

**L-Series®**

**L5-C / DT / TT**

**L7-C / DT / TT / T**

**DMX Protocol**



LIGHTING – TECHNICAL INFORMATION

## DMX protocol version 3.3

Used in fixtures from firmware version 2.0

### Lx-TT (Tungsten Tuneable) / Lx-T (Tungsten)

#### Overview

<b>8 bit</b> 1 channel per function	<b>16 bit</b> 2 channels per function	<b>Coarse / fine</b> 1-2 channels per function
DMX mode 1*	DMX mode 2	DMX mode 3

\* = Factory default

#### GN saturation (only "TT" versions)

The value describes the shift from the neutral point to full minus green or full plus green in percent.  
(Reference: Rosco Cinegel #3304 and #3308)

#### Mode 1: 8 bit resolution per function

DMX Channel	Value	Percent	Function
<b>1</b>	0 – 255	0 - 100	<b>Dimmer</b> closed → open
<b>2</b>	0 – 255	0 – 100	<b>Color temperature CCT ("TT" only)</b> 2.600 K → 3.600 K
<b>3</b>	0 - 10 11 - 20 21 - 119 120 - 145 146 - 244 245 - 255	0 - 4 5 - 8 8 - 46 47 - 57 57 - 96 96 - 100	<b>GN saturation ("TT" only)</b> neutral / no effect full minus green -99% → -1% neutral / no effect 1% → 99% full plus green

Mode 2: 16 bit resolution per function

DMX Channel		Value	Percent	Function
1	HI	0 – 65.535	0 - 100	<b>Dimmer</b> closed → open
2	LO			
3	HI	0 – 65.535	0 – 100	<b>Color temperature CCT (“TT” only)</b> 2.600 K → 3.600 K
4	LO			
5	HI	0 - 5.000	0-7	<b>GN saturation (“TT” only)</b> neutral / no effect full minus green -99% → -1% neutral / no effect 1% → 99% full plus green
6	LO	5.001 – 10.000	8-15	
		10.001 – 29.999	16-46	
		30.000 – 40.000	46-61	
		40.001 – 59.999	61-92	
		60.000 – 65.535	92-100	

Mode 3: Coarse / fine channel per function

Each of the 256 coarse steps is divided in 256 fine steps. Use this mode when your lighting control desk does not support true 16 bit resolution.

DMX Channel		Value	Percent	Function
1		0 – 255	0 - 100	<b>Dimmer</b> closed → open
2		0 – 255	0 – 100	<b>Dimmer fine</b>
3		0 – 255	0 – 100	<b>Color temperature CCT coarse (“TT” only)</b> 2.600 K → 3.600 K
4		0 – 255	0 - 100	<b>Color temperature CCT fine (“TT” only)</b>
5		0 - 10	0 - 4	<b>GN saturation (“TT” only)</b> neutral / no effect full minus green -99% → -1% neutral / no effect 1% → 99% full plus green
		11 - 20	5 - 8	
		21 - 119	8 - 46	
		120 - 145	47 - 57	
		146 - 244	57 - 96	
		245 - 255	96 - 100	

## Lx-DT (Daylight Tuneable)

### Overview

<b>8 bit</b> 1 channel per function	<b>16 bit</b> 2 channels per function	<b>Coarse / fine</b> 1-2 channels per function
DMX mode 1*	DMX mode 2	DMX mode 3

\* = Factory default

### GN saturation

The value describes the shift from the neutral point to full minus green or full plus green in percent.  
(Reference: Rosco Cinegel #3304 and #3308)

### Mode 1: 8 bit resolution per function

DMX Channel	Value	Percent	Function
<b>1</b>	0 – 255	0 - 100	<b>Dimmer</b> closed → open
<b>2</b>	0 – 255	0 – 100	<b>Color temperature CCT</b> 5.000 K → 6.500 K
<b>3</b>	0 - 10	0 - 4	<b>GN saturation</b> neutral / no effect
	11 - 20	5 - 8	full minus green
	21 - 119	8 - 46	-99% → -1%
	120 - 145	47 - 57	neutral / no effect
	146 - 244	57 - 96	1% → 99%
	245 - 255	96 - 100	full plus green

### Mode 2: 16 bit resolution per function

DMX Channel	Value	Percent	Function
<b>1</b>	HI	0 – 65535	<b>Dimmer</b> closed → open
<b>2</b>	LO		
<b>3</b>	HI	0 – 65535	<b>Color temperature CCT</b> 5.000 K → 6.500 K
<b>4</b>	LO		
<b>5</b>	HI	0 - 5.000	<b>GN saturation</b> neutral / no effect
<b>6</b>	LO	5.001 – 10.000	full minus green
		10.001 – 29.999	-99% → -1%
		30.000 – 40.000	neutral / no effect
		40.001 – 59.999	1% → 99%
		60.000 – 65.535	full plus green

Mode 3: Coarse / fine channel per function

Each of the 256 coarse steps is divided in 256 fine steps. Use this mode when your lighting control desk does not support true 16 bit resolution.

