle
Total Show Length: 7 minutes, 45 seconds

Show 215



Aqua Colour Cycle
Total Show Length: 1 minute

Show 216



Red and Pink mix
Total Show Length: 18 seconds

Show 217



Warm Colour mix
Total Show Length: 30 seconds

Show 218



Cool Colour Mix
Total Show Length: 30 seconds

Show 219



Sunset sequence, 1 minute hold on blue (night)
Total Show Length: 2 minutes

Show 220



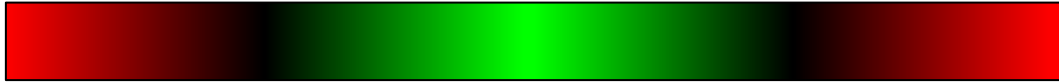
Slow Sunset sequence, with 10 minute hold on blue (night)
Total Show Length: 2 hours

Show 221



Green and Red flash with fade
Total Show Length: 50 seconds

Show 222



Green and Red flash with fade
Total Show Length: 1 minute, 30 seconds

Show 223



Bright RGB Colour Mix
Total Show Length: 1 minute, 30 seconds

Show 224



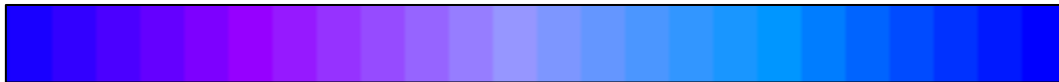
Bright RGB Colour Mix
Total Show Length: 7 minutes

Show 225



Smooth Colour Mix with no dominant green or red
Total Show Length: 30 minutes

Show 226



Smooth colour mix with no dominant red or green, with 1 minute hold on each colour
Total Show Length: 26 minutes, 24 seconds

Show 227



Blue, green, orange, cool white with 5 second fade and 90 second hold
Total Show Length: 6 minutes, 20 seconds

Show 228



Blue, green, orange with 5 second fade and 90 second hold
Total Show Length: 4 minutes, 45 seconds

Show 229



Blue & Orange with 5 second fade and 5 second hold
Total Show Length: 20 fade

Show 230



Blue twinkling/sparkling effect
Total Show Length: 8.65 seconds

Show 231



Red twinkling/sparkling effect
Total Show Length: 8.65 seconds

Show 232



Orange twinkling/sparkling effect
Total Show Length: 8.65 seconds

Show 233



Warm Colours twinkling/sparkling effect
Total Show Length: 8.65 seconds

Show 234



White twinkling/sparkling effect
Total Show Length: 8.65 seconds

Show 235



RGB twinkling/sparkling effect
Total Show Length: 39.25 seconds

Dynamic Shows

Dynamic shows feature rapid colour transitions, designed to draw attention to an area, a display or an event.

Show 301



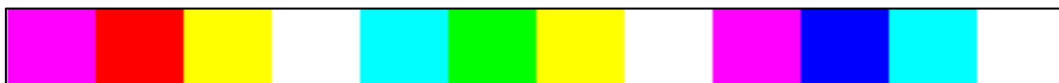
RGB Colour cycle 1, with 1 second fade and 10 second hold
Total Show Length: 2 minutes, 12 seconds

Show 302



RGB Colour cycle 1, with 1 second fade and 30 second hold
Total Show Length: 6 minutes, 12 seconds

Show 303



RGB Colour cycle 1, with 1 second fade and 1 minute hold
Total Show Length: 12 minutes, 12 seconds

Show 304



RGB Colour cycle 2, with 0.75 second fade and 5 second hold
Total Show Length: 46 seconds

Show 305



RGB Colour cycle 2, with 0.75 second fade and 30 second hold
Total Show Length: 4 minutes, 6 seconds

Show 306



RGB Colour cycle 2, with 3 second fade and 5 second hold
Total Show Length: 1 minute, 4 seconds

Show 307



RGB Colour cycle 2, with 3 second fade and 30 second hold
Total Show Length: 4 minutes, 24 seconds

Show 308



1 Second per colour, no fade
Total Show Length: 11 seconds

Show 309



Randomly jumping colours to simulate fireworks
Total Show Length: 14.1

Show 310



Green and gold alternating at increasing speeds
Total Show Length: 10 seconds

Show 311



Alternating green and gold, with hold for 30 seconds
Total Show Length: 61 seconds

