

TNU150300ACXXXA

TNU300300ACXXXA

CONSTANT CURRENT 300W NON-CLASS 2 ROUND LED DC MODULE

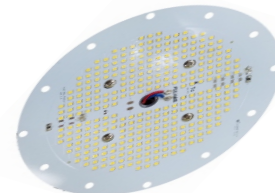
- Suitable for high output applications; Highbays, Lowbays, Shoeboxes
- No-Restrike delay, instant ON
- Non-Class 2 Applications
- On Board NTC for thermal feedback protection (Driver must support NTC)
- High Density, High Brightness chip array
- Full CCT option Available (Standard CCT: 5000K)
- Suitable for DLC and Energy Star compliant luminaires
- Conformal Coating (Standard)
- L70 Calculated, per TM-21, at 140,000 hours (Ts=85°C)

General Specifications

Nominal Operating Voltage @ Max Current ^①	200V @ 1.5A	100V @ 3A
Max Input Current	TNU150300ACXXXA: 1.5A / TNU300300ACXXXA: 3A	
Nominal DC Power Consumption @ Max Current	300W	
Initial Lumens Output @ Max Current	41,620 lumens @ 5000K / 80 CRI / 25°C	
Beam Angle	120°	
CRI	80	
Storage Temperature Range	-35 to +100°C / -31 to +212°F	
Operating Ambient Temperature Range (Ta)	-35 to +40°C / -31 to +104°F	
Maximum Case Temperature (Tc)	L70: Tc max=100°C (Ts=105°C) / L90: Tc max=80°C (Ts=85°C)	
Estimated Lumen Maintenance ^②	L70: >60,000Hrs / L90: 38,000Hrs	
Color Consistency	Binning per ANSI C78.377-2015 @ 25°C; 3 SDCM	
Overall Size	8" diameter x 0.17" H	
PCB Material / Module weight	Aluminum Clad / 158g	
PCB Part Number #	PTN001C02M1	
Maximum Screw Installation Torque	60 inch - ounces	
Thermal Management	On board NTC Resistor (compatible with drivers supporting NTC) NTC P/N : TSM2A104J4503R 2,SMD 0805,Thinking Electronic.	
Safety/Compliance	cURus (File # E351548, TNUyyyzzzACuvvx) Non-Class 2 Lighting System RoHS Compliant	
Energy Efficiency Label (EEI-Label)	A+ (EU 874/2012)	
Warranty	5 years @ Max. Tc from date of manufacture	

^① Measured electrical data per UL file

^② TM-21 Reported Numbers



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Part Numbering Matrix

T N U 150 300 AC 8 50 A

Type
N = Non-Class 2 U = None

Control
Max Input Current
Ⓢ150 = 1.5A
300 = 3.0A

Input Power
300 = 300W

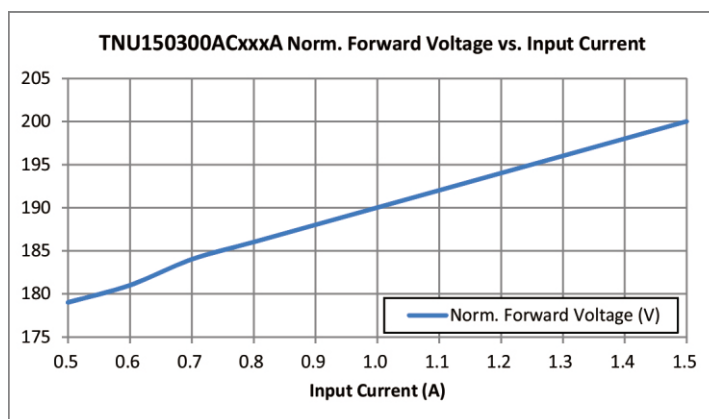
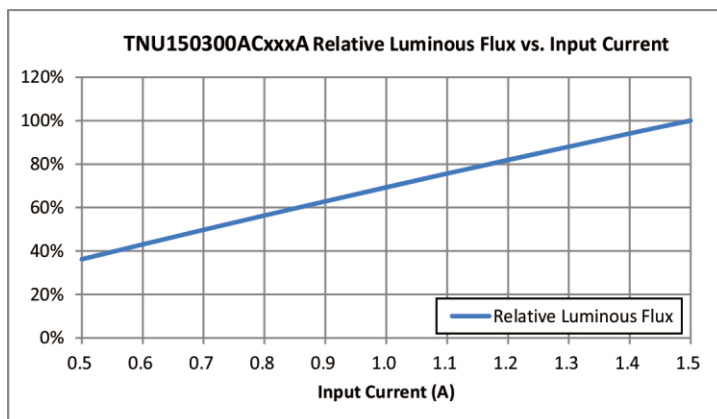
CRI
8 = 80

