CC DMX FusionDriver
Constant Current / DMX / Fusion - Tuneable White

DIGILIN

Applicable Models

User Manual

LDD-CC-TW-DMX-056-1400-FSN-IP20
LDD-CC-TW-DMX-042-1050-FSN-IP20
LDD-CC-TW-DMX-028-0700-FSN-IP20

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CC DMX FusionDriver
## Constant Current / DMX / Fusion - Tuneable White

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Digilin's Constant Current DMX FusionDrivers guarantee smooth, flicker-free dimming form 100% to off by seamlessly combining CCR (Constant Current Reduction) and PWM (Pulse Width Modulation) dimming techniques into a single driver. The FusionDriver uses CCR dimming from 100% down to 10%, before seamlessly switching over to high frequency PWM dimming from 10% to 0%.

Providing such incredible benefits, FusionDriver Technology is set to quickly become the new industry standard in best dimming practice. Digilin's CC DMX FusionDrivers are design and manufactured in Australia and are extremely reliable.
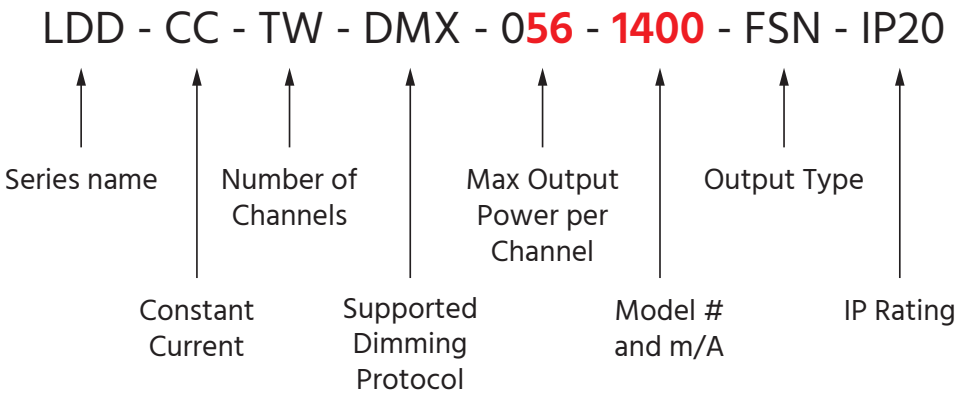
Features

- Constant current LED driver
- DMX dimming control with RDM functionality
- Super smooth FusionDrive dimming

- High PWM fequency to meet the requirements of IEEE1789
- Designed & manufactured in Australia
- 5 year warranty
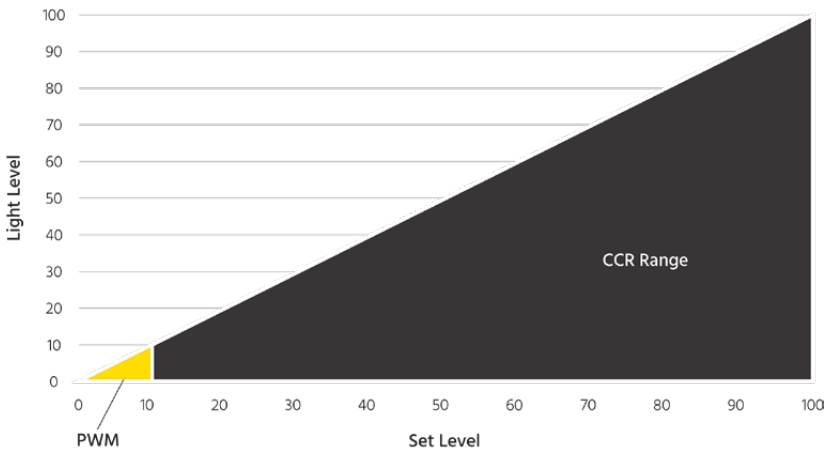
Applications

