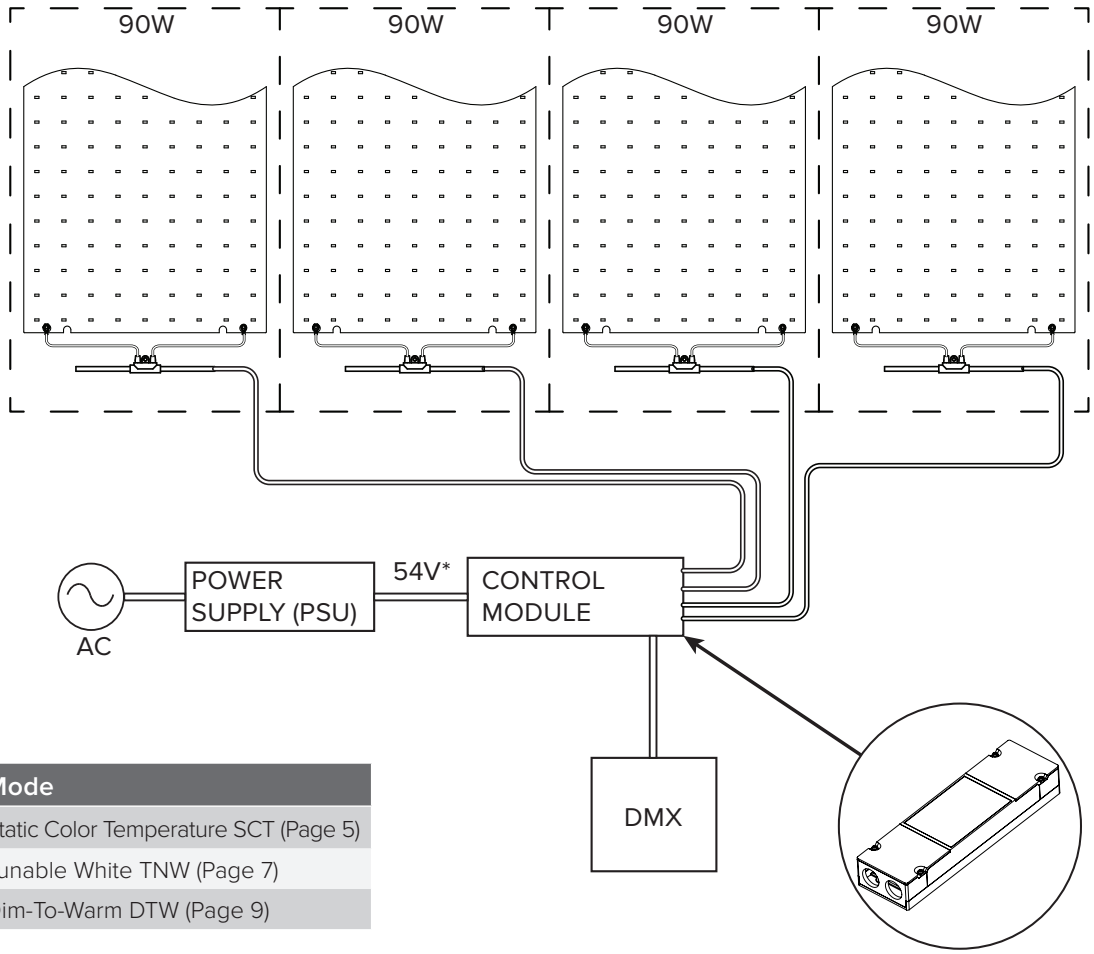
COOLEDGE™

COOLEDGE POWER & CONTROL - USER GUIDE

DMX CONTROL

NOTE: This illustration shows a Static Color Temperature system. A Tunable White or Dim to Warm Lighting Control Module will be limited to a maximum of 2 channels of 90W each.



Compatible Part No's	Mode
CTR-SCT-DMX/010-48/58V	Static Color Temperature SCT (Page 5)
CTR-TNW-DMX/010-48/58V	Tunable White TNW (Page 7)
CTR-DTW-DMX/010-48/58V	Dim-To-Warm DTW (Page 9)

* For use with 54VDC power supplies ONLY.

⚠ Control Module is suitable for use in dry locations only (IP20).

⚠ Control Module and Power Supply must be installed by a qualified electrician.

⚠ All devices should always be disconneced from mains power supply and verify its absence prior to installation/maintenance.

⚠ Damage to Control Module and/or light sheets may occur if wired incorrectly.

FCC STATEMENT:
This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions:
(1) This device may not cause harmful interference.
(2) This device must accept any interference received, including interference that may cause undesired operation.

CE c UL us LISTED UK CA RoHS

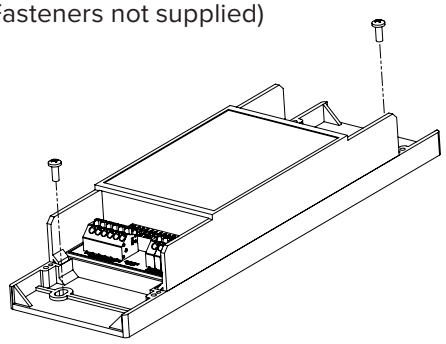
5 Year Limited Warranty:
Parts and workmanship

Cooledge Lighting Inc.
110-13551 Commerce Parkway
Richmond, BC V6V 2L1 Canada

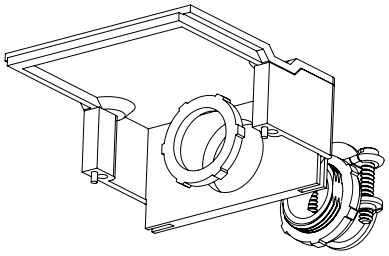
O +1 604 273 2665
F +1 604 273 2660
T +1 844 455 4448
W cooledgelighting.com

MOUNTING COOLEDGE CONTROL MODULE

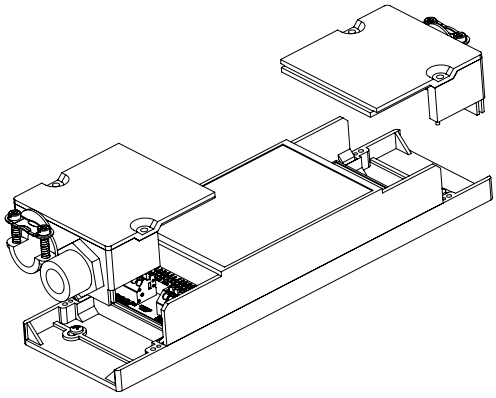
1) Fasten module in position by using the two mounting slots. (Fasteners not supplied)



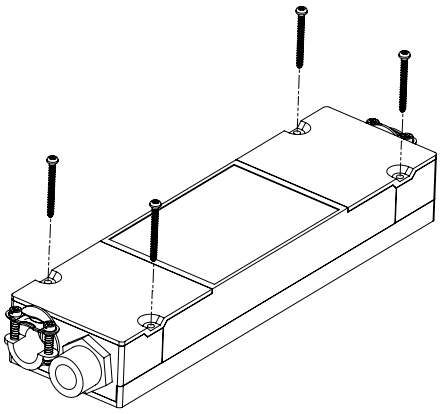
2) Terminal covers support 1/2” strain relief of conduit. Conduit or armoured cable must be used on power input cable.



