Colour Theme Controller Manual

Select static colours or dynamic changing themes via the simple user interface or remotely using a serial interface, for installations of one RGB triplet for RGB Taipan and LL500-URGB strips

Specifications

Digilin Stock Code	LCTHM-DMX-R
Mounting	Clipsal Compatible Wall Panel
Dimensions (mm)	Faceplate 73 x 116 x 13
	Knob extends 16mm from faceplate
Weight	90g
Input Power	12 to 24VDC @ 250mA
Communications	3 Channels of DMX data from channel 1
	Serial Port @9600 Baud through RJ45 connector
Maximum DMX Load	32 standard devices

Safety Notes

Do not connect to mains voltage.
Install in a dry, sheltered position.

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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 shows[1] stored in its memory, 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, it also has a serial interface which can be used to remotely select the show. Using this, it is possible to control your LED installation from your computer or home automation network, such as Clipsal C-Bus.

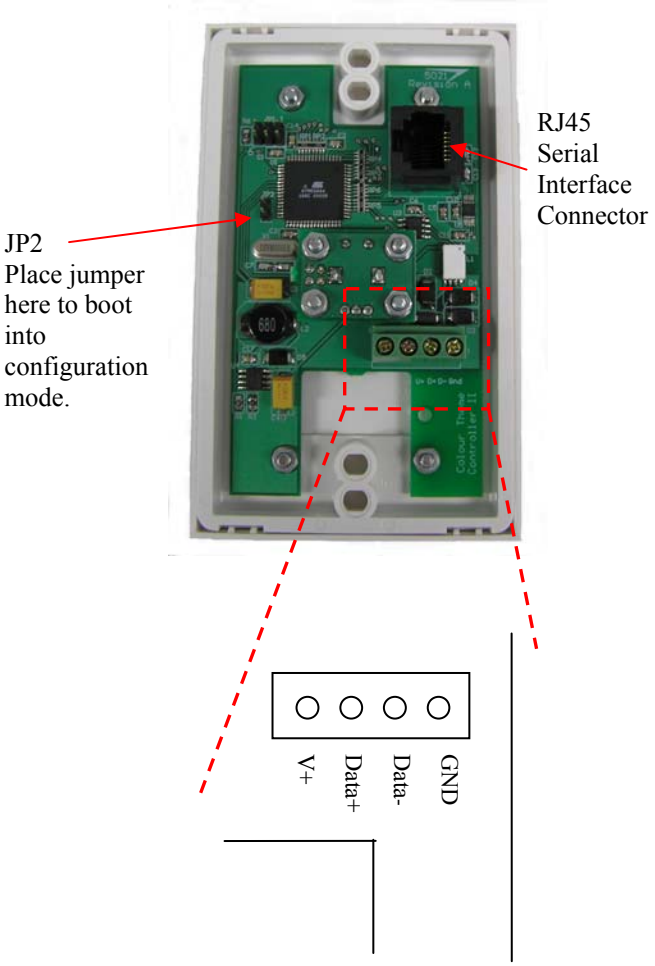


Figure 1 Rear view of the Colour Theme Controller with enlarged view of connections.

[1] Shows are hard coded into the device and are 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. This provides connections for the power and data, as shown in Figure 1. The positive voltage input should be between +12V and +24V. 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.

Operation

Software Version

On power up, the Colour Theme Controller will display a software version code on the 3 digit display for 2 seconds. Following this the show number is shown in 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 unprogrammed show identifiers, and will loop between the highest and lowest programmed shows.

Switching Drivers Off

In order to turn off the LED Power Controller, simply press the knob. The Colour Theme Controller display will read "OFF" while the unit is off. While the unit is off, the current show is paused, and will be started again from the same point once the unit is turned back on. To turn unit back on, press the knob again.

Storing Default Show

Storing a default show sets which show the Colour Theme Controller will load when first powered on (originally, this will be the first implemented show). To change this, power up the unit, and select the desired show, then press and hold the knob (the unit will turn off when the knob is first pushed), until the show identifier is again displayed. This will take 5 seconds.

