TMU240095CL8xxH

44" LINEARHO DC MODULE, 2400mA MAX CURRENT

- Extruded Aluminum material for thermal management
- Magnets pre-mounted, for ease of installation
- High lumen, high efficacy, suitable for DLC 6.0
- Accessories: Diffused lens and End-Caps available

- For use in UL Class 2 lighting systems
- Suitable for DLC applications: L70>60,000hrs / L90>60,000hrs
- Meets UL8750 recognized
- RoHS compliant
- The module is supplied by short circuit proof SELV controlgear

General Specifications

	4000K/80CRI	4000K/80CRI
Input Voltage ①	33.8VDC	35.3VDC
Input Current ①	1400mA	2400mA(Max.)
Input Power ①	47.3W	84.8W
Initial Lumens @4000K / 80CRI	9,274 lumens	15,483 lumens
Initial Lm/W @4000K / 80CRI	196 lm/W	183 lm/W
Beam Angle	120°	
CRI	80CRI Standard; 90CRI Optional	
Storage Temperature Range	-40°C to 100°C / -40°F to 212°F	
Operating Temperature Range (ta)	-40°C to 55°C / -40°F to 131°F	
Maximum Case Temperature (Tc)	L70: Tc max 105°C/ L90: Tc max 105°C	
Estimated Lumen Maintenance ②	L70: >60,000Hrs / L90: >60,000Hrs	
Color Consistency	Binning per ANSI C78.377-2015 @ 25°C; 3 SDCM Typ.; 6 SDCM Max.	
Overall Size	44” x 1.73” x 0.52” (1120mm x 44mm x 13.2mm)	
PCB Material / Thermal Conductivity	CEM-3 1.0W/mK	
Extruded Material / Finish	Aluminum/surface treatment with Anodic Oxidation	
LED Quantity	180pcs	
Module Weight	220g / 0.48lb.	
PCB Part Number	PTL006C01C3	
Magnets Quantity / Magnetic Force	3 / 2N (.45lbf) per magnet	
Maximum Screw Installation Torque	25 inch - ounces	
Connector Type	WAGO #744-392 (2 pin connector)	
Packaging: Master Carton	20pcs.	
Thermal Feedback	Not Available	
Safety/Compliance	cURus (File # E351548)	
	Suitable for UL Class 2 Lighting Systems	
	RoHS Compliant	
	Dry and Damp Location	
	CE (IEC 62031: 2008. AMD1: 2012, AMD2: 2014)	
	SELV	
Energy Efficiency Label (EEI-Label)	C	
Warranty	5 years @ Max. Tc from the date of manufacture	

①Nominal ratings. Performance based on Tc mod = 25°C. See thermal de-rating chart (pg. 5) for higher temperature operation.

