





* For use with 58VDC power supplies ONLY.

Compatible Part No's	Mode
CTR-SCT-DAL-58V	Static Color Temperature SCT (Page 4)
CTR-TNW-DAL-58V	Tunable White TNW (Page 6)
CTR-DTW-DAL-58V	Dim-To-Warm DTW (Page 8)

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

 CONTROL MODULE must be installed by a qualified electrician.

 All devices should always be disconnected 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:

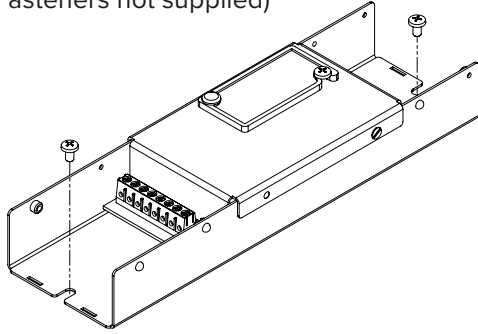
This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions:
 (1) This device may not cause harmful interference.
 (2) This device must accept any interference received, including interference that may cause undesired operation.



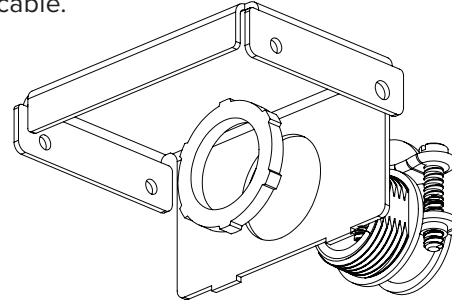
5 Year Limited Warranty:
Parts and workmanship

MOUNTING COOLEGE CONTROL MODULE

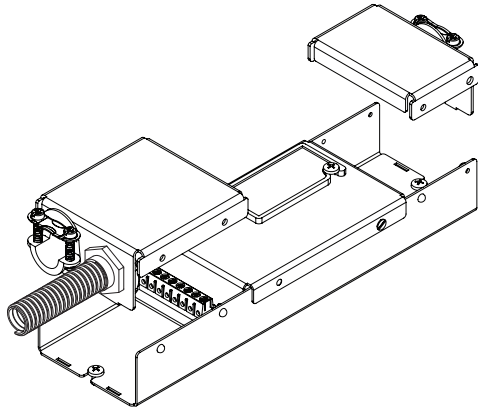
1) Fasten module in position by using the two mounting slots. (Fasteners not supplied)



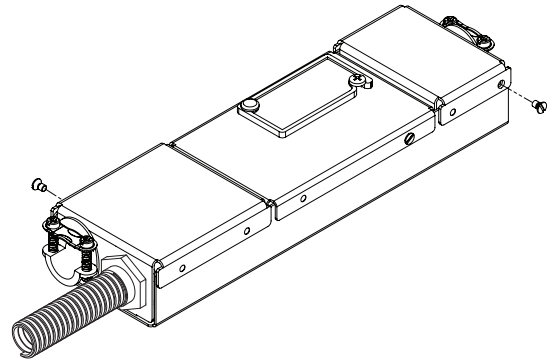
2) Terminal covers support 1/2" strain relief of conduit. Conduit or armored cable must be used on power input cable.



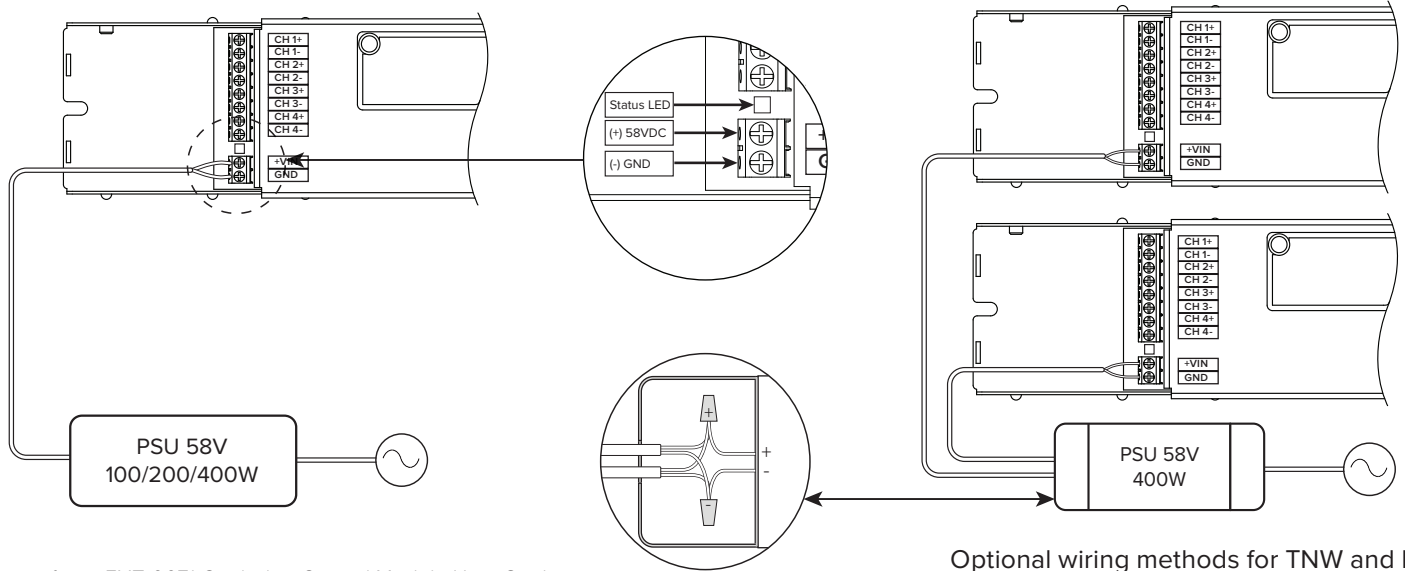
3) Thread cables through conduit/strain reliefs and covers; then make connections as required.



4) Snap covers in position and secure with provided fasteners.



INPUT POWER - 58VDC: 100W / 200W / 400W - SELV



Please refer to EXT-0071 CoolEdge Control Module User Guide for more information regarding the status LED indicator.