Serial Interface

By default, the serial interface is configured to communicate with a PC. In order to connect to a C-Bus network, this must be set in configuration mode. All serial modes use the following data format:

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

PC Interface Mode

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 systems.). The command is simply a 1 to 3 digit number (transmitted in ASCII) representing the desired show followed by the carriage return character. 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.

If a value of 0 is entered, the unit will turn off. It can be turned on again by entering any number that does not represent an implemented show, or a new show to begin. Entering an unimplemented show when already on will have no affect.

C-Bus Mode

Note: This method of connection uses the Clipsal C-bus PC Interface unit. It is also possible to connect the Colour Theme Controller to a C-Bus network using C-Bus Pascal Automation Controller which would use the PC Interface mode of the Colour Theme Controller

To use the Colour Theme Controller in a C-Bus network, it must be connected to the C-Bus PC Interface module. The serial data format used by the Colour Theme Controller matches the default for the PC Interface module. If the format used by the module has been changed it will need to be reset as per the documentation that accompanied it when purchased. **Note:** The Colour Theme Controller configures the C-Bus PC Interface module to communicate the C-Bus commands. As such, if the PC Interface loses power, the Colour Theme Controller must also be reset.

The Colour Theme Controller responds to dimming commands on the C-Bus Lighting Application Network, using a single group address (the values for both of these can be changed in configuration mode). In order to achieve this, when configuring the C-Bus network, a dimmer will need to be placed at the corresponding address. **Note** that this is purely in software and that this dimmer is not needed in the actual network.

The Colour Theme Controller will respond to the on and off commands appropriately. It will also turn on when a new show is set. To set the currently running show, the unit uses the dimming speed to select the group (instant for static colours, 4s for slow shows or the 8s setting for the fast shows). The dimming level is then used to select the show within the range as an offset from the first implemented show (eg sending the command to dim in 4s to 0 would select the first implemented slow show, or show 201). All other commands are ignored and have no affect.

Configuration Mode

Configuration mode allows the user to change various settings (as listed in Table 1) via the serial interface. To enter this mode, first set up the serial connection between the unit and the PC using a null modem cable and a terminal program (Hyper Terminal is installed on most computers using a Windows operating system) with the appropriate settings then power up the unit with a jumper between the pins of JP2 (refer to Figure 1).

If this is done correctly the menu shown in Figure 2 should be displayed in the terminal program and the show indicator on the unit should read 000. Then just enter a selection (1-3 or s to save the changes) and follow the instructions on the screen. Make sure you save the settings prior to turning off the power and removing the jumper on JP2.

Setting	Valid Range	Default value
Operation Mode	C-Bus or PC Interface	PC Interface
C-Bus Lighting Application Address	0x00 to 0xFF	0x38
C-Bus Lighting Group Base Address	0x00 0xFF	0x64(100)

Table 1 Settings adjustable in Configuration mode.

```
Digilin Colour Theme Controller
Software Version 2.0, 15/02/06
1.  Set Mode
2.  Edit C-Bus Lighting Application Address
3.  Edit C-Bus Lighting Group Address used
s.  Save settings
Enter your selection
```

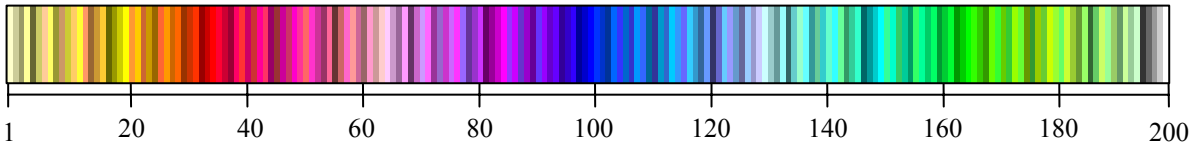
Figure 2 The configuration mode menu.

Shows

The show space is broken into 3 groups:

- 001-200 are static colours
- 200-300 are shows with slow transitions
- 300-400 are shows with fast transitions.