Color Temperature
40 = 4000K
Ⓢ50 = 5000K

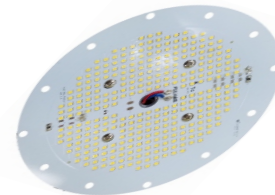
Electrical and Optical Specifications: TNU150300AC850A (1.5A)

CCT & CRI	LED DC Module	Input Current	Nominal Forward Voltage	Nominal Input Power	Nominal Luminous Flux	Efficacy
5000K /80CRI	TNU150300AC850A	1.5A (Max.)	200V	300W	41,620 lm	139 lm/W
		1.4A	198V	277W	39,140 lm	141 lm/W
		1.3A	196V	255W	36,620 lm	144 lm/W
		1.2A	194V	233W	34,050 lm	146 lm/W
		1.1A	192V	212W	31,460 lm	148 lm/W
		1.0A	190V	190W	28,820 lm	152 lm/W
		0.9A	188V	169W	26,140 lm	155 lm/W
		0.8A	186V	149W	23,430 lm	157 lm/W
		0.7A	184V	129W	20,670 lm	160 lm/W
		0.6A	181V	109W	17,880 lm	164 lm/W
		0.5A	179V	89W	15,030 lm	169 lm/W

Luminous Flux & Input Power vs. Output Current



Ⓢ Standard Product offering (All other options are made to order with MOQ and lead time)

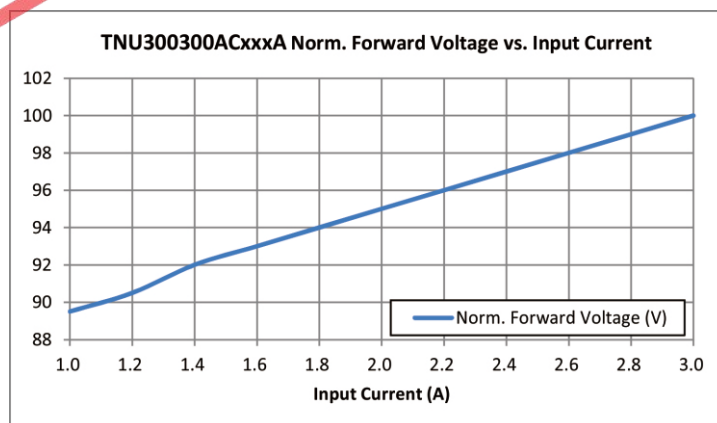
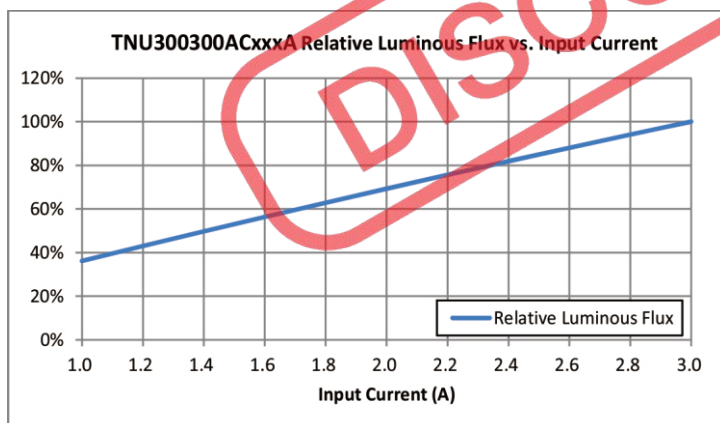


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TNU300300ACXXXA

Electrical and Optical Specifications: TNU300300AC850A (3A)

