LUTRON | KETRA

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.

Finish

Matte White

Matte Black

0.8 - 8.0 ft
(0.3 - 2.4 m)

High Output &
Long Run

Uniform
Lens

0.65 in
(16.5 mm)

1.0 in
(25.4 mm)

0.65 in
(16.5 mm)

0.65 in
(16.5 mm)
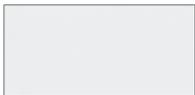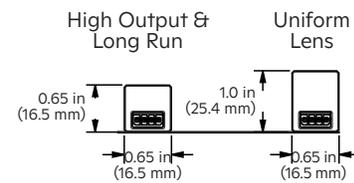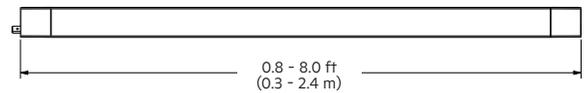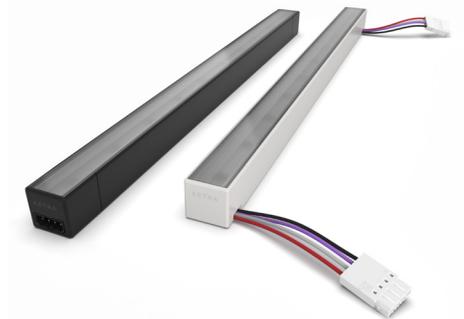
SPECIFICATIONS[1]

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 Range	0.1-100%

Environmental

Ambient Temperature	0 to 40 °C (32 to 104 °F) (operating temp)
Storage Temperature	-20 to 80 °C (-4 to 176 °F)
Humidity	0 - 95%, Non-condensing
Certification	UL, cUL, RoHS, FCC Class B, Title 24 [JA8]
Location	UL Damp Location, IP20, not for use in outdoor applications

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. Bracket will not add to the overall width and height of the product.
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)
	Configurable lengths between max. length and min. length in 1.0 in (25.4 mm) increments
CM-LS0 Segment Length (Commercial Athena)	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 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⎓	
Max number of segments per X96 power feed, regardless of length	8 segments	
Max length of segments per X96 power feed, regardless of the number of segments	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	Lightbar Slim Linear and X96 Controller cannot be used for emergency lighting applications even when using the LVS model LUT-SHUNT-A_TD. Consider other Ketra lighting sources for emergency lighting applications.	

[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.

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**
Product Line	Model	Lens	Finish	Fixture Length

Product Line	Code
Residential (HomeWorks compatible)	**HW-**

Lens		
Style	Lm/ft	
Uniform Lens [1]	250	**UL250**
High Output [2]	350	**HO350**
Long Run [2]	200	**LR200**

Finish	Code
White	**WH**
Black	**BL**

Fixture Length	
Custom to the inch	**N**

Custom Ordering Option[4]

- Also available to custom order in 1 in (25.4 mm) increments with straight and flexible connectors
  - Minimum Length 10 in (254 mm)
  - Maximum Length 96 in (2438 mm)

Endcap

- Straight connectors for end-to-end connections
- Flexible connectors for corner or angled connections
- End connector cover to terminate the last product

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-X-J2.

Order code: _____

CM-	**LS0**	_____	_____	_____
Product Line	Model	Lens	Finish	Fixture Length

Product Line	Code
Commercial (Athena compatible)	**CM-**

Lens		
Style	Lm/ft	
Uniform Lens [1]	250	**UL250**
High Output [2]	350	**HO350**
Long Run [2]	200	**LR200**

Finish	Code
White	**WH**
Black	**BL**

Fixture Length	
12.0 in (304.8 mm) segment	**12**
24.0 in (609.6 mm) segment	**24**
48.0 in (1219.2 mm) segment	**48**
84.0 in (2133.6 mm) segment	**84**

**Endcap**

- Straight connectors for end-to-end connections
- End connector cover to terminate the last product

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[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.