001 → 200. Static Colours

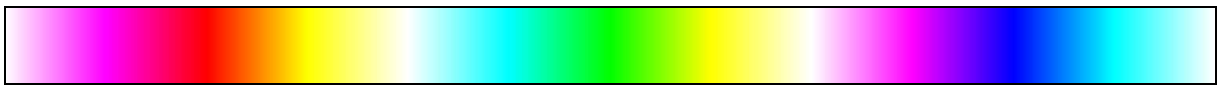


The above image shows the range of static colours available in the Colour Theme Controller, ranging from show 001 (leftmost) to 200 (rightmost). Colours that may be of particular interest are listed in the table below.

Show	Colour	Show	Colour
034	60% Red	151	Cyan
035	80% Red	167	Lime
036	100% Red	86	Magenta
099	60% Blue	28	Orange
100	80% Blue	60	Pink
101	100% Blue	21	Yellow
164	60% Green	98	Violet
165	80% Green		
166	100% Green		
196	20% White		
197	40% White		

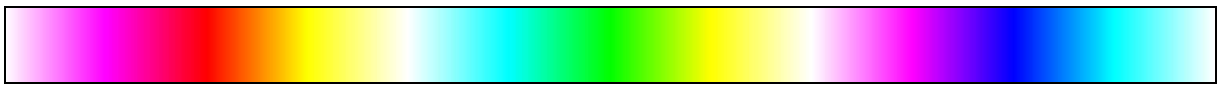
198	60% White	
199	80% White	
200	100%White	

201. Slow Show 1



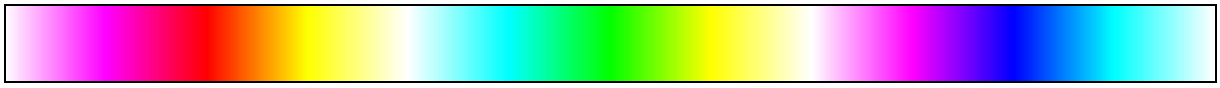
RGB cycle 1, with fade at 12min 48 sec for complete cycle

202. Slow Show 2



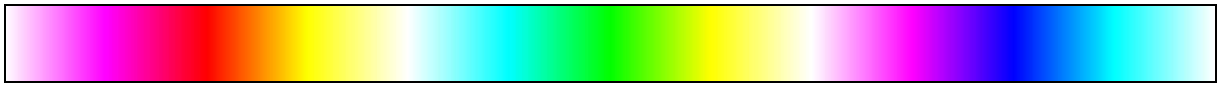
RGB cycle 1, with fade at 25 min 36 sec for complete cycle

203. Slow Show 3



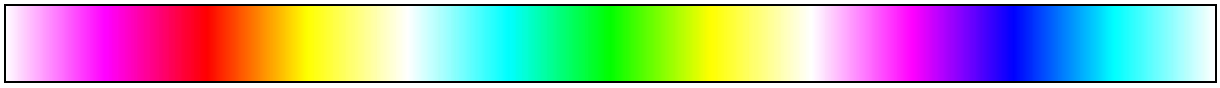
RGB cycle 1, with fade at 1hour 16 min 48 sec for complete cycle

204. Slow Show 4



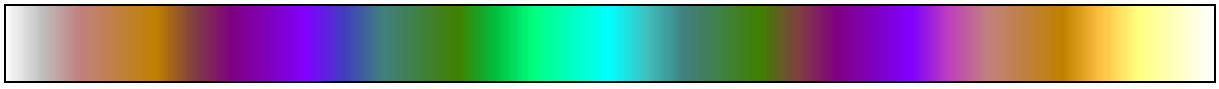
RGB cycle 1, with fade at 2 hours 33 min for complete cycle

