

LS0 Lightbar Slim Linear

PRODUCT DESCRIPTION

Ketra low-voltage, full-spectrum linear luminaires with a small profile.

FEATURES

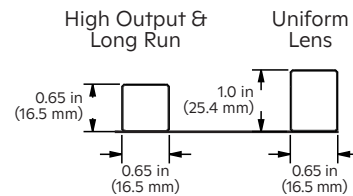
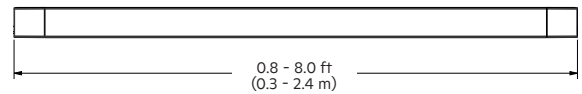
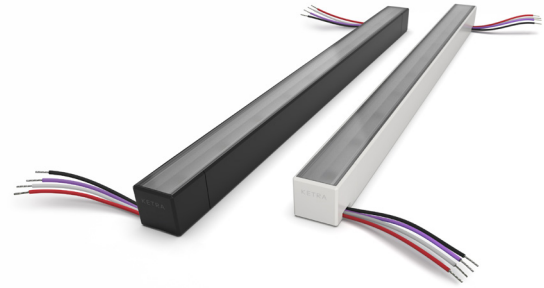
High Def Palette—covers a wide range of 16.7 million colors, including pastels, saturated colors and high CRI whites spanning from 1,400 K to 10,000 K.

Dynamic Spectrum—precisely tunes the amount of energy across the visible spectrum to produce Natural Light, Natural Dimming and Vibrancy.

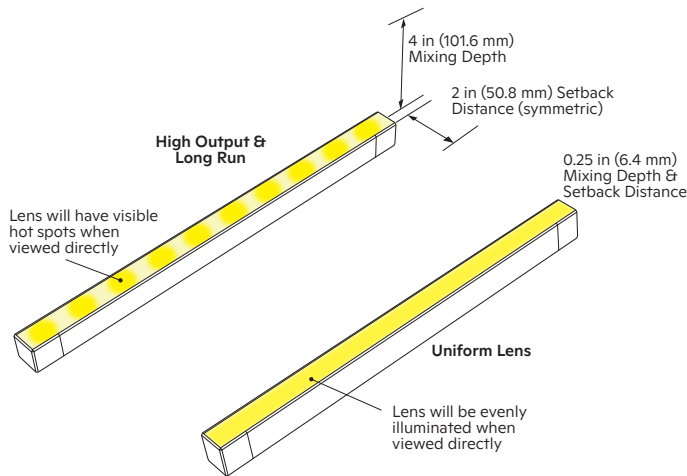
TruBeam—produces uniform color across any available beam angle.

Color Lock—maintains your desired color point at a one-step MacAdam Ellipse across all Ketra product families and over each product's lifetime.

NOTE: Compatible in HomeWorks 21.6 or greater (HomeWorks QSX), Athena, and myRoom XC systems.



OPTIONS

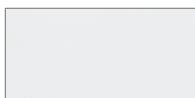


UNIFORM LENS	
Delivered Lumens ¹	250 lm/ft
Delivered Output (Light Transmission)	45 lm/W
Power Consumption	5.45 W/ft
Maximum Run Length per X96 Controller	15.0 ft (4.6 m)

HIGH OUTPUT	
Delivered Lumens ¹	350 lm/ft
Delivered Output (Light Transmission)	64 lm/W
Power Consumption	5.45 W/ft
Maximum Run Length per X96 Controller	15.0 ft (4.6 m)

LONG RUN	
Delivered Lumens ¹	200 lm/ft
Delivered Output (Light Transmission)	59 lm/W
Power Consumption	3.38 W/ft
Maximum Run Length per X96 Controller	24.0 ft (7.3 m)

Finish



Matte White



Matte Black

¹ Lumen measurement complies with IES LM-79-08 testing procedures.