②TM-21 Reported Numbers

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RoHS COMPLIANT

Electrical and Optical Specifications

4000K CCT

LED Module Part Number	Number of LED	Input Current	Nom. Forward Voltage	Nom. Rated Power	Max. Fwd. Voltage	Max. Rated Power	Nom. Lum. Flux @4000K/80 CRI	Nom. Efficacy @4000K/80 CRI	Nom. Lum. Flux per foot @4000K/80CRI	Nom. Lum. Flux per string @4000K/80CRI
TMU240095CLxxxH (44")	180	200 mA	31.3 V	6.3 W	34 V	7 W	1329 lm	212 lm/W	362 lm/ft	89 lm/string
		300 mA	31.6 V	9.5 W	34 V	10 W	2007 lm	212 lm/W	547 lm/ft	134 lm/string
		400 mA	31.8 V	12.7 W	34 V	14 W	2682 lm	211 lm/W	731 lm/ft	179 lm/string
		500 mA	32.1 V	16.0 W	34 V	17 W	3355 lm	209 lm/W	915 lm/ft	224 lm/string
		600 mA	32.3 V	19.4 W	35 V	21 W	4025 lm	208 lm/W	1098 lm/ft	268 lm/string
		700 mA	32.5 V	22.8 W	35 V	25 W	4692 lm	206 lm/W	1280 lm/ft	313 lm/string
		800 mA	32.7 V	26.2 W	35 V	28 W	5357 lm	205 lm/W	1461 lm/ft	357 lm/string
		900 mA	32.9 V	29.6 W	35 V	32 W	6018 lm	203 lm/W	1641 lm/ft	401 lm/string
		1000 mA	33.1 V	33.1 W	35 V	35 W	6676 lm	202 lm/W	1821 lm/ft	445 lm/string
		1100 mA	33.3 V	36.6 W	36 V	40 W	7331 lm	200 lm/W	1999 lm/ft	489 lm/string
		1200 mA	33.4 V	40.1 W	36 V	43 W	7982 lm	199 lm/W	2177 lm/ft	532 lm/string
		1300 mA	33.6 V	43.7 W	36 V	47 W	8630 lm	198 lm/W	2354 lm/ft	575 lm/string
		1400 mA	33.8 V	47.3 W	36 V	50 W	9274 lm	196 lm/W	2529 lm/ft	618 lm/string
		1500 mA	33.9 V	50.9 W	36 V	54 W	9914 lm	195 lm/W	2704 lm/ft	661 lm/string
		1600 mA	34.1 V	54.5 W	36 V	58 W	10551 lm	194 lm/W	2877 lm/ft	703 lm/string
		1700 mA	34.2 V	58.2 W	37 V	63 W	11183 lm	192 lm/W	3050 lm/ft	746 lm/string
		1800 mA	34.4 V	61.9 W	37 V	67 W	11811 lm	191 lm/W	3221 lm/ft	787 lm/string
		1900 mA	34.5 V	65.6 W	37 V	70 W	12435 lm	190 lm/W	3391 lm/ft	829 lm/string
		2000 mA	34.7 V	69.4 W	37 V	74 W	13054 lm	188 lm/W	3560 lm/ft	870 lm/string
		2100 mA	34.8 V	73.2 W	37 V	78 W	13668 lm	187 lm/W	3728 lm/ft	911 lm/string
		2200 mA	35.0 V	77.0 W	37 V	81 W	14278 lm	185 lm/W	3894 lm/ft	952 lm/string
		2300 mA	35.2 V	80.9 W	38 V	87 W	14883 lm	184 lm/W	4059 lm/ft	992 lm/string
		2400 mA*	35.3 V	84.8 W	38 V	91 W	15483 lm	183 lm/W	4223 lm/ft	1032 lm/string

Luminous Flux De-Rating: CCT and CRI Multipliers

	2700K	3000K	3500K	4000K	5000K	5700K	6500K
CRI 80(R9> 0)	0.924	0.951	0.965	1.000	1.014	1.007	1.000
CRI 90(R9>50)	0.774	0.836	0.829	0.850	0.864	0.864	0.850

NOTES:
1) Performance based on Tc mod = 25°C. See thermal de-rating chart (pg. 3) for higher temperature operation
2) Standard lumen output and efficacy is calculated for standard options. Reference CCT & CRI vs Luminous Flux chart for lumen ratio calculation.
3) Specifications are subject to change without notice.
4) The LED DC Module can be configure with different LED chip quantities, series and parallel design configurations to meet a specific design requirement. Contact Fulham for further assistance.
5) * Indicates maximum rated current. Modules may be operated at a current less than or equal to this value, below the Tc rating.
6) 70CRI is NOT available.

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RoHS COMPLIANT

Thermal Specifications

	LinearHO Module
Storage Temperature Range	-40 to +100°C / -40 to +212°F
Operating Ambient Temperature Range (ta)	-40 to 55°C / -40 to 131°F
Maximum Case Temperature (Tc)	L70 = 105°C (221°F) / L90 = 105°C (221°F)

Thermal De-Rating:

Tc vs. Luminous Flux vs. Forward Voltage

Module Case Temperature (Tc)	Total Vf Multiplier	Luminous Flux Multiplier
25ºC	1.000	1.000
30ºC	0.998	0.995
35ºC	0.996	0.990
40ºC	0.994	0.985
45ºC	0.992	0.979
50ºC	0.990	0.974
55ºC	0.988	0.968
60ºC	0.986	0.962
65ºC	0.985	0.956
70ºC	0.983	0.950
75ºC	0.981	0.944
80ºC	0.979	0.938
85ºC	0.977	0.931
90ºC	0.975	0.925
95ºC	0.974	0.918
100ºC	0.972	0.911
105ºC	0.970	0.904

