

LS0 Lightbar Slim Linear

PRODUCT DESCRIPTION

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

FEATURES

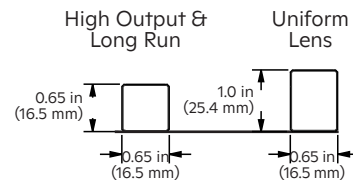
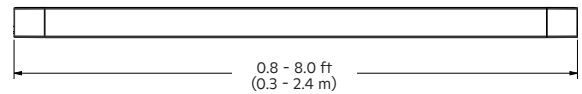
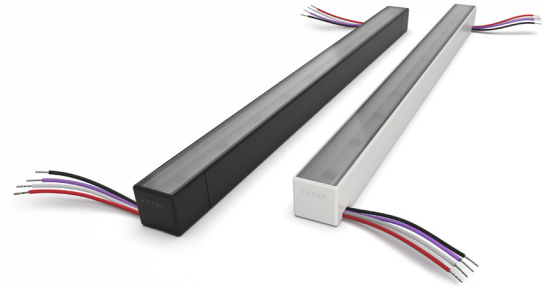
High Def Palette—covers a wide range of 16.7 million colors, including pastels, saturated colors and high CRI whites spanning from 1,400K to 10,000K.

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

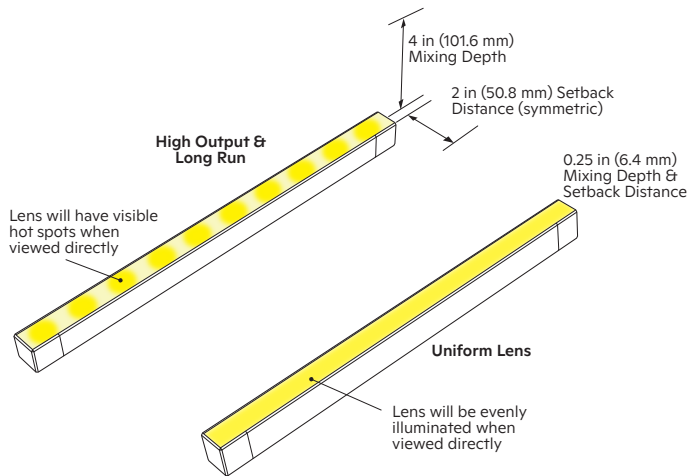
TruBeam—produces uniform color across any available beam angle.

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) and Athena systems.



OPTIONS

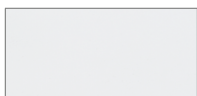


UNIFORM LENS	
Delivered Lumens ¹	250 lm/ft
Delivered Output (Light Transmission)	45 lm/W
Power Consumption	5.45 W/ft
Maximum Run Length per X96 Controller	15.0 ft (4.6 m)

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 2,700K to 5,000K
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	1400K - 10000K, 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)	Configurable lengths between max. length and min. length in 1.0 in (25.4 mm) increments
Segment Width	0.65 in (16.5 mm)
Segment Height	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 _{DC}	
	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	Residential	5 in (127 mm) pre-stripped 22 AWG (0.25 mm ²) wire
	Commercial	Straight connectors for end-to-end connections

¹ All performance measurements taken with fixture stabilized at 25° C (77 °F) ambient, 100% power input, unless otherwise stated, within CCT range of 2700 - 5000 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.