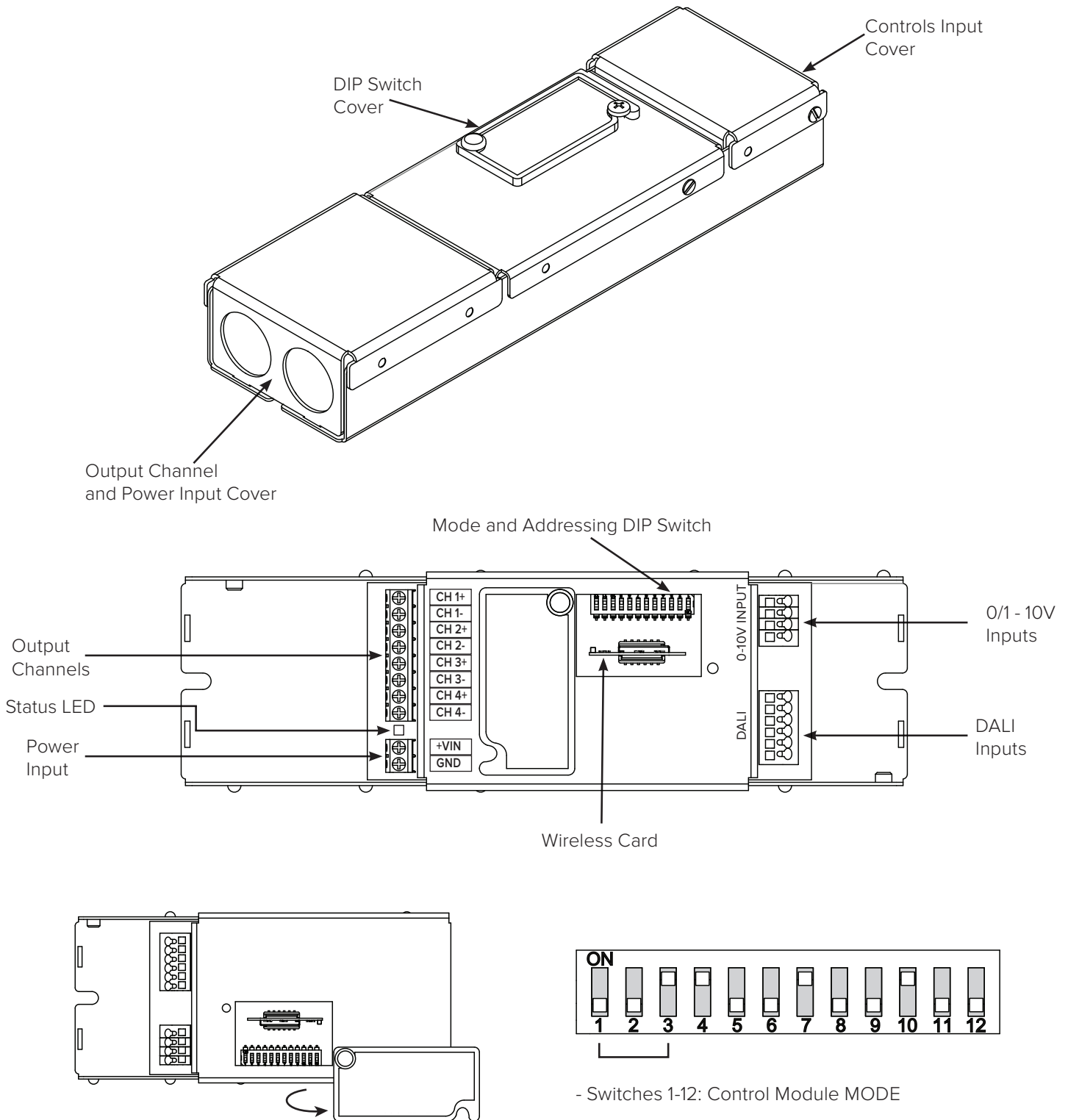
Optional wiring methods for TNW and DTW installations using the 400W 58V PSU.

cUL Listed 58V	Control Module	100W PSU*	200W PSU	400 PSU
Dimensions (in)	8.7 x 2.6 x 1.4	11 x 4 x 3	9.6 x 2.8 x 1.5	16.0 x 4.9 x 1.7
CE Compliant 58V	Control Module	100W PSU	200W PSU	400 PSU
Dimensions (mm)	220 x 66 x 36	199 x 63 x 35	244 x 71 x 38	407 x 124 x 43

* The 100W PSU (58V) cUL version is not compatible with CoolEdge Control Modules.

INTRODUCTION TO COOLEGE CONTROL MODULE

The Cooledge Control Module receives a single DC power input from a constant voltage power supply 58V and converts it into up to 4 controlled output channels of max. 90W each. Input signals from 3rd party controllers are used to control dimming and CCT tuning (if applicable). 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).



To access the DIP switches for selecting the operational mode, unfasten the cover screw and rotate cover out of the way. Positions 1-12 are used to identify the controller mode. Settings for each mode are explained in each section.

STATIC COLOR TEMPERATURE (SCT)

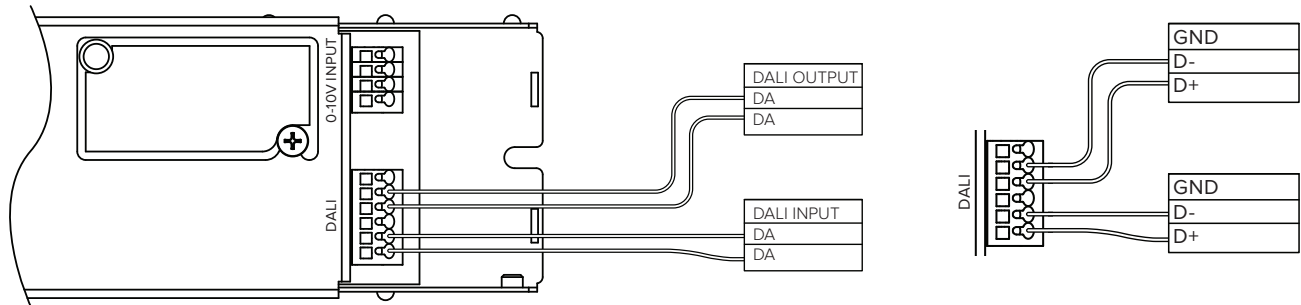
Static color temperature is a mode in the Control Module used for controlling the dimming features of the following Cooleedge products, having a fixed color temperature:

TILE Interior, TILE Exterior, and LINE. There are 4 output channels, each channel can handle up to a 90W load.

There are several modes for SCT selected with DIP switch.

They are explained below.

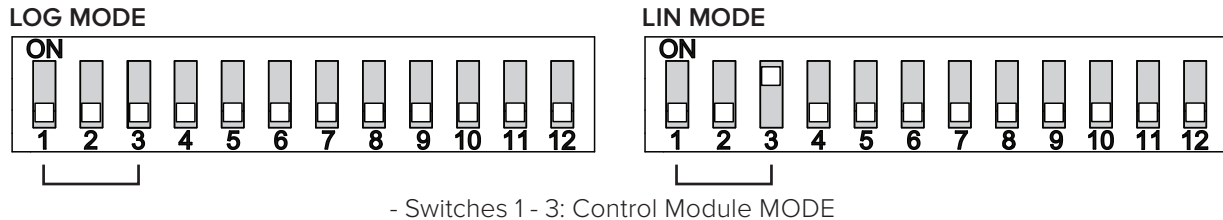
CONTROL INPUTS: DALI



STATIC CONTROL TEMPERATURE 4 ADDRESSES (SCT 4 ADDRESSES)

In this mode, unit commissions with 4 x DALI random addresses. Each address controls the intensity for one 90W output channel. See example in EXAMPLES section (Control Module in SCT 4 ADDRESSES Mode)

In this MODE unit responds to DALI DT6 commands



Dimming Protocol	MODE Switches (LOG)*	MODE Switches (LIN)
DALI SCT 4 ADDRESSES	000 00000000	001 00000000

***Factory set.**

DIP switch setting can be adjusted if another dimming set curve is required.

See APPENDIX A for available dimming curves.

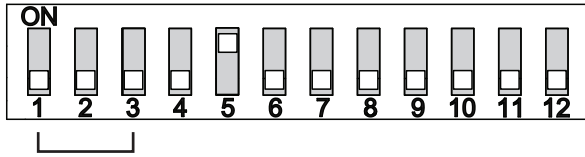
Warning! Changing DIP Switch Setting must be performed only after unit is powered down.