LUMINAIRE OPTIONS

4 in (101.6 mm)
Mixing Depth

2 in (50.8 mm) Setback
Distance (symmetric)

**High Output &
Long Run**

0.25 in (6.4 mm)
Mixing Depth &
Setback Distance

Lens will have visible
hot spots when
viewed directly

Uniform Lens

Lens will be evenly
illuminated when
viewed directly
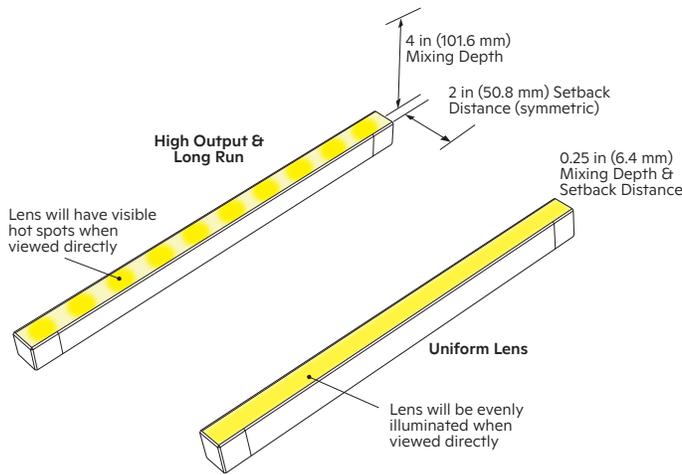
UNIFORM LENS	
Width x Height	0.65 × 1.0 in (16.5 × 25.4 mm)
Lumen Output [1]	250 lm/ft
Delivered Output (Light Transmission)	45 lm/W
Power Consumption	5.45 W/ft
Maximum Run Length per X96 Controller	15.0 ft (4.6 m)

HIGH OUTPUT	
Width x Height	0.65 × 0.65 in (16.5 × 16.5 mm)
Lumen Output [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 (4.57 m)

LONG RUN	
Width x Height	0.65 × 0.65 in (16.5 × 16.5 mm)
Lumen Output [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)

ACCESSORIES

4-conductor cable to connect runs that are greater than a foot apart. Power conductors must be 16 AWG (1.5 mm²)	**QSH-CBLP-M-500, QSH-CBL-M-500** **Total max. cable length 50 ft (15.24 m)**
Athena Controller & Power Supply	**CM-X96-X-J2** [2]
Residential HomeWorks Controller & Power Supply	**HW-X96-X-J2** [2]
LS0 Adapter Pair (includes 1 Type A Adapter + 1 Type B Adapter) available in black finish only [3]	**UN-LS0-ADPT-1**
4-Conductor Cable, non-plenum rated	**QSH-CBL-M-500**
4-Conductor Cable, plenum rated	**QSH-CBLP-M-500**

[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 LS0 Lightbar Slim High Output and Long Run configurations, and required for Uniform Lens configurations.

[3] HW-X96-X-J2 is delivered with one Type A Adapter to connect to first LS0 luminaire. For luminaires farther than two flex connections (12 in [25.4 mm]) apart, UN-LS0-ADPT-1 must be ordered so that the wire can be routed between the luminaires. Each CM-LS0 ships with (1) UN-LS-ADPT-1.