DMX Channel	Value	Percent	Function
<b>1</b>	0 – 255	0 - 100	<b>Dimmer</b> closed → open
<b>2</b>	0 – 255	0 – 100	<b>Dimmer fine</b>
<b>3</b>	0 – 255	0 – 100	<b>Color temperature CCT coarse</b> 5.000 K → 6.500 K
<b>4</b>	0 – 255	0 - 100	<b>Color temperature CCT fine</b>
<b>5</b>	0 - 10 11 - 20 21 - 119 120 - 145 146 - 244 245 - 255	0 - 4 5 - 8 8 - 46 47 - 57 57 - 96 96 - 100	<b>GN saturation</b> neutral / no effect full minus green -99% → -1% neutral / no effect 1% → 99% full plus green

## Lx-C (Color)

### Overview

<b>8 bit</b> 1 channel per function	<b>16 bit</b> 2 channels per function	<b>Coarse / fine</b> 1-2 channels per function
DMX mode 1 White & RGBW	DMX mode 6 White & RGBW	DMX mode 11 White & RGBW
DMX mode 2 White	DMX mode 7 White	DMX mode 12 White
DMX mode 3 White & H S I	DMX mode 8 White & H S I	DMX mode 13 White & H S I
DMX mode 4 RGBW	DMX mode 9 RGBW	DMX mode 14 RGBW
DMX mode 5 H S I	DMX mode 10 H S I	DMX mode 15 H S I

= Factory default

### **GN saturation**

The value describes the shift from the neutral point to full minus green or full plus green in percent.

(Reference: Rosco Cinegel #3304 and #3308)

### **Mode 1: White & RGBW, 8 bit resolution per function**

<b>DMX Channel</b>	<b>Value</b>	<b>Percent</b>	<b>Function</b>
<b>1</b>	0 – 255	0 - 100	<b>Dimmer</b> closed → open
<b>2</b>	0 – 255	0 – 100	<b>Color temperature CCT</b> 2.800 K → 10.000 K
<b>3</b>	0 - 10 11 - 20 21 - 119 120 - 145 146 - 244 245 - 255	0 - 4 5 - 8 8 - 46 47 - 57 57 - 96 96 - 100	<b>GN saturation</b> neutral / no effect full minus green -99% → -1% neutral / no effect 1% → 99% full plus green
<b>4</b>	0 – 255	0 - 100	<b>Xfade to color</b> White → RGBW color
<b>5</b>	0 – 255	0 - 100	<b>Intensity red</b> 0% → 100%
<b>6</b>	0 – 255	0 - 100	<b>Intensity green</b> 0% → 100%
<b>7</b>	0 – 255	0 - 100	<b>Intensity blue</b> 0% → 100%
<b>8</b>	0 – 255	0 - 100	<b>Intensity white</b> 0% → 100%

Mode 2: White, 8 bit resolution per function

DMX Channel	Value	Percent	Function
1	0 – 255	0 - 100	<b>Dimmer</b> closed → open
2	0 – 255	0 – 100	<b>Color temperature CCT</b> 2.800 K → 10.000 K
3	0 - 10 11 - 20 21 - 119 120 - 145 146 - 244 245 - 255	0 - 4 5 - 8 8 - 46 47 - 57 57 - 96 96 - 100	<b>GN saturation</b> neutral / no effect full minus green -99% → -1% neutral / no effect 1% → 99% full plus green

Mode 3: White & H S I, 8 bit resolution per function

DMX Channel	Value	Percent	Function
1	0 – 255	0 - 100	<b>Dimmer</b> closed → open
2	0 – 255	0 – 100	<b>Color temperature CCT</b> 2.800 K → 10.000 K
3	0 - 10 11 - 20 21 - 119 120 - 145 146 - 244 245 - 255	0 - 4 5 - 8 8 - 46 47 - 57 57 - 96 96 - 100	GN saturation neutral / no effect full minus green -99% → -1% neutral / no effect 1% → 99% full plus green
4	0 – 255	0 - 100	<b>Xfade to color</b> White → RGBW color
5	0 – 255	0 - 100	<b>Hue</b> 0° → 360°
6	0 – 255	0 - 100	<b>Saturation</b> 0 → full saturated

