

Date: \_\_\_\_\_ Customer: \_\_\_\_\_  
 Project: \_\_\_\_\_  
 Type: \_\_\_\_\_ Qty: \_\_\_\_\_



# M-LED for 4" Technical Ceilings

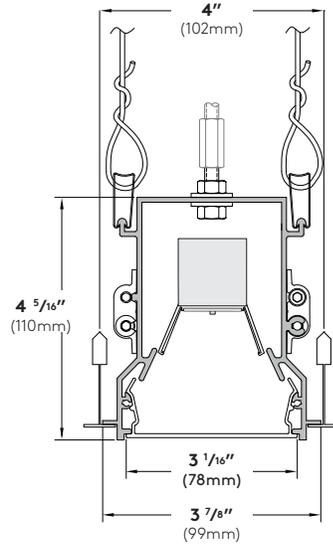
## LED Recessed Linear for 4" Technical Ceiling Systems with BIOS SkyBlue® Technology



**Order Code:** LR4TZ - - - - - TBZ - - - - -

<b>LR4TZ</b>	<b>Series</b>	<b>LR4TZ</b> M-LED for 4" Technical Ceiling Systems							
	<b>Light Engine</b>	<b>1S6<sup>1</sup></b> 518lm/11W per foot	<b>1S5<sup>1</sup></b> 463lm/9.9W per foot	<b>1S4<sup>1</sup></b> 418lm/8.5W per foot	<b>1S3<sup>1</sup></b> 390lm/7.4W per foot	<b>1S2<sup>1</sup></b> 323lm/6.1W per foot	<b>1S1<sup>1</sup></b> 220lm/4.7W per foot	<sup>1</sup> Values calculated from a 4' fixture @ 3500K + 490nm using DM driver.	
	<b>Nominal CCT</b>	<b>30</b> 2700K + 490nm	<b>35</b> 3000K + 490nm	<b>40</b> 3500K + 490nm					
	<b>Shielding</b>	<b>LW</b> LED Optimized White Lens	<b>MI</b> Clear Lens with Microprism						
<b>TBZ</b>	<b>Mounting</b>	<b>TBZ</b> Technical Ceilings with suspension clips and 1" 1/4"-20 stud							
	<b>Nominal Fixture</b>	<b>04</b> 4 ft.	<b>05</b> 5 ft.	<b>06</b> 6 ft.	<b>08</b> 8 ft.	<b>XX</b> Runs (over 8') in nominal 1' steps to fit into 4" Technical Ceiling Systems			
		<i>See pages 2 and 3 for additional details.</i>							
	<b>Finish</b>	<b>WH</b> White	<b>BL</b> Semi-Matte Black	<b>SV</b> Silver	<b>SP</b> Specify Premium Color		<i>* Custom colors are available, please consult factory</i>		
	<b>Voltage</b>	<b>1</b> 120V	<b>2</b> 277V	<b>U</b> 120V through 277V 50/60Hz capable					
	<b>Control Type</b>	<b>STC</b> Static Control, one control feed		<b>INC</b> Individual Control, two control feed	<b>DYC</b> Dynamic Control via BioDimmer, single control feed				
	<b>Driver</b>	<b>STC - Static Control</b>			<b>OR INC - Individual Control OR DYC - Dynamic Control</b>				
		<b>DM<sup>2</sup></b> eldoLED 1% SOLOdrive 0-10V (Linear)	<b>DML<sup>2</sup></b> eldoLED 1% SOLOdrive 0-10V (Logarithmic)	<b>DLL<sup>2</sup></b> eldoLED DUALdrive DALI (Logarithmic)	<b>DIM<sup>2</sup></b> eldoLED 1% ECOdrive 0-10V (Linear)	<b>DIL<sup>2</sup></b> eldoLED 1% ECOdrive 0-10V (Logarithmic)	<b>DED<sup>2</sup></b> eldoLED 1% ECOdrive DALI (Logarithmic)	<sup>2</sup> See page 4 for full details	
		<b>DC2</b> Lutron 1% 2-Wire	<b>DE1</b> Lutron 1% Eco-System	<b>DC5</b> Lutron 5% 5-Series	<b>DC2<sup>2</sup></b> Lutron 1% 2-Wire	<b>DE1<sup>2</sup></b> Lutron 1% EcoSystem	<b>DC5</b> Lutron 5% 5-Series		
	<b>Fixture Options</b>	<b>DL</b> Damp Location Rated	<b>FS</b> In-line Fuse	<b>SS</b> Separate Switching	<b>CCEA</b> CCEA Approved	<b>#P1<sup>3</sup></b> 1 Cell Piiix™ 332lm/3.5W per cell	<b>#P3<sup>3</sup></b> 3 Cell Piiix™ 332lm/3.5W per cell	▶ Provide quantity (#) of Piiix™ modules required. ▶ Piiix™ modules provided with same CCT, finish and driver as LR4TZ. Standard module provided with Black Baffle and 35° reflectors. For other configurations, consult factory.	<sup>3</sup> Piiix™ modules are switched separate standard. Minimum 6' LR4TZ required for Piiix™ module.
		Example: 2P1 will yield an LR4TZ with two (2) 1 cell Piiix™ modules located at either end of the fixture.							
	<b>Sensor Options</b>	<b>xE</b> Enlighted (consult factory)	<b>xS1</b> Sensor Switch Daylight (consult factory)	<b>xS2</b> Sensor Switch Occ/Vac (consult factory)	<b>xS3</b> Sensor Switch Occ/Vac/Daylight (consult factory)	<b>xSN</b> nLight Enabled (consult factory)	<b>xV</b> Lutron Vive (consult factory)		
		Replace "x" with quantity							
	<b>Emergency Options</b>	<b>EC</b> Emergency Circuit Wiring (consult factory)	<b>EMR</b> Remote Micro Inverter (consult factory)	<b>EM</b> Integral EM Battery Pack (consult factory)				<i>* Emergency options are available - please consult factory for gear fitment and available section lengths.</i>	