STATIC CONTROL TEMPERATURE 1 ADDRESS MODE (SCT 1 ADDRESS)

In this mode, unit commissions with 1 x DALI random address. The address controls synchronized intensity for all 4x 90W output channels. See example in EXAMPLES section

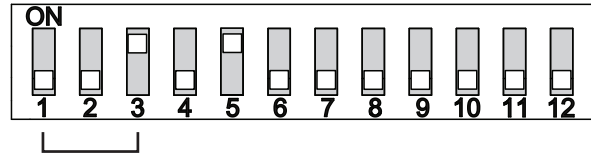
In this MODE unit responds to DALI DT6 commands

SCT 1 Address LOG MODE



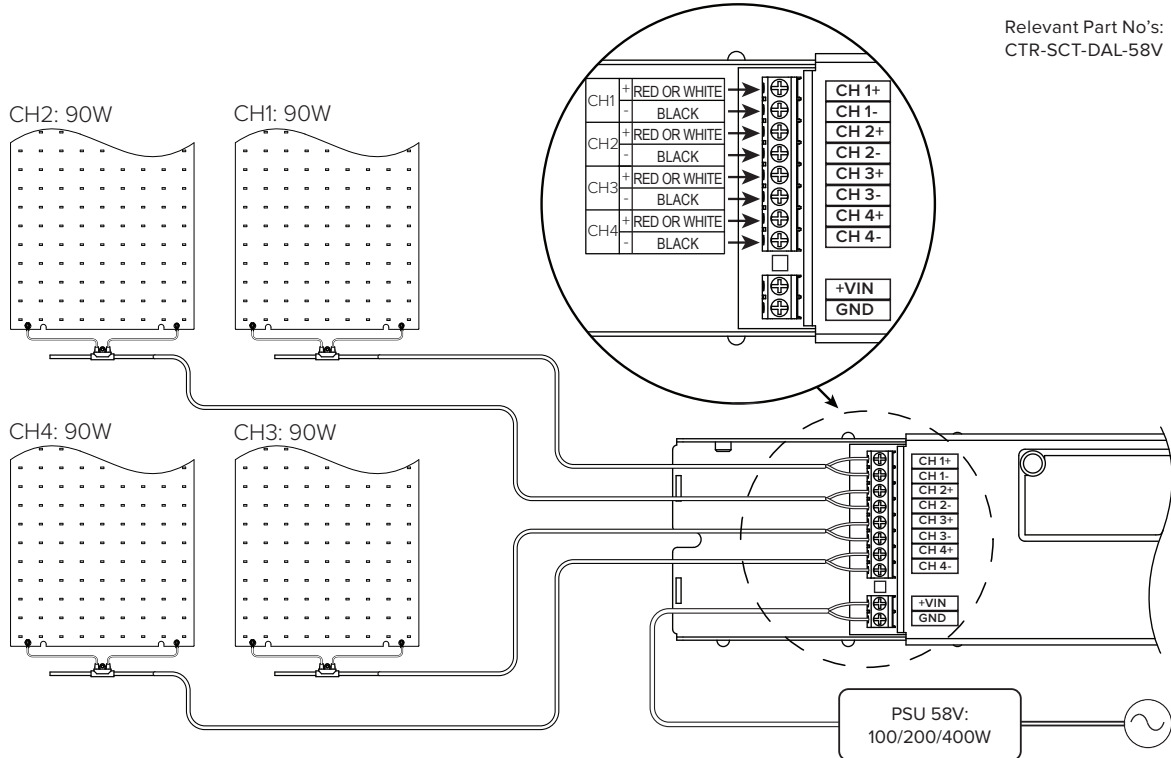
Dimming Protocol	MODE Switches (LOG)
DALI SCT 1 ADDRESS	000 01000000

SCT 1 Address LIN MODE



Dimming Protocol	MODE Switches (LIN)
DALI SCT 1 ADDRESS	001 01000000

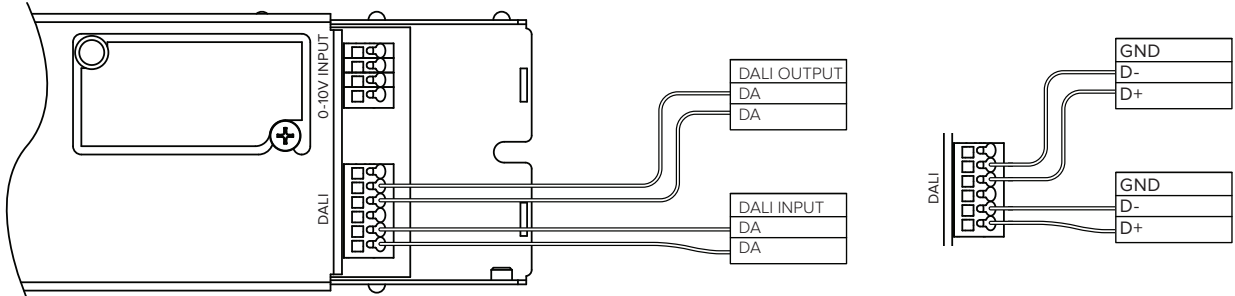
OUTPUT CONNECTIONS: STATIC COLOR TEMPERATURE (SCT)



TUNABLE WHITE (TNW)

Tunable White is a mode in the Control Module to be used in conjunction with TILE Tunable White. Powering the controller in this mode can be done with 58V 100W/200W/400W drivers. A 400W driver can power up to 2 Control Modules

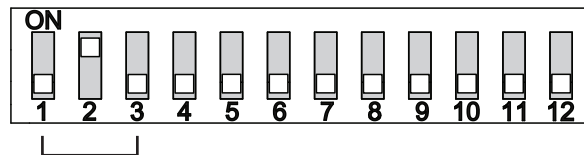
CONTROL INPUTS: DALI



There are several modes for TNW selected with DIP switch. They are explained below

TNW 4 ADDRESSES

Two independent TNW channels
 Unit commissions with 4 x DALI random addresses
 2 x random addresses control each independent TNW 90W output channel:
 1 DALI address controls intensity
 1 DALI address controls CCT
 See example in EXAMPLES section
 In this MODE unit responds to DALI DT6 commands



- Switches 1 - 3: Control Module MODE

Dimming Protocol	MODE Switches
DALI TNW 4 ADDRESSES	010 00000000

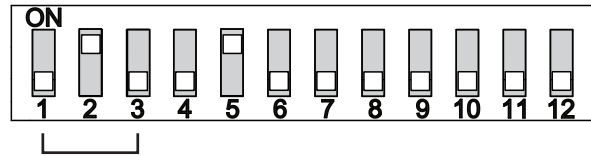
See dimming curve for Tunable White Mode in APPENDIX B.

Warning! Changing DIP Switch Setting must be performed only after unit is powered down

TNW 2 ADDRESSES

Synchronized 2 x 90W TNW channels.
 Unit commissions with 2 x DALI random addresses
 2 x DALI addresses control synchronized both output channels: CH1 and CH2
 1 address controls synchronized intensity of CH1 and CH2
 1 address controls synchronized CCT of CH1 and CH2
 See example in EXAMPLES section
 In this MODE unit responds to DALI DT6 commands

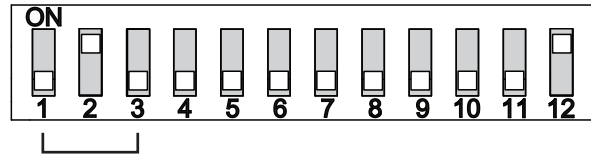
Dimming Protocol	MODE Switches (LOG)
DALI TNW 2 ADDRESSES	010 010000000