Mode 4: RGBW, 8 bit resolution per function

DMX Channel	Value	Percent	Function
1	0 – 255	0 - 100	<b>Dimmer</b> closed → open
2	0 – 255	0 - 100	<b>Intensity red</b> 0% → 100%
3	0 – 255	0 - 100	<b>Intensity green</b> 0% → 100%
4	0 – 255	0 - 100	<b>Intensity blue</b> 0% → 100%
5	0 – 255	0 - 100	<b>Intensity white</b> 0% → 100%

Mode 5: H S I, 8 bit resolution per function

DMX Channel	Value	Percent	Function
1	0 – 255	0 - 100	<b>Dimmer</b> closed → open
2	0 – 255	0 - 100	<b>Hue</b> 0° → 360°
3	0 – 255	0 - 100	<b>Saturation</b> 0 → full saturated



Mode 6: White & RGBW, 16 bit resolution per function

DMX Channel		Value	Percent	Function
1	HI	0 – 65.535	0 - 100	<b>Dimmer</b> closed → open
2	LO			
3	HI	0 – 65.535	0 – 100	<b>Color temperature CCT</b> 2.800 K → 10.000 K
4	LO			
5	HI	0 - 5.000	0-7	<b>GN saturation</b> neutral / no effect full minus green -99% → -1% neutral / no effect 1% → 99% full plus green
6	LO	5.001 – 10.000	8-15	
		10.001 – 29.999	16-46	
		30.000 – 40.000	46-61	
		40.001 – 59.999	61-92	
		60.000 – 65.535	92-100	
7	HI	0 – 65.535	0 - 100	<b>Xfade to color</b> White → RGBW color
8	LO			
9	HI	0 – 65.535	0 - 100	<b>Intensity red</b> 0% → 100%
10	LO			
11	HI	0 – 65.535	0 - 100	<b>Intensity green</b> 0% → 100%
12	LO			
13	HI	0 – 65.535	0 - 100	<b>Intensity blue</b> 0% → 100%
14	LO			
15	HI	0 – 65.535	0 - 100	<b>Intensity white</b> 0% → 100%
16	LO			

Mode 7: White, 16 bit resolution per function

DMX Channel		Value	Percent	Function
1	HI	0 – 65.535	0 - 100	<b>Dimmer</b> closed → open
2	LO			
3	HI	0 – 65.535	0 – 100	<b>Color temperature CCT</b> 2.800 K → 10.000 K
4	LO			
5	HI	0 - 5.000	0-7	<b>GN saturation</b> neutral / no effect full minus green -99% → -1% neutral / no effect 1% → 99% full plus green
6	LO	5.001 – 10.000	8-15	
		10.001 – 29.999	16-46	
		30.000 – 40.000	46-61	
		40.001 – 59.999	61-92	
		60.000 – 65.535	92-100	

Mode 8: White & H S I, 16 bit resolution per function

DMX Channel		Value	Percent	Function
1	HI	0 – 65.535	0 - 100	<b>Dimmer</b> closed → open
2	LO			
3	HI	0 – 65.535	0 – 100	<b>Color temperature CCT</b> 2.800 K → 10.000 K
4	LO			
5	HI	0 - 5.000	0-7	<b>GN saturation</b> neutral / no effect full minus green -99% → -1% neutral / no effect 1% → 99% full plus green
6	LO	5.001 – 10.000	8-15	
		10.001 – 29.999	16-46	
		30.000 – 40.000	46-61	
		40.001 – 59.999	61-92	
		60.000 – 65.535	92-100	
7	HI	0 – 65.535	0 - 100	<b>Xfade to color</b> White → RGBW color
8	LO			
9	HI	0 – 65.535	0 - 100	<b>Hue</b> 0° → 360°
10	LO			
11	HI	0 – 65.535	0 - 100	<b>Saturation</b> White → full saturated
12	LO			

Mode 9: RGBW, 16 bit resolution per function

DMX Channel		Value	Percent	Function
1	HI	0 – 65.535	0 - 100	<b>Dimmer</b> closed → open
2	LO			
3	HI	0 – 65.535	0 - 100	<b>Intensity red</b> 0% → 100%
4	LO			
5	HI	0 – 65.535	0 - 100	<b>Intensity green</b> 0% → 100%
6	LO			
7	HI	0 – 65.535	0 - 100	<b>Intensity blue</b> 0% → 100%
8	LO			
9	HI	0 – 65.535	0 - 100	<b>Intensity white</b> 0% → 100%
10	LO			

Mode 10: H S I, 16 bit resolution per function

DMX Channel		Value	Percent	Function
1	HI	0 – 65.535	0 - 100	<b>Dimmer</b>
2	LO			closed → open
3	HI	0 – 65.535	0 - 100	<b>Hue</b>
4	LO			0° → 360°
5	HI	0 – 65.535	0 - 100	<b>Saturation</b>
6	LO			White → full saturated

