

Colour Theme 2

Variable White DMX Controller

User Manual



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Notes

- Install in a dry sheltered position
- Interior use only
- Ensure adequate ventilation
- Installation should only be performed by a qualified professional
- Install in accordance with all appropriate wiring standards
- Never connect a LED fitting to a driver that is powered. Doing so may result in damage to the LED.
- Always make sure the output voltage range and output current of the LED driver match the requirements of the LED fitting. Failure to do so may result in damage both the driver and fitting.

Introduction

The Tuneable White version of the Colour Theme Controller is a DMX show generator with a simple and intuitive user interface, specifically designed for use with Digilin's LDMX-PWM-2-VW to control installations of tuneable white LED fittings. Tuneable white fittings allow the user to set the colour temperature through a set range of values, thus allowing the user to set the mood and ambience of an area by controlling the colour temperature of the white light.

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

Specifications

Physical

		Units
Plate Dimensions	76 x 116 x 11	mm
Dimensions Including Knob	76 x 116 x 23	mm
Weight	100	g

Inputs

		Units
Voltage	12 -24	VDC
Current		mA
Fuse	100	mA

Communications

		Units
DMX Channels	2	
DMX Start Address	Adjustable – Default 1	
DMX Load	0.25	Standard Devices
Serial Baud Rate	9600	bps

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.

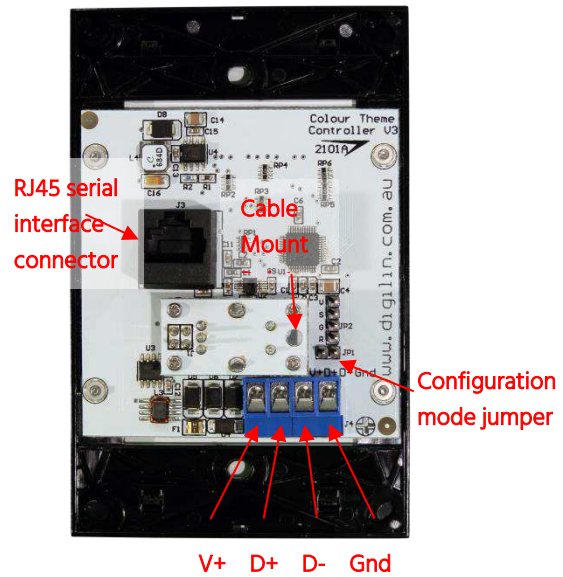


Figure 1 Connections on the Colour Theme Controller

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.

DMX Output Format

The DMX output of the Tuneable White version of the Colour Theme Controller is specifically formatted to control the LDMX-PWM-2. The data is as per the table below.

DMX Channel	Data	Notes
1	Colour Temperature	Sets the ratio of warm to cool white from 0 (100% warm white) to 255 (100% cool white).
2	Dim Level	Sets the brightness level of the connected LED fitting from 100% (DMX 255) to off (DMX 0).

Operation

Software Version

On power up, the Colour Theme Controller will briefly display 2 codes. First it will briefly display -2-, indicating that this is a 2 channel Colour Theme. Next it will display the firmware version.

Dimming

The tuneable white version of the Colour Theme Controller allows the light level to be dimmed from 100% to off in 5% steps. This is done by turning the knob (clockwise to increase dim level, anti-clockwise to decrease it). The display will show the current dim level until dimmed to off, at which point the display will turn off.

Setting the Colour Temperature

To alter the colour temperature of the connected fittings, press the knob on the Colour Theme Controller for 0.5 seconds. The display will change to show the approximate colour temperature (presuming the standard bins of VariWhite LED strip are connected) in kiloKelvin (ie 3000K would should show as 3.00 on the display). The value can now be altered rotating the knob (clockwise will make the light cooler, anti-clockwise warmer).

Switching Drivers Off

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 or turn it clockwise to increase the dim level.

Storing Default Setting

Storing a default setting will set which colour temperature and dim level the Colour Theme Controller will load when first power on (the factory default colour temperature is 3000K). 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 program¹ (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 powered up, it should print a menu like 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.

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 2.3
User Configuration
1. Set DMX Start Address
2. Set Times to repeat Channel
3. Enable/Disable Echo in Serial Command String 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.