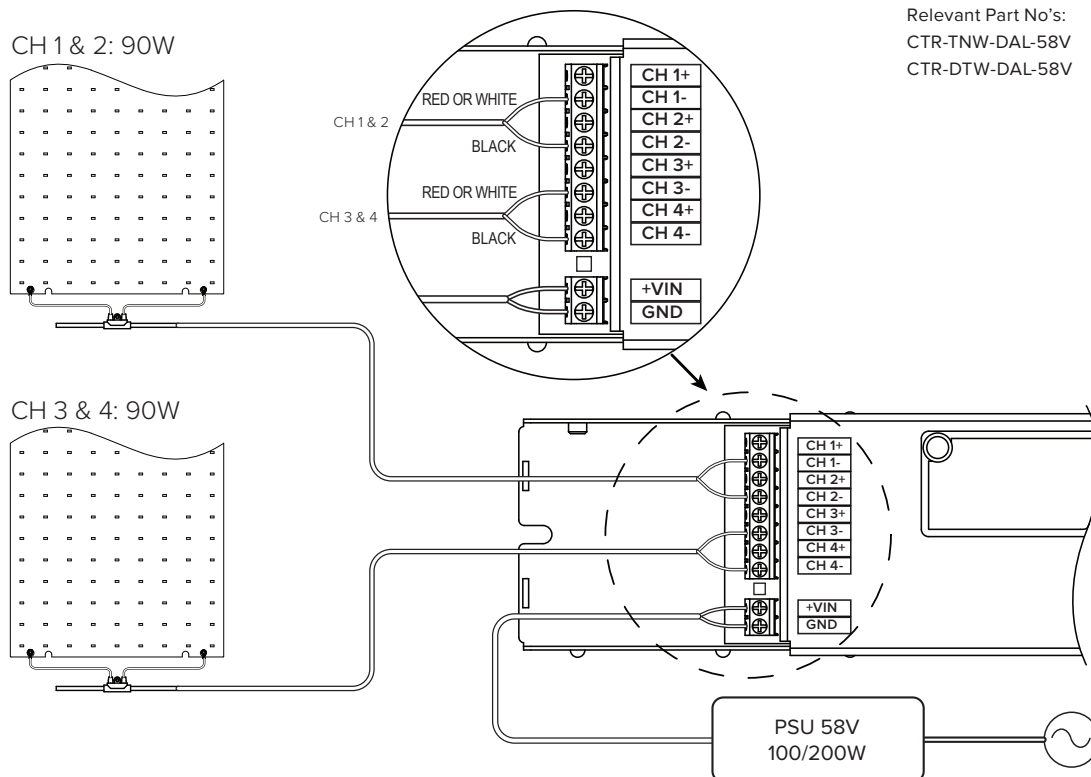
DT8 TNW 1 ADDRESS

Unit commissions with 1 x DALI random address
 1 x address controls intensity and color synchronized for both TNW 90W output channels: CH1 and CH2
 Unit performs Cooledge LOG dimming curve.
 Unit responds to DALI DT8 commands
 See example in EXAMPLES section

Dimming Protocol	MODE Switches (LOG)
DT8 DALI TNW 1 ADDRESS	010 000000001



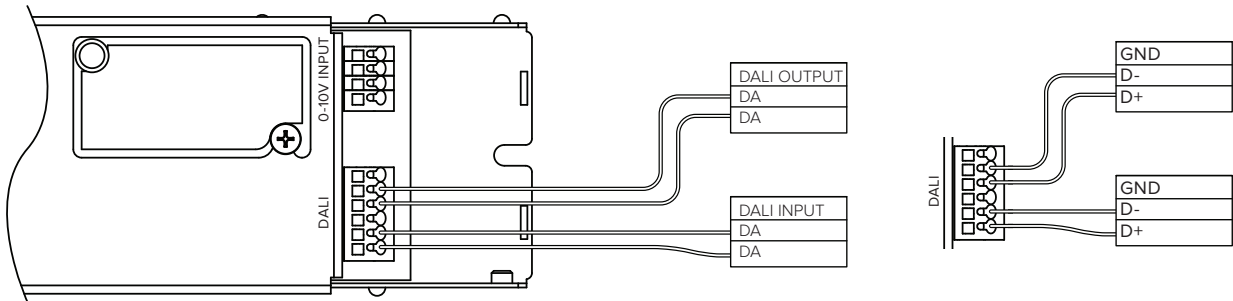
OUTPUT CONNECTIONS: TUNABLE WHITE (TNW) & DIM-TO-WARM (DTW)



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. This mode can be used with 58V *100/200/400W systems. A 400W driver can power up to 2 Control Modules

CONTROL INPUTS



There are 2 modes for DTW selected with DIP switch. They are explained below

DTW 2 ADDRESSES

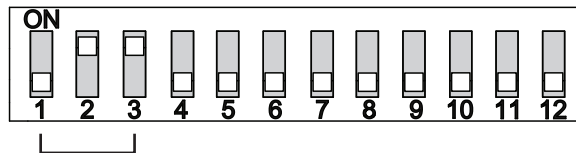
2 x DALI random addresses control 2 independent TNW 90W output channels:

1 address controls TNW output CH1

1 address controls TNW output CH2

See example in EXAMPLES section

In this MODE unit responds to DALI DT6 commands



- Switches 1 - 3: Control Module MODE

Dimming Protocol	MODE Switches
DALI DTW 2 ADDRESSES	011 000000000

Warning! Changing DIP Switch Setting must be performed only after unit is powered down.

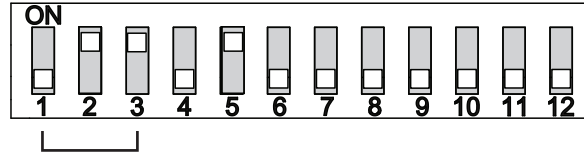
DTW 1 ADDRESS

1 x DALI random address controls 2 synchronized TNW 90W output channels

See example in EXAMPLES section

In this MODE unit responds to DALI DT6 commands

Dimming Protocol	MODE Switches (LOG)
DALI TNW 1 ADDRESS	011 010000000



OUTPUTS

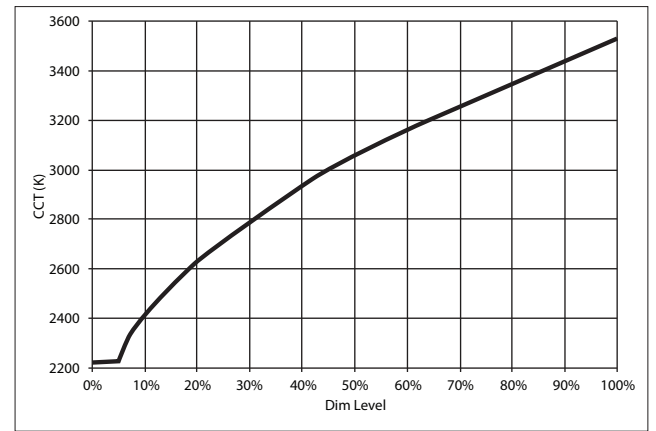
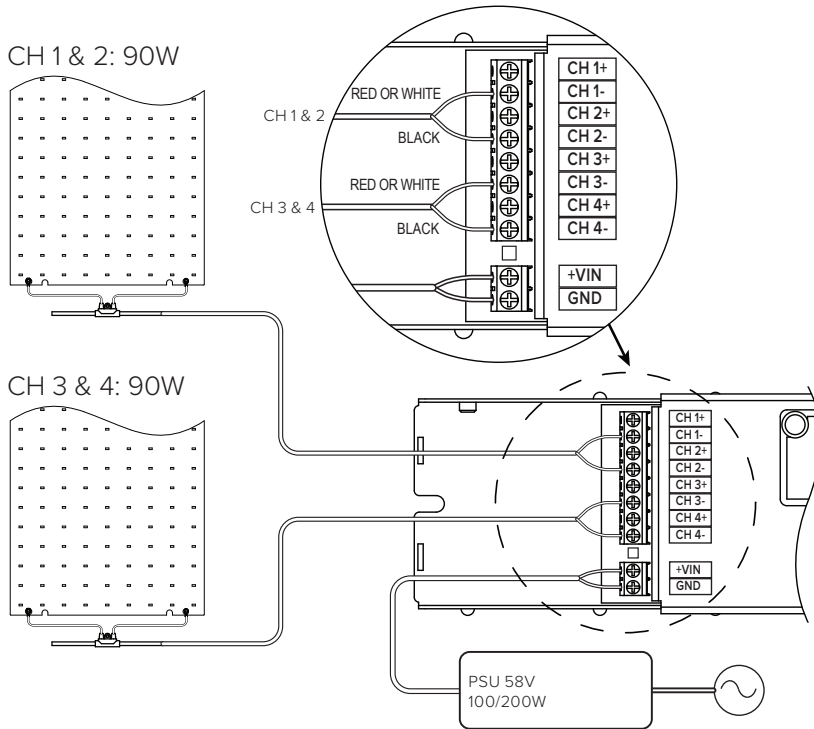


Figure 1: Dim Inputs vs CCT Output

DALI ADDRESSING

Cooledge DALI Controller is compatible with IEC 62386 Part 101(Ed 2), Part 102(Ed 2), Part 207 and Part 209 and is able to report back through a DALI compliant master supporting either DT6 or DT8 devices.