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Certification Chart

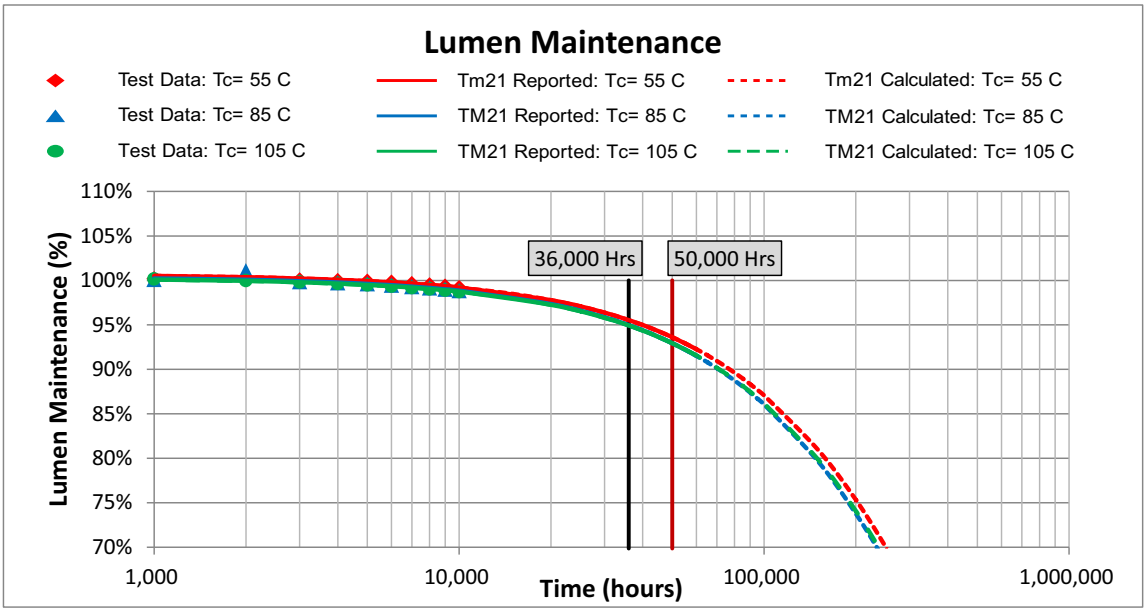
Classification \ Model	TMU240095CL8xxH
RoHS COMPLIANT	YES
c UL us	YES
CE UKCA	YES
Energy Efficiency Label (EEI-Label)	C
Suitable for UL Class 2 Lighting System	YES