205. Slow Show 5



RGB cycle 1, with fade at 5 hour 6 min for complete cycle

206. Slow Show 6

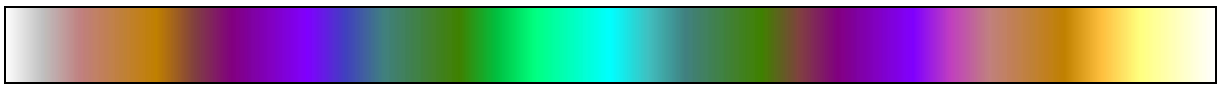


RGB Cycle 2, with fade at 1 min 42 sec for complete cycle

207. Slow Show 7

RGB Cycle 2, with fade at 2 min 22 sec for complete cycle, including 5 second wait on each major colour

208. Slow Show 8

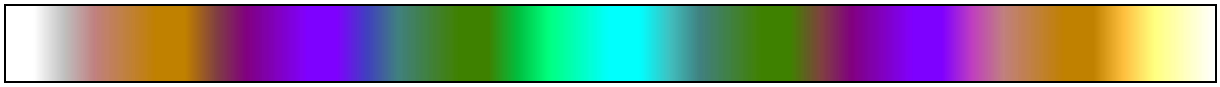


RGB Cycle 2, with fade at 17 min 4 sec for complete cycle

209. Slow Show 9

RGB Cycle 2, with fade at 17 min 44 sec for complete cycle, including 5 second wait on each major colour

210. Slow Show 10



RGB Cycle 2, with fade at 21 min 40 sec for complete cycle, including 30 second wait on each major colour

211. Slow Show 11

Aqua Cycle, with constant fade, at 8 min 54 sec for complete cycle

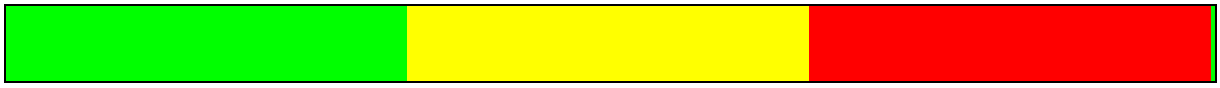
212. Slow Show 12

Aqua Cycle, with constant fade, at 53 sec for complete cycle

213. Slow Show 13

Red and pink mix at 18 seconds for complete cycle.

214. Slow Show 14



Traffic Light Sequence, 5 seconds per colour, no fade.

215. Slow Show 15

Warm colour mix at 25 seconds for complete cycle.

216. Slow Show 16

Cool Colour mix at 19 seconds for complete cycle.

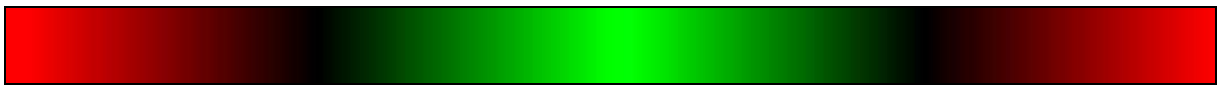
217. Slow Show 17

Sunset sequence, 2 minutes & 6 seconds, with a 1 minute hold on blue.

218. Slow Show 18

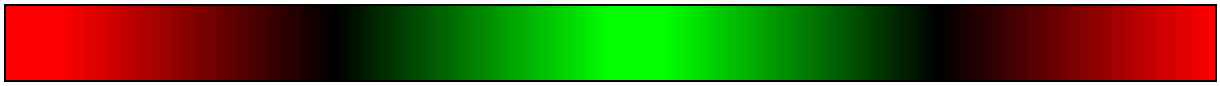
Slow sunset sequence, 1hr 50 minutes, with a 10min hold on blue.

219. Slow Show 19



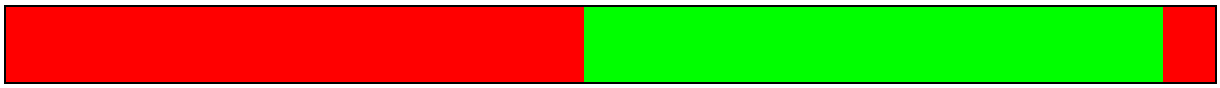
Green and red flash with fade at 53 seconds for complete cycle.

