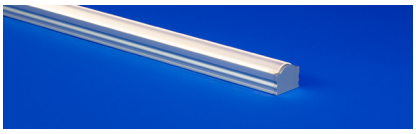
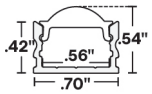
# ESSENTIALS LALO-OPTICS (02) TUNABLE APPLICATIONS

24VDC Linear Fixtures - Surface & Recessed

410.2 & 410.16 Closet Rated in 1.5HE






- 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
- Optional plastic louver accessory available in white or black for added glare control

**INFORMATION REQUIRED FOR LIGHTING SCHEDULE**

| 1 PRODUCT | 2 WATTS/ FT | 3 CCT | 4 RATED | 5 EFFICIENCY | 6 LENS |
|---|---|---|---|---|---|
| | | | | STD | 17DEG |

**ADDITIONAL INFORMATION REQUIRED TO ORDER**

| 7 WIRE INPUT/ OUTPUT | 8 CONNECTOR/ WIRE IN | 9 CONNECTOR/ WIRE OUT | 10 WIRE COLOR | 11 WIRE TYPE | 12 MOUNTING | 13 FINISH | 14 LENGTH (IN) | 15 EXACT/ OPTIMAL |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | |

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

## 1 PRODUCT

**LL2DW**
**LL2DW-USA**

Select USA option for BAA and BABA projects. Only DRY or WET ratings apply.

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.

## 2 WATTS/FT

| | |
|---|---|
| **1.5HE** | 1.5W/ft HE |
| **2.5HE** | 2.5W/ft HE |
| **4.0HE** | 4.0W/ft HE |

| | |
|---|---|
| **1.5HE** | 1.5W/ft HE |
| **2.5HE** | 2.5W/ft HE |

## 3 CCT

| | |
|---|---|
| **18/30** | 1800K/3000K |
| **18/35** | 1800K/3500K |
| **20/27** | 2000K/2700K |
| **20/30** | 2000K/3000K |
| **24/40** | 2400K/4000K |
| **27/40** | 2700K/4000K |
| **27/55** | 2700K/5500K |

| | |
|---|---|
| **18/30** | 1800K/3000K |
| **18/35** | 1800K/3500K |
| **20/27** | 2000K/2700K |
| **20/30** | 2000K/3000K |
| **24/40** | 2400K/4000K |
| **27/40** | 2700K/4000K |
| **27/55** | 2700K/5500K |

## 4 RATED

| | |
|---|---|
| **DRY** | IP20 |

| | |
|---|---|
| **DMP** | IP54 |
| **WET** | IP67 |

Can be suitable for exterior use, contact factory for more information

## 5 EFFICIENCY

| | |
|---|---|
| **STD** | Standard |

## 6 LENS

| | |
|---|---|
| **17DEG** | Optical 17° |

For representation of LED visibility, see Diode Visibility section on following pages.
For beam angles, see Photometric Performance section on following pages
For optional snap-on louver ordering, see External Louver Accessory section on following pages

## 7 WIRE INPUT/OUTPUT

**SINGLE (Input only)**

| | |
|---|---|
| **S1** | End Feed |
| **S2** | Bottom Feed |

**PASS THROUGH (Input/output)**

| | |
|---|---|
| **P1** | End Feed |
| **P2** | Bottom Feed |

For continuous mounting, consider bottom feed.

## 8 CONNECTOR/WIRE IN

| | |
|---|---|
| **BW** | Bare Wire (Standard 24") |
| **CON6** | Connector 6" |
| **CON24** | Connector 24" |

| | |
|---|---|
| **BW** | Bare Wire (Standard 24") |
| **CON6** | Connector 6" |
| **CON24** | Connector 24" |

BW: Standard length is 24", Max length is 120". Request custom length by writing in part number next to BW (example: BW48)

## 9 CONNECTOR/WIRE OUT

| | |
|---|---|
| **CLS** | Closed End (No feed) |

| | |
|---|---|
| **BW** | Bare Wire (Standard 24") |
| **CON6** | Connector 6" |
| **CON24** | Connector 24" |