CCT & CRI	LED DC Module	Input Current	Nominal Forward Voltage	Nominal Input Power	Nominal Luminous Flux	Efficacy
5000K /80CRI	TNU300300AC850A	3.0A (Max.)	100V	300W	41,620 lm	139 lm/W
		2.8A	99V	277W	39,140 lm	141 lm/W
		2.6A	98V	255W	36,620 lm	144 lm/W
		2.4A	97V	233W	34,050 lm	146 lm/W
		2.2A	96V	212W	31,460 lm	148 lm/W
		2.0A	95V	190W	28,820 lm	152 lm/W
		1.8A	94V	169W	26,140 lm	155 lm/W
		1.6A	93V	149W	23,430 lm	157 lm/W
		1.4A	92V	129W	20,670 lm	160 lm/W
		1.2A	91V	109W	17,880 lm	164 lm/W
		1.0A	89V	89W	15,030 lm	169 lm/W

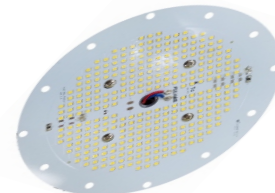


CCT & CRI vs. Luminous Flux

	2700K	3000K	3500K	4000K	5000K	5700K
CRI 70	0.96	0.97	1.01	1.02	1.03	1.03
CRI 80(R9> 0)	0.87	0.91	0.93	0.96	1.00	0.98
CRI 90(R9>50)	0.68	0.71	0.72	0.74	0.77	0.77

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.



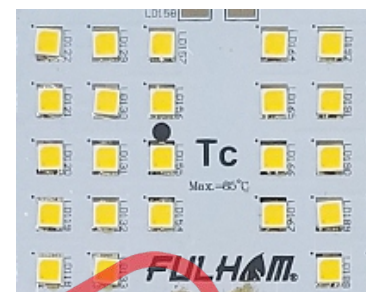
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Thermal Specifications

LED DC Module

Storage Temperature Range	-35 to +100°C / -31 to +212°F
Luminaire Ambient Temperature Range	-35 to +40°C / -31 to +104°F
Maximum Case Temperature (Tc mod)	+100°C / +212°F

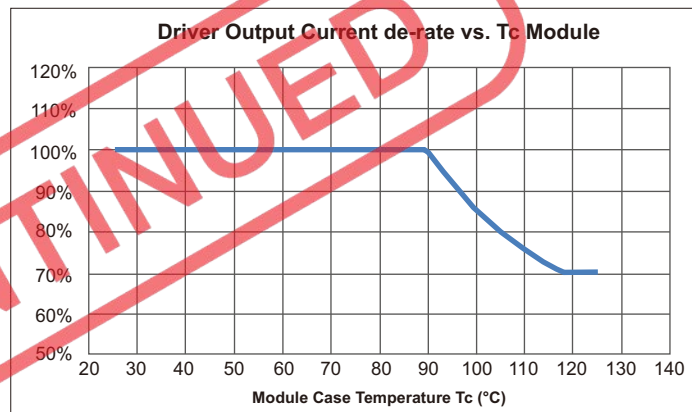


Thermal Feedback Protection

1. NTC resistor on Module is internally connected on R-set port of Driver.
2. When the Module Tc temperature exceeds safe level, the Thermal Feedback Protection will be activated. The diagram shows a typical Driver Output Current versus Module Temperature (Tc).

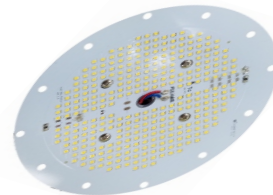
NOTE:

- 1) +/-5°C tolerance is allowed to account for the varying of the starting protection ambient due to the NTC and driver dimming curve tolerance.



Thermal De-Rating: Tc vs. Luminous Flux vs. Forward Voltage

Module Case Temperature (Ts)	Luminous Flux Multiplier	Fwd. Voltage Change
25°C	1.000	1.000
30°C	0.996	0.994
35°C	0.992	0.989
40°C	0.987	0.984
45°C	0.981	0.979
50°C	0.976	0.975
55°C	0.970	0.972
60°C	0.963	0.968
65°C	0.957	0.964
70°C	0.950	0.961
75°C	0.943	0.957
80°C	0.936	0.953
85°C	0.929	0.950
90°C	0.921	0.946
95°C	0.914	0.942
100°C	0.905	0.938