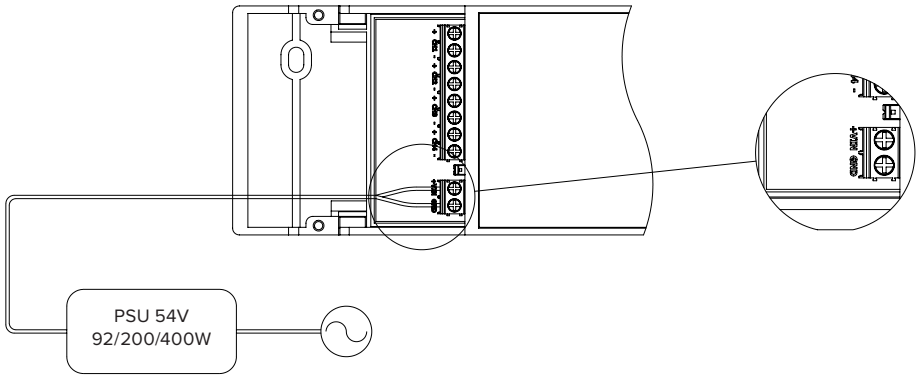
3) Thread cables through conduit/strain reliefs and covers; then make connections as required.



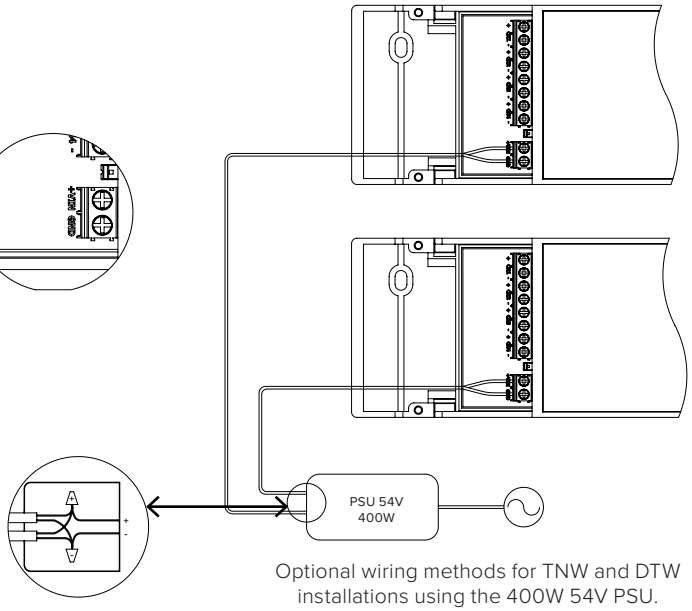
4) Snap covers in position and secure with provided fasteners. Tighten screws for strain reliefs.



INPUT POWER



Please refer to page 14 for more information regarding the status LED indicator.