SPECIFICATIONS¹

Optical Performance

CRI (Ra) ²	>90 (R9>90) from 2,700 K to 5,000 K
Lumen Maintenance ²	50,000 hours to L70 @ 25°C Ambient
Color Point Maintenance ²	One-step MacAdam Ellipse over product lifetime
Color Point Range	1,400 K - 10,000 K, Pastel and Saturated colors
Dimming Protocol	Wireless RF / CCX (Lutron Clear Connect-Type X)
Dimming Range	0.1-100%

Environmental

Ambient Temperature	0 to 40 °C (32 to 104 °F) (operating temp)
Humidity	0 - 95%, Non-condensing
Certification	UL, cUL, RoHS, FCC Class B, Title 24 [JA8], NOM
Location	UL Damp Location, IP20
Indoor / Outdoor	Not for use in outdoor applications
Warranty	5 year fixture, LED, and dimming warranty

Mechanical

Mounting	Product shall be mounted using a screw-in bracket. The bracket shall be screwed into the mounting surface, and the luminaire will snap onto it.
Fixture Weight	0.22 lbs/ft (0.33 kg/m)
Housing Material	Aluminum
Lens Material	UL F1 outdoor rating for UV and water contact PMMA

Dimensions

HW-LS0 Segment Length (Residential HomeWorks)	Minimum length of 10.0 in (0.25 m) Maximum length of 8.0 ft (2.4 m)
CM-LS0 Segment Length (Commercial Athena and myRoom XC)	Configurable lengths between max. length and min. length in 1.0 in (25.4 mm) increments
Segment Width	Only available in 1.0 ft (0.3 m), 2.0 ft (0.6 m), 4.0 ft (1.2 m), and 7.0 ft (2.1 m)
Segment Height	0.65 in (16.5 mm)
	0.65 in (16.5 mm) High Output & Long Run 1.0 in (25.4 mm) Uniform Lens

Electrical

Power Consumption	Uniform Lens	5.45 W/ft
	High Output	5.45 W/ft
	Long Run	3.38 W/ft
Voltage	17-21 V==	
Max number of segments per X96 power feed, regardless of length ³	8 segments	
Max length of segments per X96 power feed, regardless of the number of segments ³	Uniform Lens	15.0 ft (4.6 m)
	High Output	15.0 ft (4.6 m)
	Long Run	24.0 ft (7.3 m)
Emergency Lighting	These models are designed for connection to X96 controllers which have been evaluated for use with LVS model LUT-SHUNT-A-TD in an emergency lighting system in accordance with the standards referenced in the test record.	
Connection Method	5 in (127 mm) pre-stripped 22 AWG (0.25 mm ²) wire	

¹ All performance measurements taken with fixture stabilized at 25 °C (77 °F) ambient, 100% power input, unless otherwise stated, within CCT range of 2,700 - 5,000 K.

² Lumen maintenance values calculated in accordance to TM-21 procedures based on LM-80 compliant measurement data.

³ High Output and Long Run configured segments should not be mixed with Uniform Lens segments on the same run.