**Construction:**

**Housing** - Continuous, low copper 6063-T6 extruded aluminum profile with aluminum endcaps, available as Individual fixtures (up to 8') or Runs.

**Flange** - Extruded aluminum flange fits both Armstrong TechZone™ 5/16" Slot Grid and 5/16" Tegular Grid ceiling systems.

**Geartray** - Low copper 6063-T6 extruded aluminum profile.

**Shielding** - Extruded, impact resistant acrylic snap in lens:

- LED Optimized White Lens (LW)
- Clear Lens with Microprism (MI)

**Mounting(s)** - M-LED for 4" Technical ceilings works with Technical Ceiling Systems 5/16" Slot Grid and 5/16" Tegular Grid (see page 3 for details).

**Standard Luminaire lengths** - All standard luminaires are supplied in nominal lengths to ensure full, even, illumination. Runs are available in nominal 1' increments starting at the nominal 8' fixture length, to fit Technical Ceiling Systems. \*\*Individual luminaires are not joinable in the field.

**Exact length luminaires** - Individual luminaires and Runs are available in exact lengths to meet your project needs. Please consult factory with your requirements. \*\*Lens luminance may soften at the very ends of the straight sections for exact length luminaires.

**LED Joiner(s)** - Runs are supplied in multiple housings that are joined together in the field using the supplied LR4TZ Joiner System. This allows ease of installation and ensures a uniform appearance (see page 6 for detail).

**Weight:** 2.4 lb. per foot.

**Electrical/Performance:**

**LED Light Engine** - Brand-name monochromatic mid-power LEDs combined with BIOS SkyBlue® Technology. 2700K + BIOS 490nm for nominal 3000K 3000K + BIOS 490nm for nominal 3500K 3500K + BIOS 490nm for nominal 4000K

**Photometrics** - Consult website or factory for IES Files. Independent photometric lumen measurement complies with IES LM-79-08 testing procedures. Due to the LED manufacturer's tolerances, the listed output has a ±5% tolerance. For outputs based on different optics or CCT, please see page 8 for details.

**All Drivers** - High efficiency, constant current, soft start, Electronic Class 2 with a PFC>0.90. For more detailed information on the available drivers please see page 4.