EXAMPLE RESIDENTIAL HOMEWORKS DIAGRAM
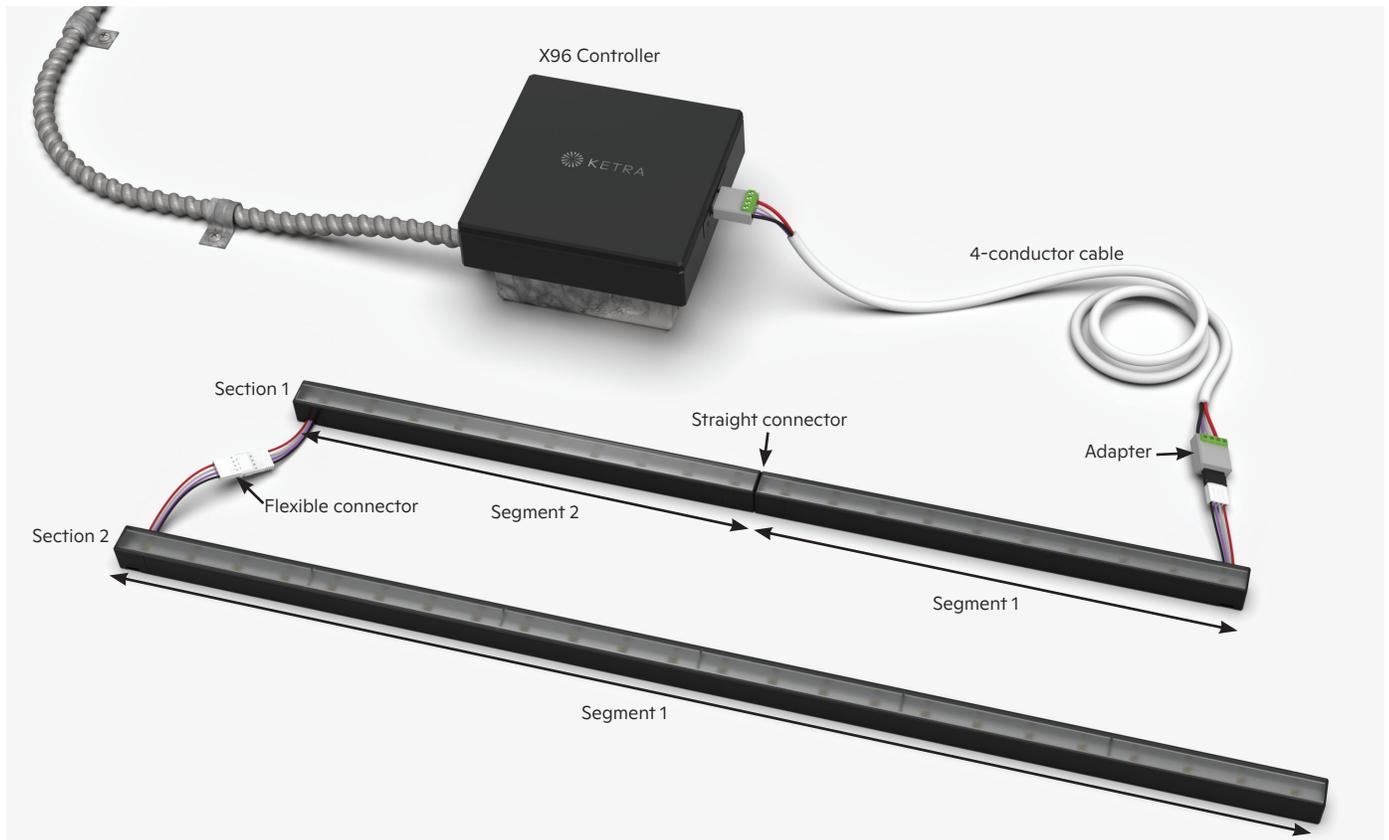
EXAMPLE COMMERCIAL ATHENA DIAGRAM
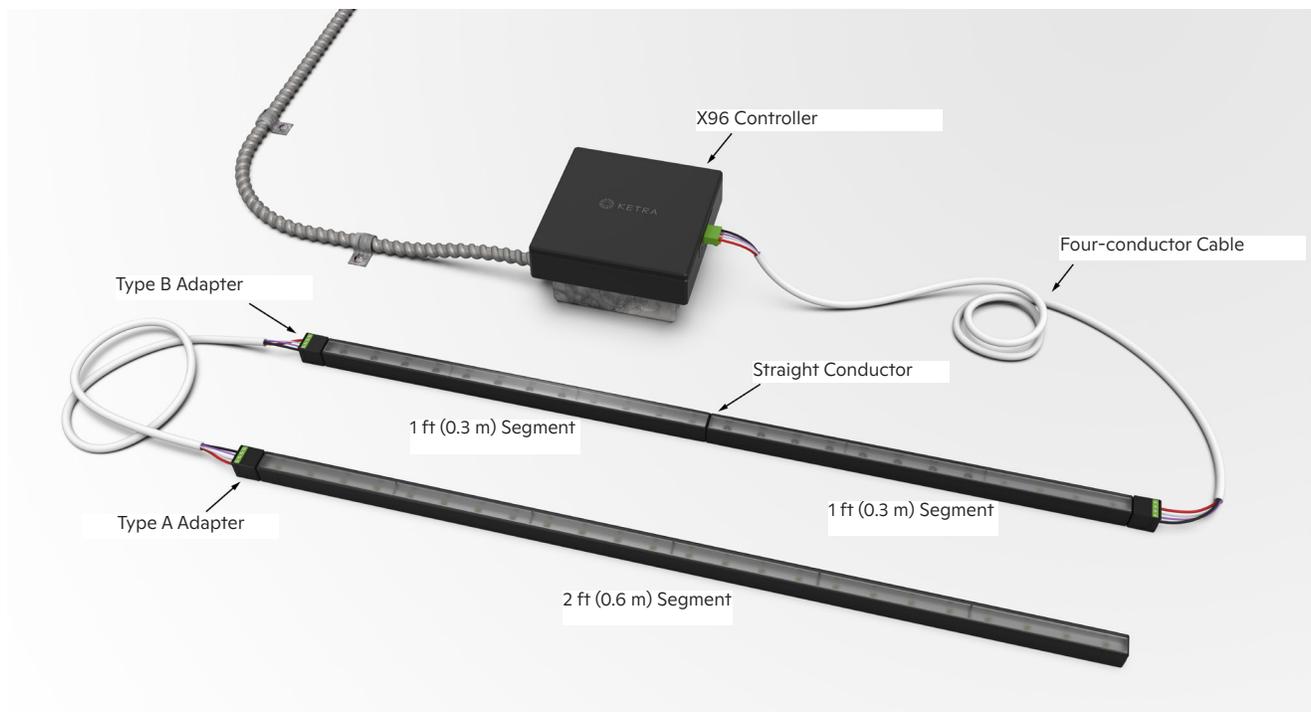
**Note:** Each CM-LS0 segment is shipped with UN-LS0-ADPT-1 adapter pair.