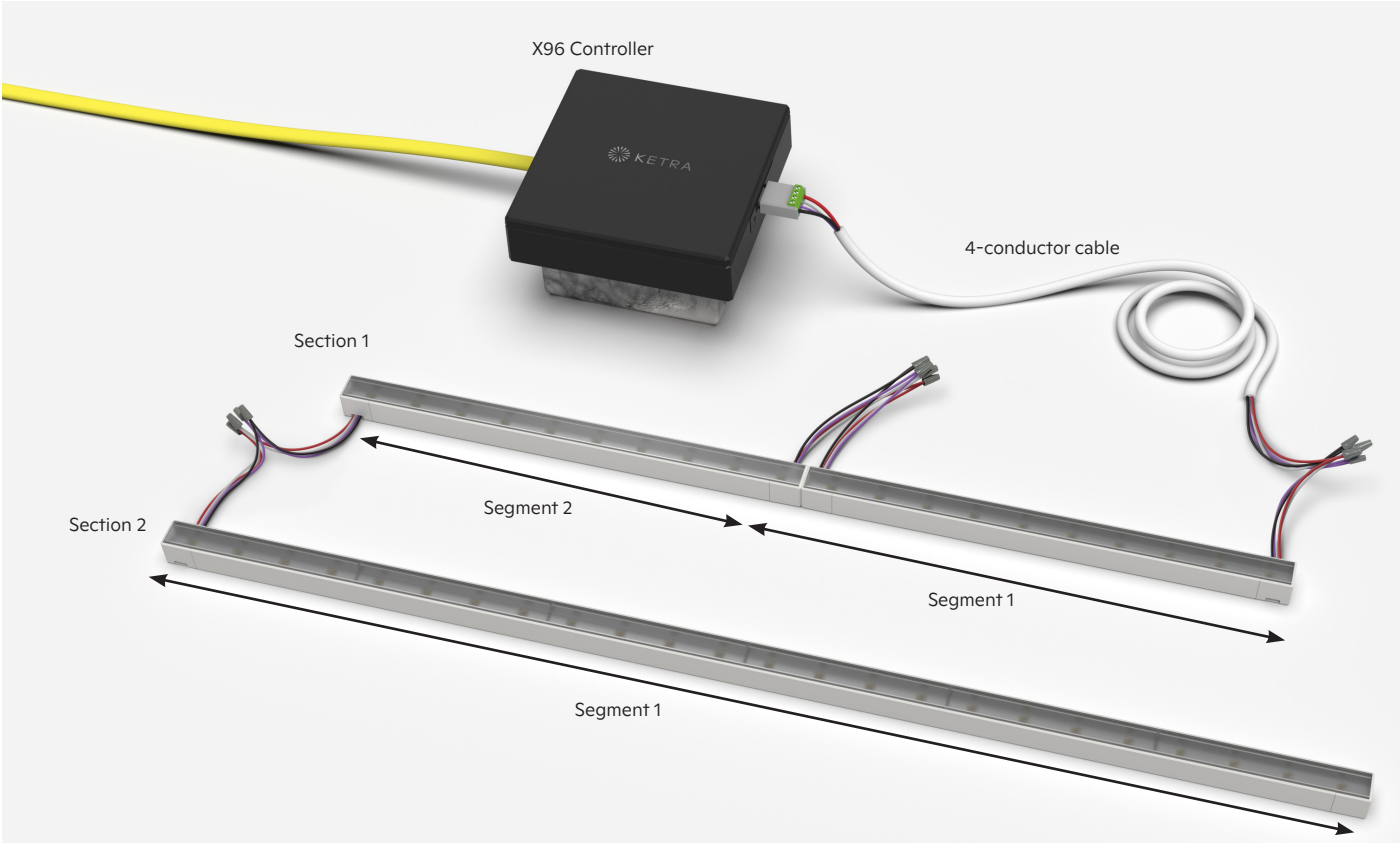
RESIDENTIAL ORDERING GUIDE

Please download this PDF to use the full functionality of the ordering guide. HW-LS0 can only be used with HW-X96-X-J2.

Order code: _____

HW-	LS0			N	W	
Product Line	Model	Lens	Finish	Fixture Length	Input Connection	Output Connection
Product Line		Code	Finish	Code	Custom Ordering Option	
Residential (HomeWorks compatible)		HW-	White	WH	Custom configurations are available through customer service	
			Black	BL		
Lens			Fixture Length			
Style	Lm/ft		Custom to the inch	N		
Uniform Lens ¹	250	UL250	Connection Methods (Input and Output)			
High Output ²	350	HO350				
Long Run ²	200	LR200	Flying Leads		W	
			No Connection (for output only)		N	

EXAMPLE RESIDENTIAL HOMEWORKS DIAGRAM



¹ Use Uniform Lens style for illuminating reflective surfaces (e.g., polished granite) and line of direct sight applications.
² Use Long Run or High Output style for applications where the light is hidden from view is acceptable.

Please download this PDF to use the full functionality of the ordering guide. CM-LS0 can only be used with CM-X96-XJ2.

