VMU240095LP8xxC

58”LP-LINEARHO DC MODULE, 2400mA MAX CURRENT

- Low Profile design, no magnets
- Direct mount to luminaire housing
- Superior thermal performance than standard LinearHO
- Higher aluminum material density
- Extruded Aluminum material for thermal management
- High lumen, high efficacy
- Accessories: Diffused lens compatible
- For use in UL Class 2 lighting systems
- Suitable for DLC applications: L70>60,000hrs / L90=40,000hrs
- Meets UL8750 recognized
- RoHS compliant
- The module is supplied by short circuit proof SELV controlgear

General Specifications

	Min.	Typical	Max.
Input Voltage ①	32VDC	33.6VDC	39VDC
Input Current ①	250mA	1050mA	2400mA
Input Power ①	8W	35.3W	94W
Initial Lumens @4000K / 80CRI	1,752 lumens	7,133 lumens	14,699 lumens
Initial Lm/W @4000K / 80CRI	219 lm/W	202 lm/W	172 lm/W
Beam Angle	120°		
CRI	80CRI (standard), 90CRI available		
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 (Ts=110°C) / L90: Tc max 105°C (Ts=110°C)		
Estimated Lumen Maintenance ②	L70: >60,000Hrs / L90: 40,000Hrs		
Color Consistency	Binning per ANSI C78.377-2015 @ 25°C; 3 SDCM		
Overall Size	58” L x 1.26” W x 0.29” H (1472mm x 32mm x 7.4mm)		
PCB Material / Thermal Conductivity	MCPCB (Aluminum Clad)/ 1.5W / mK		
Extruded Material / Finish	Aluminum/surface treatment with Anodic Oxidation		
LED Quantity	180pcs.		
Module Weight	367g / 0.81lb		
PCB Part Number	PTL029C01M1		
Maximum Screw Installation Torque	25 inch - ounces		
Connector Type	WAGO #2060-452 / 998-404 (2 pin connector)		
Packaging: Master Carton	40pcs.		
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)	A++		
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. 3) for higher temperature operation

②TM-21 Reported Numbers

VMU240095LP8xxC

RoHS COMPLIANT

Electrical and Optical Specifications

LP-LinearHO Module Part Number	Number of LED	Input Current	Nom. Forward Voltage (VDC)	Nom. Rated Power	Max. Fwd. Voltage	Max. Rated Power	Nom. Lum. Flux @4000K/80 CRI	Nom. Efficacy @4000K/80 CRI
VMU240095LP8xxC	180	250mA	32.0V	8.0W	33V	8W	1752 lm	219 lm/W
		300mA	32.0V	9.6W	33V	10W	2100 lm	219 lm/W
		350mA	32.2V	11.3W	34V	12W	2408 lm	213 lm/W
		400mA	32.3V	12.9W	34V	13W	2791 lm	216 lm/W
		450mA	32.5V	14.6W	34V	15W	3132 lm	215 lm/W
		500mA	32.4V	16.2W	34V	17W	3478 lm	215 lm/W
		525mA	32.4V	17.0W	34V	18W	3660 lm	215 lm/W
		550mA	32.5V	17.9W	34V	19W	3820 lm	213 lm/W
		600mA	32.7V	19.6W	34V	21W	4159 lm	212 lm/W
		650mA	32.8V	21.3W	34V	22W	4498 lm	211 lm/W
		700mA	33.0V	23.1W	35V	24W	4838 lm	209 lm/W
		750mA	33.1V	24.8W	35V	26W	5170 lm	208 lm/W
		800mA	33.2V	26.6W	35V	28W	5503 lm	207 lm/W
		850mA	33.2V	28.2W	35V	30W	5836 lm	207 lm/W
		900mA	33.4V	30.1W	35V	32W	6161 lm	205 lm/W
		950mA	33.4V	31.7W	35V	34W	6494 lm	205 lm/W
		1000mA	33.5V	33.5W	35V	35W	6820 lm	204 lm/W
		1050mA	33.6V	35.3W	36V	37W	7133 lm	202 lm/W
		1100mA	33.6V	37.0W	36V	39W	7463 lm	202 lm/W
		1150mA	33.7V	38.8W	36V	41W	7782 lm	201 lm/W
		1200mA	33.8V	40.6W	36V	43W	8098 lm	199 lm/W
		1250mA	33.9V	42.4W	36V	45W	8412 lm	198 lm/W
		1300mA	34.0V	44.2W	36V	47W	8722 lm	197 lm/W
		1350mA	34.1V	46.0W	36V	49W	9031 lm	196 lm/W
		1375mA	34.0V	47.0W	36V	51W	9188 lm	195 lm/W
		1400mA	34.2V	47.9W	37V	52W	9331 lm	195 lm/W
		1450mA	34.2V	49.6W	37V	53W	9638 lm	194 lm/W
		1500mA	34.3V	51.4W	37V	55W	9937 lm	193 lm/W
		1550mA	34.4V	53.3W	37V	57W	10233 lm	192 lm/W
		1600mA	34.4V	55.1W	37V	59W	10527 lm	191 lm/W
		1650mA	34.5V	56.9W	37V	61W	10815 lm	190 lm/W
		1680mA	34.6V	58.1W	37V	63W	10984 lm	189 lm/W
		1700mA	34.6V	58.8W	37V	63W	11102 lm	189 lm/W
		1750mA	34.6V	60.6W	37V	66W	11383 lm	188 lm/W
		1800mA	34.8V	62.6W	38V	68W	11664 lm	186 lm/W