BW: Standard length is 24", Max length is 120". Request custom length by writing in part number next to BW (example: BW48)

## 10 WIRE COLOR

| | |
|---|---|
| **WH** | White |
| **BK** | Black |

## 11 WIRE TYPE

| | |
|---|---|
| **CL2** | Class 2 |
| **CL2P** | Plenum Rated |

CL2P only available with bare wire leads (BW)

## 12 MOUNTING

| | |
|---|---|
| **SST** | Stainless Steel |
| **M4** | Low Profile Magnet |
| **MG** | Magnet |

## 13 FINISH

| | |
|---|---|
| **ST** | Satin |
| **BK** | Black |
| **CU** | Custom |

Custom finishes require a longer lead time, consult factory

## 14 LENGTH (IN)

Minimum length is 12", maximum length is 98" not including end caps. Contact us for lengths under 12".

## 15 EXACT/OPTIMAL

| | |
|---|---|
| **O** | Optimal Illumination |
| **E** | Exact Specified Length |

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.

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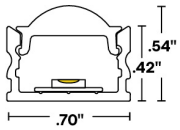
Specification subject to change. Rev-10-05-26

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

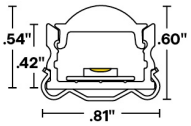
# ESSENTIALS LALO-OPTICS (02) TUNABLE APPLICATIONS

24VDC Linear Fixtures - Surface & Recessed

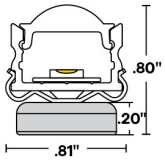
## 1 PRODUCT - DIMENSIONS



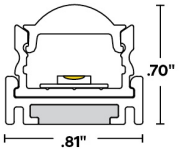

Profile with optical lens



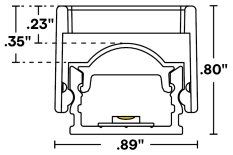

Profile with optical lens and stainless steel mounting clip



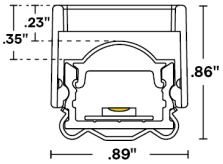

Profile with optical lens magnet mounting clip



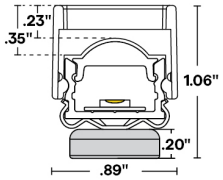

Profile with optical lens and low profile magnet



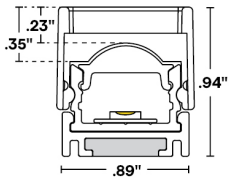

Profile with optical lens and plastic louver




Profile with optical lens, stainless steel mounting clip, and plastic louver




Profile with optical lens, magnet mounting clip, and plastic louver



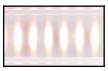

Profile with optical lens, low profile magnet, and plastic louver

## 2 DELIVERED LUMENS

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

| | 1.5HE W/FT | | 2.5HE W/FT | | 4.0HEW/FT | |
|---|---|---|---|---|---|---|
| | LM/FT | CRI | LM/FT | CRI | LM/FT | CRI |
| 17 | 153 | 98 | 242 | 98 | 375 | 98 |

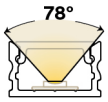
## 6 DIODE VISIBILITY



Optical lens

## PHOTOMETRIC PERFORMANCE

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




78°

## TEMPERATURE RATINGS

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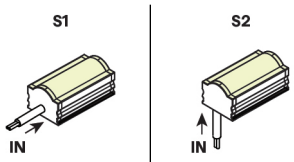
# ESSENTIALS LALO-OPTICS (02) TUNABLE APPLICATIONS