- Theatres/Auditoriums
- Landscape lighting

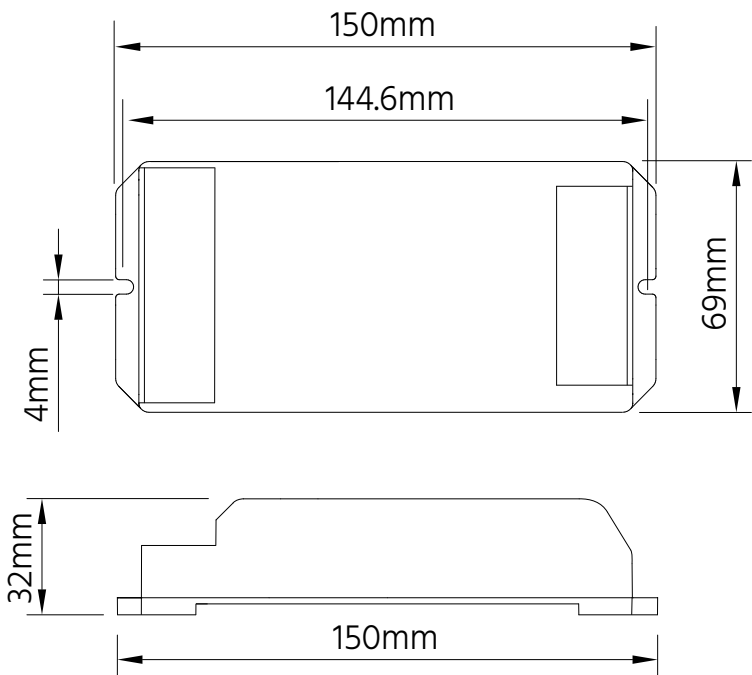- Public art and decorative lighting elements

Code Structure

LDD - CC - TW - DMX - 0**56** - **1400** - FSN - IP20

| Series name | Constant Current | Number of Channels | Supported Dimming Protocol | Max Output Power per Channel | Model # and m/A | Output Type | IP Rating |

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Overview

CAUTION

- Install in a dry sheltered position.
- Interior use only.
- Do not install where water or high humidity may be present without further protection.
- Ensure adequate ventilation.
- Installation should only be performed by a qualified professional.
- Install in accordance with all appropriate wiring standards.
- Never connect a LED luminaire 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 luminaire. Failure to do so may result in damage to both the driver and the luminaire.
- Always turn off power before working on luminaire and driver.
- For optimal EMC performance, keep wiring as short as possible.
- Capacitive load of driver can cause some power supplies to incorrectly trigger short circuit protection.
- Installation should make provision for accessibility and maintenance.

Specifications

Physical

Dimensions	150mm x 69mm x 32mm
Weight	125g
IP Rating	IP20
Ambient Operating Temperature	-10°C - +45°C
Thermal Protection	85°C
Mounting	Direct Fix via screws or Din Mount Adaptor
Build Material	High Temp ABS
Class	III

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Inputs

Model	LDD-CC-TW-DMX-028-0700-FSN-IP20	LDD-CC-TW-DMX-042-1050-FSN-IP20	LDD-CC-TW-DMX-056-1400-FSN-IP20
Voltage	42-48VDC		
Current	700mA	1050mA	1400mA
Communications	DMX512 (E1.11-2008) / RDM (E1.20-2010)		
DMX Load	0.125 - Standard Devices		

Outputs

Drive Current	700	1050	1400
Output Type	Fusion Drive		
Number of Channels	2		
Current per Channel	700mA	1050mA	1400mA
Voltage	20-44VDC*		
Power	Minimum - 0%		
	Maximum - 100%		
PWM Frequency	1800Hz		
Recommended Max Cable Length	3m		

* Allow for a 4V drop between Vin and Vled eg (Vin 42V, Vled, 38V)