Mode 11: White & RGBW, Coarse/fine per function

DMX Channel		Value	Percent	Function
1		0 – 255	0 - 100	<b>Dimmer</b> closed → open
2		0 – 255	0 – 100	<b>Dimmer fine</b>
3		0 – 255	0 – 100	<b>Color temperature CCT coarse</b> 2.800 K → 10.000 K
4		0 – 255	0 - 100	<b>Color temperature CCT fine</b>
5		0 - 10 11 - 20 21 - 119 120 - 145 146 - 244 245 - 255	0 - 4 5 - 8 8 - 46 47 - 57 57 - 96 96 - 100	<b>GN saturation</b> neutral / no effect full minus green -99% → -1% neutral / no effect 1% → 99% full plus green
6		0 – 255	0 - 100	<b>Xfade to color</b> White → RGBW color
7		0 – 255	0 - 100	<b>Intensity red coarse</b> 0% → 100%
8		0 – 255	0 – 100	<b>Red fine</b>
9		0 – 255	0 - 100	<b>Intensity green coarse</b> 0% → 100%
10		0 – 255	0 – 100	<b>Green fine</b>
11		0 – 255	0 - 100	<b>Intensity blue coarse</b> 0% → 100%
12		0 – 255	0 – 100	<b>Blue fine</b>
13		0 – 255	0 - 100	<b>Intensity white coarse</b> 0% → 100%
14		0 – 255	0 – 100	<b>White fine</b>

Mode 12: White, Coarse / fine channel per function

DMX Channel	Value	Percent	Function
1	0 – 255	0 - 100	<b>Dimmer</b> closed → open
2	0 – 255	0 – 100	<b>Dimmer fine</b>
3	0 – 255	0 – 100	<b>Color temperature CCT coarse</b> 2.800 K → 10.000 K
4	0 – 255	0 - 100	<b>Color temperature CCT fine</b>
5	0 - 10	0 - 4	<b>GN saturation</b> neutral / no effect
	11 - 20	5 - 8	full minus green
	21 - 119	8 - 46	-99% → -1%
	120 - 145	47 - 57	neutral / no effect
	146 - 244	57 - 96	1% → 99%
	245 - 255	96 - 100	full plus green

Mode 13: White & H S I, Coarse / fine channel per function

DMX Channel	Value	Percent	Function
1	0 – 255	0 - 100	<b>Dimmer</b> closed → open
2	0 – 255	0 – 100	<b>Dimmer fine</b>
3	0 – 255	0 – 100	<b>Color temperature CCT coarse</b> 2.800 K → 10.000 K
4	0 – 255	0 - 100	<b>Color temperature CCT fine</b>
5	0 - 10	0 - 4	<b>GN saturation</b> neutral / no effect
	11 - 20	5 - 8	full minus green
	21 - 119	8 - 46	-99% → -1%
	120 - 145	47 - 57	neutral / no effect
	146 - 244	57 - 96	1% → 99%
	245 - 255	96 - 100	full plus green
6	0 – 255	0 - 100	<b>Xfade to color</b> White → RGBW color
7	0 – 255	0 - 100	<b>Hue coarse</b> 0° → 360°
8	0 – 255	0 – 100	<b>Hue fine</b>
9	0 – 255	0 - 100	<b>Saturation coarse</b> 0 → full saturated
10	0 – 255	0 – 100	<b>Saturation fine</b>

Mode 14: RGBW, Coarse / fine channel per function

DMX Channel	Value	Percent	Function
1	0 – 255	0 - 100	<b>Dimmer</b> closed → open
2	0 – 255	0 – 100	<b>Dimmer fine</b>
3	0 – 255	0 - 100	<b>Intensity red coarse</b> 0% → 100%
4	0 – 255	0 – 100	<b>Red fine</b>
5	0 – 255	0 - 100	<b>Intensity green coarse</b> 0% → 100%
6	0 – 255	0 – 100	<b>Green fine</b>
7	0 – 255	0 - 100	<b>Intensity blue coarse</b> 0% → 100%
8	0 – 255	0 – 100	<b>Blue fine</b>
9	0 – 255	0 - 100	<b>Intensity white coarse</b> 0% → 100%
10	0 – 255	0 – 100	<b>White fine</b>

Mode 15: H S I, Coarse / fine channel per function

DMX Channel	Value	Percent	Function
1	0 – 255	0 - 100	<b>Dimmer</b> closed → open
2	0 – 255	0 – 100	<b>Dimmer fine</b>
3	0 – 255	0 - 100	<b>Hue coarse</b> 0° → 360°
4	0 – 255	0 – 100	<b>Hue fine</b>
5	0 – 255	0 - 100	<b>Saturation coarse</b> 0 → full saturated
6	0 – 255	0 – 100	<b>Saturation fine</b>