CM-	LSO				W	W
Product Line	Model	Lens	Finish	Fixture Length	Input Connection	Output Connection
Product Line		Code	Finish	Code	Connection Methods (Input and Output)	
Commercial (Athena and myRoom XC compatible)		CM-	White	WH	Flying Leads	
			Black	BL		
			Fixture Length			
Lens			12.0 in (304.8 mm) segment		12	
Style	Lm/ft		24.0 in (609.6 mm) segment		24	
Uniform Lens ¹	250	UL250	48.0 in (1219.2 mm) segment		48	
High Output ²	350	HO350	84.0 in (2133.6 mm) segment		84	
Long Run ²	200	LR200				

The diagram illustrates the X96 Controller and its connection to LED segments. The controller is a black rectangular unit with the 'KETRA' logo. It is connected to a grey braided cable on the left and a white four-conductor cable on the right. The white cable is labeled 'Four-conductor Cable'. Below the controller, three LED segments are shown: two labeled '1 ft (0.3 m) Segment' and one labeled '2 ft (0.6 m) Segment'. A 'Straight Conductor' is also indicated, showing the connection between the controller and the segments.

² Use Long Run or High Output style for applications where the light is hidden from view is acceptable.

COMPONENT ORDERING GUIDE

4-conductor cable to connect runs that are greater than a foot apart.
Power conductors must be 16 AWG (1.5 mm²)

Athena / myRoom XC Controller & Power Supply

Residential HomeWorks Controller & Power Supply

4-Conductor Cable, non-plenum rated

4-Conductor Cable, plenum rated

QSH-CBLP-M-500, QSH-CBL-M-500
Total max. cable length 50 ft (15.24 m)

CM-X96-X-J2

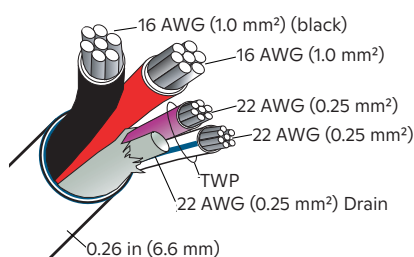
HW-X96-X-J2

QSH-CBL-M-500

QSH-CBLP-M-500

CABLE

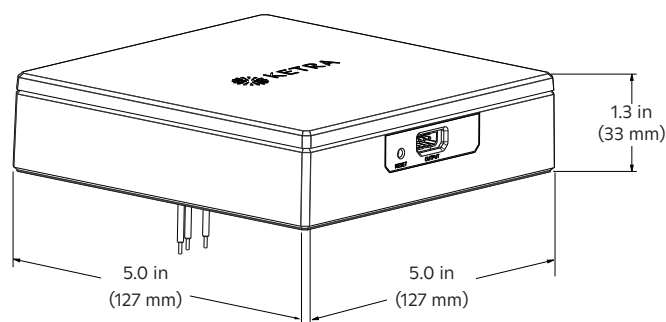
QSH-CBL-M-500



- Four conductors:
 - Common – 16 AWG (1.5 mm²)
 - Power – 16 AWG (1.5 mm²)
 - MUX Data – 22 AWG (0.5 mm²)
 - MUX Data – 22 AWG (0.5 mm²)
- Total outer jacket diameter: 0.26 in (6.6 mm)
- Another 4-conductor cable with similar specification can be used
- For complete cable specifications, see P/N 369597 at www.lutron.com
- For plenum applications, QSH-CBLP-M-500 can be used (see P/N 369596 at www.lutron.com). Due to decreased wire gauge of the power conductors in this cable, total maximum cable length is 30 ft (9.1 m)

CONTROLLER & POWER SUPPLY

CM-X96-X-J2 & HW-X96-X-J2 (see controller datasheet)
HW-X96-X-J2 ships with one (1) Type A Adapter for first luminaire to cable interconnection

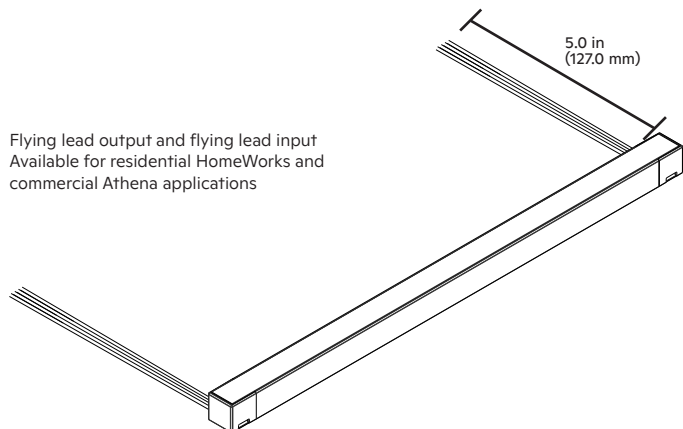


Important Note: The X96 (Ketra wireless controller) and the N3 satellite are not interchangeable. The N3 satellite cannot be used with an LS0, and an X96 cannot be used with a G2, L3I or L4R.