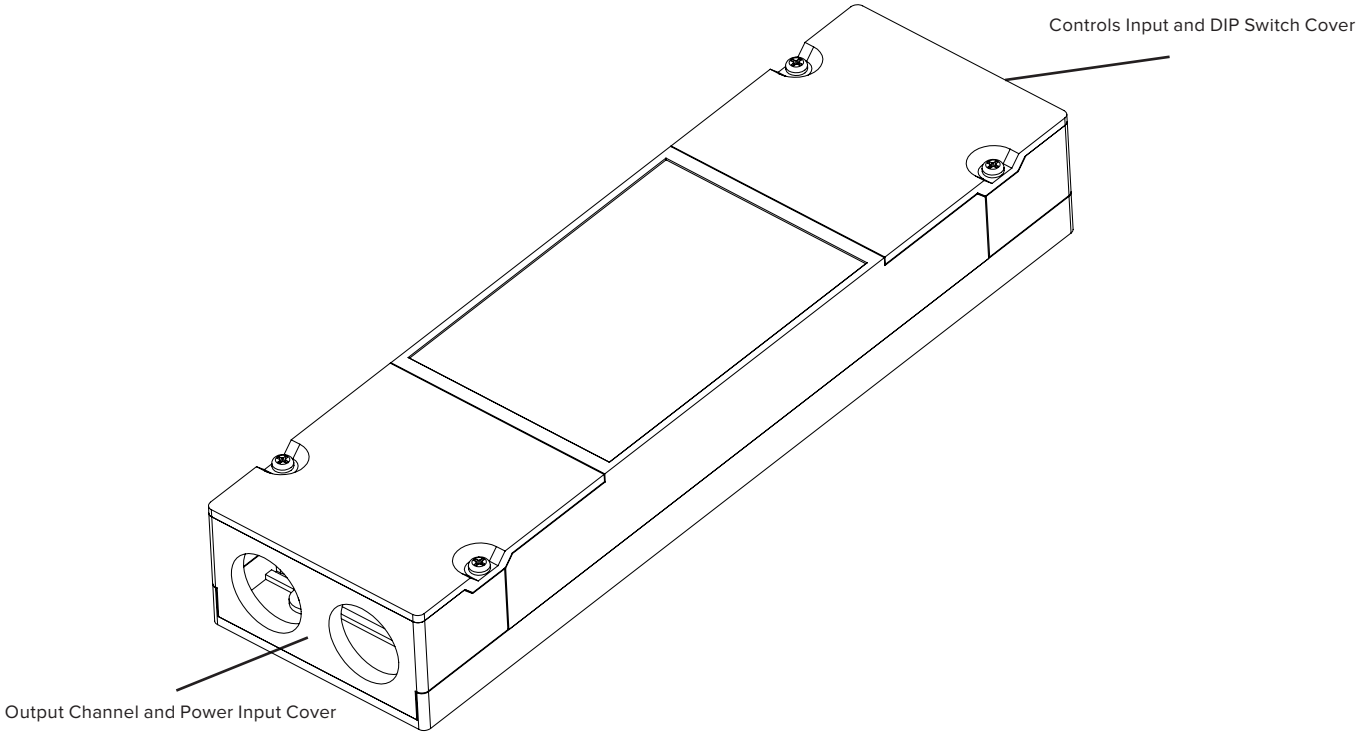


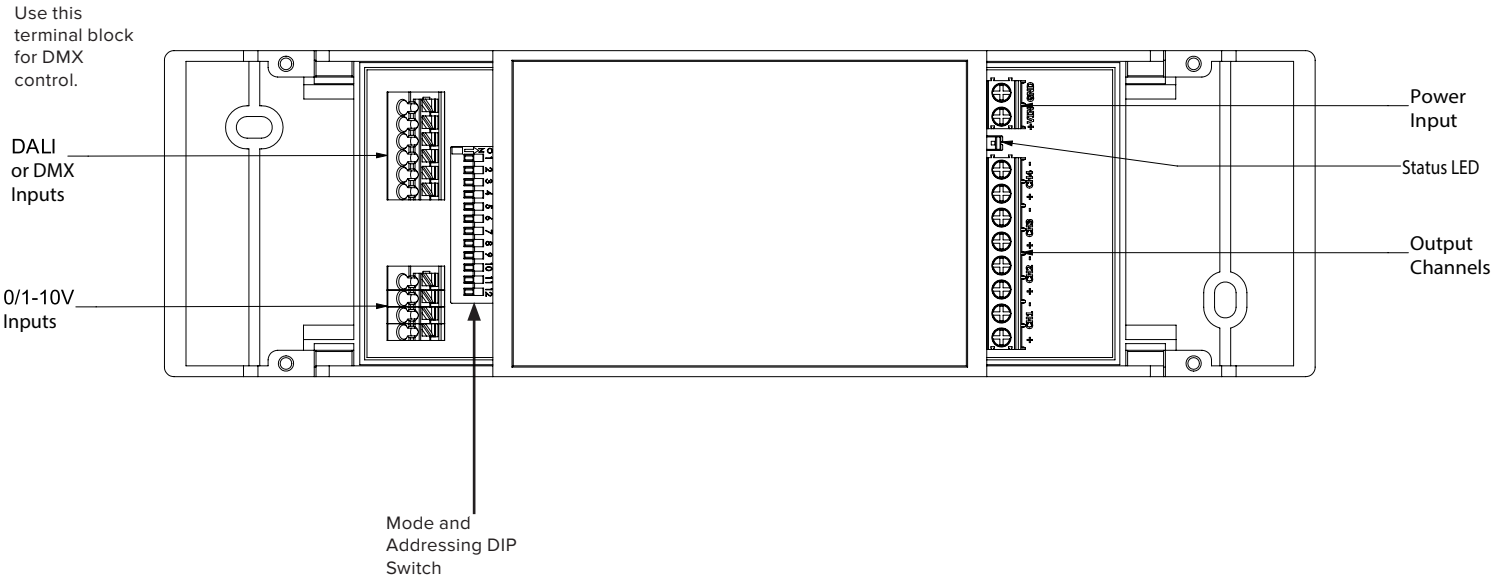
Optional wiring methods for TNW and DTW installations using the 400W 54V PSU.

cUL Listed 54V	Control Module	92W PSU	200W PSU	400W PSU
Dimensions (in)	9.4 x 2.7 x 1.4	15.9 x 3.0 x 1.5	15.9 x 3.0 x 1.5	15.9 x 3.0 x 1.5
CE Compliant 54V	**Control Module**	**92W PSU**	**200W PSU**	**400W PSU**
Dimensions (mm)	240 x 68 x 36	404 x 77 x 39	404 x 77 x 39	404 x 77 x 39

INTRODUCTION TO COOLEDGE CONTROL MODULE

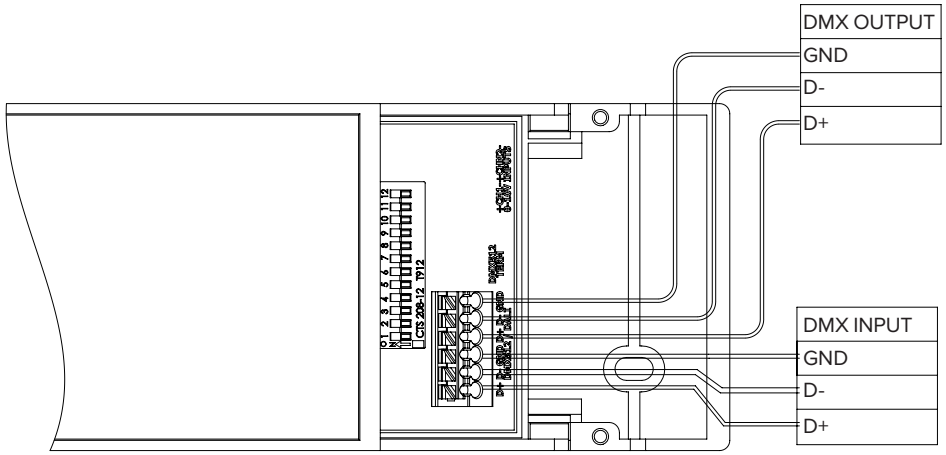
The Cooledge Control Module receives a single DC power input from a constant voltage power supply 54V and supplies it to up to 4 controlled output channels of max. 90W each. Input signals from 3rd party control interfaces are used to control dimming. The control protocol required to interface with the controller determines which Control Module product model is required: DALI (0/1-10V), DMX, or Wireless (Casambi). This guide will reference the DMX model only.



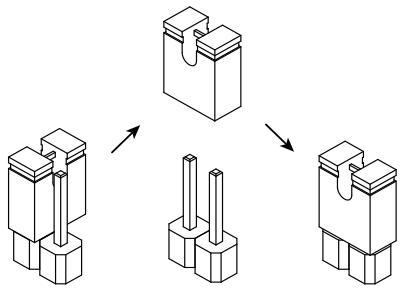


To access the DIP switches for selecting the operational mode, remove controls input cover.
Positions 1-3 are used to identify the controller mode. Settings for each mode are explained in each section.

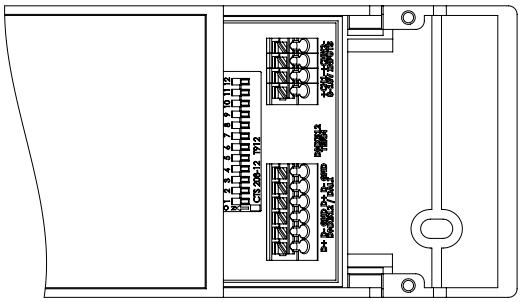
CONTROL INPUTS: DMX

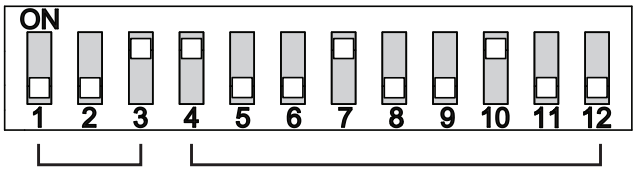


When installing the final controller (termination point) in a DMX network use the provided jumper on the indicated header.



SELECTING DMX ADDRESSES





Switches 1 - 3: Factory set, refer to EXT-0071 for details.
Switches 4 - 12: Addressing switches.

- To access the dip switch for selecting addresses for DMX controls, unfasten the screws for the Controls Input and DIP Switch Cover.