- Cooledge DALI unit installs with GTIN serial number.
- Cooledge DALI Unit can power at any time, independent if DALI master is powered or not

Static Color Temperature 4 ADDRESSES MODE

Channel	Function	Address
1D	DIM Channel 1	RANDOM ADDRESS 1
2D	DIM Channel 2	RANDOM ADDRESS 2
3D	DIM Channel 3	RANDOM ADDRESS 3
4D	DIM Channel 4	RANDOM ADDRESS 4

TNW 2 ADDRESSES MODE

Channel	Function	Address
1D	DIM System 1	RANDOM ADDRESS 1
1CCT	CCT System 1	RANDOM ADDRESS 2
2D	DIM System 2	RANDOM ADDRESS 1
2CCT	CCT System 2	RANDOM ADDRESS 2

Static Color Temperature 1 ADDRESSES MODE

Channel	Function	Address
1D	DIM Channel 1	RANDOM ADDRESS 1
2D	DIM Channel 2	RANDOM ADDRESS 1
3D	DIM Channel 3	RANDOM ADDRESS 1
4D	DIM Channel 4	RANDOM ADDRESS 1

DT8 TNW 1 ADDRESSES MODE

Channel	Function	Address
1D	DIM System 1	RANDOM ADDRESS 1
1CCT	CCT System 1	RANDOM ADDRESS 1
2D	DIM System 2	RANDOM ADDRESS 1
2CCT	CCT System 2	RANDOM ADDRESS 1

TNW 4 ADDRESSES MODE

Channel	Function	Address
1D	DIM System 1	RANDOM ADDRESS 1
1CCT	CCT System 1	RANDOM ADDRESS 2
2D	DIM System 2	RANDOM ADDRESS 3
2CCT	CCT System 2	RANDOM ADDRESS 4

DTW 2 ADDRESSES MODE

Channel	Function	Address
1D	DTW System 1	RANDOM ADDRESS 1
2D	DTW System 2	RANDOM ADDRESS 2

DTW 1 ADDRESSES MODE

Channel	Function	Address
1D	DTW System 1	RANDOM ADDRESS 1
2D	DTW System 2	RANDOM ADDRESS 1

EXAMPLES:

A Control Module in **SCT 4 ADDRESSES Mode** when commissioned with random addresses 4, 12, 20, and 17 could have this control structure:

- Address 4 - DIM CH1
- Address 20 - DIM CH2
- Address 12 - DIM CH3
- Address 17 - DIM CH4

A Control Module in **SCT 1 ADDRESS Mode** when commissioned with random address 5:

- Address 5 - DIM CH1
- Address 5 - DIM CH2
- Address 5 - DIM CH3
- Address 5 - DIM CH4

A Control Module in **TNW 4 ADDRESSES Mode** when commissioned with random addresses 4, 9, 16, and 27 could have this control structure:

- Address 16 - DIM TNW CH1
- Address 27 - CCT TNW CH1
- Address 9 - DIM TNW CH2
- Address 4 - CCT TNW CH2

A Control Module in **TNW 2 ADDRESSES Mode** when commissioned with random addresses 30, and 17 could have this control structure:

- Address 30 - DIM TNW CH1 + DIM TNW CH2
- Address 17 - CCT TNW CH1 + CCT TNW CH2

A Control Module in **DT8 TNW 1 ADDRESS Mode** when commissioned with random address 21:

- Address 21 - DIM TNW CH1 + DIM TNW CH2 + CCT TNW CH1 + CCT TNW CH2

A Control Module in **DTW 2 ADDRESSES Mode** when commissioned with addresses 11 and 17 could have this control structure:

- Address 17 - DIM TNW CH1
- Address 11 - DIM TNW CH2

A Control **Module in DTW 1 ADDRESS Mode** when commissioned with address 13:

- Address 13 - DIM TNW CH1 + DIM TNW CH2

STANDALONE MODE

Standalone mode gives a pre-defined user -selectable fixed dimming and/or color output. No external control input is required. When one of the operational modes (Standalone or Dynamic Test) is selected through the DIP Switch setting, the module will ignore DALI commands and operate according to the settings, in either LOG or LINEAR MODE.

STANDALONE SCT MODE

There are two modes that follow the dimming curves presented in Appendix A.

Standalone SCT	Mode Switches 1-3	Switches 4-12 (Intensity)
Fixed Dimming Level - LOG	1-0-0	X-X-X-X-X-X-X-0
Fixed Dimming Level - LINEAR	1-0-0	X-X-X-X-X-X-X-1

X = IGNORED

Choose the DIP Switch settings from the tables below to achieve the desired dimming level.