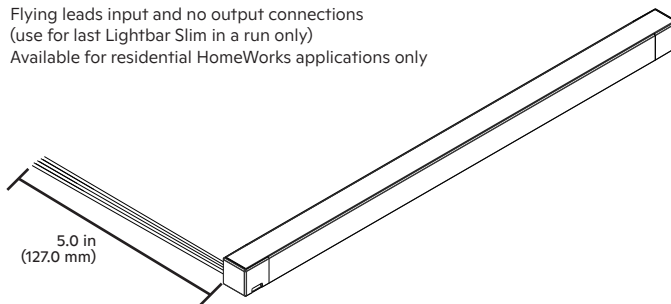
END CAP CONFIGURATIONS

Flying Lead length is 5 in (127 mm) long

Flying lead output and flying lead input
Available for residential HomeWorks and commercial Athena applications



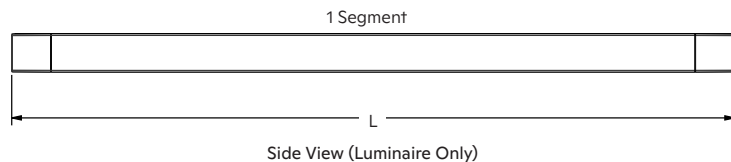
Flying leads input and no output connections
(use for last Lightbar Slim in a run only)
Available for residential HomeWorks applications only



¹ Lumen measurement complies with IES LM-79-08 testing procedures.

PRODUCT DIMENSIONS

LIGHTBAR SLIM LINEAR

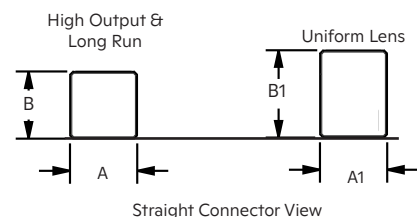


Example Fixture Length	L
in (mm)	
10 (254)	10.0 (254)
24 (610)	24.0 (610)
96 (2,438)	96.0 (2,438)

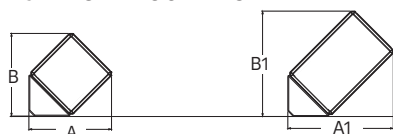
MOUNTING CLIPS AND BRACKETS

	High Output & Long Run		Uniform Lens	
Mounting Method	A	B	A1	B1
in (mm)				
Flat Mounting	0.65 (16.51)	0.65 (16.51)	0.65 (16.51)	1.00 (25.40)
Fixed 45° Angle Mounting	0.90 (22.86)	0.90 (22.86)	1.15 (29.21)	1.15 (29.21)

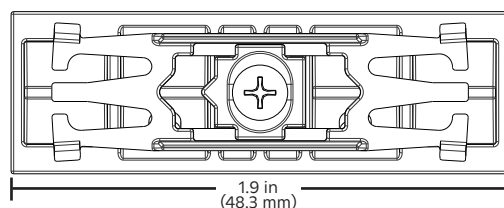
FLAT MOUNTING



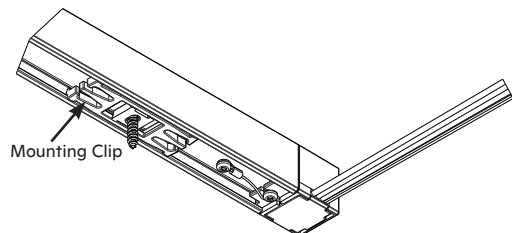
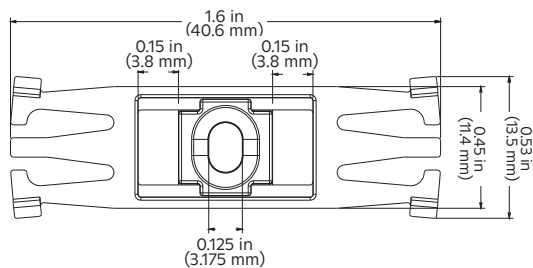
45° ANGLE MOUNTING