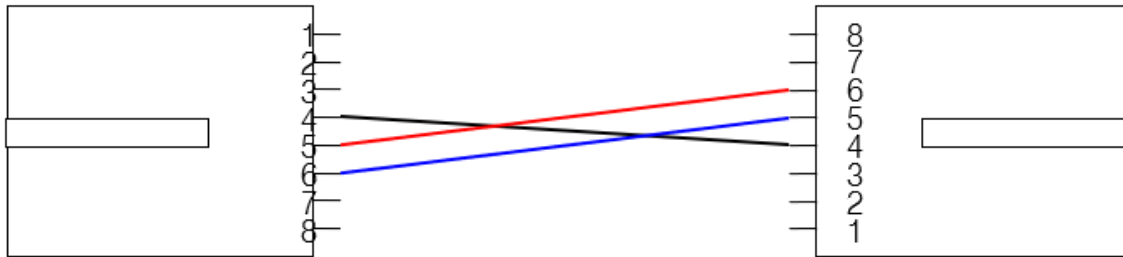
The command to set the currently running show is simply a 1 to 3 digit number (transmitted in ASCII). The Colour Theme Controller interprets this value as the desired colour temperature as it would be shown on the display (minus the decimal point), and sets the output to this value, or the closest level below this value that it can achieve.

The command to dim is the '-' character followed by a number in the range of 0 to 20 (in ASCII). Each value represents a 5% step in the dim level, with 0 being off and 20 being 100%. A dim command can directly follow a show command. Refer to Appendix B. Serial Command Examples for further explanation.

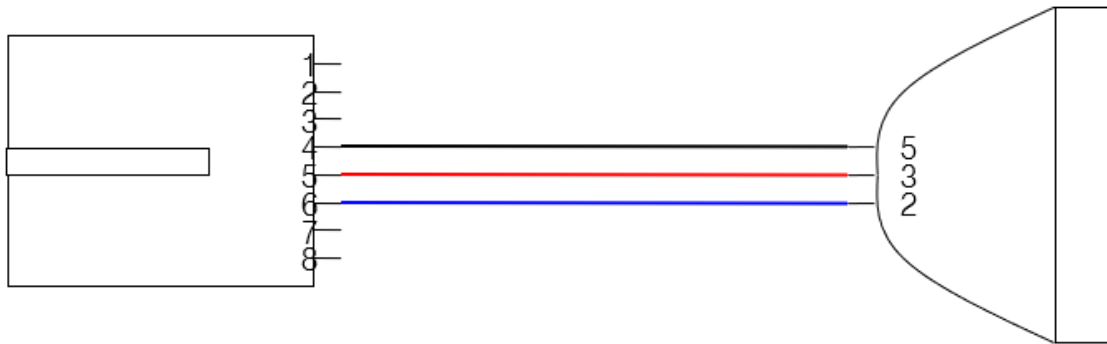
¹ Up until Windows Vista, the terminal program HyperTerminal was installed as part of a windows installation. A simple web search will turn up a number of free alternatives for use with newer operating systems.

Appendix A RS232 Null Modem Cables using RJ45 Connectors

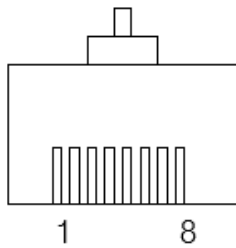
RJ45 to RJ45



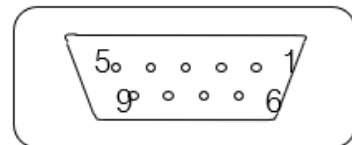
RJ45 to DB9 Female



RJ45 Front View



DB9 Female Front View



Appendix B. Serial Command Examples

Example 1

360↵

This example will set the Colour Theme Controller to a colour temperature of approximately 3600K

Example 2

290↵

This command will set the Colour Theme Controller to a colour temperature of 2940K. This is the closest level achievable to the entered value.

Example 3

-0↵

This command will turn the Colour Theme Controller off.

Example 5

-20↵

This command will set the dim level to 100%.

Example 6

-1↵

This command will set the dim level to 5%

Example 7

360-5↵

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 a colour temperature of 3600K with dim level set to 25%. Note there are no spaces in this command.

Appendix C. Wiring diagram

