



TMU140055CL8xxH



44" LINEARHO DC MODULE, 1400mA 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 | 33.1VDC | 34.8VDC |
| Input Current ^① | 700mA | 1400mA(Max.) |
| Input Power ^① | 23.2W | 48.7W |
| Initial Lumens @4000K / 80CRI | 4,659 lumens | 9,050 lumens |
| Initial Lm/W @4000K / 80CRI | 201 lm/W | 186 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 0.39" (1120mm x 44mm x 10mm) | |
| PCB Material / Thermal Conductivity | CEM-3 1.0W/mK | |
| Extruded Material / Finish | Aluminum/surface treatment with Anodic Oxidation | |
| LED Quantity | 108pcs | |
| Module Weight | 220g / 0.48lb. | |
| PCB Part Number | PTL005C01C3 | |
| 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. 3) for higher temperature operation.

^②TM-21 Reported Numbers



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Electrical and Optical Specifications

| 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 |
|------------------------|---------------|---------------|----------------------|------------------|-------------------|------------------|------------------------------|-----------------------------|--------------------------------------|--|
| TMU140055CLxxxH (44") | 108 | 200 mA | 31.6 V | 6.3 W | 34 V | 7 W | 1339 lm | 212 lm/W | 365 lm/ft | 149 lm/string |
| | | 250 mA | 31.8 V | 7.9 W | 34 V | 9 W | 1677 lm | 211 lm/W | 457 lm/ft | 186 lm/string |
| | | 300 mA | 32.0 V | 9.6 W | 34 V | 10 W | 2013 lm | 210 lm/W | 549 lm/ft | 224 lm/string |
| | | 350 mA | 32.1 V | 11.2 W | 34 V | 12 W | 2348 lm | 209 lm/W | 640 lm/ft | 261 lm/string |
| | | 400 mA | 32.3 V | 12.9 W | 35 V | 14 W | 2682 lm | 208 lm/W | 731 lm/ft | 298 lm/string |
| | | 450 mA | 32.5 V | 14.6 W | 35 V | 16 W | 3015 lm | 206 lm/W | 822 lm/ft | 335 lm/string |
| | | 500 mA | 32.6 V | 16.3 W | 35 V | 18 W | 3346 lm | 205 lm/W | 913 lm/ft | 372 lm/string |
| | | 550 mA | 32.7 V | 18.0 W | 35 V | 19 W | 3677 lm | 204 lm/W | 1003 lm/ft | 409 lm/string |
| | | 600 mA | 32.9 V | 19.7 W | 35 V | 21 W | 4006 lm | 203 lm/W | 1092 lm/ft | 445 lm/string |
| | | 650 mA | 33.0 V | 21.5 W | 35 V | 23 W | 4333 lm | 202 lm/W | 1182 lm/ft | 481 lm/string |