LOGARITMIC DIP SETTINGS/DIMMING LEVELS FOR STANDALONE SCT

Level	DIP SETTING	Output(%)	Level	DIP SETTING	Output(%)	Level	DIP SETTING	Output(%)	Level	DIP SETTING	Output(%)	Level	DIP SETTING	Output(%)
0	00000000	0	51	00110011	0.392	102	01100110	1.576	153	10011001	6.344	204	11001100	25.534
1	00000001	0.100	52	00110100	0.402	103	01100111	1.620	154	10011010	6.520	205	11001101	26.241
2	00000010	0.103	53	00110101	0.414	104	01101000	1.665	155	10011011	6.700	206	11001110	26.967
3	00000011	0.106	54	00110110	0.425	105	01101001	1.711	156	10011100	6.886	207	11001111	27.713
4	00000100	0.109	55	00110111	0.437	106	01101010	1.758	157	10011101	7.076	208	11010000	28.480
5	00000101	0.112	56	00111000	0.449	107	01101011	1.807	158	10011110	7.272	209	11010001	29.269
6	00000110	0.115	57	00111001	0.461	108	01101100	1.857	159	10011111	7.473	210	11010010	30.079
7	00000111	0.118	58	00111010	0.474	109	01101101	1.908	160	10100000	7.680	211	11010011	30.911
8	00001000	0.121	59	00111011	0.487	110	01101110	1.961	161	10100001	7.893	212	11010100	31.767
9	00001001	0.124	60	00111100	0.501	111	01101111	2.015	162	10100010	8.111	213	11010101	32.646
10	00001010	0.128	61	00111101	0.515	112	01110000	2.071	163	10100011	8.336	214	11010110	33.550
11	00001011	0.131	62	00111110	0.529	113	01110001	2.128	164	10100100	8.567	215	11010111	34.479
12	00001100	0.135	63	00111111	0.543	114	01110010	2.187	165	10100101	8.804	216	11011000	35.433
13	00001101	0.139	64	01000000	0.559	115	01110011	2.248	166	10100110	9.047	217	11011001	36.414
14	00001110	0.143	65	01000001	0.574	116	01110100	2.310	167	10100111	9.298	218	11011010	37.422
15	00001111	0.147	66	01000010	0.590	117	01110101	2.374	168	10101000	9.555	219	11011011	38.457
16	00010000	0.151	67	01000011	0.606	118	01110110	2.440	169	10101001	9.820	220	11011100	39.522
17	00010001	0.155	68	01000100	0.623	119	01110111	2.507	170	10101010	10.091	221	11011101	40.616
18	00010010	0.159	69	01000101	0.640	120	01111000	2.577	171	10101011	10.371	222	11011110	41.740
19	00010011	0.163	70	01000110	0.658	121	01111001	2.648	172	10101100	10.658	223	11011111	42.895
20	00010100	0.168	71	01000111	0.676	122	01111010	2.721	173	10101101	10.953	224	11100000	44.083
21	00010101	0.173	72	01001000	0.695	123	01111011	2.797	174	10101110	11.256	225	11100001	45.303
22	00010110	0.177	73	01001001	0.714	124	01111100	2.874	175	10101111	11.568	226	11100010	46.557
23	00010111	0.182	74	01001010	0.734	125	01111101	2.954	176	10110000	11.888	227	11100011	47.846
24	00011000	0.187	75	01001011	0.754	126	01111110	3.035	177	10110001	12.217	228	11100100	49.170
25	00011001	0.193	76	01001100	0.775	127	01111111	3.119	178	10110010	12.555	229	11100101	50.531
26	00011010	0.198	77	01001101	0.796	128	10000000	3.206	179	10110011	12.902	230	11100110	51.930
27	00011011	0.203	78	01001110	0.819	129	10000001	3.294	180	10110100	13.260	231	11100111	53.367
28	00011100	0.209	79	01001111	0.841	130	10000010	3.386	181	10110101	13.627	232	11101000	54.844
29	00011101	0.215	80	01010000	0.864	131	10000011	3.479	182	10110110	14.004	233	11101001	56.362
30	00011110	0.221	81	01010001	0.888	132	10000100	3.576	183	10110111	14.391	234	11101010	57.922
31	00011111	0.227	82	01010010	0.913	133	10000101	3.675	184	10111000	14.790	235	11101011	59.526
32	00100000	0.233	83	01010011	0.938	134	10000110	3.776	185	10111001	15.199	236	11101100	61.173
33	00100001	0.240	84	01010100	0.964	135	10000111	3.881	186	10111010	15.620	237	11101101	62.866
34	00100010	0.246	85	01010101	0.991	136	10001000	3.988	187	10111011	16.052	238	11101110	64.607
35	00100011	0.253	86	01010110	1.018	137	10001001	4.099	188	10111100	16.496	239	11101111	66.395
36	00100100	0.260	87	01010111	1.047	138	10001010	4.212	189	10111101	16.953	240	11110000	68.233
37	00100101	0.267	88	01011000	1.076	139	10001011	4.329	190	10111110	17.422	241	11110001	70.121
38	00100110	0.275	89	01011001	1.105	140	10001100	4.449	191	10111111	17.905	242	11110010	72.062
39	00100111	0.282	90	01011010	1.136	141	10001101	4.572	192	11000000	18.400	243	11110011	74.057
40	00101000	0.290	91	01011011	1.167	142	10001110	4.698	193	11000001	18.909	244	11110100	76.107
41	00101001	0.298	92	01011100	1.200	143	10001111	4.828	194	11000010	19.433	245	11110101	78.213
42	00101010	0.306	93	01011101	1.233	144	10010000	4.962	195	11000011	19.971	246	11110110	80.378
43	00101011	0.315	94	01011110	1.267	145	10010001	5.099	196	11000100	20.524	247	11110111	82.603
44	00101100	0.324	95	01011111	1.302	146	10010010	5.240	197	11000101	21.092	248	11111000	84.889
45	00101101	0.332	96	01100000	1.338	147	10010011	5.385	198	11000110	21.675	249	11111001	87.239
46	00101110	0.342	97	01100001	1.375	148	10010100	5.535	199	11000111	22.275	250	11111010	89.654
47	00101111	0.351	98	01100010	1.413	149	10010101	5.688	200	11001000	22.892	251	11111011	92.135
48	00110000	0.361	99	01100011	1.452	150	10010110	5.845	201	11001001	23.526	252	11111100	94.686
49	00110001	0.371	100	01100100	1.492	151	10010111	6.007	202	11001010	24.177	253	11111101	97.307
50	00110010	0.381	101	01100101	1.534	152	10011000	6.173	203	11001011	24.846	254	11111110	100.000

