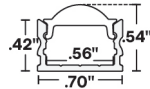
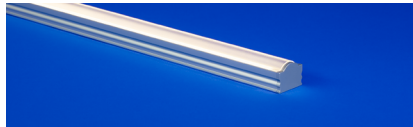




# ESSENTIALS LALO-OPTICS (02) TUNABLE APPLICATIONS

## 24VDC Linear Fixtures - Surface & Recessed



- Shallow, low-profile linear fixture for surface or recessed installations
- Produces a 17° beam angle
- Mounting options include stainless steel clips, magnets, and low-profile magnet mounts
- Features painted end caps to match extrusion finish
- Suitable for installation in the storage area of a clothes closet when specified with LEDs at 4.0 watts or less per foot per NEC regulations
- Can be suitable for exterior use when specified as wet, contact factory for more information
- Used in applications where CCT and brightness need to be controlled separately
- When using DALI and DMX power supplies, LED wattage must be doubled

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
PRODUCT	WATTS/FT	CCT	RATED	EFFICIENCY	LENS	EXTERNAL LOUVER	WIRE INPUT/ OUTPUT	CONNECTOR / WIRE IN	CONNECTOR / WIRE OUT	WIRE COLOR	WIRE TYPE	MOUNTING	FINISH	LENGTH (IN)	EXACT/ OPTIMAL
LL2DW				STD	17DEG										

Sample Part Number: LL2DW-2.5HE-20/30-DRY-STD-17-P1-BW-BW-BK-CL2-SST-BK-48"-E

<div><div>1</div><div>PRODUCT</div></div> <div>LL2DW</div> <div>LED engine is built with 3 wires requiring 0-10V, DMX or DALI control. Using DALI, DMX, or non QTL power supplies may double watts/ft. See following pages for compatible power supplies.</div>	<div><div>2</div><div>WATTS/FT</div></div> <div><div>1.5HE</div><div>1.5W/ft HE</div></div> <div><div>2.5HE</div><div>2.5W/ft HE</div></div> <div><div>1.5HE</div><div>1.5W/ft HE</div></div> <div><div>2.5HE</div><div>2.5W/ft HE</div></div>	<div><div>3</div><div>CCT</div></div> <div><div>20/27</div><div>2000K/2700K</div></div> <div><div>20/30</div><div>2000K/3000K</div></div> <div><div>27/40</div><div>2700K/4000K</div></div> <div><div>27/55</div><div>2700K/5500K</div></div> <div><div>24/30</div><div>2400K/3000K</div></div> <div><div>27/40</div><div>2700K/4000K</div></div>	<div><div>4</div><div>RATED</div></div> <div><div>DRY</div><div>IP20</div></div> <div><div>WET</div><div>IP67</div></div> <div>Can be suitable for exterior use, contact factory for more information</div> <div><div>DMP</div><div>IP54</div></div>	<div><div>5</div><div>EFFICIENCY</div></div> <div><div>STD</div><div>Standard</div></div>	<div><div>6</div><div>LENS</div></div> <div><div>17DEG</div><div>Optical 17°</div></div> <div>For representation of LED visibility, see Diode Visibility section on following pages. For beam angles, see Photometric Performance section on following pages</div>	<div><div>7</div><div>EXTERNAL LOUVER</div></div> <div><div>L1-WH</div><div>White Plastic</div></div> <div><div>L1-BK</div><div>Black Plastic</div></div> <div><div>N/A</div><div>No Louver</div></div> <div>Louvers are shipped separately and require field assembly</div>
<div><div>8</div><div>WIRE INPUT/OUTPUT</div></div> <div><div>S1</div><div>Single 1 (Input only) - End Feed</div></div> <div><div>S2</div><div>Single 2 (Input only) - Bottom Feed</div></div> <div>For continuous mounting, consider bottom feed.</div> <div><div>P1</div><div>Pass Through 1 (Input/output) - End Feed</div></div> <div><div>P2</div><div>Pass Through 2 (Input/output) - Bottom Feed</div></div> <div>For continuous mounting, consider bottom feed.</div>	<div><div>9</div><div>CONNECTOR/WIRE IN</div></div> <div><div>BW</div><div>Bare Wire (Standard 24")</div></div> <div><div>CON6</div><div>Connector 6"</div></div> <div><div>CON24</div><div>Connector 24"</div></div> <div>Connector/Wire In not needed to specify product. Typical selection is BW. BW: Standard length is 24", Max length is 120". Request custom length by writing in part number next to BW (example: BW48)</div> <div><div>BW</div><div>Bare Wire (Standard 24")</div></div> <div><div>CON6</div><div>Connector 6"</div></div> <div><div>CON24</div><div>Connector 24"</div></div> <div>Connector/Wire In not needed to specify product. Typical selection is BW. BW: Standard length is 24", Max length is 120". Request custom length by writing in part number next to BW (example: BW48)</div>	<div><div>10</div><div>CONNECTOR/WIRE OUT</div></div> <div><div>CLS</div><div>Closed End (No feed)</div></div> <div><div>BW</div><div>Bare Wire (Standard 24")</div></div> <div><div>CON6</div><div>Connector 6"</div></div> <div><div>CON24</div><div>Connector 24"</div></div> <div>Connector/Wire Out not needed to specify product. Typical selection is CLS or BW. BW: Standard length is 24", Max length is 120". Request custom length by writing in part number next to BW (example: BW48)</div>	<div><div>11</div><div>WIRE COLOR</div></div> <div><div>WH</div><div>White</div></div> <div><div>BK</div><div>Black</div></div>			
<div><div>12</div><div>WIRE TYPE</div></div> <div><div>CL2</div><div>Class 2</div></div> <div><div>CL2P</div><div>Plenum Rated</div></div> <div>CL2P only available with bare wire leads (BW)</div>	<div><div>13</div><div>MOUNTING</div></div> <div><div>SST</div><div>Stainless Steel</div></div> <div><div>M4</div><div>Low Profile Magnet</div></div> <div><div>MG</div><div>Magnet</div></div>	<div><div>14</div><div>FINISH</div></div> <div><div>ST</div><div>Satin</div></div> <div><div>BK</div><div>Black</div></div> <div><div>CU</div><div>Custom</div></div>	<div><div>15</div><div>LENGTH (IN)</div></div> <div>Fixture length min 12", max 98.43" not including end caps. Tolerance +0 - 1/8". Consult factory for lengths under 12".</div>	<div><div>16</div><div>EXACT/OPTIMAL</div></div> <div><div>O</div><div>Optimal Illumination</div></div> <div><div>E</div><div>Exact Specified Length</div></div> <div>Exact fixtures are the exact length specified +0 - 1/8". Optimal fixtures' length is rounded down with illumination end to end. See Exact/Optimal Fixture Length charts.</div>		