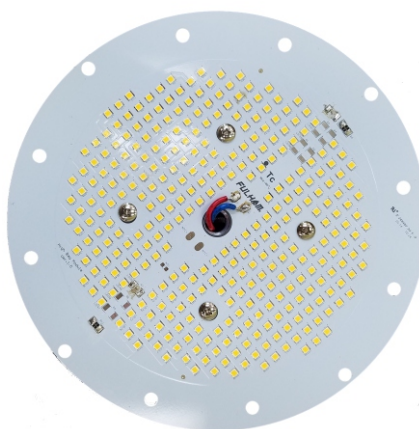
Certification Chart

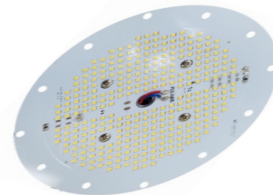
Model	TNU150300ACXXXA TNU300300ACXXXA
Classification	
RoHS COMPLIANT	YES
cALUS	YES
Energy Efficiency Label (EEI-Label)	A+ (EU 874/2012)
Class 2 Lighting System	NO

Energy Star™ TM-21 Calculator Data

Ts Module	Reported L70	Reported L90
55°C	>60,000 Hrs	>60,000 Hrs
85°C	>60,000 Hrs	38,000 Hrs
105°C	>60,000 Hrs	21,000 Hrs
Ts Module	Calculated L70	Calculated L90
55°C	200,000 Hrs	60,000 Hrs
85°C	140,000 Hrs	38,000 Hrs
105°C	100,000 Hrs	21,000 Hrs