LINEAR DIP SETTINGS/DIMMING LEVELS FOR STANDALONE SCT

Level	DIP SETTING	Output (%)	Level	DIP SETTING	Output (%)	Level	DIP SETTING	Output (%)	Level	DIP SETTING	Output (%)	Level	DIP SETTING	Output (%)
0	00000000	0	51	00110011	20.1	102	01100110	40.2	153	10011001	60.2	204	11001100	80.3
1	00000001	0.4	52	00110100	20.5	103	01100111	40.6	154	10011010	60.6	205	11001101	80.7
2	00000010	0.8	53	00110101	20.9	104	01101000	40.9	155	10011011	61.0	206	11001110	81.1
3	00000011	1.2	54	00110110	21.3	105	01101001	41.3	156	10011100	61.4	207	11001111	81.5
4	00000100	1.6	55	00110111	21.7	106	01101010	41.7	157	10011101	61.8	208	11010000	81.9
5	00000101	2.0	56	00111000	22.0	107	01101011	42.1	158	10011110	62.2	209	11010001	82.3
6	00000110	2.4	57	00111001	22.4	108	01101100	42.5	159	10011111	62.6	210	11010010	82.7
7	00000111	2.8	58	00111010	22.8	109	01101101	42.9	160	10100000	63.0	211	11010011	83.1
8	00001000	3.1	59	00111011	23.2	110	01101110	43.3	161	10100001	63.4	212	11010100	83.5
9	00001001	3.5	60	00111100	23.6	111	01101111	43.7	162	10100010	63.8	213	11010101	83.9
10	00001010	3.9	61	00111101	24.0	112	01110000	44.1	163	10100011	64.2	214	11010110	84.3
11	00001011	4.3	62	00111110	24.4	113	01110001	44.5	164	10100100	64.6	215	11010111	84.6
12	00001100	4.7	63	00111111	24.8	114	01110010	44.9	165	10100101	65.0	216	11011000	85.0
13	00001101	5.1	64	01000000	25.2	115	01110011	45.3	166	10100110	65.4	217	11011001	85.4
14	00001110	5.5	65	01000001	25.6	116	01110100	45.7	167	10100111	65.7	218	11011010	85.8
15	00001111	5.9	66	01000010	26.0	117	01110101	46.1	168	10101000	66.1	219	11011011	86.2
16	00010000	6.3	67	01000011	26.4	118	01110110	46.5	169	10101001	66.5	220	11011100	86.6
17	00010001	6.7	68	01000100	26.8	119	01110111	46.9	170	10101010	66.9	221	11011101	87.0
18	00010010	7.1	69	01000101	27.2	120	01111000	47.2	171	10101011	67.3	222	11011110	87.4
19	00010011	7.5	70	01000110	27.6	121	01111001	47.6	172	10101100	67.7	223	11011111	87.8
20	00010100	7.9	71	01000111	28.0	122	01111010	48.0	173	10101101	68.1	224	11100000	88.2
21	00010101	8.3	72	01001000	28.3	123	01111011	48.4	174	10101110	68.5	225	11100001	88.6
22	00010110	8.7	73	01001001	28.7	124	01111100	48.8	175	10101111	68.9	226	11100010	89.0
23	00010111	9.1	74	01001010	29.1	125	01111101	49.2	176	10110000	69.3	227	11100011	89.4
24	00011000	9.4	75	01001011	29.5	126	01111110	49.6	177	10110001	69.7	228	11100100	89.8
25	00011001	9.8	76	01001100	29.9	127	01111111	50.0	178	10110010	70.1	229	11100101	90.2
26	00011010	10.2	77	01001101	30.3	128	10000000	50.4	179	10110011	70.5	230	11100110	90.6
27	00011011	10.6	78	01001110	30.7	129	10000001	50.8	180	10110100	70.9	231	11100111	90.9
28	00011100	11.0	79	01001111	31.1	130	10000010	51.2	181	10110101	71.3	232	11101000	91.3
29	00011101	11.4	80	01010000	31.5	131	10000011	51.6	182	10110110	71.7	233	11101001	91.7
30	00011110	11.8	81	01010001	31.9	132	10000100	52.0	183	10110111	72.0	234	11101010	92.1
31	00011111	12.2	82	01010010	32.3	133	10000101	52.4	184	10111000	72.4	235	11101011	92.5
32	00100000	12.6	83	01010011	32.7	134	10000110	52.8	185	10111001	72.8	236	11101100	92.9
33	00100001	13.0	84	01010100	33.1	135	10000111	53.1	186	10111010	73.2	237	11101101	93.3
34	00100010	13.4	85	01010101	33.5	136	10000100	53.5	187	10111011	73.6	238	11101110	93.7
35	00100011	13.8	86	01010110	33.9	137	10001001	53.9	188	10111100	74.0	239	11101111	94.1
36	00100100	14.2	87	01010111	34.3	138	10001010	54.3	189	10111101	74.4	240	11110000	94.5
37	00100101	14.6	88	01011000	34.6	139	10001011	54.7	190	10111110	74.8	241	11110001	94.9
38	00100110	15.0	89	01011001	35.0	140	10001100	55.1	191	10111111	75.2	242	11110010	95.3
39	00100111	15.4	90	01011010	35.4	141	10001101	55.5	192	11000000	75.6	243	11110011	95.7
40	00101000	15.7	91	01011011	35.8	142	10001110	55.9	193	11000001	76.0	244	11110100	96.1
41	00101001	16.1	92	01011100	36.2	143	10001111	56.3	194	11000010	76.4	245	11110101	96.5
42	00101010	16.5	93	01011101	36.6	144	10010000	56.7	195	11000011	76.8	246	11110110	96.9
43	00101011	16.9	94	01011110	37.0	145	10010001	57.1	196	11000100	77.2	247	11110111	97.2
44	00101100	17.3	95	01011111	37.4	146	10010010	57.5	197	11000101	77.6	248	11111000	97.6
45	00101101	17.7	96	01100000	37.8	147	10010011	57.9	198	11000110	78.0	249	11111001	98.0
46	00101110	18.1	97	01100001	38.2	148	10010100	58.3	199	11000111	78.3	250	11111010	98.4
47	00101111	18.5	98	01100010	38.6	149	10010101	58.7	200	11001000	78.7	251	11111011	98.8
48	00110000	18.9	99	01100011	39.0	150	10010110	59.1	201	11001001	79.1	252	11111100	99.2
49	00110001	19.3	100	01100100	39.4	151	10010111	59.4	202	11001010	79.5	253	11111101	99.6
50	00110010	19.7	101	01100101	39.8	152	10011000	59.8	203	11001011	79.9	254	11111110	100.0

STANDALONE TNW/DTW MODE

Standalone TNW/DTW Chart	Mode Switch 1-3	Switches 4-7 (Intensity)	Switches 8-12 (CCT)
Fixed Output - TNW	1-1-0	X-X-X-X	X-X-X-X-0
Fixed Output - DTW	1-1-0	X-X-X-X	X-X-X-X-1

X = IGNORED

Use the following charts for selecting the fixed output levels for TNW and DTW. Minimum dimming level for TNW is 1%, levels 0-5* will result in 1% intensity for TNW. When using DTW in Standalone mode switches 8-11 are ignored as CCT is not independently adjustable in DTW, the selected intensity will determine the CCT according to Figure 7.

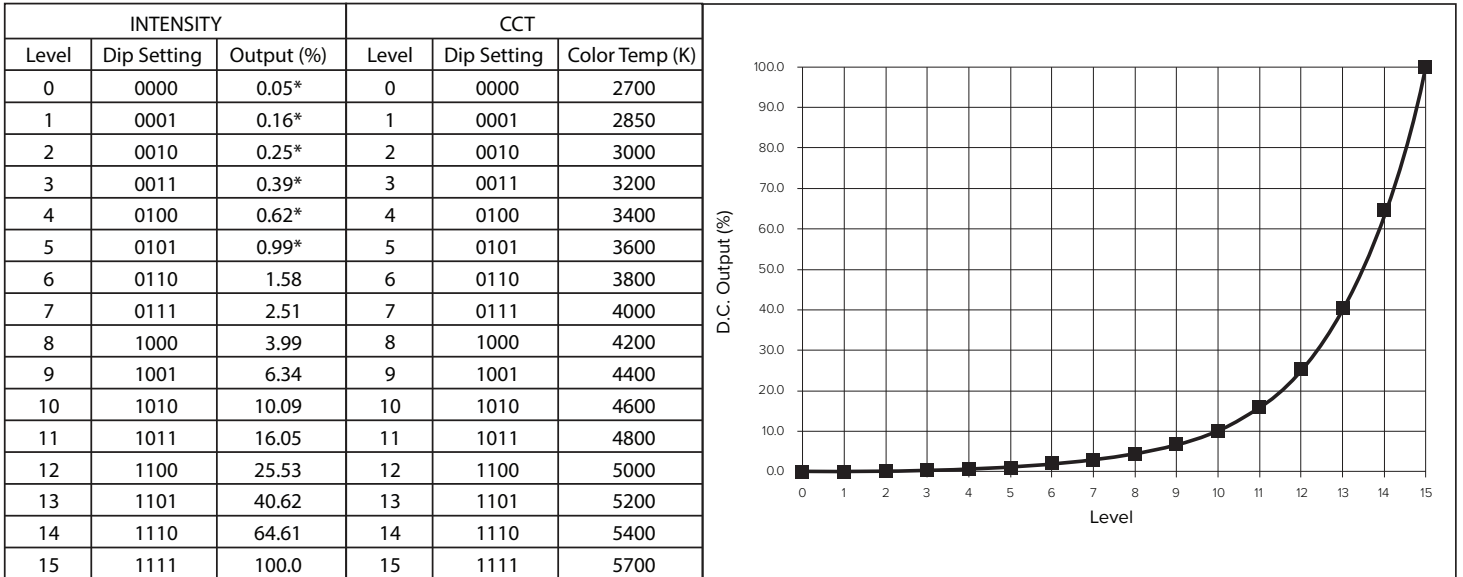


Figure 7: Intensity and CCT selection chart (LEFT), level and output chart (RIGHT)

STANDALONE DYNAMIC MODE

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.

Standalone SCT	Mode Switches 1-3	Switches 4-12
Dynamic Dimming Level Test (SCT)	1-0-1	IGNORED
Dynamic Color Tune Test (TNW)	1-1-1	IGNORED
Dynamic Dim-to-Warm Test (DTW)	1-1-1	IGNORED

Dynamic test SCT mode:

Outputs operate in standard configuration with the output duty cycle of all 4 channels matching. 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 5 seconds.