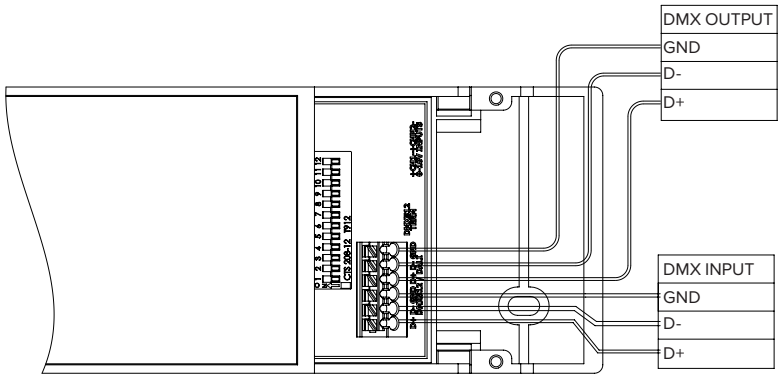
DMX Controllers are factory set to address 1

- Each of the 9 switches (4-12) represents a bit in binary representation for the address. For example, when switch 12 is 'ON' address 1 is set, if switch 12 & 11 are 'ON' then address 3 is set. The address is set by the sum of the values of each 'ON' switch. Addresses 1 through 511 are possible.

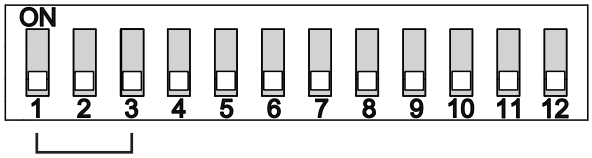
Switch:	4	5	6	7	8	9	10	11	12
Address:	256	128	64	32	16	8	4	2	1

STATIC COLOR TEMPERATURE (SCT)

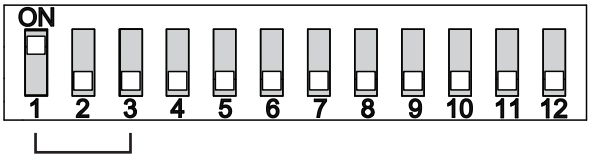
Static color temperature mode allows the control and dimming of 4 output channels, each up to 90W using the following Cooledge products: TILE interior and TILE Exterior. Two dimming curves are available and can be selected using DIP Switches: 16-bit or 8-bit. Fully Compliant with USITT DMX512-A (E1.11-2008 (R2013)).



LOG SCT - 16-bit



LOG SCT - 8-bit



Switches 1 - 3: Control Module MODE

See APPENDIX A for details on Dimming Curves.
Warning! Changing DIP Switch Setting must be performed only after unit is powered down

For LOG SCT 16-bit Mode each Output Channel uses 2 DMX Channels:
1 for DIM Coarse
1 for DIM Fine
In total, each controller occupies 8 DMX channels, assigned as below:
DMX CH1 – DIM Coarse Output CH1
DMX CH2 – DIM Fine Output CH1
DMX CH3 – DIM Coarse Output CH2
DMX CH4 – DIM Fine Output CH2
DMX CH5 – DIM Coarse Output CH3
DMX CH6 – DIM Fine Output CH3
DMX CH7 – DIM Coarse Output CH4
DMX CH8 – DIM Fine Output CH4

Example of addressing units for LOG SCT 8-bit Mode on DMX bus:
Unit 1 takes DMX Address = 1 and unit occupies DMX Channels # 1-8 with DIP settings 000 000000001
Unit 2 takes DMX Address = 9 and unit occupies DMX Channels # 9-16 with DIP settings 000 000001001
Unit 3 takes DMX Address = 17 and unit occupies DMX Channels # 17-24 with DIP settings 000 000010001

OUTPUT CONNECTIONS: STATIC COLOR TEMPERATURE (SCT)

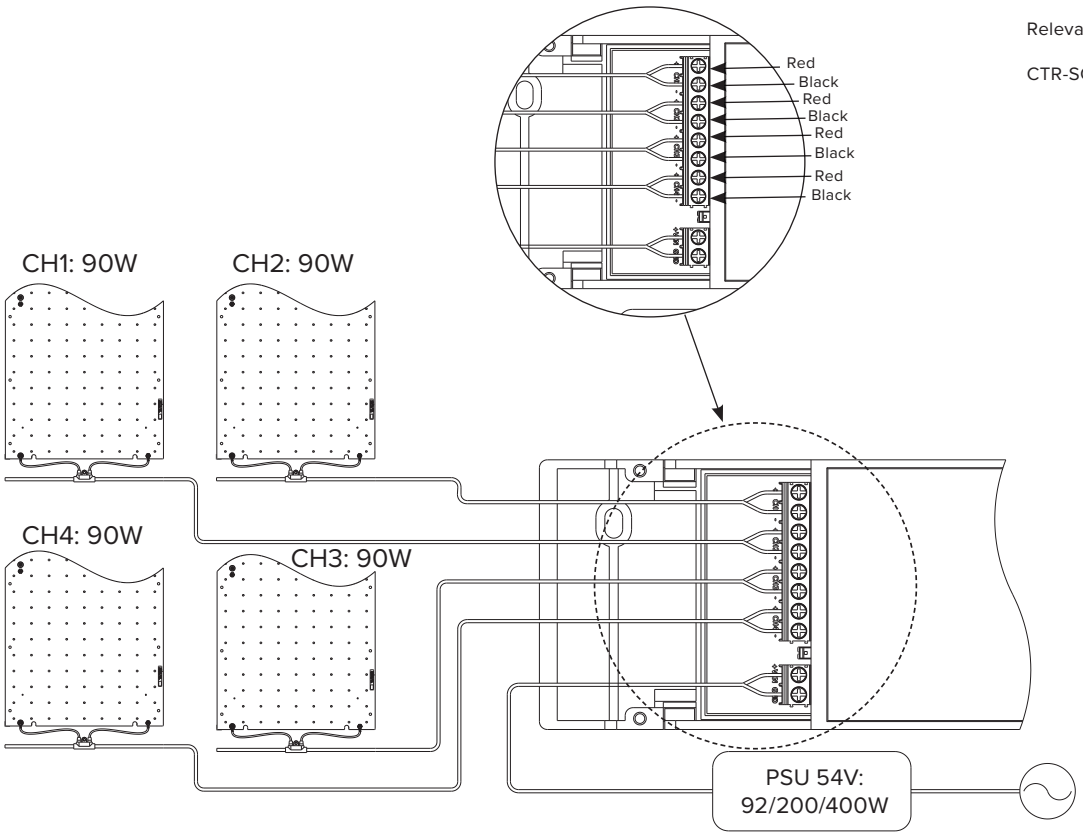
For LOG SCT 8-bit Mode each Output Channel uses 1 DMX Channels:

In total, each controller occupies 4 DMX channels, assigned as in the example below:

DMX CH1 – DIM Output CH1
DMX CH2 – DIM Output CH2
DMX CH3 – DIM Output CH3
DMX CH4 – DIM Output CH4

Example of addressing units for LOG SCT 8-bit Mode on DMX bus:

Unit 1 takes DMX Address = 1 and unit occupies DMX Channels # 1-4 with DIP settings 100 000000001
Unit 2 takes DMX Address = 5 and unit occupies DMX Channels # 5-8 with DIP settings 100 000000101
Unit 3 takes DMX Address = 9 and unit occupies DMX Channels # 9-12 with DIP settings 100 000001001