220. Slow Show 20



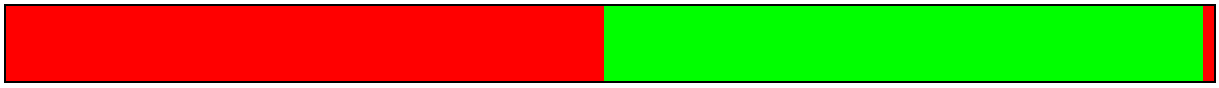
Green and red flash with fade at 1minute 42 seconds for complete cycle.

221. Slow Show 21



Green and red flash, no fade, 0.5 seconds per colour.

222. Slow Show 22



Green and red flash, no fade, 2.5 seconds per colour.

223. Slow Show 23

Bright RGB colour mix, with fade at 1 minute 24 seconds for complete cycle.

224. Slow Show 24

Bright RGB colour mix, with fade at 7 minutes 4 seconds for complete cycle.

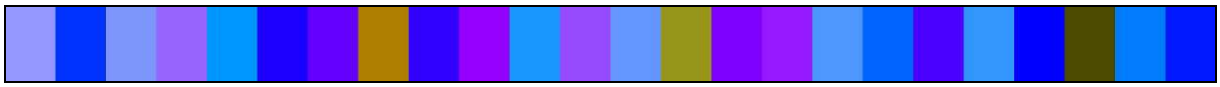
225. Slow Show 25

A smooth colour mix with no dominant green or red at 30 minutes 21 seconds for a complete cycle.

226. Slow Show 26

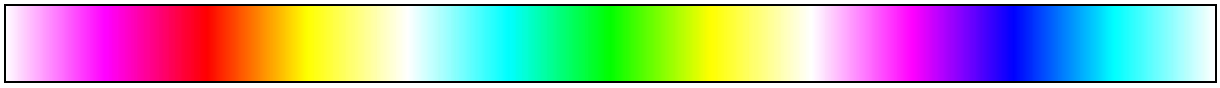
Colour mix with no dominant red or green, 1 minute hold on each colour with smooth transitions, at 24 minutes 31 seconds for a complete cycle.

227. Slow Show 27



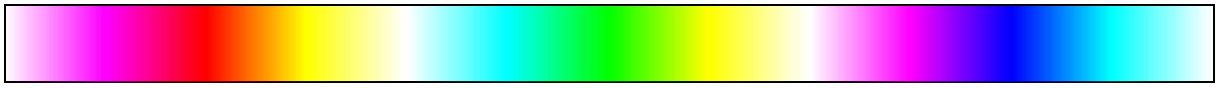
90 second hold, immediate transitions, no dominant red or green, at 36 minutes 1 second for a complete cycle.

301 Fast Show 1



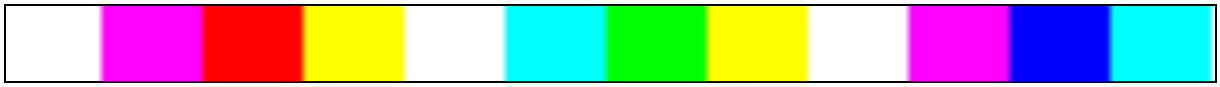
RGB Cycle 1, with fade at 2 min 33 sec for complete cycle

302. Fast Show 2



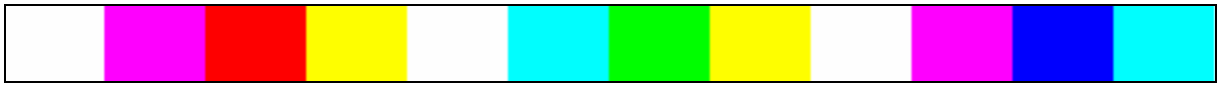
RGB Cycle 1, with fade at 1 min 17 sec for complete cycle