Show 312



A quick 3 count, followed by 2 minutes of steady green
Total Show Length: 2 minutes, 4 seconds

Show 313



Double beat with trailing fade in red
Total Show Length: 2 seconds

Show 314



Maroon & Blue, with 2 second hold & 1 second fade
Total Show Length: 10 seconds

Show 315



Traffic Light Sequence
Total Show Length: 15 seconds

Show 316



Red and Green flash with quick fade
Total Show Length: 1 second

Show 317



A 5 beat read and green flashing sequence
Total Show Length: 4 seconds

Show 318



Pulsing red
Total Show Length: 3 seconds

Show 319



Pulsing yellow
Total Show Length: 3 seconds

Show 320



Pulsing green
Total Show Length: 3 seconds

Show 321



Pulsing cyan
Total Show Length: 3 seconds

Show 322



Pulsing blue
Total Show Length: 3 seconds

Show 323



Pulsing magenta
Total Show Length: 3 seconds

Show 324



Pulsing white
Total Show Length: 3 seconds

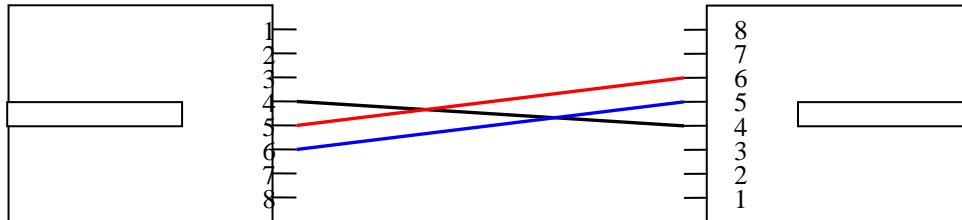
Show 325



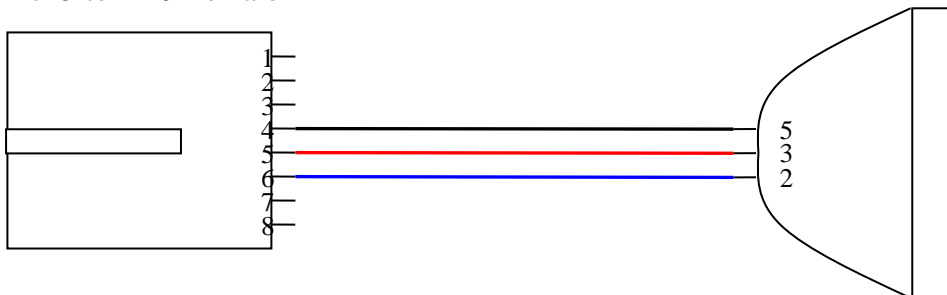
Pulsing RGB colour cycle
Total Show Length: 21 seconds

Appendix A RS232 Null Modem Cables using RJ45 Connectors

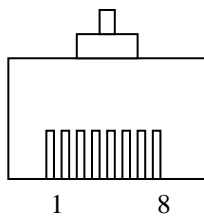
RJ45 to RJ45



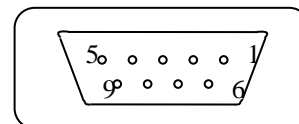
RJ45 to DB9 Female



RJ45 Front View



DB9 Female Front View



Appendix B. Serial Command Examples

Example 1

36↵

This example will set the Colour Theme Controller to show 36. The command consists of the desired show number in ASCII (36) followed by the carriage return character (shown here as ↵). If the Colour Theme Controller is off, this command will turn it on as well as setting it to show 36. Note that there are no spaces in the command.

Example 2

036↵

This command is equivalent to Example 1. Any show number can be padded out to 3 digits with leading 0's.

Example 3

0↵

This command will turn the Colour Theme Controller off.

Example 4

500↵

As 500 is an unimplemented show, this command will turn the Colour Theme Controller on. If the unit is already on, this command will have no effect.

Example 5

-0↵

This command will set the dim level to 100%.

Example 6

-1↵

This command will set the dim level to 10%

Example 7

036-5↵

This command demonstrates how a show and dim level can be sent in a single command. The command will set the Colour Theme Controller to show 36 with dim level set to 50%. Note there are no spaces in this command.