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RoHS COMPLIANT

Electrical and Optical Specifications

LP-LinearHO Module Part Number	Number of LED	Input Current	Nom. Forward Voltage (VDC)	Nom. Rated Power	Max. Fwd. Voltage	Max. Rated Power	Nom. Lum. Flux @4000K/80 CRI	Nom. Efficacy @4000K/80 CRI
VMU240095LP8xxC	180	1850mA	34.8V	64.4W	38V	70W	11937 lm	185 lm/W
		1900mA	34.9V	66.3W	38V	72W	12209 lm	184 lm/W
		1950mA	34.9V	68.1W	38V	74W	12478 lm	183 lm/W
		2000mA	35.0V	70.0W	38V	76W	12741 lm	182 lm/W
		2050mA	35.1V	71.9W	38V	78W	13001 lm	181 lm/W
		2100mA	35.2V	73.9W	39V	81W	13257 lm	179 lm/W
		2150mA	35.3V	75.8W	39V	83W	13506 lm	178 lm/W
		2200mA	35.3V	77.7W	39V	85W	13754 lm	177 lm/W
		2250mA	35.4V	79.6W	39V	87W	13997 lm	176 lm/W
		2300mA	35.5V	81.6W	39V	90W	14233 lm	174 lm/W
		2350mA	35.6V	83.6W	39V	92W	14468 lm	173 lm/W
		2400mA*	35.6V	85.4W	39V	94W	14699 lm	172 lm/W

Luminous Flux De-Rating: CCT and CRI Multipliers

	2700K	3000K	3500K	4000K	5000K	5700K	6500K
CRI 80(R9> 0)	0.929	0.955	0.968	1.000	1.013	1.006	1.000
CRI 90(R9>50)	0.776	0.801	0.821	0.863	0.869	0.865	0.863

NOTES:

1) Performance based on Tc mod = 25°C. See thermal de-rating chart (pg. 4) 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.

