

Product # _____ Type _____ Date _____

Project Name _____

Project Location _____ Prepared By _____

Tunnel LED

Housing Enclosure

- Extruded, low copper, corrosion resistant aluminum alloy 6063-T5 and clear anodized, Class 1, Type II per specification AA-M10-C12-A41

Physical Size

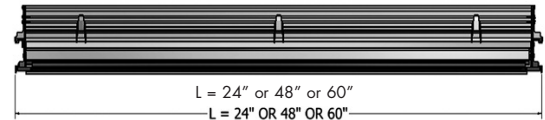
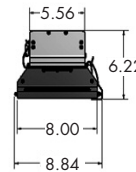
- Available luminaire suitable for three lengths, 24", 48" and 60". The typical cross section of the luminaire shall be 8.875" x 6.00".

Delivered Lumen Output Ranges

- 100 - 105 Lumens/Watt. Minimum 6785 lumens to maximum 39,449 lumens.
- For 24" long luminaire - Delivered lumens from 6875 to 7850 lumens.
- For 48" log luminaire - Delivered lumen from 135,70 to 31,559 lumens.
- For 60" long luminaire - Delivered lumens from 16,963 to 39,449 lumens.

Power Input

- 120VAC, 208VAC, 240VAC, 277VAC, 347VAC, 480VAC 50/60HZ.



Ordering Guide

MODEL	LENGTH 1, 2, 3	LIGHT SOURCE 1	LED-CCT	PHOTOMETRIC CHOICES	MOUNTING BRACKET SET	INPUT VAC	OPTIONS
TWL-S	2	- 200W	5K	2RT	AW	U	SS
TWL-S	1=24" - 2=48" - 3=60" -	70W, 100W 140W 200W 175W 250W	3K = 3000K 4K = 4000K 5K = 5000K	2RT = Type-II Rectangle 3AS = Type-III Asymmetrical 5SQ = Type-V Square 4CBPB = Couter/Pro Beam	FC = Fixed on Ceiling FW = Fixed on Wall AC = Adjust. on Ceiling AW = Adjust. on Wall XX = Custom	V1 = 120-277VAC V2 = 347VAC V3 = 480VAC	DF = Dual Fusing C6 = 6' 14/3 SOOW 600V 90C CABLE CT6 = 6' 1/2" SS FL.EX CONDUIT 2C = 2-Circuit output DIM = Dimming 0-10V DALI = DALI Interface DMX = DMX Interface SS = Stainless Steel Brkt.
TWLD	2=48" - 3=60" -	280W 400W 350W 500W					

Note: North Star Lighting reserves the right to modify specifications without notice.



Tunnel LED

Optical Choices

- Optical distributions choices suitable for Threshold, Transition, Interior and Exit zones for narrow, medium and wide tunnels for optimum performance - maximum luminance, minimum Veiling glare Luminance and ultimate uniformity using fewest luminaires.
- Available Counter-Beam or Pro-Beam optics without requiring any external shielding.
- Modular optical assemblies are designed to align optical axis and optical center precisely with lamp light center with lamp support for consistent optical performance for the all luminaires.

Quick and easy tool-less access for servicing

- Tool less access for re-lamping, fuse inspection/replacement, check and replace modular quick release and detachable electrical components tray assembly and power feed connection.

Electrical Components

- Modular Electrical Components assembly: Structurally formed electrical components tray made of low copper aluminum alloy 5052, black anodized finish. Provided with easy-lift handle for easy servicing. Tool-less access, quick release detachable assembly for repair and replacement without any downtime. Electrical components, are UL recognized components and meet UL8750/UL1310/Class-2 standards. Provided with suitable dual fuse and fuse holders rated 600V, high temperature body rated to 150-degree C. Toolless access for servicing. Designed for cooler operation and long life.
- Wiring: Wires between LED modules and electrical components are made of SF2 wires rated 600V, 200 degree C. Wiring between electrical components and quick disconnect terminal (polarized nylon plug) is 16 AWG ETFE rated 600V, 9 amp, per circuit for wiring 2 poles for wires from LED drivers to LEDs and 3 poles from incoming line to LED drivers.

- Grounding Lug: Grounding lug shall be dual rated solder less ground lug aluminum alloy to accommodate wire size AWG #6 to 14.
- Terminal Block: One piece plug rated 600V insulation with non-conducting material for AWG# 8 to 14. The block is fixed mounted on the housing with separate ground lug to receive two circuit connections.
- Power Input connections: Choice of 6' cable or 6' flexible metallic watertight conduit using watertight fittings supplied with 12 AWG 3-conductors rated for 600V.