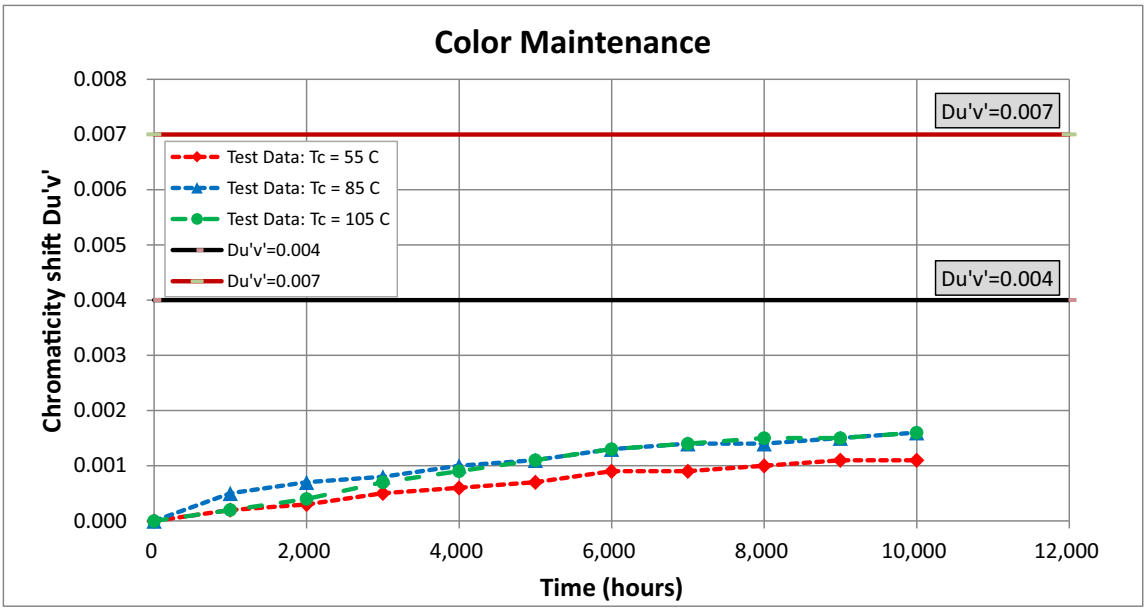
Energy Star™ TM-21 Calculator Data

Tc Module	Reported L70	Reported L90
55°C	>60,000 Hrs	>60,000 Hrs
85°C	>60,000 Hrs	>60,000 Hrs
105°C	>60,000 Hrs	>60,000 Hrs

Tc Module	Calculated L70	Calculated L90
55°C	250,000 Hrs	77,000 Hrs
85°C	234,000 Hrs	70,000 Hrs
105°C	237,000 Hrs	71,000 Hrs

LED Lumen & Color Maintenance Data per LM-80 report and TM-21 Calculator





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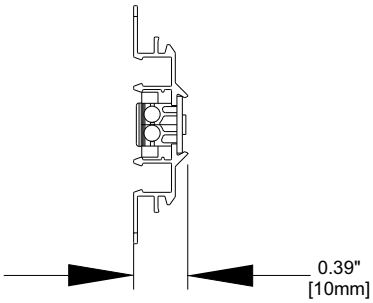
RoHS COMPLIANT

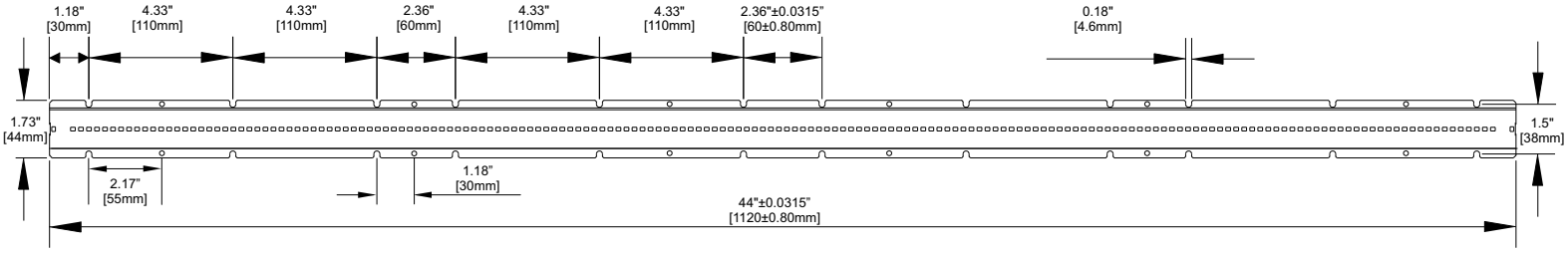
Mechanical Drawings

44”
[1120mm]

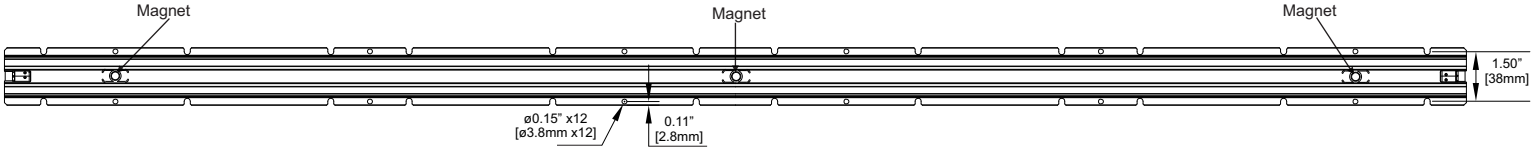


SIDE VIEW

Overall Dimensions	
Length	44” [1120mm]
Width	1.73” [44mm]
Height	0.52” [13.2mm]



TOP VIEW



BOTTOM VIEW

Unmarked General Tolerance

<4” [100mm]: ±0.0138” [±0.35mm]
4”~11.8” [100~300mm]: ±0.0197” [±0.5mm]
>11.8” [300mm]: ±0.0236” [±0.6mm]
HOLES: ±0.002” [±0.05mm]