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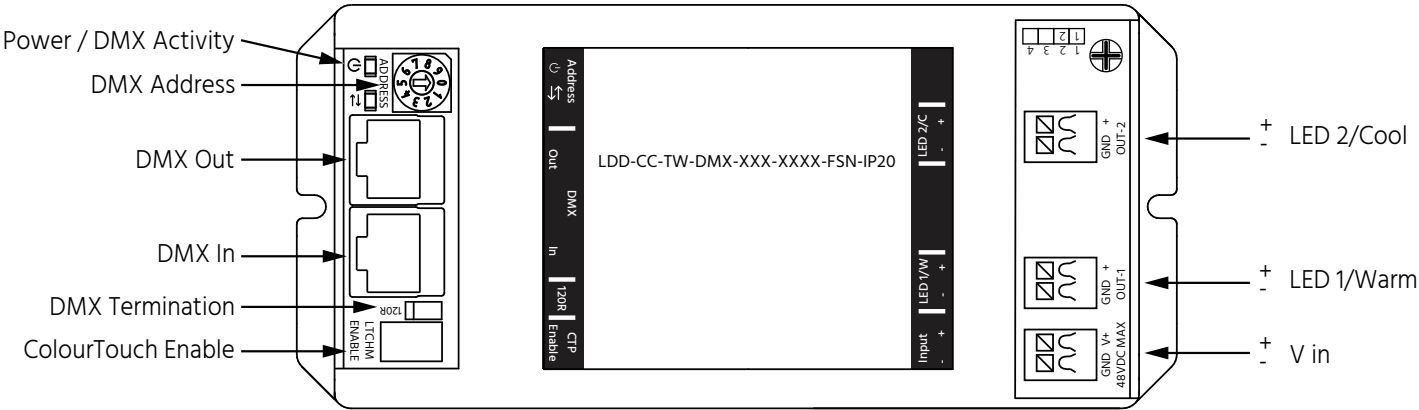## Dimming Curves

The CC DMX FusionDriver is equipped with a Linear Dimming Curve. Figure 1 shows the output of the Dimming Curve.

Minimum Level	0.26%
Maximum Level	100%

DMX Output curves

Connectivity

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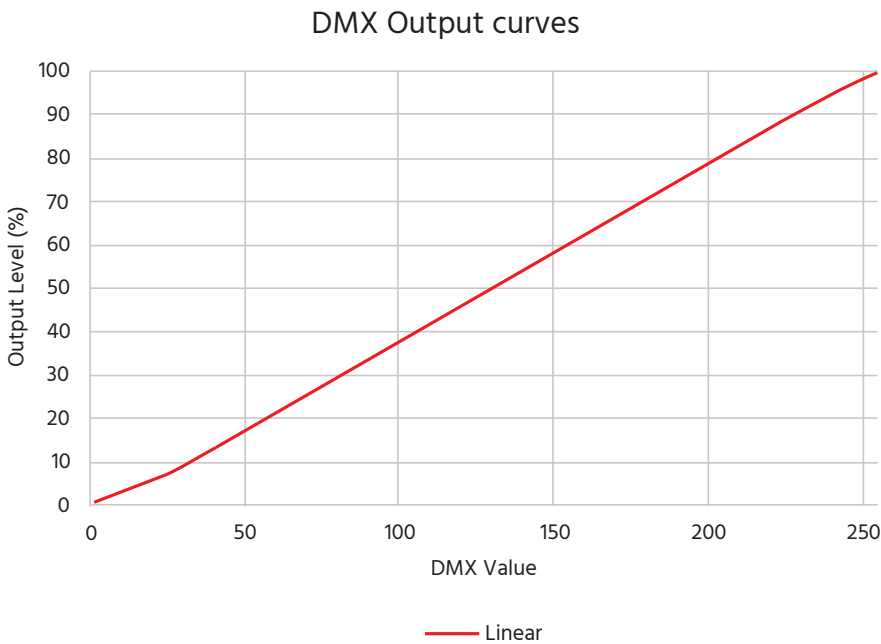
Installation
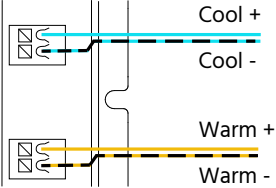
Clearances

Clearance to adjacent heatsource	100mm
General Clearance	30mm

Instructions
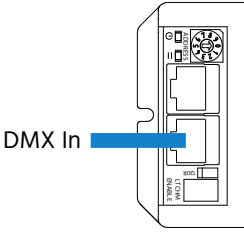
	Wire Type	Cable Sizes		Strip Length
		Minimum	Maximum	
Power Input	Solid/Stranded	0.2mm^2	1.5mm^2	8.5mm-9.5mm
Outputs	Solid/Stranded	0.2mm^2	1.5mm^2	8.5mm-9.5mm