VMU240095LP8xxC

RoHS COMPLIANT

Thermal Specifications

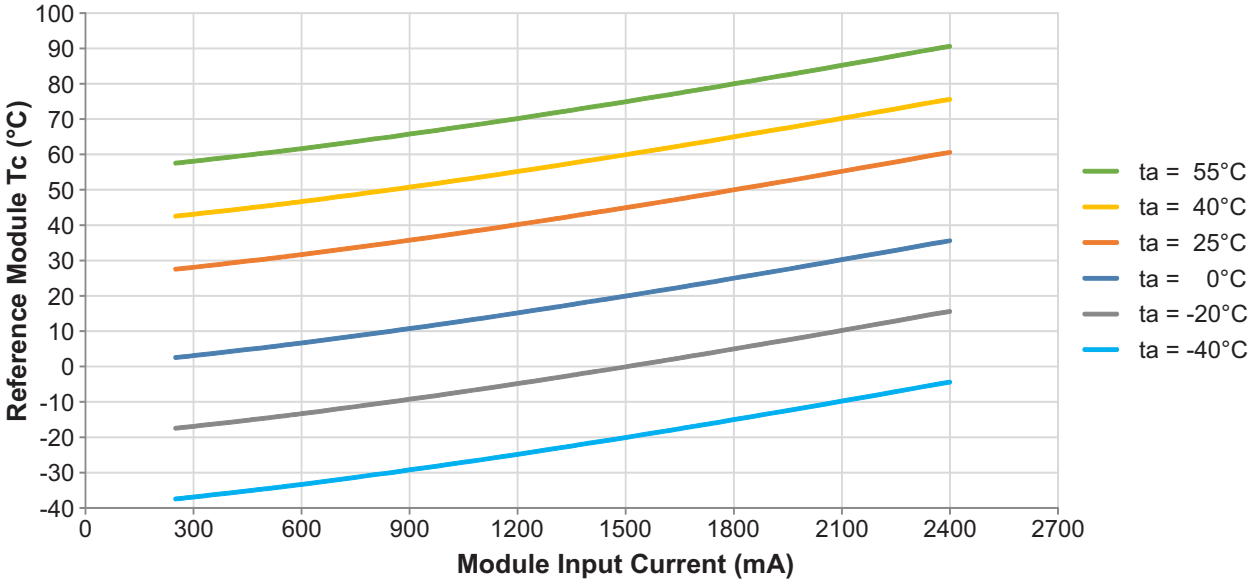
	LP-LinearHO DC Module
Storage Temperature Range	-40 to +100°C / -40 to +212°F
Operating Ambient Temperature Range (ta)	-40 to 55°C / -40 to 131°F
Maximum Case Temperature (Tc)	L70 = 105°C (221°F) / L90 = 105°C (221°F)

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	0.991
35ºC	0.997	0.983
40ºC	0.995	0.974
45ºC	0.993	0.966
50ºC	0.991	0.957
55ºC	0.990	0.949
60ºC	0.988	0.940
65ºC	0.986	0.932
70ºC	0.985	0.923
75ºC	0.983	0.915
80ºC	0.981	0.906
85ºC	0.980	0.898
90ºC	0.978	0.890
95ºC	0.976	0.881
100ºC	0.974	0.873
105ºC	0.973	0.864

Module Tc vs. Ambient (ta) vs. Module Input Current (mA)



NOTES:

1) Chart "Module Tc vs. Ambient (ta) vs. Module Input Current (mA)" for referance only in an open ambient. The performance with in a luminaire will vary depending on the size and material of luminaire.