**Sensors** - Selux offers a variety of integral sensor options. For details and specifications, please consult factory.

**Emergency** - There are multiple emergency options available - emergency circuit, remote micro inverter, and integral battery pack. Please consult factory for gear fitment and available section lengths.

**Thermal Performance:**

**Ambient Operating Temperature** - Luminaires suitable for maximum ambient temperature of 35°C (95°F) for all drivers.

Luminaires are suitable for minimum ambient temperatures of -40°C (-40°F) for DIM, DIL, DM, DML, DMD, and DED drivers; 0°C (32°F) for DC2, DE1, and DC5 drivers.

**Luminaire Finish:**

**Powder Coat** - All Selux luminaires are finished in high quality polyester powder coating in our Tiger Drylac certified facility and are tested in accordance with test specifications for coatings from ASTM and PCI.

All products undergo a five stage intensive pretreatment process where product is thoroughly cleaned, phosphated, and sealed. Selux powder coated products provide excellent salt and humidity resistance as well as ultra violet resistance for color retention.

Standard interior colors are White (WH), Semi-Matte Black (BL), and Silver (SV). Selux premium colors (SP) are available, please specify from your Selux color selection guide. LM-79 testing is performed using white finish. Other finishes will impact light output.

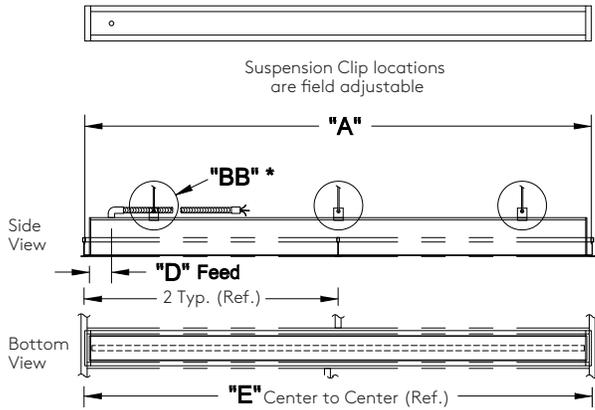
**Warranty:**

**5 Year Limited LED Luminaire Warranty** - Selux offers a 5 Year Limited Warranty to the original purchaser that the MLED series LED luminaire shall be free from defects in material and workmanship for up to five (5) years from date of shipment. This limited warranty covers the LED driver and LED light engine when installed according to Selux instructions and operated within the Ambient Temperature. For additional details and exclusions, see "Selux Terms and Condition of Sale."

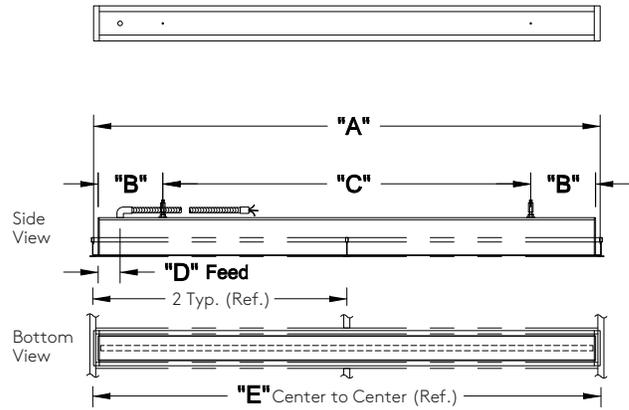
**Certifications and Compliance:**

- NRTL - For Dry and Damp location (I.E. cULus; cCSAus)
- ARRA Compliant
- RoHS Compliant
- IC Rated\*
- \*EM option is Non-IC rated

**Technical Ceiling (TBZ) Mounting using Suspension Wire**

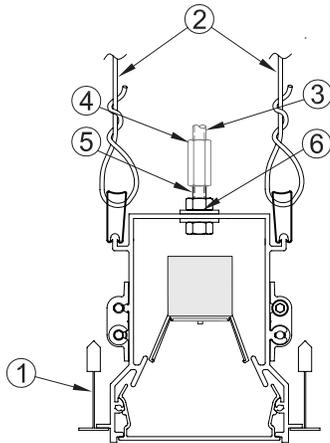


**Technical Ceiling (TBZ) Mounting using 1/4"-20 stud**



Please Note:  
 Luminaire supplied with both mountings shown above.  
 They are shown above separately for clarification. Installer  
 to select which mounting is required.