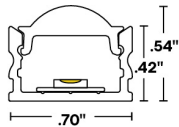
5 year warranty | Warranty only valid with QTL power supplies | Field modifications void warranty | Data subject to change, all data has +/- 5% tolerance



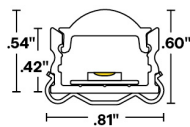
# ESSENTIALS LALO-OPTICS (02) TUNABLE APPLICATIONS

## 24VDC Linear Fixtures - Surface & Recessed

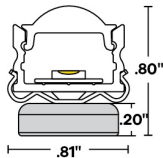
### 1 PRODUCT - DIMENSIONS



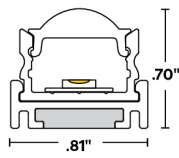
Profile with optical lens



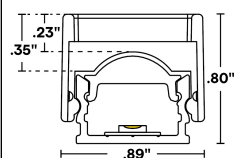
Profile with optical lens and stainless steel mounting clip



Profile with optical lens magnet mounting clip



Profile with optical lens and low profile magnet



Profile with optical lens and plastic louver

### 2 DELIVERED LUMENS

[Calculated L70 = 70000 hrs]  
Tested with LL2DW-\*\*-30-DRY-STD

	1.5HE W/FT		2.5HE W/FT	
	LM/FT	CRI	LM/FT	CRI
17	153	98	242	98

### 6 DIODE VISIBILITY

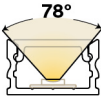


Optical lens

### PHOTOMETRIC PERFORMANCE

Nominal beam spread shown, beam spread varies based on light engine. For more detailed information, see photometric data.