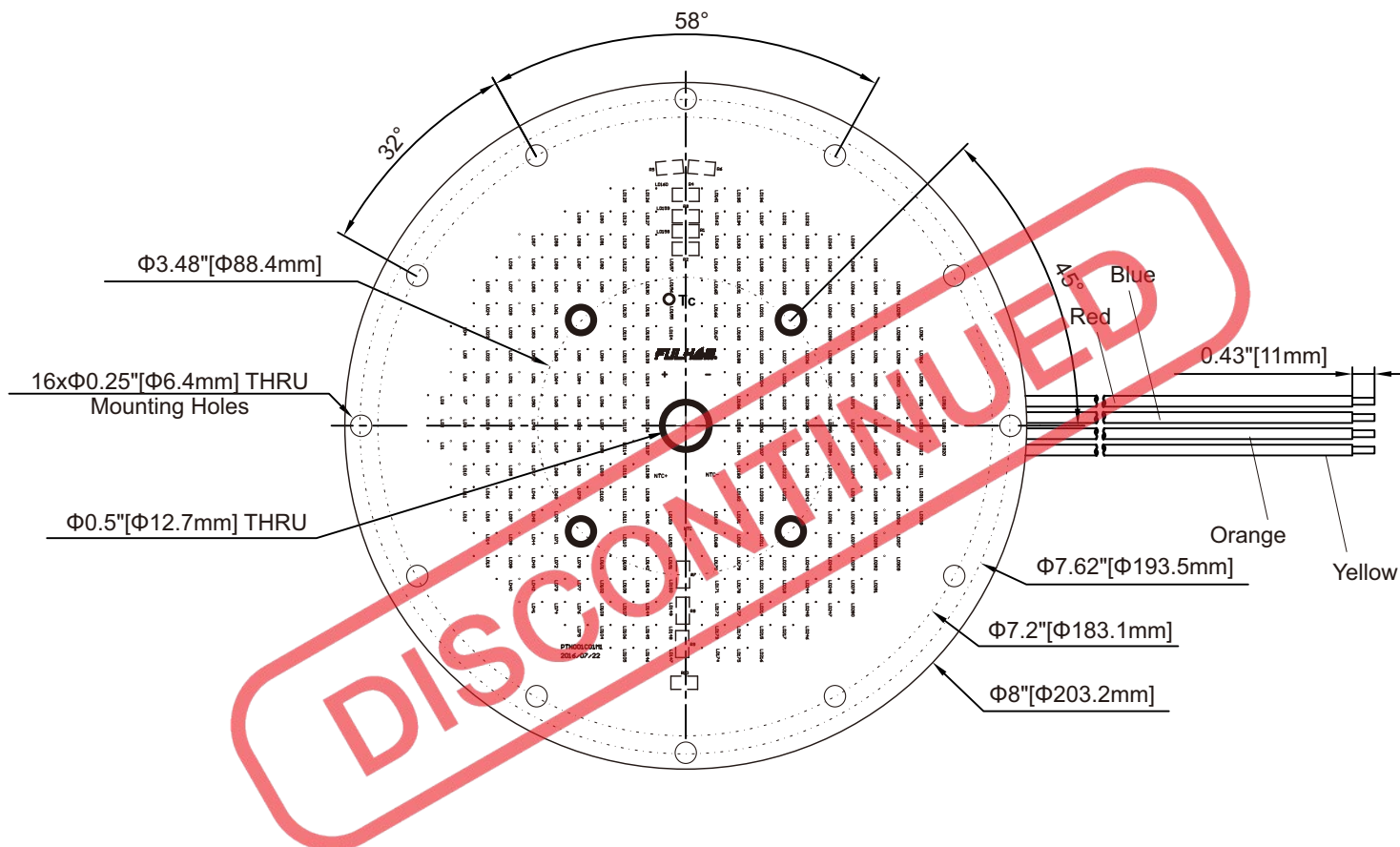
Product Image: Highbay DC Module



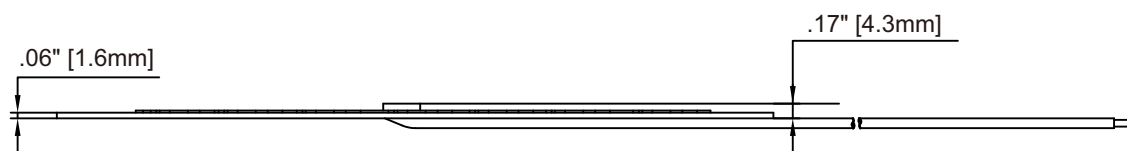


Mechanical Drawings

Top View



Side View

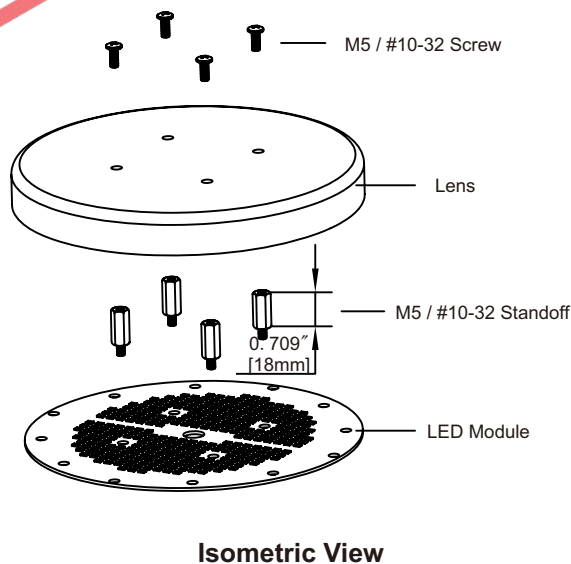
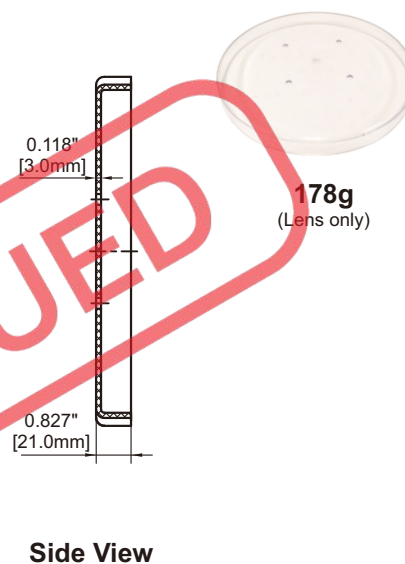
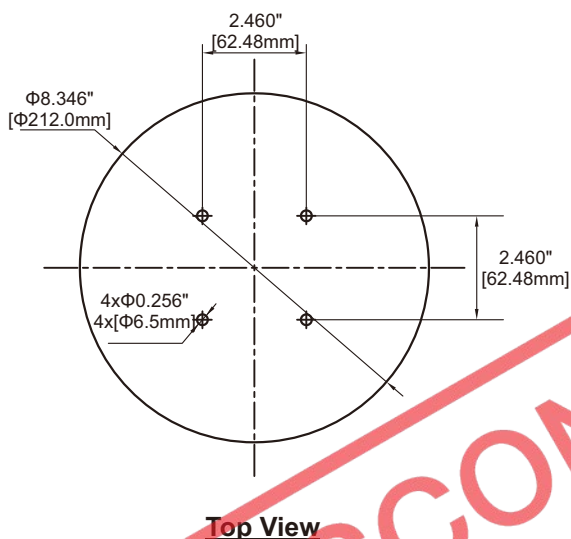


Wire Function	Color (Polarity)	Wire Length
DC Input	Red (+) / Blue (-)	15 inches
NTC Feedback	Orange (NTC+) / Yellow (NTC-)	15 inches

Accessories

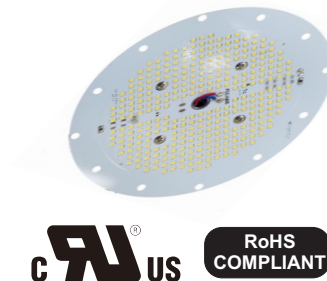
TLEOPT120-010 (Lens)

- Clear polycarbonate protective lens acts as a high voltage barrier and meets the 5VA Flame rating. It can be order separately.