**Technical Ceiling 5/16" Tegular mounting (TZB)**  
 (Wire Suspension or 1/4"-20 Stud)



1. 5/16" Technical Ceiling Tegular grid (shown as ref.)
2. Support wire to structure (supplied and installed by others).
3. 1/4"-20 Threaded rod to structure (supplied and installed by others).
4. 1/4"-20 Coupler hardware (supplied and installed by others).
5. 1" 1/4"-20 Stud (by Selux).
6. 5/16" (Ø7mm) mounting hole.

Technical Ceiling Systems Tegular (TBZ)

Nominal Length	"A" Housing Length		"B" End Suspensions		** "C" (Ref.) Mid. Suspension		"BB" (TB mtg.) Suspension Clips"	***"C" Mid. Suspension"		"D" Feed Location		"E" Grid Spacing
	Feet/Inch	MM	Feet/Inch	MM	Feet/Inch	MM	Quantity	Feet/Inch	MM	Feet/Inch	MM	
<b>04 (4 ft.)*</b>	3' - 11 13/16"	1215	3' - 11"	1193	6 1/8"	156	6x	2' - 10 3/4"	882	0' - 2 1/8"	54	4' Center to Center
<b>05 (5 ft.)*</b>	4' - 11 13/16"	1519	4' - 11"	1497	6 1/8"	156	6x	3' - 10 3/4"	1187	0' - 2 1/8"	54	5' Center to Center
<b>06 (6 ft.)*</b>	5' - 11 13/16"	1825	5' - 11"	1803	6 1/8"	156	6x	4' - 10 3/4"	1492	0' - 2 1/8"	54	6' Center to Center
<b>08 (8 ft.)*</b>	7' - 11 13/16"	2434	7' - 11"	2412	6 1/8"	156	8x	6' - 10 3/4"	2101	0' - 2 1/8"	54	8' Center to Center

\*For other lengths, consult factory.

\*\*Dimension(s) rounded to the nearest 1/16" with a ± 1/16" (1mm) tolerance.

**Drivers:**

**Static Control (STC)**

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**eldoLED 1% SOLOdrive 0-10V (Linear) (DM)**

Luminaires supplied with SOLOdrive 0-10V dimming driver for linear dimming curve. Minimum dimming level preset at factory to 1%. For "dim to dark" (down to 0.1%), please consult factory.

**eldoLED 1% SOLOdrive 0-10V (Logarithmic) (DML)**

Luminaires supplied with SOLOdrive 0-10V dimming driver for logarithmic dimming curve. Minimum dimming level preset at factory to 1%. For "dim to dark" (down to 0.1%), please consult factory.

**eldoLED DUALdrive DALI (Logarithmic) (DLL)**

Luminaires supplied with DUALdrive DALI dimming driver for logarithmic dimming curve. Minimum dimming level preset at factory to 1%. For "dim to dark" (down to 0.1%), please consult factory.

**Lutron 1% 2-Wire (DC2)**

Luminaires supplied with Hi-Lume 2-wire dimming driver (120V only) programmed for Constant Current Reduction (CCR). For Pulse Width Modulation (PWM) dimming, please consult factory. Minimum dimming level down to 1%.

**Lutron Eco-System (DE1/DC5)**

Luminaires supplied with Hi-Lume EcoSystem (4 wire, digital link) dimming driver programmed for Constant Current Reduction (CCR). Minimum dimming level down to 1% (DE1) with SoftOn/FadeToBlack or 5% (DC5).

**Individual Control (INC) OR  
Dynamic Control with Bio-Dimmer™ (DYC)**

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**0-10V linear dimming (DIM)**

Luminaires supplied with drivers offering the capability of either normal switched operation of 0-10V dimming for linear dimming curve. Fixtures ship wired for dimming. For on/off functionality, simply cap the dimming leads. Minimum dimming level preset at factory to 1%.