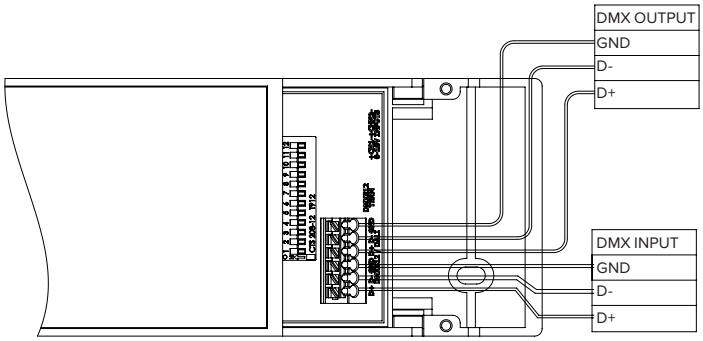


Relevant Part No's:

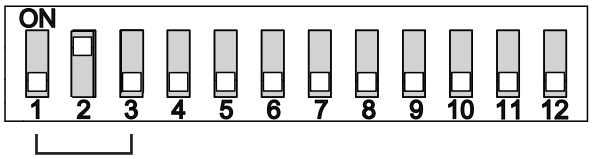
CTR-SCT-DMX/010-48/58V

TUNABLE WHITE (TNW)

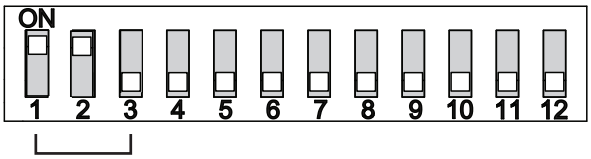
Tunable White is a mode in the Control Module to be used in conjunction with TILE Tunable White. Powering a single Control Module in this mode can done with 54V 92W/200W power supplies. A 400W power supply can be used, but must be connected to 2 Control Modules to avoid violating the 90W Class 2 power rating. Refer to the diagram on the bottom of page 2. Two dimming curves are available and can be selected using DIP Switches: 16-bit or 8-bit. Fully Compliant with USITT DMX512-A (E1.11-2008 (R2013)).



TNW - 16-bit



TNW - 8-bit



Switches 1 - 3: Control Module MODE

See dimming curve for Tunable White Mode in APPENDIX B for details on Dimming Curves.
Warning! Changing DIP Switch Setting must be performed only after unit is powered down

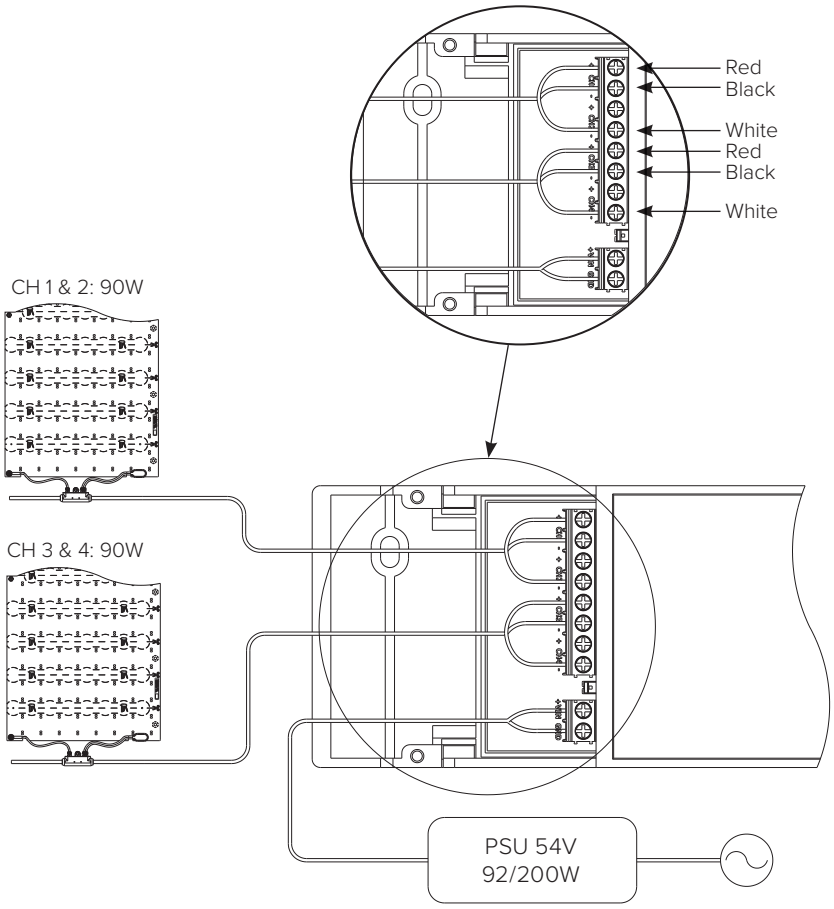
For TNW 16-bit Mode each Tunable Output Channel uses 4 DMX Channels:
1 for DIM Coarse
1 for DIM Fine
1 for CCT Coarse
1 for CCT Fine
In total, each controller occupies 8 DMX channels, assigned as below:
DMX CH1 – DIM Coarse TNW Output CH 1 & 2
DMX CH2 – DIM Fine TNW Output CH 1 & 2
DMX CH3 – CCT Coarse TNW Output CH 1 & 2
DMX CH4 – CCT Fine TNW Output CH 1 & 2
DMX CH5 – DIM Coarse TNW Output CH 3 & 4
DMX CH6 – DIM Fine TNW Output CH 3 & 4
DMX CH7 – CCT Coarse TNW Output CH 3 & 4
DMX CH8 – CCT Fine TNW Output CH 3 & 4

Example of addressing units for TNW Mode on DMX bus:
Unit 1 takes DMX Address = 1 and unit occupies DMX Channels # 1-8 with DIP settings 010 000000001
Unit 2 takes DMX Address = 9 and unit occupies DMX Channels # 9-16 with DIP settings 010 000001001
Unit 3 takes DMX Address = 17 and unit occupies DMX Channels # 17-24 with DIP settings 010 000010001

OUTPUT CONNECTIONS: TUNABLE WHITE (TNW)

For TNW 8-bit Mode each Tunable Output Channel uses 2 DMX Channels:
1 for DIM
1 for CCT
In total, each controller occupies 4 DMX channels, assigned as below:
DMX CH1 – DIM Output CH 1 & 2
DMX CH2 – CCT Output CH 1 & 2
DMX CH3 – DIM Output CH 3 & 4
DMX CH4 – CCT Output CH 3 & 4

Example of addressing units for TNW 8-bit Mode on DMX bus:
Unit 1 takes DMX Address = 1 and unit occupies DMX Channels # 1-4 with DIP settings 110 000000001
Unit 2 takes DMX Address = 5 and unit occupies DMX Channels # 5-8 with DIP settings 110 000000101
Unit 3 takes DMX Address = 9 and unit occupies DMX Channels # 9-12 with DIP settings 110 000001001