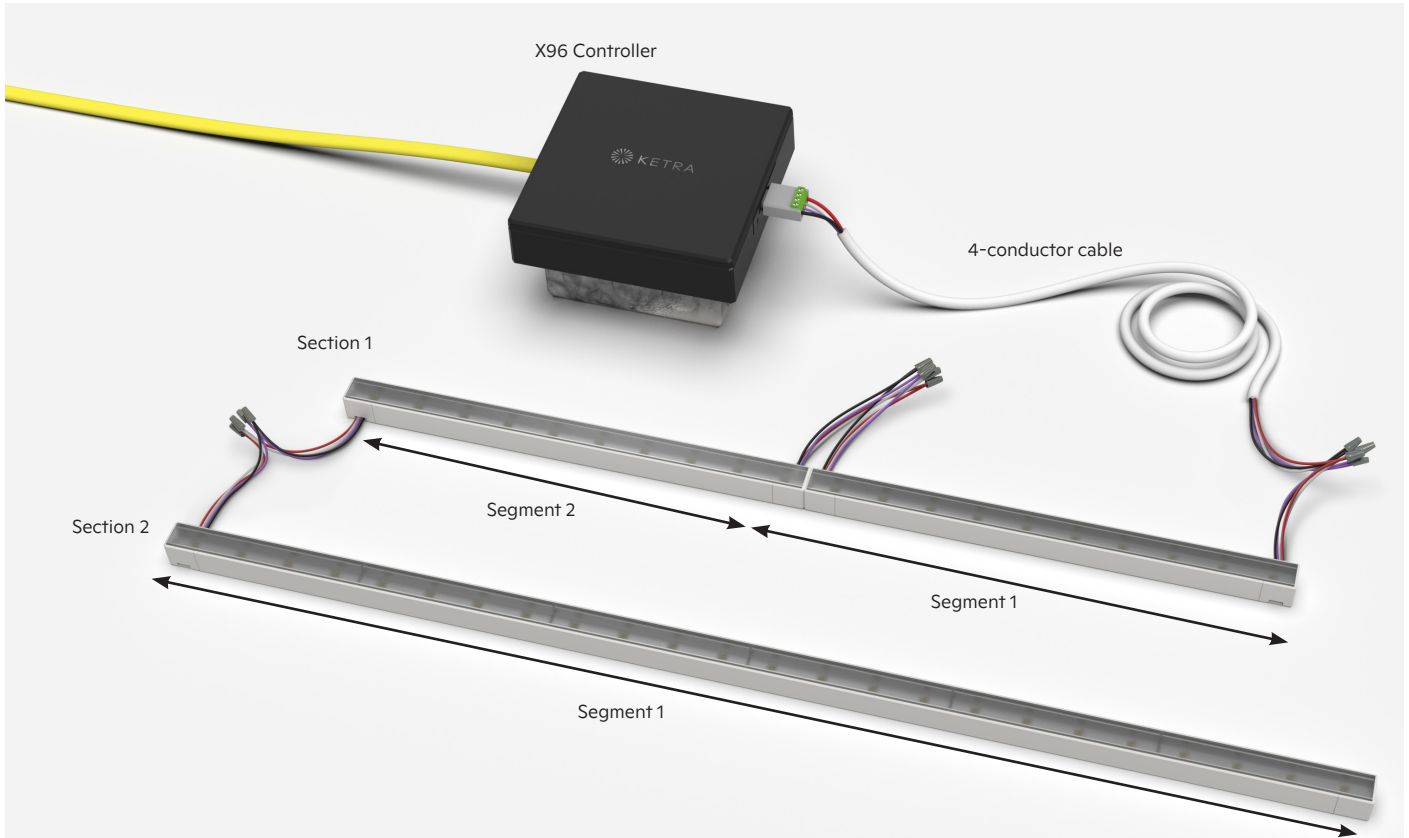
RESIDENTIAL ORDERING GUIDE

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: _____

<u>HW-</u>	<u>LS0</u>	<u> </u>	<u> </u>	<u>N</u>	<u>W</u>	<u> </u>
Product Line	Model	Lens	Finish	Fixture Length	Input Connection	Output Connection
Product Line	Code	Finish	Code	Custom Ordering Option⁴		
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				
High Output ²	350	HO350				
Long Run ²	200	LR200				
		Connection Methods (Input and Output)				
		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.