ACCESSORIES (cont.)
END CAP CONFIGURATIONS
Flexible connector length is 6 in (152.4 mm) long

Straight Connector output and
Straight Connector input
Available for residential HomeWorks and
commercial Athena applications

Flexible Connector input and
Straight Connector output
Available for residential HomeWorks applications only

6.0 in
(152.4 mm)

6.0 in
(152.4 mm)

Flexible Connector output and
Straight Connector input
Available for residential HomeWorks
applications only

0.5 in
(11.7 mm)
0.2 in
(5.1 mm)
0.7 in
(18.3 mm)

6.0 in
(152.4 mm)

Flexible Connector output and
Flexible Connector input
Available for residential HomeWorks applications only

0.4 in
(10.9 mm)
0.15 in
(3.8 mm)
0.5 in
(11.7 mm)

CABLE
QSH-CBL-M-500

16 AWG (1.0 mm²) (black)
16 AWG (1.0 mm²)
22 AWG (0.25 mm²)
22 AWG (0.25 mm²)
TWP
22 AWG (0.25 mm²) Drain
0.26 in (6.6 mm)

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

1.3 in
(33 mm)

5.0 in
(127 mm)

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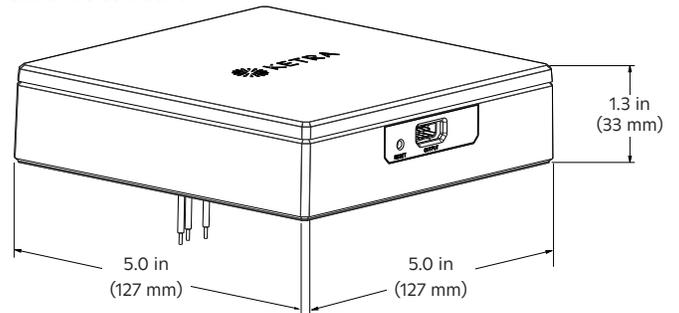
Important Note: The X96 (Ketra wireless controller) and the N3 satellite are not interchangeable. The N3 satellite cannot be used with an LS0, and an X96 cannot be used with a G2, L3I or L4R.