Note: Do not allow drivers to be covered by insulation. Drivers rely on convection air flow for cooling and covering them may cause them to enter thermal regulation.
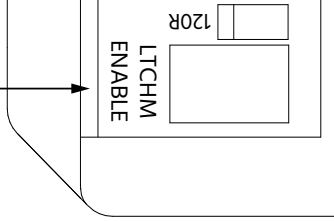

1. Secure driver(s) in place, allowing for specified clearances.
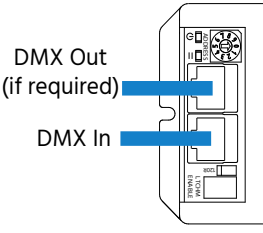
2. Connect Luminaire(s) to Outputs.
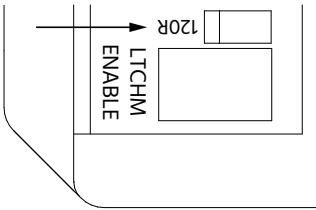
3. Connect DMX Input.

3a. If using a ColourTouch, turn the ColourTouch Enable switch on ONLY on the unit directly connected to the Colour Theme.

4. Connect DMX Output (if required).

4a. If at the end of the DMX network, enable the 120R Termination resistor.

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Instructions continued

5. Set the DMX address (alternatively this can be set using RDM commands).

6. Connect to power.

7. Turn on.

Wiring Diagrams

Downlight

DMX Out (if required)

DMX In

LDD-CC-TW-DMX-XXX-XXXX-FSN-IP20

Cool +
Cool -

Warm +
Warm -

42-48V DC

DC Power Supply

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Operation

Status & Indicator LEDs

Colour	Status / Indicator	Mode	Normal Operation
Red	Power	Solid On	Power is connected
Green	DMX Activity	Solid On	DMX Signal detected
		Off	No DMX Signal detected
	Over Temperature Failure	Flashing sequence	Over temperature

T_c Location

Max T_c = 65°C

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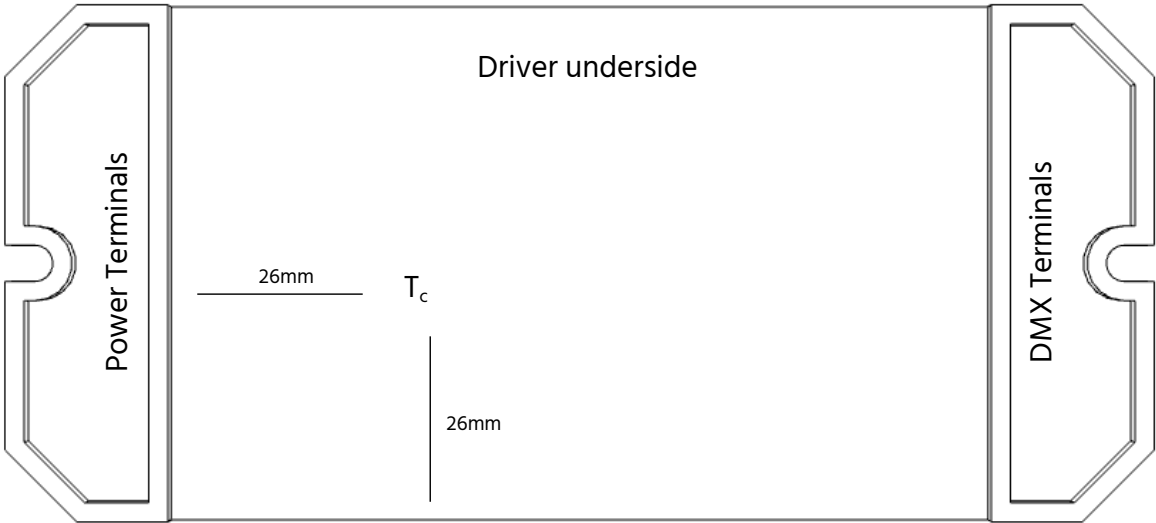
Setting Addresses

DMX address can be set using the rotary DIP switch (1 through 9) or RDM (full range). Changing the rotary address switch while the unit is on witll clear any address set via RDM. Setting the rotary address switch to position 0 will enable the test mode.