303. Fast Show 3



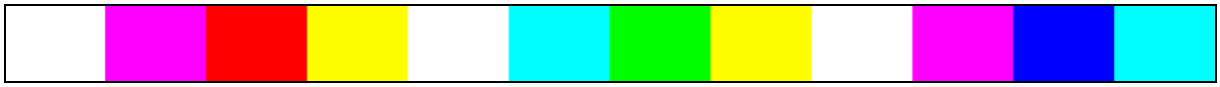
RGB Cycle 1, with fade at 2 min 10 sec for complete cycle, including 10 second wait on each major colour

304. Fast Show 4



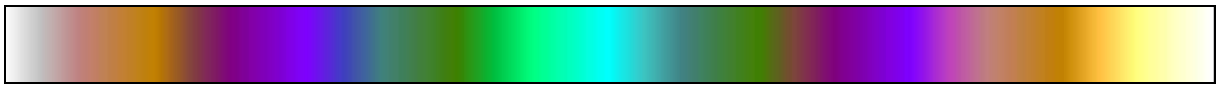
RGB Cycle 1, with fade at 6 min 10 sec for complete cycle, including 30 second wait at each major colour

305. Fast Show 5



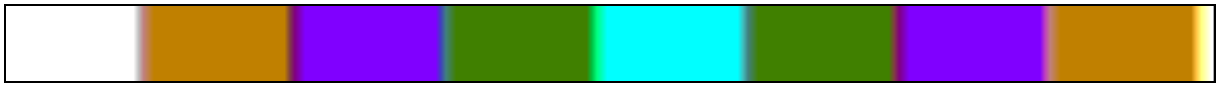
RGB Cycle 1, with fade at 12 min 10 sec for complete cycle, including 1 minute wait at each major colour

306. Fast Show 6



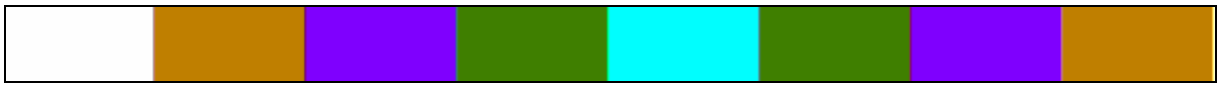
RGB Cycle 2, with fade at 51 sec for complete cycle

307. Fast Show 7



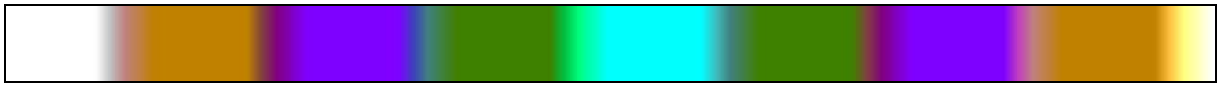
RGB Cycle 2, with fade at 46 sec for complete cycle, including 5 second wait at each major colour

308. Fast Show 8



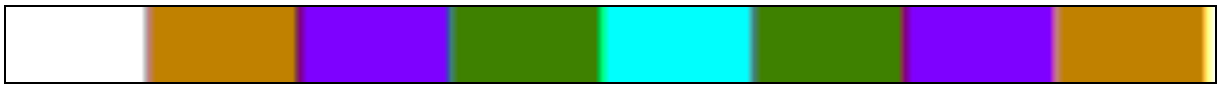
RGB Cycle 2, with fade at 4 min 6 sec for complete cycle, including 30 second wait at each major colour

309. Fast Show 9



RGB Cycle 2, with fade at 1min 5 sec for complete cycle, including 5 second wait on each major colour

310. Fast Show 10

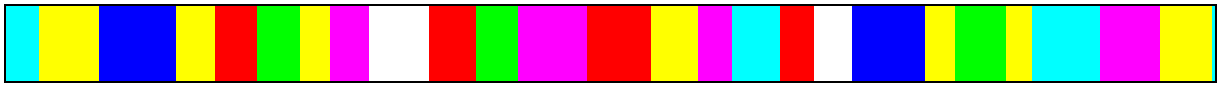


RGB Cycle 2, with fade at 4 min 26 sec for complete cycle, including 30 second wait on each major colour