PRODUCT DIMENSIONS

LIGHTBAR SLIM LINEAR

0.177 in
(4.5 mm)

1 Segment

C

Side View (Luminaire Only)

High Output &
Long Run

Uniform Lens

High Output &
Long Run

Uniform Lens

B

B1

B

B1

A

A

A

A

Straight Connector Input Front View

Straight Connector Output Back View
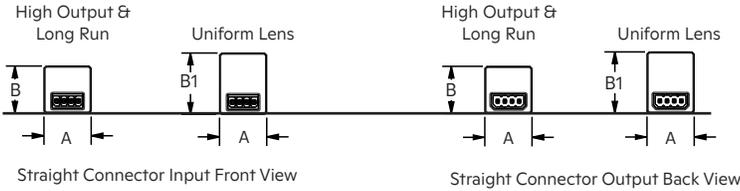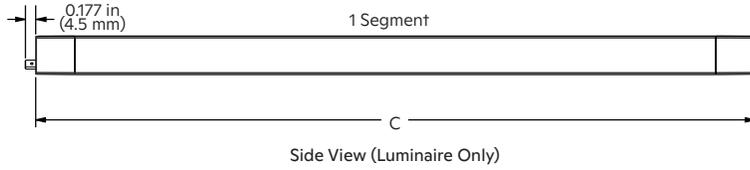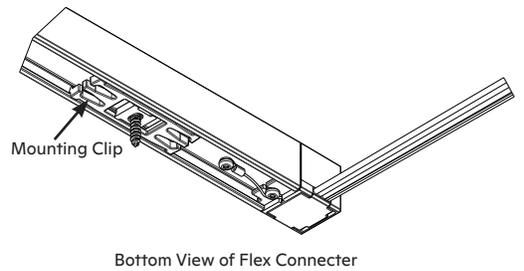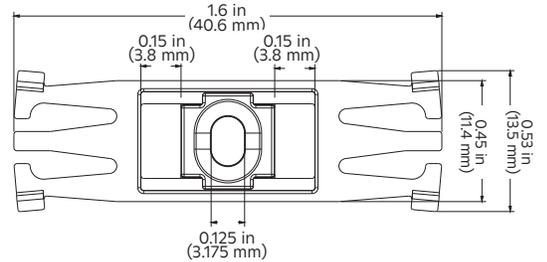
Example Fixture Length	A	B High Output & Long Run	B1 Uniform Lens	C
in (mm)				
10 (254)	0.65 (16.51)	0.65 (16.51)	1 (25.40)	10.0 (254)
24 (610)	0.65 (16.51)	0.65 (16.51)	1 (25.40)	24.0 (610)
96 (2438)	0.65 (16.51)	0.65 (16.51)	1 (25.40)	96.0 (2438)

MOUNTING CLIP

1.6 in
(40.6 mm)

0.15 in
(3.8 mm)

0.15 in
(3.8 mm)

0.45 in
(11.4 mm)

0.53 in
(13.5 mm)

0.125 in
(3.175 mm)

Mounting Clip

Bottom View of Flex Connecter

UN-LS0-ADPT-1 ADAPTER PAIRS (AVAILABLE IN BLACK FINISH ONLY)

Adapter A

0.69 in
(17.5 mm)

0.75 in
(19.05 mm)

0.66 in
(16.8 mm)

Adapter B

0.69 in
(17.5 mm)

0.75 in
(19.1 mm)

0.66 in
(16.8 mm)

844-588-7661 | ketra.com
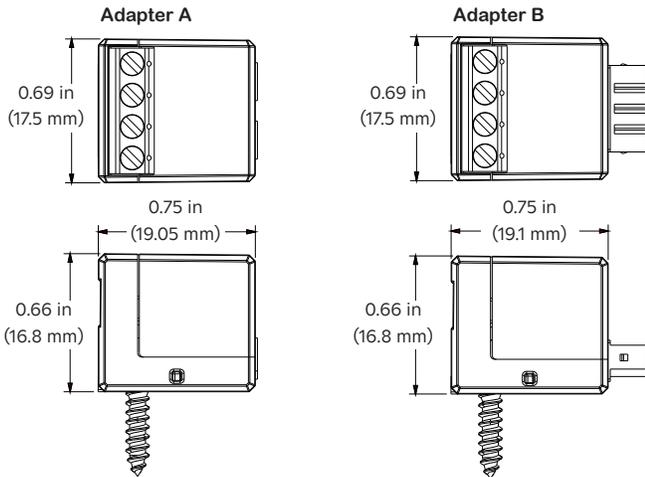
PHOTOMETRIC DATA[1]