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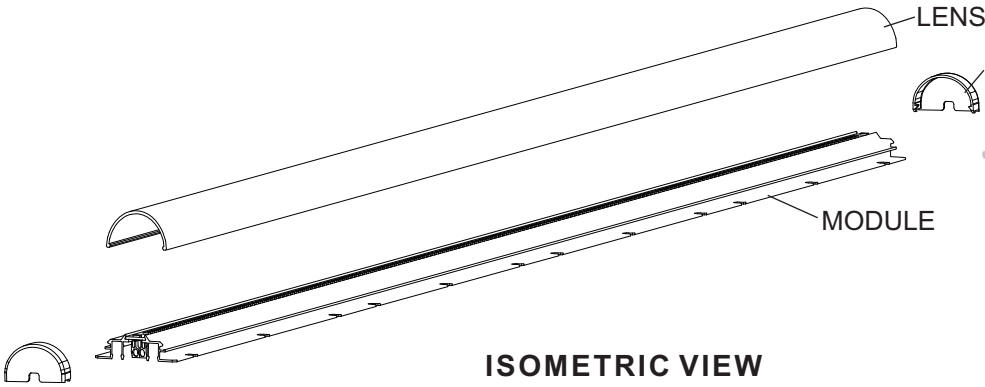
RoHS COMPLIANT

Accessories

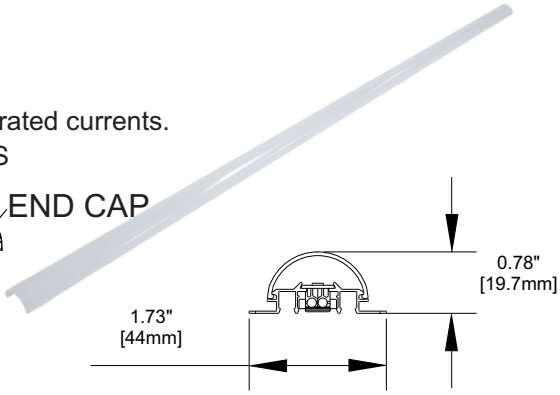
44" Diffuser Lens

Fulham Part Number: **TLE-OPT-120-013**

- White polycarbonate diffuser lens - 82% transmissivity at nominally rated currents.



ISOMETRIC VIEW



SIDE VIEW

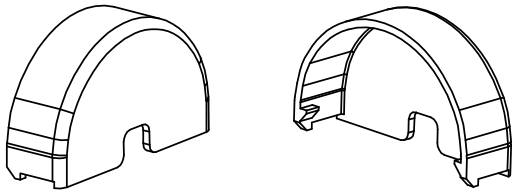
Installation Steps when using clamps:

1.Place the LED Module on the luminaire surface.
2.Place the Diffuser lens on top of LED module (line it up with LED module mounting edges).
3.Push down to snap into place.

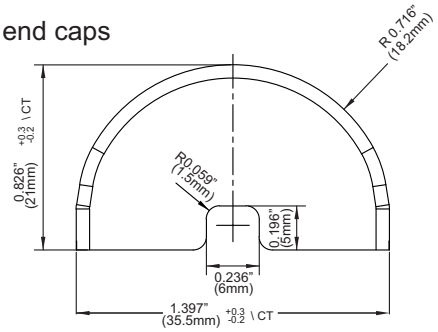
End Caps

Fulham Part Number: **TLE-OPT-120-020**

- White Polybutylene Terephthalate (PBT) end caps



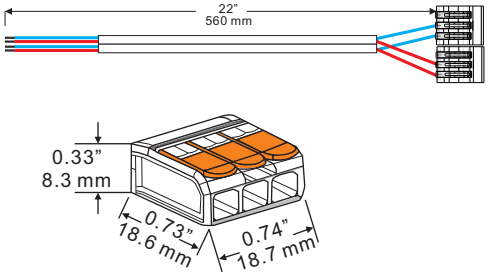
ISOMETRIC VIEW



SIDE VIEW

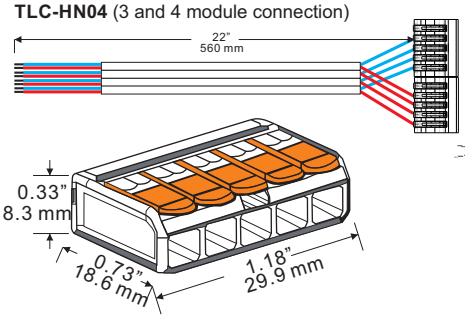
Harness

TLC-HN02 (1 and 2 module connection)