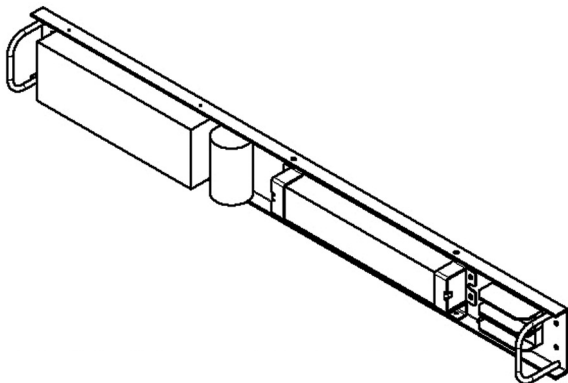
Mounting Options

- Ceiling/wall or corner mount or suspended stem mount: Choice of fix mounting as down light or adjustable to aim up to +/- 45 degree aiming. Mounting brackets are 1/4 thick low copper high strength aluminum alloy 6061-T6. Optional 10 gauge thick, 316 stainless steel brackets, are available. Suitable dual luminaire mounting bracket design to meet project specifications.

Safety Certifications

- Luminaire is Certified for ETL listed for USA and Canada per standards UL1598 3D Ed. Outdoor wet location and UL1598A marine locations and CSA-22.2 NO. 250.0-13. Also certified NEMA Type 4X, IEC EN60598 IP66. Lens: Clear 1/4" thick soda lime tempered glass impact resistant to rating IK08 as per IEC EN622262. Luminaire was vibration tested to meet 3G ratings as per ANSI C136-31-2010 standards to perform in tunnels harsh environment.

Modular Component Tray Assembly



Tunnel LED

Targeted LED Performance

Luminaire Data @ 25°C

Samsung LM80 Projected Life Hours Per IESNA TM21-11

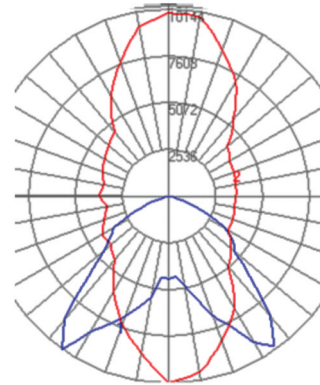
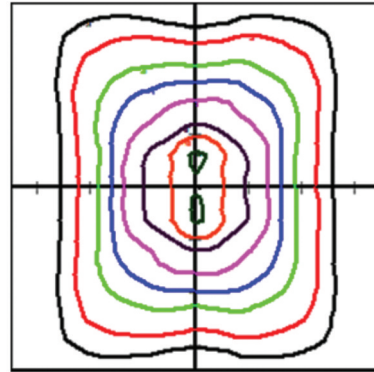
Model	LED Drive Current (mA)	LED Color Temp	LED Watts	Output Lumens	At 25°C, Luminaire Ambient		At 40°C, Luminaire Ambient		At 50°C, Luminaire Ambient	
					L80 (10k) Life	TS-°C	L80 (10k) Life	TS-°C	L80 (10k) Life	TS-°C
TWL-S1	700	5000	70	6785	Greater than 60,000	Under 105	Greater than 60,000	Under 105	Greater than 60,000	Under 105
	700	4000	70	6317						
	700	3000	70	5840						
	1000	5000	100	9167	Greater than 60,000	Under 105	Greater than 60,000	Under 105	Greater than 60,000	Under 105
	1000	4000	100	8534						
	1000	3000	100	7890						
TWL-S2	700	5000	140	13570	Greater than 60,000	Under 105	Greater than 60,000	Under 105	Greater than 60,000	Under 105
	700	4000	140	12634						
	700	3000	140	11680						
	1000	5000	200	18333	Greater than 60,000	Under 105	Greater than 60,000	Under 105	Greater than 60,000	Under 105
	1000	4000	200	17069						
	1000	3000	200	15780						
TWL-S3	700	5000	175	16963	Greater than 60,000	Under 105	Greater than 60,000	Under 105	Greater than 60,000	Under 105
	700	4000	175	15793						
	700	3000	175	14600						
	1000	5000	250	22916	Greater than 60,000	Under 105	Greater than 60,000	Under 105	Greater than 60,000	Under 105
	1000	400	250	21336						
	1000	3000	250	19725						
TWL-D2	700	5000	280	27140	Greater than 60,000	Under 105	Greater than 60,000	Under 105	Greater than 60,000	Under 105
	700	4000	280	25268						
	700	3000	280	23360						
	1000	5000	400	36666	Greater than 60,000	Under 105	Greater than 60,000	Under 105	Greater than 60,000	Under 105
	1000	4000	400	34137						
	1000	3000	400	31559						
TWL-D3	700	5000	350	33925	Greater than 60,000	Under 105	Greater than 60,000	Under 105	Greater than 60,000	Under 105
	700	4000	350	31585						
	700	3000	350	29200						
	1000	5000	500	45833	Greater than 60,000	Under 105	Greater than 60,000	Under 105	Greater than 60,000	Under 105
	1000	4000	500	42671						
	1000	3000	500	39449						