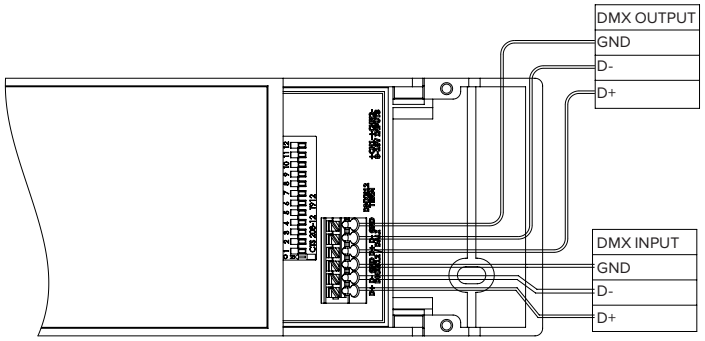


Relevant Part No's:

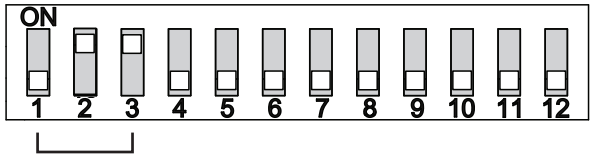
CTR-TNW-DMX/010-48/58V

DIM-TO-WARM (DTW)

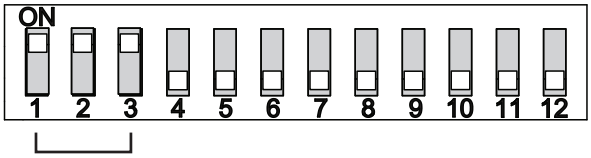
Dim-to-Warm is a mode in the Control Module to be used in conjunction with the Dim-to-Warm option of TILE Tunable White.
In this mode the CCT will adjust from 2200K at lowest dim setting to 3500K at the highest dim setting. Powering a single Control Module in this mode can done with 54V 92W/200W power supplies. A 400W power supply can be used, but must be connected to 2 Control Modules to avoid violating the 90W Class 2 power rating. Refer to the diagram on the bottom of page 2. Two dimming curves are available and can be selected using DIP Switches: 16-bit or 8-bit. Fully Compliant with USITT DMX512-A (E1.11-2008 (R2013)).



DTW - 16-bit



DTW - 8-bit



Switches 1 - 3: Control Module MODE

See dimming curve for Dim to Warm Mode in APPENDIX C.
Warning! Changing DIP Switch Setting must be performed only after unit is powered down

For DTW 16-bit Mode each Tunable Output Channel uses 2 DMX Channels:
1 for DIM Coarse
1 for DIM Fine
CCT is calculated internally

In total, each controller occupies 4 DMX channels, assigned as below:
DMX CH1 – DIM Coarse DTW Output CH 1 & 2
DMX CH2 – DIM Fine DTW Output CH 1 & 2
DMX CH3 – DIM Coarse DTW Output CH 3 & 4
DMX CH4 – DIM Fine DTW Output CH 3 & 4

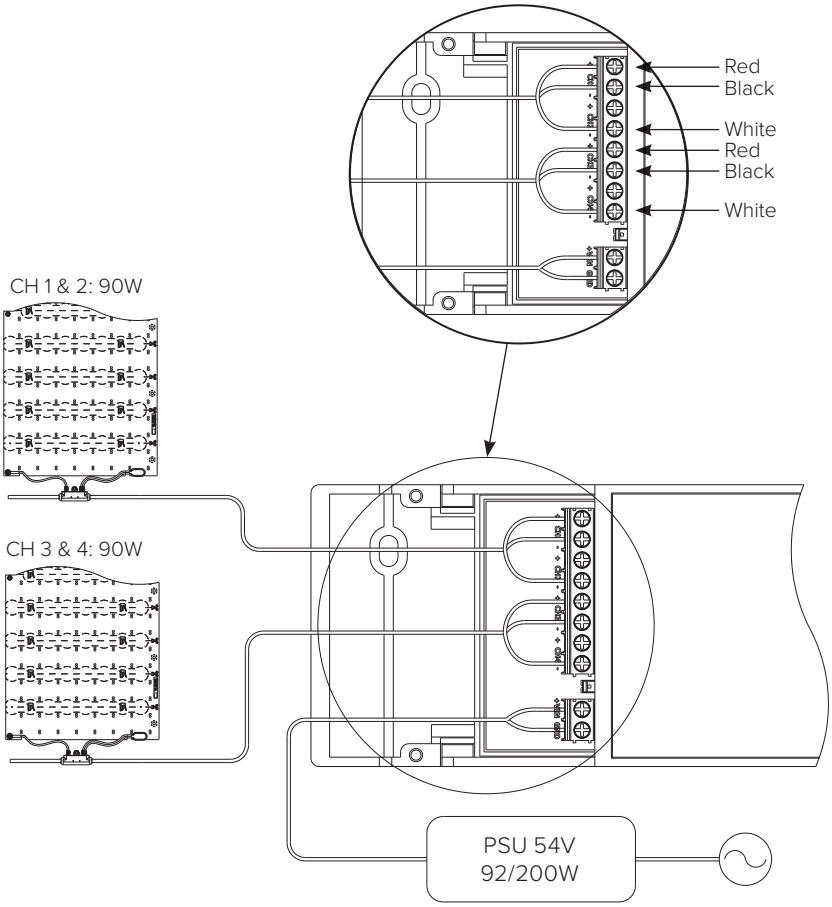
Example of addressing units for DTW Mode on DMX bus:
Unit 1 takes DMX Address = 1 and unit occupies DMX Channels # 1-4 with DIP settings 011 000000001
Unit 2 takes DMX Address = 5 and unit occupies DMX Channels # 5-8 with DIP settings 011 000000101
Unit 3 takes DMX Address = 9 and unit occupies DMX Channels # 9-12 with DIP settings 011 000001001

OUTPUT CONNECTIONS: DIM-TO-WARM (DTW)

For DTW 8-bit Mode each Tunable Output Channel uses 1 DMX Channel.