DMX Channel Mapping

DMX Address	Control	Valid Values
Base Address	CCT mix - 0 (Warm) / 255 (Cool)	0-255
Base Address + 1	Dimming Level	0-255

Fallback Output

When DMX signal is lost, the device will fallback to an error state. This error state by default is 50% light output. Alternatively, this error state can be configured by RDM.

Test Modes

Test Mode can be entered by setting the DMX address to 0 or by using RDM commands. When entered using the DMX address, test mode continues until the address is changed. When test mode is entered using RDM. the test sequence is run once.

The test sequence ramps each channel individually to full power and back to off.

ColourTouch Connection

A ColourTouch Controller can be directly connected to the Tuneable White Fusion Driver. To connect the driver to a ColourTouch Controller, plug it into the DMX input and switch the ColourTouch Enable Switch to ON and set the address to 1.

For any subsequent DMX receivers on the network, they should be set to DMX address 1, but the ColourTouch Enable switch should not be on.

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Appendix A - DMX Personalities

DMX Personalities can be switched using RDM.

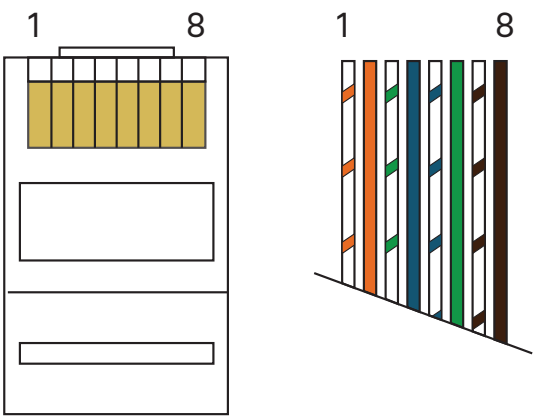| Personality	Default	Description	PWM Frequency	Smoothing
1	**Yes**	Linear Dimming	1800Hz	55ms

Appendix B - Supported RDM Commands & Parameters

Discovery Commands

- Discovery Unique Branch
- Discovery Mute
- Discovery UnMute

Get/Set Commands

- Communication Status
- Supported Parameters
- Device Info
- Product Details ID List
- Device Model Description
- Manufacturer Label
- Device Label
- Software Version Label
- DMX Personality
- DMX Personality Description
- DMX Start Address
- Slot Info
- Slot Description
- Identify Device
- Perform Self Test
- Queued Message
- Factory Defaults
- Sensor Definition
- Sensor Value
- Capture Preset
- Preset Playback
- Preset Status
- DMX Fail Mode
- DMX Startup Mode

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Appendix C - DMX ON CAT5/CAT6 Cables

The LDD-DMX uses RJ45 connectors for DMX as per E1.11-2008(R2013). DMX cabling uses straight through cables (ie both ends should be wired identically). The below table and diagram show the standard for the T568B wiring scheme.

RJ45 Pin	Wire Colour	Signal
1	Orange/White	Data +
2	Orange	Data -
3	Green/White	
4	Blue	*ColourTouch +
5	Blue/White	*ColourTouch -
6	Green	
7	Brown/White	Data Common
8	Brown	Data Common

Appendix D - Basic Troubleshooting

Discovery Commands	Get/Set Commands
• No Light Output	• Check power to the device Input terminals read stable 42 - 48VDC • Check Luminaire Wiring Output
• Light stuck on 50% (No Dimming)	• Check DMX connection. Make sure data+ and data- on correct pins • Make sure DMX controller is powered on and running
• RED power light not on solid or turning on/off	• Check power supply connections
• No Light Output (Green LED flashing sequence)	• Driver running in Over Temperature Protection Mode. Please ensure drivers have adequate ventilation.

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