| | | 700 mA | 33.1 V | 23.2 W | 35 V | 25 W | 4659 lm | 201 lm/W | 1271 lm/ft | 518 lm/string |
| | | 750 mA | 33.3 V | 24.9 W | 36 V | 27 W | 4984 lm | 200 lm/W | 1359 lm/ft | 554 lm/string |
| | | 800 mA | 33.4 V | 26.7 W | 36 V | 29 W | 5307 lm | 199 lm/W | 1447 lm/ft | 590 lm/string |
| | | 850 mA | 33.5 V | 28.5 W | 36 V | 31 W | 5629 lm | 198 lm/W | 1535 lm/ft | 625 lm/string |
| | | 900 mA | 33.6 V | 30.3 W | 36 V | 32 W | 5949 lm | 197 lm/W | 1622 lm/ft | 661 lm/string |
| | | 950 mA | 33.7 V | 32.0 W | 36 V | 34 W | 6267 lm | 196 lm/W | 1709 lm/ft | 696 lm/string |
| | | 1000 mA | 33.8 V | 33.8 W | 36 V | 36 W | 6584 lm | 195 lm/W | 1796 lm/ft | 732 lm/string |
| | | 1050 mA | 34.0 V | 35.7 W | 36 V | 38 W | 6898 lm | 194 lm/W | 1881 lm/ft | 766 lm/string |
| | | 1100 mA | 34.1 V | 37.5 W | 36 V | 40 W | 7212 lm | 192 lm/W | 1967 lm/ft | 801 lm/string |
| | | 1150 mA | 34.2 V | 39.3 W | 37 V | 43 W | 7523 lm | 191 lm/W | 2052 lm/ft | 836 lm/string |
| 1200 mA | 34.3 V | 41.1 W | 37 V | 44 W | 7832 lm | 190 lm/W | 2136 lm/ft | 870 lm/string | | |
| 1250 mA | 34.4 V | 43.0 W | 37 V | 46 W | 8140 lm | 189 lm/W | 2220 lm/ft | 904 lm/string | | |
| 1300 mA | 34.5 V | 44.9 W | 37 V | 48 W | 8445 lm | 188 lm/W | 2303 lm/ft | 938 lm/string | | |
| 1350 mA | 34.6 V | 46.8 W | 37 V | 50 W | 8749 lm | 187 lm/W | 2386 lm/ft | 972 lm/string | | |
| 1400 mA* | 34.8 V | 48.7 W | 37 V | 52 W | 9050 lm | 186 lm/W | 2468 lm/ft | 1006 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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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 |
|------------------------------|---------------------|--------------------------|
| 25°C | 1.000 | 1.000 |
| 30°C | 0.998 | 0.995 |
| 35°C | 0.996 | 0.990 |
| 40°C | 0.994 | 0.985 |
| 45°C | 0.992 | 0.979 |
| 50°C | 0.990 | 0.974 |
| 55°C | 0.988 | 0.968 |
| 60°C | 0.986 | 0.962 |
| 65°C | 0.985 | 0.956 |
| 70°C | 0.983 | 0.950 |
| 75°C | 0.981 | 0.944 |
| 80°C | 0.979 | 0.938 |
| 85°C | 0.977 | 0.931 |
| 90°C | 0.975 | 0.925 |
| 95°C | 0.974 | 0.918 |
| 100°C | 0.972 | 0.911 |
| 105°C | 0.970 | 0.904 |