CL



Clear 78°

### TEMPERATURE RATINGS

		DW 1.5 HE W/FT				DW 2.5 HE W/FT			
		Q-Tran power supply other than DALI, DMX		DALI, DMX, or non-Q-Tran power supply		Q-Tran power supply other than DALI, DMX		DALI, DMX, or non-Q-Tran power supply	
		Min	Max	Min	Max	Min	Max	Min	Max
DRY	Ambient Operating Temp - Surface	-13°F	105°F	-4°F	120°F	-4°F	135°F	-4°F	120°F
DMP	Ambient Operating Temp - Surface	-4°F	140°F	-4°F	130°F	-4°F	130°F	-4°F	115°F
WET	Ambient Operating Temp - Surface	-4°F	140°F	-4°F	130°F	-4°F	130°F	-4°F	115°F

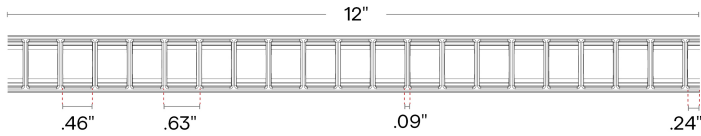


# ESSENTIALS LALO-OPTICS (02) TUNABLE APPLICATIONS

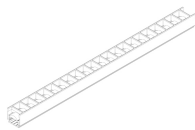
24VDC Linear Fixtures - Surface & Recessed

## 7 EXTERNAL LOUVER

PLASTIC



L1-XX



Lumen Multiplier

WH

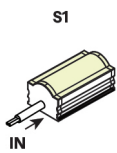
BK

0.72

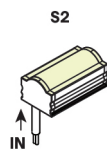
0.53

## 8 WIRE INPUT/OUTPUT

SINGLE (Input only)

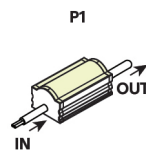


End Feed

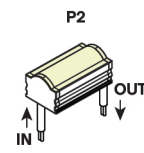


Bottom Feed

PASS THROUGH (Input/Output)

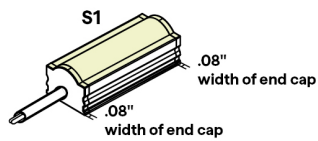


End Feed

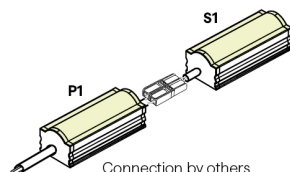


Bottom Feed

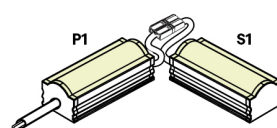
## CONFIGURATION OPTIONS



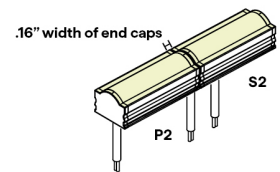
Single End Feed



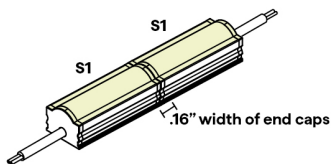
Connection by others  
Non-Continuous End Feed



Connection by others  
Non-Continuous Corner Feed



Continuous Bottom Feed



Continuous End to End Feed

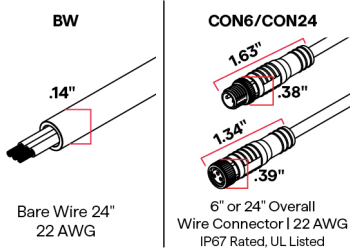


# ESSENTIALS LALO-OPTICS (02) TUNABLE APPLICATIONS

24VDC Linear Fixtures - Surface & Recessed

## 9 / 10 CONNECTOR/WIRE - IN/OUT

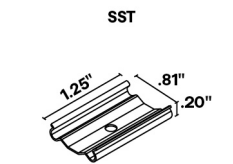
Connector/Wire In or Out not needed to specify product. Standard configuration is BW for Wire In and CLS for Wire out



## 11 WIRE COLOR



## 13 MOUNTING

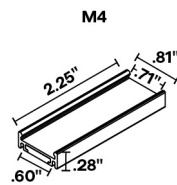


Stainless Steel Clip

2 clips provided for 4' or less; 4 clips provided for greater than 4'

To order separately use SST-01

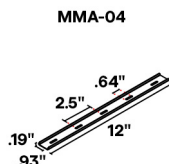
Each clip comes with a #4 x 5/8" Flat Head SS



Low Profile Magnet

One M4 provided per foot.