24VDC Linear Fixtures - Surface & Recessed

| | | DW 1.5 HE W/FT | | DW 3.0 HE W/FT | | DW 2.5 HE W/FT | | DW 5.0 HE W/FT | | DW 4.0 HE W/FT | | DW 8.0 HE W/FT | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | QTL power supply other than DALI, DMX | | DALI, DMX, or non-QTL power supply | | QTL power supply other than DALI, DMX | | DALI, DMX, or non-QTL power supply | | QTL power supply other than DALI, DMX | | DALI, DMX, or non-QTL power supply | |
| | | Min | Max | Min | Max | Min | Max | Min | Max | Min | Max | Min | Max |
| DRY | Ambient Operating Temp - Surface | -13°F | 145°F | -4°F | 135°F | -4°F | 135°F | -4°F | 120°F | -4°F | 125°F | -4°F | 105°F |
| DMP | Ambient Operating Temp - Surface | -13°F | 145°F | -4°F | 135°F | -4°F | 135°F | -4°F | 120°F | — | — | — | — |
| WET | Ambient Operating Temp - Surface | -4°F | 140°F | -4°F | 130°F | -4°F | 130°F | -4°F | 115°F | — | — | — | — |

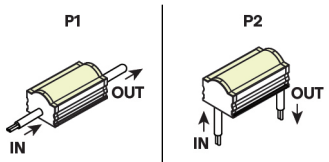
## 7 WIRE INPUT/OUTPUT

SINGLE (Input only)



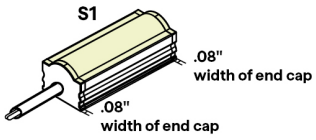

End Feed | Bottom Feed

PASS THROUGH (Input/Output)

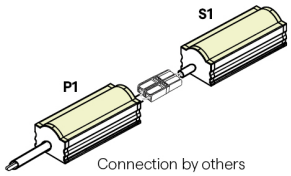



End Feed | Bottom Feed

## CONFIGURATION OPTIONS

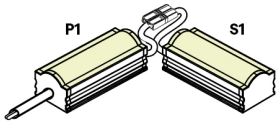



Single End Feed



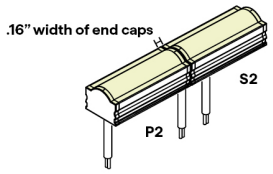

Connection by others

Non-Continuous End Feed

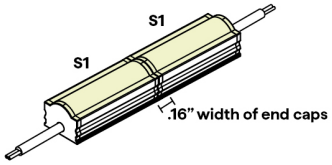



Connection by others

Non-Continuous Corner Feed



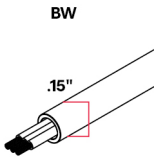

Continuous Bottom Feed



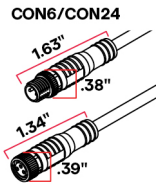

Continuous End to End Feed

## 8/9 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

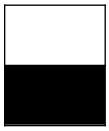



Bare Wire 24"
22 AWG




6" or 24" Overall
Wire Connector | 22 AWG
IP67 Rated, UL Listed

## 10 WIRE COLOR



White

Black

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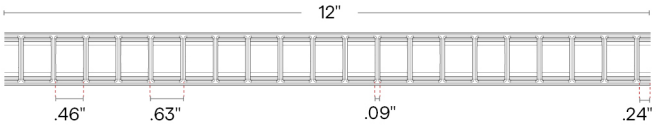
Specification subject to change. Rev-10-05-26

# ESSENTIALS LALO-OPTICS (02) TUNABLE APPLICATIONS

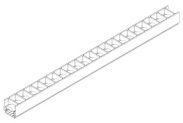
24VDC Linear Fixtures - Surface & Recessed

## EXTERNAL LOUVER ACCESSORY

**PLASTIC**

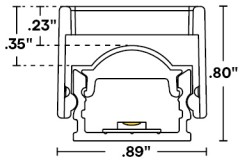



**L1-XX**



Lumen Multiplier

| WH | BK |
|---|---|
| 0.73 | 0.53 |

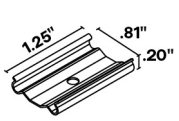



Profile with plastic louver

To order separately use LALO-L1-OPTICS-KIT-WH or LALO-L1-OPTICS-KIT-BK

## 12 MOUNTING

**SST**



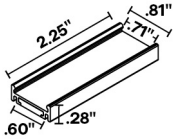

Stainless Steel Clip

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

**M4**

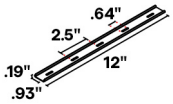



Low Profile Magnet

One M4 provided per foot.