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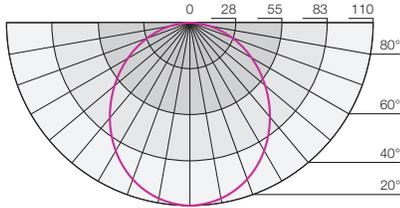
— 0-180° (Parallel to fixture)
— 90-270° (Perpendicular to fixture)

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
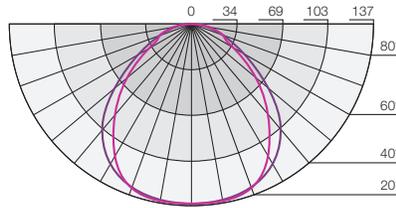
Distance From Light

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
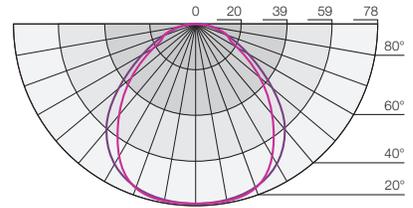
Distance From Light

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°

105°
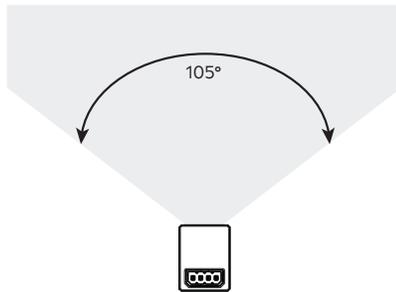
### HIGH OUTPUT BEAM ANGLE
110° X 100°

110°
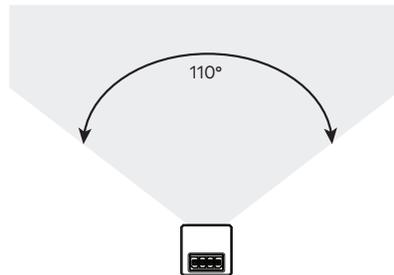
### LONG RUN BEAM ANGLE
110° X 100°
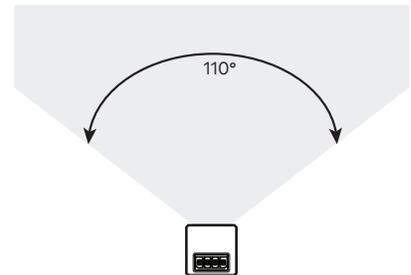
110°