NOTES:

- 1) Recommend to use M5 or #10-32 screws and 18mm height standoffs.
- 2) Hardware not included.



Guidelines

Fastening Notes

- If fastening by screw hole, use any screw with diameter less than 0.24 in (6.0mm). 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: #10 or M5 Pan Head screw.

Environmental Rating

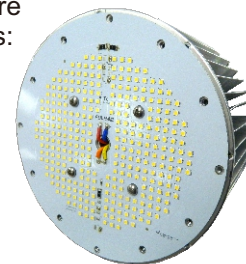
- LED DC Modules are rated for dry and damp locations with conformal coating standard.
- Conformal coating is RTV based and rated for Environment and Moisture Protection per IPC-CC-830.

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.

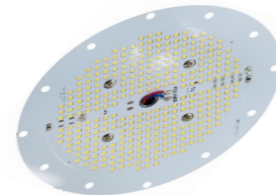
Thermal Management

- Proper thermal management should be employed to ensure life and reliability of product.
- Use of thermal grease, paste, pad, or other material interface is highly recommended.
- A referenced heat sink from Glacial Light: Model SR250HP or equivalent heat sinks from other sources
 - Note: Above heat sink may not be suitable for all conditions. User is advised to perform its own thermal and mechanical analysis to ensure module Spec. requirements are met. Below are references to some heat sink suppliers. Fulham claims no warranties for these references:
 - Glacial: http://www.glaciallight.com/products/skd-stamping_SR300mm.htm
 - AAVID: <http://www.aavid.com/product-group/extrusions/search>
 - Wakefield: <http://www.wakefield-vette.com/>



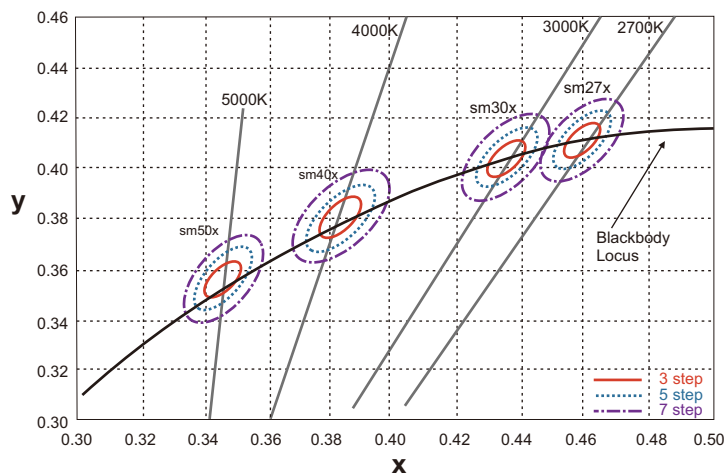
Polarity Notes

- LED 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.

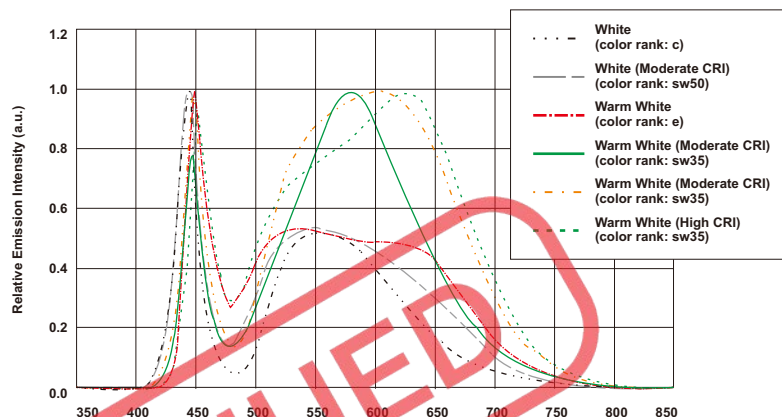


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Color and Binning



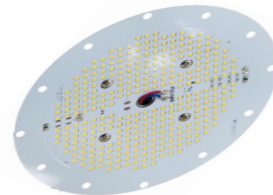
Optical Spectrum



DISCONTINUED

NOTES:

- 1) The Color and Binning and Optical Spectrum charts are for reference only. For more detailed info, contact factory.
- 2) Reference Nichia 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.