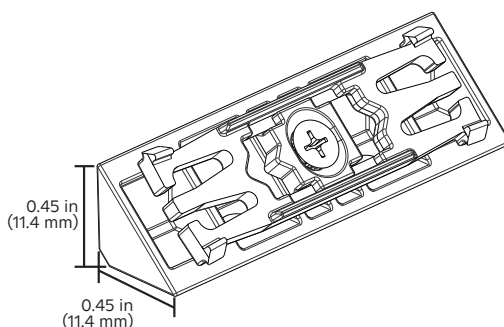
FIXED 45° ANGLE-MOUNTING BRACKETS



FLAT MOUNTING CLIP



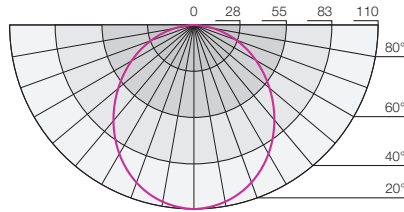
Bottom View of Flex Connector



NOTE: Flat mounting clips are provided with each LSO. Angle-mount bracket must be selected at ordering.

PHOTOMETRIC DATA ¹

UNIFORM LENS

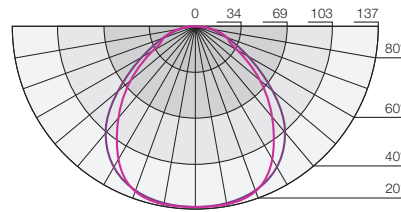


— 0-180° (Parallel to fixture)
— 90-270° (Perpendicular to fixture)

Foot-candles	Beam Dia.
448	0.5 ft 1.30 ft
112	1 ft 2.60 ft
28	2 ft 5.22 ft
12	3 ft 7.81 ft
7	4 ft 10.43 ft

Distance From Light

HIGH OUTPUT

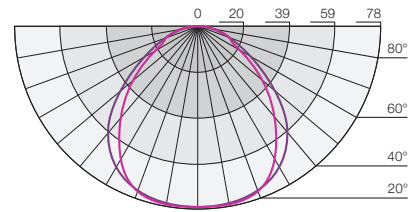


— 0-180° (Parallel to fixture)
— 90-270° (Perpendicular to fixture)

Foot-candles	Beam Dia.
548	0.5 ft 1.09 ft 1.30 ft
137	1 ft 2.18 ft 2.60 ft
34	2 ft 4.36 ft 5.22 ft
15	3 ft 6.56 ft 7.81 ft
9	4 ft 8.73 ft 10.43 ft

Distance From Light

LONG RUN

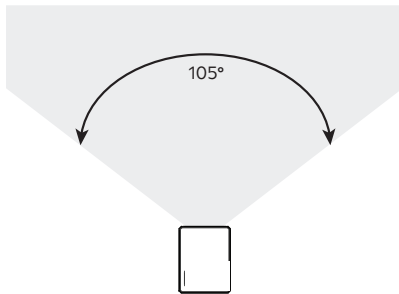


— 0-180° (Parallel to fixture)
— 90-270° (Perpendicular to fixture)

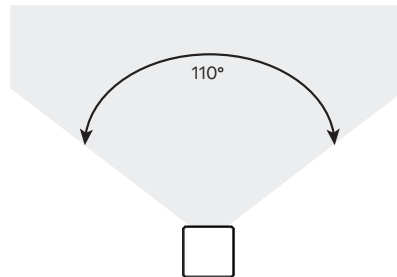
Foot-candles	Beam Dia.
312	0.5 ft 1.09 ft 1.30 ft
78	1 ft 2.18 ft 2.60 ft
20	2 ft 4.36 ft 5.22 ft
9	3 ft 6.56 ft 7.81 ft
5	4 ft 8.73 ft 10.43 ft