Appendix C. Full Static Colour Listing

Static Colour	Levels			Static Colour	Levels			Static Colour	Levels			Static Colour	Levels		
	Red	Green	Blue		Red	Green	Blue		Red	Green	Blue		Red	Green	Blue
1	255	0	219	51	0	73	255	101	219	36	255	151	109	146	255
2	255	0	182	52	0	51	255	102	255	36	255	152	109	109	255
3	255	0	146	53	0	36	255	103	255	73	219	153	146	109	255
4	255	0	128	54	0	18	255	104	255	73	182	154	182	109	255
5	255	0	109	55	0	0	255	105	255	73	146	155	219	109	255
6	255	0	91	56	18	0	255	106	255	73	109	156	255	109	255
7	255	0	73	57	36	0	255	107	255	73	73	157	255	146	219
8	255	0	51	58	51	0	255	108	255	109	73	158	255	146	182
9	255	0	36	59	73	0	255	109	255	146	73	159	255	146	146
10	255	0	18	60	91	0	255	110	255	182	73	160	255	182	146
11	255	0	0	61	109	0	255	111	255	219	73	161	255	219	146
12	255	18	0	62	128	0	255	112	255	255	73	162	255	255	146
13	255	36	0	63	146	0	255	113	219	255	73	163	219	255	146
14	255	51	0	64	182	0	255	114	182	255	73	164	182	255	146
15	255	73	0	65	219	0	255	115	146	255	73	165	146	255	146
16	255	91	0	66	255	0	255	116	109	255	73	166	146	255	182
17	255	109	0	67	255	36	219	117	73	255	73	167	146	255	219
18	255	128	0	68	255	36	182	118	73	255	109	168	146	255	255
19	255	146	0	69	255	36	146	119	73	255	146	169	146	219	255
20	255	182	0	70	255	36	109	120	73	255	182	170	146	182	255
21	255	219	0	71	255	36	73	121	73	255	219	171	146	146	255
22	255	255	0	72	255	36	36	122	73	255	255	172	182	146	255
23	219	255	0	73	255	73	36	123	73	219	255	173	219	146	255
24	182	255	0	74	255	109	36	124	73	182	255	174	255	146	255
25	146	255	0	75	255	146	36	125	73	146	255	175	255	182	219
26	128	255	0	76	255	182	36	126	73	109	255	176	255	182	182
27	109	255	0	77	255	219	36	127	73	73	255	177	255	219	182
28	91	255	0	78	255	255	36	128	109	73	255	178	255	255	182
29	73	255	0	79	219	255	36	129	146	73	255	179	219	255	182
30	51	255	0	80	182	255	36	130	182	73	255	180	182	255	182
31	36	255	0	81	146	255	36	131	219	73	255	181	182	255	219
32	18	255	0	82	109	255	36	132	255	73	255	182	182	255	255
33	0	255	0	83	73	255	36	133	255	109	219	183	182	219	255
34	0	255	18	84	36	255	36	134	255	109	182	184	182	182	255
35	0	255	36	85	36	255	73	135	255	109	146	185	219	182	255
36	0	255	51	86	36	255	109	136	255	109	109	186	255	182	255
37	0	255	73	87	36	255	146	137	255	146	109	187	255	219	219
38	0	255	91	88	36	255	182	138	255	182	109	188	255	255	219
39	0	255	109	89	36	255	219	139	255	219	109	189	219	255	219
40	0	255	128	90	36	255	255	140	255	255	109	190	219	255	255
41	0	255	146	91	36	219	255	141	219	255	109	191	219	219	255
42	0	255	182	92	36	182	255	142	182	255	109	192	255	219	255
43	0	255	219	93	36	146	255	143	146	255	109	193	255	204	255
44	0	255	255	94	36	109	255	144	109	255	109	194	255	240	240
45	0	219	255	95	36	73	255	145	109	255	146	195	255	255	240
46	0	182	255	96	36	36	255	146	109	255	182	196	240	255	240
47	0	146	255	97	73	36	255	147	109	255	219	197	240	255	255
48	0	128	255	98	109	36	255	148	109	255	255	198	240	240	255
49	0	109	255	99	146	36	255	149	109	219	255	199	255	240	255
50	0	91	255	100	182	36	255	150	109	182	255	200	255	255	255

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