To order separately use MG-04

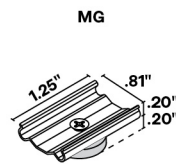


Magnet Mount  
Accessory for M4

Sold separately, to order use MMA-04

Each bracket comes with 2 #6 x 5/8" Flat Head SS

Required when mounting to a non-magnetic surface



Magnet Clip

One MG provided per foot

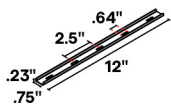
To order separately use MG-01

## 14 FINISH



Custom color available

### MMA-01



Magnet Mount  
Accessory of MG-01

Sold separately, to order use MMA-01

Each bracket comes with 2 #6 x 5/8" Flat Head SS

Required when mounting to a non-magnetic surface



# ESSENTIALS LALO-OPTICS (02) TUNABLE APPLICATIONS

## 24VDC Linear Fixtures - Surface & Recessed

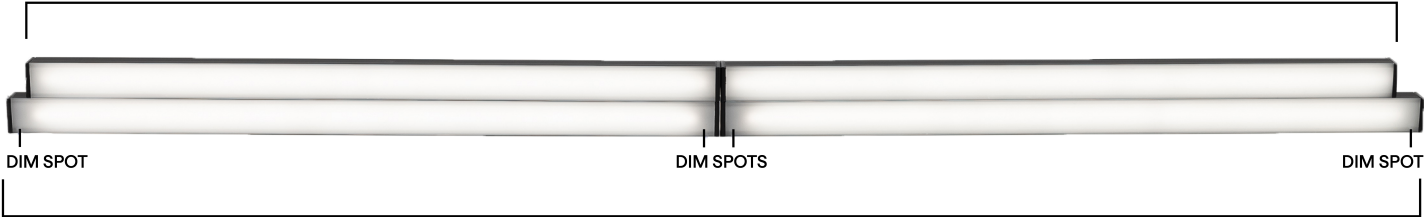
### 16 EXACT/OPTIMAL FIXTURE LENGTH

[E/O Length Calculator →](#)

[E/O Explained →](#)

Exact fixtures are the exact length specified. Optimal fixtures' length is rounded down based on LED cut points to allow the fixture to be illuminated end to end. For runs with multiple fixtures that need to fill a specific length, it's recommended to order all optimal fixtures with an exact fixture at the end of the run.

Optimal Fixtures



Exact Fixtures

### DW-HE DRY, DMP LENGTHS BY INCH

Available in any length in between 12" and 98.43", chart below shows example lengths. Exact fixtures are the length specified. Optimal fixtures' length is rounded down with illumination end to end. All fixtures' tolerance is +0 - 1/8". Consult factory for lengths under 12".

EXACT LENGTH

Requested Length	Potential dim spot on either end of fixture
12"	1"
13"	0.5"
14"	1"
15"	0.5"
16"	1"
17"	0.5"
18"	1"
19"	0.5"
20"	1"
21"	0.5"
22"	1"
23"	0.5"
24"	1"
36"	1"
48"	1"
60"	1"
72"	1"
84"	1"
96"	1"

OPTIMAL LENGTH: highlighted rows are closest to requested nominal length

Requested Nominal Length	S1 & S2		P1 & P2	
	S1 End Feed IN	S2 Bottom Feed IN	P1 End Feed IN	P2 Bottom Feed IN
12"		10.41"		10.66"
13"		12.41"		12.66"
14"		12.41"		12.66"
15"		14.41"		14.66"
16"		14.41"		14.66"
17"		16.41"		16.66"
18"		16.41"		16.66"
19"		18.41"		18.66"
20"		18.41"		18.66"
21"		20.41"		20.66"
22"		20.41"		20.66"
23"		22.41"		22.66"
24"		22.41"		22.66"
36"		34.41"		34.66"
48"		46.41"		46.66"
60"		58.41"		58.66"
72"		70.41"		70.66"
84"		82.41"		82.66"
96"		94.41"		94.66"



# ESSENTIALS LALO-OPTICS (02) TUNABLE APPLICATIONS

## 24VDC Linear Fixtures - Surface & Recessed

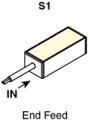
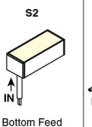
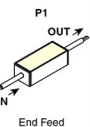
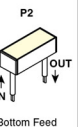
### DW-HE WET LENGTHS BY INCH

Available in any length in between 12" and 98.43", chart below shows example lengths. Exact fixtures are the length specified. Optimal fixtures' length is rounded down with illumination end to end. All fixtures' tolerance is +0 - 1/8". Consult factory for lengths under 12".