VMU240095LP8xxC

RoHS COMPLIANT

Certification Chart

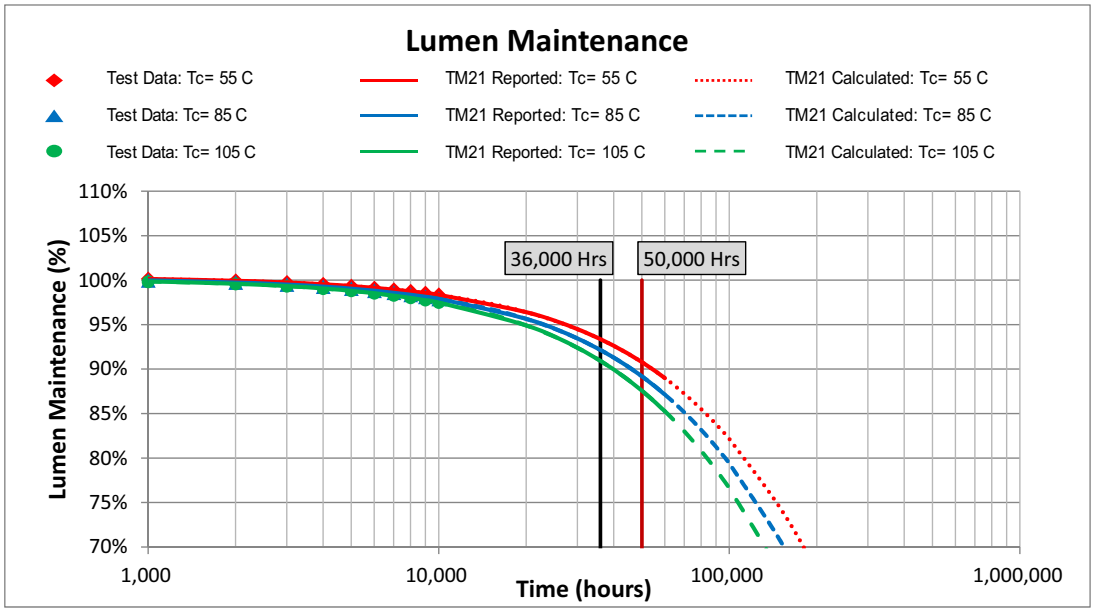
Classification \ Model	VMU240095LP8xxC
RoHS COMPLIANT	YES
c UL us	YES
CE	YES
Energy Efficiency Label (EEI-Label)	A++
Suitable for UL Class 2 Lighting System	YES

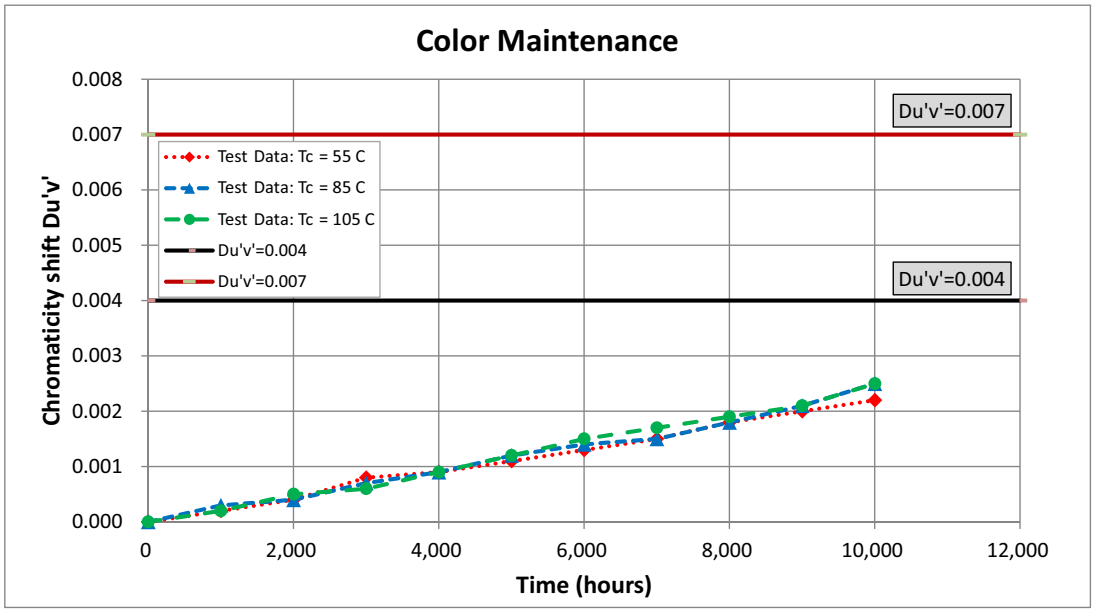
Energy Star™ TM-21 Calculator Data

Tc Module	Reported L70	Reported L90
55°C	>60,000 Hrs	54,000 Hrs
85°C	>60,000 Hrs	46,000 Hrs
105°C	>60,000 Hrs	40,000 Hrs

Tc Module	Calculated L70	Calculated L90
55°C	180,000 Hrs	54,000 Hrs
85°C	154,000 Hrs	46,000 Hrs
105°C	133,000 Hrs	40,000 Hrs