**0-10V logarithmic eldoLED ECOdrive dimming (DIL)**

Luminaires supplied with drivers offering the capability of either normal switched operation of 0-10V dimming for logarithmic dimming curve. Fixtures shipped wired for dimming. For on/off functionality, simply cap the dimming leads. Minimum dimming level preset at factory to 1%.

**eldoLED ECOdrive DALI dimming (DED)**

Luminaires supplied with ECOdrive DALI dimming driver with logarithmic dimming curve. Minimum dimming level preset at factory to 1%. For "dim to dark" (down to 0.1%), please consult factory.

**Lutron 1% 2-Wire (DC2)**

Luminaires supplied with Hi-Lume 2-wire dimming driver (120V only) programmed for Constant Current Reduction (CCR). For Pulse Width Modulation (PWM) dimming, please consult factory. Minimum dimming level down to 1%.

**Lutron Eco-System (DE1/DC5)**

Luminaires supplied with Hi-Lume EcoSystem (4 wire, digital link) dimming driver programmed for Constant Current Reduction (CCR). Minimum dimming level down to 1% (DE1) with SoftOn/FadeToBlack or 5% (DC5)

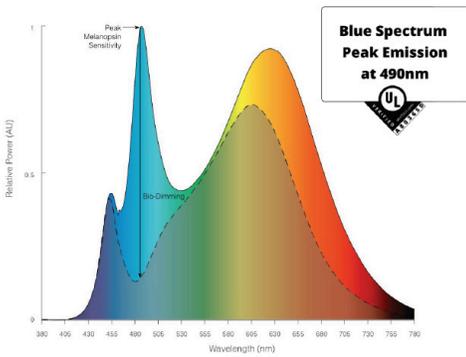
Selux luminaires embedded with BIOS SkyBlue® circadian solutions produces the healthy “blue sky” light signal needed to stimulate human circadian biology. This specific wavelength communicates directly with human biology through a non-visual photoreceptor to regulate circadian rhythms, providing healthier sleep patterns and ultimately, better health. BIOS SkyBlue® lighting solutions mimic natural sunlight by providing a 490nm wavelength that stimulates circadian biology.

Selux is pleased to offer Selux + BIOS products in three CCTs - nominal 3000K (2700K LEDs + 490nm BIOS SkyBlue® LEDs), 3500K (3000K LEDs + 490nm BIOS SkyBlue® LEDs), and 4000K (3500K LEDs + 490nm BIOS SkyBlue® LEDs). All light engines are available with Static Control, Individual Control, or Dynamic Control, which is paired with the BIOS Bio-Dimmer™. For more information on the optimal uses for each control setting, refer to BIOS specification data sheets.

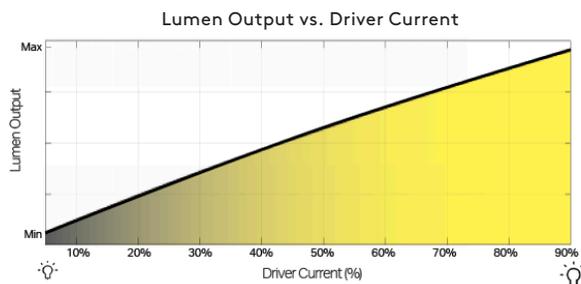
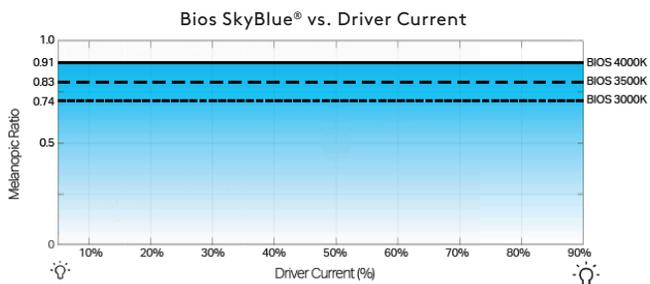
### Static Control

Selux + BIOS luminaires are provided with one control feed – when dimmed, equal amounts of the BIOS SkyBlue® LEDs and the White LEDs are reduced. The melanopic ratio (m/p) remains constant as you dim down the light intensity. Note: while melanopic ratio remains constant, dimming/reducing light output will have an overall impact on Equivalent Melanopic Lux (EML). That is because  $EML = \text{Vertical Lux} \times \text{melanopic ratio}$ . Therefore, if you reduce light levels by dimming the LEDs, you will reduce your effective EML, even when the melanopic ratio stays constant.