Distance From Light

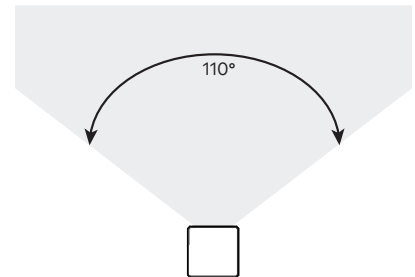
UNIFORM LENS BEAM ANGLE 105° X 105°



HIGH OUTPUT BEAM ANGLE 110° X 100°

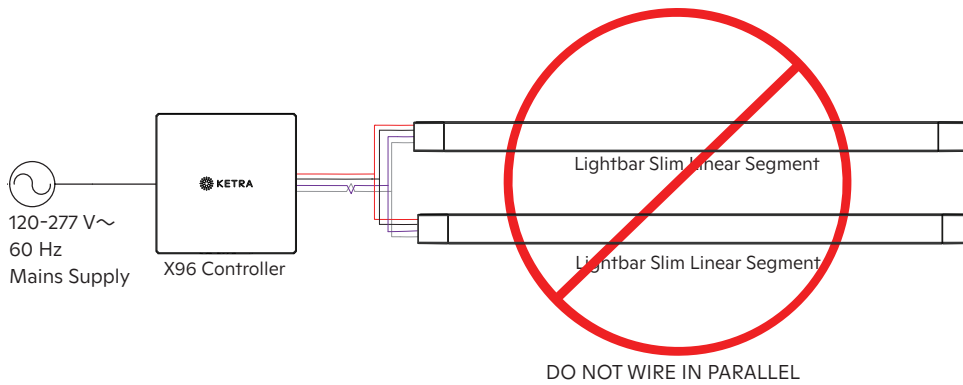
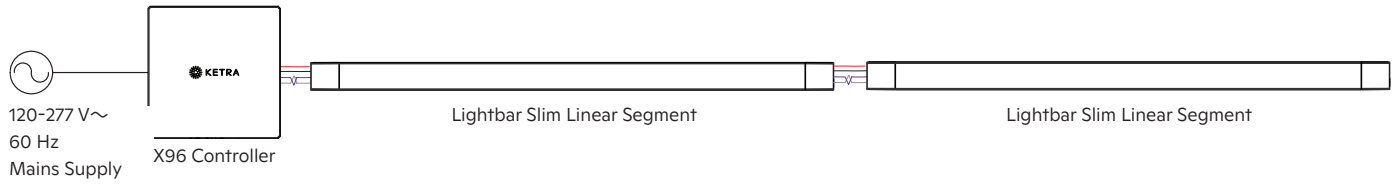


LONG RUN BEAM ANGLE 110° X 100°

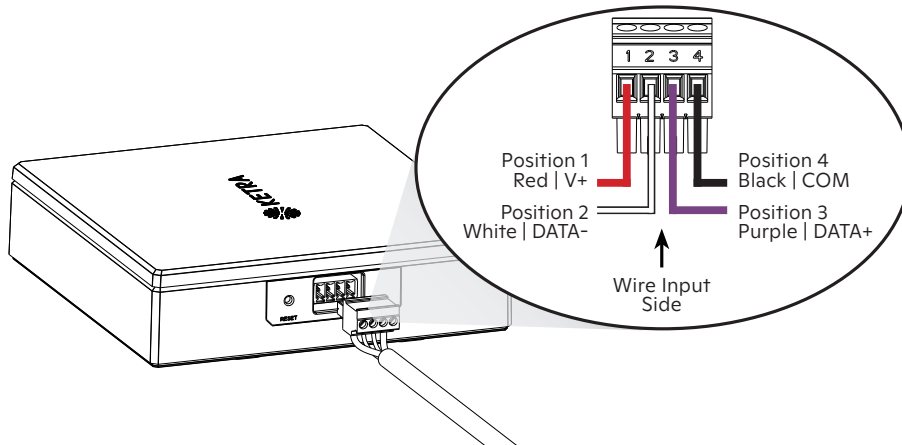


¹ All performance measurements taken with fixture stabilized at 25 °C (77 °F) ambient, 100% power input, unless otherwise stated, within CCT range of 2,700 - 5,000 K.