311. Fast Show 11

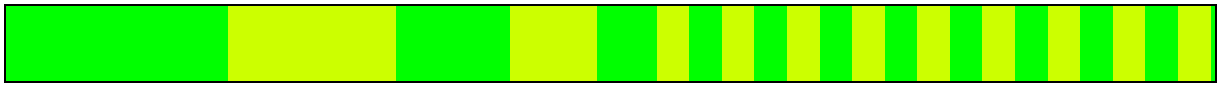
1 colour per second for 10 seconds (10 second countdown). Use in conjunction with 312 for New Years etc.

312. Fast Show 12



Randomly jumping colours to simulate fireworks 14 seconds for complete cycle.

313. Fast Show 13



Green and gold alternating at increasing speed for 11 seconds.

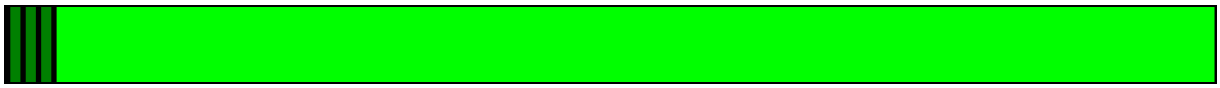
314. Fast Show 14

Hold for 30seconds on green and gold with 0.5 seconds fades between.

315. Fast Show 15

Aqua Cycle, with randomised fade, at 22 sec for complete cycle

316. Fast Show 16



3 short 1 second green pulses, followed by 2 minutes of static green.

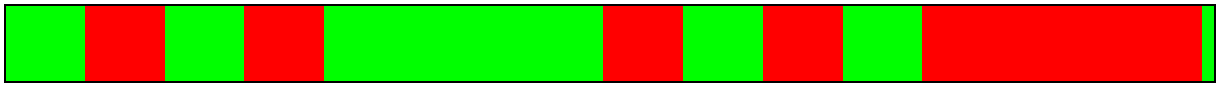
317. Fast Show 17

Double beat every second with fading at end in red.

318. Fast Show 18

Maroon & Blue, 1 second per colour with 2 second fade in/out.

319. Fast Show 19



5 beat red and green flashing sequence at 4 seconds for the complete cycle.

320. Fast Show 20

Pulsing red at 3 seconds for complete cycle.

321. Fast Show 21

Pulsing orange at 3 seconds for complete cycle.

322. Fast Show 22

Pulsing green at 3 seconds for complete cycle.

323. Fast Show 23

Pulsing cyan at 3 seconds for complete cycle.

324. Fast Show 24

Pulsing blue at 3 seconds for complete cycle.

325. Fast Show 25

Pulsing purple at 3 seconds for complete cycle.

326. Fast Show 26

Pulsing white at 3 seconds for complete cycle.

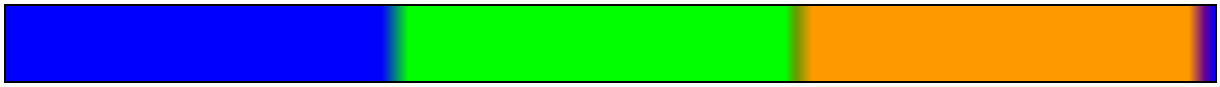
327. Fast Show 27

Pulsing colour cycle at 25 seconds for complete cycle.

328. Fast Show 28

Blue, green, orange, cool white, 90 seconds hold then 5 second fade on each colour.

329. Fast Show 29

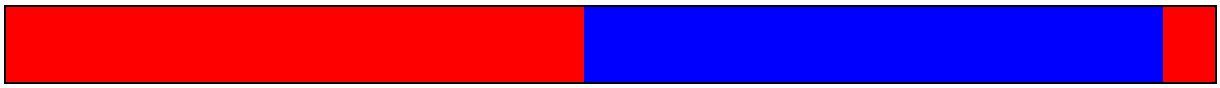


Blue, green, orange, 90 seconds hold then 5 second fade on each colour.