In total, each controller occupies 2 DMX channels, assigned as below:
DMX CH1 – DIM DTW Output CH 1 & 2
DMX CH2 – DIM DTW Output CH 3 & 4

Example of addressing units for DTW Mode on DMX bus:
Unit 1 takes DMX Address = 1 and unit occupies DMX Channels # 1-2 with DIP settings 111 000000001
Unit 2 takes DMX Address = 3 and unit occupies DMX Channels # 3-4 with DIP settings 111 000000011
Unit 3 takes DMX Address = 5 and unit occupies DMX Channels # 5-6 with DIP settings 111 000000101



Relevant Part No's:

CTR-DTW-DMX/010-48/58V

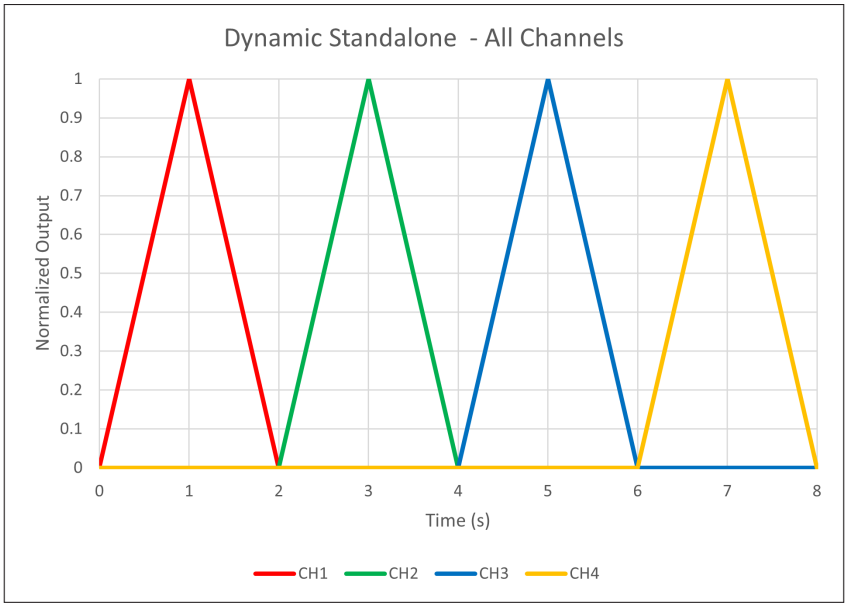
DYNAMIC TEST MODE

Dynamic test mode is used to check the system functionality. This mode will ignore control inputs and cycle through the output range.

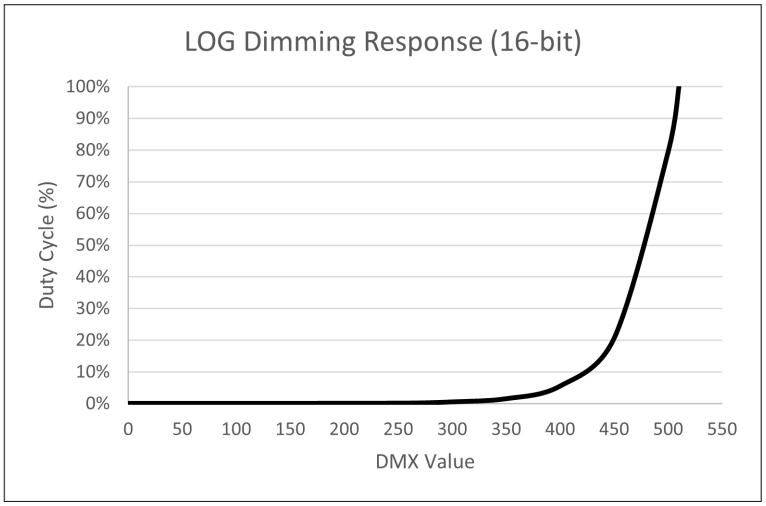
Mode Switches 1-3	Switches 4-12
X-0-1	IGNORED

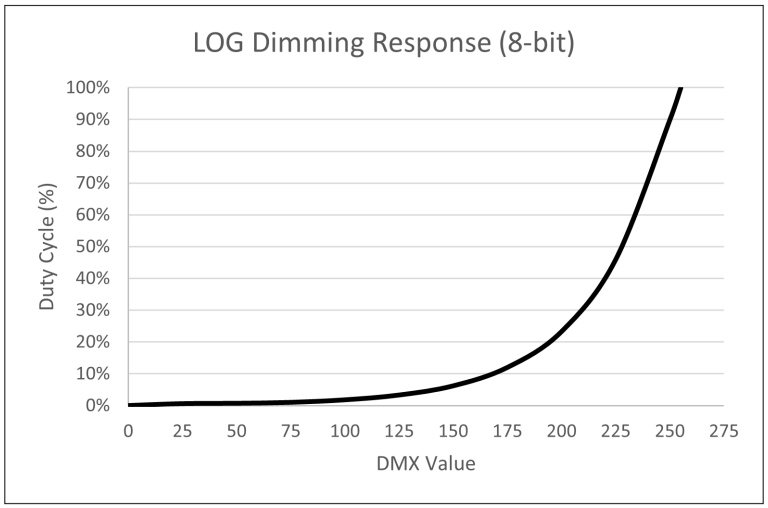
X = IGNORED
1 = ON
0 = OFF

Outputs operate in standard configuration with the output duty cycle of all 4 channels ramping up and down sequentially. Output duty cycle starts from 0% and ramps linearly up to 100% output, then ramps back down to 0% and repeats indefinitely with a period of 8 seconds.

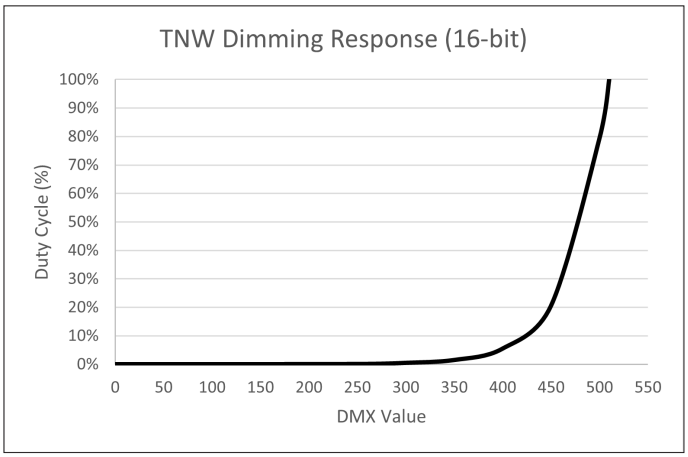


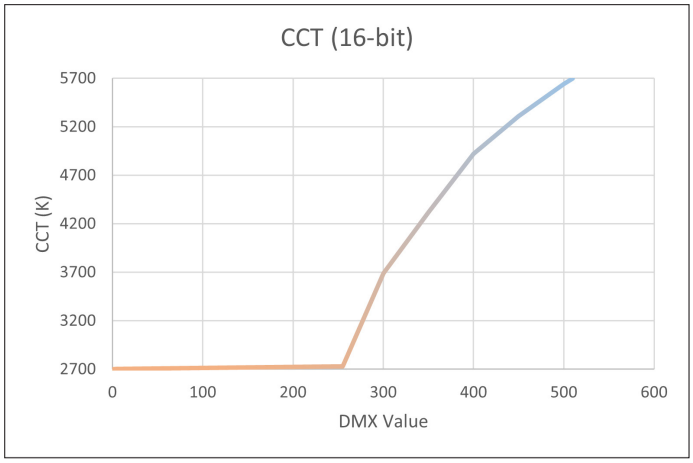
APPENDIX A:

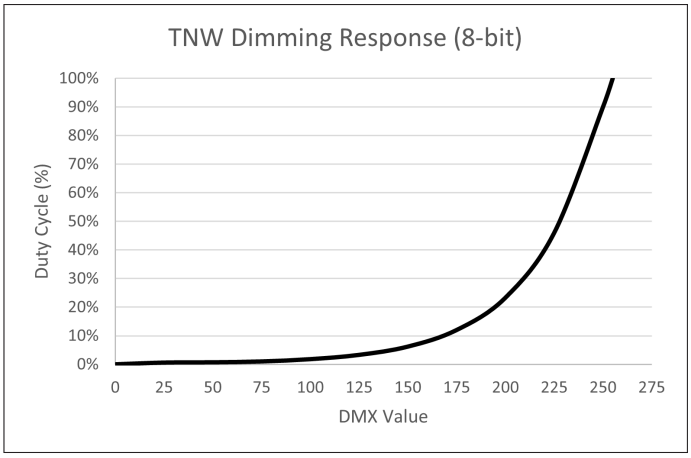

LOG Dimming Response (16-bit)
Duty Cycle (%)
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
0
50
100
150
200
250
300
350
400
450
500
550
DMX Value

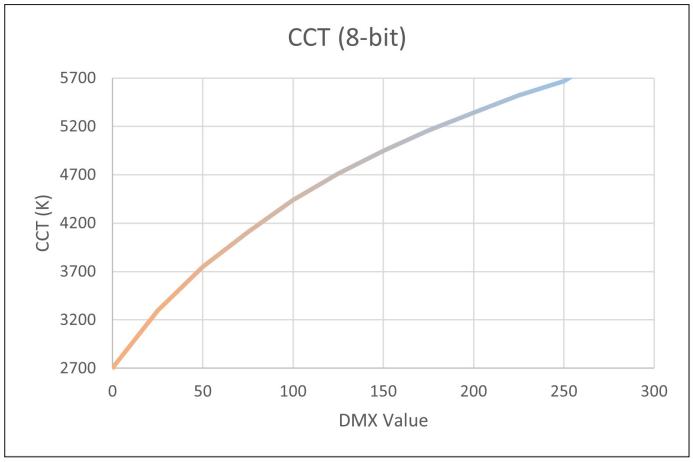

LOG Dimming Response (8-bit)
Duty Cycle (%)
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
0
25
50
75
100
125
150
175
200
225
250
275
DMX Value

APPENDIX B:

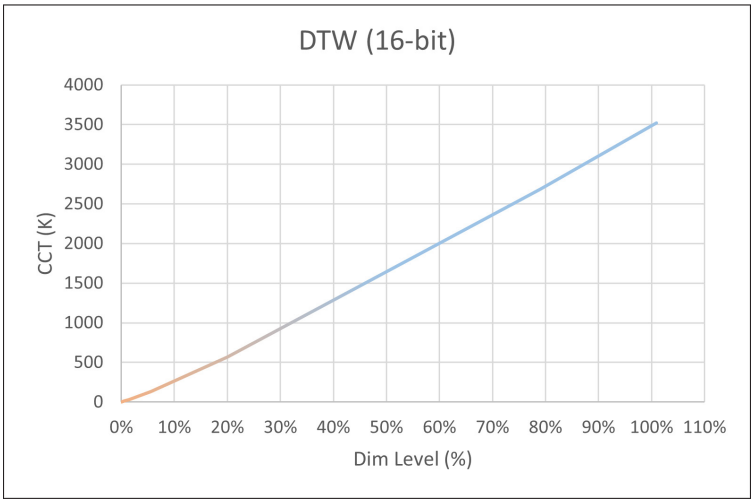

TNW Dimming Response (16-bit)
Duty Cycle (%)
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
0 50 100 150 200 250 300 350 400 450 500 550
DMX Value

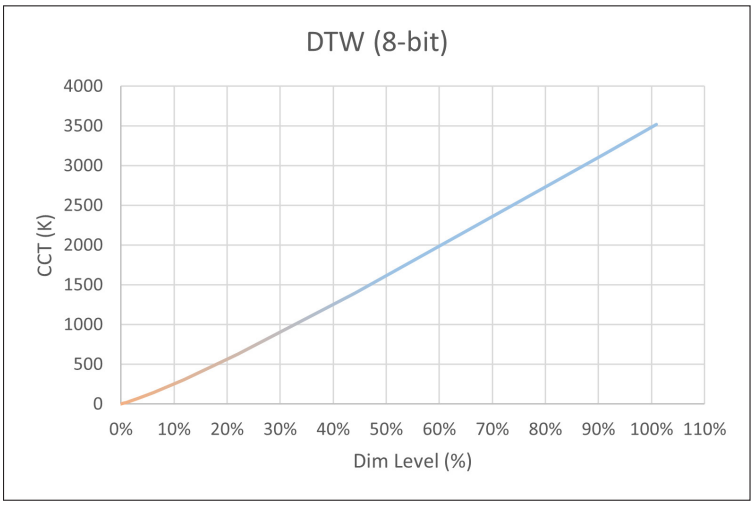

CCT (16-bit)
CCT (K)
5700
5200
4700
4200
3700
3200
2700
0 100 200 300 400 500 600
DMX Value


TNW Dimming Response (8-bit)
Duty Cycle (%)
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
0 25 50 75 100 125 150 175 200 225 250 275
DMX Value


CCT (8-bit)
CCT (K)
5700
5200
4700
4200
3700
3200
2700
0 50 100 150 200 250 300
DMX Value

APPENDIX C:


DTW (16-bit)
CCT (K)
4000
3500
3000
2500
2000
1500
1000
500
0
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
110%
Dim Level (%)


DTW (8-bit)
CCT (K)
4000
3500
3000
2500
2000
1500
1000
500
0
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
110%
Dim Level (%)

TROUBLESHOOTING

CONTROLLER STATUS	MODE	LED STATUS	LOAD BEHAVIOR
OFF (No Input Power)	All	OFF	OFF
Dynamic test mode Recognized	Standalone	Alternate Amber/Green Slow (1 Hz)	Responsive only to DIP switch setting
No Control Input	All	Amber On Steady State	Full ON
Input Over Voltage	All	Amber Flashing Slow (1Hz)	OFF
Input Under Voltage	All	Amber Flashing Fast (8 Hz)	OFF
Output Short Circuit V+ to V-	All	Red Flashing with Intermittent Green	Load is OFF on shorted Channel All loads of the unit, except the shorted one, are flashing The rest of units in the installation remain responsive to DMX commands
Output Overload	All	Red Flashing	Overloaded channel dimmed and flashing at 1s constant rate All other loads of the unit remain responsive to DMX commands
DMX Dim Control Input Shorted	All	LED status OK in correspondence to each Mode, not affected	OFF

PRODUCT SUPPORT

Contact Cooledge Technical Support at:

E apps.engineering@cooledgelighting.com
O +1.781.899.0317
T +1.844.455.4448 (toll free - North America)

Cooledge Lighting Inc.
110-13551 Commerce Parkway
Richmond, BC V6V 2L1 Canada

O +1 604 273 2665
F +1 604 273 2660
T +1 844 455 4448
W cooledgelighting.com