[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 DIAGRAMS

120–277 V∼
60 Hz
Mains Supply

X96 Controller

Lightbar Slim Linear Segment

Lightbar Slim Linear Segment

120–277 V∼
60 Hz
Mains Supply

X96 Controller

Lightbar Slim Linear Segment

Lightbar Slim Linear Segment

DO NOT WIRE IN PARALLEL

CONNECTIONS

Position 1
Red | V+

Position 2
White | DATA-

Position 4
Black | COM

Position 3
Purple | DATA+

Wire Input
Side
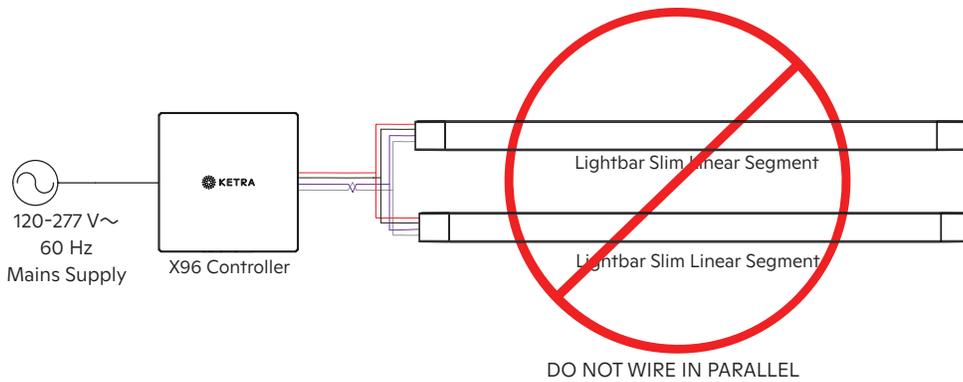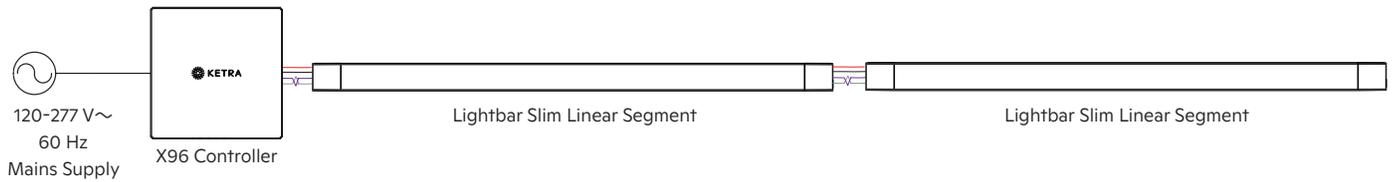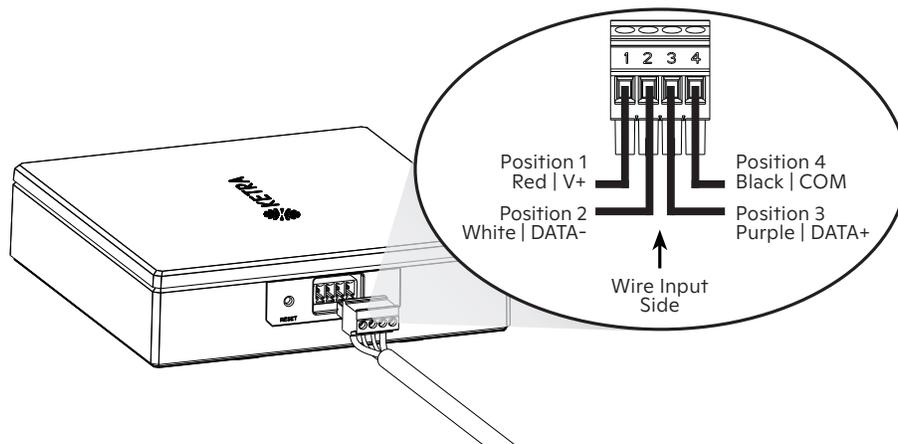
Note: Only accepts up to 16 AWG (1.5 mm^2). 16 AWG (1.5 mm^2) power conductors required for wire run length of 50 ft (15.2 m).

WIDE GAMUT

CIE 1931 Color Chart
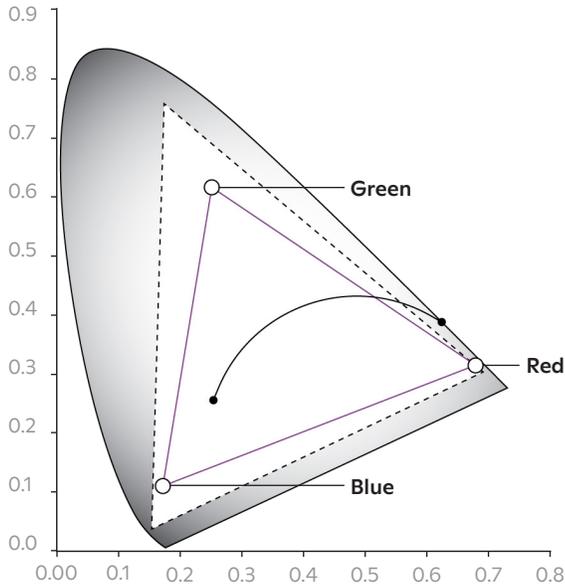
Ketra's Lightbar Slim Linear can easily be commissioned into Lutron HomeWorks or Athena systems. The product can reproduce any color point within the triangle shaped gamut indicated in the chart to the left. With Ketra's Color Lock technology, the color point is maintained to an accuracy of one-step 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 calibration is relaxed such that each product produces the most saturated color it is capable of.

LS0 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 lifetime.

Wireless Capability: LS0 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-Dye Modular Emitter/LED Module Design: Employ a single source multi-dye modular emitter/LED module consisting of both monochromatic and phosphor converted blue LED dye.

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

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).