To order separately use MG-04

**MMA-04**



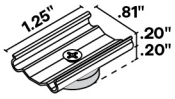

Magnet Mount Accessory for M4

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

**MG**

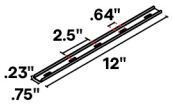



Magnet Clip

One MG provided per foot

To order separately use MG-01

**MMA-01**



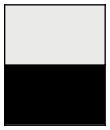

Magnet Mount Accessory of MG-01

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

## 13 FINISH



Satin

Black

Custom finishes require a longer lead time, consult factory

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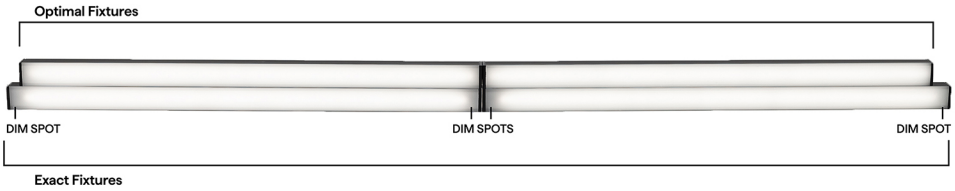
# ESSENTIALS LALO-OPTICS (02) TUNABLE APPLICATIONS

24VDC Linear Fixtures - Surface & Recessed

## 14 EXACT/OPTIMAL FIXTURE LENGTH

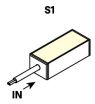
E/O Length Calculator → E/O Explained →

Exact fixtures are the exact length specified +0 -1/8". 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.

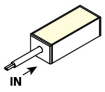
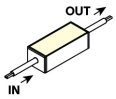



## DW-HE DRY DMP LENGTHS BY INCH

### EXACT LENGTH

| Requested Length | Potential dim spot on either end of a S1 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

| Requested Nominal Length | S1 & S2 | | P1 & P2 | |
|---|---|---|---|---|
| |  |  |  |  |
| |  |  |  |  |
| | End Feed | Bottom Feed | End Feed | Bottom Feed |
| 12" | 10.51" | | 10.86" | |
| 13" | 12.51" | | 12.86" | |
| 14" | 12.51" | | 12.86" | |
| 15" | 14.51" | | 14.86" | |
| 16" | 14.51" | | 14.86" | |
| 17" | 16.51" | | 16.86" | |
| 18" | 16.51" | | 16.86" | |
| 19" | 18.51" | | 18.86" | |
| 20" | 18.51" | | 18.86" | |
| 21" | 20.51" | | 20.86" | |
| 22" | 20.51" | | 20.86" | |
| 23" | 22.51" | | 22.86" | |
| 24" | 22.51" | | 22.86" | |
| 36" | 34.51" | | 34.86" | |
| 48" | 46.51" | | 46.86" | |
| 60" | 58.51" | | 58.86" | |
| 72" | 70.51" | | 70.86" | |
| 84" | 82.51" | | 82.86" | |
| 96" | 94.51" | | 94.86" | |

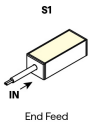
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# ESSENTIALS LALO-OPTICS (02) TUNABLE APPLICATIONS

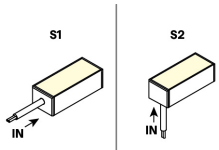
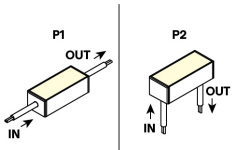
24VDC Linear Fixtures - Surface & Recessed