330. Fast Show 30

Blue and orange, hold for 5 seconds with 5 second fade between.

331. Fast Show 31



Red and Blue flash, no fade, 0.5second hold.

332. Fast Show 32

Sparkling/twinkling simulation in red, at 21 seconds for complete cycle.

333. Fast Show 33

Sparkling/twinkling simulation in green, at 21 seconds for complete cycle.

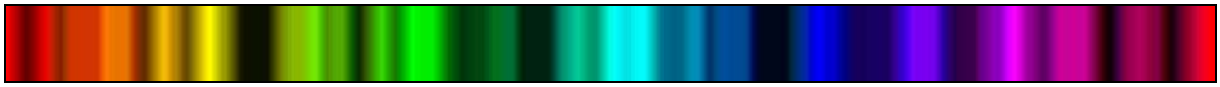
334. Fast Show 34

Sparkling/twinkling simulation in blue, at 21 seconds for complete cycle.

335. Fast Show 35

Sparkling/twinkling simulation in white, at 21 seconds for complete cycle.

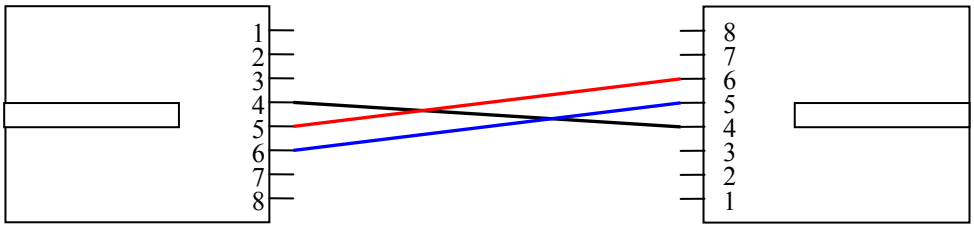
336. Fast Show 36



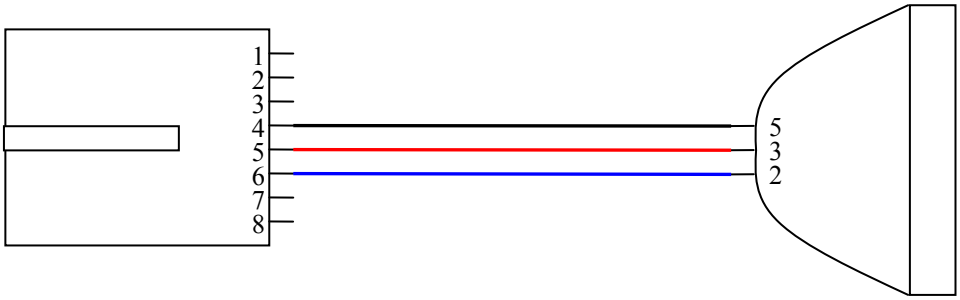
Colour mixing sparkling/twinkling simulation, at 50 seconds for complete cycle.

Appendix A. RS232 Null Modem Cables Using RJ45 Connectors

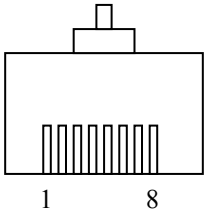
RJ45 to RJ45



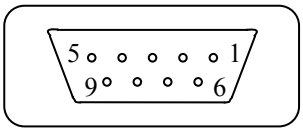
RJ45 to DB9 Female



RJ45 Front View



DB9 Female Front View



Appendix B. PC Interface Command Examples

Example 1

36↵

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

Example 2

036↵

This example is equivalent to the first, in that it will set the Colour Theme Controller to show 36. All show numbers can be padded out to be 3 digits with leading 0's.

Example 3

0↵

Example 3 will turn off the Colour Theme Controller and attached LED's.

Example 4

500↵

If the Colour Theme Controller is off, this command will turn it back on (as 500 is an unimplemented show). If the Colour Theme Controller is already on, this command will have no effect.