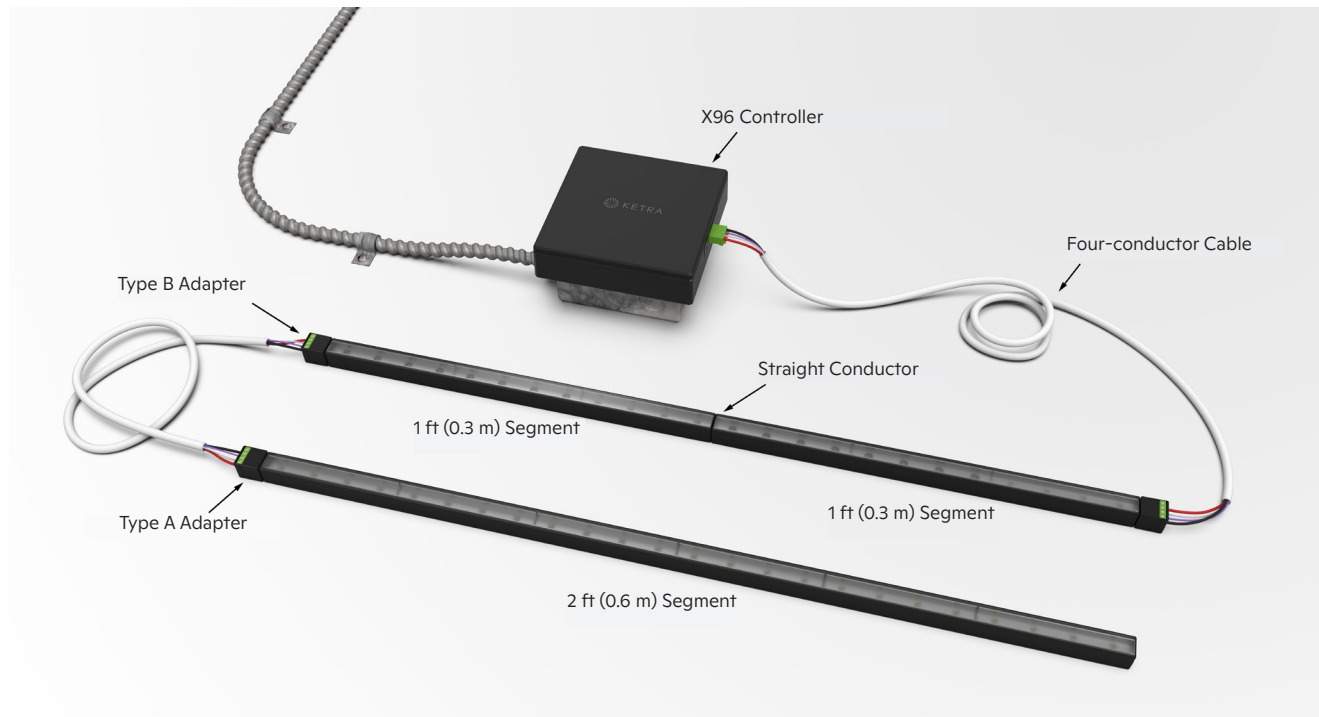
COMMERCIAL ORDERING GUIDE

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

Order code: _____

CM-	LSO				S	S
Product Line	Model	Lens	Finish	Fixture Length	Input Connection ^{3,4}	Output Connection ^{3,4}
Product Line	Code	Finish	Code	Connection Methods (Input and Output)		Code
Commercial (Athena compatible)	CM-	White Black	WH BL	Straight Connections (Commercial Athena LSO units are configured with straight connectors)		S
Lens		Fixture Length				
Style	Lm/ft					
Uniform Lens ¹	250	UL250	12.0 in (304.8 mm) segment	12		
High Output ²	350	HO350	24.0 in (609.6 mm) segment	24		
Long Run ²	200	LR200	48.0 in (1219.2 mm) segment	48		
			84.0 in (2133.6 mm) segment	84		

EXAMPLE COMMERCIAL ATHENA DIAGRAM



Note: Each CM-LSO segment is shipped with UN-LS0-ADPT-1 adapter pair.

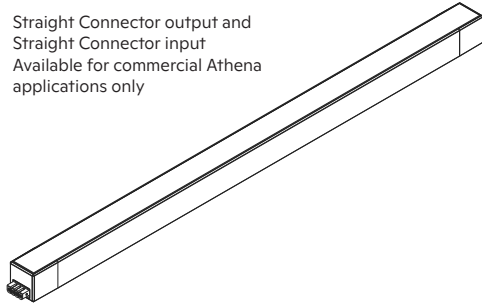
¹ Use Uniform Lens style for illuminating reflective surfaces (e.g., polished granite) and line of direct sight applications.
² Use Long Run or High Output style for applications where the light is hidden from view is acceptable.
³ Order codes without input and output configurations characters are configured to the default Straight Connection style.
⁴ Commercial LSO connection methods will be updated to use flying leads in 2025 to match the current residential offerings.