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Certification Chart

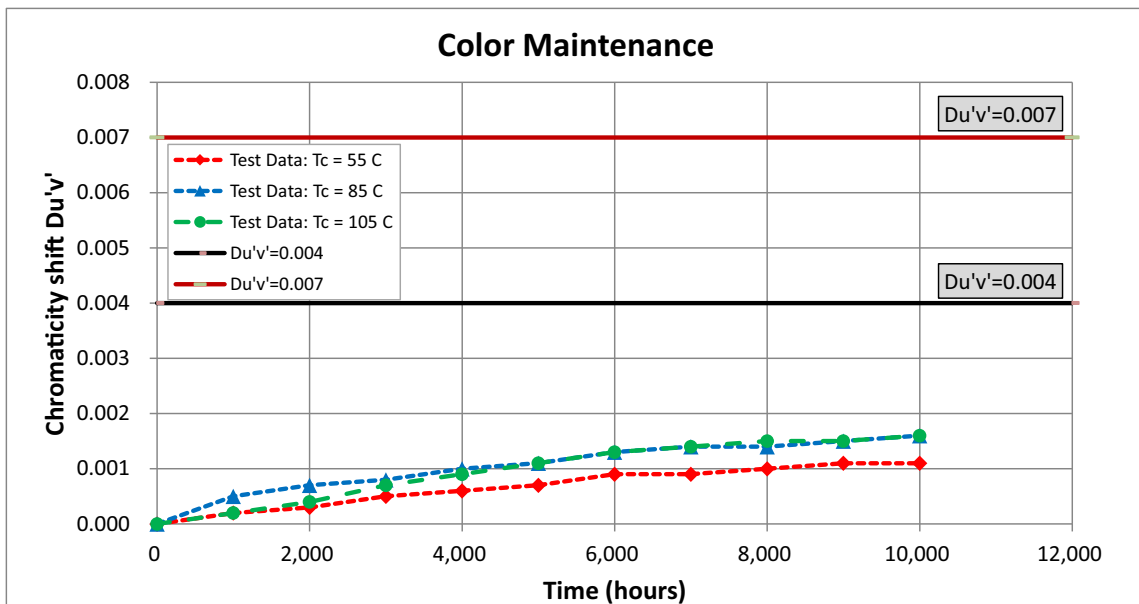
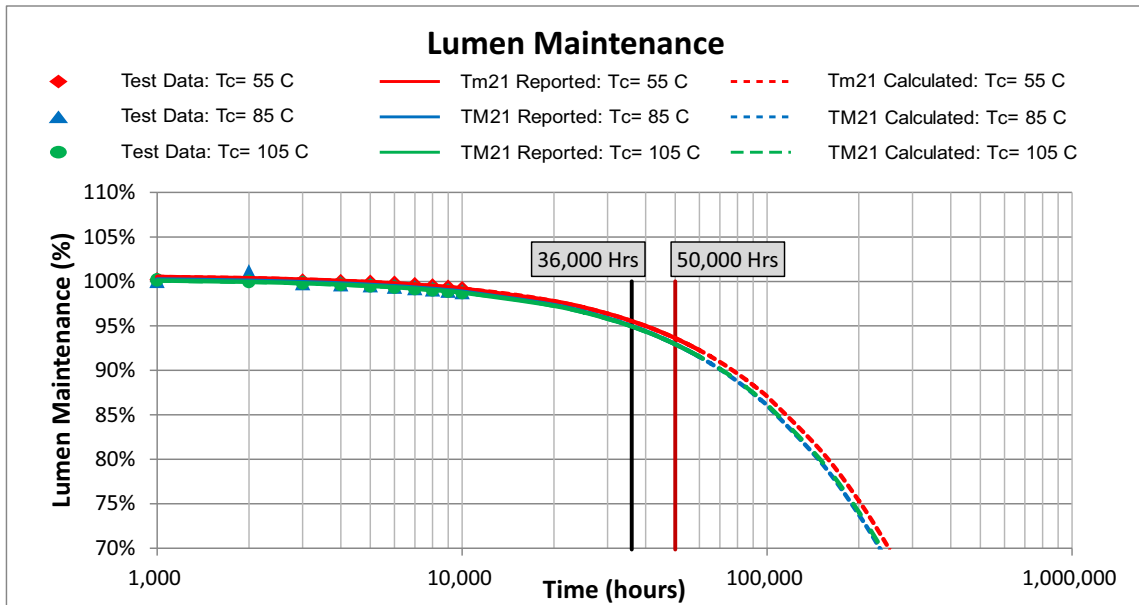
| Classification | Model | TMU140055CL8xxH |
|---|-------|-----------------|
| | | YES |
| | | YES |
| | | YES |
| Energy Efficiency Label (EEI-Label) | | C |
| Suitable for UL Class 2 Lighting System | | YES |