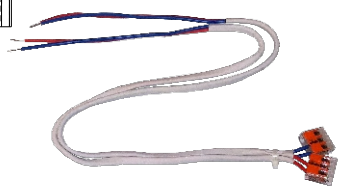


ISOMETRIC VIEW

TLC-HN04 (3 and 4 module connection)



ISOMETRIC VIEW

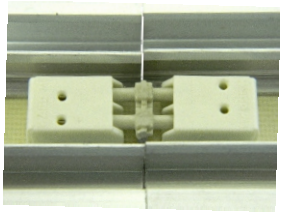


Interconnects

- Interconnect Type: WAGO Double pins to interconnect Modules (#2060-952/028-000)
- Approvals: cURus, UL 1977, and RoHS Compliant

NOTES:

1) Interconnects are NOT sold by Fulham.
2) Do not connect LinearHO Modules in parallel (end to end) if the current exceeds the maximum module rated current. This type of wiring would cause the pass-through current on the first module to exceed the rated current. This setup is in reference to wiring diagram #2 per Fulham's wiring diagram (see link on page #8). If the current is higher than the rated max, it is recommended to use wiring diagram #3.



BOTTOM VIEW

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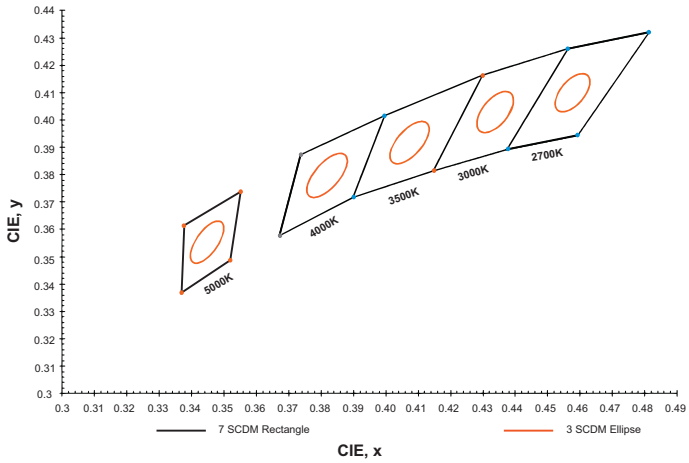
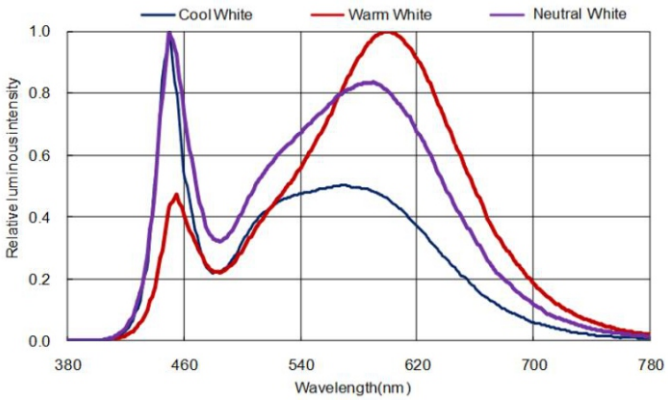
RoHS COMPLIANT

Color and Binning



Optical Spectrum



NOTES:

1) The Color and Binning and Optical Spectrum charts are for reference only. For more detailed info, contact factory.
2) Reference Seoul Chromaticity Diagram for Color and Binning. Binning per ANSI C78.377-2015 @ 25°C; 3 SDCM.
3) The Optical Spectrum values vary depending on product type and color rank.