ORDERING GUIDE

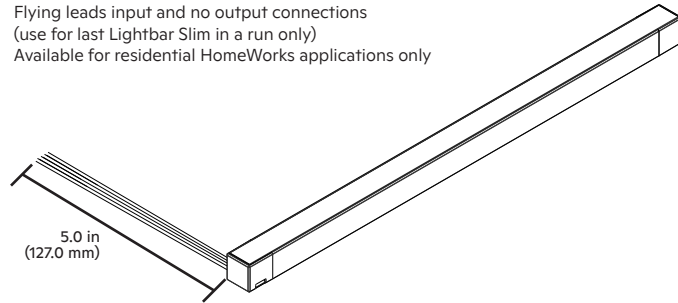
END CAP CONFIGURATIONS

Flexible connector length is 6 in (152.4 mm) long

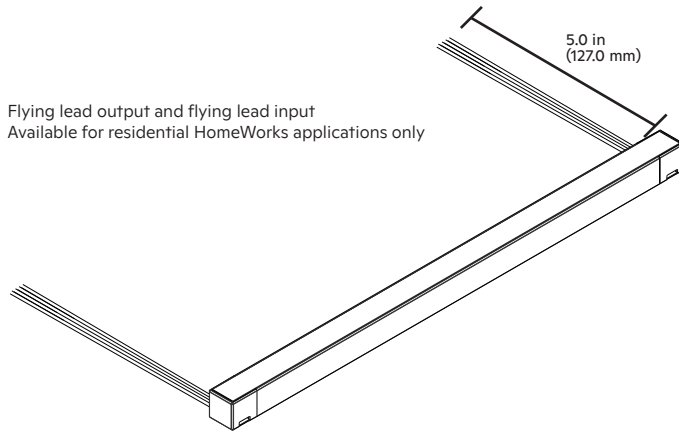
Straight Connector output and
Straight Connector input
Available for commercial Athena
applications only



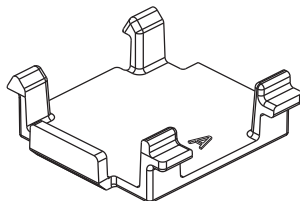
Flying leads input and no output connections
(use for last Lightbar Slim in a run only)
Available for residential HomeWorks applications only



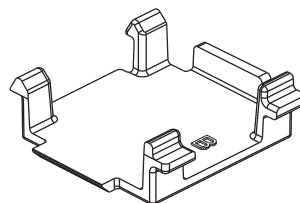
Flying lead output and flying lead input
Available for residential HomeWorks applications only



RIGHT-ANGLE END COVERS



Type A



Type B

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 Controller & Power Supply

Residential HomeWorks Controller & Power Supply

LSO Adapter Pair (includes 1 Type A Adapter + 1 Type B Adapter)
available in black finish only³

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-J2²

HW-X96-X-J2²

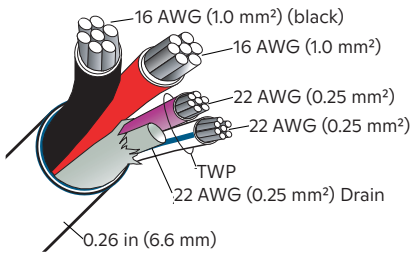
UN-LSO-ADPT-1

QSH-CBL-M-500

QSH-CBLP-M-500

CABLE

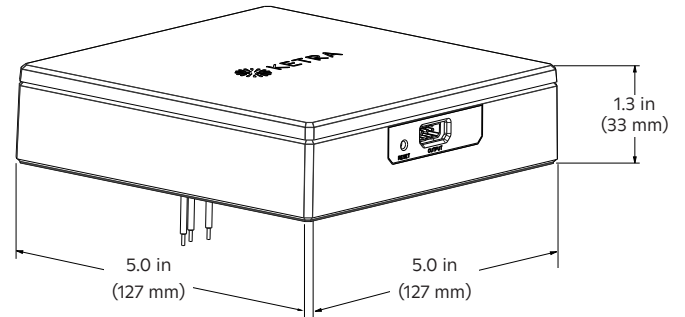
QSH-CBL-M-500



- Four conductors:
 - Common – 16 AWG (1.5 mm²)
 - Power – 16 AWG (1.5 mm²)
 - MUX Data – 22 AWG (0.5 mm²)
 - $\overline{\text{MUX}}$ 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