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





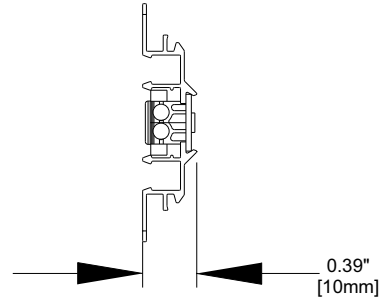
TMU140055CL8xxH



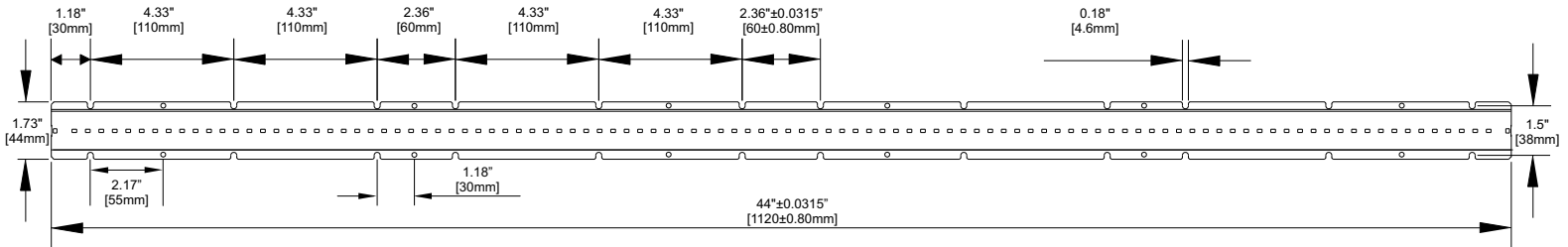
Mechanical Drawings

44"
[1120mm]

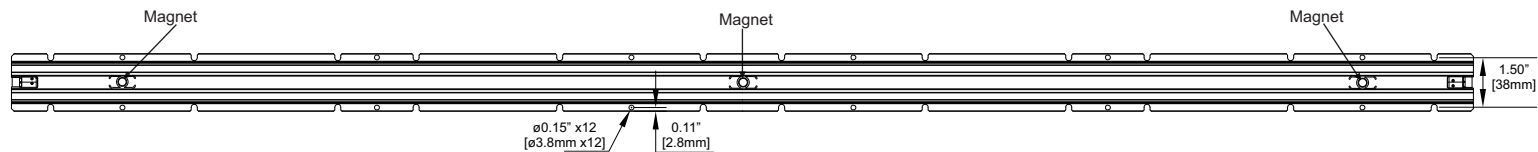
| Overall Dimensions | |
|--------------------|-----------------|
| Length | 44" [1120mm] |
| Width | 1.73" [44mm] |
| Height | 0.39" [10mm] |



SIDE VIEW



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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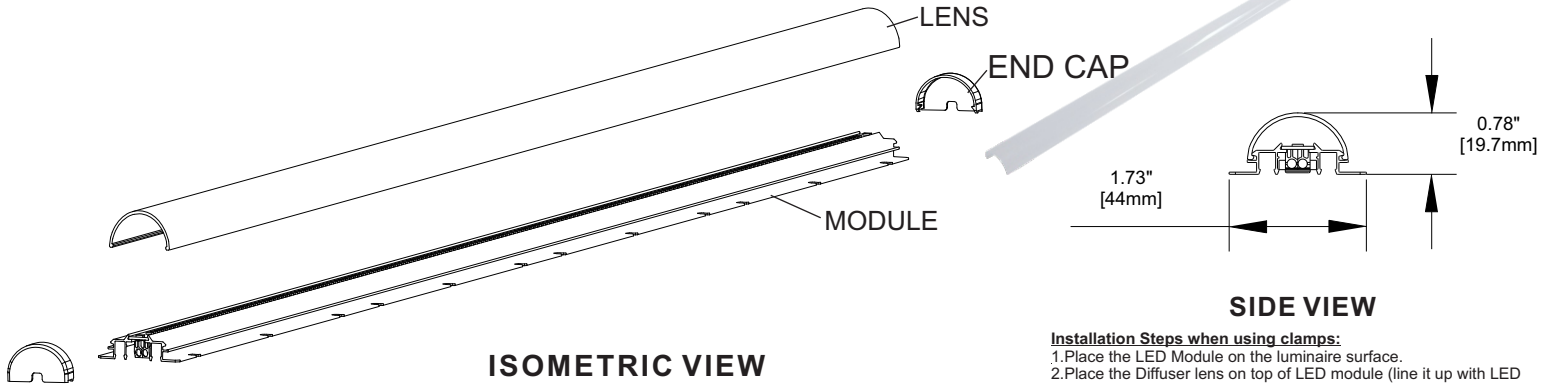