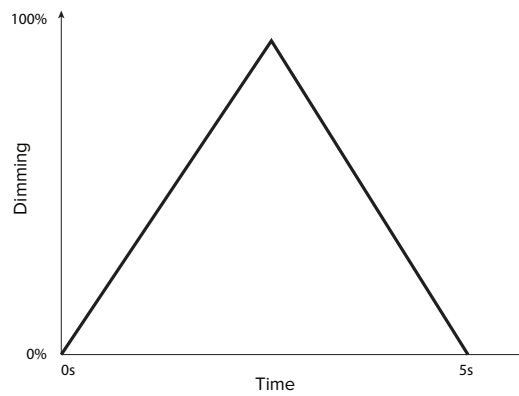


Figure 8: SCT Dynamic test mode output range

Dynamic test TNW/DTW mode:

This test mode is only applicable for TNW and DTW TILES. Output duty cycle starts with the WARM LEDs (TNW=2700K, DTW=2200K) raising their intensity from 0% to 100% then decreasing to 0%. Next the COOL LEDs (TNW=5700K, DTW=3500K) raise intensity from 0% to 100% then decrease to 0%. This cycle repeats indefinitely with a period of 10 seconds.

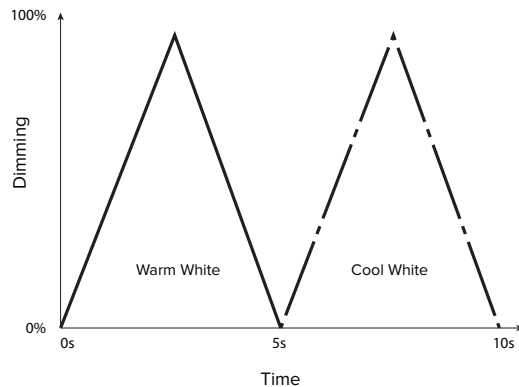
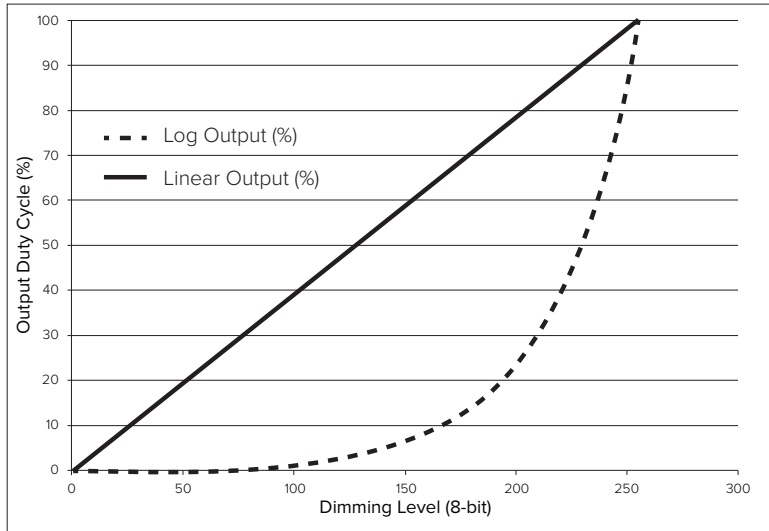
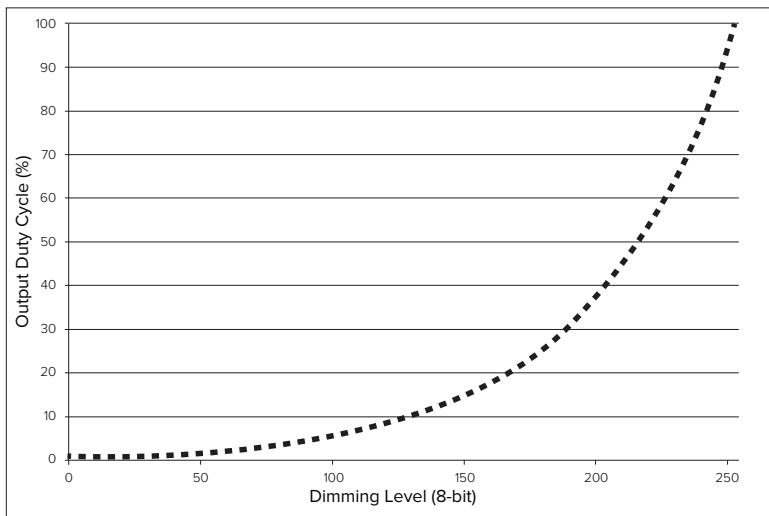


Figure 9: TNW/DTW Dynamic test mode output graph

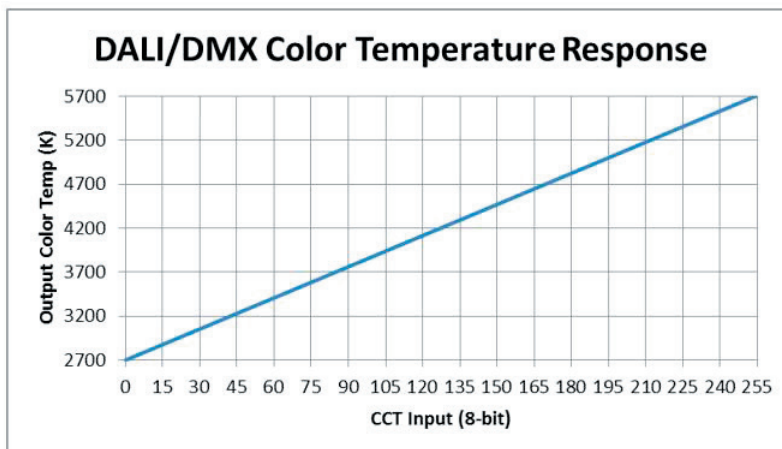
APPENDIX A:
 OUTPUT DUTY CYCLE VERSUS DALI DIMMING FOR LOG AND LIN CURVES SCT MODE



APPENDIX B:
 OUTPUT DUTY CYCLE VERSUS DALI DIMMING FOR TNW



OUTPUT COLOR TEMPERATURE VERSUS DALI CCT FOR TNW



TROUBLESHOOTING

CONTROLLER STATUS	MODE	LED STATUS	LOAD BEHAVIOR
OFF (No Input Power)	All	OFF	OFF
DALI Control Input Recognized	All except Standalone	Green Flashing Slow (1 Hz)	Responsive to DALI Commands
Standalone 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, dimming set to V<9.5V	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 DALI commands
Output Short Circuit V+ to V-	All, dimming set to V<9.5V	Red Flashing with Intermittent Amber	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 DALI commands
Output Short Circuit to V+	TNW/DTW Dim Input Control set to V<9.5V	Red Flashing with Intermittent Green	Load is OFF on shorted Side of TNW Channel All other loads of the unit, except the shorted one, are flashing The rest of units in the installation remain responsive to DALI commands
Output Short Circuit to V+	TNW/DTW Dim Input Control set to V>9.5V	Red Flashing with Intermittent Amber	Load is OFF on shorted Side of TNW Channel All other loads of the unit, except the shorted one, are flashing The rest of units in the installation remain responsive to DALI commands
Output Overload	All	Red Flashing	Overloaded channel dimmed and flashing at 1s constant rate All other loads of the unit remain responsive to DALI commands
DALI Control Input shorted	All	LED status OK in correspondence to each Mode, not affected	Loads FULL ON

WARNING:

Each module treats the input controls available with the following priority:

1. Standalone (Fixed or Dynamic): If DIP Switch setting for one of these modes is selected, the module will ignore any other control input (Casambi, 0-10V, DALI) and operate according to the settings of the operational mode selected
2. Wireless (Casambi): When the wireless chip is installed in the Control Module all other inputs (0-10V and DALI) are ignored even they are wired
3. DALI: If the control module receives a DALI input, it will operate according to the DALI commands it receives, and 0-10V input will be ignored even it is wired
4. 0-10V: If the module has not installed Casambi card and no DALI control wired

PRODUCT SUPPORT

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