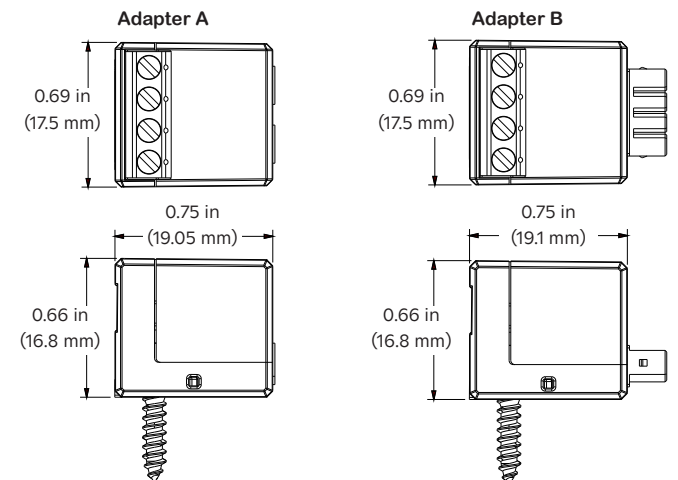
CM-X96-X-J2 & HW-X96-X-J2 (see controller datasheet)
HW-X96-X-J2 ships with one (1) Type A Adapter for first luminaire to cable interconnection



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

UN-LSO-ADPT-1 ADAPTER PAIRS³

(AVAILABLE IN BLACK FINISH ONLY)



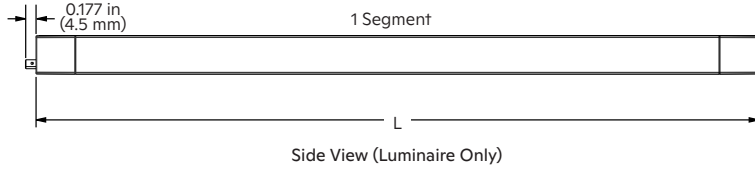
¹ Lumen measurement complies with IES LM-79-08 testing procedures.

² X96-X-J2 is the second generation X96 Controller and compatible with all LSO Lightbar Slim High Output and Long Run configurations, and required for Uniform Lens configurations.

³ Each CM-LSO ships with (1) UN-LS-ADPT-1. Adaptors are only compatible with commercial Athena configured LSO Light Bar Slim.

PRODUCT DIMENSIONS

LIGHTBAR SLIM LINEAR¹

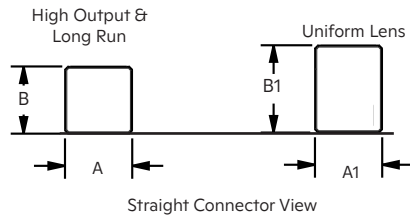


Example Fixture Length	L
in (mm)	
10 (254)	10.0 (254)
24 (610)	24.0 (610)
96 (2438)	96.0 (2438)

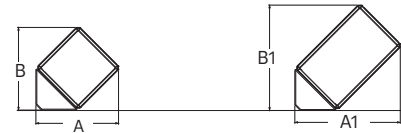
MOUNTING CLIPS AND BRACKETS

Mounting Method	High Output & Long Run		Uniform Lens	
	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)

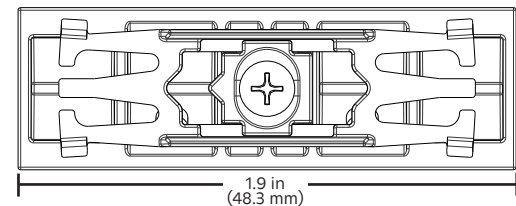
FLAT MOUNTING



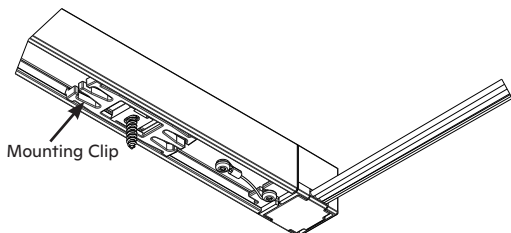
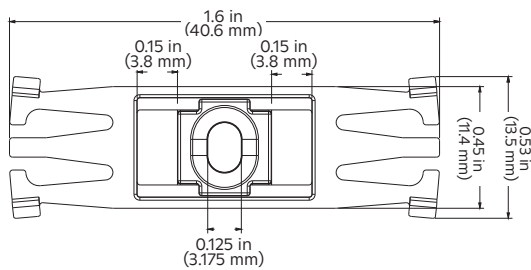
45° ANGLE MOUNTING