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





VMU240095LP8xxC

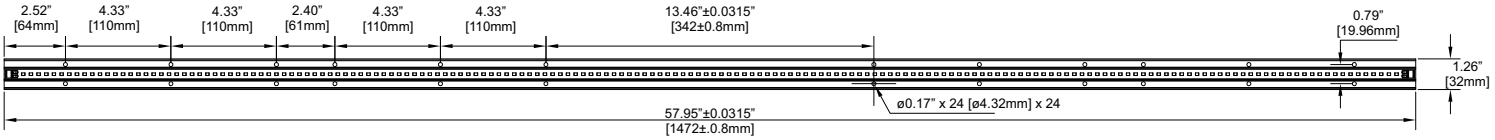
RoHS COMPLIANT

Mechanical Drawings

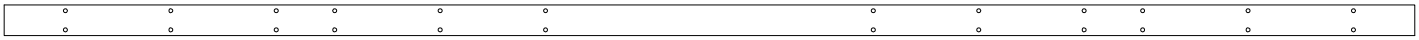
(Scale 1:10)

58”
[1472mm]

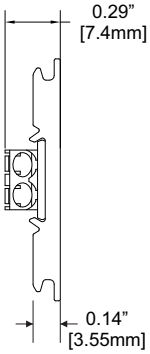
Overall Dimensions	
Length	58” [1472mm]
Width	1.26” [32mm]
Height	0.29” [7.4mm]



TOP VIEW



BOTTOM VIEW



SIDE 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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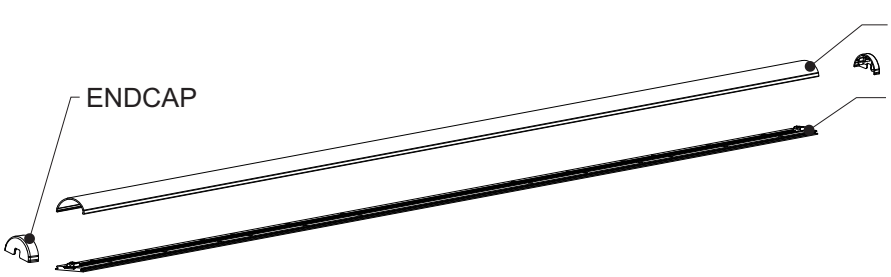
RoHS COMPLIANT

Accessories

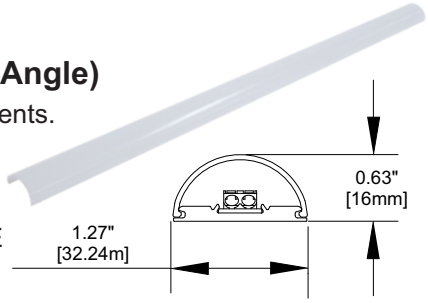
Diffuser Lens

Fulham Part Number: **TLE-OPT-120-021 (58" Diffuser Lens - 120° Beam Angle)**

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



ISOMETRIC VIEW



SIDE VIEW

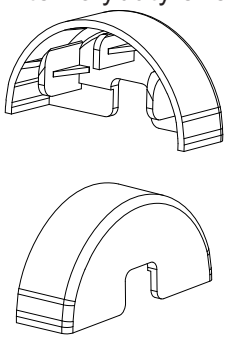
Installation Steps when using clamps:

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.

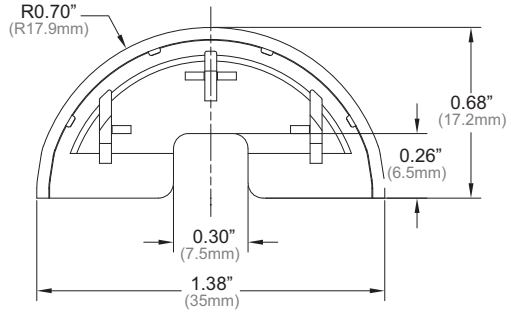
Endcap

Fulham Part Number: **VLE-OPT-120-012**

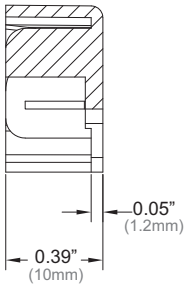
- White Polybutylene Terephthalate (PBT) end caps