Tunnel LED

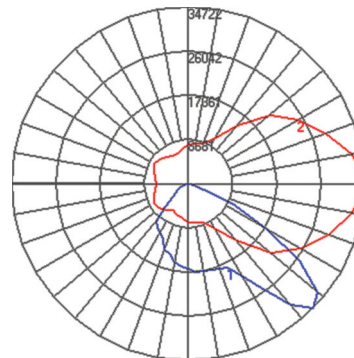
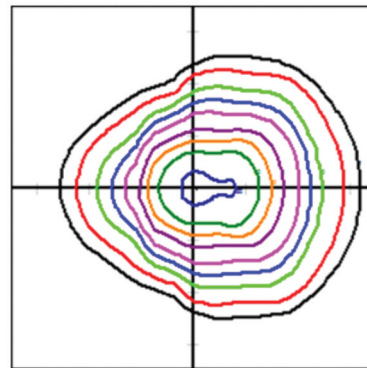
Photometry Summary: TWL-S2-200W-5K-2RT
(Recommended Applications: Transition/Interior Zones-Wide Tunnels)

IES Classification	Type II
Longitudinal Classification	Short
Lumens Per Lamp	305 (64 lamps)
Total Lamp Lumens	19520
Luminaire Lumens	17298
Downward Total Efficiency	89 %
Total Luminaire Efficiency	89 %
Luminaire Efficacy Rating (LER)	86
Total Luminaire Watts	200
Ballast Factor	1.00
Upward Waste Light Ratio	0.00
Max. Cd.	10143.804 (270H, 35V)
Max. Cd. (<90 Vert.)	10143.804 (270H, 35V)
Max. Cd. (At 90 Deg. Vert.)	5.016 (0.0%Lamp)
Max. Cd. (80 to <90 Deg. Vert.)	260.712 (1.3%Lamp)
Cutoff Classification (deprecated)	Cutoff



Photometry Summary: TWL1-400WHPS-H-ASYM
(Recommended Applications: Threshold Zones-Wide Tunnels)

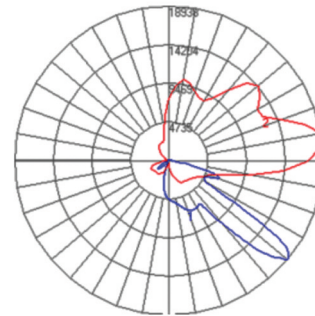
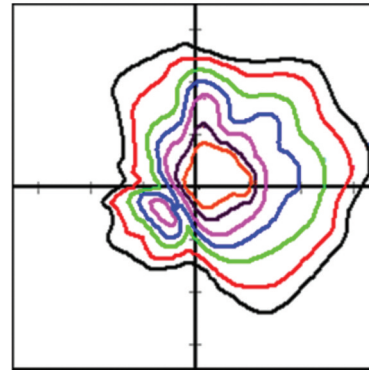
IES Classification	Type III
Longitudinal Classification	Very Short
Lumens Per Lamp	51000 (1 lamp)
Total Lamp Lumens	51000
Luminaire Lumens	43394
Downward Total Efficiency	85 %
Total Luminaire Efficiency	85 %
Luminaire Efficacy Rating (LER)	94
Total Luminaire Watts	464
Ballast Factor	1.00
Upward Waste Light Ratio	0.00
Max. Cd.	34722.121 (0H, 45V)
Max. Cd. (<90 Vert.)	34722.121 (0H, 45V)
Max. Cd. (At 90 Deg. Vert.)	0 (0.0%Lamp)
Max. Cd. (80 to <90 Deg. Vert.)	302.869 (0.6%Lamp)
Cutoff Classification (deprecated)	Full Cutoff



Tunnel LED

Photometry Summary: TWL-S2-200W-5K-4CBPB
(Recommended Applications: Counter-Beam or Pro-Beam)

IES Classification	Type II
Longitudinal Classification	Very Short
Lumens Per Lamp	305 (64 lamps)
Total Lamp Lumens	19520
Luminaire Lumens	17431
Downward Total Efficiency	89 %
Total Luminaire Efficiency	89 %
Luminaire Efficacy Rating (LER)	87
Total Luminaire Watts	200
Ballast Factor	1.00
Upward Waste Light Ratio	0.01
Max. Cd.	18938.049 (10H, 50.5V)
Max. Cd. (<90 Vert.)	188490.78 (10H, 50.5V)
Max. Cd. (At 90 Deg. Vert.)	491.7 (2.5%Lamp)
Max. Cd. (80 to <90 Deg. Vert.)	1438.446 (7.4%Lamp)
Cutoff Classification (deprecated)	Semi-Cutoff



Photometry Summary: TWL-S2-200W-5K-5SQ
(Recommended Applications: Transition/Interior Zones-Wide Tunnels)

IES Classification	Type V-SQ
Longitudinal Classification	Very Short
Lumens Per Lamp	305 (64 lamps)
Total Lamp Lumens	19520
Luminaire Lumens	17327
Downward Total Efficiency	89 %
Total Luminaire Efficiency	89 %
Luminaire Efficacy Rating (LER)	87
Total Luminaire Watts	200
Ballast Factor	1.00
Upward Waste Light Ratio	N.A.
Max. Cd.	10225.215 (180H, 41V)
Max. Cd. (<90 Vert.)	10678.504 (180H, 41V)
Max. Cd. (At 90 Deg. Vert.)	230.23 (1.2%Lamp)
Max. Cd. (80 to <90 Deg. Vert.)	545.545 (2.8%Lamp)
Cutoff Classification (deprecated)	Cutoff