### Spectral Power Distribution



### Static Control Dimming – SkyBlue® Content and Lumen Output



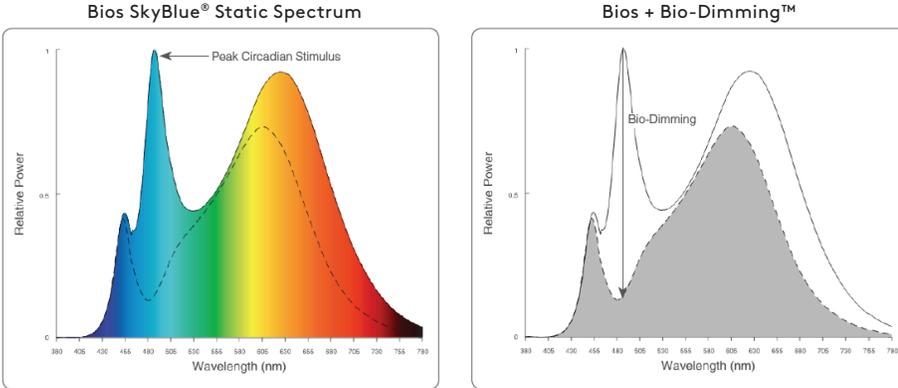
### Individual Control

Individual Control drivers are provided with two control feeds from the luminaire. This allows individual control over the BIOS SkyBlue® LEDs and the White LEDs. Each set of LEDs can be controlled separately – in cases where lighting is needed at certain times, but the 490nm from the BIOS LEDs should be reduced (example: BIOS LEDs on a timeclock and White LEDs on a motion sensor).

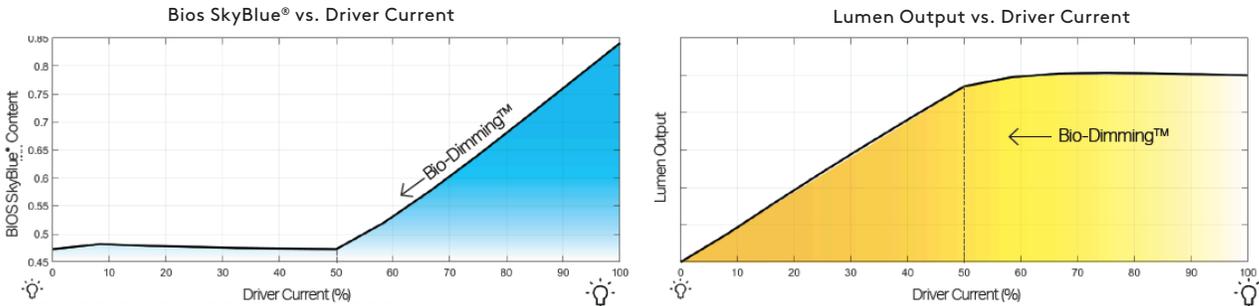
### Dynamic Control with Bio-Dimming™

When paired with the BIOS Bio-Dimming™ module, Selux + BIOS luminaires operate using any single channel constant current (CC) LED driver and can be used with any standard dimming interface/protocol (0-10V, ELV, DMX, Wireless) and could work with existing two-channel control systems as well.

### Spectral Power Distribution



### Dynamic Control with Bio-Dimming™ - SkyBlue® Content and Lumen Output



	DIMMER SETTING*	BIOS SKYBLUE®	LIGHT OUTPUT	
	100%* (Full On)	100%	100%	Bio-Dimming™
	99%-51%	100%-0%	100%-90%	
	50%	NO BIOS	~90%	Intensity Dimming
	49%-0%	NO BIOS	LINEAR DIMMING	

BIOS SkyBlue® maintained for maximum circadian impact.  
 Light output remains relatively constant.