ISOMETRIC VIEW



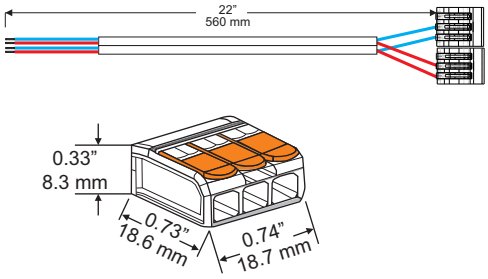
SIDE VIEW



FRONT VIEW

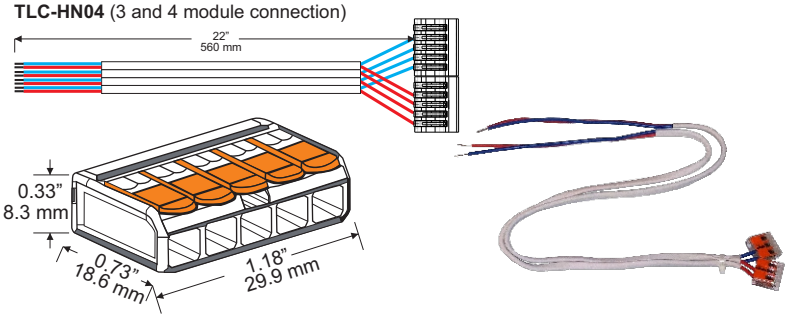
Harness

TLC-HN02 (1 and 2 module connection)



ISOMETRIC VIEW

TLC-HN04 (3 and 4 module connection)



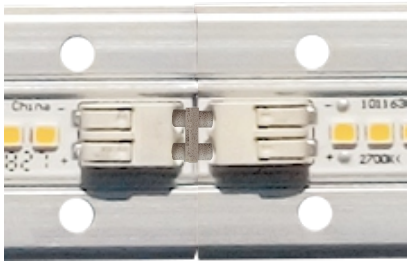
ISOMETRIC VIEW

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 #9). If the current is higher than the rated max, it is recommended to use wiring diagram #3.



Top View

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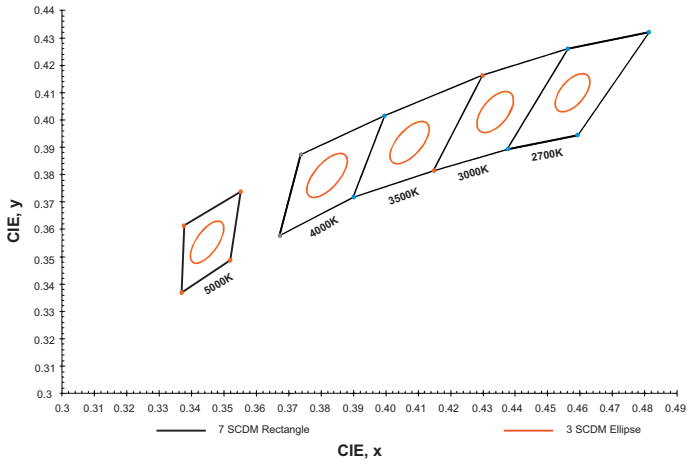
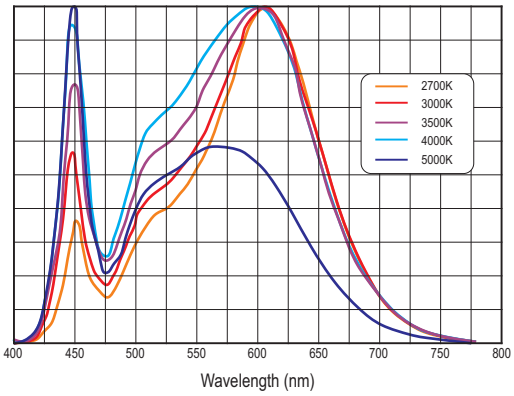
RoHS COMPLIANT

Color and Binning



Optical Spectrum



Compatible Fulham Drivers

(Please use the links below for a complete list of compatible Fulham drivers and wiring diagrams)

- LP-LinearHO System Combination:
- Fulham's Wiring Diagrams: https://cdn.fulham.com/PDFs/SpecSheets/DC-Modules-Wiring-Diagrams.pdf
- Compatible with Fulham Hotspot EM Systems.