#### EXACT LENGTH

Requested Length	Potential dim spot on either end of fixture
12"	1"
13"	0.5"
14"	1"
15"	0.5"
16"	1"
17"	0.5"
18"	1"
19"	0.5"
20"	1"
21"	0.5"
22"	1"
23"	0.5"
24"	1"
36"	1"
48"	1"
60"	1"
72"	1"
84"	1"
96"	1"

#### OPTIMAL LENGTH: highlighted rows are closest to requested nominal length

Requested Nominal Length	S1 & S2		P1 & P2	
				
12"	10.61"		10.76"	
13"	12.61"		12.76"	
14"	12.61"		12.76"	
15"	14.61"		14.76"	
16"	14.61"		14.76"	
17"	16.61"		16.76"	
18"	16.61"		16.76"	
19"	18.61"		18.76"	
20"	18.61"		18.76"	
21"	20.61"		20.76"	
22"	20.61"		20.76"	
23"	22.61"		22.76"	
24"	22.61"		22.76"	
36"	34.61"		34.76"	
48"	46.61"		46.76"	
60"	58.61"		58.76"	
72"	70.61"		70.76"	
84"	82.61"		82.76"	
96"	94.61"		94.76"	

### COMPATIBLE POWER SUPPLIES

See power supplies cut sheets for more information. Data subject to change, all data has +/- 5% tolerance.

DIM TO LEVEL	INDOOR	OUTDOOR
	DW-HE Tunable Applications	DW-HE Tunable Applications
0.1%	QT-CAB-eLED+TW QT-CAB-eLED+TW-AWN QTM-eLED+TW QTM-eLED+TW-AWN QZ-DMX	Q-SET-QZ-DMX QOM-eLED+TW QZ-DMX
1%	QT-CAB-eLED+DALI-DT6 QT-CAB-eLED+DALI-DT8 QT-CAB-eLED+DALI-DT8-AWN QTM-eLED+DALI-DT6 QTM-eLED+DALI-DT8 QTM-eLED+DALI-DT8-AWN QZ-DALI-DT8	Q-SET+QZ-DALI-DT8 QOM-eLED+DALI-DT6 QOM-eLED+DALI-DT8 QOM-eLED+PS-DALI-DT6 QOM-eLED+PS-DALI-DT8
10%	Non-Dim Power Supply with TW App Dongle	



# ESSENTIALS LALO-OPTICS (02) TUNABLE APPLICATIONS

## 24VDC Linear Fixtures - Surface & Recessed

DIMMING PROTOCOL	INDOOR	OUTDOOR
	DW-HE Tunable Applications	DW-HE Tunable Applications
0-10V	QT-CAB-eLED+TW QT-CAB-eLED+TW-AWN QTM-eLED+TW QTM-eLED+TW-AWN	QOM-eLED+TW
Lutron Athena	QT-CAB-eLED+DALI-DT8-AWN QT-CAB-eLED+TW-AWN QTM-eLED+DALI-DT8-AWN QTM-eLED+TW-AWN	
DMX LED wattage must be doubled for DW-HE products	QZ-DMX	Q-SET-QZ-DMX QZ-DMX
DALI-2: DT6 LED wattage must be doubled for DW-HE products	QT-CAB-eLED+DALI-DT6 QTM-eLED+DALI-DT6	QOM-eLED+DALI-DT6
DALI-2: DT8 LED wattage must be doubled for DW-HE products	QT-CAB-eLED+DALI-DT8 QT-CAB-eLED+DALI-DT8-AWN QTM-eLED+DALI-DT8 QTM-eLED+DALI-DT8-AWN QZ-DALI-DT8	Q-SET+QZ-DALI-DT8 QOM-eLED+DALI-DT8
SCENE App Dimmed	Non-Dim Power Supply with TW App Dongle	

### COMPATIBLE MOUNTING ACCESSORIES

HINGE - HMB-M

1.41" .71"

Adjustable mounting bracket - Medium

HINGE - HMB-L

1.46" 1.29"

Adjustable mounting bracket - Large

HINGE - HMB-XL

1.46" 4"

Adjustable mounting bracket - XLarge

Q-PIVOT

.75" 1.03"

Small mounting accessory

Q-ANGLE

2.23" 1.38"

Adjustable mounting accessory

VHB

Double sided mounting tape

NU-GRAZER

U Mounting Bracket

NJ-GRAZER

J Mounting Bracket

BL-GRAZER

Backwards L Mounting Bracket

### COMPATIBLE WIRING ACCESSORIES

Q-mini-J5

2.80" 2.27"

UL Listed, miniature junction box, DRY/DMP (WET rated with silicone)

CON120-EXT

10ft Con cable extender  
DRY/DMP/WET

### COMPATIBLE CONTROL ACCESSORIES

SCENE APP DONGLE

1.36" 2.58"

Wi-Fi or Bluetooth Connectivity