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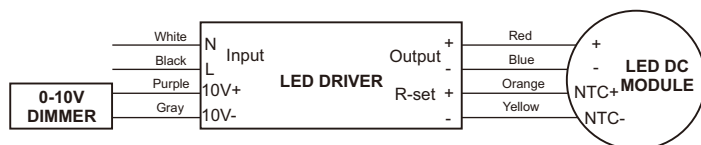
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Compatible Fulham LED Drivers

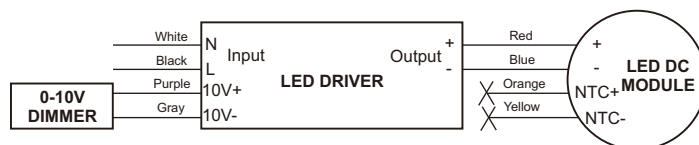
Fulham Driver PN#	Driver Description	Compatible Module	Max. Allowed Driver Output Current Setting	System Power	System Lumen Output	System Efficacy	Wiring Diagram
T1M1UNV150P-150L	500-1500mA Programmable, 150W Max. CC Driver, Universal Input, 0-10V Dimmable	TNU150300ACxxxA	0.80A	165W	23,430 lm	142 lm/W	A,B
		TNU300300ACxxxA	1.50A	154W	22,050 lm	143 lm/W	A,B
T1M1UNV140P-200L	500-1400mA Programmable, 200W Max. CC Driver, Universal Input, 0-10V Dimmable	TNU150300ACxxxA	1.05A	220W	30,140 lm	137 lm/W	A,B
		TNU300300ACxxxA	1.40A	143W	20,670 lm	144 lm/W	A,B
T1M1347070P-80L	350-700mA Programmable, 80W Max. CC Driver, 347VAC Input, 0-10V Dimmable	TNU150300ACxxxA	0.45A	91W	13,590 lm	149 lm/W	B
		TNU300300ACxxxA	0.70A	69W	10,670 lm	155 lm/W	B
T1M1347105P-120L	350-1050mA Programmable, 120W Max. CC Driver, 347VAC Input, 0-10V Dimmable	TNU150300ACxxxA	0.65A	131W	19,280 lm	147 lm/W	B
		TNU300300ACxxxA	1.05A	105W	15,750 lm	150 lm/W	B
T1M1347105P-160L	350-1050mA Programmable, 160W Max. CC Driver, 347VAC Input, 0-10V Dimmable	TNU150300ACxxxA	0.85A	174W	24,790 lm	142 lm/W	B
		TNU300300ACxxxA	1.05A	103W	15,750 lm	153 lm/W	B
T1M1UNV0800-100A T1M1UNV0800-100Z	800mA, 100W Max. CC Driver, Universal Input, 0-10V Dimmable	TNU300300ACxxxA	0.80A	79W	12,140 lm	153 lm/W	B
T1UNV1000-105L	1000mA, 105W Max. CC Driver, Universal Input, Non-Dimmable	TNU300300ACxxxA	1.00A	101W	15,030 lm	149 lm/W	B
T1UNV0700-200L	700mA, 200W Max. CC Driver, Universal Input, Non-Dimmable	TNU150300ACxxxA	0.70A	142W	20,670 lm	145 lm/W	B
T1UNV1050-200L	1050mA, 200W Max. CC Driver, Universal Input, Non-Dimmable	TNU150300ACxxxA	1.05A	220W	30,140 lm	137 lm/W	B
T1UNV1000-210L	1000mA, 210W Max. CC Driver, Universal Input, Non-Dimmable	TNU150300ACxxxA	1.00A	210W	28,820 lm	137 lm/W	B

Wiring Diagram

A. LED Driver supports external NTC feedback



B. LED Driver does not support external NTC feedback



NOTES:

- Subject to rated loading conditions.
- Lumen output and efficacy data is based on 5000K 80CRI, refer to CCT and CRI vs. Luminous Flux table for other options.
- 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.
- List is subject to change without notice.
- Connect 0-10V dimmer only to 0-10V dimmable drivers.