## DW-HE WET LENGTHS BY INCH

### EXACT LENGTH

| Requested Length | Potential dim spot on either end of a S1 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

| Requested Nominal Length | S1 & S2   | P1 & P2   |
|---|---|---|
| 12" | 10.66" | 11.06" |
| 13" | 12.66" | 11.06" |
| 14" | 12.66" | 13.06" |
| 15" | 14.66" | 13.06" |
| 16" | 14.66" | 15.06" |
| 17" | 16.66" | 15.06" |
| 18" | 16.66" | 17.06" |
| 19" | 18.66" | 17.06" |
| 20" | 18.66" | 19.06" |
| 21" | 20.66" | 19.06" |
| 22" | 20.66" | 21.06" |
| 23" | 22.66" | 21.06" |
| 24" | 22.66" | 23.06" |
| 36" | 34.66" | 35.06" |
| 48" | 46.66" | 47.06" |
| 60" | 58.66" | 59.06" |
| 72" | 70.66" | 71.06" |
| 84" | 82.66" | 83.06" |
| 96" | 94.66" | 95.06" |

## 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+DALI-DT6<br>QT-CAB-eLED+DALI-DT8<br>QT-CAB-eLED+DALI-DT8-AWN<br>QT-CAB-eLED+TW<br>QTM-eLED+DALI-DT6<br>QTM-eLED+DALI-DT8<br>QTM-eLED+DALI-DT8-AWN<br>QTM-eLED+TW<br>QZ-DMX | Q-SET-QZ-DMX<br>QOM-eLED+DALI-DT6<br>QOM-eLED+DALI-DT6-PS<br>QOM-eLED+DALI-DT8<br>QOM-eLED+DALI-DT8-PS<br>QOM-eLED+TW<br>QZ-DMX |
| 1% | QZ-DALI-DT8 | Q-SET+QZ-DALI-DT8<br>QZ-DALI-DT8 |
| 10% | Non-Dim Power Supply with TW App Dongle | |

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# 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<br>QTM-eLED+TW | QOM-eLED+TW |
| **Lutron Athena** | QT-CAB-eLED+DALI-DT8-AWN<br>QTM-eLED+DALI-DT8-AWN | |
| **DMX**<br>LED wattage must be doubled for DW-HE products | QZ-DMX | Q-SET-QZ-DMX<br>QZ-DMX |
| **DALI-2: DT6**<br>LED wattage must be doubled for DW-HE products except for AWN | QT-CAB-eLED+DALI-DT6<br>QTM-eLED+DALI-DT6 | QOM-eLED+DALI-DT6 |
| **DALI-2: DT8**<br>LED wattage must be doubled for DW-HE products except for AWN | QT-CAB-eLED+DALI-DT8<br>QT-CAB-eLED+DALI-DT8-AWN<br>QTM-eLED+DALI-DT8<br>QTM-eLED+DALI-DT8-AWN<br>QZ-DALI-DT8 | Q-SET+QZ-DALI-DT8<br>QOM-eLED+DALI-DT8<br>QZ-DALI-DT8 |
| **SCENE App Dimmed** | Non-Dim Power Supply with TW App Dongle | |

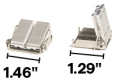
## COMPATIBLE MOUNTING ACCESSORIES

**HINGE - HMB-M**




Adjustable mounting bracket - Medium

**HINGE - HMB-L**




Adjustable mounting bracket - Large

**HINGE - HMB-XL**




Adjustable mounting bracket - XLarge

**Q-PIVOT**




Small mounting accessory

**Q-ANGLE**




Adjustable mounting accessory

**VHB**



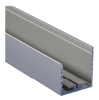
Double sided mounting tape

**NU-GRAZER**



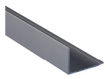
U Mounting Bracket

**NJ-GRAZER**



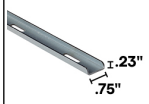
J Mounting Bracket

**BL-GRAZER**



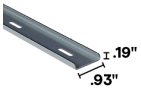
Backwards L Mounting Bracket

**MMA-01**




Magnet Mount Accessory of MG-01

**MMA-04**




Magnet Mount Accessory of MG-04

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