Accessories

44" Diffuser Lens

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

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

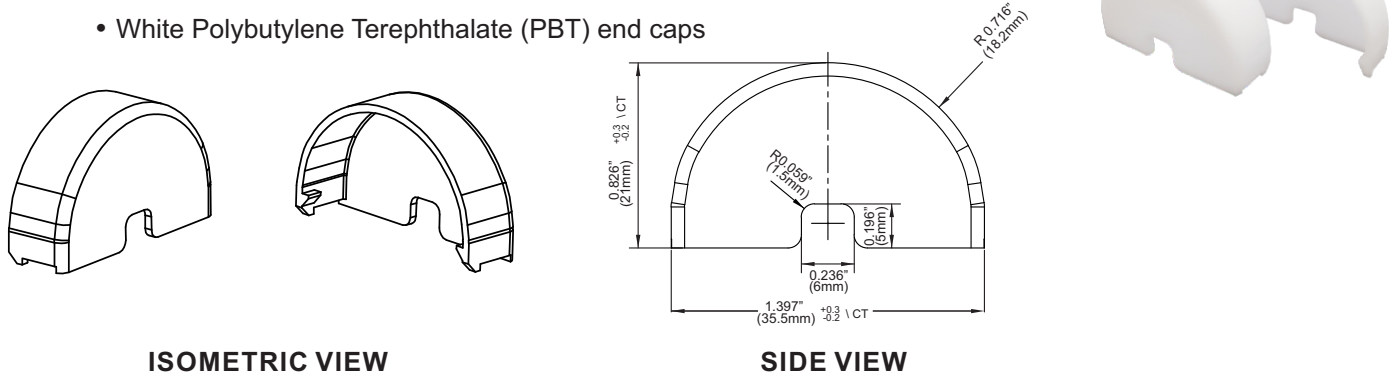


Installation Steps when using clamps:
 1. Place the LED Module on the luminaire surface.
 2. Place the Diffuser lens on top of LED module (line it up with LED module mounting edges).
 3. Push down to snap into place.

End Caps

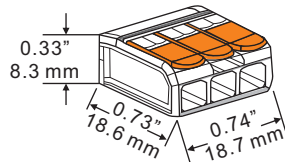
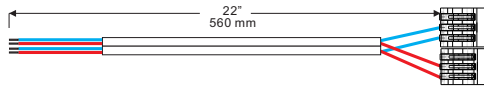
Fulham Part Number: **TLE-OPT-120-020**

- White Polybutylene Terephthalate (PBT) end caps



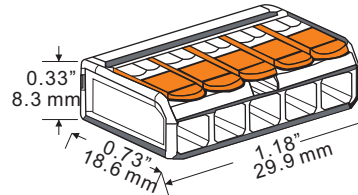
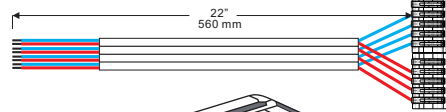
Harness

TLC-HN02 (1 and 2 module connection)

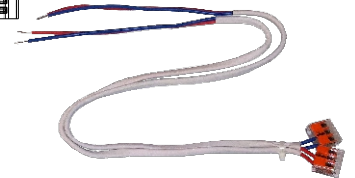


ISOMETRIC VIEW

TLC-HN04 (3 and 4 module connection)

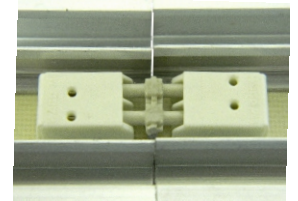


ISOMETRIC VIEW



Interconnects

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



BOTTOM VIEW

NOTES:

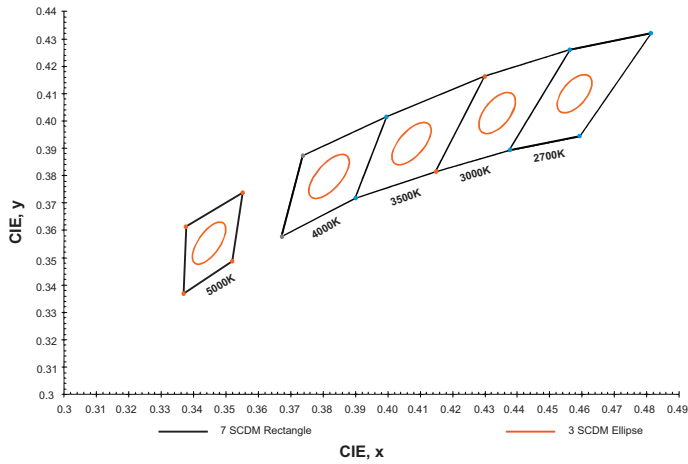
- 1) Interconnects are NOT sold by Fulham.
- 2) Do not connect LinearHO Modules in parallel (end to end) if the current exceeds the maximum module rated current. This type of wiring would cause the pass-through current on the first module to exceed the rated current. This setup is in reference to wiring 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.