BIOS SkyBlue® removed to provide minimal circadian impact.  
 Light output dims down linearly.

\*Note: Bio-dimming learns individual brightness preferences and maximizes BIOS SkyBlue accordingly. Dimmer setting percentages as shown are relative to this learned maximum brightness set point. For more information, please see "What to Expect from the BIOS Bio-Dimmer Machine Learning System" or go to [www.bioslighting.com](http://www.bioslighting.com)

**Fuse (FS)** - Fusing, luminaires supplied with an in-line fuse located on the hot wire for each feed. (supplied with an 8A slow burn fuse).

**Damp Location (DL)** - Luminaires are suitable for use in damp location(s). Examples of such locations include protected areas under canopies, marquees, roofed porches, and similar locations where the fixture(s) are protected from direct contact with rain, snow, or excessive moisture (such as ocean spray). Interior locations include areas subject to moderate degrees of moisture, such as basements and certain barns and cold storage buildings.

\*For Damp Location with sensors, please consult factory.

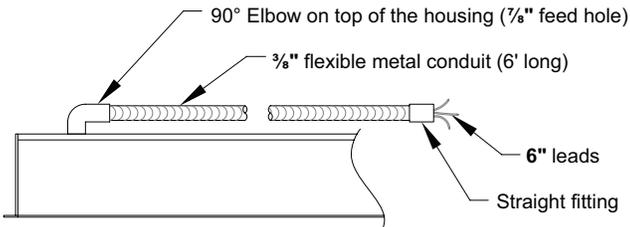
**Separate Switching (SS)** - Luminaires available with separately switched 4' (nominal) sections starting at 7' and up. Luminaire is intended to be wired to the same panel/breaker (not intended for Emergency use).

- To specify this option, the number of separately switched sections and locations of these sections must be provided at time of order.

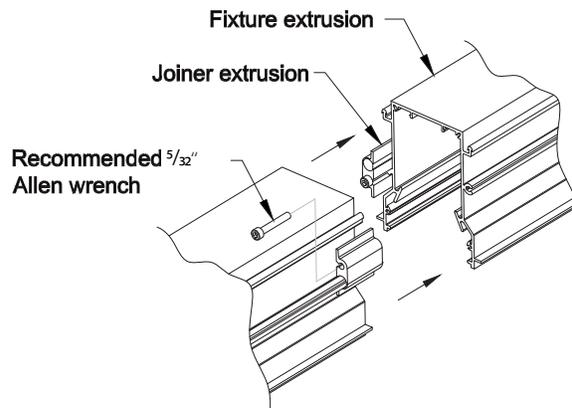
\*If the project requires different separate switching than outlined above please consult the factory.

\*For Separate Switching with sensors, please consult factory.

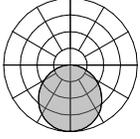
**Flex Whip - standard**



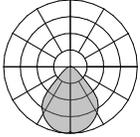
**Joiner System - standard for Runs**



**Photometry**



LW - LED Optimized White Lens				
Light Engine	Lumens per 4 foot	Lumens per foot	Input watts per foot	lm/W
1S6	2074	519	11	47



MI - Clear Lens with Microprism Inlay				
Light Engine	Lumens per 4 foot	Lumens per foot	Input watts per foot	lm/W
1S6	2406	602	11	55

LR4TZ with BIOS SkyBlue® Technology		
	CCT Multiplier	Photopic Ratio (m/p)
3000K (2700K + 490nm)	0.97	0.70
3500K (3000K + 490nm)	1.01	0.80
4000K (3500K + 490nm)	1.00	0.90

CRI multipliers apply to the photometry, IES files, and per foot values listed on page 1 (light engine).

Lens multipliers supplied for per foot values listed on page 1 (light engine).

LR4TZ Lens Multiplier	
LW	1.00
MI	1.16