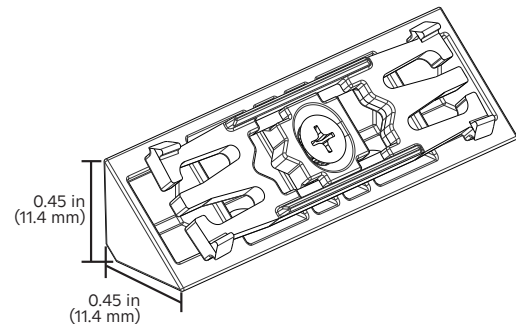
FIXED 45° ANGLE-MOUNTING BRACKETS



FLAT MOUNTING CLIP



Bottom View of Flex Connector

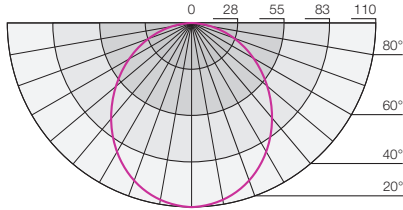


NOTE: Flat mounting clips are provided with each LSO. Angle-mount bracket must be selected at ordering.

¹ Connector protrusion only with commercial Athena configured straight connectors.

PHOTOMETRIC DATA¹

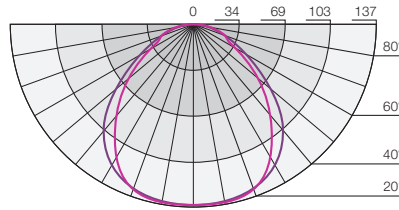
UNIFORM LENS



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

Foot-candles	Distance From Light	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

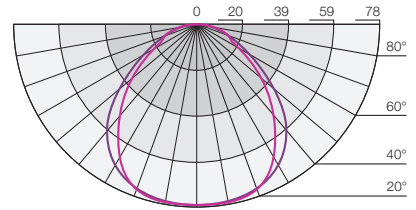
HIGH OUTPUT



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

Foot-candles	Distance From Light	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

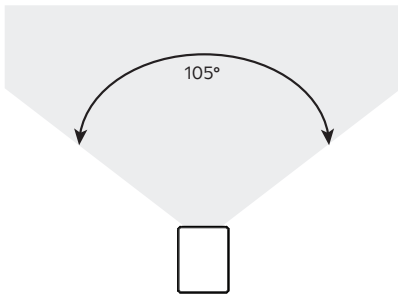
LONG RUN



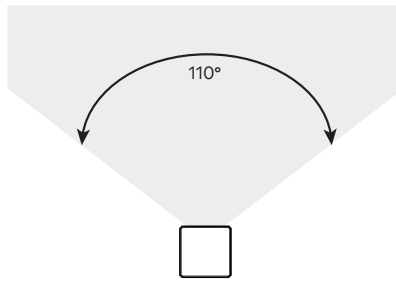
— 0-180° (Parallel to fixture)
— 90-270° (Perpendicular to fixture)

Foot-candles	Distance From Light	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