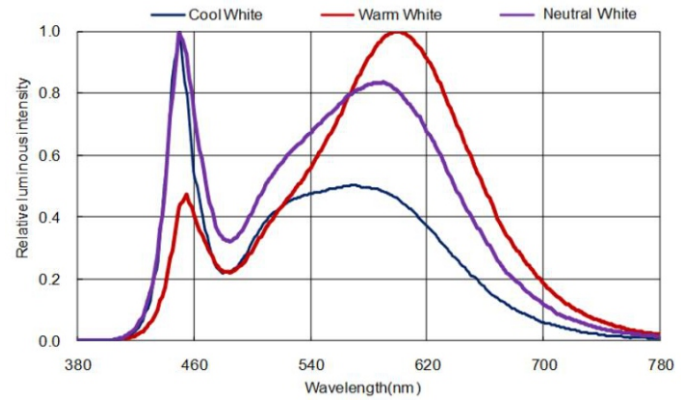
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Color and Binning



Optical Spectrum



NOTES:

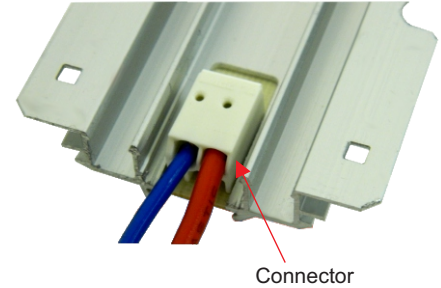
- 1) The Color and Binning and Optical Spectrum charts are for reference only. For more detailed info, contact factory.
- 2) Reference Seoul Chromaticity Diagram for Color and Binning. Binning per ANSI C78.377-2015 @ 25°C; 3 SDCM.
- 3) The Optical Spectrum values vary depending on product type and color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

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Guidelines

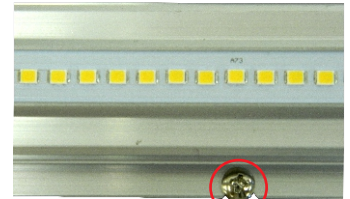
Termination Notes

- 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.



TMU140055CL8xxH



Part Number Matrix

T M U 140 055 CL 8 xx H

| | | | | | | | |
|---|---------------------------------|---|--------------------------------|---------------------------|----------------------------------|--|--|
| <u>Type</u> M = Module (UL Class 2) | <u>Control Type</u> U = None | <u>Input Current</u> 140 = 1400mA Max. | <u>Max. Power</u> 055 = 55W | <u>Shape</u> CL=Linear | <u>CRI</u> ⑧ 8 = 80 9 = 90 | <u>Color Temperature</u> 27 = 2700K ③ 30 = 3000K ③ 35 = 3500K ③ 40 = 4000K ③ 50 = 5000K 57 = 5700K 65 = 6500K | <u>Option</u> H = High Efficacy ③ K = Conformal Coating (MTO) |
|---|---------------------------------|---|--------------------------------|---------------------------|----------------------------------|--|--|

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

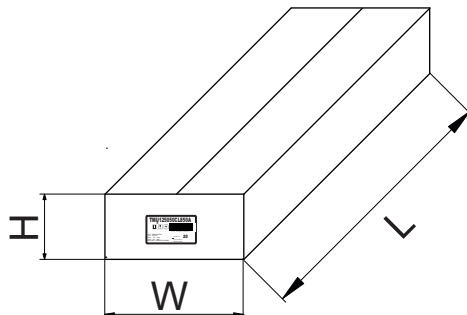
Product Image: LinearHO Module



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. |