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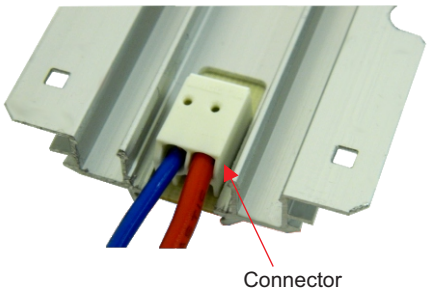
RoHS COMPLIANT

Guidelines

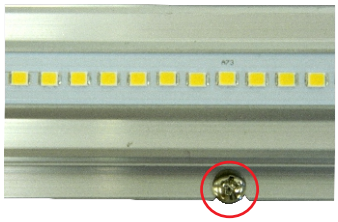
Termination Notes

- Connector Type: WAGO #744-392 (2 pin push wire connector)
  - AWG: 20...16 solid wire
  - Strip length: 8...9mm / 0.31...0.35in
  - Connector Max amp. rating: 6 Amps.



Fastening Notes

- If fastening by screw hole, use any screw with diameter less than 0.185 in (4.7mm). Use all available screw holes to ensure good contact between back side of module and mounting surface. Refer to max specified torque for installation. Suggested screw sizes: #6 or M4 Pan Head screw.



- If fastening using double-sided tape, start with clean, oil-free and dust-free surface. Peel backing and place LED module on mounting surface. Firmly press down on the module to ensure good adherence. Follow the double-side tape manufacturer's installation instructions.

- BJB P2F (Push-to-Fix) fixing elements for PCBs can be used to fasten LED modules to mounting surface. Reference BJB's website for ordering information and specific model to use: http://www.bjb.com/index.php?pid=376706&lid=10.

Environmental Rating / Conformal Coating

- The DC LinearHO Modules have been evaluated for use in dry or damp locations only. If used in wet locations, acceptability and the need for additional evaluation shall be determined in the end product.

- Fulham's LinearHO modules are available with conformal coating; made to order with MOQ and lead time will apply. The conformal coating is a silicone based material which is double sprayed on the module only (LEDs and PCB). Conformal coating is recommended for the following applications: near ocean where salt is present, constant moisture, refrigeration, continuously high humidity, or outdoor applications. An IP rating of IP64 or IP65 is achieved when the conformal coating is used, but other factors should be considered. Fulham still recommends the luminaire also meet an IP64/65 rating.

Electrostatic Sensitive Product (ESD)

- Fulham LED products should be handled with proper measures to protect against any potential ESD damage.
- When servicing, personnel should be ground and direct contact with LED should be avoided.

Thermal Management

- Proper thermal management should be employed to ensure life and reliability of product. Max Tc of module should not be exceeded.
- Use of thermal grease, paste, pad, or other material interface is highly recommended.

Polarity Notes

- DC Modules are polarity sensitive.
- Ensure that "positive" from LED Driver is connected to "positive" of LED modules and that "negative" from LED Driver is connected to "negative" of LED modules.
- Polarities of modules are marked with "+" for positive and "-" for negative.

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RoHS COMPLIANT

Part Number Matrix

T	M	U	240	095	CL	8	xx	H

Type	Control Type	Input Current	Max. Power	Shape	CRI	Color Temperature	Option
M = Module (UL Class 2)	U = None	240 = 2400mA Max.	095 = 95W	CL=Linear	③8 = 80 9 = 90	**27** = 2700K ③ **30** = 3000K ③ **35** = 3500K ③ **40** = 4000K ③ **50** = 5000K **57** = 5700K **65** = 6500K	**H =** High Efficacy ④ **K** = Conformal Coating (MTO)

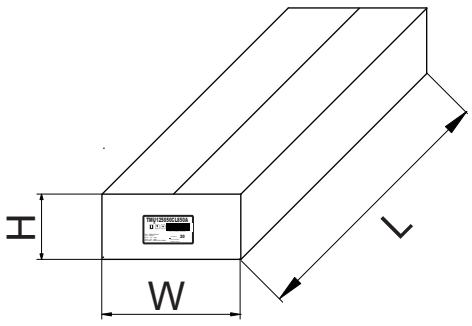
③Standard Product offering (All other options are made to order with MOQ and lead time)
④See page #8 for Conformal Coating information. Made to order (MTO).

Product Image: LinearHO Module

TOP VIEW

Packaging

Master Carton



OUTER DIMENSION		
L	W	H
45.47”(1155mm)	10.63”(270mm)	4.33”(110mm)

Net Weight	Gross Weight	QUANTITY
10.58 lbs. (4.8kg)	13.34 lbs. (6.05kg)	20pc.