NOTES:

1) The Color and Binning and Optical Spectrum charts are for reference only. For more detailed info, contact factory.
2) Reference Samsung 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.
4) Driver not included.
5) 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 the link above). If the current is higher than the rated max, it is recommended to use wiring diagram #3.

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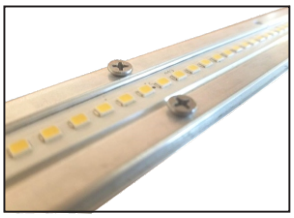
Guidelines

Termination Notes

- Connector Type: WAGO #2060-452 / 998-404 (2 pin push wire connector)
  - AWG: 24...18 solid wire
  - Strip length: 7...9mm / 0.28...0.35in
  - Connector Max amp. rating: 9 Amps.

For more detail information, please visit Wago's website: http://www.wago.com/infomaterial/pdf/51300133.pdf

Fastening Notes



- If fastening by screw hole a recommended screw size: 6-20 x 5/8" flat head drilling screws. Use all available screw holes to ensure good contact between back side of module and mounting surface. Refer to max specified torque for installation.
- 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.

Heyco Rivet 9035

- HEYCO HEYClip Snap Rivets 9035 is recommended for fast and easy installation with clean and finish look. For more detail information, please visit Heyco website: https://www.heyco.com/Nylon_PVC_Hardware/product.cfm?product=Snap-Rivets

Environmental Rating / Conformal Coating

- The DC LP-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 LP-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 LP-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.

VMU240095LP8xxC

RoHS COMPLIANT

Part Number Matrix

V	M	U	240	095	LP	8	XX	C

Product Line	Type	Control Type	Input Current	Max. Power	Design	CRI	Color Temperature	Option
V = Vizion	**M** = Module (UL Class 2)	**U** = None	**240** = 2400mA Max.	**095** = 95W	**LP**=Low Profile	③**8** = 80 **9** = 90	**27** = 2700K ③ **30** = 3000K ③ **35** = 3500K ③ **40** = 4000K ③ **50** = 5000K **57** = 5700K **65** = 6500K	**C** = Standard ④**E** = Conformal Coating (MTO)

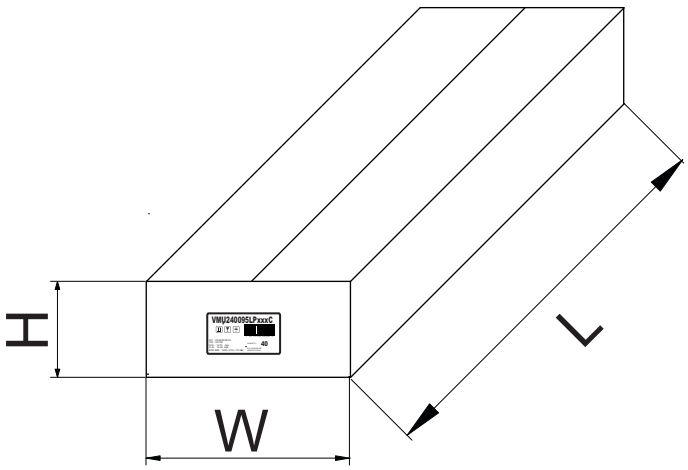
③Standard Product offering (All other options are made to order with MOQ and lead time)
④See page #9 for Conformal Coating information. Made to order (MTO).

Product Image: LP-LinearHO Module

TOP VIEW

Packaging

Master Carton



OUTER DIMENSION		
L	W	H
59.37”(1508mm)	10.63”(270mm)	4.33”(110mm)

Net Weight	Gross Weight	QUANTITY
32.4 lbs. (14.70kg)	36.56 lbs. (16.58kg)	40pc.