WIRING DIAGRAM



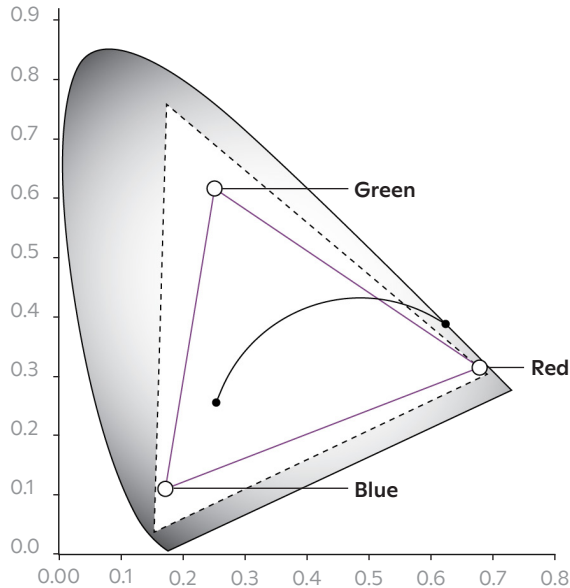
CONNECTIONS



Note: Only accepts up to 16 AWG (1.5 mm²). 16 AWG (1.5 mm²) power conductors required for wire run length of 50 ft (15.2 m).

WIDE GAMUT

CIE 1931 Color Chart



Ketra's Lightbar Slim Linear can easily be commissioned into Lutron HomeWorks, Athena, or myRoom XC systems. The product can reproduce any color point within the triangle shaped gamut indicated in the chart to the left. With Ketra's Color Lock technology, the color point is maintained to an accuracy of one-step MacAdam Ellipse over the lifetime warranty of the product and across operating temperature range.

- **Color Lock**—Color point is maintained to an accuracy of one-step MacAdam Ellipse over the lifetime warranty of the product and across operating temperature range.
- **Expanded Gamut**—Color Lock not guaranteed such that each product produces the most saturated color of which it is capable.

LSO General Specifications

Color Point Maintenance: Employs closed loop optical and thermal feedback capable of maintaining color point accuracy at a one-step MacAdam ellipse over product lifetime¹.

Wireless Capability: LSO communicates via a wired protocol to X96 controller. X96 controller shall have an integrated wireless control on board.

Color Rendering Index (CRI): Capable of CRI greater than 90 at any point along the Black Body Curve from 2,700 K to 5,000 K.

Single Source Multi-Die Modular Emitter/LED Module Design: Employ a single source multi-die modular emitter/LED module consisting of both monochromatic and phosphor converted blue LED die.

LED Estimated Useful Life: Minimum of 50,000 hours at 70 percent lumen maintenance, calculated based on IES LM-80 test data.

Diagnostic reporting capability²: Clear Connect-Type X (CCX) light sources provide diagnostics and built-in technology to check input voltage and wireless connectivity.

Warranty: Ketra's light source is warrantied to be free from material defects in material and workmanship for five (5) years or 25,000 hours from date of shipment, whichever is less.

Lighting System Capable of the Following Dynamic Functionality:

1. Automatically mimicking natural daylight by shifting Correlated Color Temperature (CCT) and intensity based on time-of-day.
2. Shifting from high CCT at high intensity to low CCT at low intensity, mimicking dimming curve of an incandescent lamp.
3. Changing intensity while maintaining full color spectrum or CCT.
4. Changing full color spectrum or CCT while maintaining intensity.

Spectral Power Distribution Manipulation: Light system capable of manipulating the Spectral Power Distribution (SPD) by automatically adjusting distributions of color intensity, also known as vibrancy, while maintaining the same Correlated Color Temperature (CCT).

Dimming Range: Dimmable from 100 to 0.1 percent measured luminous flux.

Color Point Range: Single light source capable of producing 16.7 million colors and whites from 1,400 K to 10,000 K Correlated Color Temperature (CCT).

¹ Color point maintenance not guaranteed in the expanded gamut or while operating at ambient temperatures between -13 to 32 °F (-25 to 0 °C).

² For diagnostics support or more information, please contact Lighting Technical Support at lightingsupport@lutron.com or 1.844.LUTRON1 (1.844.588.7661).

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