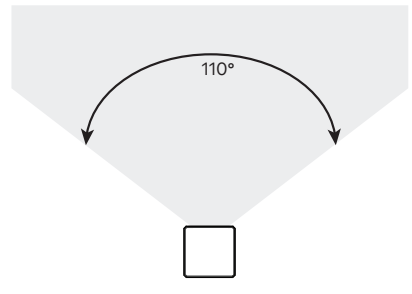
**UNIFORM LENS BEAM ANGLE
105° X 105°**



**HIGH OUTPUT BEAM ANGLE
110° X 100°**

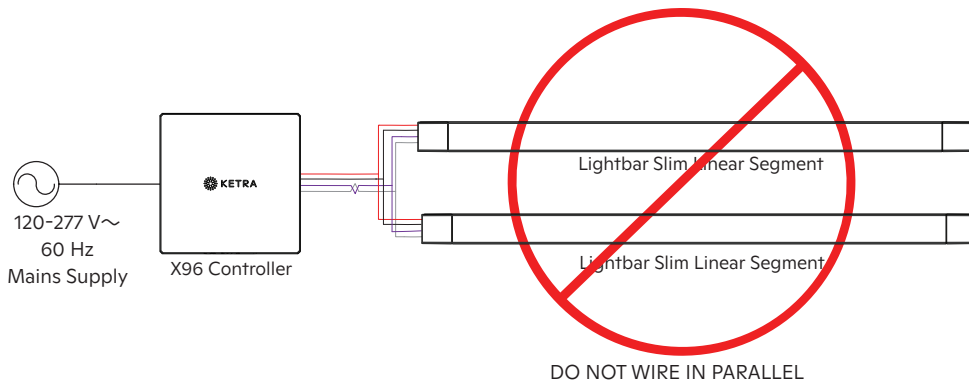
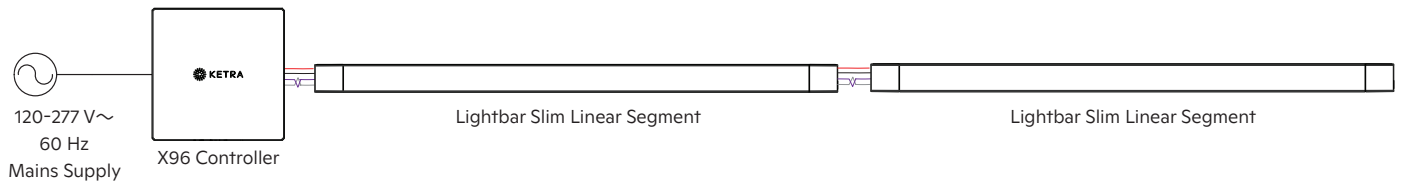


**LONG RUN BEAM ANGLE
110° X 100°**

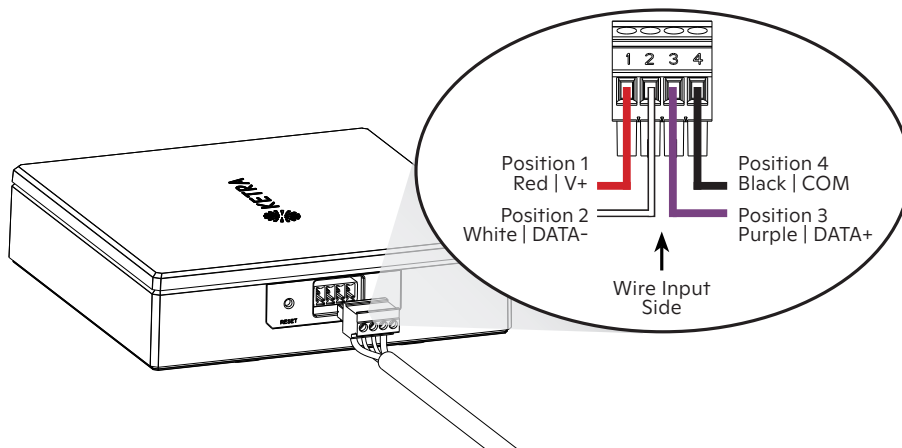


¹ All performance measurements taken with fixture stabilized at 25° C (77 °F) ambient, 100% power input, unless otherwise stated, within CCT range of 2700 - 5000 K.

WIRING DIAGRAM



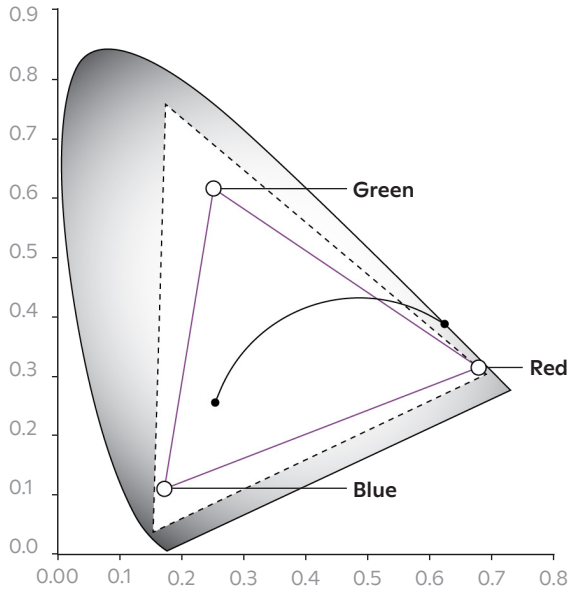
CONNECTIONS



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 or Athena 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 2,700K to 5,000K.

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 1,400K to 10,000K 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).